



School-Located Vaccination Clinics: NASN, NACCHO, ASTHO Summit November 16-17, 2010

Meeting Summary

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Executive Summary

School-located vaccination (SLV) is administered on school grounds before, during and/or after school hours. Often involving collaboration between schools and the state and/or local public health department, its objective is to contribute to vaccine uptake, helping to meet the recent universal influenza vaccination recommendations while reducing absenteeism and increasing herd immunity. SLV typically focuses on students but frequently serves others as well, including teachers and staff, family members, and community members.

This white paper is drawn largely from the deliberations and recommendations of *School-Located Vaccination Clinics: Protecting America's Health*, a cross-sector, interdisciplinary meeting held November 16-17, 2010, in Washington, D.C. The meeting was co-convened by the Association of State and Territorial Health Officials (ASTHO), the National Association of County and City Health Officials (NACCHO), and the National Association of School Nurses (NASN), with the goal of developing an action plan for promoting and sustaining SLV. However, the report does not necessarily represent the policy and position of the three named national associations and their respective members. Meeting participants were drawn from organizations representing public health, education, medical practice, government agencies, patient advocacy, and industry. Participating individuals surveyed current efforts, considered the benefits of and challenges faced by SLV clinics, and identified strategies for sustaining and expanding the impact of SLV. The dialogue among key stakeholders provided a foundation for identifying best practices and enhancing current activity.

This report presents highlights of discussion and key recommendations from the meeting, and examines strategies that were discussed to establish SLV, particularly for seasonal influenza, as a broader, sustainable societal norm going forward. The document does not attribute statements to individual participants, and characterizes meeting discussion rather than presenting it in verbatim or near-verbatim form. The report summarizes input from a broad array of leaders in SLV, and does not necessarily represent a consensus among meeting participants.

The Role and Characteristics of SLV

Schools constitute a conveniently located, familiar and trusted community environment for protecting the health of Americans from vaccine-preventable diseases, including – over the years – smallpox, polio, measles, and varicella. Schools are a critical component of the response to pandemics and other national emergencies, as evidenced by the widespread use of schools as a setting for vaccinating children and others during the H1N1 influenza outbreak in 2009/2010. SLV clinics can help to keep children in school and parents at work, and provide opportunities for increasing vaccination rates.

Essential elements of successful SLV include:

1. Coordination with vaccination services otherwise provided in the medical home.

2. Collaboration between schools, public health departments, emergency planning authorities, child health agencies, families, community leaders, and local healthcare providers.
3. Experience in obtaining informed parental consent, and communication in multiple languages that reflect the needs of the surrounding community.

Several challenges must be addressed in pursuit of effective SLV design and implementation, including the following:

- School staff and administration may not perceive population-based (public) health as an important focus at school, fearing that clinics may disrupt educational activities or diminish scarce resources.
- Adequate staff must be mobilized and trained to effectively and efficiently implement SLV.
- Planning efforts can be complicated by variations in the year-to-year availability (in terms of date and volume) of vaccines and funding.
- Handling and transporting vaccines to many and varied locations requires considerable planning, equipment, and training.
- The local medical community may not be initially supportive.
- Not all children have a medical home.
- Legal considerations (e.g., regarding privacy and liability) may be confusing and intimidating.
- Collective memory of the societal burden, personal cost, and economic impact of unchecked vaccine-preventable diseases has faded, largely due to the effectiveness of vaccines over the past several decades.

However, the two most immediate and persistent challenges to sustaining and expanding SLV are funding (ensuring adequate resources and reimbursement for immunizations) and documentation (tracking and communication of immunization histories). Recommendations for meeting these paramount needs follow below.

Priority Action Steps: Funding

Several actions must be taken pursuant to achieving long-term, adequate and reliable financing for SLV efforts in the U.S.

1. Documenting the costs and benefits

Current and comprehensive data are needed to inform the case that SLV is a public health imperative requiring greater investment and collaboration.

- a. The real costs of SLV must be calculated, including but not limited to staff time, technology, training, and supplies.

- b. Direct and indirect benefits must be studied and quantified, including reduction in disease burden, reduction in student (and staff) absenteeism and concomitant increases in state reimbursement, any correlations between immunization rate and subsequent community-wide disease rate, and any correlations between increased immunization rates and greater academic attainment measures.
- c. The cost-effectiveness and “value add” feature of SLV should be documented and conveyed to payers.
- d. The true benefits and an honest accounting of costs should then be communicated to key stakeholders to cultivate support – from policymakers, regulators and insurers for SLV resources and insurance reform; from school administrators for prioritization of personnel, time, space and other school resources; from parents and the community for family participation; and from area medical homes for productive coordination and lasting partnerships.

2. Determining an optimal strategy for funding SLV

While present fiscal and economic realities necessitate facilitating reimbursement by insurers for the foreseeable future, the case for pursuing public funding as a broad solution in the long term remains unclear. In order to help determine the best strategy the following items will be informative:

- a. A comprehensive inventory of current strategies for successfully funding SLV at the state and local level should be developed (including a review of Medicaid reimbursement rates for immunization administration costs, an examination of coding and billing processes that facilitate successful reimbursement).
- b. The feasibility and merits of those strategies should be studied to identify the most promising pathway(s) (including an analysis of the impact of the Patient Protection and Affordable Care Act [PPACA] on incentives for private insurers to reimburse for SLV).
- c. The optimal strategy (or strategies) should be broadly disseminated to communities investing – or considering an investment – in SLV, as well as to policymakers and other key stakeholders.

3. Advocate for federal funding

Sustained and coordinated efforts are needed to build a case for and to obtain greater public investment in SLV in the future.

- a. Public health organizations and other SLV advocates should support increases in public health funding under PPACA prevention and Homeland Security initiatives to include funding for SLV clinics.

Priority Action Steps: Tracking

Several measures are needed to improve tracking of and communication regarding SLV efforts in the U.S. Patient and consumer advocacy groups and other stakeholders should collaborate state-wide, regionally and nation-wide to call for increased funding for registries (also known as immunization information systems), regular use of registries by providers, and full access to registries by SLV clinics. Specifically:

1. Building the case for registries

- a. The state and local health departments that utilize immunization registries and SLV advocates should jointly develop talking points articulating the value of registries, SLV involvement in them, and how the information is used and protected, to the following key audiences:
 - i. School policymakers and administrators
 - ii. Providers
 - iii. Government policymakers
 - iv. Patients / consumers

2. Ensuring access and participation

- a. Explore incentives for the regular use of vaccine registries by healthcare providers.
- b. Explore existing barriers to the use of registries by SLV clinics, and identify solutions to guarantee that school nurses or appropriate delegates not only have access to data but can enter new data as needed.
- c. As a step toward improving health literacy, an education campaign is needed to teach parents the importance of immunization registries and how to ensure that their family's data is up to date.
- d. Guidance should be provided for school nurses and other clinic personnel on the use of registries.
- e. Federal, state and local governments should work together to continue to strengthen current immunization registry systems.

3. Resolving privacy issues

- a. The medical and public health communities, policymakers and advocates should jointly call for legislative change to diminish restrictions on data access and entry by SLV sites.
- b. School districts should automatically request written parental consent at the outset of each school year, with the clear understanding that immunization information will be entered into the registry.

4. Forging a nationally coordinated and aligned approach

- a. National standards for the interoperability of registries and their use should be developed and promulgated, after distilling best practices and success factors from a study of existing registries.
- b. Leaders from the public, private and civic sectors, and the public health and medical communities, should jointly consider the merits and feasibility of a national registry model for optimal interoperability and comprehensive tracking nationwide.

I. Introduction

The Landscape of School-located Vaccination

School-located vaccination (SLV) clinics are administered on school grounds, before, during and/or after school hours. Their efforts target students and potentially others, and typically involve collaboration between the state and/or local public health department, and (public and private) schools and school districts (Centers for Disease Control and Prevention [CDC], 2010a). Such clinics are structured in a variety of valid ways, depending in large part on available resources.

The literature provides evidence of the positive impact of SLV on vaccine uptake, including meeting the recent universal influenza recommendations, reducing absenteeism, and increasing herd immunity. SLV is reported by school nurses from across the country (Borja, Amidon, Spellings, Franzetti & Nasuta, 2009). Others within the healthcare community also report the effectiveness of SLV (Hull & Ambrose, 2011; King et al., 2006; Tran et al., 2010). Research by the National Association of County and City Health Officials (NACCHO) suggests that partnership between local health departments and their partners can improve SLV to meet universal recommendations for influenza immunization (NACCHO, 2007a, 2007b, 2007c, 2007d). Other studies report reduced student absenteeism associated with SLV for influenza (Hull & Ambrose, 2011; Wiggs-Stayner et al., 2006), and still others report on the impact on herd immunity against influenza with SLV. For example, computer modeling suggests immunizing 70% of school children could protect an entire community from influenza (Longini et al., 2000).

Multi-Stakeholder Meeting: *School-Located Vaccination Clinics: Protecting America's Health*

Scope and objectives

This white paper is drawn largely from the deliberations and recommendations of the meeting, *School-Located Vaccination Clinics: Protecting America's Health*, which occurred on November 16-17, 2010, in Washington, D.C. Co-convened in partnership by the Association of State and Territorial Health Officials (ASTHO), the National Association of County and City Health Officials (NACCHO), and the National Association of School Nurses (NASN), the meeting aimed to develop a plan of action for promoting and sustaining SLV clinics.

More specifically, participants worked together to survey current SLV activities, jointly articulated the potential benefits of SLV, considered the present challenges involved in sustaining SLV, outlined promising strategies to sustain and expand SLV, and identified the roles and contributions needed from key stakeholders. Going forward, the dialogue at the meeting (as well as this report) provides a substantive foundation for identifying best practices for SLV, sustaining clinics, and further developing the overall SLV platform for immunization against influenza (CDC, 2010b; Klein, McNulty & Flateau, 1998; Oster, McPhillips-Tangum, Averhoff & Howell, 2005). The meeting's agenda is included with this report as Appendix A.

The convening organizations

Both the meeting and this report represent the confluence of significant strategic attention and programmatic momentum within the public health community.

NASN's activities related to SLV have focused on responding to members' interest, raising member awareness, and developing partnerships to promote the role of school nurses in increasing vaccination rates. With the support of MedImmune, supplements to *The Journal of School Nursing* were published: *Championing School-located Influenza Immunization: The School Nurse's Role* (February 2009) and *School-Located Vaccination Clinics: Lessons Learned from Fall 2009* (August 2010). Both were made available online for continuing nursing education credits. NASN has partnered with NACCHO and the CDC to develop resources that promote SLV; the meeting for this report is in part an outgrowth of such partnerships. NASN has been an active member of the Childhood Influenza Immunization Coalition and the National Influenza Vaccine Summit, delivering a call to action for partners to promote SLV in 2010. NASN partners with the National Education Association-Health Information Network and the American School Health Association to promote immunization materials.

NACCHO's interest in SLV extends back at least to 2006 when a mass distribution of free intranasally administered influenza vaccine was made available through local health departments (Carpenter, 2007). Case studies were conducted in three communities to look at the feasibility, challenges and successes of this effort (NACCHO, 2007a, 2007b, 2007c, 2007d). A description of a follow-up survey about the use of intra-nasally administered flu vaccine was presented at the National Influenza Summit in 2009. NACCHO partnered with NASN to prepare and edit the supplements to the *Journal of School Nursing* cited above, as well as with NASN and the CDC on developing resources including tools, policies and stories from the field about SLV from which other health departments might learn. NACCHO also collaborated recently with the CDC on a survey of a nationally representative sample of local health departments on successes and challenges regarding SLV during the H1N1 response. Analysis of those results is in progress (July 2011).

ASTHO is continually interested in exploring effective ways to protect communities from the spread of infectious diseases; SLV is one such option. Some state health departments have been using SLV clinics over the years as an option for vaccinating children. The H1N1 vaccination campaign pushed the use of such clinics to a new level. The characteristics of the response to H1N1 led states to utilize this option because the virus was spreading quickly in communities and impacting children. ASTHO has been working with CDC and the State of Maine on an evaluation of their SLV activities during the H1N1 outbreak. The objectives of the project include:

- Assessment of the indirect and direct effects of the School-based Pandemic Influenza Vaccination Program in Maine.
- Assessment of the indirect and direct effects of influenza vaccination in a post-pandemic season in Maine.

- Enhancement of data collection systems for evaluating vaccine effects in future influenza seasons.

The results of this study will help to inform the discussion about the benefits of SLV.

Participant group and funding sources

The participant group consisted of approximately fifty individuals drawn from associations of public health and education professionals; medical practice; academia; federal, state and local government agencies; advocacy organizations; and corporations. Participating stakeholders were identified on the basis of subject matter expertise and the roles they are playing or are positioned to play in identifying and implementing strategies for sustaining SLV. Meeting protocols stipulated that participants should be understood to be contributing to the deliberations as individuals – sharing their own opinions – rather than as official representatives of their organizations of affiliation, in the interest of fostering candid and creative dialogue. A full list of participants is included with this report as Appendix B.

Funding for the meeting was contributed by MedImmune, GlaxoSmithKline, BD Medical - Pharmaceutical Systems, Maxim Health Systems, and Mollen Immunization Clinics, LLC. Brad Sperber, Senior Mediator and Facilitator for The Keystone Center, facilitated the meeting's discussion.

How to Read this Report

This paper is intended to share highlights of discussion and key recommendations from the meeting, *School-Located Vaccination Clinics: Protecting America's Health*. The meeting provided a forum for in-depth, solution-oriented discussion among expert stakeholders from diverse sectors, disciplines and geographical regions to inform policy and action going forward. This report does not attribute statements to individual participants, and characterizes meeting discussion rather than presenting it in verbatim or near-verbatim form. Additionally, the report does not necessarily represent the policy and position of the three named national associations and their respective members.

Broad and specific agreement was sought throughout the meeting, but this paper does not attempt to ensure full consensus among participants. Developed by NACCHO, NASN, and ASTHO, it is intended to capture faithfully the collective best advice of key stakeholders, and thereby to contribute to longer-term efforts to identify best practices for sustainability of SLV clinics while outlining strategies to establish SLV as a broader societal norm. On several occasions, discussion at the meeting noted potential applications of SLV to other immunizations beyond seasonal influenza for school-aged children; however, this paper focuses on influenza vaccination as the exemplar and current objective of most SLV activity.

II. The Case for School-located Vaccination

Why Schools? Why School-located Vaccination?

The National Vaccine Plan (Objective 4.2) calls for ensuring consistent and stable delivery of vaccines for the United States. Strategy 4.2.4 calls for enhancing access to vaccination in non-health care settings, such as schools, retail outlets, workplaces and community centers, during both routine operations and emergency situations (U.S. Department of Health and Human Services [HHS], 2010).

Schools – conveniently located, familiar and trusted community environments – present an important venue for protecting the health of Americans from vaccine-preventable disease. Schools have been and will continue to be a critical component of the response to pandemics and other national emergencies (HHS, 2010).

Use of SLV during the H1N1 outbreak

During the H1N1 influenza outbreak in 2009, the public health and medical communities turned to schools as an important setting for vaccinating children (CDC, 2009a). SLV clinics were administered in 40 states – for the first time, in the case of many states. Many of these programs were enormously successful, and built new partnerships among healthcare providers, schools, and other critical partners.

A NACCHO survey of local health department officials conducted in the summer of 2010 indicated that approximately 85% of local health departments held at least one H1N1 influenza SLV clinic in their jurisdiction (NACCHO, 2011b). CDC's National 2009 H1N1 Flu Survey – a nationally representative telephone-based survey designed to collect vaccination coverage from US households – indicated that 37% of school-aged children 5-17 years old received 2009 H1N1 influenza vaccination, and approximately one-third of these children were vaccinated at school (CDC 2009b).

Schools with statewide SLV were at the high end of vaccination coverage. Rhode Island, Vermont and Maine conducted statewide SLV, and more than 60% of their children were vaccinated (Weinbaum, 2010).

Historical use of SLV

School-located vaccination is not a new concept. Use of schools as a venue for smallpox vaccination occurred in New York City in 1875 (Duffy, 1978), for polio in 1955 (Lambert & Markel, 2000), for measles in the 1960s (Hodge & Gostin, 2002), and more recently for varicella (Hall, Galil, Watson & Seward, 2000). However, the programs developed for the response to H1N1 – including infrastructure, relationships, and new expectations – provide an important platform from which to build further. Since 98% of children spend their day in school, schools offer an effective and convenient way to reach children with essential health interventions.

According to a CDC survey, 93% of parents who participated in an SLV clinic during the H1N1 outbreak want to participate in SLVs again in the future (Weinbaum, 2010). SLV clinics keep children in school and parents at work, and provide opportunities for increasing vaccination rates where appropriate. CDC considers SLV to be a viable method of large-scale vaccination for children. School nurses are already present in 75% of schools and are ready to work with partners to ensure that the right vaccines reach the appropriate populations (NASN, 2007; National Center for Education Statistics [NCES], 2010).

Vaccinations keep children healthy, in school, and ready to learn. They also keep the community healthy, as children are thought to be instrumental in spreading the virus (Neuzil, Hohlbein & Zhu, 2002; Piedra et al., 2004; Poland & Hall, 1999). The 2008 recommendations for influenza vaccine, in which influenza vaccination recommendations were extended to include all children from 6 months through 18 years of age, meant that many more children than ever before needed flu vaccination (CDC, 2008). This added an estimated 30 million children to those targeted for annual influenza vaccination. It would be a difficult task for the medical home to conduct a universal influenza immunization program on an annual basis, given the complexities of the clinic logistics, vaccine purchasing, and vaccination compensation. The expansion of the recommendations in 2010 to all persons 6 months or older poses an additional burden to private providers' offices (CDC, 2010c). Alternatives to immunizations given in healthcare providers' offices are needed as a result (Bernstein, 2008; CDC, 2008). Since schools are where the children are, they may provide a solution for under-immunized children and teens in particular (recognizing that adolescents typically visit doctors with less frequency than other children), and can be part of an effort to gain the upper hand with influenza (CDC, 2010a, 2010b; Klein et al., 1998; Oster et al., 2005). While the H1N1 pandemic is behind us, influenza is still responsible for the hospitalization of 20,000 children each year (CDC, 2011a).

Benefit to the community

The impact of SLV reaches beyond the child population and beyond influenza prevention and control. Schools provide a cluster opportunity to protect parents and grandparents. In communities where SLV clinics are in place and coordinated, schools can serve as mass dispensing centers in the face of an emergency.

CDC evaluations of SLV

CDC supports local SLV efforts by providing evaluation and consultation. The agency is presently evaluating whether SLV results in increased vaccination coverage, whether key stakeholders find SLV acceptable and feasible, the cost and cost-effectiveness of SLV, which SLV models work best and whether best practices can be defined, and the feasibility of billing third party payers in SLV clinics (Weinbaum, 2010). Indeed, in one jurisdiction that has been conducting SLV for three years, the extent of immunization against influenza among school-aged children is up to three times the estimated national average (Tran et al., 2010).

Elements of Successful SLV

1. Coordination

SLV should supplement (not replace) vaccination services provided in the medical home. Suitability of SLV to a particular set of circumstances should ultimately be a local determination, factoring in community need, availability of alternatives, resource constraints, and stakeholder support. In appropriate instances, a constant and even expanding investment in adequately resourced and coordinated SLV clinics is an essential element for protecting the health of Americans.

2. Collaboration

Through the H1N1 campaign, seasonal influenza vaccination, and other experiences, several lessons emerge that indicate key success ingredients for successful SLV going forward. Many of these important factors pertain to authentic collaboration among key parties. Collaborative partnership must occur among – and clear communication must take place between – local and state public health departments, school officials and nurses, teachers, emergency planning authorities, child health agencies, families, community leaders (such as businesses and faith-based organizations), and local healthcare providers. Many challenges are best addressed jointly, such as whether teachers and/or family members should or can also be vaccinated on-site, and how SLV fits into the school day and space amidst many competing priorities. Provision must be made to inform the community's physicians if one of their patients is immunized in an SLV clinic. Sustainable SLV constitutes vaccination provided *with* – not simply *in* – schools. Effective channels of communication must be active and functioning *before* an epidemic or other crisis occurs.

Partners must work together to avoid territorialism and misunderstanding as they develop and maintain local SLV capacity. This includes alignment of priorities and expectations between school officials and the public health department. Anecdotal information from the 2010-2011 influenza season would indicate that this alignment should also include parents and the community at large.

3. Parental consent

Collaboration with parents is essential. This should include a process for securing informed consent and providing communication in multiple languages that reflect the community. Also, parental consent to sharing of information regarding children's school health records can help minimize the impact of restrictions imposed by the Family Education Rights and Privacy Act (FERPA).

4. Other

Other success elements identified by key stakeholders include:

- Guidance for navigating FERPA requirements. (FERPA waivers may be necessary to allow access to school health records in order to assess which immunizations a given child needs.)
- Continuing education of stakeholders (families, the general public, media, policymakers) about the value of vaccination, including the interrelationship of health and education.
- Availability of adequate resources for clinic staffing, planning, supplies, and evaluation.
- Training for clinic participants regarding clearly defined roles and duties.
- Careful planning that anticipates not only major needs like staff time and expertise, but also less obvious items such as budgets for printing consent forms, parking and security, protective measures for gymnasium floors, refrigerators for vaccine storage, and media training for likely public spokespersons. (Anecdotal information indicated that school nurses without media training were often called upon to speak to reporters during the H1N1 outbreak.)
- Routine use of a state immunization registry (also known as an immunization information system) provides an essential connection between the medical home and the vaccine clinic.
- Adequate vaccine and ancillary supply storage capacity, a plan and resources for re-stocking during the clinic hours if necessary, and appropriate vaccine handling procedures.
- An evaluation process that is used to inform disaster/pandemic planning and clinics in the future.

Summary of Key Gaps and Challenges

As with many needed health interventions, several challenges must be understood and mitigated in pursuit of effective SLV design and implementation. General considerations include the following:

- School staff and administration may not perceive population-based (public) health as an important focus at school, fearing that clinics may disrupt educational activities or diminish scarce resources.
- Adequate staff must be mobilized and trained to effectively and efficiently implement SLV.
- Planning efforts can be complicated by variations in the year-to-year availability (in terms of date and volume) of vaccines and funding.
- Handling and transporting vaccines to many and varied locations requires considerable planning, equipment, and training.
- The local medical community may not be initially supportive.
- Not all children have a medical home.

Also, legal complexities may be confusing and intimidating. Schools conducting clinics must be prepared to navigate the Family Educational Rights and Privacy Act (FERPA) (CDC 2010a; Department of Education, 2011) which protects the privacy of student educational records. Liability concerns may exist as well, although the National Vaccine Injury Compensation Program provides a “no fault” alternative to the tort system (Health Resources and Services Administration [HRSA], 2011).

Much more broadly, the need to manage public perception of the overall vaccine enterprise presents a growing challenge to the vaccination enterprise in the U.S. Collective memory of morbidity and mortality for vaccine-preventable diseases has faded, largely due to the effectiveness of vaccines over decades of utilization. Media attention (including internet sources) has tended in recent years to misunderstand and amplify the risks of vaccines, leading to an often distorted perception of the relative risks of vaccinating versus not vaccinating. Some states have responded by allowing parents to exercise personal belief exemptions, opting out of mandated vaccinations for non-medical reasons.

However, the two most immediate and persistent challenges to sustaining and expanding SLV – and the focus of this multi-stakeholder meeting – are funding (ensuring adequate resources and reimbursement for immunizations) and documentation (tracking and communication with immunization histories).

Funding

Securing adequate financial resources to cover planning, staff remuneration, purchase of vaccines and supplies, document activities and evaluation is often challenging. Current systems and protocols for reimbursement of SLV-related expenses are not widespread or consistent. Notable challenges include:

- Schools have been squeezed by the recent economic recession and changing national priorities. Perceived responsibility for student health has been shifting to schools, but without commensurate increases in resources.
- Private insurers typically do not reimburse for vaccination administration costs (Office of the Inspector General [OIG], 2010).
- Even where reimbursement channels exist, SLV is not typically set up for billing multiple payers.
- Even where reimbursement channels exist, SLVs are often not recognized as a point of service for purposes of reimbursement.
- School-based health centers are eligible for insurance payments, but they serve only approximately 4% of students in the United States (Grant Makers in Health [GIH], 2009).

Tracking of immunizations

SLV clinics need reliable access to immunization registries in order to verify the vaccination needs of children and others, as well as a means to update medical records for the medical home. However, many states and communities face serious barriers in their ability to utilize such registries sufficiently for purposes of vaccination in schools. Challenges include:

- Most registries are state-specific. Families cross state lines and move away from medical homes for a variety of reasons (e.g., to follow jobs), leaving medical records behind and not readily accessible.
- Regulations vary from jurisdiction to jurisdiction regarding who can access and who can enter data in registries.
- Registries are often incompatible with one another and with electronic student health records.
- Privacy laws can stymie communication of important but sometimes sensitive information, resulting in misunderstandings and missed opportunities.
- Some registries may not typically record influenza vaccinations.
- Some registries only record immunizations given to children, so adults (teachers, family members) immunized against influenza at an SLV clinic may not have that information recorded and made available to their medical home.

The major barriers to sustaining and expanding needed vaccination practices in the school setting are clear; increased cross-sector collaboration is necessary to navigate those challenges successfully. The next two sections of this report explore issues of funding and documentation in more detail, and identify promising strategies for surmounting them.

III. Funding School-located Vaccination

The National Vaccine Plan (Objective 4.3) emphasizes the importance of reducing financial barriers to vaccination (HHS, 2010). A 2009 report from the National Vaccine Advisory Committee stressed the need to “ensure adequate funding to cover all costs (including those incurred by schools) arising from assuring compliance with child and adolescent immunization requirements for school attendance,” and called for promotion of shared public and private sector approaches to help fund school-based and other complementary-venue child and adolescent immunization efforts (HHS, 2009, p. 43). However, though they are uniquely positioned to vaccinate children and others against influenza and – if desired – other pathogens, SLV clinics presently face considerable challenges in establishing sufficient, sustainable funding streams, whether through billing for services rendered in schools or via government assistance.

The Present Challenges

State and local health departments are currently challenged with increasingly limited resources that make it difficult to support SLV efforts. Significant reduction in the flow of federal dollars to states and of state dollars to local agencies is resulting in insufficient funds and personnel available for established priorities, an increase in furlough days, and outright cancellation of services. A survey conducted by ASTHO in 2009 regarding state budget developments provides the following illustrations (ASTHO, 2011):

- During the last six months of 2009, 46% of local health departments lost skilled professionals to financial constraints (a total of approximately 8,000 jobs lost).
- 83% of local health departments had suffered job losses since July of 2008.
- 76% of state and territorial health departments made cuts to the FY09 budget.
- 55% of local health departments reported a FY10 budget smaller than the FY09 budget, and 28% reported a FY09 budget smaller than FY08. At least 23% expected further cuts throughout FY10.
- Sample state agency actions in response to budget cuts included elimination of HIV prevention programs, and downsizing of infectious disease prevention staff, public health nursing and immunization and vital records processing.

ASTHO’s survey results combined with previous NACCHO findings suggest that local health departments experienced an aggregate loss in workforce of 19% (NACCHO, 2011a). In response to such pressures, reductions in vaccines and immunization services are commonly reported.

Other important past sources of SLV funding are dissipating. In 2009, several states successfully used federal Public Health Emergency Response (PHER) grants to support SLV efforts, with some of those states implementing programs in schools for the first time as a result. In particular, Maine was able to quantify a consequent reduction in absenteeism for students and staff (ASTHO, 2011). With the subsidence of the H1N1 influenza pandemic, however, PHER grants are no longer available.

In light of limited government assistance, the need to secure reimbursement by private and public insurers emerges as the paramount strategy for sustainable support of SLV activity. A number of supporting strategies also deserve attention including measures to reduce costs and improve operations, and conduct research and advocacy to support needed changes.

Enabling Successful Reimbursement

The objective of sustaining a viable SLV enterprise in the U.S. may depend upon surmounting present obstacles to regular reimbursement, including those by Medicaid and especially private insurers, of vaccines provided at school.

It is essential that schools gain recognition by third-party payers as an acceptable provider or site of provision of vaccination services. While some school-based health centers bill insurance companies, the process is laborious and intensive and the amounts retrieved are not always worthwhile – and relatively few schools feature such centers.

Insurance policy changes

The medical community, patient and consumer advocates and state health agencies need to collaborate to foster recognition of SLV programs as part of the medical home by virtue of providing immunization services. This acceptance could strengthen the case of SLV clinics to be designated as in-network providers, thereby enabling successful pursuit of reimbursement for vaccines administered to the insured. Both the location and the provider must qualify as eligible for billing in order for the school to serve as an acceptable point of service.

As further incentive for insurers to qualify SLV sites in the “in-network” payer category, state health departments could allow insurers to include influenza vaccination in school clinics (roster billing) to count toward the 80 to 85% minimum of consumers’ premiums that insurers must spend, per the Patient Protection and Affordable Care Act (PPACA), on direct care for patients and efforts to improve care quality.

Insurance companies should be sought as partners and for collaborative deliberation regarding the nature and scale of the needed changes.

Billing strategy

Schools within defined areas should consider acting as a consortium, with a single biller for a district or the entire state. A state level organization with expertise at qualifying the point of service can serve as a third party biller, processing the paperwork and charging a small fee. ASTHO and/or NACCHO could consider serving as the catalyst for building such consortiums, and could explore serving as the fiscal agent – contracting with the third party biller and allowing member state or local health departments to bill through the association.

Alternatively, a local health department can act as a mass immunizer and bill several insurers, but some larger insurers prefer to cover only the medical home and will not recognize mass immunizers.

Finally, a public-private partnership could be established to bill for services subsidized by public dollars.

Coding practice

Another factor in successful billing for SLV reimbursement is effective, user-friendly coding. A universal list of codes and processes could enhance the likelihood of reimbursement by helping to standardize record-keeping and billing procedures.

Forms should be pre-filled with barcodes – for both patient and payer – whenever possible. Bar coding is already in use for other school programs, such as the meals program, and bar coding of vaccine vials is also becoming more commonly used. This promises to help make data and inventory management more efficient and less costly. A CDC-sponsored project is currently underway with health departments in 28 states to explore ways to initiate, expand, and sustain billing third party payers for immunization services. The lessons learned and tools collected from these jurisdictions will have direct implications for other state and local health departments who wish to engage in this form of revenue-raising.

Supporting Strategies

Several other strategic pathways can play a role in either increasing the level of funds available to maintain and expand SLV, decreasing the typical costs of SLV, or improving the operational capabilities of clinics.

Increasing available funding

Calibrating Medicaid reimbursement to the actual cost of providing vaccination services would help significantly in sustaining the benefits of SLV. Current levels of Medicaid payment are not adequate to sustain an effective SLV program for eligible children and others.

Public health funding related to PPACA prevention initiatives may provide another key financing stream for SLV efforts. Research is needed to analyze the impact of national healthcare reform legislation on potential funding streams. Consideration should also be given to whether the PPACA provides an opportunity to enroll students into Medicaid with schools as the vaccination venue.

Another strategy to consider for funding SLV activity is the Vaccines for Children (VFC) Program, a federally funded initiative providing vaccines free of charge to children who otherwise might not be vaccinated because of inability to pay (CDC, 2011c). Funding for the program is allocated through the Centers for Medicare & Medicaid Services (CMS) to CDC, which

distributes the vaccines through state and certain local public health departments to private physicians' offices and public health clinics. Schools should register as VFC providers, or use registered VFC providers to conduct SLV clinics, to enhance their ability to treat underserved children. (It should be noted that the VFC only covers the costs of the vaccine itself, and not any associated administrative fee.)

Other suggested strategies include encouraging vaccine manufacturers to sponsor influenza SLV directly for inner city elementary schools, and exploring the merits of SLV as an efficient and effective strategy for disaster response that might qualify for support from homeland security-related sources of funding.

Lowering costs and improving operations

Many cost-saving measures may be achieved through adjustments to conventional SLV logistics. Suggestions include:

- Utilizing nursing, pharmacy, dental, veterinary and medical students to administer vaccines, where it is feasible and legal to do so. In circumstances where students are not allowed to administer, they can handle administrative tasks such as medical billing.
- Partnering with local non-profit organizations – sharing administrative space and/or staff, purchasing supplies in bulk, etc. – to minimize administrative costs.
- Using portable clinics such as “clinic in a box” or motor clinics. If only one roving clinic operates per district, there only needs to be one biller per district.
- Approaching local physicians about coordinating vaccine supply. Physicians often have leftover vaccine and may be willing to provide it to SLV programs at reduced cost or as a charitable donation.

Certain operational adjustments may contribute in indirect but important ways to the ability of SLV programs – and the overall SLV enterprise to attract sustainable funding. Strategies to consider include:

- Standardizing practices, procedures and tools to make schools easier for regulators, insurers and others to work with, thereby fostering further confidence in schools as effective partners and building a stronger foundation for SLV clinics to become recognized as medical service providers.
- Distributing a uniform, blanket, comprehensive parental consent form at the beginning of the school year (or perhaps only once, when the child first registers in a school district).
- Developing infrastructure for schools or the organization conducting the SLV clinic to conduct medical billing, perhaps starting with Medicaid and moving toward billing for all types of payers and providers.

Priority Action Steps

Based on the above developments and strategic needs, several actions must be taken pursuant to achieving long-term, adequate and reliable financing for SLV efforts in the U.S.

1) Documenting the costs and benefits

Current and comprehensive data are needed to inform the case that SLV is a public health imperative requiring greater investment and collaboration.

- a. The real costs of SLV must be calculated, including but not limited to staff time, technology, training, and supplies.
- b. Direct and indirect benefits must be studied and quantified, including reduction in disease burden, reduction in student (and staff) absenteeism and concomitant increases in state reimbursement, any correlations between immunization rate and subsequent community-wide disease rate, and any correlations between increased immunization rates with greater academic attainment measures.
- c. The cost-effectiveness of SLV should be documented and conveyed to payers.
- d. The true benefits and an honest accounting of costs should then be communicated to key stakeholders to cultivate support – from policymakers, regulators and insurers for SLV resources and insurance reform; from school administrators for prioritization of personnel, time, space and other school resources; from parents and the community for family participation; and from area medical homes for productive coordination and lasting partnerships.

2) Determining an optimal strategy for funding SLV

While present fiscal and economic realities necessitate facilitating reimbursement by insurers for the foreseeable future, the case for pursuing public funding as a broad solution in the long term remains unclear. In order to help determine the best strategy the following items will be informative:

- a. A comprehensive inventory of current strategies for successfully funding SLV at the state and local level should be developed (including a review of Medicaid reimbursement rates for immunization administration costs, an examination of coding and billing processes that facilitate successful reimbursement).
- b. The feasibility and merits of those strategies should be studied to identify the most promising pathway(s) (including an analysis of the impact of the Patient Protection and Affordable Care Act [PPACA] on incentives for private insurers to reimburse for SLV).
- c. The optimal strategy (or strategies) should be broadly disseminated to communities investing – or considering an investment – in SLV, as well as to policymakers and other key stakeholders.

3) Advocating for federal funding

Sustained and coordinated efforts are needed to build a case for and to obtain greater public investment in SLV in the future.

- a. Public health organizations and other SLV advocates should support increases in public health funding under PPACA prevention and Homeland Security initiatives to include funding for SLV clinics.

IV. Immunization Tracking and Communication

It is essential to identify realistic and effective ways to incorporate vaccinations delivered in the school setting into routine public and private sector immunization record-keeping. Increasingly, patient records are expected to be kept in electronic form. In 2009 the Health Information Technology and Clinical Health Act (HITECH) was passed to support the meaningful use of electronic health records (EHR) in order to improve health care delivery. The integration of public health data and electronic health records is one component of this new law – specifically, for EHRs to submit electronic immunization data to immunization registries or information systems through the use of HL7, a national standard data exchange. Such confidential, population-based, computerized information systems collect vaccination data about residents within a defined geographic area – as a means of consolidating and utilizing those records pertaining to immunization status.

The Task Force on Community Preventive Services recommends immunization information systems (IIS) (also known as immunization registries) on the basis of strong evidence of effectiveness in increasing vaccination rates. Evidence was considered strong based on the findings from 71 published papers and 123 conference abstracts which demonstrate that such systems have the following capabilities directly related to increasing vaccination rates and reducing vaccine-preventable disease: 1) generation of, or support for, effective interventions such as client reminder/recall, provider assessment and feedback, and provider reminders; 2) generation and evaluation of public health responses to outbreaks of vaccine preventable disease; 3) vaccine management and accountability; 4) determinations of client vaccination status for decisions made by clinicians, health departments, and schools; and 5) surveillance and investigations on vaccination rates, missed vaccination opportunities, invalid dose administration and disparities in vaccination coverage. In addition, many studies assess IIS data quality for use by decision-makers in clinical settings, communities, states, and the nation (CDC, 2011b).

Benefit of Registries in the SLV Context

While the medical home is the ideal venue for vaccination, SLV clinics able to rely on registries can help increase overall vaccination rates because of their easier access to some students – children without a medical home, or with infrequent access to the medical home. It is critical that schools serve as active partners in the maintenance and utilization of this evolving system of consolidated electronic information. Use of registries could free up hundreds of thousands of hours that school personnel spend reviewing the immunization records of students each year. An effective system could cue the school regarding which immunizations are due, indicate which children have already been immunized in that same season (and at what dosage), and highlight how many children are not in compliance with applicable state mandates.

If school nurses can access a student's immunization record easily, they can spend less time looking for information and more time providing services – and have more confidence that they

are providing the right services. There is also the potential for nurses working in the school setting to enter other critical student health information for the medical home (e.g., blood glucose trends, asthma control, and frequency of seizures).

The National Vaccine Plan's call for consistent and stable delivery of vaccines, including enhanced access in non-healthcare settings such as schools, cannot be realized fully without broad access to and consistent use of a means for documenting who needs and who has already received which vaccines (HHS, 2010).

The Present Challenges

Factors complicating use of IIS include restrictions on use of and access to existing registries, lack of national standards and state interoperability, frequent incompatibility of registries, variance in regulation from state to state, and the characteristic mobility of American families as they move away from established medical homes. SLV is beset by three interrelated problems pertaining to immunization registries:

1. Existing registries are not consistently used, either in terms of adding input or accessing output.
2. The nature and value of registries are not always sufficiently understood – by those who are needed to authorize and fund them, or by those who are needed to enter and access data.
3. Significant differences exist between registries in how they are configured, what is entered, and how they operate.

While most states have registries, not all schools have access to those that exist and not everyone is trained in the current systems. A recent non-scientific poll of NASN members found many school nurses did not have access to registries, even though they are required to verify immunization status. Some states allow school nurses read-only access, meaning they cannot update information for the benefit of the medical home (and, ultimately, the patient) (Bergren, 2010).

Some registries are considered burdensome by some users. The process of signing into the system, locating patient information, administering the dose, and then logging in again to enter new information is sometimes not user-friendly.

Schools also face legal constraints in their ability to share information related to student health. Schools are not permitted to share immunization information with physicians or health departments without parental consent because of the Family Educational Rights and Privacy Act (FERPA, <http://www2.ed.gov/policy/gen/guid/fpco/ferpa/library/alhippaa.html>).

Registries cannot consistently relate to one another for purposes of sharing data. The inconsistencies and legal barriers generally are most significant between states, but frequently materialize within and between states and localities as well (e.g., New York State and New York

City). Interoperability between registries is essential since schools experience a significant turnover of student body each year, and families often move away from medical homes and across state lines, leaving medical records behind.

Also, registries often do not interact effectively with electronic health records within the same state. A 2009 survey regarding electronic health records and immunization information systems (i.e., registries) found that 44% of all providers (80% of public providers and 38% of private providers) participate in their state's registry system, and 78% expressed support for a national, user-friendly registry (CDC, 2009c). More than 58% use electronic health records because of funding, meaningful use and word of mouth. However, only 26% who use such records are able to communicate directly with the state registry, with great variation state to state. Furthermore the systems used in hospitals are not always compatible with what is used in primary care settings, and systems used in schools are not always compatible with state IIS.

In the absence of a coordinated network of mutually compatible registries and systems of electronic health records, use is constrained and the impact is limited. Too often, accurate information is not available to guide decision-making in an SLV setting. Children who need vaccines may not receive them and some receive a double dose unnecessarily if their families cannot provide evidence of immunization. A well-functioning registry meta-system that includes SLV clinics as partners would guide the right vaccines to the right individuals and communicate with the medical home. Leaders from government, education and the medical community must identify realistic and effective ways to incorporate vaccinations delivered in the school setting into routine public and private sector immunization record-keeping. This is not only medically important, but it is also good management of vaccine and financial resources.

Increasing Access to and Participation in Registries

Healthcare providers, schools, families, and policymakers all have critical roles to play in ensuring effective systems for immunization information, either by contributing to development and adequate financing, by providing regular input, or by accessing and making appropriate use of the output. Registries must be highly interactive – viewable by all needed participants – and consistently utilized. Every immunization should be tracked and accessible from any registry, and all care providers, including SLV clinics, should be able to use the registry system as a matter of routine.

Providers

The most imperative step in tracking immunization data is getting the medical community and public health agencies to commit to using registries, thereby ensuring the (at least theoretical) availability of data to benefit SLV as well as other vaccination efforts. Toward that end, states can provide incentives for providers to enter the data and improve the ease with which data is captured and recorded (e.g., bar coding, VFC bar codes, vaccine bar code, children's bar code, payer bar code, data entry). The meaningful use standards being encouraged by the federal

government in relation to use of and transmission of electronic health data and records can also play a significant role in moving the profession toward this goal (Centers for Medicare and Medicaid Services [CMS], 2011).

Policymakers

Opportunities to encourage the use of registries by the medical community should be explored. Options for doing so include requiring use of available registries by statute, utilizing PPACA funding to strengthen current registry systems to make them more interoperable and user-friendly, and identifying opportunities to shape PPACA health information technology incentives for health care providers.

For providers not using the registry, parents could be provided with a card with vaccine information to deliver to their medical home.

Finally, policymakers should examine legislation and regulation to identify and address any undue barriers to use of registries by SLV clinics. Ideally, all schools (all professional staff) should have complete access to registry data, which is currently read-only for most staff.

Schools

Resources should be invested to raise awareness among and provide orientation to school professional staff regarding registries. Adequate training should be provided to ensure that schools and SLV clinics with sufficient computer capabilities are properly oriented in registry use. Nurses in particular should be made aware of the potential of registry use to decrease current workloads.

SLV clinics should reciprocate by providing new data from the school setting for use by the medical home. Robust SLV venues can amass vital patient information that medical practitioners need to know. School immunization databases should be connected to both primary care providers and existing registries.

Middle and high schools in particular should be cultivated as active participants; effective statewide practices for increasing their use of registries should be researched and disseminated. Adolescents are a very difficult population to reach because they visit the medical home less regularly than younger children. Their participation in registries can aid the tracking and study of vaccination rates for this population.

Families

A maxim in contemporary healthcare delivery is that the patient is part of the healthcare team. Families should be able to access their own immunization records across registries, with use limited to their own children, foster children and other dependents.

Ensuring Compatibility Between SLV and the Medical Home

Local communication links regarding immunization registry programs are needed between providers and schools in the area. The presence and activity level of school-based programs must be known to prevent medical homes from stocking unnecessary volumes of vaccines. Both initial outreach and ongoing coordination is necessary.

Between this kind of collaboration, and regular use of registries by all needed parties, SLV should be considered an extension of the medical home, at least for immunization purposes in general and/or influenza immunization purposes specifically. The medical home concept intends to ensure holistic and continual care of the patient. Effective SLV efforts, aided by better tracking capabilities, can contribute to that goal.

Resolving Privacy Issues and Facilitating Communication Between States

Patient privacy law currently curtails sharing of immunization information in the SLV context. Strategies are needed to enable communication between SLV clinics and the medical home without endangering important matters of privacy. A balance must be struck to alleviate roadblocks to optimal functioning of vaccine registries within states, and to facilitate national coordination of registries.

Collaboration is needed between leaders from the medical and public health communities, policymakers, patient and consumer advocates, and others, to streamline the process of information sharing and advocate for related changes to FERPA and HIPAA to ameliorate roadblocks to effective functioning of registries.

However, important steps can be taken even within the current legal context. Many school districts routinely request written parental consent at the beginning of the school year. This must become standard procedure, and the consent form should stipulate clearly that immunization information will be entered into the registry, and shared as appropriate with public health agencies and the medical home.

Need for a Nationally Coordinated and Aligned Approach

National coordination and eventually a national model are needed to ensure consistency and interoperability of registries, as well as sufficient communication between SLV and the medical home.

Setting standards and providing guidance

As an early step, national standards for registries and their use should be promulgated to foster common objectives and features. This will necessitate supporting and studying local registry models, compiling and analyzing performance data and evaluating success conditions to determine the most effective approaches.

The standards could provide states with technical guidance on creating and updating registries for maximum interoperability. An accompanying education package could guide providers in understanding the standards and use of registries. Baseline expectations for how state-level registries should function would begin to enable wider and more regular use as well as create the additional expectation of consistency from state to state.

Functional traits of an effective model at the state level should include:

- A user-friendly system.
- Access by all providers (including, for these purposes, SLV clinics) for purposes of both input and output.
- Efficient and easy-to-use mechanisms to obtain or send relevant data across state lines to out-of-state registries when necessary.
- Robust participation by the medical community (via mandate or other effective incentives).
- Robust participation by SLV programs in the area – SLV sites should enter new information in timely fashion, as well as fax or e-mail primary care offices a list of their patients that were vaccinated at school.
- Standardized definitions for entering data.
- Standardized basic information fields.
- Standardized on-line content, to save on costs of paper, printing and distribution.
- Standardized bar-coding to streamline data entry.
- Real-time access to prevent missed school days and lessen the burden on school nurses.
- Mechanisms for billing and documentation.
- Basic outputs such as reports, letters of exclusion, and print-outs for parents and guardians.

A national model

Ultimately a national model should be considered by policymakers and key stakeholders as an efficient and practical means of achieving the needed consistency from state to state. This does not mean that the system should be built and maintained by federal authorities – simply that a uniform system with nationwide breadth is needed to allow communication of meaningful, standardized information across jurisdictional boundaries with access by those who have the data and those who need the data.

Support for such a national model should be cultivated over time within the medical community (e.g., via professional associations), policymakers and public health advocates.

Making the Case for Registries

The state and local health departments that utilize immunization registries and SLV advocates should collaborate to build and deliver the case for SLV, to help ensure adequate investment in and use of registries as a primary tracking method. Talking points developed for key audiences would be very helpful, along with a risk guidance document to dispel misperceptions.

Communication should be prepared for:

- *School policymakers and administrators*, detailing why a vaccine registry is important to them. Information should be provided to administrators, perhaps in the form of a risk-guidance document, on the benefits of tracking registries and data collection on immunization rates. The case to schools should also emphasize the positive impact on school nurse workload with decreased time spent on paperwork annually.
- *Providers*, detailing the value of effective registries in terms of cost savings as well as vaccination rates.
- *Government policymakers* (legislators and regulators), demonstrating the cost-effectiveness and public health benefits of using registries, proposing strategies for involving schools in tracking, and proposing steps for incentivizing physician participation.
- *Patients / consumers*, explaining that placing their information in the registry is for their benefit. (Messaging vectors could include PTAs and AARP, as well as medical homes.)

Priority Action Steps

Based on the developments and needs described above, several measures should be considered to improve tracking of and communication regarding SLV efforts in the U.S. Patient and consumer advocacy groups and other stakeholders should collaborate statewide, regionally and nation-wide to call for increased funding for registries, regular use of registries by providers, and full access to registries by SLV clinics. Specifically:

1) Building the case for registries

- a. Heads of existing registries and SLV advocates should jointly develop talking points articulating the value of registries, SLV involvement in them, and how the information is used and protected, to the following key audiences:
 - i. School policymakers and administrators
 - ii. Providers
 - iii. Government policymakers
 - iv. Patients / consumers

2) Ensuring access and participation

- a. Explore incentives for regular use of immunization registries by healthcare providers.
- b. Explore existing barriers to use of registries by SLV clinics and identify solutions to ensure that school nurses or appropriate delegates not only have access to data but can enter new data as needed.
- c. As a step toward improving health literacy, an education campaign is needed to teach parents the importance of immunization registries and how to ensure that their family's data is up to date.
- d. Guidance should be provided for school nurses and other clinic personnel on the use of registries.
- e. Federal, state and local governments should work together to continue to strengthen current immunization registry systems.

3) Resolving privacy issues

- a. The medical and public health communities, policymakers and advocates should jointly call for legislative change to diminish restrictions on data access and entry by SLV sites.
- b. School districts should automatically request written parental consent at the outset of each school year, with the clear understanding that immunization information will be entered into the registry.

4) Forging a nationally coordinated and aligned approach

- a. National standards for the interoperability of registries and their use should be developed and promulgated, after distilling best practices and success factors from a study of existing registries.
- b. Leaders from the public, private and civic sectors, and the public health and medical communities, should jointly consider the merits and feasibility of a national registry model for optimal interoperability and comprehensive tracking nationwide.

V. Final Observations

More must be learned about the about the costs and benefits of school-located vaccinations, but it is clear already that the strategy is an important component of the national effort to reduce the burden of vaccine-preventable disease. The background data presented at the November 2010 conference; the experiences shared; and, the conversations spurred by those presentations confirmed the value of SLV and provided the opportunity for stakeholders from public health, healthcare and education to leave their silos and begin to forge broader partnerships.

ASTHO, NACCHO and NASN are committed to working with partners on exploring creative solutions to the challenges faced by ongoing efforts to vaccinate in the school setting. State and local health departments and school nurses each have unique and indispensable roles to play in surmounting those challenges and establishing the needed networks.

State and Local Health Departments

The SLV model enhances the suite of options for state and local entities to increase vaccination rates and reduce the burden of infectious disease. The barriers or challenges articulated in this paper are not all unique to SLVs, but rather are common barriers to alternative vaccination locations. In order to ensure access to vaccines to all populations, alternative locations (SLVs, pharmacies, workplaces, etc.) should be pursued. If we can continue to address issues of billing insurance for vaccines, and streamlining information systems that can communicate with medical homes, we will succeed in increasing access to vaccines.

The advantages that the strategy holds for state and local agencies can be understood from several perspectives:

- SLV promotes the kinds of local connections within communities that are the strength and obligations of local health departments (LHDs). Educators, school nurses, other city/town agencies, parent groups, emergency response groups, civic groups, medical providers, medical institutions, insurance companies, state health officials and state immunization registry personnel all need to be involved in planning and conducting the clinics. These relationships will benefit other successful public health initiatives.
- Schools are acknowledged as one of the sites that can be used for mass distribution or administration of pharmaceuticals during a public health emergency. Schools are centrally located, accessible, and trusted sites for communities to gather in difficult times. SLV during seasonal influenza is training and practice for emergency response.
- Large-scale clinics held at schools can be more financially efficient. More people can be immunized during a defined period of time in a mass clinic at a school for less cost than the more traditional practice of holding many smaller scale clinics in multiple sites. In a time of declining funding for government services, this efficiency makes good business sense.

- Large-scale clinics held at schools can be more epidemiologically effective. The literature is quite clear about the positive impact on the entire community if the prevalence of immunizations among school-aged children is high.
- The medical societies have stated that private sector physicians are not capable of achieving universal influenza immunization recommendations while continuing to see patients for routine purposes. Taking the epidemiologic pressure off of the physicians while also lowering their financial exposure of buying more vaccine than they can use is a service well-appreciated by the physician practices.
- The literature speaks to the benefits of using immunization registries. Using the state immunization registry through SLV is a way to promote registry use. This benefits all.
- SLV offers training opportunities for LHDs to bill for their immunization services. This helps to reduce the community's financial exposure and it also aids their ability to support other services by billing for those as well.

School Nurses

School nurses historically have advocated for immunizations and the important role they play in protecting children from vaccine-preventable disease. All school nurses are involved with record reviews to ensure students enter school with the required immunizations. Some school nurses provide vaccines at school, and others voice interest in how to become more involved in bringing an immunization clinic to their school buildings to provide students, and possibly families, with another venue to receive vaccine. School nurses can add value to SLV efforts of public health departments: they know the students and their families, they know the hierarchy of authority in the school, and they can provide a critical communication link between public health and the schools. Educators' understanding of how access to a state immunization system by the school nurse greatly enhances work productivity, accuracy in immunization compliance, and better positions the school in its role in emergency preparedness leads to more informed conversations about the need for school nurse-public health nurse partnerships.

Parent voices in a community are known to result in change. Clarifying the issues surrounding SLV better positions the school nurse to engage parents in the conversation around the benefits of SLV. Parents can join the stakeholders found at this meeting to raise some of the issues highlighted in this paper: exploring ways to create community models for reimbursement of vaccines provided makes sense; increasing participation in state immunization information systems and allowing access and/or data entry by schools can be a channel to keep the medical home informed and ease parental burdens to prove immunization status of their children; and SLV can lessen the burden felt by some families to obtain recommended immunizations.

There is more to be learned about the benefits of SLV. The benefits to the community need to be more precisely measured, both in terms of finances and in costs saved from reduced morbidity. Such data will not be available unless state and local health departments, school nurses and other partners continue to press forward with exploring the many facets of this strategy.

APPENDIX A
Meeting Agenda



School Located Vaccination (SLV) – Protecting America’s Health
November 16-17, 2010

Washington, D.C.
Ronald Reagan Building

Agenda

Meeting Goal: Develop a plan of action for sustaining school-located vaccination (SLV) clinics.

DAY 1 (November 16, 2010)

1:00 p.m. Opening

Presenters:

- Amy Garcia, Executive Director, National Association of School Nurses (NASN)
- Caroline Barnhill, Director, Emerging Infections, Association of State and Territorial Health Officials (ASTHO)
- Paul Etkind, Senior Analyst Community Health Team/Immunizations, National Association of City and County Health Officials (NACCHO)

1:45 p.m. The Honorable Kathleen Sebelius, Secretary of the U.S. Department of Health and Human Services

2:00 p.m. Why Schools? Why School-Located Vaccination? What are the gaps preventing this from moving forward?

Session objective: Jointly articulate the case for school-located vaccination (SLV).

Panelists:

- Amy Garcia, NASN Executive Director
- Cindy Weinbaum, Associate Director for Influenza, CDC/NCIRD
- Dana Carr, Department of Education - Director, Health, Mental Health, Environmental Health and Physical Education Programs, OSDFS

Discussion questions:

- What challenges need to be overcome in achieving sustainable SLV?
- What is needed for the schools to include SLV as part of their mission?
- What is needed for the medical home to view schools as an option for obtaining vaccines?
- How can we make this happen?

3:15 p.m. BREAK & Time to Connect with your Technology

3:35 p.m. Funding – What do we know? What do we need to know?

Session objective: Identify realistic strategies to fund SLV.

Panelists:

- Immunizer – Andy Chisholm (Maxim Health Systems)
- Using public & grant money – Cuc Tran (University of Florida, Emerging Pathogens Institute)
- State Perspective - Caroline Barnhill, (ASTHO)

Discussion questions:

- What solutions are most promising? (i.e., most cost-effective, most effective at reducing documentation problems, and most effective at vaccinating the greatest number of children)
- What research needs to be done?
- What is needed for payers to view schools as an option for obtaining vaccines?
- What steps need to be taken – by whom, and by when?

5:30 p.m. ADJOURN

5:30 – 6:00 p.m. RECEPTION (Sponsored by MedImmune) – Time to mix & mingle

DINNER ON YOUR OWN

DAY 2 (November 17, 2010)

8:00 – 8:30 a.m. BREAKFAST

8:30 a.m. Welcome; Recap of Day 1

8:45 a.m. Keeping track of school-delivered immunizations: What do we know? What do we need to know?

Session objective: Identify realistic and effective ways to incorporate vaccinations delivered in the school setting into routine public and private sector immunization record-keeping .

Panelists:

- Michigan Department of Health – Sherry Rose
- HIPAA/FERPA - Martha Bergren (American Public Health Association - School Health Section)
- The medical home - Dr. Herb Young (AAFP)
- School nurse perspective – Sandi Delack (NASN President)
- American Immunization Registry Association – Emily Peterson - BY PHONE

Discussion questions:

- How can registries be a useful tool? What are the limitations of registries?
- How can electronic health records assist with tracking school-delivered vaccinations and what are the barriers to implementation?

10:40 a.m. BREAK & Time to Connect with your Technology

11:00 a.m. Where do we go from here in developing a sustainable approach to providing vaccines at school?

Session objective: Identify key action items, who might be able to act on them, and the needed timetable for action (e.g., immediate, long-term, other).

Each table will be assigned one of the following questions to explore in depth:

1. Under what circumstances does SLV make sense?
2. What are the priority actions regarding funding?
3. What are the priority actions regarding tracking?

12:00 p.m. LUNCH

12:45 p.m. Where do we go from here (continued)

Reports from small groups, and plenary discussion regarding priority actions, needs, and roles.

2:30 p.m. Wrap-up and next steps

3:00 p.m. ADJOURN

Thank you for your participation! Safe travels!
NASN, NACCHO & ASTHO Gratefully Acknowledge the Sponsors

MedImmune
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Maxim Health Systems
Mollen Immunization Clinics, LLC

APPENDIX B
Meeting Attendees

Caroline Barnhill, Director, Emerging Infections – ASTHO
Martha Dewey Bergren, Director of Research – NASN/APHA School Health Education & Services
Section
Abby Berns, Program Associate, Immunizations – NACCHO
Nichole Bobo, Nursing Education Director – NASN
Joseph Bocchini, Jr., MD, Professor & Chairman of Pediatrics – Childhood Influenza
Immunization Coalition
Janine Canlas, Program Administrator – NASN
Dana Carr, Director, Health, Mental Health, Environmental Health & Physical Education
Programs – US DOE
Edeanna Chebbi, Program Coordinator, Hygiene & Disease Prevention – NEA Health
Information Network
Michael (Andy) Chisholm, Account Executive – Maxim Health Systems
Isabelle Claxton, Director, Public Policy & Advocacy – GlaxoSmithKline
Judy Coates, Director, Immunization Initiatives – sanofi pasteur
Chris Colwell, Public Policy Strategy – BD Medical Pharmaceutical Systems
Dr. Stephen Conley, Executive Director Designate – American School Health Association
Linda Davis-Alldritt, President-Elect – NASN
Sandi Delack, President – NASN
Sarah Duggan Goldstein, Policy Analyst – American Medical Association
Shannon Dzubin, Director Vaccine Policy & Advocacy – GlaxoSmithKline
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APPENDIX C

References

- Association of State and Territorial Health Officials. (2011). *Budget cuts continue to affect the health of Americans: Update May 2011*. Arlington, VA: Author.
- Bergren, M. (2010, November). *Keeping track of school-delivered immunizations: What do we know? What do we need to know?* Podium presentation at the School-Located Vaccination Clinics: Protecting America's Health, Washington D.C.
- Bernstein, H.H. (2008). Flu vaccine recommended for children 6 months through 18 years. *American Academy of Pediatric News*, 29(4), 22.
- Borja, M., Amidon, C., Spellings, D., Franzetti, S. & Nasuta, M. (2009). School nurse perspectives. *The Journal of School Nursing*, 25(supp 1), 29S-36S.
- Carpenter, L.R., Lott, J., Lawson, B.M., Hall, S., Craig, A.S., Schaffner, W., & Jones, T.F. (2007). Mass distribution of free, intranasally administered influenza vaccine in a public school system. *Pediatrics*, 120(1), e172-e178.
- Centers for Disease Control and Prevention. (2011a). *Children, the flu, and the flu vaccine*. Retrieved from <http://www.cdc.gov/flu/protect/children.htm>
- Centers for Disease Control and Prevention. (2011b). *Guide to community preventive services*. Retrieved from <http://www.thecommunityguide.org>.
- Centers for Disease Control and Prevention. (2011c). *VFC: For parents*. [Programs & Tools]. Retrieved from <http://www.cdc.gov/vaccines/programs/vfc/parents/default.htm>.
- Centers for Disease Control and Prevention. (2010a). Influenza school-located vaccination (SLV): Information for planners. Retrieved from <http://www.cdc.gov/flu/school/planners.htm>.
- Centers for Disease Control and Prevention. (2010b). National, state and local vaccine coverage among adolescents aged 13-17 years – United States, 2009. *Morbidity and Mortality Weekly Report*, 59(32), 1018-1023.
- Centers for Disease Control and Prevention. (2010c). Prevention and control of influenza with vaccines Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2010. *Morbidity and Mortality Weekly Report*, 59(rr08), 1-62.
- Centers for Disease Control and Prevention. (2009a). H1N1 Influenza School-located Vaccination (SLV): Information for Planners. Retrieved from <http://www.cdc.gov/H1N1flu/vaccination/slv/pdf/slc-planners.pdf>.

- Centers for Disease Control and Prevention. (2009b). *Unpublished data from the 2009 National H1N1 Flu Survey*.
- Centers for Disease Control and Prevention. (2009c). *Immunization Information System Annual Report*. Retrieved from <http://www.cdc.gov/vaccines/programs/iis/rates/data-rates.htm>
- Centers for Disease Control and Prevention (2008). Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2008. *Morbidity and Mortality Weekly Report*, 57(RR-7), 1-60.
- Centers for Medicare and Medicaid Services. (2011). *CMS EHR meaningful use overview*. Retrieved from http://www.cms.gov/EHRIncentivePrograms/30_Meaningful_Use.asp
- Department of Education. (2011). *Family Educational Rights and Privacy Act (FERPA)*. Retrieved from <http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>.
- Duffy, J. (1978). School vaccination: The precursor to school medical inspection. *Journal of the History of Medicine and Allied Sciences*, 33, 344-355.
- Grantmakers in Health. (2009). *School-based health centers: Enabling health care access for children and youth "where they are."* Retrieved from http://www.gih.org/usr_doc/Issue_Focus_4-27-09.pdf.
- Hall, S., Galil, K., Watson, B., & Seward, J. (2000). The use of school-based vaccination clinics to control varicella outbreaks in two schools. *Pediatrics*, 105, e17.
- Health Resources and Services Administration. (2011). National Vaccine Injury Compensation Program (VICP). Retrieved from <http://www.hrsa.gov/vaccinecompensation/>.
- Hodge, J. & Gostin, O. (2002). *School vaccination requirements: Historical, social, and legal requirements*. Baltimore, MD: Johns Hopkins and Georgetown University's School of Public Health Center for Law and the Public's Health.
- Hull, H. & Ambrose, C. (2011). The impact of school-located influenza vaccination programs on student absenteeism: A review of the U.S. Literature. *The Journal of School Nursing*, 27(1), 34-42.
- King, J., Stoddard, J., Gaglani, M. et al. (2006). Effectiveness of school-based influenza vaccination. *The New England Journal of Medicine*, 355, 2523-2532.
- Klein, J.D., McNulty, M., & Flateau, C.N. (1998). Adolescents' access to care: Self-reported use of services and perceived access to confidential care. *Archives of Pediatric and Adolescent Medicine*, 152, 676-682.

- Lambert, S. & Markel, H. (2000). Making history: Thomas Francis, Jr. MD and the 1954 Salk poliomyelitis vaccine field study. *Archives of Pediatric and Adolescent Medicine*, 154, 512-517.
- Longini, I., Halloran, M., Nizam, A., et al., (2000). Estimation of the efficacy of live, attenuated influenza vaccine from a two-year, multi-center vaccine trial: Implications for influenza epidemic control. *Vaccine*, 18(18), 1902-1909.
- National Association of County and City Health Officials. (2011a). *Local health department job losses and program cuts: State-level tables from the 2010 National Profile Study*. Retrieved from <http://naccho.org/topics/infrastructure/lhdbudget/loader.cfm?csModule=security/getfile&PageID=188204>.
- National Association of County and City Health Officials. (2011b). *Unpublished survey data*.
- National Association of County and City Health Officials. (2007a). *Case study: The FluMist® for schools program in Carroll County, MD*. Retrieved from <http://www.naccho.org/topics/hpdp/infectious/immunization/flumist.cfm>.
- National Association of County and City Health Officials. (2007b). *Case study: The FluMist® for schools program in Carroll County (MD), San Bernardino County (CA), and Knox County (TN)*. Retrieved from <http://www.naccho.org/topics/hpdp/infectious/immunization/flumist.cfm>.
- National Association of County and City Health Officials. (2007c). *Case study: The FluMist® for schools program in Knox County, TN*. Retrieved from <http://www.naccho.org/topics/hpdp/infectious/immunization/flumist.cfm>
- National Association of County and City Health Officials. (2007d). *Fact sheet: The FluMist® for schools program in San Bernardino County, CA*. Retrieved from <http://www.naccho.org/topics/hpdp/infectious/immunization/flumist.cfm> .
- National Association of School Nurses. (2007). *School nursing in the United States: A quantitative study*. Silver Spring, MD: Author.
- National Center for Education Statistics. (2010). *Digest of education statistics, 2010*. Washington, D.C.: U.S. Department of Education.
- Neuzil, K.M., Hohlbein, C., & Zhu, Y. (2002). Illness among schoolchildren during influenza season. *Archives of Pediatric and Adolescent Medicine*, 156, 986-91.
- Office of the Inspector General. (2011). *Memorandum report: 2009 H1N1 school-located vaccination program implementation, OEI-02-10-00020*. Retrieved from

<http://oig.hhs.gov/oei/reports/oei-04-10-00020.pdf>.

- Oster, N.V., McPhillips-Tangum, C.A., Averhoff, F.M., & Howell, K. (2005). Barriers to adolescent immunizations: A survey of family physicians and pediatricians. *Journal of the American Board of Family Practice*, 18, 13-19.
- Piedra, P.A., Gaglani, M.J., Kozinetz, C.A., Herschler, G., Riggs, M., Griffith, M. et al. (2005). Herd immunity in adults against influenza-related illnesses with use of the tri-valent live attenuated influenza vaccine (CAIV-T) in children. *Vaccine*, 23, 1540-1548.
- Poland, G.A., & Hall, C.B. (1999). Influenza vaccination of children: Can we interrupt community epidemics? *Pediatrics*, 103, 1280-1282.
- Tran, C., McElrath, J., Hughes, P., et al. (2010). Implementing a community-supported school-based influenza immunization program. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 8(4). doi: 10.1089/bsp.2010.0029.
- U.S. Department of Health and Human Services. (2010). *2010 National Vaccine Plan: Protecting the nation's health through vaccination*. Retrieved from http://www.hhs.gov/nvpo/vacc_plan/2010%20Plan/nationalvaccineplan.pdf.
- U.S. Department of Health and Human Services. (2009) *Assuring vaccination of children and adolescents without financial barriers: Recommendations from the National Vaccine Advisory Committee*. Retrieved from <http://www.hhs.gov/nvpo/nvac/NVACVFWGReport.pdf>.
- Weinbaum, C. (2010, November). *Why schools? Why school-located vaccination? What are the gaps preventing this from moving forward?* Podium presentation at the School-Located Vaccination Clinics: Protecting America's Health, Washington D.C.
- Wiggs-Stayner, K., Purdy, T., Go, G., et al. (2006). The impact of mass school immunization on school attendance. *The Journal of School Nursing*, 22(4), 219-222.