

Health Services: Results From the School Health Policies and Programs Study 2006

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ABSTRACT

BACKGROUND: The specific health services provided to students at school and the model for delivering these services vary across districts and schools. This article describes the characteristics of school health services in the United States, including state- and district-level policies and school practices.

METHODS: The Centers for Disease Control and Prevention conducts the School Health Policies and Programs Study (SHPPS) every 6 years. In 2006, computer-assisted telephone interviews or self-administered mail questionnaires were completed by state education agency personnel in all 50 states plus the District of Columbia and among a nationally representative sample of school districts (n = 449). Computer-assisted personal interviews were conducted with personnel in a nationally representative sample of elementary, middle, and high schools (n = 1029).

RESULTS: Most US schools provided basic health services to students, but relatively few provided prevention services or more specialized health services. Although state- and district-level policies requiring school nurses or specifying maximum nurse-to-student ratios were relatively rare, 86.3% of schools had at least a part-time school nurse, and 52.4% of these schools, or 45.1% of all schools, had a nurse-to-student ratio of at least 1:750.

CONCLUSIONS: SHPPS 2006 suggests that the breadth of school health services can and should be improved, but school districts need policy, legislative, and fiscal support to make this happen. Increasing the percentage of schools with sufficient school nurses is a critical step toward enabling schools to provide more services, but schools also need to enhance collaboration and linkages with community resources if schools are to be able to meet both the health and academic needs of students.

Keywords: school nurses; health care services; schools; school policy; surveys.

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The importance of providing health services to students at school is widely recognized, but the specific services provided to students vary across districts and schools. According to the American Academy of Pediatrics (AAP), at a minimum, schools should provide the following 3 types of services: (1) state-mandated services, including health screenings, verification of immunization status, and infectious disease reporting; (2) assessment of minor health complaints, medication administration, and care for students with special health care needs; and (3) capability to handle emergencies and other urgent situations.¹ More comprehensive services might include administration of immunizations, case management, wellness promotion, and patient education, as well as services for students with special needs, such as physical therapy. In addition, schools with school-based health centers (SBHCs) and links to community health professionals can use these mechanisms to provide expanded services for students such as administration of sports physicals, oral health care, and identification or treatment of sexually transmitted diseases (STDs).^{1,2}

The resources available in the school and the community, in addition to students' needs, help dictate which services schools provide to students as well as the model used for delivering them.³ Generally, the services provided by a school fit somewhere along a continuum that ranges from core services only, to core plus expanded services, to SBHC services.^{2,4,5} Regardless of the services provided, the school nurse is the mainstay of school health services and has a central management role in the implementation of all health services.⁶

As a result of increases in the prevalence of chronic conditions among the student population as well as the challenges to health care access many families face, the role of the school nurse has expanded in recent years.^{2,7,8} Indeed, the school nurse plays many roles, including health promoter, health educator, collaborator, and researcher,^{7,9} as well as manager of health care, deliverer of health services, health counselor, and advocate.⁶ Still, as the National Association of School Nurses (NASN) points out, "While the nurse's role has expanded greatly from its original focus, the essence of the practice remains the same. The school nurse supports student success by providing health care assessment, intervention, and follow-up for all children within the school setting."¹⁰

The importance of having sufficient school nurses for all students is reflected in the inclusion of a *Healthy People 2010* national health objective related to school nurses. Specifically, Objective 7-4 is to "increase the proportion of the Nation's elementary, middle, junior high, and senior high schools that have a nurse-to-student ratio of at least

1:750."¹¹ In addition, schools containing many students with special health care needs, disabilities, and chronic health conditions require a better nurse-to-student ratio. The same nurse-to-student ratios also are recommended in a recent position statement published by the American Nurses Association. This position statement also notes that the reciprocal relationship between student health and student academic success requires educational institutions to effectively address the health needs of children in schools.¹²

Selected Federal Support and Related Research

Federal funding for school health services is not widely available. Medicaid is the largest source of this funding, but it can be used only for eligible children.¹³ The federal government also provides a few discretionary grants that can be used for school-based health care.² In addition, preferential federal funding is given to states that explicitly permit students to carry and self-administer asthma medications.¹⁴

Three federal laws obligate school systems to provide care to children with disabilities so these children may have access to public education: the Individuals with Disabilities Education Act, Section 504 of the Rehabilitation Act of 1973, and Title II of the Americans with Disabilities Act.^{15,16} Although the No Child Left Behind Act of 2001 does not legislate the use of school nurses, the increased emphasis on accountability for achievement in public education affects school health services indirectly¹⁷ because of the increased awareness that health problems can impair student achievement.¹⁶

In the absence of federal regulations for most school health services, many national organizations and some federal agencies provide guidance to districts and schools. In 2005, with funding from the Maternal and Child Health Bureau of the Health Resources and Services Administration, the AAP and the NASN along with other national organizations published *Health, Mental Health, and Safety Guidelines for Schools*,¹⁸ which includes detailed guidance to help schools implement quality health programs that include health services. In addition, the AAP has published many position statements related to school health, including those on the administration of medication in schools, emergency medical care in schools, and the role of the school nurse in providing school health services.¹⁹⁻²¹ Likewise, the NASN has published numerous position statements on topics such as medication administration in the school setting²² and education, licensure, and certification of school nurses.²³ Together with the American Nurses Association, NASN also has published standards of school nursing practice.²⁴ Specific to students with chronic conditions, a coalition of

organizations has developed guidance for families, schools, and students,²⁵ and the Centers for Disease Control and Prevention (CDC) has published recommendations for managing students with asthma in schools.²⁶

Recent research on school health services has sought to demonstrate the necessity of school nurses. For example, 1 study found a significant correlation between the increased presence of school nurses and increased services provided to students in 1 state.²⁷ Another study found an unmet need for health care services among schools in 1 inner-city school district with part-time school nurses as compared with schools with full-time nurses in the same district²⁸ and improved school attendance among poor and African American students in schools with full-time school nurses.²⁹ In another study, applying the healthy learner model for chronic condition management³⁰ for students with asthma provided positive effects on nursing practice, fewer asthma-related visits to the health office, and improved attendance among students who received asthma care at school.³¹ More broadly, a recent literature review concluded that nursing interventions targeted at specific populations have led to positive outcomes, such as decreased absenteeism.³²

National studies have provided descriptive data on school health services, the most recent of these being the School Health Policies and Programs Study (SHPPS) 2000.³³ SHPPS 2006 provides an updated overview of school health services in the United States. Specifically, this article describes for the first time findings from SHPPS 2006 about state- and district-level policies and practices related to staffing and staff development, required services, SBHCs and services provided at other sites, immunizations, screenings, medication administration, communicable diseases, student health records and reports, services for special needs students, professional preparation, collaboration, evaluation, and assistance to districts and schools, plus characteristics of state- and district-level health services coordinators. At the school level, this article describes staffing and facilities, services provided, SBHCs and services provided at other sites, immunization policies, screenings, medication administration, communicable disease policies, student health records and reports, services for special-needs students, professional preparation, staff development, characteristics of school-level health services coordinators, and collaboration. In addition, the article describes changes in key policies and practices from 2000 to 2006. While this article is primarily descriptive in nature, CDC intends to conduct more detailed analyses and encourages others to conduct their own analyses using the questionnaires and public-use data sets available at www.cdc.gov/shpps.

METHODS

Detailed information about SHPPS 2006 methods is provided in "Methods: School Health Policies and Programs Study 2006" elsewhere in this issue of the *Journal of School Health*. The following section provides a brief overview of SHPPS 2006 methods specific to the health services component of the study.

SHPPS 2006 assessed health services at the state, district, and school levels. State-level data were collected from education agencies in all 50 states plus the District of Columbia. District-level data were collected from a nationally representative sample of public school districts. School-level data were collected from a nationally representative sample of public and private elementary schools, middle schools, and high schools.

Questionnaires

The state- and district-level health services questionnaires assessed policies and practices related to health services for grades K-12. Both questionnaires assessed policies and practices related to student health records, including injury and illness reports, required immunizations, procedures for student medication, students and staff with human immunodeficiency virus (HIV) or acquired immunodeficiency syndrome (AIDS), Medicaid, collaboration, evaluation, standard precautions, screening, other services, SBHCs and services at other sites, model policies, staffing characteristics, and characteristics of the health services coordinator.

Because the school-level questionnaire took longer than 20-30 minutes to complete and covered such a wide range of topics that a single respondent might not have sufficient knowledge to complete it, the questionnaire was divided into 3 modules: (1) student health records, required immunizations, tuberculosis (TB) testing, procedures for student medication, approach to students and staff with HIV or AIDS, Medicaid, SBHCs, promotion, and screening; (2) school nurse staffing and collaboration, educational requirements, and other health services staffing and collaboration, and (3) facilities and equipment, standard precautions, injury and illness reports, health services provision, other services, services at other sites, and the health services coordinator.

Data Collection and Respondents

State- and district-level data were collected by computer-assisted telephone interviews or self-administered mail questionnaires. Designated respondents for each of 7 school health program components (ie, health education, physical education and activity, health services, mental health and social services, nutrition services, healthy and safe school

environment, and faculty and staff health promotion) completed the interviews or questionnaires. At the state level, the state-level contact designated a single respondent for each questionnaire. At the district level, the district-level contact could designate a different respondent for each module. All designated respondents had primary responsibility for, or were the most knowledgeable about, the policies and programs addressed in the particular questionnaire or module.

After a state- or district-level contact identified respondents, each respondent was sent a letter of invitation and packet of study-related materials. Each packet contained a paper copy of the questionnaire(s) so that respondents could prepare for the interview and provided a toll-free number and access code that respondents could use to initiate the interview. Respondents were told that the questionnaire(s) could be used in preparation for their telephone interview or completed and returned if self-administration was preferred. One week after packets were mailed to respondents, trained interviewers from a call center placed calls to them to schedule and conduct telephone interviews. In April 2006, telephone interviewing ceased and most of the remaining state- and district-level data collection occurred via a mail survey. All remaining respondents were mailed paper questionnaires and return envelopes; however, interviewers remained available for any respondents who chose to contact the call center.

At the end of the data collection period (October 2006), 88% of the completed state-level health services questionnaires had been completed via telephone interviews and 12% as paper questionnaires. The completed district-level questionnaires were completed via telephone interviews 46% of the time.

School-level data were collected by computer-assisted personal interviews. During recruitment, the principal or another school-level contact designated a faculty or staff respondent for each questionnaire or module, who had primary responsibility for or the most knowledge about the particular component. The principal or school-level contact could designate a different respondent for each questionnaire or module. The most common respondents for module 1 were school nurses and school secretaries. The most common respondents for module 2 were school nurses, principals, and assistant principals. The most common respondents for module 3 were school nurses, principals, and school secretaries.

Response Rates

One hundred percent ($n = 51$) of the state education agencies completed the state-level health services questionnaire. At the district level, 710 districts were eligible for the health services interview; 63%

($n = 449$) of these districts completed the interview. School eligibility for each module was determined before the interview began; 1397 schools were eligible for module 1, 1282 were eligible for module 2, and 1304 were eligible for module 3. Of the 1397 schools eligible to complete any health services module, 74% ($n = 1029$) of these schools completed at least 1 module.

Data Analysis

Data from state-level questionnaires are based on a census and are not weighted. District- and school-level data are based on representative samples and are weighted to produce national estimates.

Because of missing data, the denominators for each estimate vary slightly. Figures 7 and 8 of Appendix 1 in this issue of the *Journal of School Health* show the estimated standard error associated with an observed estimate from the district- and school-level health services questionnaires.

To analyze changes between SHPPS 2000 and SHPPS 2006, many variables from SHPPS 2000 were recalculated so that the denominators used for both years of data were defined identically. In most cases, this denominator included all states, districts, or schools, rather than a subset of states, districts, or schools. As a result of this recalculation, percentages previously reported for SHPPS 2000³³ might differ from those reported in this article. Only estimates from 2000 and 2006 based on this same denominator should be compared.

Because state-level data are based on a census, statistical tests for differences between 2000 and 2006 are not appropriate. Therefore, this article highlights changes over time meeting at least 1 of 2 criteria: (1) the difference was greater than 10 percentage points or (2) the 2006 estimate increased by at least a factor of 2 or decreased by at least half as compared with the 2000 estimate. At the district and school levels, *t* tests were used to compare SHPPS 2000 and SHPPS 2006 prevalence estimates. However, to account for multiple comparisons, this article only highlights changes over time meeting at least 2 of 3 criteria: (1) a *p* value less than .01 from the *t* test, (2) a difference greater than 10 percentage points, or (3) the 2006 estimate increased by at least a factor of 2 or decreased by at least half as compared with the 2000 estimate. Note that not all variables meeting these criteria are presented in this article.

RESULTS

Health Services at the State and District Levels

Staffing and Staff Development. About three fourths (74.5%) of states and 79.0% of districts had

a person who oversees or coordinates school health services. In addition, 40.0% of states had adopted a policy stating that each district will have a person who oversees or coordinates school health services, and 18.0% of states and 60.0% of districts had adopted a policy stating that each school will have a person who serves in this role. Only 5.8% of states and 19.5% of districts had adopted a policy stating that each school will have at least 1 full-time school nurse, and 16.0% of states and 12.2% of districts had adopted a policy specifying a maximum student-to-school nurse ratio. Ninety-four percent of states and 56.0% of districts had schools that employed school health aides. In 46.8% of those states and 57.5% of those districts, the state or district had adopted a policy stating that school health aides will work under the supervision of a nurse or physician at all times.

Staff development was defined as workshops, conferences, continuing education, graduate courses, or any other kind of in-service. States and districts provided funding for staff development or offered staff development for school nurses on a variety of health services and prevention services topics (Table 1). During the 2 years preceding the study, 94.1% of states and 85.0% of districts provided funding for staff development or offered staff development for school nurses on at least 1 of the topics listed in Table 1. In addition, more than three fourths of all states and more than half of all districts provided funding for staff development or offered staff development for school nurses on emergency preparedness, federal laws that protect the privacy of student health information, identification or school-based management of chronic health conditions, immunizations, infectious disease prevention, and teaching self-management of chronic health conditions.

Required Services. Provision of some health services and prevention services (in 1-on-1 or small-group sessions) is required by states and districts. Half or more of all states had adopted a policy stating that districts or schools will provide, as needed, administration of medications; cardiopulmonary resuscitation (CPR); case management for students with disabilities; first aid; identification of or referral for physical, sexual, or emotional abuse; identification or school-based management of chronic health conditions; and violence prevention (Table 2). Two thirds or more of all districts had adopted a policy stating that schools will provide, as needed, administration of medications; CPR; case management for students with disabilities; first aid; identification of or referral for physical, sexual, or emotional abuse; identification or school-based management of acute illnesses; identification or school-based management of chronic health conditions; and violence prevention. Generally, the percentage of districts that had adopted

a policy stating that schools will provide health services and prevention services was higher than the percentage of states that had such a policy. Only 0.6% of districts had adopted a policy stating that middle or high schools will make condoms available to students. In 88.0% of states and 57.1% of districts, schools served as Medicaid providers by providing health services to qualified students.

SBHCs and Services Provided at Other Sites. SBHCs were defined as health centers on school property where enrolled students could receive primary care, including diagnostic and treatment services. Most (86.4%) states had at least 1 SBHC that offered services to students, and 73.2% of all states had at least 1 SBHC that served as a Medicaid provider, by providing health services to qualified students. Nationwide, 53.5% of all states provided funding for at least 1 SBHC. In contrast, 11.1% of all districts had at least 1 SBHC and 5.6% of all districts had at least 1 SBHC that served as a Medicaid provider. Only 6.5% of all districts provided funding for an SBHC.

In some districts, health services also were provided to students through arrangements with health care agencies, organizations, or professionals not located on school property. These services may or may not have been paid for by the school system and were provided through school-linked health centers or contracts, memoranda of agreement, or other similar arrangements between health care providers and districts or schools. Only 14.3% of states had adopted a policy stating that districts or schools will have such arrangements to provide services to students when needed, but 37.6% of all districts had such arrangements. Few districts (6.1%) had at least 1 SBHC and these types of arrangements; 42.6% of districts had either an SBHC or such arrangements. Among all districts, the most common arrangements with providers not located on school property were with a local health department and a local mental health or social services agency (Table 3), and the services most commonly provided through these arrangements were administration of sports physicals and immunizations (Table 4).

Immunizations. All states and nearly all districts had adopted a policy stating that students entering kindergarten or first grade will have a diphtheria vaccine, a measles-containing vaccine, a polio vaccine, and a tetanus vaccine, but fewer states and districts required vaccines for varicella, hepatitis A, and hepatitis B (Table 5). More states and districts required immunizations for entry into kindergarten or first grade than into middle school or high school. Nationwide, 94.0% of states and 90.6% of districts had adopted a policy related to whether students would be excluded from attending classes if they had not received the required immunizations for entry into kindergarten or first grade. More than

Table 1. Percentage of All States and Districts That Provided Funding for Staff Development or Offered Staff Development for School Nurses on Health Services and Prevention Services Topics,* SHPPS 2006

	% of All States	% of All Districts
Health services topic		
Accessing benefits for students with disabilities	39.6	33.2
Administration of fluoride rinses	32.7	15.8
Administration of medications	73.5	57.5
After-school programs (eg, day care or supervised recreation)	16.7	12.9
Alcohol- or other drug-use treatment	55.3	34.9
Application of dental sealants	26.0	7.6
Case management for students with chronic health conditions (eg, asthma or diabetes)	68.0	55.7
Case management for students with disabilities	58.0	48.5
Child care options for teen mothers	10.0	11.5
Counseling for emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	40.0	38.9
CPR	38.0	74.3
Crisis intervention for personal problems	41.7	36.2
Eating disorders treatment	32.7	30.3
Emergency preparedness	87.8	60.1
Enrollment in the Special Supplemental Food Program for Women, Infants, and Children, or accessing food stamps or food banks	24.5	21.0
Federal laws that protect the privacy of student health information (eg, the HIPAA or the Family Educational Rights and Privacy Act)	85.7	53.3
First aid	51.0	66.9
Food-borne illness outbreak detection and response	51.0	29.9
HIV counseling, testing, and referral	44.0	24.6
Identification of emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	64.6	48.9
Identification of or referral for physical, sexual, or emotional abuse	70.8	48.2
Identification or school-based management of acute illnesses	74.0	58.3
Identification or school-based management of chronic health conditions (eg, asthma or diabetes)	84.0	66.5
Identification or treatment of STDs	50.0	29.3
Immunizations	82.0	62.9
Infectious disease prevention (eg, hand hygiene or food safety)	76.0	56.7
Oral health problems	50.0	28.1
Prenatal care	12.0	18.0
Services for gay, lesbian, or bisexual students	34.0	10.8
Sports physicals	10.0	22.5
Stress management	40.8	32.3
Teaching self-management of chronic health conditions (eg, asthma or diabetes)	80.0	55.6
Tobacco-use cessation	53.1	33.4
Tracking of students with chronic health conditions (eg, asthma or diabetes)	48.0	45.6
Weight management	46.9	29.4
Prevention services topic		
Alcohol- or other drug-use prevention	72.5	44.6
HIV prevention	70.0	38.3
Injury prevention and safety counseling	59.2	42.6
Nutrition and dietary behavior counseling	66.0	42.7
Physical activity and fitness counseling	59.2	40.7
Pregnancy prevention	52.0	31.5
STD prevention	72.0	36.4
Suicide prevention	59.2	41.5
Tobacco-use prevention	66.0	43.9
Violence prevention (eg, bullying, fighting, or homicide)	68.0	47.0

ADHD, attention deficit hyperactivity disorder; CPR, cardiopulmonary resuscitation; HIPAA, Health Insurance Portability and Accountability Act; HIV, human immunodeficiency virus; STD, sexually transmitted disease.

*During the 2 years preceding the study.

half (57.1%) of all states and 58.4% of all districts had a policy that allowed students who have not received their required immunizations to attend classes for a specified number of days before being excluded. Fewer states (34.7%) and districts (28.6%) had a policy that immediately excluded nonimmunized students from attending classes, and 2.0% of

states and 3.3% of districts had a policy that allowed nonimmunized students to attend classes indefinitely.

Screenings. Student health screenings were defined as screenings conducted for most students in the school or in certain grades in the school. Screenings conducted for special populations of students, such as special education students, were not included. While

Table 2. Percentage of All States and Districts That Required the Provision of Health Services and Prevention Services, as Needed, SHPPS 2006

	% of All States	% of All Districts
Health service		
Administration of fluoride rinses	6.0	18.6
Administration of medications	80.0	95.7
Administration of sports physicals	28.0	50.4
Alcohol- or other drug-use treatment	17.6	33.6
Application of dental sealants	2.0	6.8
Assistance with accessing benefits for students with disabilities	32.0	50.8
Assistance with enrolling in Medicaid or the SCHIP	22.4	38.9
Assistance with enrolling in the Special Supplemental Food Program for Women, Infants, and Children or accessing food stamps or food banks	6.1	28.1
CPR	54.2	89.1
Case management for students with chronic health conditions (eg, asthma or diabetes)	28.0	65.5
Case management of students with disabilities	50.0	76.9
Counseling for emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	12.2	56.4
Crisis intervention for personal problems	20.0	55.3
Eating disorders treatment	4.0	18.6
First aid	59.2	96.3
HIV counseling, testing, and referral	2.0	19.3
Identification of emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	26.0	55.5
Identification of or referral for physical, sexual, or emotional abuse	80.0	68.0
Identification of or referrals for oral health problems	16.0	40.2
Identification or school-based management of acute illnesses	39.6	68.8
Identification or school-based management of chronic health conditions (eg, asthma or diabetes)	57.1	76.0
Identification or treatment of STDs	10.2	19.1
Immunizations	28.0	35.5
Instruction on self-management of chronic health conditions (eg, asthma or diabetes)	14.0	44.7
Prenatal care referrals	10.0	30.2
Referrals for after-school programs (eg, day care or supervised recreation)	8.2	31.2
Referrals for child care for teen mothers	4.0	26.4
Services for gay, lesbian, or bisexual students	4.0	12.6
Stress management	4.0	27.9
Tobacco-use cessation	22.0	36.9
Tracking of students with chronic health conditions (eg, asthma or diabetes)	26.5	63.6
Weight management	2.0	16.4
Prevention service in 1-on-1 or small-group sessions		
Alcohol- or other drug-use prevention	42.0	65.3
HIV prevention	40.0	46.6
Injury prevention and safety counseling	22.4	47.5
Nutrition and dietary behavior counseling	12.2	33.2
Physical activity and fitness counseling	14.3	37.1
Pregnancy prevention	20.0	37.9
STD prevention	32.0	44.9
Suicide prevention	28.0	46.3
Tobacco-use prevention	40.0	62.9
Violence prevention (eg, bullying, fighting, or homicide)	50.0	70.0

ADHD, attention deficit hyperactivity disorder; CPR, cardiopulmonary resuscitation; HIV, human immunodeficiency virus; SCHIP, State Children's Health Insurance Program; STD, sexually transmitted disease.

many states and districts had adopted a policy stating that districts or schools will screen students for hearing and vision problems, fewer states and districts had adopted policies stating that districts or schools will screen students for height and weight or body mass problems, oral health problems, and scoliosis (Table 6). Among states that required screening for hearing problems and vision problems, nearly all required that parents be notified if the screening indicated a potential problem, but less than half required that teachers be

notified. Among districts that required screening for hearing problems, oral health problems, scoliosis, and vision problems, nearly all required that parents be notified, and many required that teachers be notified.

Nationwide, 9.8% of states and 17.3% of districts required TB testing for entry into kindergarten or first grade for all students, whereas 17.6% of states and 12.4% of districts required TB testing for entry into kindergarten or first grade only for students meeting certain criteria, such as being born or

Table 3. Percentage of All Districts and Schools That Had Arrangements With Specific Providers Not Located on School Property to Provide Health Services to Students, SHPPS 2006

Provider	% of All Districts	% of All Schools
Community health clinic	12.8	10.3
Local health department	24.0	18.0
Local hospital	13.7	9.6
Local mental health or social services agency	21.3	13.7
Managed care organization	3.7	2.1
Private dentist	7.8	8.5
Private physician	9.9	10.4
School-linked health center	7.2	7.0
University or medical school	2.6	3.3

recently living in another country. About two thirds (66.7%) of the 27.4% of states and 58.0% of the 29.7% of districts requiring any TB testing before entry into kindergarten or first grade required that students be tested via a purified protein derivative (PPD) skin test done by the Mantoux method. While no other states requiring TB testing required that students be tested with the use of any other specific method, 11.6% of the 29.7% of districts that required any TB testing required a skin test, not otherwise specified, and 1.4% required a chest x-ray. After students enter kindergarten or first grade, only 3.9% of states and 4.6% of districts required periodic TB testing for all students, and only 3.9% of states and 7.4% of districts required periodic TB testing for students meeting certain criteria.

Table 4. Percentage of All Districts and Schools That Had Arrangements to Provide Specific Health Services to Students Not on School Property, SHPPS 2006

Health Service	% of All Districts	% of All Schools
Administration of fluoride rinses	6.9	7.6
Administration of sports physicals	25.5	16.7
Application of dental sealants	6.9	8.1
Case management for students with chronic health conditions (eg, asthma or diabetes)	11.6	14.8
Case management for students with disabilities	15.3	16.3
Identification or school-based management of acute illnesses	13.7	17.4
Identification or school-based management of chronic health conditions (eg, asthma or diabetes)	12.3	17.0
Identification or treatment of STDs*	11.5	16.6
Immunizations	21.2	22.1
Lab tests	4.9	9.8
Oral health care or oral health care referrals	16.7	21.1
Prenatal care or prenatal care referrals*	9.9	17.7
Prescription for medications	7.5	12.9
Primary care	7.6	14.0

*Only asked among middle schools and high schools. STD, sexually transmitted disease.

Table 5. Percentage of All States, Districts, and Schools That Required Immunizations for School Entry, SHPPS 2006

	% of All States	% of All Districts	% of All Schools
Immunization for kindergarten or first grade entry			
Chicken pox or varicella vaccine	88.0	91.4	86.6
Diphtheria vaccine	100.0	98.3	100.0
Haemophilus influenzae type b vaccine	44.0	54.2	46.0
Hepatitis B vaccine	88.0	88.5	90.6
Influenza vaccine	10.4	24.9	14.2
Measles-containing vaccine (eg, MMR)	100.0	99.1	100.0
Polio vaccine (eg, IPV)	100.0	98.7	100.0
Tetanus vaccine	100.0	95.9	95.3
Immunization for middle school entry			
Chicken pox or varicella vaccine	48.0	57.9	69.8
Hepatitis A vaccine	12.0	19.7	16.9
Hepatitis B vaccine	75.5	73.9	83.6
Second measles-containing vaccine	80.0	83.9	94.1
Tetanus booster	47.1	55.7	69.9
Immunization for high school entry			
Chicken pox or varicella vaccine	26.0	46.3	55.5
Hepatitis A vaccine	10.0	18.6	13.1
Hepatitis B vaccine	46.0	63.5	75.0
Second measles-containing vaccine	58.0	73.2	91.5
Tetanus booster	40.0	57.3	70.0

IPV, inactivated polio vaccine; MMR, measles-mumps-rubella vaccine.

Medication Administration. More than three fourths (76.5%) of states and 95.2% of districts had adopted a policy related to who may administer medications to students at school. Nearly three fourths (74.5%) of all states and 84.4% of all districts had adopted a policy stating that a school nurse may administer medications to students, 53.1% of states and 50.6% of districts had adopted a policy stating that teachers may administer medications, 51.0% of states and 45.2% of districts had adopted a policy stating that school health aides may administer medications, 40.0% of states and 16.4% of districts had adopted a policy stating that school physicians may administer medications, and 58.0% of states and 77.1% of districts had adopted a policy stating that other school staff, such as principals or secretaries, may administer medications. Two thirds (66.7%) of the 62.0% of states and 68.3% of the 82.2% of districts that had adopted policies stating that school staff other than nurses or physicians may administer medication to students also had adopted a policy stating that for someone other than a school nurse or physician to administer medication to students, that administration must be delegated by a school nurse or physician. In addition, 79.2% of the 51.0% of states and 75.1% of the 45.2% of districts with policies allowing school health aides to administer medications to students also had adopted a policy stating that these aides will complete training on

Table 6. Percentage of States and Districts That Required Student Health Screenings and Notification and Percentage of All Schools That Conducted Student Health Screenings, by School Level, SHPPS 2006

Screening	% of States That Required			% of Districts That Required			% of All Schools That Conducted		
	Screening	Parent Notification*	Teacher Notification*	Screening	Parent Notification*	Teacher Notification*	Elementary Schools	Middle Schools	High Schools
Hearing problems	72.5	97.1	41.2	92.4	97.2	79.7	89.0	78.0	62.2
Height and weight or body mass problems	22.4	72.7	NA	41.3	71.7	NA	42.6	43.2	40.4
Oral health problems	18.0	77.8	0.0	29.6	99.2	63.6	36.9	24.0	17.0
Scoliosis	54.9	96.3	11.5	66.0	97.8	45.4	36.0	60.6	40.2
Vision problems	70.6	97.1	41.2	93.4	95.8	78.4	91.0	82.2	64.0

NA, not asked at this level.

*Among the states and districts that required the specified screening.

medication administration. Nationwide, 76.0% of states and 89.0% of districts had adopted a policy stating that schools will have written instructions from a physician or prescriber before any school staff may administer medication to a student, 84.0% of states and 95.9% of districts required a written request from a parent or guardian, and 36.7% of states and 47.4% of districts required written information on the drug's possible side effects.

Students were permitted to carry and self-administer medications in 90.2% of states and 76.5% of districts. Eighty-eight percent of all states and 74.5% of all districts had adopted a policy stating that some students may carry and self-administer a prescription quick-relief inhaler, 66.0% of states and 55.2% of districts had such a policy for epinephrine autoinjectors (eg, EpiPen[®]), 42.0% of states and 45.1% of districts had such a policy for insulin or other injected medications, 28.0% of states and 15.9% of districts had such a policy for other prescribed medications, and 20.0% of states and 15.9% of districts had such a policy for over-the-counter medications.

Communicable Disease Policies. To prevent the spread of communicable diseases, including HIV infection or AIDS, 32.7% of all states and 73.3% of all districts had adopted a policy stating that supplies, including disposable gloves and bandages, for applying standard or universal precautions would be available in all classrooms. Similarly, 34.7% of states and 68.6% of districts had adopted a policy stating that these supplies would be available in gymnasiums, on playgrounds, and on playing fields, and 42.9% of states and 82.2% of districts had adopted a policy stating that these supplies would be available on school buses and in other vehicles used to transport students.

Nationwide, 72.9% of states and 74.4% of districts had adopted a policy stating that schools will allow students who have HIV infection or AIDS to attend classes as long as they are able, 66.0% of states and 67.5% of districts had adopted a policy stating that schools will allow such students to par-

ticipate in school sports as long as they are able, and 66.7% of states and 71.2% of districts had adopted a policy stating that schools will allow such students to participate in any other school activities as long as they are able. In addition, 68.0% of all states and 71.1% of all districts had adopted a policy stating that schools will allow teachers and staff who have HIV infection or AIDS to continue working as long as they are able.

Student Health Records and Reports. Student health records provide important information for school health services staff. With the exception of information on immunization status, which nearly all states and districts required schools to keep in student records, districts were more likely than states to have adopted a policy stating that schools will obtain and keep certain information in student records (Table 7).

Injury and illness reports also serve as a source of information about student health. "Serious injury" and "serious illness" were defined as those requiring emergency medical service response or immediate care by a physician or other health care professional. While 42.6% of states had adopted a policy stating that schools will complete a report after a student is seriously injured on school property, 94.8% of districts had adopted such a policy. More specifically, 93.4% of all districts had adopted a policy stating that injury reports will include the location where the injury occurred, 92.6% of districts required information on the activity during which the injury occurred, 92.4% required reporting on school staff who were present when the injury occurred, 92.2% required information on the cause of the injury, 92.1% required information on the nature of the injury, 92.0% required information on the response of school staff to the injury, and 74.2% required information on the immediate outcome of the injury. Few (4.3%) states had adopted a policy stating that districts or schools will submit student injury report data to the state education agency or state health department, but 69.1% of districts had

Table 7. Percentage of All States and Districts That Required Information to Be Obtained and Kept in Student Records and Percentage of All Schools That Obtained and Kept Each Type of Information, SHPPS 2006

Information	% of All States That Required	% of All Districts That Required	% of All Schools That Obtained and Kept
Physical health history	50.0	84.6	89.7
Authorization for emergency treatment	53.1	87.5	93.0
Emotional or mental health history	6.1	38.7	59.0
Asthma action plan	45.1	79.1	91.6
Dietary needs or restrictions	31.9	84.2	94.2
Emergency contact information	68.8	97.0	99.8
Immunization status	98.0	99.0	99.7
Insurance coverage information	15.7	44.9	55.5
Medication needs	68.0	93.3	98.4
Other screening records (eg, vision or hearing)	78.0	93.6	94.8
Physical activity restrictions	42.9	86.3	95.0
Severe food or other allergies	52.1	90.2	97.9
TB screening results	32.7	47.7	51.7

TB, tuberculosis.

adopted a policy stating that schools will submit such data to the school district or local health department.

Nationwide, 22.0% of states and 63.1% of districts had adopted a policy stating that schools will write a report when a student experiences a serious illness at school. In addition, 88.2% of states and 87.5% of districts had adopted a policy stating that schools will report notifiable diseases among students to the state or local health department.

Services for Special-Needs Students. School health services staff often work with students having special needs in accordance with specifications in individualized education programs (IEPs), individualized health plans (IHPs), and 504 plans. IEPs were defined as documents written by school administrators, teachers, and parents that identify annual goals, strategies, or services provided for students with special educational needs. IHPs were defined as documents identifying a student's health problems, diagnoses, goals, the interventions provided, and evaluation criteria. The 504 plans were defined as documents that describe a program of instructional services to assist students with special needs who are in a regular educational setting. More than half (53.1%) of states and 68.4% of districts had adopted a policy stating that school nurses will participate, when indicated, in the development of IEPs, 48.0% of states and 61.6% of districts had adopted such policies related to IHPs, and 34.7% of states and 65.8% of districts had adopted such policies related to 504 plans, when indicated. Special-needs students also might have "do-not-resuscitate" (DNR) orders. Nationwide, 16.7% of states and 23.8% of districts had adopted a policy stating that school health services staff will follow such orders.

Professional Preparation. More than two thirds (72.9%) of states and 72.2% of districts required a minimum education level for newly hired school nurses. In 33.3% of all states and 30.6% of all dis-

tricts, newly hired school nurses were required to have an associate's degree in nursing, while in 31.2% of states and 28.6% of districts, they were required to have an undergraduate degree in nursing. Eighty-six percent of states and 82.4% of districts required newly hired school nurses to have either a registered nurse's (RN's) license or a licensed practical nurse's (LPN's) license, but 68.0% of states and 55.1% of districts restricted this requirement to an RN's license. In addition, 39.6% of states and 33.2% of districts required a state school nurse certification, and 2.0% of states and 11.5% of districts required a national school nurse certification from the National Board for Certification of School Nurses (NBCSN). More than one fourth (29.2%) of states had adopted a policy stating that school nurses will earn continuing education credits on health services topics to maintain state certification, and 41.9% of districts required school nurses to earn continuing education credits on health services topics.

Health Services Coordinators. Among the 74.5% of states with a school health services coordinator, 84.2% had that person serve as the respondent to the state-level health services questionnaire. Among these coordinators, 53.1% worked for the state education agency and 46.9% worked for the state public health agency. Most (84.4%) of these coordinators had a master's degree, most commonly in nursing (51.8%) or public health (25.9%). The remaining 15.6% of these coordinators had an undergraduate degree as their highest level of education. Among all the coordinators who served as the respondent to the state-level health services questionnaire, 81.3% had an RN's license, 9.7% had a certified nurse practitioner's (CNP's) license, 3.2% had an LPN's license, 15.7% had a state school nurse certification, and 15.6% had a national school nurse certification from the NBCSN.

At the district level, among the 79.0% of districts with a school health services coordinator, 83.4%

had that person serve as the respondent to the district-level health services questionnaire. Nearly all (95.1%) of these coordinators worked for the school district, although 3.8% worked for a local health department and 1.6% worked for a local mental health or social services agency. Among these coordinators, 27.0% had an associate's degree, 42.4% had an undergraduate degree, 22.3% had a master's degree, and 5.1% had a doctoral degree. Among those with an undergraduate degree, 77.0% majored in nursing and 19.6% majored in education. Among those with a graduate degree, 61.0% received that degree in education; 19.2% received it in counseling, psychology, or social work; and 14.2% received it in nursing. Among the coordinators who served as the respondent to the district-level health services questionnaire, 78.1% had an RN's license, 8.7% had an LPN's license, 1.5% had a CNP's license, 19.0% had a state school nurse certification, and 7.4% had a national school nurse certification from the NBCSN.

Collaboration. During the 12 months preceding the study, state and district health services staff worked on school health services activities with staff representing other components of the school health program as well as those from other agencies and organizations. In 94.0% of states and 66.6% of districts, school health services staff worked with health education staff; in 92.0% of states and 71.3% of districts, school health services staff worked with nutrition or food service staff; in 78.0% of states and 58.7% of districts, they worked with mental health or social services staff; and in 75.5% of states and 63.8% of districts, they worked with physical education staff. State health services staff also worked with the state health department in 96.0% of states; with a state-level school nurses' association in 92.0% of states; with a state school health committee, council, or team in 89.8% of states; with a state mental health or social services agency in 88.0% of states; with a state child welfare agency in 81.6% of states; with colleges or universities in 79.6% of states; with a state-level health organization (eg, the American Heart Association or American Red Cross) in 76.0% of states; with a state-level physicians' organization in 75.5% of states; and with businesses in 70.8% of states.

At the district level, health services staff worked with a local health department in 81.8% of districts, with a local mental health or social services agency in 65.2% of districts, with a local child welfare agency in 65.0% of districts, with a health organization in 64.7% of districts, with a local hospital in 47.0% of districts, with a local business in 40.7% of districts, with a local service club (eg, the Rotary Club) in 39.9% of districts, and with a local college or university in 35.1% of districts.

Evaluation. Some states and districts evaluated aspects of their school health services program dur-

ing the 2 years preceding the study. Specifically, 59.2% of states and 59.4% of districts evaluated school health services staff development or in-service programs, 50.0% of states and 61.6% of districts evaluated school health services policies, and 30.6% of states and 53.4% of districts evaluated the quality of school health services programs.

Assistance to Districts and Schools. States and districts can provide assistance to districts and schools by providing funding for staff development or offering staff development for teachers or other school staff besides health services staff. During the 2 years preceding the study, 88.0% of states and 70.4% of districts provided funding for staff development or offered staff development for teachers or other school staff on HIV infection or AIDS, including information about infection control procedures or policies about HIV-infected students and staff. In addition, 68.0% of states and 65.3% of districts provided funding for staff development or offered staff development on infectious disease prevention (eg, hand hygiene or food safety); 60.0% of states and 56.5% of districts provided funding for staff development or offered staff development on chronic health conditions, including information about policies for chronic disease management, recognizing and responding to severe symptoms, or reducing triggers; and 48.0% of states and 48.4% of districts provided funding for staff development or offered staff development on severe food or other allergies.

States and districts also can provide assistance to districts and schools by providing model policies. Model policies were defined as an example of what an actual policy on a particular topic or issue might address. The content might be based on scientific evidence, best practices, or state laws or policy. Model policies are provided for districts or schools to consider when they are developing their own policies. They are recommendations, not mandates. Eighty-two percent of states and 44.7% of districts provided model policies to districts or schools on HIV infection or AIDS, 73.5% of states and 48.4% of districts provided model policies on chronic health conditions such as asthma or diabetes, 69.4% of states and 47.3% of districts provided model policies on infectious disease prevention, and 45.8% of states and 40.8% of districts provided model policies on severe food or other allergies.

Changes Between 2000 and 2006 at the State and District Levels. Between 2000 and 2006, changes were detected in the percentage of states and districts that had adopted a policy requiring provision of specific health services. For example, the percentage of states that had adopted a policy stating that administration of medications would be provided increased from 64.0% to 80.0%. The percentage of states that had adopted a policy stating that

alcohol- or other drug-use treatment would be provided also increased from 8.2% to 17.6%, whereas the percentage of districts that had adopted such a policy decreased from 46.2% to 33.6%. The percentage of states that had adopted a policy stating that districts or schools will provide assistance with enrollment in Medicaid or the State Children's Health Insurance Program (SCHIP) decreased from 34.0% to 22.4%. In addition, increases were seen in the percentage of states that had adopted a policy stating that districts or schools will provide CPR (from 42.0% to 54.2%), first aid (from 48.0% to 59.2%), and identification of or referral for physical, sexual, or emotional abuse (from 64.7% to 80.0%). By contrast, the percentage of states that had adopted a policy stating that districts or schools will provide identification of or referrals for oral health problems decreased from 28.0% to 16.0%. The percentage of districts that had adopted a policy stating that schools will provide identification or school-based management of acute illnesses increased from 50.0% to 68.8%. Similarly, the percentage of states that had adopted a policy stating that districts and schools will provide identification or school-based management of chronic health conditions increased from 32.7% to 57.1%, and the percentage of districts that had adopted a similar policy increased from 46.5% to 76.0%. Finally, the percentage of districts with a policy stating that schools will provide stress management decreased from 38.4% to 27.9%, and the percentage of states that had adopted a policy requiring schools to provide tobacco-use cessation increased from 10.0% to 22.0%.

Between 2000 and 2006, a number of increases were detected in the percentage of states and districts that had adopted a policy requiring provision of specific prevention services in 1-on-1 or small-group sessions. Increases were seen in the percentage of states that had adopted a policy stating that districts or schools will provide the following services: alcohol- or other drug-use prevention (from 22.0% to 42.0%), STD prevention (from 17.6% to 32.0%), suicide prevention (from 16.0% to 28.0%), and tobacco-use prevention (from 19.6% to 40.0%). Further, the percentage of states that had adopted a policy stating that districts or schools will provide violence prevention increased from 24.0% to 50.0%, and the percentage of districts that had adopted a similar policy increased from 59.2% to 70.0%. Increases also were detected in the percentage of states in which schools served as Medicaid providers by providing health services to students (from 68.6% to 88.0%).

Between 2000 and 2006, changes also were detected in immunization policies. Specifically, the percentage of states that had adopted a policy requiring a varicella vaccine for students entering kinder-

garten or first grade increased from 31.4% to 88.0%, for students entering middle school from 10.0% to 48.0%, and for students entering high school from 6.0% to 26.0%. Similarly, the percentage of districts that had adopted a policy requiring this vaccine increased from 30.4% to 91.4% for students entering kindergarten or first grade, from 18.5% to 57.9% for students entering middle school, and from 15.8% to 46.3% for students entering high school. Increases also were detected in the percentage of states and districts that had adopted a policy requiring a hepatitis B vaccine. Specifically, the percentage of states that had adopted a policy requiring a hepatitis B vaccine increased from 72.5% to 88.0% for students entering kindergarten or first grade, from 46.0% to 75.5% for students entering middle school, and from 20.0% to 46.0% for students entering high school. Similarly, the percentage of districts requiring this vaccine increased from 75.6% to 88.5% for students entering kindergarten or first grade, from 49.8% to 73.9% for students entering middle school, and from 28.1% to 63.5% for students entering high school. In addition, the percentage of states that had adopted a policy requiring a hepatitis A vaccine increased from 2.0% to 12.0% for students entering middle school and from 0.0% to 10.0% for students entering high school. Similarly, the percentage of states requiring a second measles-containing vaccine increased from 68.6% to 80.0% for students entering middle school and from 44.9% to 58.0% for students entering high school.

A few changes were detected in state-level screening policies between 2000 and 2006. The percentage of states that required a student's teacher to be notified when scoliosis screening indicated a potential problem increased from 5.0% to 11.5%, and the percentage that required a student's parents to be notified when height and weight or body mass screening indicated a potential problem increased from 61.5% to 72.7%.

Some medication administration policies also changed between 2000 and 2006. The percentage of states that had adopted a policy stating that schools will have a written request from the parent or guardian before school staff may administer medications to a student increased from 72.0% to 84.0%. In addition, the percentage of both states and districts that had adopted a policy stating that some students may carry and self-administer an epinephrine autoinjector increased from 27.1% to 66.0% among states and from 38.4% to 55.2% among districts. Further, the percentage of states that had adopted a policy stating that some students may carry and self-administer a prescription quick-relief inhaler increased from 45.8% to 88.0%, whereas the percentage of districts that had adopted a policy stating that some students can carry and self-administer

over-the-counter medications decreased from 29.0% to 15.9%.

Between 2000 and 2006, increases were detected in the percentage of states that had adopted a policy stating that supplies for applying standard or universal precautions would be available in all classrooms (from 22.4% to 32.7%) and on all school buses or in other vehicles used to transport students (from 29.2% to 42.9%).

Several increases were detected in the requirements regarding student health records and reports. Between 2000 and 2006, the percentage of states that had adopted a policy stating that schools will complete a report after a student is seriously injured on school property increased from 31.3% to 42.6%, and the percentage of districts that had adopted a policy stating that schools will write a report when a student experiences a serious illness at school increased from 48.6% to 63.1%. In addition, the percentage of districts that had adopted a policy stating that schools will submit student injury report data to the school district or local health department increased from 53.2% to 69.1%. Further, the percentage of states that had adopted a policy requiring schools to obtain and keep emergency contact information in student records increased from 58.0% to 68.8%, the percentage of states that had adopted a policy requiring schools to obtain and keep an emergency treatment authorization increased from 42.9% to 53.1%, and the percentage of districts that had adopted a policy requiring schools to obtain and keep information on dietary needs and restrictions increased from 69.9% to 84.2%.

Between 2000 and 2006, the percentage of states and districts that had adopted a policy stating that school nurses will participate in the development of IHPs increased from 27.5% to 48.0% among states and from 47.5% to 61.6% among districts, and the percentage of states that had adopted a policy stating that school nurses will participate in the development of IEPs increased from 33.3% to 53.1%. The percentage of states and districts with a policy stating that health services staff will follow DNR orders increased from 2.0% to 16.7% among states and from 9.2% to 23.8% among districts.

Only 2 changes in expectations about professional preparation were detected. Between 2000 and 2006, the percentage of states that required newly hired school nurses to have an RN's license but not an LPN's license decreased from 80.0% to 68.0%, but the percentage of districts with this requirement increased from 31.0% to 55.1%. In addition, the percentage of districts requiring newly hired school nurses to have state school nurse certification decreased from 50.6% to 33.2%.

Several changes were detected in staff development practices. Between 2000 and 2006, an increase

was detected in the percentage of states that provided funding for staff development or offered staff development for school nurses during the 2 years preceding the study on the following health services and prevention services topics: identification of or treatment for STDs (from 36.0% to 50.0%), identification or school-based management of acute illnesses (from 58.0% to 74.0%), identification or school-based management of chronic health conditions (from 66.0% to 84.0%), oral health problems (from 34.0% to 50.0%), and physical activity and fitness counseling (from 32.0% to 59.2%). In contrast, decreases were detected in the percentage of states that provided funding for staff development or offered staff development for school nurses during the 2 years preceding the study on child care options for teen mothers (from 24.0% to 10.0%) and crisis intervention for personal problems (from 52.0% to 41.7%).

Between 2000 and 2006, increases in collaboration were detected. The percentage of state- and district-level health services staff that worked on school health services activities with nutrition services staff increased from 74.5% to 92.0% among states and from 49.5% to 71.3% among districts. Similarly, the percentage of states in which health services staff worked on school health services activities with businesses increased from 51.0% to 70.8%, and the percentage of districts in which this occurred increased from 30.0% to 40.7%.

Increases in evaluation activities between 2000 and 2006 also were detected. Specifically, the percentage of states that evaluated their health services policies during the 2 years preceding the study increased from 25.5% to 50.0%, and the percentage of districts that did the same increased from 47.3% to 61.6%. Similarly, the percentage of states that evaluated health services staff development programs increased from 49.0% to 59.2%, and the percentage of districts doing so increased from 44.6% to 59.4%. In addition, the percentage of states and districts that evaluated the quality of their health services programs increased from 19.6% to 30.6% among states and from 36.9% to 53.4% among districts.

Health Services at the School Level

Staffing and Facilities. Nationwide, 81.5% of all schools had someone to oversee or coordinate health services at the school, and 86.3% of schools had a part-time or full-time school nurse who provided standard health services (defined as services offered, when needed, to all students in the school) to students at the school. Using the criterion that a school had a full-time nurse if either an RN or an LPN was present in the school for at least 30 hours per week

during the 30 days preceding the study, 35.7% of all schools had a full-time school nurse. Among the schools with a part-time school nurse (ie, those in which a nurse was present less than 30 hours per week), that nurse was present in the school for an average of 10.4 hours per week during the 30 days preceding the study. Less than one third (31.5%) of all schools had a full-time school nurse who was an RN, and among the schools with a part-time RN, that nurse was present in the school for an average of 10.1 hours per week during the 30 days preceding the study.

Using school-provided enrollment figures, 52.4% of schools with a part-time or full-time nurse, or 45.1% of all schools, had a nurse-to-student ratio of 1:750 or better. In addition, 47.7% of schools with a part-time or full-time school nurse, or 40.6% of all schools, had an RN-to-student ratio of 1:750 or better.

Physicians and health aides also provided standard health services to students at school. Nationwide, 15.7% of schools had a school physician who provided services to students at school, and during the 30 days preceding the study, a physician was present in these schools for an average of 2.2 hours per week. In addition, 41.9% of all schools had a physician who could be called to consult as needed during the school day, although considerable overlap existed. That is, 14.2% of all schools had access to a physician by both having one in the school or having one to call on to consult, and 43.5% had access to a physician through either one or the other of these mechanisms.

More than one third (34.4%) of all schools had a school health aide who helped provide services to students at school. During the 30 days preceding the study, a health aide was present in these schools for an average of 32.7 hours per week. Among the 34.4% of schools with school health aides, 78.1% required the aide to work under the supervision of an RN or physician at all times.

The availability of facilities and equipment for health services staff at schools varied (Table 8). More than three fourths of schools had a blood pressure gauge or cuff; a medical supply cabinet with a lock; a pen light; a portable first aid kit; a scale; a separate medicine cabinet with a lock; a sharps container; a sick room, nurse's office, or other area reserved for providing health services; a stadiometer, measuring tape, wall chart, or anything else to measure height; a stethoscope; and a vision tester, eye chart, cards, or anything else to measure vision. However, fewer schools had more specialized equipment, such as an albuterol inhaler, an epinephrine autoinjector, or a nebulizer.

Services Provided. As part of standard health services, nearly all schools provided administration of medications, CPR, and first aid when needed, but fewer schools provided more specialized health serv-

Table 8. Percentage of All Schools That Had Facilities and Equipment Available for Health Services Staff, SHPPS 2006

Facilities and Equipment	% of All Schools
Albuterol inhaler, not just for a specific student's use	11.9
Answering machine or voice mail reserved for health services staff	45.9
Audiometer	64.1
Automatic external defibrillator	38.0
Blood pressure gauge and cuff	76.7
Epinephrine autoinjector (eg, EpiPen®), not just for a specific student's use	28.2
E-spine immobilizer or neck brace	18.2
Glucose meter, not just for a specific student's use	29.7
Medical supply cabinet with a lock	83.2
Nebulizer, not just for a specific student's use	30.9
Otoscope or ophthalmoscope	53.8
Oxygen, not just for a specific student's use	6.7
Peak-flow meter, not just for a specific student's use	35.7
Pen light	76.2
Portable first aid kit	96.7
Pulse oximeter	7.0
Refrigerator reserved for standard health services	73.9
Scale	80.7
Scoliometer	31.3
Self-inflating resuscitating device (eg, an ambu bag)	26.9
Separate medicine cabinet with a lock	75.5
Sharps container	79.0
Sick room, nurse's office, or other area reserved for providing standard health services	87.9
Stadiometer, measuring tape, wall chart, or anything else to measure height	76.3
Stethoscope	76.4
Suction equipment, not necessarily electric	6.8
Tympanometer	15.3
Vision tester, eye chart, cards, or anything else to measure vision	77.1

ices or prevention services in 1-on-1 or small-group sessions to students (Table 9). For example, less than one fourth of schools provided administration of fluoride rinses, administration of sports physicals, application of dental sealants, and immunizations. In addition, except for injury prevention and safety counseling and nutrition and dietary behavior counseling, less than half of schools provided any prevention services in 1-on-1 or small-group sessions. With the exception of administration of sports physicals and application of dental sealants, school nurses provided all of the services listed in Table 9 in more than half of the schools providing each service. Only 0.6% of all middle schools and 4.5% of all high schools made condoms available to students. Also, 44.4% of all schools served as a Medicaid provider by providing health services to qualified students.

SBHCs and Services Provided at Other Sites. Nationwide, only 6.4% of schools had an SBHC that provided

Table 9. Percentage of All Schools That Provided Standard Health Services and Prevention Services to Students at School and Percentage of Schools in Which a School Nurse Provided the Service, SHPPS 2006

	% of All Schools that Provided Service	% of Schools in Which the School Nurse Provided Service*
Standard health service		
Administration of fluoride rinses	10.6	55.6
Administration of medications	98.1	77.3
Administration of sports physicals	21.0	29.7
Alcohol- or other drug-use treatment [†]	31.0	84.9
Application of dental sealants	6.1	15.5
Assistance with accessing benefits for students with disabilities	44.9	87.1
Assistance with enrolling in Medicaid or the SCHIP	48.3	88.1
Assistance with enrolling in the Special Supplemental Food Program for Women, Infants, and Children, or accessing food stamps or food banks [†]	35.5	88.1
Case management for students with chronic health conditions (eg, asthma or diabetes)	74.1	90.1
Case management for students with disabilities	75.1	79.3
Counseling for emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	44.7	75.0
CPR	96.7	79.8
Crisis intervention for personal problems	64.6	83.7
Eating disorders treatment [†]	30.7	90.4
First aid	98.7	77.8
HIV counseling, testing, and referral [†]	39.1	86.2
Identification of emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	60.8	85.0
Identification of or referral for physical, sexual, or emotional abuse	70.0	87.0
Identification of or referrals for oral health problems	65.8	84.7
Identification or school-based management of acute illnesses	73.9	89.6
Identification or school-based management of chronic health conditions (eg, asthma or diabetes)	81.9	89.5
Identification or treatment of STDs [†]	23.0	81.1
Immunizations	14.0	75.2
Instruction on self-management of chronic health conditions (eg, asthma or diabetes)	78.7	95.7
Prenatal care referrals [†]	48.6	90.3
Referrals for after-school programs (eg, day care or supervised recreation)	27.8	74.6
Referrals for child care for teen mothers [†]	34.4	90.3
Services for gay, lesbian, or bisexual students [†]	18.8	86.5
Stress management	42.3	83.9
Tobacco-use cessation [†]	38.1	87.5
Tracking of students with chronic health conditions (eg, asthma or diabetes)	79.0	87.3
Weight management	43.6	94.5
Prevention service in 1-on-1 or small-group session		
Alcohol- or other drug-use prevention	39.2	82.2
HIV prevention [†]	43.6	86.8
Injury prevention and safety counseling	56.1	87.7
Nutrition and dietary behavior counseling	54.7	92.2
Physical activity and fitness counseling	41.9	86.7
Pregnancy prevention [†]	45.4	88.5
STD prevention [†]	42.8	86.3
Suicide prevention	34.1	82.0
Tobacco-use prevention	39.9	82.8
Violence prevention	39.5	71.6

ADHD, attention deficit hyperactivity disorder; CPR, cardiopulmonary resuscitation; HIV, human immunodeficiency virus; SCHIP, State Children's Health Insurance Program; STD, sexually transmitted disease.

*Among the schools providing the service.

[†]Only asked among middle schools and high schools.

physical health services to students. More (34.1%) schools had arrangements with agencies, organizations, or health care providers not located on school property to provide services to students when needed. Few schools (4.2%) had both an SBHC and arrangements with providers not located on school property; 36.6% had either an SBHC or such arrangements. Among all

schools, the most common type of providers not on school property were a local health department and a local mental health or social services agency (Table 3), and the health services most commonly provided through such arrangements were immunizations and oral health care or oral health care referrals (Table 4).

Immunizations. All (100%) elementary schools required a diphtheria vaccine, a measles-containing vaccine, and a polio vaccine for entry into kindergarten or first grade, but a smaller percentage of elementary schools required other immunizations for school entry (Table 5). Nationwide, 94.1% of middle schools and 91.5% of high schools required a second measles-containing vaccine for school entry. Other immunizations were required less frequently. In 70.9% of all elementary schools, students who had not received the required immunizations were allowed to attend class for a specified number of days before being excluded, whereas in 24.0% of elementary schools, such students were excluded immediately, and in 5.1%, they were allowed to attend classes indefinitely. Among the 70.9% of schools allowing nonimmunized students to attend classes for a specified number of days, 43.3% specified 30 days, 15.0% specified 10 days, 10.5% specified 14 days, and the remaining schools specified anywhere from 1 to 240 days.

Few schools provided immunizations for students. Nationwide, only 8.2% of all schools provided hepatitis B vaccine, 7.2% provided a measles-containing vaccine, 5.9% provided tetanus vaccine, 5.5% provided diphtheria vaccine, 5.1% provided polio vaccine, 4.7% provided varicella vaccine, 4.5% provided influenza vaccine, 2.8% provided haemophilus influenzae type b vaccine, and 1.9% provided hepatitis A vaccine.

Screenings. The percentage of all schools that screened students for potential health problems varied by type of screening and by school level (Table 6). Schools were more likely to have screened students for hearing and vision problems than for height and weight or body mass problems, oral health problems, and scoliosis. In addition, the percentage of schools that screened students for vision, hearing, and oral health problems was highest among elementary schools and lowest among high schools, while the percentage of schools that screened students for scoliosis was highest among middle schools. The percentage of schools that screened students for height and weight or body mass problems did not vary by school level.

When a student's screening indicated a potential problem, nearly all schools notified parents, but fewer notified teachers. Specifically, 99.7% of the 80.7% of schools that screened for hearing problems notified parents when a potential problem was found, but only 84.0% notified teachers. A similar pattern was seen for vision screening (99.4% of the 83.4% of schools that screened for vision problems notified parents; 84.7% notified teachers), oral health screening (99.1% of the 29.4% of schools that screened for oral health problems notified parents; 50.2% notified teachers), and scoliosis screening (99.9% of the 44.0% of schools that screened for scoliosis notified parents; 31.5% noti-

fied teachers). Fewer (84.1%) of the 42.3% of schools that screened for height and weight or body mass problems notified parents when this screening indicated a potential problem.

TB testing is relatively uncommon in schools. Only 19.2% of all elementary schools required TB testing before school entry for all students, and 13.8% required it for students meeting certain criteria, such as being born or recently living in another country. Nearly all (93.6%) schools that conducted any TB testing used the PPD skin test done by the Mantoux method. Periodic TB testing was required for all students in 7.2% of schools and for students meeting certain criteria, such as being born or recently living in another country, in 13.6% of schools. Among the 20.9% of schools requiring any periodic TB testing, 24.4% required that students be tested in 1 particular grade; 55.3% required that students be tested in more than 1 grade, but not every year; and 20.3% required that students be tested every year.

Medication Administration. School faculty and staff were allowed to administer medications to students in 98.7% of all schools. Nationwide, 72.2% of all schools allowed school nurses to administer medication, 31.2% allowed teachers, 24.3% allowed school health aides, 2.0% allowed school physicians, and 77.3% allowed other school staff such as secretaries or principals. In the 66.4% of schools that allowed someone other than a school nurse or school physician to administer medications to students, the medication administration was delegated by the school nurse or school physician. Among the 98.7% of schools that allowed school personnel to administer medications to students at school, 95.6% required a written request from a parent or guardian before medications could be administered, 93.9% required written instructions from the student's physician or some other prescriber, and 49.1% required written information on possible side effects.

Most schools also allowed some students to carry and self-administer medications. Nationwide, 81.6% of schools permitted students to carry and self-administer prescription quick-relief inhalers, 54.7% permitted epinephrine autoinjectors, 41.4% permitted insulin or other injected medications, 13.2% permitted other prescribed medications, and 11.2% permitted over-the-counter medications.

Communicable Disease Policies. To prevent the spread of communicable diseases, including HIV infection or AIDS, most schools kept supplies needed to apply standard precautions, including disposable gloves and bandages, available in several locations. Specifically, 81.5% of all schools had these supplies on school buses or in other vehicles used to transport students, 78.3% had them in the gymnasium, on playgrounds, or on playing fields, and 77.0% had them in all classrooms.

Nationwide, 53.8% of schools had adopted a policy on students who had HIV infection or AIDS. Specifically, 52.7% of schools had adopted a policy stating that students who had HIV infection or AIDS were allowed to attend classes as long as they were able, 51.5% had adopted a policy stating that these students were allowed to participate in school sports as long as they were able, and 51.9% had adopted a policy stating that these students were allowed to participate in any other school activities as long as they were able. Less than half (43.6%) of schools had adopted a policy stating that teachers and staff who had HIV infection or AIDS were allowed to continue working as long as they were able.

Student Health Records and Reports. Nearly all schools obtained and kept information in student records, including a physical health history, an authorization for emergency treatment, asthma action plans, dietary needs or restrictions, emergency contact information, immunization status, medication needs, other screening records such as vision or hearing, physical activity restrictions, and severe food or other allergies, but fewer schools obtained and kept records on emotional or mental health history, insurance coverage information, and TB screening results (Table 7).

During the 12 months preceding the study, 79.1% of schools requested student health information from a health care provider. Among these schools, 30.8% had a health care provider refuse to share student health information with the school, and for 87.4% of these schools, the health care provider refused to share this information because a Health Insurance Portability and Accountability Act (HIPAA) authorization had not been obtained from the student's parents. Nonetheless, although the majority of refusals to share information were attributed to a failure to obtain a HIPAA authorization, nationwide only 21.0% of all schools experienced a refusal for this reason.

Nearly all (97.4%) schools had adopted a policy stating that school staff will complete a report after a student is seriously injured on school property, and 97.4% of all schools had a standard injury report form. Nearly all (95.4%) schools recorded the location where the injury occurred, 95.4% recorded the nature of the injury, 95.0% recorded the activity during which the injury occurred, 94.3% recorded the cause of the injury, 94.2% recorded the response of school staff to the injury, 93.2% recorded the school staff present when the injury occurred, and 74.7% recorded the immediate outcome of the injury. During the 12 months preceding the study, 54.2% of all schools reviewed student injury reports to identify hazardous school areas or activities or ways to prevent injuries.

In 54.3% of all schools, school staff completed an illness report after a student experienced a serious

illness at school. During the 12 months preceding the study, 28.1% of all schools reviewed student illness reports to identify ways to prevent further occurrences of serious illness, and 74.8% of all schools reviewed any health services records to identify students with chronic problems or possible outbreaks at school. Regardless of whether schools completed illness reports, 93.5% of all schools reported notifiable diseases to the state or local health department.

Services for Special-Needs Students. School health services staff usually work closely with special-needs students. In 71.0% of all schools, a school nurse participated in the development of IEPs when indicated; in 73.8% of all schools, a school nurse participated in the development of IHPs; and in 64.9% of schools, a school nurse participated in the development of 504 plans when indicated. Medically fragile students, defined as those students dependent on nursing services or special technologies to enhance or sustain their lives, could be found in 34.8% of all schools. These schools had a median of 2 such students. During the 12 months preceding the study, among schools with 1 or more medically fragile students, 23.8% provided catheterizations, 23.5% provided tube feedings, 15.7% provided stoma care, 15.2% provided suctioning, 11.8% provided respirator care, 10.4% provided tracheostomy care, and 4.1% provided IV medications. Among schools in which any of these services were provided, a school nurse provided the service in 83.7% of schools, a school health aide in 22.0% of schools, a school physician in 1.5% of schools, and another school staff member in 34.2% of schools. Medically fragile students might have DNR orders. In 46.2% of all schools, health services staff were required to follow such orders.

Professional Preparation. Most schools (84.1%) required a minimum level of education for newly hired school nurses. Nationwide, 45.0% of all schools required an undergraduate degree in nursing, 27.7% required an associate's degree in nursing, and 5.3% required a graduate degree in nursing. In addition, 97.3% of all schools required newly hired school nurses to have either an RN's license or an LPN's license, and 71.8% restricted this requirement to an RN's license. In addition, 49.9% of schools required newly hired school nurses to have a state school nurse certification, and 9.8% required them to have a national school nurse certification from the NBCSN. Nearly three fourths (70.1%) of schools required newly hired school nurses to earn continuing education credits on health services topics.

Health Services Coordinators. Among the 81.5% of schools with a school health services coordinator, 82.0% had that person serve as the respondent to the school-level health services questionnaire. Seventy-eight percent of these coordinators worked

for the school district, 28.3% worked for a specific school, 4.5% worked for a local hospital, and 3.6% worked for a local health department. Among the school health services coordinators who served as respondents, 20.9% had an associate's degree as their highest level of education, 46.4% had an undergraduate degree, 25.2% had a master's degree, and 2.1% had a doctoral degree. Among those with a least an undergraduate degree, 80.9% majored in nursing, and among those with a graduate degree, 25.1% had that degree in nursing, 44.0% in education, 10.3% in health care administration or business, 9.8% in public health, and 9.6% in counseling. In addition, 84.4% of coordinators had an RN's license, 44.6% had a state school nurse certification, 11.6% had a national school nurse certification from the NBCSN, 6.5% had an LPN's license, 1.6% had a CNP's license, and 0.7% had a physician's (MD or DO) license.

Staff Development. During the 2 years preceding the study, 98.5% of school health services coordinators received staff development on at least 1 of the topics listed in Table 10. The most common topics included CPR, emergency preparedness, first aid, and identification or school-based management of chronic health conditions (Table 10). More than 40% of coordinators indicated that they would like to receive staff development on case management for students with disabilities, stress management, injury prevention and safety counseling, nutrition and dietary behavior counseling, physical activity and fitness counseling, suicide prevention, and violence prevention.

Collaboration. School nurses often collaborated with others both within and outside the school. During the 12 months preceding the study, in 44.6% of all elementary schools, a school nurse talked to or taught students as part of a health education lesson or unit, and in 8.7% of all elementary schools, a school nurse talked to or taught students as part of a physical education lesson or unit. In 35.6% of all middle and high schools, a school nurse talked to or taught a health education class, in 13.3% a school nurse talked to or taught a biology or other science class, and in 10.4% a school nurse talked to or taught a physical education class.

In addition, during the 12 months preceding the study, the school nurse worked on standard school health services activities for students with school mental health or social services staff in 52.8% of schools, with school nutrition or food service staff in 46.3% of schools, with school health education staff in 41.2% of schools, and with school physical education staff in 39.5% of schools. The school nurse also worked on standard school health services activities for students with staff or members from a local health department in 51.1% of schools, a health organization in 37.6% of schools, a local child wel-

fare agency in 36.6% of schools, a local mental health or social services agency in 36.1% of schools, a local hospital in 27.9% of schools, a local service club in 25.4% of schools, a local college or university in 22.7% of schools, and a local business in 17.4% of schools.

Changes Between 2000 and 2006 at the School Level. Some changes were detected in school health services staffing and facilities. Between 2000 and 2006, the percentage of schools in which health aides were required to work under the supervision of an RN or physician at all times increased from 60.4% to 78.1%. Between 2000 and 2006, increases also were detected in the percentage of schools having the following types of equipment available for health services staff: an answering machine or voice mail reserved for health services (from 20.5% to 45.9%), an audiometer (from 48.5% to 64.1%), a blood pressure gauge and cuff (from 61.8% to 76.7%), a glucose meter (from 17.8% to 29.7%), a medicine cabinet with a lock (from 65.4% to 75.5%), a nebulizer (from 13.0% to 30.9%), a refrigerator reserved for health services (from 57.3% to 73.9%), and a scale (from 69.8% to 80.7%).

Between 2000 and 2006, the percentage of schools in which health services staff provided the following 3 services to students increased: HIV counseling, testing, and referrals (from 11.8% to 39.1%); identification of or referrals for oral health problems (from 54.5% to 65.8%); and identification or school-based management of chronic health conditions (from 57.9% to 81.9%).

Changes in immunization requirements between 2000 and 2006 also were detected. Specifically, the percentage of schools that required a varicella vaccine for school entry increased from 19.0% to 86.6% among elementary schools, from 23.0% to 69.8% among middle schools, and from 24.0% to 55.5% among high schools. Similarly, the percentage of schools that required a hepatitis B vaccine for school entry increased from 74.0% to 90.6% among elementary schools, from 60.8% to 83.6% among middle schools, and from 41.1% to 75.0% among high schools. In addition, the percentage of high schools requiring a second measles-containing vaccine increased from 76.0% to 91.5%. In contrast, the percentage of middle schools and high schools requiring a tetanus booster for school entry decreased from 84.2% to 69.9% among middle schools and from 81.3% to 70.0% among high schools.

A change in screening practices was detected. Between 2000 and 2006, the percentage of schools that notified a student's teachers when scoliosis screening indicated a potential problem decreased from 51.1% to 31.5%.

Increases in some policies related to medication administration were detected. Between 2000 and 2006, the percentage of schools in which students

Table 10. Percentage of School Health Services Coordinators* Who Received Staff Development[†] and Who Wanted Staff Development on Health Services and Prevention Services Topics, SHPPS 2006

	% Who Received Staff Development	% Who Wanted Staff Development
Health services topic		
Administration of fluoride rinses	11.1	12.4
Administration of medications	68.5	17.4
After-school programs (eg, day care or supervised recreation)	14.5	17.4
Alcohol- or other drug-use treatment	39.4	28.2
Application of dental sealants	8.0	13.8
Assistance with accessing benefits for students with disabilities	35.9	35.0
Case management for students with chronic health conditions (eg, asthma or diabetes)	70.2	39.9
Case management for students with disabilities	57.3	40.2
Child care options for teen mothers	14.1	20.8
Counseling for emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	44.5	38.9
CPR	93.8	23.6
Crisis intervention for personal problems	49.1	39.9
Eating disorders treatment	34.1	38.3
Emergency preparedness	83.6	35.3
Enrolling in Medicaid or the SCHIP	33.5	22.9
Enrolling in the Special Supplemental Food Program for Women, Infants, and Children, or accessing food stamps or food banks	15.9	23.7
Federal laws that protect the privacy of student health information (eg, the HIPAA or the Family Educational Rights and Privacy Act)	79.1	27.8
First aid	85.5	26.5
Food-borne illness outbreak, detection, and response	28.9	33.7
HIV counseling, testing, and referral	25.1	24.8
Identification of emotional or behavioral disorders (eg, anxiety, depression, or ADHD)	64.6	36.8
Identification of or referral for physical, sexual, or emotional abuse	61.3	31.8
Identification or school-based management of acute illnesses	74.9	39.6
Identification or school-based management of chronic health conditions (eg, asthma or diabetes)	82.5	39.2
Identification or treatment of STDs	36.1	25.9
Immunizations	72.4	21.7
Infectious disease prevention (eg, hand hygiene or food safety)	76.0	29.4
Oral health problems	31.9	24.7
Prenatal care	17.0	18.6
Services for gay, lesbian, or bisexual students	14.7	29.8
Sports physicals	14.1	19.5
Stress management	41.5	40.5
Teaching self-management of chronic health conditions (eg, asthma or diabetes)	73.4	34.1
Tobacco-use cessation	32.8	25.9
Tracking students with chronic health conditions (eg, asthma or diabetes)	61.7	38.1
Weight management	46.5	37.0
Prevention services topic		
Alcohol- or other drug-use prevention	48.7	32.6
HIV prevention	43.3	25.1
Injury prevention and safety counseling	56.9	41.7
Nutrition and dietary behavior counseling	61.3	46.5
Physical activity and fitness counseling	48.6	42.0
Pregnancy prevention	30.6	24.5
STD prevention	42.8	25.8
Suicide prevention	54.0	40.8
Tobacco-use prevention	43.5	28.6
Violence prevention	58.9	46.4

ADHD, attention deficit hyperactivity disorder; CPR, cardiopulmonary resuscitation; HIPAA, Health Insurance Portability and Accountability Act; HIV, human immunodeficiency virus; SCHIP, State Children's Health Insurance Program; STD, sexually transmitted disease.

*Among the 66.8% of schools that had a health services coordinator who served as the respondent to the school health services questionnaire.

[†]During the 2 years preceding the study.

were permitted to carry and self-administer an epinephrine autoinjector increased from 25.7% to 46.4% among elementary schools, from 37.5% to 58.0% among middle schools, and from 53.7% to 72.4%

among high schools. Further, the percentage of elementary schools that permitted students to carry and self-administer a prescription quick-relief inhaler increased from 59.3% to 76.9%.

Between 2000 and 2006, some changes were detected in record-keeping practices. The percentage of schools that obtained and kept authorization for emergency treatment in student records increased from 80.0% to 93.0%, whereas the percentage of schools that obtained and kept TB screening results in student records decreased from 75.8% to 51.7%. Also, the percentage of schools that reviewed health services records to identify students with chronic problems or possible outbreaks at school during the 12 months preceding the study increased from 61.9% to 74.8%.

Between 2000 and 2006, school nurses became more involved with special-needs students. The percentage of schools in which a school nurse participated in the development of IEPs increased from 57.4% to 71.0%, and the percentage of schools in which a school nurse participated in IHPs increased from 59.3% to 73.8%. Further, the percentage of schools in which health services staff were required to follow DNR orders increased from 29.7% to 46.2%.

Between 2000 and 2006, both increases and decreases were detected in the receipt of staff development. The percentage of school health services coordinators (who served as respondents) who received staff development on 2 topics during the 2 years preceding the study increased: identification or school-based management of chronic health conditions (from 71.3% to 82.5%) and physical activity and fitness counseling (from 29.4% to 48.6%). However, the percentage of school health services coordinators who received staff development on the following 3 topics during the 2 years preceding the study decreased: alcohol- or other drug-use treatment (from 49.9% to 39.4%), enrolling in Medicaid or SCHIP (from 53.4% to 33.5%), and HIV prevention (from 62.5% to 43.3%). In addition, the percentage of school health services coordinators who wanted to receive staff development on case management for students with chronic health conditions decreased (from 52.2% to 39.9%), as did the percentage who wanted to receive staff development on identification of emotional or behavioral disorders (from 54.0% to 36.8%).

Two changes in collaboration involving school nurses were detected. The percentage of schools in which a school nurse talked to or taught a physical education class in a middle school or high school increased from 4.5% to 10.4%, and the percentage of schools in which a school nurse worked on health services activities with school nutrition services staff increased from 24.9% to 46.3%.

DISCUSSION

According to findings from SHPPS 2006, in most US schools only basic health services are provided to

students. That is, while nearly all schools provided first aid, administration of medications, and CPR, as required by states and districts, fewer provided more specialized health services or prevention services. The particular services schools provided reflect available resources. For example, while SBHCs can be found in most states and therefore are not limited geographically, nationwide few districts or schools had such centers and, therefore, the ability to provide more comprehensive services. In addition, only slightly more than one third of districts and schools had arrangements with community providers not located on school property to provide health services to students.

School nurses are the most common provider of school health services. Although state- and district-level policies requiring schools to have school nurses or specifying maximum nurse-to-student ratios were relatively rare, 86.3% of all schools had at least a part-time school nurse, and more than half (52.4%) of these schools, and 45.1% of all schools, had a nurse-to-student ratio of at least 1:750. This finding suggests that *Healthy People 2010* national health Objective 7-4 to increase to 50% the proportion of middle and high schools that have a nurse-to-student ratio of at least 1:750 is close to being met. Further, the percentage of all schools achieving this nurse-to-student ratio has not decreased since 2000. That is, according to SHPPS 2000, 52.9% of elementary, middle, and high schools with at least a part-time school nurse reported a nurse-to-student ratio of at least 1:750,³³ and 40.8% of all schools nationwide reported this ratio. This finding is inconsistent with popular press articles describing an increasing shortage of school nurses. Nonetheless, given the critical role school nurses play, national attention should be focused on increasing the percentage of schools with sufficient numbers of school nurses.

On the basis of SHPPS 2006 data, it is possible to determine the extent to which school health services in the United States are meeting various guidelines for schools. For example, according to the *Health, Mental Health, and Safety Guidelines for Schools*,¹⁸ all schools should hire or contract with a school physician. Only 15.7% of schools had at least a part-time school physician who provided services to students at school, and 41.9% had a physician who could be called on to consult as needed during the school day, but only 43.5% of schools had access to a physician through either of these mechanisms. These guidelines also state that at least 1 school staff member should be trained for emergencies, and more than 80% of school health services coordinators who served as respondents to SHPPS 2006 received staff development on first aid, CPR, or emergency preparedness during the 2 years preceding the study.

In addition, these guidelines call for schools to provide health-related case management. About three fourths of schools provided this service for students with chronic health conditions or disabilities. Finally, guidelines pertaining to medication administration set forth in the *Health, Mental Health, and Safety Guidelines for Schools*,¹⁸ as well as by both NASN²² and AAP,²⁰ state that schools should have procedures in place that specify student, family, clinician, and school staff responsibilities for medication administration. Most schools are meeting these guidelines. For example, school faculty and staff were allowed to administer medications to students in 98.7% of schools. In addition, the percentage of schools in which students were permitted to carry and self-administer epinephrine autoinjectors increased between 2000 and 2006. The immediate availability of medications is critical for students with chronic health conditions, who might not otherwise be able to attend school if medications were not available to them during the school day. Further analyses of SHPPS 2006 data can determine more completely the extent to which these and other guidelines are being met.

SHPPS 2006 data clearly indicate room for improvement in achieving NASN's recommended minimum education and licensure requirements for school nurses.²³ Specifically, NASN recommends that all school nurses have at least a baccalaureate degree. Less than one third of states and districts had such a requirement for newly hired school nurses, although about 50% of schools did. NASN also recommends that all newly hired school nurses have an RN license. Sixty-eight percent of states, 55% of districts, and 72% of schools met this recommendation, and the percentage of districts with such a requirement increased since 2000.

A related improvement that has occurred since 2000 is in the area of staff development. For school nurses, between 2000 and 2006, considerable increases occurred in the percentage of states that provided funding for staff development or offered staff development on 5 topics during the 2 years preceding the study. Such improvements need to continue because sufficient training is critical for school nurses to be able to perform effectively.²³

It appears as though school health services programs have been responsive to increases in the prevalence of chronic health conditions among students.^{2,7} Specifically, the percentage of states and districts that required schools to provide identification and school-based management of chronic health conditions increased between 2000 and 2006, as did the percentage of schools that provided this service to students. In addition, the percentage of states that provided funding for staff development or offered staff development to school health services staff on this topic during the 2 years preceding the study increased

since 2000, as did the percentage of school health services coordinators who received staff development on this topic. Improvements also were seen for medication administration policies; the percentage of states and districts that had adopted a policy stating that some students may carry and self-administer epinephrine increased, as did the percentage of states that had adopted a policy stating that some students may carry and self-administer a prescription quick-relief inhaler.

The increase during the past 6 years in the percentage of states and districts evaluating various aspects of school health services programs reflects an important commitment to improvement. While SHPPS 2006 suggests that the breadth of school health services can and should be improved, school districts and schools need policy, legislative, and fiscal support to make this happen. Increasing the percentage of schools with sufficient school nurses is a critical step toward enabling schools to provide more services, but it is not enough. Enhancing collaboration with other student support professionals, such as school counselors, is needed to assist with the complex physical and mental health needs of students. In addition, by linking with community resources, schools will be able to enhance the effectiveness of school nurses and improve the availability of services. Lear describes this as an integrated care system for children: "... school health programs and community health programs can and will change to fulfill expectations for a single system of care."¹⁶ Such systemic changes, as well as increased support for school health services, are necessary if schools are to meet both the health and academic needs of students.

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