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CHRONIC DISEASE DIRECTORS
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STATE HEALTH DEPARTMENT LEADERSHIP IN ADDRESSING CHRONIC CONDITIONS IN SCHOOLS:

CASE STUDIES FROM MASSACHUSETTS AND MISSOURI

2015

ACKNOWLEDGEMENTS

The National Association of Chronic Disease Directors (NACDD) extends its appreciation to the following people who provided valuable advice and input in the development of this document.

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These case studies were produced under a cooperative agreement 5U58DP002759-04 with the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the author and do not necessarily represent the official views of NACDD or CDC.

STATE HEALTH DEPARTMENT LEADERSHIP IN ADDRESSING CHRONIC HEALTH CONDITIONS IN SCHOOLS:

Executive Summary

Schools across the nation educate millions of students with chronic diseases and conditions and understand the impact of these diseases as leading causes of death, disability, and high health care and economic cost.[1] Many chronic health conditions such as asthma, diabetes, and food allergy among children are on the rise, and childhood obesity rates are high. Schools play a pivotal role in promoting life-long healthy behaviors from an early age, reducing health risks, and responding to treatment and care needs for children with chronic health conditions. State health departments in partnership with schools and other stakeholders often lead the way in the management of students with chronic health conditions to improve health and education outcomes.

These case studies highlight the work and accomplishments of the Massachusetts Department of Public Health (MDPH), School Health Services Unit and the Missouri Department of Health & Senior Services (MDHSS), School Health Services (SHS) program in addressing chronic health conditions in the school environment.

In Massachusetts, strong support for school nursing and school health services is evidenced by its long-standing support of the School Health Services Unit and its work. MDPH believes that the capacity of school nurse systems is essential to chronic disease management in schools. The case study focuses on how MDPH strengthens school nursing infrastructure, health services and consequently the management of chronic health conditions through targeted grants to school districts, such as the Essential School Health Services Program (ESHS).

The Missouri case study focuses on services and programs targeted through school nurses and school health services personnel, including the Missouri Actions to Prevent Chronic Disease and Control Risk Factors (MAP) project funded by the Centers for Disease Control and Prevention (CDC). While funding to support targeted, comprehensive public health approaches to address chronic health conditions in schools is limited at this time, it provides examples of how MDHSS has made progress in this area by building partnerships with others to leverage leadership strengths and resources.

Both case studies highlight state health department leadership in collaborating with internal and external partners and making strides towards better identification and tracking of students with chronic disease and conditions and improved daily or emergency management. They also integrate the responsibilities that MDPH and MDHSS undertake to support schools with chronic disease management overall and provide an example of a local school district success story. Together, the case studies demonstrate the important role that state health departments can play to strengthen the management of chronic health conditions in schools, even in an era of limited funding.

[1] Centers for Disease Control and Prevention. (2014). Chronic diseases and health promotion. Retrieved from http://www.cdc.gov/chronicdisease/overview.

STATE HEALTH DEPARTMENT LEADERSHIP IN ADDRESSING CHRONIC HEALTH CONDITIONS IN SCHOOLS:

MASSACHUSETTS

The Massachusetts Department of Public Health (MDPH) has made great strides in its efforts to address chronic health conditions in the school environment. The School Health Services Unit, housed within the Division of Health Access at MDPH, has played a primary leadership role in this area. The Unit was founded in 1990 and administers various initiatives around chronic disease management in schools. The Unit is comprised of central office staff including three professional nursing staff, a program coordinator, and a business manager. MDPH School Health Services central office staff and its projects are supported entirely by state legislature funding, with a FY14 budget of $7,346,146. Working with other MDPH partners, the Massachusetts Department of Elementary and Secondary Education (MDESE), and additional groups, the Unit provides schools with ongoing school health service systems development, daily consultation, and technical assistance.

> State health departments in partnership with schools and other stakeholders often lead the way in the management of students with chronic health conditions to improve health and education outcomes.

With respect to the management of students with chronic health conditions in schools, MDPH School Health Services Unit has a number of responsibilities including providing clinical management and consultation on school health issues, establishing standards for school health services, and developing implementation policies for such services. The Unit is also responsible for managing school-based medication and legislatively-mandated screening programs including BMI, facilitating continuing education for school health personnel, supporting MDESE school nurse certification requirements, exploring reimbursement systems for school health services, and managing and monitoring grants to public school districts that involve data systems to track services and case management activities.

Collaborating with Health and Education Partners

MDPH School Health Services staff collaborate with many internal partners in efforts to address chronic disease management in schools. Several primary partners are also housed within the Division of Health Access, which facilitates communication and coordination. The School Health Services' team members include the Office of School-Based Health Centers and the Office for Adolescent Health and Youth Development. The team meets biweekly and developed a data-driven strategic plan to address unmet needs of children and adolescents. This type of purposeful coordination at the state level models how school nurses and school-based health centers at 29 sites across the state can support each other at the local level. The Massachusetts Prevention & Wellness Trust Fund – an investment of $57 million over four years to reduce costly preventable health conditions - also offers an opportunity for alignment with the work of MDPH School Health Services, particularly in the area of pediatric asthma. More than $40 million of the funds administered by MDPH support nine community partnerships that implement research-based interventions in three domains: community, clinical, and community-clinical linkages. The work targets four priority areas and the partnerships also proposed interventions for obesity, diabetes, substance abuse, oral health, and mental health/depression.

Massachusetts Student Population

- 955,739 students
- 408 school districts
- White 64.9%, Hispanic 17.0%, African American 8.7%, Asian 6.1%
- 17.8% of students have a first language that is not English (17.8%)
- 7.9% of students are English Language Learners
- 38.3% of public school students qualify for free (33.6%) and reduced (4.7%) lunch[1]
- 13.3% of high school students are overweight and 9.7% are obese
- 12.8% of middle school students are overweight and 8.9% are obese[2]
- 5.1% of students in schools funded by MDPH have food allergies, 12.8% have asthma, 0.31% have Type I diabetes, 0.05% have Type II diabetes, and 1.2% have depression[3]

In addition, MDPH School Health Services works closely with many other external education and health partners, especially MDESE. MDPH School Health Services and MDESE collaborate on meeting school nurse certification and continuing education requirements and additional select areas related to the management of chronic health conditions in schools, with policy largely serving as a nexus between the two agencies. For instance, they partnered on the development of state guidelines for allergy and diabetes, and MDESE is taking the lead on updating the life-threatening allergy guidelines. Other partners include the Asthma and Allergy Foundation of America, the Community Education Initiative program at Boston Children's Hospital, and Youth Health Connection at South Shore Hospital. MDPH School Health Services grants to school districts also reflect collaboration between health and education at the local level. As part of each project, schools must affirm through a "Memorandum of Agreement Grant Assurances" that the superintendent and other administrators are committed to meeting grant requirements, and superintendents participate in an orientation meeting upon grant award.

Strengthening School Nursing Infrastructure and Health Services

Massachusetts is unique among states because of its strong commitment to school nursing. The current nurse to student ratio is 1:431. Per state legislative recommendations, the school nurse to student ratio is 1.0 fulltime equivalent (FTE) certified nurse in each building with 250 to 500 students. Should a building have more than 500 students, 0.1 FTE for each additional 50 students is recommended; and for those with fewer than 250 students, the ratio is determined at 0.1 FTE: 25 students. School nurses are funded at the local level, although MDPH contributes to nursing infrastructure in select school districts funded through one or more of its programs.

MDPH reaches and educates school nurses (primarily lead school nurses) across the state through various ways including regular electronic communications, an annual school nurse institute, and online and day- or afternoon-long educational programs. MDPH funds the Northeastern University School Health Institute to support statewide school health initiatives through continuing education programs for several thousand school nurses annually (FY2014 $420,000), including population-based screening, diabetes and asthma management, mental health initiatives, and BMI trainings. It also funds the Massachusetts Technology Resource Team (MASSTART), which provides clinical consultation and expertise on new technology for children with complex medical issues, and Boston Children's Hospital diabetes programs. These activities often address the management of chronic health conditions while promoting the use of relevant state guidelines including but not limited to: *Massachusetts Comprehensive School Health Manual* (2007), *Managing Life Threatening Food Allergies in Schools* (2002), and *The Massachusetts Guide to Managing Diabetes in Schools* (2011). In programs described below, MDPH-funded school districts receive increased contact and technical assistance through quarterly statewide meetings, regional school nurse meetings, and annual site visits, for instance.

Essential School Health Services Program

Since 1995, MDPH has funded schools to strengthen school nursing through the Essential School Health Services (ESHS) Program. ESHS is a competitive grant program to establish a comprehensive school health service program using evidence-based practices. A total of 120 different school districts have received funding since the program's inception, and 70 districts are a part of the FY14 program. They are funded to meet or continue to meet components regarding school health services infrastructure that supports a school nurse leader position, a medication administration program, individualized health plans for students with special health care needs, and other basic services. In addition, the program requires collaboration, sustained linkages of students with primary care and dental providers and community and behavioral/ mental health programs, a management information system, continuous quality improvement and evaluation, and services to private schools in their community.

An expansion of the ESHS Program led to the development of community and consultation models for schools not in receipt of ESHS awards. Under the MDPH community model, ESHS-funded districts currently provide basic ESHS services to 80 private schools meeting limited DPH requirements. In addition, in the Mentor/Partner Program, school districts with ESHS experience provide consultation to a

minimum of two mentored "Partner" public school districts/schools as well as networking for school nurses in other schools within their community. MDPH assigns Partner schools for which limited funds are available to the ESHS school districts awarded for consultation, with attention to geographic proximity. A total of 61 mentor school districts of the 70 ESHS school districts, and 132 Partner schools are now a part of the Mentor/Partner program.

MDPH School Health Services coordinates with the Office of Statistics and Evaluation to evaluate school districts using data collected primarily in monthly and annual reports and by site visits. ESHS grantees are required to meet specified benchmarks. For instance, return to class rates[1] need to be above 85%, and, if not, corrective actions need to be reviewed. MDPH compiles aggregate data from the funded school districts into an annual program update, and these reports are publicly available on the MDPH website. MDPH has modified the ESHS model as a result of ongoing program review including school district feedback, changing health care needs with increasing disease management in schools (e.g., diabetes, asthma), increasing mental and behavioral health needs and prescribing of medication to treat these needs, emerging issues such as obesity and emergency preparedness, and increasing coordination between school health programs and formal health care delivery systems.

Looking retrospectively at the ESHS grantees, MDPH has identified two factors that have contributed most to the success, or highest return on its school health service investment: (1) strong school nursing infrastructure directed by qualified school nurse leaders who are integrated into the school administrative structure and part of the senior management team and not involved in providing direct, individual care to students and (2) district-wide administrative support that entails enabling the school nurse leader and school nurses to implement a high quality program including effective data systems and fulfillment of grant requirements. A survey conducted in 2014 of all nurses leaders in the state, including those affiliated with ESHS school districts, identified four additional indicators of success with nurse leader roles and responsibilities: 1) clinical practice oversight (e.g., student health acuity assessment, student's health/dental insurance status, nursing case management, communication with school physician); 2) community outreach (e.g., contracts and memoranda of agreement with community entities, local board of health outreach); 3) educational and advocacy outreach (e.g., staff training, media advocacy); and 4) public health initiatives (e.g., wellness, community quality improvement projects). Likely contributing to the success of ESHS and other MDPH-funded projects is the manner in which MDPH works with its funded partners; MDPH gives school districts latitude in how to implement their programs per their own specific community needs, so long as grantees meet MDPH parameters and expectations.

An analysis of school nursing services published in *JAMA Pediatrics* suggests that Massachusetts' investment in school nursing is also cost-effective. The study determined that for every dollar invested in the ESHS Program, society yields $2.20, or a net benefit of $98.2 million. In the 2009-2010 school year, the delivery of ESHS in 78 school districts at a program cost of $79 million prevented millions of costs for medical care ($20 million), parents' productivity due to early dismissals and giving medications at school ($28.1 million), and teachers' productivity due to dealing with students' illness or injury ($129.1 million).[4]

[1] Return to class rate is the number of students who went back to the classroom to complete the school day after utilizing nursing services divided by the total number of nursing service encounters. The rate is utilized in DESE's District Analysis and Review Tool (http://www.doe.mass.edu/apa/dart/).

Regional Consultant to the Essential School Health Services Program

Beginning in 2008, MDPH initiated the Regional Consultant to the Essential School Health Services (RC-ESHS) Program in response to an expansion of school health services and school nursing practice and its implications to share best practices by experienced districts on a regional scale. This program expanded in 2014 to maximize existing school nursing expertise, leadership, and infrastructure to provide consultation to all ESHS programs and additional consultation to Partner schools and all other non-funded public school districts and non-public schools as requested within a general geographic region. School districts funded for ESHS grants that meet specific criteria apply for additional funding to designate them also as regional consultant districts. Each of the five RC-ESHS school districts currently funded are required to employ a full-time (1 FTE) Advisor Nurse position on a recommended annual basis for the consultation role. The Advisor Nurse provides technical assistance and consultation to regional school districts/schools, collaborates with regional primary care providers to improve linkages of care with schools, and serves in various leadership capacities.

Identifying and Tracking Students with Chronic Health Conditions

MDPH has collected data on students with chronic health conditions since 1995, but a more systemic approach to school health data began in 1998. Data collection overall is voluntary, as Massachusetts has not legislatively required the reporting of such data by schools. However, the 121 school districts funded by MDPH (including the Mentor/Partner Program) are required to collect and report standardized data on an annual basis to identify and track students in their districts. MDPH, therefore, has data on approximately 900,000 students, or 75% of the student population statewide.

Data collection is aligned with and surpasses expert recommendations to assess staffing, risk management, health promotion, episodic care, and care coordination.[5] With use of school health records collected at the school building level by school nurses, the lead school nurse completes an annual data report for MDPH that totals the numbers of children in the school district with special health care needs. These children have, or are at risk for, a chronic physical, developmental, behavioral, or emotional condition which limits function, activity or social role; causes dependency on medication, special diet, medical technology, assistive device or personal assistance; and/or requires health and related services of a type or amount beyond those required by children generally.[2] The data report lists 12 physical/development conditions such as allergies, diabetes, neurologic conditions, and respiratory disorders and seven behavioral/emotional conditions with open-ended options for additional conditions to be listed.

[2] The federal Maternal and Child Health Bureau defines children with special health care needs as "…those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally." file://localhost/(http/::mchb.hrsa.gov:cshcn0910:population:cp.html)

In addition, MDPH receives aggregate annual data by the number of students including but not limited to the following:

- written plans for individualized health care plans (IHCPs), 504 plans, and asthma action plans
- health room visits
- BMI weight categories of underweight, normal, overweight, and obese
- health insurance type
- student health screenings and referrals

School districts provide information on staffing including educational levels of nurses, funding sources of various health services staff, and the number of unlicensed school personnel who are trained to administer medications including epinephrine and respond to emergencies. The annual data report to MDPH also includes specific outcomes, targets, and performance measures per the funding requirements.

Moreover, lead school nurses complete monthly activities reports that gather detailed school district data including but not limited to the following:

- student encounters for nursing services
- disposition of students utilizing services (e.g., dismissals from school due to illness/non-injury and injury, returned to class)
- medication management
- nursing assessments/interventions/procedures/treatments per type of health condition
- emergency calls
- referrals including for primary care provider and for health insurance coverage
- nursing case management by length of time
- school nurse participation in educational forums and group activities

Meeting Management and Care Needs of Students with Chronic Health Conditions

As described above, MDPH uses data from ESHS schools to assess the extent to which management and emergency care needs of students with chronic health conditions are being met. The ESHS reports provide important information regarding the numbers of students with written IHCPs, 504 plans, and asthma action plans on file. Per ESHS requirements, IHCPs must be in place for all students with special health care needs who have treatment needs during the school day and adhere to plans and policies for chronic disease management that are consistent across all grade levels in the school district. For those children with IHCPs, schools monitor attendance and track any changes in early dismissals, and they develop individualized education programs (IEPs) when appropriate in collaboration with special education services. Schools also track the administration of medication on a monthly basis, and MDPH prepares annual data health briefs that document epinephrine administration for the treatment of allergic reactions in schools.

School nurses screen all students for health and dental coverage and provide linkages for students to access a medical home as well as a dental home. All students who are Massachusetts residents are eligible for MassHealth (the state Medicaid program), and students enrolled in MassHealth can be seen by a primary care provider at no cost. ESHS school districts must assure that all children have both an identified primary care and dental care provider and insurance coverage for both preventive and primary health care with referrals as needed, and that families of students are provided with information regarding insurance coverage options. Some schools have school-based health centers onsite in which students can readily access a more comprehensive array of services, and many dental sealant programs are available at schools. ESHS school districts must also analyze the health insurance coverage of students in the school to identify major insurers and investigate opportunities for reimbursement and/or health promotion programming funded by these insurers.

Care Coordination Program

With an increasing number of students who require daily management of their chronic health conditions in order to attend school, MDPH School Health Services began to investigate models of care coordination with primary care providers and disease specialists. In 2010, MDPH launched the Pilot Project to Address Disparities in Diabetes Care for School Age Children (PPADD) to more fully address and determine how well individual management and emergency care needs of some of the most vulnerable children are met. The four-year project funded five school districts with families having disparate need and high risk populations for diabetes. School districts each hired a district diabetes liaison nurse to facilitate a case management/care coordination approach, partnered with and received consultation services from endocrine specialists, and provided at least two trainings about diabetes for school nurses. Importantly, endocrine specialists included school nurses in medical visits for the student located at the school and/or clinic, and many school nurses conducted home visits. The strategies aimed to connect the home, school, and medical providers and improve health care management of a minimum of 20 students with poorly controlled diabetes.

The project evaluation included specific outcome measures such as A1C levels (a measure of blood glucose over time period of three to four months), emergency room visits, diabetes-related hospital admissions, and diabetes-related school absenteeism. PPADD school districts also tracked kept and missed clinic appointments and the number of multidisciplinary school, clinic, and home visits as well as additional quantitative and qualitative process data. While some outcomes showed favorable changes such as reduced numbers of school dismissals and absences in one district, the best measurable indicator of success was increased school nurse confidence and competencies in managing diabetes for students. Students also experienced more use of insulin pump technology and carbohydrate counting measures. Additionally, there was increased numbers of 504 plans and IEPs addressing diabetes accommodations.[6] Despite these successes, challenges related to case management and care coordination for students with diabetes were evident. These include the sharing of information, as laws such as Family Educational Rights and Privacy Act (FERPA) and interpretations of the law limit care coordination, and the time-consuming responsibility for tracking and managing care, particularly with new diagnoses. In addition, the project demonstrated improved school-related factors related to the management of diabetes for low functioning children, but did not produce measurable change in A1C levels that are also markedly influenced by the home and social environment.

A Local School District Success Story

Springfield Public Schools (SPS) has had ESHS funding from MDPH since the program began and also currently receives funds for the Mentor/Partner Program, RC-ESHS, and PPADD. The school district has a student population PK-12 of 25,729 and is located in the third largest city in the state, surrounded by more rural communities. Students are predominantly of Hispanic ethnicity (60.9%), and 87.2% receiving free or reduced price meals.[7] Many students have risk factors such as obesity (41.8%) and chronic diseases such as diabetes, which affects 60 students.

MDPH funding and support has led to many accomplishments at Springfield Public Schools. The school district exceeds the ESHS-minimum return to class rate at 92%. In the PPADD project targeting diabetes, for instance, results indicate that students had a 22% increase in use of insulin pumps and a 44% increase in use of carbohydrate counts, related absences decreased from 113 (2013) to 41 (2014), and improvements in A1C levels were associated with increased kept and decreased missed endocrinology appointments and a school nurse being in attendance at the visit.[8] SPS and the major community hospital system Baystate Medical Center also strategically committed to creating a healthier community and are acting on 15 jointly-identified community needs.[9] School nurses participate in grand rounds at the hospital to work with providers treating students with diabetes and asthma, improving school-community linkages, and the collaboration even yielded unexpected positive outcomes, such as a clinical rotation to school health offices and education for physicians-in-training.[10] Without funding and support from MDPH, SPS school nurses would not have the extensive knowledge and guidance to do their jobs, and SPS would not have the progress, networking, and systemic changes to meet the needs of students with chronic health conditions.

MDPH foresees that their care coordination projects will progress from an individual service model to one that encompasses all types of chronic health conditions. Other aims are to improve school nursing practice, develop ongoing leadership, and integrate school nursing as a formal part of the healthcare delivery system. The Massachusetts Child Psychiatry Access Project, a mental health consultation system to help primary care providers meet the needs of children with psychiatric problems, is collaborating with MDPH on an expansion of the PPADD model, funding 19 school districts to focus on various health concerns, including diabetes, asthma, and mental/behavioral health.

Looking Forward

Massachusetts has demonstrated significant leadership and progress in addressing chronic health conditions in schools, primarily through its approach to strengthen school nursing infrastructure and school health services. MDPH plans are to both continue and enhance the current efforts described above. Regarding MDPH grants to school districts, MDPH plans to continue this type of funding while analyzing how funds are being deployed to identify more effective and efficient ways to manage chronic

health conditions in schools. Since school nurse leaders and school nurses play such a primary role in an expanding array of school health services, financial sustainability is an important matter of consideration. MDPH is exploring ways to increase capacity and meet an increased demand for disease management in schools, such as through reimbursement for school health services.

MDPH is using lessons learned from the initiatives implemented thus far to shape future programming, and the Department will continue to share information of use to all schools across the state through the website, school nurse meetings, and professional development opportunities. MDPH recognizes the value of school-level data and how such data can be a positive influence for change both at the local and state level. There are plans to increase the use of outcome evaluation measures in future efforts, ideally demonstrating how school health services may result in the improved health or educational status of students. While MDPH is aware that some school districts track more indicators than what MDPH requires for its funded projects (e.g., health-related absences), the agency is currently examining the extent to which school districts have outcome indicators available. This information will help establish a baseline from which to measure progress. A recent statewide survey of school nurse leaders indicated that many school districts already had the capacity to provide MDPH information on 15 different data points, including decreased emergency room visits and 911 calls, increased return to class time, increased follow-up referrals, decreased obesity rates, decreased chronic absenteeism, increased return to academics following school nurse intervention, and decreased visits to school nurse following parental education about asthma triggers.

MDPH anticipates that the future of addressing chronic health conditions in schools will continue to be collaborative, strategic, and innovative. MDPH aspires for increased, cross-cutting work with other efforts occurring in the state, such as through the Division of Health Access teams' internal strategic planning process involving school health services and school-based health centers, and with large-scale initiatives like the Massachusetts Prevention & Wellness Trust Fund. As part of a comprehensive approach, MDPH is strategically looking at the top diagnoses in schools and asking if enough is being done in prevention to produce measurable improvements. MDPH is also exploring ways to expand how children have historically interfaced with primary health care and how needs can be met with an increased role of other non-physician health personnel such as nurse practitioners and registered nurses. MDPH fosters synergy on a local level, as evidenced by regional consultation and networking opportunities and the partner commitment between schools and hospitals (see "A Local School District Success Story") around facilitating care coordination for students and creating a healthier community. The momentum within Massachusetts and the successes are also palpable at the national level by way of school nurse leaders sharing successes as a result of their MDPH-funded programs in journal publications, for example.

The innovative work and accomplishments of Massachusetts in addressing the management of chronic health conditions in the school environment is both significant and promising. MDPH's efforts, and those of the funded school districts, MDESE and other supporting organizations have led to tremendous changes in an area that is notoriously underfunded. A cost-benefit analysis suggests that strengthening school nursing services has resulted in a positive return on investment for Massachusetts. Looking forward, Massachusetts can be assured that their approach is not only one for good measure, but also of sound policy and value to children and society as a whole.

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STATE HEALTH DEPARTMENT LEADERSHIP IN ADDRESSING CHRONIC HEALTH CONDITIONS IN SCHOOLS:

MISSOURI

The Missouri Department of Health & Senior Services (MDHSS) has demonstrated leadership and progress in addressing chronic disease management in schools. The School Health Services (SHS) Program within the Division of Community & Public Health leads most services and projects related to this area, and its work described in this case study has been strengthened by collaboration with the Missouri Department of Elementary and Secondary Education (MDESE) and other partners. The SHS program began in 1993 via Missouri Statute 167.603, known as the Health Initiatives Fund, which provided $5.2 million annually to support the SHS program. Although that funding ceased in 2010, the SHS program has continued to provide technical assistance and consultation regarding school health services to all schools on a more limited capacity, as well as guidance to school districts upon their request.

> State health departments in partnership with schools and other stakeholders often lead the way in the management of students with chronic health conditions to improve health and education outcomes.

MDHSS employs the State School Nurse Consultant (the SHS Program Manager [SHS Manager]) to direct most of the state's efforts in school health services and oversee chronic health conditions in schools at the state level. Federal maternal and child health funds support the position itself, along with state project funds of $20,000 for schools. In alignment with Missouri state laws regarding allergy, diabetes, and asthma and recommended policies for the administration of medications in schools and other policies, the SHS Manager works with school nurses to:

- Collect and disseminate data regarding school health services in Missouri
- Formulate school screening guidelines
- Develop and update guidelines for school health services including but not limited to the *Manual for School Health Programs* (2014), *Guidelines for Allergy Prevention and Response* (2014), and *Missouri School Asthma Manual* (2011)
- Plan and offer educational opportunities for school nurses
- Facilitate collaborations with agencies and organizations related to school health

In 2013, Missouri received funding from the Centers of Disease Control and Prevention (CDC) to specifically address chronic health conditions in the school environment. The budget of the CDC-funded Missouri Actions to Prevent Chronic Disease and Control Risk Factors (MAP) Project for this strategy approximates $50,000. The project provides additional supportive services for eight school districts from across the state.

Collaborating with Health and Education Partners

MDHSS SHS program works with many internal and external partners around addressing chronic health conditions in schools. The SHS program is housed within the Bureau of Community Health and Wellness and works closely with the Bureau's five other teams, including Obesity Prevention. The Missouri Asthma Prevention and Control Program (MAPCP) has been supported by CDC since 2001 and is a primary partner for work in schools. MAPCP delivers evidence-based services to improve asthma care outcomes and reduce healthcare costs, including through a program with Asthma Ready® Communities[1] called *Teaming Up for Asthma Control.*

Monthly program manager meetings within the two bureaus of the Division (Bureau of Community Health and Wellness and the Bureau of Cancer and Chronic Disease Control) also facilitate collaboration and networking around addressing chronic health conditions. The CDC cooperative agreement has helped push the MDHSS to work more collaboratively. For example, the Diabetes Prevention and Control Program worked with SHS to draft the rules for Cade's Law (2013) regarding training of school employees in the care of students with diabetes and piloting the diabetes toolkit for use in the

Missouri Student Population

- 887,641 students
- 520 public school districts.[1] Many school districts are small, and around 50 school districts represent 90% of the state's students.
- Over 75% are White, followed by other primary racial/ethnic groups
- Less than 50% of students qualify for free and reduced lunch[2]
- 15.5% of high school students are overweight and 14.9% are obese
- 8.6% of middle school students are overweight and 8.6% are obese, with significant declines in overweight and obesity rates since 2003[3]
- 9.5% of students in school districts reporting data to MDHSS have asthma, 1.8% have life threatening food allergies, 2.4% have any life threatening allergy, 0.27% have Type I diabetes, 0.08% have Type II diabetes, 0.78% have a seizure disorder, 0.7% have depression[4]

[1] Asthma Ready® is a registered federal trademark owned by the University of Missouri. Asthma Ready® Communities provides standardized, evidence-based educational programs for children with asthma, families and health professionals compliant with the *Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 3.* For facilities, Asthma Ready® is also a designation to obtain in asthma management (http://asthmaready.org/).

MAP project. MDHSS SHS also regularly collaborates with other MDHSS programs and stakeholders involved with The Council of Adolescent and School Health (CASH).

MDHSS also has a number of external health partners. The annual Missouri Coordinated School Health Coalition (a coalition comprised of 60 agencies representing various health and education organizations and community groups) consistently offers professional development and pre-conference sessions on chronic disease management topics and sponsored two white papers on obesity prevention and mental health promotion. Other partners include the Missouri Association of School Nursing, the Department of Agriculture (for integrated pest management in rural, agricultural areas affected by asthma and other environmental-related conditions), and the Missouri Primary Health Care Association (MPCA), which assists with increasing students' access to care. MDHSS is also working with Heartland Genetics on the development of a state standardized Individualized Health Care Plan (IHCP).

MDHSS and MDESE have a strong collaboration on school health matters, including chronic disease management in schools, particularly in the area of policy. The two agencies jointly develop and post all guidelines and rules for managing children with chronic health conditions in the school setting, participate in each other's relevant advisory committees, and partner on various conferences and meetings targeted to school nurses and other health services personnel. MDESE supports MDHSS by placing health-related information as needed on their website or within other communications.

Additional education partners include the Missouri School Boards' Association (MSBA) and the Missouri Association of Rural Education (MARE). MDHSS worked with MSBA, MARE, MDESE and other health groups, to update the *Manual for School Health Programs*, and MSBA took the lead on developing a model allergy prevention and response policy for school districts. The education organizations have supported the implementation of health-related legislation by communicating widely with school districts on the laws permitting stock medications of epinephrine and albuterol for the treatment of students in the event of anaphylaxis or a severe asthma reaction, regardless of medical diagnosis. MSBA and MARE also allocate time for MDHSS on their respective conference agendas to speak directly with school board members and administrators about pertinent school health issues. MDHSS has also worked to engage and involve administrators in various projects by including them in initial meetings to discuss project objectives and actions and asking superintendents to appoint principals to lead implementation of the School Health Index to assess policies and practices.

Engaging School Health Services and Building Capacity for Schools to Address Chronic Health Conditions

Communication, Professional Development and Technical Assistance

To facilitate communication with schools, MDHSS manages a database called School Health Online Reporting System (SHORS) that is populated by the district lead nurse. All school districts identify a lead nurse, regardless of district size. SHORS includes a roster for all public and many private/parochial schools with contact information for lead nurses as well as social workers and health extenders. The MDHSS SHS Manager uses the roster to distribute information to the school nurse and other health-related staff. Various MDHSS departments, MDESE, and other organizations coordinate with the SHS Manager to communicate with school nurses around chronic disease management. There are 1,559 school nurses within public schools throughout the state, and 300 "health extenders," or paraprofessionals, also work in health offices. Missouri's current school nurse to student ratio is 1:742. If licensed practical nurses are included, the ratio improves to 1:576. Approximately 30 school districts across the state, representing around 6,000 students, do not have a school nurse, although MDHSS still maintains contact with the school district via designated staff.

MDHSS offers professional development to school nurses and other school health services personnel primarily through conferences, which integrate topics related to the management of chronic health conditions in schools. Examples of these events include the Lead School Nurse Collaborative, Health Office Orientation for New School Health Services Staff and the Missouri Coordinated School Health Coalition Annual Conference. MDHSS provides ongoing promotion of and assistance with the implementation of relevant state guidelines and online educational programs that are also conducted in part by other groups, such as Asthma Ready® Communities. Since MDHSS programs have identified school nurse-physician communication as a challenge, the guidelines in particular help to build skills for communication with physicians because they include benchmarks. Schools involved in MDHSS-funded programs receive additional support, and a few project examples are described below.

MDHSS also strives to enhance school nurse leadership and recognition. An Advisory Review Committee informs the development of training and content that MDHSS offered by the agency. The Committee also advises the development of guidelines and other publications and provides input on how MDHSS services might be of greater benefit to schools. When initiating or implementing school-related programming, MDHSS first reaches out to school nurses for their input and buy-in followed by educational administrators, as previous attempts to start projects in the reverse have not been as successful. With asthma management in schools, for example, the leadership of school nurses has been key to improvements at the school level. One of the ways that MDHSS has cultivated nursing leadership is through the Missouri Asthma Nursing Award, an award that had an emphasis on rural communities for six years (2006-2011) and resulted in the implementation of community-based asthma projects by 147 recipients in 68 counties.

School Health Services Program Accomplishments

Funding provided to local public school districts and local public health agencies by the Health Initiatives Fund from 1993-2010 enabled MDHSS to significantly increase the number of schools with onsite school nurses and formalized school health programs (an increase from approximately 50% to 99% of schools). MDHSS provided contracts to 380 school districts over the project period to develop infrastructure and meet criteria for a school health program. Prior to the fund's end in 2010, 101 districts disengaged from the MDHSS contract to begin a self-supporting program sustaining school nursing staff and services. A total of 279 school districts received MDHSS contracts in the project's final year of implementation serving 270,156 students at a program cost of $19.12 per child. The majority of schools today maintain school health programs despite the loss of funding from MDHSS, a notable achievement in sustainability. In addition to infrastructure, the Health Initiatives Fund helped to expand the development and promotion of many practice guideline documents and training events. Evaluation data indicated increases in the numbers of asthma action plans and IHCPs for students with chronic health conditions and improvements in access to a regular source of medical care, referral completion, and overall care coordination, especially for students with persistent asthma who maintained better control in managing their condition.

The Missouri Actions to Prevent Chronic Disease and Control Risk Factors (MAP) Project

Missouri's policies and programs around allergy, diabetes, and asthma provided a strong foundation for the CDC-funded Missouri Actions to Prevent Chronic Disease and Control Risk Factors (MAP) project. Otherwise known as "Healthy Children = Better Learners" by participating schools, MAP targets eight school districts with a focus on students with food allergies and diabetes in the first program year, followed by students with asthma, epilepsy, and those who are overweight or obese beginning in program years two and three. The participating eight school districts represent 57 school buildings and a total student population of 27,750.

MDHSS collaborated with MDESE, MSBA, and MARE to identify school districts and schools to target through this project. Each educational organization received a list of schools ranked by poverty and were asked to provide recommendations to MDHSS based on their familiarity with the school districts' individualized education initiatives and administrative leadership. This process also helped to instill needed buy-in from school district superintendents, as MDHSS indicated the districts were recommended by these education organizations.

MAP proposes to strengthen the capacity related to managing children with chronic health conditions in the school setting. In addition, they hope to:

- Foster communication among the school health services personnel, students, faculty, parents, and health care providers in the community

- Assure students with chronic health conditions are safe at school, fully included in school and community activities, and are knowledgeable about their condition and self-management
- Increase collaboration with community providers to connect these children with a medical home

School nurses in schools targeted by MAP develop emergency action plans (EAPs) for each student with a chronic health condition, train all school staff on emergency response for students experiencing a related life threatening emergency, and assist parents/families of these students with access to health insurance and community resources for health care and management of chronic health conditions.

School districts involved in MAP receive increased professional development and consultation. For instance, MDHSS trained participating school nurses and other health services personnel to use evidence-informed toolkits on diabetes and allergies, including resources regarding access to care and communication strategies for working with students and parents. MDHSS also conducts monthly conference calls for lead school nurses and site visits. As part of professional development, MDHSS infuses motivational interviewing[2] techniques including the art of focused conversations[3] to improve communication and better manage chronic health conditions.

The MAP project has a strong evaluation component. Lead school nurses compile data for the participating school districts and complete biannual reporting forms each December (interim report) and May (final report) that focuses on food allergies, diabetes, asthma, and seizures and recommended CDC performance measures.

Identifying and Tracking Students with Chronic Health Conditions

MDHSS began collecting data from school nurses to identify and track certain chronic diseases and conditions over 15 years ago. State legislation does not require data to be collected and reported to MDHSS, although generally 90 - 95% of lead nurses in public schools voluntarily report aggregate data to MDHSS. The data represents over 800,000 public school students.

Lead nurses across the state submit data into the SHORS database. They regularly update school health staff, which informs MDHSS of nurse to student staffing patterns and facilitates communication by email

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[2] Based on the Stages of Change model, motivational interviewing is a counseling approach that uses four basic skills: 1) ask open-ended questions; 2) affirm the person and comment positively on strengths, effort and intention; 3) reflect what the person says through active listening; and 4) summarize per the person's own perspective on change. Motivational Interviewing presentation materials at MDHSS meeting. Slides developed by Constance Brooks are based on work of MI founders Bill Miller and Steve Rollnick (http://motivationalinterviewing.org/).

[3] Questions to engage in a focused conversation include open-ended questions that ask specific questions to help people focus; seek rather than present information; and respect the person's response. The questions are of four classifications: objective; reflective; interpretive; or decisional. Focus Conversation presentation materials at MMDHSS meeting. Slides developed by Constance Brooks are based on the Institute for Cultural Affairs. (2000). The Art of Focused Conversation: 100 Ways to Access Group Wisdom in the Workplace" New Society Publishers, edited by Brian Stanfield.

between MDHSS and appropriate staff. They also complete an annual inventory survey of students diagnosed or identified with special health care needs and chronic health conditions (the inventory survey used to be completed on a biannual basis). The inventory survey covers a myriad of conditions including asthma, allergies, diabetes, seizure disorder, eating disorders and nine mental health conditions. MDHSS asks for the number of students having daily special health care procedures (e.g., blood sugar check) and 504 plans, in addition to information on school nurse staffing such as hours worked per week across elementary, middle, and/or high schools and educational levels. In addition to the data obtained in the inventory survey, MDHSS tracks asthma-related surveillance data such as emergency room visits and hospitalizations for children, to identify hotspots.

MDHSS uses aggregate school district data primarily for informational and educational purposes. For instance, data revealed that seizure disorders exceed the number of cases of diabetes in the state, allowing MDHSS to justify and fulfill training needs for school nurses in this area. As a result, MDHSS allocated funding to the St. Louis Epilepsy Foundation to provide onsite training for school staff at no cost. At the initial site visits for the MAP project, MDHSS provided district superintendents compelling data from SHORS on the health needs in their district and evidence on the link between health and education (e.g., increased school dropout among students with diabetes),[5] which helped engage their interest and commitment.

Through the MAP project, participating school districts track the numbers of students with targeted diagnoses, the numbers of EAPs per condition, and the numbers of school staff trained on each of the EAPs. Districts monitor professional development provided by health services staff to school staff for multiple topic areas including medication administration. Lead school nurses submit data on many indicators related to identification and assessment of students with chronic health conditions including student self-care measures, training of staff by school nurses, implementation and use of emergency action plans, referrals and access to identified health insurance and a medical home, as well as the number of absences related to chronic health conditions. In addition to completing evaluative reports, the lead nurses provide data updates to the SHS Manager in monthly calls.

Meeting Management and Care Needs of Students with Chronic Health Conditions

To date, MDHSS has not formally assessed the extent to which appropriate written plans are completed and management and emergency care needs are met for students with chronic health conditions. However, the MDHSS inventory survey of students with special health care needs collects data on the numbers of students receiving medications at school and the number of students with 504 plans. The MAP project aims to evaluate how these needs are met among students with chronic health conditions in the eight target school districts. To that end, lead school nurses report the number of students with emergency action plans, the number of times emergency medication was administered, and the number of 911 calls for epinephrine and glucagon (per year one focus on food allergies and diabetes). Lead school nurses also track indicators related to access to insurance and care coordination, including numbers of

uninsured referral completions, student absences related to chronic health conditions (including those being sent home from school), and students with a medical home.

MDHSS has identified factors that contribute to optimal management of students with chronic health conditions, particularly regarding asthma management but relevant to other conditions. Leadership of school nurses is instrumental in improving outcomes. Interviews with school nurses in a district with a strong asthma management program revealed that additional effective strategies include:

- Sharing data regularly with health care providers and prompting providers to adjust medications
- Educating parents on asthma management importance
- Improving student self-care (e.g., trigger avoidance, inhalation technique)
- Monitoring adherence to controller medications.

The use of asthma action plans has been associated with improvements in asthma management across the state and also has helped to foster relationship-building between school nurses and parents, which is viewed as another key contributing factor.[6]

MDHSS has collaborated with MPCA to provide professional development to school nurses and other health service personnel on the importance of health insurance for students and families and processes involved to increase student access to health insurance. In rural communities, the school nurse is often a trusted community member and one of the best ways to disseminate information, so the partnership also aimed to connect with hard-to-reach areas. The MAP project now increases capacity to improve health insurance status for students identified with chronic health conditions in the eight participating school districts.

MDHSS also encourages school nurses to communicate with community-based medical providers and establish students with a medical home if they do not have one. MPCA provided information to schools on Missouri's community-based Federally Qualified Health Centers, also known as Community Health Centers, which provide access to primary and preventive health care services to the uninsured on a sliding fee basis. There are 29 community health centers with more than 130 sites located in urban and very rural areas of the state.

A Local School District Success Story

Kennett Public Schools (KPS) is located in a rural, agricultural community, and 350 (17.7%) of the district's 1,974 students had an asthma diagnosis in 2011-2012. In 1999, KPS began working with the MDHSS SHS program to focus on asthma education and increased use of asthma action plans and later with MAPCP, the Childhood Asthma Linkages in Missouri project, and others. The CDC conducted a rapid evaluation of the KPS asthma management program in 2011, which showed KPS students with asthma had significantly higher levels of asthma control overall than students with asthma in a comparison district without a formal asthma management program. The KPS program targeted students with moderate-persistent asthma who had difficulty in controlling their symptoms; highest levels of program participation included inhalation technique training, program staff communications with physicians, and home visits.[7] Between 2004-2011, there was a 60% decline in the pediatric hospitalization rate for the county (KPS is the largest school district in the county).[6]

Looking Forward

MDHSS works diligently to improve policies and practices for the management of chronic health conditions in schools, in collaboration with internal and external partners including MDESE. The many years of work supported by the Health Initiatives Fund that led to the initiation of the SHS program, along with the adoption of state policies around allergy, diabetes, and asthma; projects like CDC-funded MAPCP; and robust data collection provided a strong foundation to begin the MAP project. Programs to improve asthma management in schools in particular have yielded many positive changes in a relatively short period of time, and the extensive work and successes in the state offer valuable information and lessons learned applicable to the management of other chronic health conditions. By integrating rural schools and making programming relevant for diverse needs and localities across the state, MDHSS also demonstrates a multifaceted approach that reaches even hard-to-reach communities.

Although the MAP project began by focusing on food allergies and diabetes, it is broadening its scope over the next few years to target students with asthma, epilepsy, and those who are overweight or obese in its eight target school districts. MAPCP will also work with these same districts, providing additional funds to support the implementation of asthma action plans and other deliverables, and strengthen relationships between schools and health providers, including federally qualified health centers. MDHSS plans to leverage and coordinate existing capital and resources throughout the state as well as national organizations providing professional development and technical assistance to bring the goals and objectives of MAP to fruition. MDHSS has already shared information about motivational interviewing and the Affordable Care Act at a state nursing conference, and, as the MAP project progresses, MDHSS

intends to continue to provide school nurses and other health services personnel across the state access to similar opportunities for professional development. In addition, MDHSS plans on using health- and education-related conferences and meetings to feature school district examples and highlight effective, manageable strategies to address chronic health conditions in schools.

Looking forward, MDHSS will continue to build on the momentum in the state, with a particular focus on school nurses and health services personnel. MDHSS anticipates achieving improved health and education outcomes for students with multiple chronic health conditions. It is also hopeful that as a demonstration project focused on chronic health conditions in the school environment, MAP can make inroads for Missouri in future statewide efforts.

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