



Chapter 1

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From time to time, the Massachusetts Department of Public Health may update some of the materials. Please check the School Health Manual online to see if there are any recent updates.

Please be certain to check for new laws and regulations that may be in effect after publication of this Manual. You may find the Massachusetts General Laws online at <http://www.mass.gov/legis/laws/mgl/> and the Code of Massachusetts Regulations at <http://www.lawlib.state.ma.us/cmr.html>. These sites are periodically updated, but are not the official version of the Massachusetts General Laws (MGL) or Code of Massachusetts Regulations (CMR). You should always refer to an official edition of the MGL and CMR. Official editions may be found at the Statehouse Bookstore and many public and law libraries.

Chapter 1

NEW DIMENSIONS OF SCHOOL HEALTH

Schools have a unique opportunity to influence students' health and educational achievement, due to the simple fact that schools are where young people spend the majority of each weekday for 9 to 10 months of the year. In Massachusetts, over 1 million students participate in classrooms and after-school activities. Moreover, the school is a microcosm of the health issues that are occurring within each individual community. For instance, if tobacco use or overweight is an issue in the general population, it will be demonstrated in the school population. If a community response is effective in the general population, it may also show positive outcomes in the school population. As such, school health programs are essential to education and must continue to be integrated into the larger community and its health care delivery system serving children.

School-based health services and health education complement and support the school's academic mission while promoting and improving students' health. The concepts behind school health programs are not new. For almost 150 years, Massachusetts has recognized the importance of health to education and the critical role of school health programs. Exhibit 1-1, *Milestones in Massachusetts School Health*, outlines the history of the Commonwealth's response to the growing needs of a changing society. It includes innovations such as the introduction of health inspections in the 1890s, the publication of *The Handbook on School Hygiene* in 1930, the first Massachusetts school-based health center in the 1980s, the Education Reform Act requiring school nurse licensure in 1993, and the publication of the first edition of the *Massachusetts Comprehensive School Health Manual* in 1995.

In this new millennium, school health programs are experiencing unprecedented challenges and opportunities for nurturing the education, health, and well-being of students and their families. Changing societal norms and escalating needs, as well as expanding knowledge in the field, require that school health programs continue to evolve. Expectations of the school's role in the lives and health of children and their families have expanded in many ways during the decade since the previous edition of the *Massachusetts Comprehensive School Health Manual* was published. Many educators, medical care providers, public health officials, policy makers, and advocates for children have noted that school health programs are a key component of the safety net for the nation's children, and that the quality of those programs is a key factor in the educational achievement and lifelong health of students.

The Massachusetts Department of Public Health (DPH) continues to develop and implement high quality, coordinated school health programs in communities throughout Massachusetts. DPH has assumed leadership in developing these programs aimed at responding to societal needs and supporting educational achievement. As a public agency, DPH's work includes promoting local system-building capacity to enhance the health status of all children, youth, and their families in the Commonwealth. The Department's mission supports these efforts and states:

- We believe in the power of prevention.
- We work to help all people reach their full potential for health.

- We ensure that the people of the Commonwealth receive quality health care and live in a safe and healthy environment.
- We build partnerships to maximize access to affordable, high-quality health care.
- We are especially dedicated to the health concerns of those most in need.
- We empower our communities to help themselves.
- We protect, preserve, and improve the health of all of the Commonwealth's residents.

This chapter presents further details about school health in this new era, including societal changes, Healthy People 2010 objectives pertinent to school health, the Massachusetts Coordinated School Health Model, recent expansion of school health services in the Commonwealth, the evolving role of the school nurse, and ongoing challenges and solutions.

SOCIETAL CHANGES AFFECT THE ROLE OF SCHOOL HEALTH PROGRAMS

Massachusetts, like the nation, has experienced major societal changes during the past several decades. These societal changes have had a direct impact on the current role of school health programs. Examples of these societal changes are:

1. Increased knowledge of the role of health in educational achievement.

There continues to be clear and compelling evidence about both the ways in which health issues impact students' school performance and future prospects, and the positive effects of timely interventions. If young people are to succeed in school, they cannot be tired, hungry, drug-impaired, concerned about safety, or suffering from low self-esteem. Poor nutrition, depression, domestic violence, and substance abuse can severely hamper students' health and their ability to learn. Conversely, when children's health-related needs are met, they have the cognitive energy to learn and achieve. Studies have indicated:

- Roughly 1 in 15 U.S. schoolchildren have asthma, which accounts for 14 million missed days of school each year. It has been demonstrated, however, that in-school management of the condition, overseen by a school nurse, can have a significant positive impact. Students who receive proper asthma care show improved grades and perform better in physical education classes (Education Development Center, Urban Special Education Leadership Collaborative, ILIAD IDEA Partnership, 2003).
- Participation in a school breakfast program raises scores on basic skills tests and reduces absenteeism and tardiness, while strengthening psychosocial outcomes, and lowering anxiety, hyperactivity, depression, and psychosocial dysfunction (Murphy et al., 1998).
- School-based physical activity programs correlate with improved academic achievement, including increased concentration, higher test scores, and reduced disruptive behavior. Academic achievement improves even when the physical education schedule reduces the time for academics (Symons et al., 1997).
- Schools that have implemented comprehensive health education (CHE) programs report improvement in grade point averages for math and English, achievement scores for reading, and standardized test performance. CHE programs – defined as planned, sequential instruction designed to help students develop the knowledge, attitudes and skills they need to maintain and improve their health (Lohrmann & Wooley, 1998) – have improved attendance and graduation rates, and have increased students' cognitive development, including awareness, goal setting, decision making, and communication skills (Mohai, 1991).

- Nicotine addiction reduces the ability to concentrate. If a student smokes daily and spends 15 minutes of each school day craving a cigarette, then time spent on learning is reduced by 45 hours per year — the equivalent of missing 9 weeks of a 50-minute calculus class. It has been estimated that implementing effective educational programs for preventing tobacco use could postpone or prevent smoking onset in 20% to 40% of U.S. adolescents (U.S. Department of Health and Human Services, 2000).

2. Recognition that schools need to provide health services to ensure attendance of children with chronic health conditions and complex care needs.

- Advances in medical science such as neonatal intensive care, parenteral nutrition, transplantation, immunosuppression, cancer chemotherapy, dialysis, and many other technologies have resulted in increased survival rates of children with a variety of medical and genetic conditions.
- While medical technology has expanded, so too have the legal developments ensuring the right of all children to an education. A child's right to be educated in the least restrictive environment has supported the inclusion of students with a variety of health issues in general education classrooms, many requiring clinical services during the school day. For example, medical procedures formerly performed only in a hospital (e.g., catheterization, tracheotomy care, central line care) must now be provided in the school setting.
- In addition, with fewer hospitalizations and reduced lengths of hospital stay, school nurses often care for children whose illnesses or chronic conditions (e.g., acute asthma, cancer, cystic fibrosis, cerebral palsy, and Type 1 diabetes) were formerly managed in a hospital or clinic setting. These children and youth require increasingly diverse and complex onsite services. Teaching families how to manage these conditions at home has shifted to the school as well (Chabra & Chavez, 2000; Leslie, Sarah & Palfrey, 1998; Schutte, Price & James, 1997).
- Finally, during the past decade, children with terminal illnesses and "comfort care/do not resuscitate" orders also are attending school, requiring schools to further their services to families by becoming involved in end-of-life planning (Lear et al., 2006).

The need for school health services to support students with special health needs is likely to continue to escalate in coming years. One objective of Healthy People 2010 is to increase from 45 percent to 60 percent the proportion of children and youth with disabilities who spend at least 80 percent of their time in regular education programs (Palfrey et al., 2004).

3. Recognition that schools are a major partner in implementing population-based public health initiatives.

As the nation faces critical public health problems, schools may play a significant role in assessment and implementation of new initiatives. For example, with the epidemic of overweight, changing the nutritional environment and promoting physical activities can contribute to the incorporation of healthy lifestyles at an early age. Another example is immunization surveillance (Sheetz, 2003).

4. Increased health risks for school children.

Many youth today are at risk for such issues as depression, violence, sexual abuse, domestic violence, and HIV infection. The school health service program is uniquely positioned to identify these youths and facilitate their access to the health care system, either directly or through referrals to appropriate medical or social services (Thurber, Berry & Cameron, 1991).

5. Economic hardship and lack of health insurance.

While public programs to ensure health insurance coverage for children have decreased the numbers of uninsured children, many barriers remain to accessing care, including lack of

transportation, language other than English, family mobility, and providers' cultural insensitivity. In addition, families in crisis may regard health care as essential only for illness and assign preventive visits a lower priority. Such circumstances create challenges to establishing a "medical home" for all children. The school health service program often serves as an accessible entry point into the health care delivery system, with the school nurse linking the child to a community primary care provider.

6. Changes in family employment patterns and family structures.

Increases in the percentage of working parents and single-parent households have resulted in more families relying on school nurses for initial assessment of a child's illness or injury because this prevents parents' work absences. In many instances, school health rooms become active triage stations for a myriad of common health conditions and injuries (Uphold & Graham, 1993; U.S. Bureau of the Census, 2000; Wold, 2001).

7. Changing enrollment patterns.

"Newcomer families," in particular, look to the school nurse for information on local health resources. Newcomers include families who have emigrated from other countries, as well as those who move from city to city for employment or family reasons. Some Massachusetts communities report that as many as 40% of their students are in these newcomer families.

8. Increased role in responding to community emergencies.

Because communities are faced with the possibility of such new threats as pandemic influenza and bioterrorism, the school and its health program are moving into a new era in community-based emergency preparedness. The school's unique role in the community, including its available clinical and facility resources, makes it a critical partner in planning for and responding to emergencies.

HEALTHY PEOPLE 2010 OBJECTIVES RELATED TO SCHOOL HEALTH

Recognizing the societal changes listed above and the important role of schools to the health of the nation's youth, Healthy People 2010, the national agenda of health goals and objectives, has included many goals relevant to school health. Healthy 2010 was developed and coordinated by the U.S. Department of Health and Human Services and other federal agencies. It has set an aggressive agenda for improvement of child and adolescent health. Of the 467 total objectives, 107 are directly relevant to youth and young adults. Objectives related to school-age children and school health services include:

- Reduce or eliminate indigenous cases of vaccine-preventable diseases;
- Reduce the proportion of children and adolescents who have dental caries in their primary or permanent teeth;
- Reduce the number of school or work days missed by persons with asthma;
- Reduce hospitalization rates for three ambulatory-care-sensitive conditions — pediatric asthma, uncontrolled diabetes, and immunization-preventable pneumonia and influenza;
- Reduce the proportion of children and adolescents who are overweight or obese;
- Reduce tobacco use by adolescents;
- Increase the high-school completion rate to 90%;
- 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; and
- Increase the proportion of middle, junior high, and senior high schools that provide school health education to prevent health problems related to the following: unintentional injury; violence; suicide; tobacco use and addiction; alcohol and other drug use; unintended

pregnancy, HIV/AIDS, and STD infection; unhealthy dietary patterns; inadequate physical activity; and environmental health (USDHHS, 2000).

The last three objectives above are particularly notable for their explicit recognition of the critical links between health and educational achievement and the important role of schools in delivery of health services and health promotion. In a document titled *Schools and Healthy People 2010*, the Association for Supervision and Curriculum Development (ASCD) Health in Education Initiative interpreted the message of Healthy People 2010 this way:

“Schools are key to the public health strategies laid out for the next 10 years. The inclusion of these three school-based objectives in Healthy People 2010 raises awareness about the link between public health and education. While working to attain these objectives, the nation will move closer to its goal of having a healthier, better-educated population.” (ASCD, 2000)

Specifically addressing its aims in terms of health education, *Healthy People 2010* notes:

“It is important that youth are able to find, understand, and use information and services to enhance health. Research has shown that for health education curricula to affect priority health-risk behaviors among adolescents, effective strategies, considerable instructional time, and well-prepared teachers are required. To attain this objective, states and school districts need to support effective health education with appropriate policies, teacher training, effective curricula, and regular progress assessment.”

MASSACHUSETTS COORDINATED SCHOOL HEALTH MODEL

By adopting a coordinated school health approach, Massachusetts is part of a national effort to respond to the challenges of promoting student health and students' capacity to learn (as delineated in Healthy People 2010). Many, if not most, schools address student health-related issues in a variety of ways, for example by providing school lunch, having nurses treat students with acute health conditions, instituting no-tobacco policies and including instruction in physical education. However, to be most effective, such efforts need to be coordinated.

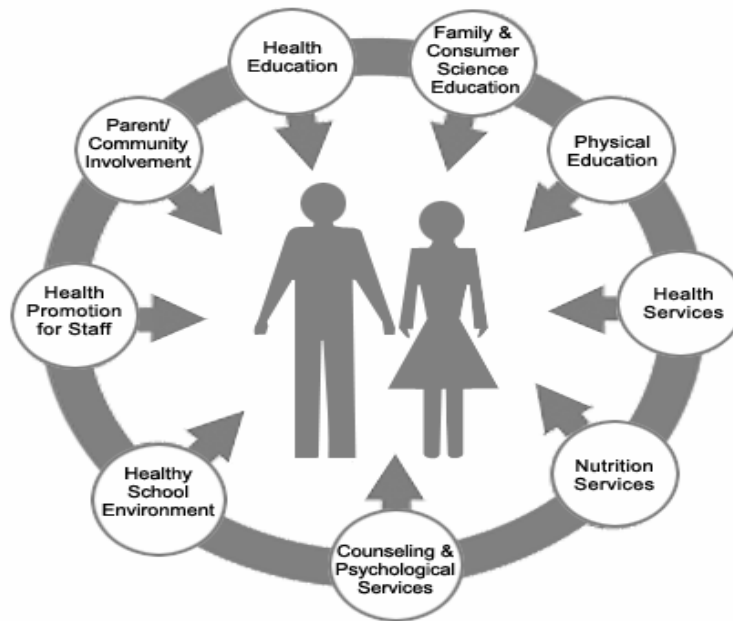
In a landmark article in the late 1980s, Diane Allensworth and Lloyd Kolbe, of the Centers for Disease Control and Prevention, proposed a new model for thinking about school health, a model they initially termed “comprehensive school health programs” (Allensworth & Kolbe, 1987), but that later came to be known as “coordinated school health” programs — CSHP (Marx, Wooley, & Northrop, 1998).

In essence, the coordinated school health approach proposes bringing together various components of school health for the purpose of strengthening the individual programs and increasing collaboration and coordination between and among programs. The premise underlying this model is that the components are most effective in addressing health issues facing youth today when supported and reinforced by the others rather than in isolation. Each of the CSHP model components is more effective when provided within the broader context of the whole (Blake, 2002).

Through the support of families, schools, and communities all working together, CSHP is an approach to school health that improves students' health and their capacity to learn. Schools provide the critical facility in which many people and organizations can collaborate to maintain the wellbeing of youth. Families, health care workers, the media, community organizations that serve youth, and young people themselves also must be systematically involved.

Massachusetts enhanced the CSHP by adding a ninth component — Family and Consumer Science Education — to the original eight that were defined by Allensworth and Kolbe. The Massachusetts Coordinated School Health Program (CSHP) model aims to create a healthy environment for young people by involving everyone in the community. These components are outlined in Figure 1, and each is described below.

The Massachusetts Coordinated School Health Model (Figure 1)



- **Health Education** – A planned, sequential, K-12 curriculum that addresses the physical, mental, emotional, and social dimensions of health.
- **Physical Education** – A planned, sequential, K-12 curriculum that provides cognitive content and learning experiences in a variety of activity areas such as basic movement; physical fitness; rhythms and dance; games; team, dual, and individual sports; tumbling and gymnastics; and aquatics.
- **Health Services** – Services provided to appraise, protect, and promote student health, facilitate attendance, ensure access and referral to community primary care providers and other youth-serving agencies, foster use of primary care services, prevent and control disease and other health problems, and provide emergency care and educational and counseling opportunities.
- **Nutrition Services** – Access to a variety of nutritious and appealing meals and a nutritional environment that accommodates the health and nutrition needs of all students.
- **Health Promotion for Staff** – Opportunities for school staff to improve their health through activities such as health assessments, health education, and health-related fitness activities.
- **Counseling and Psychological Services** – Services provided to improve students' mental, emotional, behavioral, and social health.
- **Healthy School Environment** – Positive physical and aesthetic surroundings, psychosocial climate, and culture for schools.
- **Parent/Community Involvement** – An integrated school, parent, and community approach for enhancing students' health and well-being. School health advisory councils, coalitions,

and broad-based constituencies can build support for school health program efforts and gather resources and services to respond effectively to students' health needs.

- **Family and Consumer Science Education** – A planned, sequential, K-12 curriculum that provides students with the knowledge and skills necessary to obtain, manage, and evaluate resources in order to maintain physical and mental health and well-being for themselves, their families, and the community.

Each of these components has an essential role in addressing student health issues, but different programmatic components often fail to coordinate with each other and may even work at cross purposes. In a paper delivered to the 2000 National Governors Association, Mark Ouellette of the Education Policy Studies Division of the Center for Health and Health Care in Schools discussed the “fragmentation, duplication, and inconsistency” that plague many school health initiatives (Ouellette, 2000). Examples of how there can be inconsistencies in the application of the health model are:

- While the health educator teaches about the food pyramid, the cafeteria manager prepares a lunch of pizza and french fries, the school business manager counts the proceeds from the soft-drink machines, and the social studies teacher rewards a student with candy for correctly answering a question in class.
- A teacher emphasizes the importance of students washing their hands. Yet only one of the eight faucets in the girls' lavatory works, there is no soap in the dispenser, and the maintenance department cannot schedule plumbing renovations for another two years.

However if a concerted effort is made to apply the model and issues are addressed consistently, a coordinated approach to school health can contribute to positive outcomes, such as the following:

- While the health educator teaches about the food pyramid, the cafeteria manager prepares a lunch based on the pyramid, the school business manager counts the proceeds from vending machines offering healthy foods and beverages, and the math teacher offers non-food rewards for excellent performance in class.
- A teacher emphasizes the importance of students washing their hands. Sufficient sinks and/or hand sanitizers are available and the maintenance department ensures timely renovations of plumbing fixtures if needed.

Thus, working together offers many opportunities to remove barriers to the success of school health. Furthermore, implementation of a coordinated school health program model has been shown to improve attendance, discipline, and academic performance, along with overall wellness. One low-income school district in Mississippi credits its use of a similar model with increased graduation rates; dramatic decreases in discipline referrals, detentions, and suspensions; and huge gains in elementary reading performance (e.g., an increase of 71% in second-graders reading at grade level) (Cooper, 2003).

Program Support for Massachusetts Coordinated School Health

Over the past 15 years or so in Massachusetts, there have been a number of partnerships and initiatives to promote coordinated school health. In the 1990s, the Massachusetts Health Protection Fund (HPF), funded by a tax on tobacco products, gave grants to school districts to strengthen their school health programs. To obtain HPF grants, districts were required to conduct regular needs assessments of the health risk behaviors most prevalent among students in their communities, to plan school health programming based on local needs and best practices, and to have both a district health coordinator and a district school health advisory council.

In 1993, DPH began to implement its Essential School Health Service (ESHS) grants that also required a school health advisory council, thus working collaboratively with the Massachusetts

Department of Education (DOE) to support this essential requirement for coordinated school health programs. The coordinated approach gained further momentum in 2000 when DOE and DPH received funding from the Division of Adolescent and School Health (DASH) at the Centers for Disease Control and Prevention (CDC) to promote the CSH model. This initiative funded a collaborative effort between DOE and DPH to address priority youth risk behaviors in a systematic way. Under the CDC cooperative agreement, DOE and DPH established a plan consisting of the following goals:

1. To establish formal partnerships between DOE and DPH to develop and implement an infrastructure that supports school health education and services, as well as child and adolescent health activities at the state and local levels. In addition, the Massachusetts CSH model will build relationships with community-based and statewide organizations concerned with child, adolescent, and school health issues to promote and support the roles of schools in achieving priority health outcomes.
2. To reduce youth health risk behaviors relating to physical activity, nutrition, and tobacco use that can result in chronic disease, through the promotion of effective school policies, environmental changes, and educational strategies at the local level (CDC, 2003).

An excellent example of CSH was offered through the federal Child Nutrition and WIC Reauthorization Act of 2004. This act requires all school districts receiving USDA funds to establish a written “School Wellness Policy” that addresses nutrition education, physical activity, and foods available on the school campus. Districts must bring together many constituents — including school administrators, parents, school nurses, school committee members, and representatives from school food service authority — to work on drafting and implementing local school wellness policies that are tailored to the needs of their communities. Although these policies vary in quality and strength, many districts, through coordination of efforts, have succeeded in eliminating soda and junk food from vending machines and class parties, improving the nutrition education and physical education for their students, and promoting an awareness of health across the whole school community.

Coordinated School Health staff at DPH and DOE are available to help school districts develop plans to implement their wellness policies and further design and implement a CSH model to meet their specific needs. Specific professional development, technical assistance, and materials are available to help schools assess their existing school health policies and programs, evaluate and revise health education and physical education curricula, increase coordination within schools and between schools and communities, advocate effectively for school health, and conduct program evaluations.

EXPANSION OF THE MASSACHUSETTS SCHOOL HEALTH SERVICES

School health services are an essential component of the CSH program model. Health is the primary mission of the service component, and frequently the school nurse serves as the catalyst for addressing health needs within the school. Through the efforts of the DPH, particularly the innovative DPH School Health Unit, Massachusetts has assumed national recognition as a leader in developing school health services.

The Role of the DPH School Health Unit

In the early 1990s, in response to the changes affecting school health programs and the increased need for quality services in the educational setting, the Massachusetts Department of Public Health (DPH) redesigned its school health service program. It established an expanded School Health

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Unit staffed with clinically trained professionals to provide consultation to school nurses and other school health personnel in school districts across the Commonwealth.

In keeping with its mission and vision, the DPH School Health Unit (SHU) is committed to supporting public school districts and nonpublic schools in providing all school-age children with access to a school health service program that is:

- community-based;
- integrated within and supportive of the educational system;
- managed by a qualified nursing leader who is integrated into the school administrative structure as part of the management team;
- advised by a school and community group, including parents and students;
- based on accepted standards, regulations, statutes, and community norms;
- supported by a health service management information system;
- offering a range of prevention, risk assessment, and treatment services;
- implemented by sufficient numbers of qualified school nurses and support personnel during the entire school day;
- culturally competent and linguistically relevant;
- coordinated with the 8 other components of the Massachusetts Coordinated School Health Model (see earlier in chapter);
- linked with community primary care, behavioral health, and dental health providers, local youth- and family-serving agencies, local and state public health and emergency providers, and public insurance outreach programs;
- making maximum use of available public and nonpublic funds (e.g., Municipal Medicaid, grants, insurance reimbursement, business partnerships, Foundation Budget, Community Benefits Program); and
- evaluated regularly to determine its effectiveness and efficiency.

To accomplish its goals, the SHU developed and implemented a strategic plan involving 9 components.

- 1. Setting Standards:** Beginning in 1992, the SHU developed quarterly newsletters aimed at setting standards in specific areas such as violence prevention and overweight reduction. In 1995, it published the first edition of the *Comprehensive School Health Manual*; the current second edition was completed in 2007. As new issues emerge, updated information and standards of care are placed on the SHU website, <http://www.mass.gov/dph/fch/schoolhealth/index.htm>.
- 2. Updating Regulations:** In 1993, DPH originally developed and promulgated the Regulations Governing the Administration of Prescription Medications in Public and Private Schools (105 CMR 210.000), and revised them as needed, with the most recent revision in 2004. These regulations form the basis of the school nurse managed medication administration system in the Commonwealth's schools. The SHU also collaborated with the State Laboratory Institute to update school immunization regulations as new immunizations were developed.
- 3. Providing Continuing Education:** In 1993, responding to school health personnel's request for continuing education programs pertinent to school health, DPH established the first School Health Institute (SHI). The institute, administered by a university, provides ongoing multidisciplinary programs relevant to school health practitioners.

4. **Credentialing of School Health Personnel:** In collaboration with DOE and the Massachusetts School Nurse Organization, the SHU has assisted the Massachusetts Board of Education in developing licensure requirements for school nurses consistent with teacher requirements. (School nurse certification/licensure was a requirement established by the 1993 Education Reform Act.)
5. **Exploring Reimbursement Systems:** The SHU has promoted expansion of access to such programs as Municipal Medicaid, Part B, which reimburses municipalities for indirect care of children insured by MassHealth.
6. **Exploring New Models of Care:** As student health needs grow and change, DPH is responsible for encouraging new models of care. It developed and supports the Essential School Health Service (ESHS) model and the school-based health center (SBHC) model; the latter designed for schools where students do not have access to primary care.
7. **Implementing Data Systems:** Student health and health care service data are integral to establishing a needs assessment, tracking changing child health status indicators, demonstrating school health service activities, and supporting evaluation of care. Through the ESHS programs, the SHU began establishing information management systems in 1993. In addition, it collaborates with other DPH programs to provide surveillance of child health indicators (e.g., pediatric asthma surveillance in conjunction with the Bureau of Environmental Health and varicella surveillance with the State Laboratory Institute).
8. **Coordinating School Health Service Programs with Primary Care Providers:** As increasing numbers of children with special health care needs attend school, new mechanisms need to be established to ensure close communication among the parents, the school health program, and health care providers, so that the individual child will have consistent, coordinated care in all settings. For example, with parental consent, the school nurse may share asthma diaries with the primary care providers (PCP) while the PCP may complete an asthma action plan for management of the child's asthma in the school setting.
9. **Conducting Research on Pertinent School Health Issues:** As school health service programs develop, there is a need for expansion and implementation of evidence-based practice to improve health and educational outcomes. In addition, school nurses, like their nursing colleagues in other settings, need to implement continuous quality improvement (CQI) programs (e.g., client satisfaction and vision screening follow-up), to continue to monitor and improve their practice. The DPH-SHU has provided leadership in this area with the implementation of its own CQI program, the review of the administration of epinephrine to individuals experiencing a life-threatening allergic event in the school setting (McIntyre et al., 2005).

Massachusetts continues to be a leader in developing school nursing research. In 2004, DPH-SHU joined a partnership of the MSNO and Boston College Connell School of Nursing to form a practice-based research network, the Massachusetts School Nurse Research Network (MASNRN). MASNRN is comprised of a representative, collaborative group of school nurses, nurse academicians, and other interested parties who conduct research and use translational research to support and improve student health outcomes and the efficacy and efficiency of school nursing care. For further information, see <http://www.masnrn.org/>.

School nurses play a critical role in enhancing evidence based practice in the school setting, as demonstrated by the tobacco cessation study. A pilot study conducted by the University of Massachusetts Medical School (UMMS) Division of Preventive and Behavioral

Medicine and the Department of Public Health (DPH) in 2002-2003 at 71 Massachusetts high schools, demonstrated that cessation intervention, delivered by school nurses, is feasible and potentially efficacious in increasing self-reported short term (6-week and 3-month) quit rates among adolescent smokers who wish to quit. The intervention includes four individual 15 to 20 minute sessions with the school nurse.

Based on these outcomes, in 2006 the National Institutes of Health awarded the University of Massachusetts Medical School a four-year grant to test this intervention in a randomized controlled trial that will allow longer-term, 12-month follow-up with continue validation.

Essential School Health Service Programs

During the 1990s, the availability of state and federal resources permitted expansion of the comprehensive school health programs. DOE provided funding for health education under the Health Protection Funds, and DPH developed a model for school nurse-managed health services. Originally entitled “Enhanced School Health Services” and in 2004 renamed “Essential School Health Services” (ESHS), the model established standards for school nurse-managed health service programs consistent with the coordinated school health program model. While originally applied to a group of school districts, funded through the competitive bidding process, it continues to offer guidance for school health service program development throughout the Commonwealth.

The ESHS programs were designed to strengthen the Commonwealth’s school health service system. Grant requirements included:

- strengthening the administrative infrastructure of the school health service program with a qualified school nurse leader (as a member of the management team), staffing requirements, health assessments, policies, oral health, and emergency care;
- coordinating with health education activities, including implementing tobacco prevention and cessation programs onsite in the school district;
- linking the school health service program with local health agencies, medical and dental providers, community-based activities, and public health insurance programs; and
- developing information management systems.

In 1997, after the first Enhanced Program cycle, an additional model was introduced — the Enhanced School Health Service with Consultation (ESHSC) — that funded certain ESHS districts to provide consultation to other school districts seeking to develop their school health service programs, thereby expanding the ESHS best practice model. In 2000 and 2001, the ESHS model was expanded with each public school district applicant assuming responsibility for beginning to provide basic health services to the non-public schools within the community’s borders. By 2001, more than half of the Commonwealth’s children attended schools in communities partially funded under the ESHS model.

At the same time that the Essential School Health Services were expanding, so too were school-based health centers (SBHCs). These are primary care clinics located in schools that are licensed satellites of either a neighborhood health center or a hospital. In contrast to the ESHS and general school health service programs serving all children in the school, SBHCs only provide *primary care* to students enrolled in the centers. The first SBHC in Massachusetts was established in the mid-1980s. With additional state and federal funds, the number of centers throughout the Commonwealth is now more than fifty. Chapter 2 contains further discussion of SBHCs.

The Guiding Vision

Underlying all of these efforts in Massachusetts is the recognition that schools and school health services occupy a unique position in lives of students and the larger community, which makes them a critical access point for services to children and their families.

- Entry into school offers an important *safety net* for children. Traditionally, state immunization regulations have ensured that all children who enter school receive protection against certain infectious diseases. School entry also provides an opportunity to monitor children's access to health insurance and primary care and dental providers, providing referrals as needed. And, it offers the opportunity to ensure that plans of care are in place to provide for the health and safety of children with a variety of health conditions (e.g., life threatening allergies).
- Schools and school nurses are frequently well known and trusted by families. As health professionals knowledgeable about community resources, school nurses are well positioned to provide information on resources and referrals.
- When the school health services infrastructure (school nurse leader, staffing, equipment, and technology) is in place, it offers an efficient and cost-effective means of addressing a wide range of health and prevention issues (e.g., group asthma management, risk assessment, overweight prevention, skin cancer prevention, tobacco cessation, dental sealant applications). Schools also can offer a comfortable, safe environment for delivery of health education and care to students.
- School nurses are critical in the management of chronic health conditions, providing vital planning, treatment, coordination and family education services, designed to promote both attendance and health.
- The school is an excellent location for population-based screening that can identify problems affecting students' health and learning abilities, including both physical problems and behavioral issues that are indicative of substance abuse, exposure to violence, or risk of suicide.
- Schools offer opportunities for collection of population-based data for needs assessments and monitoring children's health status, such as asthma and overweight surveillance.

THE ROLE OF THE SCHOOL NURSE

The school nurse is the cornerstone of the school health service program, and her/his role interacts with three major systems affecting children and adolescents: education, health, and public health. As a public health nurse, the school nurse is responsible for a defined population of students. This requires both clinical and management expertise, as well as an ability to work with families and a range of disciplines within both the school and community.

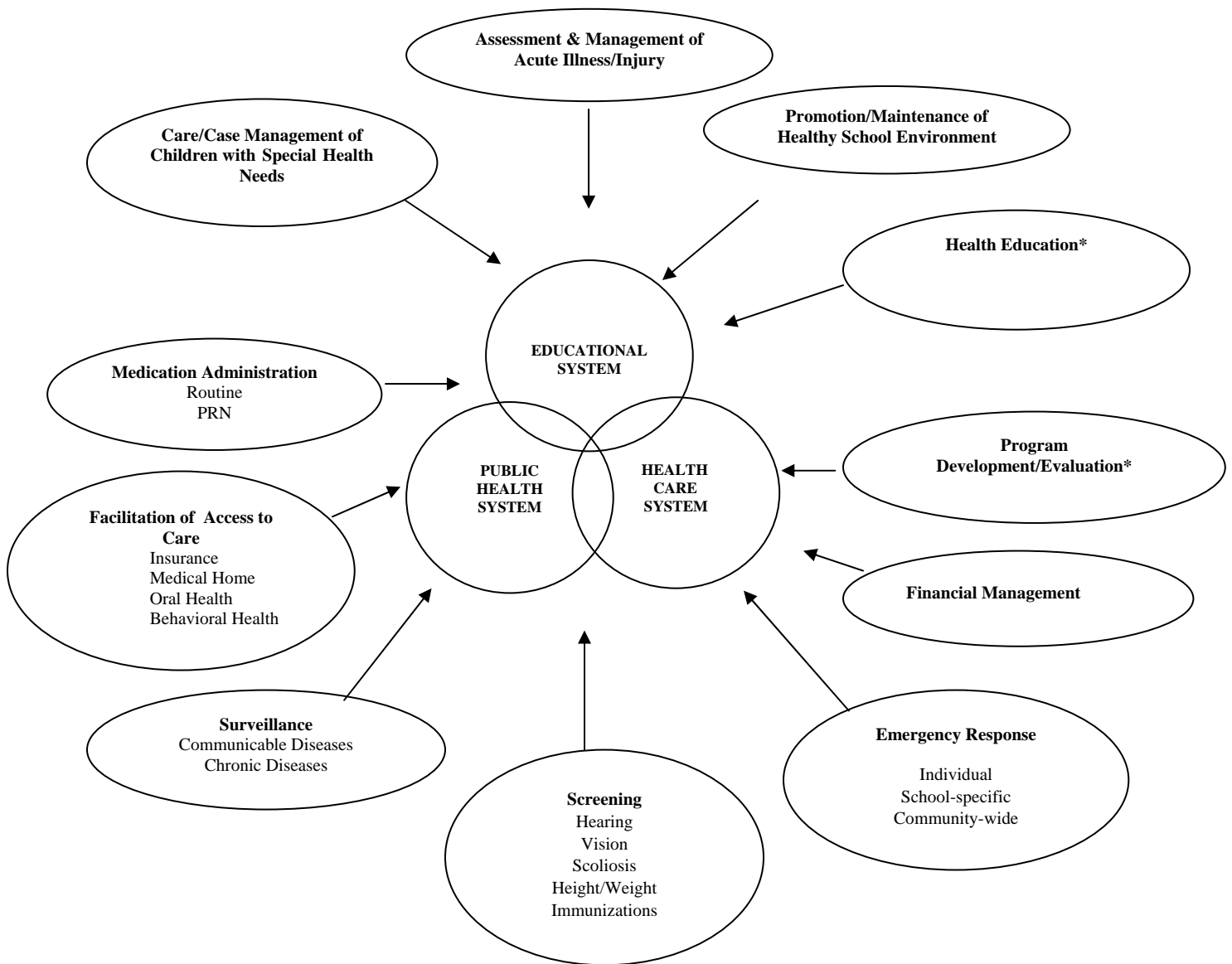
Over the past 15 years, the role of the school nurse has undergone dramatic changes. In a regular school day, a school nurse provides services for 40 to 100 children, delivering an extensive and complex range of services that may include:

- assessing and treating a range of illnesses;
- managing chronic diseases;
- administering medication;
- providing care assisted with medical technology (e.g., catheterizations, tracheotomy care);
- linking children with insurance and/or primary care providers;
- providing first aid and emergency care for a range of injuries and health conditions (e.g., an individual experiencing a life-threatening allergic event);
- identifying students at risk for a variety of issues such as teen pregnancy, alcohol abuse, bullying, and depression;

- completing health screenings (e.g., body mass index (BMI) measurements); and
- providing support and referral resources for children and their families experiencing acute crisis or emotional upheaval.

School nurses also collaborate with school administrators, teachers, parents, and local public health and safety officials to help plan and implement a wide range of health promotion programs dealing with issues such as tobacco cessation, nutrition, and skin cancer screening. They assist in the development of strategies for modeling healthy habits and behaviors within the school environment. More recently, superimposed on these responsibilities are public health functions such as asthma surveillance and participation in community influenza pandemic planning.

SCHOOL NURSING MODEL (Figure 2)



*Examples of specific health issues addressed by health education & program development activities: asthma, diabetes, food allergies, substance abuse, healthy weight (nutrition, physical activity), sexual issues, injury prevention (intentional/unintentional), skin cancer prevention, mental health, hygiene/sanitation.

ONGOING CHALLENGES OF SCHOOL NURSING AND SCHOOL HEALTH SERVICES

While the responsibilities and scope of school health services and school nursing practice have expanded, many challenges remain:

- continued development of high-quality health services in both public and nonpublic schools across the Commonwealth;
- establishment of ongoing funding streams;
- expansion of behavioral health promotion efforts;
- expansion of communication systems and coordination mechanisms among school health personnel, community primary care providers, and parents to facilitate care management for children with special health care needs;
- expansion of information management systems between state agencies and communities to expedite care and provide early warning systems should an infectious disease outbreak occur;
- additional partnerships with universities, hospitals, and others to promote studies and research in educational and health outcomes related to health education and services provided in schools;
- establishment of ongoing surveillance systems for a wide range of child health indicators such as asthma, depression, Type I and Type II diabetes, and overweight; and
- specialized educational programs to prepare nurses and other providers for both leadership and staffing roles in the educational setting.

School health services have moved into the new century with new expectations and expanded responsibilities. They are evolving very rapidly into a unique specialty in pediatric health care. The vision is to continue to strengthen school health infrastructure at the local level, ensuring high quality, evidence-based practice in the educational setting. However school health services must also continue to focus on demonstrating their unique role in supporting educational achievement. They must integrate their efforts into a larger health care delivery system serving children, while forging new communication systems and linkages in the process. Furthermore, as schools are increasingly viewed as essential components of the public health system, they will face new challenges as they join the planning efforts for the health and safety of their communities.

SUMMARY

Coordinated school health programs, built on a foundation of close collaboration among school-based health and human services personnel, teachers, administrators, parents, external health care providers, and local public health and safety officials, can support the resiliency of students and enhance their knowledge and skills for maintaining health. At the same time, these programs also identify students at risk for health problems and provide needed health services within the school and/or timely referral to community agencies. The ultimate goal is a healthier, more teachable student population and a healthier community.

RESOURCES: MASSACHUSETTS AGENCIES AND ORGANIZATIONS

Health is Academic: A Guide to Coordinated School Health Programs (Marx & Wooley, 1998) discusses not only the contribution of different components to promoting health within schools, but also outlines steps that schools and districts can take to adopt and implement a coordinated school health approach. These include enlisting the support of school administration; establishing a broad-based school health advisory council; identifying key players and establishing a healthy school team; identifying student, family, and staff needs; mapping existing school-based and community resources; identifying programmatic needs; getting buy-in from other school staff; developing program goals and objectives; developing an implementation and coordination plan; and instituting monitoring and evaluation procedures (Fetro in Marx & Wooley, 1998. See also Fetro, 2005 and Kane, 2005). Specific examples describing how schools across the country have strengthened their school health programs by using a CSHP approach can be found in CDC's ***Stories from the Field: Lessons Learned about Building Coordinated School Health Programs*** (2003).

Massachusetts Association of Health Boards

56 Taunton Street

Plainville, MA 02762-2144

Phone: 508-643-0234

Fax: 508-643-0234

Website: <http://www.mahb.org>

MAHB is a nonprofit organization providing local boards of health with education, technical assistance, representation, and resource development.

Massachusetts Coalition of School-Based Health Centers

95 Berkeley Street, Suite 201

Boston, MA 02116

Phone: 617-451-0049

Fax: 617-451-0062

E-mail: mcsbhc@tmfnet.org

Website: <http://www.mcsbhc.org>

School-based health centers are places where children have access to quality health care in school. There are over 10 such centers in Massachusetts and the Massachusetts Coalition for School-Based Health Centers' (MCSBH) website provides a summary message of efforts and goals for these centers from the executive director.

Massachusetts Department of Public Health Bureau of Family and Community Health

250 Washington Street

Boston, MA 02108-4619

Phone: 617-624-6000

TTY: 617-624-6001

Website: <http://www.mass.gov/dph>

School Health Services

Phone: 617-624-6060

Fax: 617-624-6062

TTY: 617-624-5992

Website: <http://www.mass.gov/dph/fch/schoolhealth/index.htm>

School Health Services is composed of central office professional staff that collaborate with other DPH programs and DOE to provide ongoing school health service systems development and technical assistance to the Commonwealth's 351 public school districts and approximately 600 nonpublic schools.

Essential School Health Services

Website: <http://www.mass.gov/dph/fch/schoolhealth/eshs.htm>

Coordinated School Health Program

Phone: 617-624-5537

Website: <http://www.mass.gov/dph/fch/schoolhealth/cshp.htm>

The Coordinated School Health Program at DPH, in collaboration with the Coordinated School Health Program at the Department of Education, works to help schools and districts build local infrastructure and strengthen school health programs, especially those related to health education, physical education, and school health policies.

Massachusetts Department of Education

350 Main Street

Malden, MA 02148-5023

Phone: 781-338-3000

Website: <http://www.doe.mass.edu>

Coordinated School Health Program

Phone: 781-338-3603

Fax: 718-338-6332

Website: <http://www.doe.mass.edu/cnp/hprograms/>

The Coordinated School Health Program at the Department of Education, in collaboration with the Coordinated School Health Program at DPH, works to help schools and districts build local infrastructure and strengthen school health programs, especially those related to health education, physical education, and school health policies.

Resources available online include the CSHP newsletter, *InStep with School Health*, which contains ideas, news, and resources for school health programs and services, and an electronic mailing list providing updates on health education, physical education, and other school health programs as well as announcements of professional development opportunities. Additionally, the website provides links to the HIV/AIDS Prevention Program and the most current Youth Risk Behavior Survey results.

Massachusetts Public Health Association (MPHA)

434 Jamaicaaway (Boston office; see website for other offices)

Jamaica Plain, MA 02130

Phone: 617-524-6696

Fax: 617-524-5225

Website: <http://www.mphaweb.org>

MPHA is a statewide membership organization that seeks through advocacy, education, coalition building, and organized action to improve public health, promote the establishment of health care as a human right, and secure optimal community, personal, and environmental health.

Massachusetts School Nurse Organization (MSNO)

Website: <http://www.msno.org>

MSNO is a nonprofit organization that works to promote and advance the professional practice of school nursing throughout Massachusetts. Its membership includes school nurses, school administrators, public health nurses, practitioners, consultants, educators, and retired school nurses.

Massachusetts School Physicians

Website: <http://www.bu.edu/schoolphys>

Massachusetts requires every school district to have a school physician. This website is intended to serve as a technical and informational resource to those school physicians. Answers to basic questions, links, and a support forum are provided.

RESOURCES: NATIONAL AGENCIES AND ORGANIZATIONS

American Academy of Pediatrics (AAP)

141 Northwest Point Boulevard
Elk Grove Village, IL 60007-1098
Phone: 847-434-4000
Fax: 847-434-8000

Website: <http://www.aap.org>

The Committee on School Health and the Section on School Health at AAP jointly maintain a website offering information and resources for school health: <http://www.schoolhealth.org>.

American Public Health Association (APHA)

School Health Education Section

Website: <http://www.hsc.usf.edu/CFH/cnheo/apha-shes.htm>

APHA's School Health Education Section works toward the improvement of early childhood, school, and college health programs, interpreting the functions of health agencies and service objectives, providing a forum for discussion, and encouraging the provision of health-promotion programs in those settings.

American School Health Association (ASHA)

7263 State Route 43
P.O. Box 708
Kent, OH 44240
Phone: 800-445-2742 or 330-678-1601
Fax: 330-678-4526

E-mail: asha@ashaweb.org

Website: <http://www.ashaweb.org>

ASHA publishes *Health in Action*, a quarterly that provides scientifically accurate and readable information covering single health topics within the context of a coordinated school health program.

Association of State and Territorial Health Officials (ASTHO)

Adolescent and School Health Project

1275 K Street NW, Suite 800
Washington, DC 20005-4006
Phone: 202-371-9090
Fax: 202-371-9797

Website: http://www.astho.org/index.php?template=adolescent_school_health.html

The Adolescent and School Health Project informs state health agencies about adolescent health issues and works to increase the development of sound national policies and programs to promote adolescent health and well-being. The project also assists state public health agencies in increasing collaboration with and providing assistance to state education agencies in implementing CSH in the nation's schools. A monthly publication *The Update* provides information on state and national adolescent and school health issues, resources, and funding.

Center for Health and Health Care in Schools (CHHCS)

2121 K Street NW, Suite 250
Washington, DC 20037
Phone: 202-466-3396
Fax: 202-466-3467

E-mail: chhcs@gwu.edu

Website: <http://www.healthinschools.org>

CHHCS is a nonpartisan policy and program resource center located at The George Washington University School of Public Health and Health Services.

Centers for Disease Control and Prevention (CDC)

Division of Adolescent and School Health (DASH)

Website: <http://www.cdc.gov/nccdphp/dash> or <http://www.cdc.gov/HealthyYouth/index.htm>

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DASH provides information on the coordinated school health program model designed and supported by CDC, as well as information on important long-term studies including the Youth Risk Behavior Surveillance (YRBS) study, the School Health Policies and Program Study (SHPPS-2000), and the School Health Profiles (Surveillance for characteristics of health education and other school health policies and programs among secondary schools).

Other available materials include:

- *School Health Index* – A self-assessment and planning tool for schools to improve the effectiveness of their health and safety policies and programs.
- *Improving the Health of Adolescents & Young Adults: A Guide for States and Communities* – A resource for state and local agencies and organizations that will guide them through public health processes that address important adolescent health and safety issues.

Council of Chief State School Officers (CCSSO)

School Health Project

One Massachusetts Avenue NW, Suite 700

Washington, DC 20001-1431

Phone: 202-336-7000

Fax: 202-408-8072

Website: http://www.ccsso.org/projects/School_Health_Project/

In partnership with the Association of State and Territorial Health Officials (ASTHO), CCSSO's School Health Project created *The School Health Starter Kit*, now in its second edition. The kit, which contains easy-to-use research-based tools and materials to educate and motivate the public regarding school health issues, is available from the CCSSO publications office.

National Assembly on School-Based Health Care

666 11th Street NW

Washington, DC 20001

Phone: 202-638-5872

Fax: 202-638-5879

E-mail: info@nasbhc.org

Website: <http://www.nasbhc.org>

National Assembly on School-Based Health Care aims to promote accessible, quality school-based primary health and mental health care for children and youth through interdisciplinary and collaborative efforts. It supports the institutionalization of school-based health care nationwide as an essential strategy for improving the lives of children and optimizing their opportunities for success in school and society.

National Association of Local Boards of Health (NALBOH)

1840 East Gypsy Lane

Bowling Green, OH 43402

Phone: 419-353-7714

Fax: 419-352-6278

E-mail: nalboh@nalboh.org

Website: <http://www.nalboh.org>

NALBOH aims to empower local boards of health by providing education, training, and technical assistance.

National Association of School Nurses (NASN) (Eastern Office)

P.O. Box 1300 (163 U.S. Route #1)

Scarborough, ME 04070

Phone: 207-883-2117 or 877-627-6476

Fax: 207-883-2683

E-mail: nasn@nasn.org

Website: <http://www.nasn.org>

NASN was founded in 1968 by the National Education Association as an association committed to the betterment of school nursing practice and the health of school-aged children. Originally established as the Department of School Nurses (DSN), NASN formally separated from the National Education Association in 1979 and now continues to be the largest national association for school nurses. NASN partners with

national health organizations to develop educational programs, publishes issue briefs on subjects affecting student health and school nursing, and maintains a legal representative in Washington, D.C. to promote school nurse issues.

National Association of State Boards of Education (NASBE)

277 South Washington Street, Suite 100

Alexandria, VA 22314

Phone: 703-684-4000

Fax: 703-836-2313

Website: <http://www.nasbe.org>

NASBE develops guidelines for the writing and implementation of school policies on health issues; see *Fit, Healthy, and Ready to Learn*.

National Association of State School Nurse Consultants (NASSNC)

P.O. Box 708

Kent, OH 44240-0708

Website: <http://lserver.aea14.k12.ia.us/swp/tadkins/nassnc/nassnc.html>

National Association of State School Nurse Consultants promotes the health and learning of the nation's children and youth by providing national leadership and advocacy, impacting public policy, collaborating, and proactively influencing school health programs and school nursing practice.

National Center for Health Education (NCHE)

375 Hudson Street, 13th Floor

New York, NY 10014

Phone: 212-463-4053

Fax: 212-463-4060

Website: <http://www.nche.org/>

NCHE's Youth, Parents, and Communities project is aimed at building partnerships between schools, families, and communities to promote children's physical and emotional health and educational development. The site offers a bimonthly newsletter and school health resource links.

NEA Health Information Network (NEA HIN)

1201 16th Street NW, Suite 216

Washington, DC 20036

Phone: 202-822-7570

E-mail: info@neahin.org

Website: <http://neahin.org>

As the nonprofit health affiliate of the National Education Association, NEA HIN serves as a link between public school employees; local, state, and national health organizations; and government agencies. NEA HIN's mission is to improve the health and safety of school personnel and students by providing the school community with vital and timely health information that will increase teacher and education support professional (ESP) quality and student achievement.

National School Boards Association (NSBA)

School Health Programs Department

1680 Duke Street

Alexandria, VA 22314

Phone: 703-838-6722

Fax: 703-683-7590

E-mail: schoolhealth@nsba.org

Website: <http://www.nsba.org/schoolhealth>

The aim of the NSBA's School Health Programs Department is to help school policymakers and educators make informed decisions about health issues affecting the academic achievement and healthy development of students and the effective operation of schools. NSBA has developed the School Health Resource Database, a collection of 3,400+ items including sample school district policies, journal articles, research summaries, and fact sheets.

RESOURCES: REGIONAL AGENCIES AND ORGANIZATIONS

The New England Coalition for Health Promotion and Disease Prevention (NECON)

One Meeting Street

Providence, RI 02903

Phone: 401-351-5130

Fax: 401-421-2771

E-mail: info@neconinfo.org

Website: <http://www.neconinfo.org/index.htm>

NECON, a not-for-profit, nonpartisan organization, was established in 1984 with working groups and health-examining task forces representing multiple disciplines from all six New England states. Today NECON is a coalition of the New England state health departments, the region's schools of public health, and federal health agencies led by Region I of the U.S. Department of Health and Human Services as well as medical societies, legislators, and representatives from industry, labor, and voluntary associations. It serves as an instrument for the development and enhancement of disease-prevention and health-promotion public policies in New England.

REFERENCES

- Action for Healthy Kids. (2002). *Taking action for healthy kids: A report on the Healthy Schools Summit and the Action for Healthy Kids Initiative*. Retrieved from http://www.actionforhealthykids.org/docs/the_report.pdf.
- Allen, G. (2003). The impact of elementary school nurses on student attendance. *Journal of School Nursing, 19*(4), 225–231.
- Allensworth, D., & Kolbe, L. (1987). The comprehensive school health program: Exploring an expanded concept. *Journal of School Health, 57*, 409–412.
- Allensworth, D., Lawson, E., Nicholson, L. & Wyche, J. (Eds.). (1997). *Schools and health: Our nation's investment*. Washington, DC: National Academy Press.
- American Academy of Pediatrics, Committee on School Health. (2001). School health centers and other integrated school health services. *Pediatrics, 107*, 198–201.
- Association for Supervision and Curriculum Development (ASCD), Healthy Schools Initiative, Healthy People 2010 (2000). Retrieved in 2005 from http://web.archive.org/web/20050405112126/www.ascd.org/health_in_education/092000/feature.html.
- Billy, J. O., Grady, W. R., Wenzlow, A. T., Brener, N. D., Collins, J. L. & Kann, L. (2000). Contextual influences on school provision of health services. *Journal of Adolescent Health, 27*(1), 12–24. PMID: 10867348.
- Blake, S. (2002). *The Massachusetts School Health Collaborative Coordinated School Health Programs Needs Assessment Final Report*. Malden, MA: Massachusetts Department of Education.
- Brener, N. D., Kann, L., McManus, T., Stevenson, B. & Wooley, S. F. (2004). The relationship between school health councils and school health policies and programs in US schools. *Journal of School Health, 74*(4), 130–135.
- Broussard, L. (2004). School nursing: Not just band-aids any more. *Journal for Specialists in Pediatric Nursing, 9*(3), 77–83. PMID: 15553549.
- Carnegie Council on Adolescent Development. (1995). *Great transitions: Preparing adolescents for a new century*. New York: Carnegie Corporation.
- The Center for Health and Health Care in Schools. (2003). *Parents cite importance of health care services in schools*. Washington, DC: The George Washington University School of Public Health and Health Services.
- Centers for Disease Control and Prevention (2003). *Stories from the field: Lessons learned about building coordinated school health programs*. Atlanta, GA: Centers for Disease Control and Prevention.
- Chabra, A. & Chavez, G. (2000). A comparison of long pediatric hospitalization in 1985 and 1994. *Journal of Community Health, 25*(3), 199–210.
- Costante, C. C. (2002). Healthy learners: The link between health and student achievement. *American School Board Journal, 189*(1), 31.
- Devlin, L. M., & Asay, M. K. (2005). Rising student health needs require a school safety net. *North Carolina Medical Journal, 66*(2), 152–154. PMID: 15952471.
- Dryfoos, J. (2002). Full-service community schools: Creating new institutions. *Phi Delta Kappan, Jan.*, 393–399.

Chapter 1 NEW DIMENSIONS OF SCHOOL HEALTH

Duncan, P. & Igoe, J. B. (1988). School health services. In Marx, E. & Wooley, S. F. (Eds.), *Health is academic: A guide to coordinated school health programs* (pp. 69–194). New York: Teachers College Press.

Dwyer, K., & Osher, D. (2000). *Safeguarding our children: An action guide*. Washington, DC: U.S. Departments of Education and Justice.

Education Development Center, Inc. and Urban Special Education Leadership Collaborative, in collaboration with the ILIAD IDEA Partnership. (2003, May). *Improving attendance, improving achievement for students with asthma*. Web report on national teleconference.

Fetro, J.V. (1998). Implementing coordinated school health programs in local schools. In E.Marx & S. Wooley (Eds.), *Health is academic: A guide to coordinated school health programs* (pp. 15–42). New York: Teachers College Press.

Fetro, J.V. (2005) *Step by step to health-promoting schools: Program planning guide* (Revised edition). Santa Cruz, CA: ETR Associates

Geierstanger, S. P. & Amaral, G. (2005). *School-based health centers and academic performance: What is the intersection?* April 2004 meeting proceedings, white paper, Washington, DC: National Assembly on School-Based Health Care.

Greenberg, M. T. (2004). Current and future challenges in school-based prevention: The researcher perspective. *Prevention Science*, March, 5(1), 5–13.

Hanson, T. L., Austin, G. & Lee-Bayha, J. (2003). *Student health risks, resilience, and academic performance: Year 1 report*. Los Alamitos, CA: WestEd.

Jensen-Wunder, L., Luckenbill, D. H., Robinson, J., Schlitt, J. & Wooley, S. F. (2001, October). *Recommendations for delivery of comprehensive primary health care to children and youth in the school setting*. Joint statement on the School Nurse/School-Based Health Center Partnership. Retrieved from <http://www.nationalguidelines.org/guideline.cfm?guideNum=4-27&pageRefresh=true>.

Kane, W.M. (2005). *Step by step to coordinated school health: Program planning guide* (Revised edition). Santa Cruz, CA: ETR Associates.

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To err is human: Building a safer health system*. Washington, DC: National Academy Press.

Lear, J. G., Isaacs, S. L., Knickman, J. R. (Eds.). (2006). *School health services and programs*. San Francisco, CA: Jossey-Bass.

Leslie, L., Sarah, R. & Palfrey, J. S. (1998). Child health care in changing times. *Pediatrics*, 101(4), 746–751.

Lohrmann, D., & Wooley, S. (1998) Comprehensive school health education. In E. Marx & S. Wooley (Eds.), *Health is academic: A guide to coordinated school health programs* (pp. 43–66). New York: Teachers College Press.

Marx, E. & Wooley, S. (Eds.). (1998). *Health is academic: A guide to coordinated school health programs*. New York: Teachers College Press.

Maughan, E. (2003). The impact of school nursing on school performance: A research synthesis. *The Journal of School Nursing*, 19(3), 163–171.

McIntyre, C. L., Sheetz, A., Carroll, C., Young, M. (2005). Administration of Epinephrine for Life Threatening Allergic Reactions in School Settings, *Pediatrics*, 116(5), 1134–1140.

Chapter 1 NEW DIMENSIONS OF SCHOOL HEALTH

Mohai, C. (1991). *Peer leaders in drug abuse prevention*. Ann Arbor, MI: School of Education, University of Michigan. (ERIC Document Reproduction Service No. 341892)

Murphy, J., Wehler, C. A., Pagano, M. E., Little, M., Kleinman, R. E. & Jellinek, M. S. (1998). Relationship between hunger and psychosocial functioning in low-income American children. *Journal of American Academy of Child and Adolescent Psychiatry*, 37, 163–170.

Nader, P. R. (Ed.). (1993). *School health: Policy and practice* (5th ed.). Elk Grove Village, IL: American Academy of Pediatrics.

Nader, P. R. (1998 June). *School health: A bridge between public health and health care*. Keynote lecture: George Washington University, School Health Initiative. Retrieved from <http://www.healthinschools.org/sh/nader.asp>.

National Assembly on School-Based Health Care. (2000). *Principles and goals for school-based health care*. Washington, DC.

National Association of State Boards of Education (2000). *Fit, healthy, and ready to learn: A school health policy guide*. Alexandria, VA: NASBE.

National Center for Chronic Disease Prevention and Health Promotion. (2003). *The critical role of school health programs*. Fact sheet on preventing chronic diseases: Investing Wisely in Health, Revised. Atlanta, GA. Retrieved from <http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/pdf/schoolhealth.pdf>.

Nicklas, T. A., Johnson, C. C., Webber, L. S. & Berenson, G. S. (1997). School-based programs for health-risk reduction. *Annals of the New York Academy of Sciences*, 817, 208–244.

Nyswander, D. (1942). *Solving school health problems: The Astoria demonstration*. New York: The Commonwealth Fund.

O'Rourke, T. W. (2005). Promoting school health: An expanded paradigm. *Journal of School Health*, 75(3), 112–114. PMID: 15966554.

Ouellette, M. (2000, October). *Improving academic performance by meeting student health needs*. Paper: The National Governors' Association. Retrieved from <http://www.healthinschools.org/education.asp>.

Palfrey, J. S., Haynie, M., Porter, S., Bierle, T., Cooperman, P. & Lowcock, J. (1992). Project school care: Integrating children assisted by medical technology into educational settings. *Journal of School Health*, 62(2), 50–54.

Palfrey, J. S., Sofis, L. A., Davidson, E. J., Liu, J., Freeman, L., & Ganz, M. L. (2004). The Pediatric Alliance for Coordinated Care: Evaluation of a Medical Home Model. *Pediatrics*, 113(5), 1507–1516.

Schutte, E. B., Price, D. L., & James, S. R. (1997). *Thompson's pediatric nursing*. Philadelphia, PA: W. B. Saunders.

Sheetz, A. H. (2002). Developing a strategic plan for school health services in Massachusetts [electronic version]. *Journal of School Health*, 72(7), 278–281. Retrieved from <http://www.mass.gov/dph/fch/schoolhealth/shpubs.htm>.

Sheetz, A. H. (2003). Developing school health services in Massachusetts: A public health model [electronic version]. *Journal of School Nursing*, 19(4), 204–211. Retrieved from <http://www.mass.gov/dph/fch/schoolhealth/shpubs.htm>.

Sheetz, A. H. (1998). *Options for developing school health services in Massachusetts*. Boston: Massachusetts Department of Public Health.

Chapter 1 NEW DIMENSIONS OF SCHOOL HEALTH

- Sheetz, A. H. & Blum, P. (1998). Medication Administration in the Schools: The Massachusetts Experience. *Journal of School Health*, 68(3), 94–98.
- Small, M. L., Majer, L. S., Allensworth, D. C., Farquhar, B. K., Kann, L. & Pateman, B. C. (1995). School health services. *Journal of School Health*, 65(8), 319–326.
- Stock, J. L., Larter, N., Kieckehefer, G. M., Thronson, G. & Maire, J. Measuring outcomes of school nursing services. *Journal of School Nursing*, 18(6), 353–359.
- Symons, C. W., Cinelli, B., James, T. C. & Groff, P. (1997). Bridging student health risks and academic achievement through comprehensive school health programs. *Journal of School Health*, 67(6), 220–227.
- Taras, H. (2003). Maximizing student health resources [electronic version]. *The School Administrator*, January. Retrieved from http://65.213.205.4/publications/sa/2003_01/Cooper_Taras.htm.
- Taras, H., Duncan, P., Luckenbill, D., Robinson, J., Wheeler, L. & Wooley, S. (2004). Guidelines for health, mental health and safety in schools [electronic version]. Retrieved from <http://www.schoolhealth.org>.
- Telljohann, S. K., Price, J. H., Dake, J. A. & Durgin, J. (2004). Access to school health services: Differences between full-time and part-time school nurses. *Journal of School Nursing*, 20(3), 176–181.
- Thurber, F., Berry, B., & Cameron, M. E. (1991). The role of school nursing in the United States. *Journal of Pediatric Health Care*, 5(3), 135–140.
- Uphold, C. R. & Graham, M. V. (1993). Schools as centers for collaborative services for families: A vision for change. *Nursing Outlook*, 41(5), 204–211.
- U.S. Department of Health and Human Services. (2000). *Healthy People 2010* (2nd ed.) with *Understanding and Improving Health and Objectives for Improving Health*. 2 vols. Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services. (2000). *Reducing Tobacco Use: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- Valentine, J. (1997). Schools and communities work together for healthy children. *Wellness Management*, 13(1), 11.
- Wold, S. J. (2001). School health services: History and trends. In Schwab, N. C. & Gelfman, M. H. B. (Eds.), *Legal issues in school health services* (pp. 7–54). North Branch, MN: Sunrise River Press.
- Yates, S. (1994). School health delivery programs throughout the United States. *Journal of School Nursing*, 10(2), 31–36.

Note: PMID number indicates an article has been indexed by PubMed for Medline.

EXHIBITS

Exhibit 1-1 Milestones in Massachusetts School Health

Exhibit 1-1

MILESTONES IN MASSACHUSETTS SCHOOL HEALTH

1850s The Massachusetts legislature required that *“physiology and hygiene shall hereafter be taught in all public schools of the Commonwealth in all cases in which the school committee shall deem it expedient”* and *“all school teachers shall hereafter be examined in their knowledge of the elementary principles of physiology and hygiene, and their ability to give instruction in the same.”*

1890s Health inspections began in the Boston schools in an effort to control the spread of serious communicable disease.

1902 The first school nurse was placed in four New York City schools after a settlement house worker found a 12-year-old boy had been excluded from school because of a tiny sore in his mouth. Many states, including Massachusetts, soon followed New York City’s lead; the first school nurse in Massachusetts was appointed to a Boston school in 1905.

1912 Massachusetts law required that a physician examine every child in the public schools each year. Medical inspections ranged from a search for major physical defects to a careful assessment of each student’s physical, mental, and social potentialities.

1920s Health education was added to the medical inspection and became a responsibility of the school nurse.

1930 *The Handbook on School Hygiene* was published as a reference for administrators, health officers, public health nurses, and others working for the health of the school child.

Late 1960s School-based health centers developed in certain urban, low-income communities around the country where large numbers of children were not receiving any primary care or other preventive services.

Mid-1980s The first Massachusetts school-based health center began in Holyoke, with others soon spreading throughout the Commonwealth. In some locations, the school-based health center has expanded into a family health center located at the school.

1990 The MDPH undertook a large-scale effort to restructure and redefine school health services.

1993 Several regulations and initiatives were established:

- The Massachusetts Education Reform Act required certification/licensure of school nurses, with a BSN requirement for entry into school nurse practice.
- Regulations governing the administration of prescription medications in public and private schools (105 CMR 210.000) promulgated.
- The first School Health Institute was established to provide pertinent continuing education on school health issues.
- DPH began development of a model and standards for community-based school nurse-managed health service programs, consistent with the coordinated school health model. These “Enhanced School Health Services” were later renamed “Essential School Health Services.”

1995 The first edition of the Massachusetts *Comprehensive School Health Manual* was published.

Chapter 1 NEW DIMENSIONS OF SCHOOL HEALTH

1997 The Enhanced School Health Service with Consultation (ESHSC) model was introduced, funding certain ESHS districts to provide consultation to other school districts seeking to develop their school health service programs.

1998 Publication of the Report to the Legislature: *Options for Developing School Health Services in Massachusetts*. This report included recommended school nurse to student ratios.

2000 A requirement was added that each public school district ESHS/ESHSC applicant assume responsibility for beginning to provide basic health services to the nonpublic schools within the community's borders.

2001 More than half of the Commonwealth's children attend schools in communities partially funded under the Essential School Health Service model.

2003 The first asthma surveillance program was initiated for students in the ESHS programs (grades K-8). In 2004, this was expanded to all K-8 schools.

2003 Medication administration regulations were amended to require a report to DPH whenever an Epi-Pen is administered in a school. This amendment was part of the School Health Unit's continuous quality improvement program.

2004 An amendment to Chapter 71, section 57 requires preschool vision screening, to identify children with amblyopia at a time when treatment is most effective.

2004 The Massachusetts School Nurse Research Network (MASNRN), a collaborative venture of Boston College School of Nursing, the Massachusetts School Nurse Organization, and DPH was established to develop research in school health.

2005 The 100th anniversary of school nursing was celebrated in Massachusetts.

2007 The *Comprehensive School Health Manual* was completely revised.