Strategies to Improve and Sustain Immunization Rates in Your Clinic and Community

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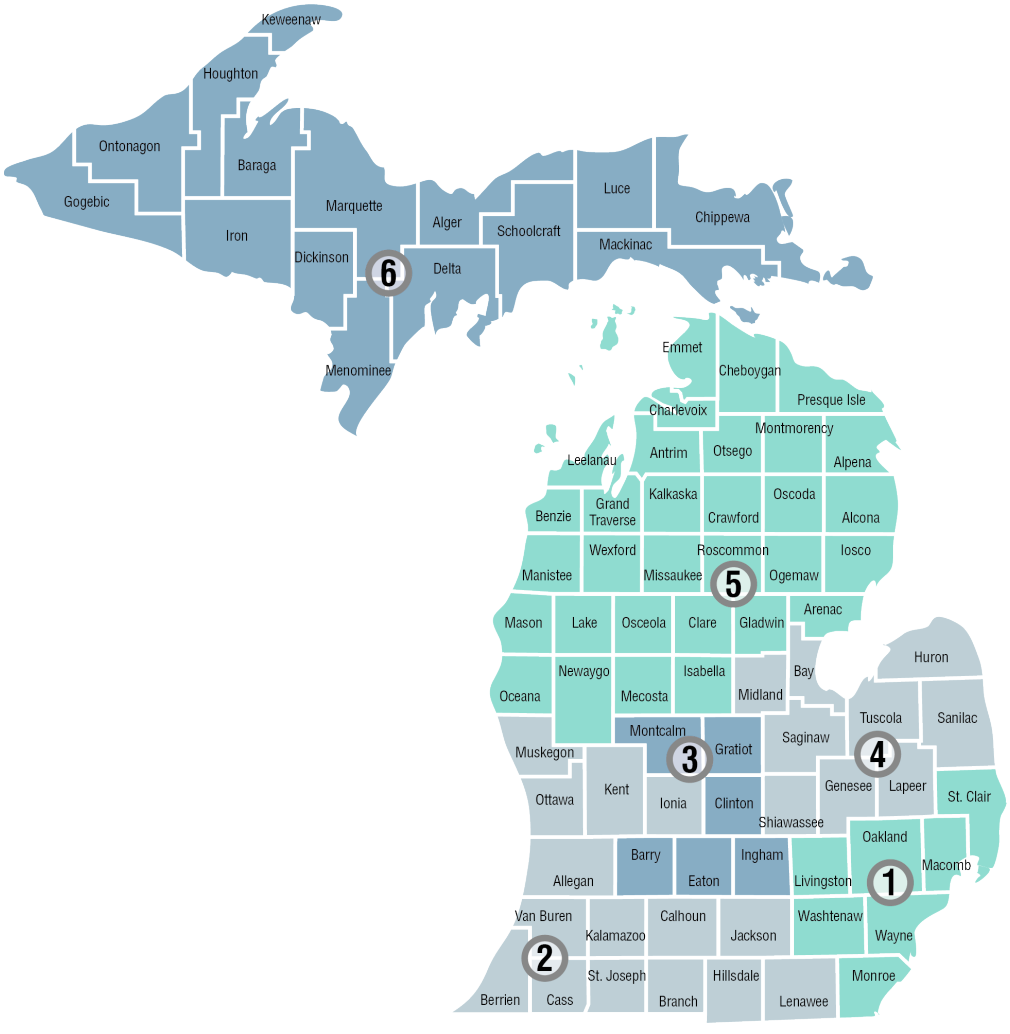
INTRODUCTION

The Michigan Association for Local Public Health (MALPH) received a three-year grant and a one-year no-cost extension from the Michigan Health Endowment Fund (Health Fund) to implement the Sustaining Community-Based Immunization Actions pilot project, which aims to increase Michigan's immunization rates. With this funding, MALPH selected two Michigan Care Improvement Registry (MCIR) regions—MCIR Region 1, encompassing seven counties in Southeast Michigan, and MCIR Region 5, encompassing 31 counties in the northern Lower Peninsula—with the intent of replicating their successful strategies statewide. Each pilot region has a project coordinator: Southeastern Michigan Health Association (SEMHA) for MCIR Region 1 and District Health Department #10 (DHD #10) for MCIR Region 5. After receiving a no-cost extension from the Health Fund, MALPH awarded mini-grants to three local health departments (LHDs) to implement evidence-based strategies for increasing vaccination rates more broadly in MCIR Regions 3, 4, and 6.

EXHIBIT 1. MCIR Region Map



Source: Michigan Public Health Institute. 2018. *MCIR Contact Regions*. Accessed September 27, 2018. https://www.mcir.org/providers/contact-regions/

As a part of this grant-funded project—and specifically to support the replication of successful activities completed within the pilot project—MALPH compiled a guide of resources and replicable approaches to support activities aimed at increasing immunization rates in healthcare clinics and the community. The resources in this guide include those that connect local partners, describe evidence-based interventions, and support implementation of evidence-based or emerging practices through tools and sites. Throughout the guide, case studies, which describe the approaches implemented through the Sustaining Community-Based Immunization Actions project, as well as the outcomes of these approaches, are provided. Many of these resources may be well-known to those knowledgeable and experienced in providing immunizations or implementing activities aimed at increasing immunization rates. This resource guide is meant for those who are newly and currently engaged or interested in immunizations and related activities.

The reference model is separated into three main sections:

1. **Partner Engagement and Coordination**. Practical guidance for MCIR regions on convening traditional and untraditional partners and coordinating their work, including standardized Web resources and documents (where appropriate).
2. **Evidence-based Practices**. Guidance and examples of implemented evidence-based practices to increase vaccination rates.
3. **Resources and Materials to Support Evidence-based Interventions to Increase Vaccinations**. Relevant information to support the implementation of evidence-based and promising practices as well as key strategic resources.

Each section offers a short description of the available resource, a link to more information, and where appropriate, relevant case studies.

SECTION ONE: PARTNER ENGAGEMENT AND COORDINATION

The following resources are tools LHDs, schools, community providers, local health systems, and others can use to unite partners in a regional approach to immunization efforts. These resources consist of methods to engage traditional partners, such as those mentioned above, and untraditional partners, such as pharmacies, and sustaining that engagement. Although these tools are not specific to increasing immunization rates, building, convening, and maintaining partnerships are key components in these efforts.

COUNTY HEALTH RANKINGS AND ROADMAPS: ACTION CENTER

The County Health Rankings and Roadmaps' Action Center includes interactive graphics and guidance on how to connect and work with various stakeholders. It includes five steps to move a community forward in improving its health by using county-specific data. These steps are to gather information to assess needs and resources; set priorities to focus on what is important; find the most effective approaches to address priorities; act on what is important; and evaluate actions. Each section includes key activities and tools to guide progress, which, as the site points out, is not always linear. In addition to the five steps, it provides resources on building and sustaining partnerships and effective communication, which are necessary throughout the process. More information is available at www.countyhealthrankings.org/roadmaps/action-center.

DUKE UNIVERSITY MEDICAL CENTER: THE PRACTICAL PLAYBOOK

This resource is geared towards helping public health and primary care groups working together to improve population health. It features several tools that guide users through building partnerships to achieve joint goals. The main areas of focus include building or finding a partnership, organizing and preparing the group's focus, prioritizing and planning, implementing the plan, monitoring and evaluating the effort, and then sustaining the work. It also includes population health, data visualization, and funding resources. More information is available at www.practicalplaybook.org.

NATIONAL ASSOCIATION OF COUNTY AND CITY HEALTH OFFICIALS: MOBILIZING ACTION THROUGH PLANNING AND PARTNERSHIPS

The National Association of County and City Health Officials' (NACCHO's) Mobilizing for Action through Planning and Partnerships (MAPP) is a community-driven strategic planning process for improving community health. Public health leaders facilitate this process to help communities apply strategic thinking to prioritize public health issues and identify resources for addressing them. MAPP is an interactive process that aims to improve the efficiency, effectiveness, and performance of local public

health systems. This process has six well-defined steps that include recommended participants and cover partnership development, joint visioning, assessments, issue identification, forming goals and strategies, and moving into action. These steps are described in more detail below and were provided by MCIR Region 1. More information is available at www.naccho.org/programs/public-health-infrastructure/performance-improvement/community-health-assessment/mapp.

Case Study One

MAPP STRATEGIC PLANNING

MCIR Region 1: Led by Southeastern Michigan Health Association

Situation

Need to develop a regional strategic plan for increasing immunization rates in Southeast Michigan.

Strategy

NACCHO's MAPP is a community-driven strategic planning process that incorporates qualitative and quantitative health assessments to drive key interventions. SEMHA facilitated the MAPP process to develop a regional strategy to increase rates, but adapted and accelerated the process to fit the project scope and timeline. Whereas MAPP has traditionally been used to guide LHDs' community health assessments, SEMHA narrowed the scope to only include health indicators that directly or indirectly impact the region's immunization rates. A description of how SEMHA implemented and adapted each MAPP phase is below:

- **Organizing and engaging partners.** MCIR Region 1's project coordinator, LHD health officers, and SEMHA's executive director identified sectors and stakeholders to join the MAPP steering committee. The committee included 24 leaders from health plans (e.g., Blue Cross Blue Shield of Michigan), health systems (e.g., Henry Ford Health Systems) and physician organizations, healthcare quality improvement and access to care organizations (e.g., MPRO and the Child Healthcare Access Program), and local public health leadership.

- **Visioning**. Driven by key priorities, including data, community, and pragmatism, the steering committee created a vision to guide their entire process. The group came to a consensus on the following long-term vision: "Southeast Michigan is a connected community where all residents are protected against vaccine-preventable disease."

- **Collecting and analyzing data.** Several assessments were completed. The steering committee conducted the Forces of Change (a strengths, weaknesses, opportunities, and threats analysis) and Community Strengths and Themes (asset mapping). A special SEMHA board meeting with health officers and one to three key stakeholders from each LHD who were involved in immunizations, communicable disease, and/or health education/communication completed the Local Public Health System Assessment. The Community Health Status Assessment was compiled by SEMHA's Center for Population Health, which aggregated census data, mapped MCIR data by zip codes, and used social determinants of health to understand which areas and populations had the greatest needs in MCIR Region 1.

- **Identifying and prioritizing strategic issues**. The steering committee and SEMHA board worked together to identify the most pressing immunization-related strategic issues. Issues were then separated into those that were internal (i.e., within the control of local public health) and external (i.e., outside the direct control of local public health). Members voted for their top three issues and prioritized them based on votes.

- **Developing goals, strategies, and an action plan**. All information from the first four phases was synthesized into a strategic action plan.

- **Taking and sustaining action**. As of May 2018, MCIR Region 1 pilot project has implemented five key interventions from the action plan. Interventions included social media; an all-day immunizations provider training course; targeted provider outreach to large pediatric practices with low immunization rates to develop tailored quality improvement plans in conjunction with practice-level recall; a Women, Infants, and Children (WIC)–immunizations diaper incentive; and a senior immunization pilot in independent pharmacies.

Resources and Time Frame

Although only planned for six months, the MAPP phases took nearly ten months to complete, with phases one and three requiring more time than anticipated. Completing these phases required significant amounts of staff time and effort to coordinate meetings, events, and activities, as well as to create a project logo, PowerPoint templates, flyers, and handouts. A geographic information system technician was hired to develop the maps. Other resources needed for the MAPP process included a central meeting space that was large enough to accommodate attendees and teleconference equipment for those unable to attend, light refreshments, and meeting supplies, including large easels and easel pads, colorful markers and Post-its, printouts, and color copies. Using more remote meeting options may have sped up the process, but encouraging in-person meetings helped with participant engagement.

Outcomes

The MAPP process led to the development of three action workgroups that were separate from the steering committee. The committee continues to meet, albeit less frequently than when actively completing the MAPP process. The MCIR Region 1 project coordinator is launching interventions with the appropriate champions and stakeholders to make each intervention a success.

Lessons Learned

- **Determine realistic time frames and commitments**. It is important to accomplish as much as possible in the first few meetings, because some people will cease attending or following up due to job changes, life circumstances, or competing priorities. Meetings should be of an appropriate length, and people should be allowed to leave early if nothing more can be accomplished. Allowing remote call-in afforded flexibility, but it was balanced with some mandatory in-person meetings.

- **Establish early wins**. Creating the vision during the first meeting allowed the group to feel a sense of ownership and accomplishment early into the steering committee's formation and the MAPP process.

- **Gather decision makers**. It is important to have decision makers at the table from organizations at the outset of an initiative of this scale. This may not necessarily require the CEO of each organization, but it should be people in leadership that allows them to drive changes.

For more information, go to www.SEMHA.org, email admin@semha.org, or call 313-873-6500.

NATIONAL QUALITY FORUM: THE GUIDE FOR COMMUNITY ACTION

The *Improving Population Health by Working with Communities: Action Guide 3.0* is a how-to for those working to improve a population's health—locally, regionally, statewide, or even nationally. It contains brief summaries of ten important elements recommended when engaging in collaborative population health improvement efforts as well as element examples and links to supporting resources. The updated 2016 version incorporates ten field experiences of multisector partnerships and actions to improve population health from around the country. More information is available at www.qualityforum.org/Publications/2016/08/Improving_Population_Health_by_Working_with_Communities__Action_Guide_3_0.aspx.

RIPPEL FOUNDATION: RETHINK HEALTH

A product from the Rippel Foundation, ReThink Health provides a variety of interactive tools intended to guide leaders in considering the impacts of different policies and interventions and to make better and more creative decisions about redesign. The website contains guides and tools on stewardship, transformational action, a financing primer, and a dynamics model for strategy development. More information is available at www.rethinkhealth.org.

ENGAGING UNTRADITIONAL PARTNERS

Several projects brought the LHDs to work with new and or untraditional vaccination partners, including pharmacies and birthing hospitals. In the case studies below, SEMHA, District Health Department No. 2 (DHD2), and Grand Traverse County Health Department (GTCHD) with Benzie-Leelanau District Health Department (BLDHD) describe interventions they piloted in an effort to partner with organizations to increase vaccination rates for their target populations and or increase awareness of vaccination recommendation.

PHARMACY PARTNERSHIPS

MCIR Region 1: Led by Southeastern Michigan Health Association

Situation

Need to increase flu and pneumococcal vaccination rates for adults aged 60 and older.

Strategy

Targeting audience. Many adults do not know they need flu and pneumococcal vaccines and do not see their primary care doctors regularly. Adults do, however, regularly visit retail pharmacies to fill their prescriptions and purchase health and wellness products.

Developing contacts and letters of agreement. In partnership with St. Clair County Health Department and MPRO—a Medicare Quality Improvement Organization funded by the Centers for Medicaid and Medicare Services—SEMHA developed contacts and letters of agreement with five Sav-Mor pharmacies in Southeast Michigan that were willing to pilot immunization education and assessment.

Exchanging resources. In exchange for MCIR training, educational resources about vaccine assessments, the Advisory Committee on Immunization Practices' (ACIP's) vaccination schedule, and a $750 stipend—made available through MALPH's grant funds—the five pharmacies agreed to stock flu, PPSV23, PCV13, and zoster vaccines. The stipend could not be used to directly stock these vaccines, per the signed letter of agreement.

Conducting patient assessments. The pharmacies agreed to routinely assess all adults aged 60 and older for recommended vaccines based on an adapted assessment guide SEMHA staff created. These adults were assessed when they came in to fill or pick up prescriptions and provided informational vaccination materials.

Distributing recall postcards. The pharmacies distributed several hundred adult vaccine recall postcards developed by SEMHA and referred patients who were uninsured or underinsured to the nearest LHD or Federally Qualified Health Center to receive the necessary vaccinations. SEMHA staff connected the pharmacies to vaccine manufacturer resources, such as prepaid postage postcards, to encourage vaccination to clients in their databases.

Resources and Time Frame

St. Clair County Health Department, MPRO, and SEMHA staff worked together to develop the vaccine education postcard, while SEMHA staff developed the project idea and its evaluation, including collecting vaccine administration data. The project also required the buy-in and time of Sav-Mor corporate leadership as well as the pharmacists.

Outcomes

This project demonstrated that partnerships between local public health organizations and independent pharmacies can lead to new, sustainable immunization assessment practices. According to progress reports from the pharmacies, there was an increase in immunization assessment as well as vaccine administration. Sites also reported that patients asked questions about their immunizations after reading the educational postcards placed in their prescription bags. The recall postcards, however, yielded mixed results—some of the pharmacies plan to continue sending them, while others did not believe they were effective.

The self-reported vaccine administration data from the pharmacies differed vastly from their corresponding MCIR data, which suggests there may be under- or overreporting of doses to MCIR, making the results of vaccine administration inconclusive.

Lessons Learned

- **Prepare for inconsistent MCIR reporting.** Until a statewide mandate to report adult doses to MCIR exists, MCIR data for adults will continue to be unreliable.
- **Provide educational resources to support public education efforts.** Pharmacies want additional vaccine education resources to help them train their staff and help inform patients about vaccines.
- **Plan for limited vaccine stocks.** Pharmacies may not stock all ACIP-recommended vaccines for adults, instead they may rely on patients to request specific vaccines before ordering a supply.
- **Be aware of limited vaccine protocols.** Many independent pharmacies do not have internal protocols for assessing and or recommending vaccines. It may take effort to help pharmacies develop these protocols and implement them.

For more information, go to www.SEMHA.org, email admin@semha.org, or call 313-873-6500.

Case Study Three

PROVIDER EDUCATION

MCIR Region 5: Led by District Health Department No. 2

Situation

Need to increase provider and pharmacy awareness of the most current immunization information, especially around the adult pneumococcal vaccine, and to maintain direct communication and collaboration with providers and pharmacies.

Strategy

DHD No. 2 immunization staff provided education materials to local vaccines providers, including pharmacies.

Developing informational resources. The immunization coordinator for DHD2 created an immunization information packet for providers and pharmacies. Immunization clerical staff also identified a list of providers and pharmacies to visit.

Distributing resources. DHD2 staff visited and distributed the materials to providers and pharmacies across the district. The list of providers and pharmacies was developed and stored for future use.

Resources and Time Frame

This project took about four months to plan and a year to implement. DHD2 staff began planning and developing materials in April 2016, which were distributed between August 2016 and June 2017.

The project's success required staff time to develop materials, which included LHD immunization program information, a MCIR brochure, a Michigan Department of Health and Human Services' (MDHHS') adult vaccine brochure, and a pneumonia/PCV13 information sheet.

Outcomes

The project successfully disseminated materials and ensured 39 providers and pharmacies had the most up-to-date adult vaccine information. Additionally, the list of providers and pharmacies can be updated and used for future activities.

Lessons Learned

- **Be detailed.** It was necessary to include the provider and pharmacy hours of operation on the list of providers and pharmacies. This was essential for distribution.

For more information, go to www.DHD2.org or call 1-800-2650.

Case Study Four

BUILDING HOSPITAL PARTNERSHIPS

MCIR Region 5: Led by Benzie-Leelanau District Health Department and Grand Traverse County Health Department

Situation

Need to increase the rate of birth-dose hepatitis B (Hep B) vaccine administration.

Strategy

Developing materials to promote vaccination. Immunization coordinators from BLDHD and GTCHD worked together to develop an easy-to-read information sheet for parents on the importance of birth-dose Hep B. They then partnered with WIC staff, Maternal Infant Health Program (MIHP) staff, and the local birthing hospital to promote this vaccination.

Distributing materials. Health department nurses distributed the information sheet to all clients during their last trimester of pregnancy, creating an opportunity to provide anticipatory guidance and to answer questions. Immunization coordinators from both health departments worked with birthing hospital staff to develop and distribute a declination form for parents to sign if they were declining the birth-dose Hep B vaccine. The form created another opportunity for parents to receive education about Hep B and to stress the importance of the vaccine.

Resources and Time Frame

This project took about six months to develop and implement. It required health department staff time—including immunization coordinators as well as WIC and MIHP program staff—to develop materials. Project staff partnered with the local birthing hospital and the Northern Michigan Vaccine Preventable Disease Task Force to distribute materials and implement the declination form. The project required additional funding to print these materials.

Outcomes

This project provided patient-level immunization education, fostered discussion between nurses and expecting parents, and promoted the importance of the birth-dose Hep B vaccine among birthing hospital nurses.

Lessons Learned

Build partnerships. It was important to build partnerships among stakeholders to ensure consistent messaging throughout the mother's pregnancy.

For more information, go to www.bldhd.org, www.gtchd.org, or call GTCHD at 231-995-6111.

SECTION TWO: EVIDENCE-BASED PRACTICES

The Community Preventive Services Task Force, whose members are appointed by the director of the Centers for Disease Control and Prevention (CDC), have identified evidence-based strategies for improving immunization rates. These findings are compiled in the *Guide to Community Preventive Services*.

The recommended evidence-based strategies fall into three categories of (1) enhancing access to vaccination services, (2) increasing community demand for vaccinations, and (3) implementing provider- or system-based interventions. The evidence-based strategy intervention descriptions are provided by the guide. More information about each strategy, including the studies that support the task force's recommendation can be found by going to the intervention's provided website link. Where available, case studies that describe implementing one or more of these recommended evidence-based strategies in a local Michigan community or region are also provided with the appropriate associated intervention. More information is available at www.thecommunityguide.org.

STRATEGIES TO ENHANCE ACCESS TO VACCINATION SERVICES

The task force recommends—based on sufficient evidence of findings—increasing vaccination rates through home visits; reducing clients' out-of-pocket costs; delivering vaccination programs in schools and organized child care centers; and establishing vaccination programs in WIC settings as ways to enhance access to vaccination services. These strategies are all described below, followed by case studies that detail Central Michigan District Health Department's (CMDHD's) and SEMHA's implementation of these strategies.

Increasing Vaccination Rates through Home Visits

Home visitors assess clients' vaccination status, discuss the importance of recommended vaccinations, and either provide vaccinations to clients in their homes or refer them to other services. Home visits may be conducted by vaccination providers (e.g., nurses) or others (e.g., social workers, community health workers). Interventions may be directed to everyone in a designated population (e.g., low-income single mothers) or to those who have not responded to other intervention efforts, such as client reminder and recall systems. Programs may be implemented alone or as part of a larger healthcare system or community-based program to increase vaccination rates. More information is available at www.thecommunityguide.org/findings/vaccination-programs-home-visits-increase-vaccination-rates.

Reducing Clients' Out-of-pocket Costs

Reducing out-of-pocket costs to clients involves program and policy changes that make vaccinations or the administration of vaccinations more affordable. Changes could include paying for vaccinations or administration, providing new or expanded insurance coverage, or lowering or eliminating patient out-of-pocket expenses at the point of service (e.g., copayments, coinsurances, and deductibles). More information is available at www.thecommunityguide.org/findings/vaccination-programs-reducing-client-out-pocket-costs.

Delivering Vaccination Programs in Schools and Organized Child Care Centers

Vaccination programs in schools or organized child care centers are multicomponent interventions delivered onsite to improve immunization rates in children and adolescents. These programs include two or more of the following components:

- Immunization education and promotion
- Assessment and tracking of vaccination status
- Referral of under-immunized school or child care center attendees to vaccination providers
- Provision of vaccinations

Additional components, such as reduced client out-of-pocket costs, client incentives, and enhanced access to vaccination services, may also be provided.

Organized child care centers include non-home daycare, nursery or preschool, and federal Head Start settings for children aged five years and younger. In most states, including Michigan, laws establishing vaccination requirements for school and child care center attendance require assessment, documentation, and tracking specific to each vaccine. See the "Establishing Vaccination Requirements for Child Care, School, and College Attendance" section on page 30 for more information about Michigan's school and child care center vaccination requirements.

School and child care center vaccination programs should either expand the assessment and tracking process to other immunizations or conduct additional interventions. These programs are often collaborations between the school or child care center and LHDs, private healthcare providers, or community healthcare services. More information is available at www.thecommunityguide.org/findings/vaccination-programs-schools-and-organized-child-care-centers.

Case Study Five

SCHOOL-BASED CLINICS

MCIR Region 5: Led by Central Michigan District Health Department

Situation

Need to ensure school-aged children, especially adolescents, are up to date with all recommended vaccines.

Strategy

- **Collaborating with area schools.** By collaborating with area schools, this allowed for as many school-based clinics as possible in CMDHD's jurisdiction. Interjurisdictional collaboration occurred among CMDHD clinic and administrative staff to develop each clinic's goals and the steps necessary to accomplish them.
- **Establishing times frames, number of clinics, and a collaborative plan.** Together, clinic and administrative staff determined the appropriate timing and number of clinics necessary. Administrative staff planned each clinic with help from school personnel while clinic staff implemented the established plan. Through these efforts, students and parents came to the events to receive their immunizations.

Resources and Time Frame

The school-based clinics occurred across an 18-month time frame. The project required significant time from administrative, billing, clinical, and clerical support staff as well as supervisors. It also required school staff and board resources in collaboration efforts.

Outcomes

In addition to students being brought up to date with routine recommended vaccines, this project improved existing relationships and established new ones with schools.

Lessons Learned

- **Conduct outreach**. Engage schools for their participation early in the process to facilitate outreach.

- **Be present in the community**. Participate in school orientation days and other school events where students are already present to maximize efforts and resources.

For more information, go to www.cmdhd.org or call 989-773-5921.

Establishing Vaccination Programs in WIC Settings

Vaccination interventions in WIC settings aim to assess the immunization status of participating infants and children and help them get recommended vaccinations. At a minimum, these interventions involve the periodic assessment of each child's immunization status and referral of under-immunized infants and children to vaccination providers as appropriate. Additional intervention components may include client reminder and recall systems, manual tracking and outreach efforts, or adoption of monthly voucher pickup schedules that require more frequent WIC visits when vaccinations are not up to date. In addition, vaccination services may be provided in WIC settings or through collocation and coordination of WIC programs with available healthcare services. More information is available at www.thecommunityguide.org/findings/vaccination-programs-special-supplemental-nutrition-program-women-infants-children-wic.

Case Study Six

WIC-FOCUSED INITIATIVES: SERVICE INTEGRATION AND POLICY CHANGES

MCIR Region 1 Led by Southeastern Michigan Health Association

Situation

Need to increase immunization coverage levels of children enrolled in WIC.

Strategy

WIC serves a vulnerable population that needs easier access to vaccinations. To better serve this population, two key WIC projects were implemented in hopes of promoting integration of services and policies that encourage immunizations during the WIC appointment.

Implementing a scheduling policy to improve vaccination rates. Oakland County Health Division (OCHD) implemented a policy to ensure that WIC appointments were scheduled on or after the child's first birthday to ensure they would be eligible to receive their recommended one-year shots at their next appointment, since these shots cannot be given even a few days before the child's first birthday. Prior to the intervention, roughly 40 percent of children in WIC were scheduled for their appointments at least one or more day before their first birthday. OCHD had a practice of scheduling the one-year WIC visit before the first birthday, because WIC staff were

concerned families' benefits would lapse if they missed or had to reschedule. Other LHDs in Region 1 avoided the benefits lapse by issuing a 30-day benefit extension. OCHD was unsure whether MDHHS would accept this scheduling accommodation; however, the coordinator received communication from the state WIC liaison, which confirmed this policy was allowed.

Implementing a vaccine incentive program. Five LHDs across MCIR Region 1 implemented Diapers 4 DTaP, an incentive program that provides diapers to families who opted to vaccinate their children at their WIC appointment. Despite the name (chosen because it is catchy and because Michigan has one of the lowest rates of fourth-DTaP dose completion in the country), the program intended to increase timely vaccination of *all* routinely recommended vaccines due at their WIC appointment. To do this, the following actions were taken:

- **Shadowing WIC clinics.** The OCHD immunization coordinator shadowed WIC clinics in all eight public health jurisdictions to observe similarities, differences, and best practices among the clinics. During this process, the coordinator conducted interviews with immunization clinic nurses, WIC staff, and leadership from both immunization and WIC programs. The coordinator surveyed WIC staff about what items would make good incentives to increase vaccination rates—staff responded unanimously with diapers, as they are the most requested item. The coordinator reached out to Walgreens, securing thousands of donated diapers, and used other grant funds to order more.

- **Determining intervention timing.** Each participating LHD determined which age(s) to intervene for the program, most choosing between six and 24 months of age.

- **Offering families resources.** WIC staff were trained to offer diapers as an incentive for families to stay to get their eligible children caught up immunizations. After children were immunized, families received one or two packs of a week supply of diapers. Livingston County, where immunization nurses are unavailable, adapted the program by offering families a diaper voucher, which they could redeem upon return to the clinic to demonstrate their child was up to date on vaccines.

Resources and Time Frame

SEMHA and OCHD staff spent two weeks developing and finalizing the revised scheduling policy, with some additional time for educating WIC staff about this change and the ability to request a 30-day WIC benefit extension.

The Diapers for DTaP incentive program also required SEMHA's and LHDs' time and effort, including health officers, immunization coordinators, and WIC staff. It took about two weeks to develop and then adapt for each participating LHD. Additionally, the requested diapers were back ordered and took almost a month to arrive.

Outcomes

Due to MDHHS' algorithms used to calculate WIC vaccination coverage levels, it was not possible to measure results of these activities. However, OCHD staff reported that nearly all 12-month WIC appointments are now scheduled on or after a child's first birthday. Additionally, staff from the five LHDs participating in Diapers for DTaP reported that families were increasingly accepting or scheduling immunizations.

Lessons Learned

- **Provide staff training.** WIC staff need to be trained on the acceptable uses of the 30-day grace period to extend WIC benefits, so they can help families maintain their benefits.
- **Ensure incentives encourage participation**. Ensure the incentive is large enough to encourage families to stay for the (sometimes) lengthy immunization portion of their WIC appointment. Additionally, families often prefer larger diaper sizes than the standard age/weight range suggests, so ensuring these sizes are available is important.
- **Evaluate internal policies.** Ensure internal processes are developed to evaluate WIC interventions, as the state may not be able to assist in evaluating changes.

For more information, go to www.SEMHA.org, email admin@semha.org, or call 313-873-6500.

STRATEGIES TO INCREASE COMMUNITY DEMAND FOR VACCINATIONS

The task force recommends—based on sufficient evidence of findings—offering client or family incentive rewards; utilizing client reminder and recall systems; implementing community-based interventions in combination; and establishing vaccination requirements for child care, school. and colleges attendance. Each of these interventions are described in more detail below, followed by applicable case studies from Michigan communities that implemented a specific strategy. Shiawassee County Health Department (SCHD) implemented an enhanced recall and reminder system and the Health Department of Northwest Michigan (HDNW) and the District Health Department #4 (DHD #4) each implemented their own set of community-based interventions.

Offering Client or Family Incentive Rewards

Client or family incentive rewards are used to motivate people to get recommended vaccinations. Rewards may be given to clients or families in exchange for keeping an appointment, receiving a vaccination, returning for a vaccination series, or producing documentation of vaccination status. Rewards may or may not be monetary, and they are typically small (e.g., food vouchers, gift cards, lottery prizes, baby products). More information is available at www.thecommunityguide.org/findings/vaccination-programs-client-or-family-incentive-rewards.

Utilizing Client Reminder and Recall Systems

Client reminder and recall interventions are used to remind members of a target population that vaccinations are due (reminders) or late (recall). Reminders and recalls differ in content and are delivered by various methods (e.g., telephone, letter, postcard, text message). Most reminder and recall notices are tailored for individual clients, and many include educational messages about the importance of vaccination. More information is available at www.thecommunityguide.org/findings/vaccination-programs-client-reminder-and-recall-systems.

Case Study Seven

ENHANCED REMINDER AND RECALLS

MCIR Region 4: Led by the Shiawassee County Health Department

Situation

Need to increase human papillomavirus (HPV) and pneumococcal vaccine coverage rates in their respective populations.

Strategy

SCHD sent recall and reminder postcards to adolescents due or overdue for their HPV vaccine and to adults aged 65 or older due or overdue for their pneumococcal vaccines. To ensure the effectiveness of this approach, SCHD staff employed the following strategies.

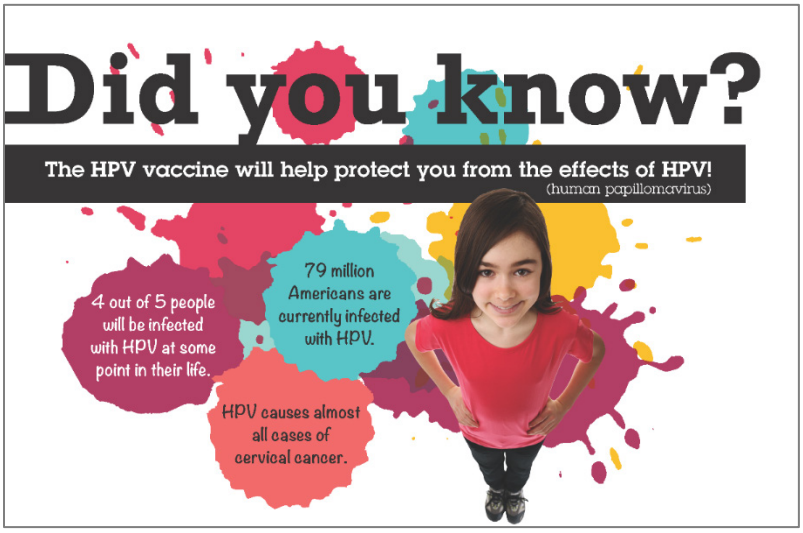
- **Identifying target audiences.** SCHD used MCIR to identify all adolescents 11–18 years of age who were due or overdue for the HPV vaccine and adults aged 65 or older who were due or overdue for their pneumococcal vaccines. SCHD contracted with a local mail distribution company that helped identify addresses for targeted Shiawassee County residents; postcards were then sent through bulk mailings.
- **Creating engaging and informative postcards.** With the help of a graphic designer, the SCHD created creative and graphically designed recall postcards using the theme "Did you know?" Three HPV-related postcards were developed for teenagers: one targeting males, one targeting females, and an appointment reminder postcard targeting all eligible adolescents (Exhibits 2 and 3). The pneumococcal recall postcard featured an older couple biking in a scenic park (Exhibit 4).
- **Providing important information.** Both sets of postcards provided facts about the highlighted vaccine and directed recipients to call the health department or their physician to receive more information and get vaccinated. SCHD sent HPV appointment reminder postcards using a similar design, which was sent to parents within one month of the adolescent's second HPV vaccination due date. Additionally, SCHD created HPV and

pneumococcal vaccine tip sheets for all Shiawassee County physicians who serve these populations. The HPV tip sheet included quick facts about the vaccine and how to talk to parents about its importance, while the pneumococcal tip sheet explained the difference in the two vaccines, provided quick facts about each, and gave an example of an administration timeline. These sheets were distributed through mail and fax to ensure all providers received this information prior to reminder postcards being mailed and to alert them of a potential increase in appointment and parent calls.

EXHIBIT 2. HPV Postcard for Teen Males

Note: LHDs may download postcard at MALPH.org.

EXHIBIT 3. HPV Postcard for Teen Females



Note: LHDs may download these postcards at MALPH.org.

EXHIBIT 4. Pneumococcal Postcard for Adults 65 and Older

Note: LHDs may download this postcard at MALPH.org.

Resources and Time Frame

The project started in August 2017 and concluded in July 2018. It required the use of a graphic designer as well as some staff time to develop a database of eligible youths and to send the six-month HPV recall postcards. MCIR was used to generate the list of due or overdue youth for the HPV vaccine. It also relied on a bulk mail processor, which helped reduce mailing costs.

Outcomes

SCHD sent 3,585 HPV and 9,269 pneumococcal postcards. As a result of the postcard mailings, Shiawassee County's HPV and pneumococcal vaccine coverage rates increased. Additionally, clients at SCHD's immunization clinic provided positive feedback about the postcard design, saying they learned new information, wanted to know more about the vaccines, and get vaccinated.

EXHIBIT 5. HPV Vaccination Rates for Those with Two or More Complete HPV Series

HPV vaccination population	Vaccine coverage rate in August 2017	Vaccine coverage rate in May 2018	Increase in coverage
Males	27%	30%	3%
Females	33%	34%	1%
Male and female	30%	32%	2%

EXHIBIT 6. Pneumococcal Vaccination Rates, by Vaccine

Pneumococcal vaccine	Vaccine coverage rate in August 2017	Vaccine coverage rate in March 2018	Increase in coverage
PCV13	46.4%	58.2%	11.8%
PPSV23	42.9%	52.5%	9.6%

Lessons Learned

- **Make eye-catching and easy-to-read postcards.** The postcards needed to stand out among the junk mail residents regularly receive. This is an effective approach for not only including important information, but also increasing coverage rates.

For more information, go to health.shiawassee.net or call the Shiawassee Health Department at 800-859-4229.

Implementing Community-based Interventions in Combination

Community-based interventions implemented in combination involve the use of two or more coordinated interventions to increase vaccination rates within a targeted population. Efforts involve partnerships between community organizations, local government, and vaccination providers to implement and coordinate the following:

- One or more interventions to increase community demand (client reminder and recall systems, manual outreach and tracking, client or community-wide education, client incentives, client-held paper immunization records, and case management)
- One or more interventions to enhance access to vaccination services (expanded access in healthcare settings, home visits, and reduced client out-of-pocket costs)

Efforts may also include additional interventions directed at vaccination providers (e.g., provider assessment and feedback, provider education, and provider reminder systems). More information is available at www.thecommunityguide.org/findings/vaccination-programs-community-based-interventions-implemented-combination.

Case Study Eight

COMMUNITY-BASED INTERVENTIONS IN COMBINATION TO INCREASE ADULT IMMUNIZATION RATES

MCIR Region 5: Led by the Health Department of Northwest Michigan

Situation

Need to increase awareness of the recommendation for receiving two pneumococcal vaccines with adults aged 65 and older.

Strategy

HDNW sent out recalls and reminders for the influenza, pneumococcal, and Zostavax vaccines through MCIR for all adults age 65 and older. Both pneumococcal vaccines were made available at community locations, including senior citizen centers, community/school clinics, and community events. HDNW staff employed the following strategies.

- **Generating recalls**. Staff used the MCIR to identify and create a list of individuals age 65 and older who were due or overdue for the vaccines. They also used a TeleMinder system to contact clients registered in HDNW's electronic medical record system to inform them of their due or overdue status for the pneumococcal vaccines.
- **Crafting and promoting vaccination messages**. Staff created vaccination messages for letters/postcards mailed to those due or overdue for a vaccine. They developed tear-off flyers to promote the vaccines, which presented pneumococcal vaccine information at senior citizen meal sites and promoted the vaccines community-wide through their partnerships with county senior citizen programs, such as Senior Project FRESH and HDNW programs (e.g., chronic disease initiatives, Breast and Cervical Cancer Control Program). Additionally, HDNW call center operators were provided with vaccine information they could share with clients.
- **Holding immunization clinics.** Staff held immunization clinics at the Senior Citizen Center in each county during meals, Senior Project FRESH, and other events. The two pneumococcal vaccines, along with influenza and Tdap vaccines, were offered. Each clinic provided all vaccines, except for Zostavax, in at least one additional community location in each county.

- **Tracking change.** Staff ran quarterly MCIR reports for individuals 65 and older to track PCV13 immunization levels.
- **Advocating needs.** Staff talked with MDHHS to have the PPSV23 vaccine be available as a report option in MCIR.

Resources and Time Frame

This project took one year: from September 2016 to September 2017. It required using the MCIR and its recall/reminder and report features, the TeleMinder system, and both call center and clinical staff for clinics and presentations.

Outcomes

Overall, the intervention results were very positive. Across HDNW's four counties, the number of adults 65 and older who needed PCV13 and PPSV23 decreased drastically. In February 2016, 7,725 adults 65 and older needed the PCV13 vaccine—by June 2017 only 522 needed the vaccine, a 95 percent reduction. An even larger decrease was seen for the PPSV23 vaccine where it went from 8,292 individuals to only 246 due in the same time frame, a 97 percent decrease.

Lessons Learned

- **Address barriers early on**. The biggest barrier, experienced in other similar projects as well, is MCIR's limitations with adult populations, including running reports. These should be addressed earlier in the process to save time.
- **Be mindful of targeted outreach efforts**. Outreach, such as recalls, can work in rural areas, but is limited by what vaccines the efforts focus on.
- **Consider sustainability**. In rural areas, staff work across multiple programs and have multiple responsibilities (and competing priorities), which can make sustainability even more of a challenge.

For more information, go to nwhealth.org or call 800-432-4121.

COMMUNITY-BASED INTERVENTIONS IN COMBINATION TO INCREASE ADOLESCENT IMMUNIZATIONS

MCIR Region 5: Led by District Health Department #4

Situation

Need to increase the percentage of adolescents who are up to date on their recommended number of doses of Tdap, polio, MMR, hepatitis B, varicella, MCV, and HPV (i.e., 1323213 series).

Strategy

DHD #4 implemented recalls and delivered client and community-wide education to increase community demand. It added clinic hours to enhance access and engaged providers by offering education and encouraging recalls. These activities are described in more detail below.

- **Implementing recalls and reminders.** Staff generated county-wide MCIR recalls for adolescents 13 through 18 years of age for the 1323213 series. Adolescents with last names A through M were mailed a vaccination due notice in January and again in July; those with last names N through Z were mailed in April and October. Recall efforts were documented on DHD #4's Immunization Coverage Levels & Reminder/Recall Efforts Log.
- **Providing community-wide education**. DHD #4 increased community awareness by advertising vaccine clinics in local publications, including local news and radio stations.
- **Developing and distributing educational materials**. DHD #4 created and distributed posters to Vaccines for Children (VFC) providers during annual AFIX (Assessment, Feedback, Incentive, eXchange)/VFC site visit.
- **Providing client education**. DHD #4 included immunization pamphlets and inserts in recall letters to families.
- **Expanding access in a healthcare setting**. DHD #4 added immunization clinics to meet communities' needs.
- **Recommending provider education**. Staff educated community providers—in and outside of the VFC program—on all recommended vaccines for adolescents.
- **Encouraging provider recalls**. Staff encouraged all VFC providers to use MCIR's recall and profile reports to monitor their VFC clients.

Resources and Time Frame

This project took place between April 2016 and September 2017 and required use of MCIR (for recalls and its report features), significant LHD staff time, as well as the availability of and access to VFC and commercial vaccines.

Outcomes

DHD #4 saw a 14 percent increase in adolescents aged 13 through 17 years of age who were up to date in all recommended vaccinations in the series. Additionally, based on DHD #4's tracking, 150 adolescents were vaccinated during the project period. The monthly results tracking provided validation and encouragement to the staff at DHD #4 that the time and effort spent on recalls and vaccination promotion in the community were making a positive impact.

Lessons Learned

- **Document efforts.** Ensure there is a standardized log for documentation to track all recall efforts throughout this process and to measure success.
- **Communicate regularly.** Hold frequent meetings with the project staff to keep everyone current on the project status.
- **Define clear roles**. Staff had specific roles to ensure success. Clerical staff ran recalls, mailed educational materials to families, and served as the first point of contact for scheduling appointments and promoting immunizations. The public health nurses (PHNs) promoted and administered vaccinations; the public health information officer helped develop educational materials and local advertisements; and the immunization coordinator oversaw the process.
- **Consider all costs.** Depending on population size, it may not be cost effective to mail all teen recall letters each quarter because of the postage costs. Instead, consider mailing only a portion each quarter while still ensuring that each eligible teen is sent a recall at least twice throughout the project.
- **Use existing resources.** MDHHS' Clearinghouse has many educational materials that can be used rather than creating new ones and are available at no cost.

For more information, go to dhd4.org or call 800-221-0294.

Establishing Vaccination Requirements for Child Care, School, and College Attendance

Vaccination requirements are laws or policies that require anyone enrolled in a child care, school, or college to be vaccinated or provide other documentation of immunity. State legislatures may enact statutes that specify required vaccinations or state health or education departments may adopt administrative rules.

Institutions, such as colleges and private schools, may establish additional vaccination policies for attendance or residence. These requirements vary across jurisdictions by comprehensiveness, acceptable documentation of immunity, access to exemptions (especially non-medical exemptions), and the type and consistency of enforcement. More information is available at www.thecommunityguide.org/findings/vaccination-programs-requirements-child-care-school-and-college-attendance.

The State of Michigan requires all children in non-home-based child care and preschool settings as well as kindergarteners, seventh graders, and students newly entering a school to show proof of vaccination for their age-appropriate required immunizations. Parents can obtain a waiver in lieu of having their child vaccinated. More information about Michigan's vaccine waivers is under MDHHS resources on page 42 of the guide. The list of required vaccines varies depending on the age of the child. MDHHS provides useful graphics to see what vaccines are due at different ages.

EXHIBIT 7. Vaccines Required for Child Care and Preschool in Michigan

SCHOOLS VACCINES REQUIRED FOR SCHOOL ENTRY IN MICHIGAN

Whenever children are brought into group settings, there is a chance for diseases to spread. Students must follow state vaccine laws in order to attend school. These laws are the minimum standard to help prevent disease outbreaks in school settings. The best way to protect students in your care from other serious diseases is to promote the recommended vaccination schedule at www.cdc.gov/vaccines. Encourage parents to follow CDC's recommended schedule; by doing so, school requirements will be met.

	All Kindergarteners and 4-6 year old transfer students	All 7th Graders and 7-18 year old transfer students
Diphtheria, Tetanus, Pertussis (DTP, DTaP, Tdap)	4 doses DTP or DTaP 1 dose must be at or after 4 years of age	4 doses D and T or 3 doses Td if 1st dose given at or after 1 year of age 1 dose Tdap at 11 years of age or older upon entry into 7th grade or higher
Polio	4 doses 3 doses if dose 3 was given at or after 4 years of age	
Measles, Mumps, Rubella (MMR)*	2 doses at or after 12 months of age	
Hepatitis B*	3 doses	
Meningococcal Conjugate (MenACWY)	None	1 dose at 11 years of age or older upon entry into 7th grade or higher
Varicella (Chickenpox)*	2 doses at or after 12 months of age or Current lab immunity or History of varicella disease	

During disease outbreaks, incompletely vaccinated students may be excluded from school. Parents and guardians choosing to decline vaccines must obtain a certified non-medical waiver from a local health department. Read more about waivers at www.michigan.gov/immunize.
*If the student has not received these vaccines, documented immunity is required.
All doses of vaccines must be valid (correct spacing and ages) for school entry purposes.

MDHHS Michigan Department of Health & Human Services

Updated March 1, 2017

Michigan Department of Health and Human Services, updated March 1, 2017

EXHIBIT 8. Vaccines Required for School Entry in Michigan

CHILD CARES AND PRESCHOOLS

MDHHS Michigan Department of Health & Human Services

VACCINES REQUIRED FOR CHILD CARE AND PRESCHOOL IN MICHIGAN

Whenever infants and children are brought into group settings, there is a chance for diseases to spread. Children must follow state vaccine laws in order to attend child care and preschool. These laws are the minimum standard for preventing disease outbreaks in group settings. The best way to protect the children in your care from other serious diseases is to promote the recommended vaccination schedule at www.cdc.gov/vaccines. Encourage parents to follow CDC's recommended schedule; by doing so, child care and preschool requirements will be met.

	2-3 months	4-5 months	6-15 months	16-18 months	19 months–4 years	5 years
Diphtheria, Tetanus, Pertussis (DTaP)	1 dose DTaP	2 doses DTaP	3 doses DTaP		4 doses DTaP	
Pneumococcal Conjugate (PCV13)	1 dose	2 doses	3 doses or Age-appropriate complete series	4 doses or Age-appropriate complete series		None
H. influenzae type b (Hib)	1 dose	2 doses		1 dose at or after 15 months or Age-appropriate complete series		None
Polio	1 dose	2 doses			3 doses	
Measles, Mumps, Rubella (MMR)*	None			1 dose at or after 12 months		
Hepatitis B*	1 dose	2 doses			3 doses	
Varicella (Chickenpox)*	None			1 dose at or after 12 months or Current lab immunity or History of varicella disease		

These rules apply to children who are the above ages upon entry into child care or preschool. During disease outbreaks, incompletely vaccinated children may be excluded from child care and preschool. Parents and guardians choosing to decline vaccines must obtain a certified non-medical waiver from a local health department. Read more about waivers at www.michigan.gov/immunize.
*If the child has not received these vaccines, documented immunity is required. All doses of vaccines must be valid (correct spacing and ages) for child care and preschool entry purposes.

Updated March 1, 2017

STRATEGIES TO IMPLEMENT PROVIDER OR SYSTEM-BASED INTERVENTIONS

The task force recommends—based on sufficient evidence and findings—implementing healthcare system–based interventions in combination, utilizing immunization information systems (IISs), implementing provider assessment and feedback strategies, sending provider reminders, and issuing standing orders. Each of these interventions are described in more detail below, followed by case studies that detail District Health Department #10's and SEMHA's implementation of these strategies.

Implementing Healthcare System–based Interventions in Combination

Healthcare system–based interventions implemented in combination involve the use of two or more coordinated interventions to increase vaccination rates within a targeted population. Interventions are used primarily in healthcare settings, although efforts may include additional activities within the community. Specific interventions may include client reminder and recall systems; clinic-based client education; expanded access in healthcare settings; provider assessment and feedback; provider reminders; and standing orders. The selection and implementation of coordinated interventions may result from an overall quality improvement effort in a healthcare setting.

Interventions to increase client demand for vaccinations included:

- Client reminder and recall systems
- Clinic-based client education
- Manual outreach and tracking

Interventions to enhance access to vaccinations included:

- Expanded access in healthcare settings
- Reduced client out-of-pocket costs
- Home visits

Interventions to address vaccination providers or systems included:

- Provider reminders
- Standing orders
- Provider assessment and feedback

More information is available at www.thecommunityguide.org/findings/vaccination-programs-health-care-system-based-interventions-implemented-combination.

Case Study Ten

HEALTHCARE SYSTEM–BASED INTERVENTIONS IN COMBINATION TO INCREASE CHILDHOOD IMMUNIZATIONS

MCIR Region 5: Led by District Health Department #10

Situation

Need to raise immunization rates for children 19–36 months old.

Strategy

Increasing tracking recall efforts. District Health Department #10 staff enhanced their normal reminder and recall approach by increasing their recall tracking efforts. Staff conducted personalized phone calls to non-responders to ensure a larger population was receiving the health department's notices.

Expanding clinic hours and holding Saturday immunization clinics. DHD #10 expanded its hours and days of operation, offering their services throughout Manistee and Mason Counties. The DHD #10 immunization coordinator, PHNs, immunization clerk, and central scheduling staff planned and carried out the Saturday clinics. Information about these changes was distributed throughout the community to maximize the initiative's reach. MIHP and WIC staff at the LHD helped distribute information to their clients, and immunization staff sent notifications out to school secretaries and provider offices.

Resources

Several staff across the LHD, especially those in Manistee County, helped plan and carry out the intervention; the public information officer also marketed the events through social and traditional media.

Outcomes

Two clinics were held in Manistee County, but due to scheduling and staffing challenges, two additional clinics were planned and held in Mason County. Because Mason County residents were experiencing longer wait times for appointments, these expanded clinics accommodated their schedules more readily. Also, the added staffing capacity from PHNs and clerks offered more scheduling flexibility.

DHD #10's outreach worker was able to have a booth at the Saturday clinics, with additional support from other LHD staff to provide a larger array of services.

Lessons Learned

- **Prepare for staffing issues.** Finding adequate staffing levels for weekend clinics proved difficult. Because of conflicting personal plans as well as staff retirements and changes, it was not possible to continue weekend clinics in Manistee County. Additionally, because PHNs are salaried workers and immunization clerks are paid hourly, this presented challenges with staffing flexibility.
- **Anticipate technological difficulties.** The automated phone system would not allow clients to call in and cancel their appointments after traditional clinic hours. Because of this, clients were instructed to not call the main phone line if they needed to cancel.
- **Plan for infrastructure challenges.** Weekend snow plowing was inconsistent and building maintenance personnel were unavailable during clinic hours.

For more information, go to dhd10.org or call 888-217-3904.

Utilizing Immunization Information Systems

IISs are confidential, population-based, computerized databases that record all immunization doses given by participating providers to people who live within a certain geopolitical area. IISs are set up to do the following:

- Create or support effective interventions, such as client reminder and recall systems, provider assessment and feedback, and provider reminders
- Determine client vaccination status to aid decisions made by clinicians, health departments, and schools
- Guide public health responses to outbreaks of vaccine-preventable disease

- Inform assessments of vaccination coverage, missed vaccination opportunities, invalid dose administration, and disparities in vaccination coverage
- Facilitate vaccine management and accountability

This evidence-based strategy is not something a community can implement—instead, it must be implemented at the state level. Michigan launched an IIS in 1998 called the Michigan Childhood Immunization Registry to collect immunization information of children. In 2006, the registry transitioned to collect immunizations across one's lifespan and was renamed to the current Michigan Care Improvement Registry (i.e., MCIR). Local efforts can be made to ensure providers are uploading all immunizations to MCIR and to educate providers on how to pull immunization rate reports. Aspects of this are described in Case Study 11: Provider-led Quality Improvement Interventions. More information is available at www.mcir.org.

Implementing Provider Assessment and Feedback Intervention Strategies

Provider assessment and feedback interventions both evaluate provider performance in delivering one or more vaccinations to a client population (assessment) and present providers with information about their performance (feedback). Feedback may describe the performance of a group of providers (e.g., average practice performance) or an individual provider and may involve other components, such as incentives or benchmarking. More information is available at www.thecommunityguide.org/findings/vaccination-programs-provider-assessment-and-feedback.

Case Study Eleven

PROVIDER-LED QUALITY IMPROVEMENT INTERVENTIONS

MCIR Region 1: Led by the Southeastern Michigan Health Association

Situation

Need to develop long-term, practice-level policies and procedures to sustain improved immunization rates and to build bridges between physicians, MCIR, and local and state public health resources.

Strategy

Project staff (the SEMHA project coordinator and MCIR Region 1 staff) developed a provider quality improvement model based on evidence-based, practice-level interventions. These interventions also used new elements that may be considered an emerging model for improving immunization rates. The strategies used are described below.

- **Engaging practices.** Project staff worked with LHD health officers and staff to engage practices. The LHD health officer and/or medical director signed a letter outlining the project plan, which was then mailed to each practice along with a survey to establish baseline data. Project staff called practices within a month of the letter mailing to set up baseline visits, during which staff encouraged the use of helpful resources: MCIR trainings, physician and nurse peer education modules, the MDHHS Clearinghouse, manufacturer resources, and local nonprofits dedicated to raising immunization awareness (e.g., American Cancer Society).

- **Providing tailored report cards**. As part of the Maintenance of Certification (MOC) requirements, each practice established a baseline data check (usually conducted in person), followed by two data checks around three and six months. At the initial data check, practices received a report card that included the practice name; MCIR ID; number of children aged 19–36 months and 13–18 years; percentage of each age cohort with complete series coverage; percentage of coverage among other key antigens (e.g., second hepatitis A, HPV complete); and practice ranking compared to (unnamed) peers in the same jurisdiction. Report cards were updated at subsequent meetings and highlighted changes in metrics of key antigens and immunizations series coverage.

- **Providing tailored reminder recalls**. Each practice chose a vaccine dose (e.g., second hepatitis A dose, fourth DTaP) to focus on. Recalls were based on the practice's baseline immunization rates and the number of children these recalls would affect. The recalls were run 30 to 60 days of the baseline and at three-month checks. While SEMHA printed and paid for the MCIR recalls, practices followed up on recall letters labelled "return to sender" from a SEMHA-provided list.

- **Offering practice-level incentives**. Participating practices were given the opportunity to receive 25 MOC credits from the American Board of Pediatrics. In addition, practices were informed about ways the intervention could improve their Healthcare Effectiveness Data and Information Set scores and potential bonuses from health plans, health systems, or physician organizations.

- **Engaging physicians.** Completion of MOC credits requires meaningful physician engagement, so at least one physician attended data-check meetings for 15 to 20 minutes. During this time, interventions to improve vaccination rates were discussed and chosen using the Plan-Do-Study-Act model for healthcare quality improvement. Project success depended on physician and staff buy-in at each practice, along with their understanding of the project goals and objectives. Selected interventions had to be new and feasible for physicians and staff.

- **Performing MCIR data cleaning**. Practices participated in trainings about how to petition MCIR to merge duplicate records, mark children as "moved or gone elsewhere," and other MCIR data reporting tools to ensure the MCIR reflected the practice's actual population. For many, cleaning MCIR data (and not merely removing patients from a roster) led to significant increases in immunization rates—but in these practices, rates also improved due to the increased number of children immunized. Practices were encouraged to implement policies to routinely update their patient statuses.

Resources and Time Frame

This project took a significant amount of time to complete. Scheduling the initial baseline meeting was often the most challenging part of the project and took four to six weeks. Once practices were onboarded, the projects took approximately five to seven months, depending upon the complexity of their intervention(s).

The project required the time and effort of SEMHA and MCIR staff to coordinate and attend meetings, as well as funds for printing and mailing the recalls. This project was a success because of the MCIR staff and each practice's physician leaders and office managers.

Outcomes

Nearly all engaged practices saw immunization rates increases in the doses they focused on.

Lessons Learned

- **Pursue the MOC credit application early**. The approval process can take months.
- **Determine level of engagement with a practice early on**. If a practice is not interested or does not have the capacity to participate, it may not be a good fit. Interventions were most successful when the physicians and staff were fully engaged.
- **Insist on physician presence.** This ensures project engagement and signoff on selected inventions.

For more information. go to www.SEMHA.org, email admin@semha.org, or call 313-873-6500.

Sending Provider Reminders

Provider reminders let healthcare providers know when clients are due for specific vaccinations. Reminders are delivered in various ways that may include notes posted in client charts, alerts in electronic medical records, or letters sent by mail or email. They may be handled separately or included in standard checklists or flowcharts. More information is available at www.thecommunityguide.org/findings/vaccination-programs-provider-reminders.

Issuing Standing Orders

Standing orders authorize nurses, pharmacists, and other healthcare providers, where allowed by state law, to assess a client's immunization status and administer vaccinations according to a protocol approved by an institution, physician, or other authorized provider. Standing orders can be established for the administration of one or more specific vaccines to clients in healthcare settings, such as clinics, hospitals, pharmacies, and long-term care facilities. In settings that require attending provider signatures for all orders, standing order protocols allow assessment and vaccination in advance of the provider signature. More information is available at www.thecommunityguide.org/findings/vaccination-programs-standing-orders.

SECTION THREE: RESOURCES AND MATERIALS TO SUPPORT EVIDENCE-BASED INTERVENTIONS TO INCREASE VACCINATIONS

The following resources can be used to support the implementation of evidence-based practices to increase immunization rates in Michigan and to connect with other groups focused on improving immunization rates in the state and elsewhere. These resources are listed in alphabetical order by their organization name.

ALLIANCE FOR IMMUNIZATION IN MICHIGAN TOOL KIT

The Alliance for Immunization in Michigan (AIM) coalition formed in 1994 in response to Michigan's low vaccination rates with a mission to promote immunizations across one's lifespan through a group of healthcare professionals and agencies. Initially, AIM's focus was on emphasizing provider education to reduce missed immunization opportunities, and these efforts later grew into the AIM Provider Tool Kit, a comprehensive resource for immunization management, patient education, as well as other information sources. AIM now offers both the provider tool kit as well as resources and educational materials for individuals and families. The AIM coalition continues its focus on improving all facets of immunization services in Michigan. More information is available at www.aimtoolkit.org/health-care.

AMERICAN IMMUNIZATION REGISTRY ASSOCIATION

American Immunization Registry Association (AIRA) is a membership-based organization that promotes the development and implementation of IISs as an important tool in preventing and controlling vaccine-preventable diseases. AIRA provides a forum for its members to combine efforts, share knowledge, and promote activities to advance IIS and immunization programs and is a resource for data exchange standards development, information sharing, and education and training for IIS managers and staff. More information is available at www.immregistries.org.

In its resource repository, AIRA has a 2012 slideshow comparing two population and practice-based recall interventions to increase immunization rates in young children. It found that the population-based effort was more successful. More information is available at http://repository.immregistries.org/resource/population-vs-practice-based-interventions-to-increase-immunization-rates-in-young-children/.

CENTERS FOR DISEASE CONTROL AND PREVENTION

The CDC maintains a comprehensive vaccine and immunization website devoted to resources and publications organized by intended audience. There is information for parents, adults, pregnant women, healthcare providers, immunization managers, and community partners, as well as vaccine information for special groups, like travelers or refugees. More information is available at www.cdc.gov/vaccines/index.html.

A small selection of the resources available on the CDC's website are described below.

The Advisory Committee on Immunization Practices

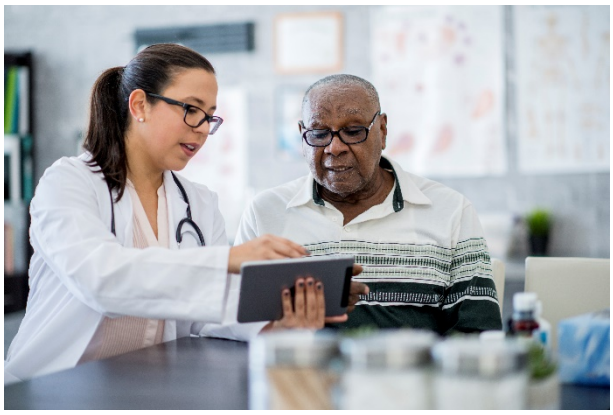
The ACIP is a group of 15 medical and public health experts that develops recommendations on how to use vaccines to control diseases in the United States. Its 15 voting member experts—selected by the U.S. Department of Health and Human Services—are responsible for making vaccine recommendations for children and adults. The recommendations include the age(s) when the vaccine should be given, the number of doses needed, the amount of time between doses, and precautions and contraindications. Before recommending a vaccine, the ACIP considers many factors, including the safety and effectiveness of the vaccine. The recommendations stand as public health guidance for safe use of vaccines and related biological products. More information is available at www.cdc.gov/vaccines/acip.

Epidemiology and Prevention of Vaccine-preventable Diseases—*Pink Book*

One of the clinical resources available is the *Pink Book*, which includes a chapter on immunization strategies. This chapter covers the CDC's evidence-based strategies that lead to high immunization levels in a practice. It explains the need for strategies to increase immunization rates, the AFIX approach and other essential strategies, such as record keeping, recommendations and reinforcement, reminder and recall systems for patients and providers, reduction of missed opportunities and barriers to immunization. More information is available at www.cdc.gov/vaccines/pubs/pinkbook/strat.html.

Vaccine Information for Adults

Materials and information dedicated to adults are all available on the CDC's site. The information includes fact sheets about each vaccine, information on the importance of getting vaccinated, the recommended vaccines and vaccine schedules, where to find vaccines, paying for vaccines, and vaccine-preventable diseases. More information is available at www.cdc.gov/vaccines/adults/index.html.



Increasing Immunization Awareness Tools

For educating adult patients, several resources to increase awareness are available for providers to use on their own websites, social media pages, or to hang in their offices or throughout the community. More information is available at www.cdc.gov/vaccines/hcp/adults/for-patients/adults-all.html.

Closing the Gap: Achieving Coverage Rate Increases

The CDC visited seven grant award sites—five states, one county, and one city—that had significant vaccine rate increases between 2001 to 2004. The resulting PowerPoint shares the common themes across these states and communities in their successes and captures the lessons learned in their efforts. The PowerPoint is available at www.cdc.gov/vaccines/imz-managers/guides-pubs/downloads/imz_rate_increases.ppt.

IMMUNIZATION ACTION COALITION

The Immunization Action Coalition (IAC), funded by the CDC, aims to increase immunization rates and decrease rates of vaccine-preventable disease by creating and distributing educational materials for healthcare professionals and the public about delivering and receiving safe and effective immunization services. The IAC also facilitates communication about the safety, efficacy, and use of vaccines with and between patients, parents, healthcare organizations, and government health agencies.

The IAC has one main website; however, it maintains three websites for its target populations, each of which are described below.

Healthcare Professionals

The IAC launched its main website in 1994, which serves as a nonprofit Web-based resource for immunization information. The website houses IAC's collection of CDC-reviewed staff educational materials and patient handouts, some in several languages. These materials are available free of charge, and users are encouraged to download, copy, and distribute them. One resource of particular support to providers is their checklist, which aims to help providers identify ways they can improve their immunization services in their practice. The IAC maintains and regularly updates the website. More information is available at www.immunize.org.

Patients, Parents, and the Public

The IAC developed the website, vaccineinformation.org, in 2002 in consultation with and funding from the CDC, for patients and parents. It presents straightforward information about vaccine-preventable diseases and their available vaccines. The website contains information about vaccines needed by age group, vaccine safety, and the overall importance of immunization, and features more than one hundred video clips. More information is available at www.vaccineinformation.org.

Immunization Coalitions

The IAC launched immunizationcoalitions.org in 2001 to support healthcare professionals, parents, and other immunization advocates in identifying and connecting to local, state, regional, and national immunization coalition networks through its online database. It supports coalition members in sharing news, ideas, and resources, as well as highlighting volunteer opportunities. More information is available at www.immunizationcoalitions.org.

THE JOINT COMMISSION

The Joint Commission accredits and certifies healthcare organizations and programs in the United States. In 2009, it released a monograph for healthcare providers called *Providing a Safer Environment for Health Care Personnel and Patients Through Influenza Vaccination*. The monograph contains information about influenza and the influenza vaccine, barriers to successful programs and strategies for overcoming them, and examples of successful initiatives organizations have used to improve their influenza immunization rates. The commission's monograph is available at www.jointcommission.org/assets/1/18/Flu_Monograph.pdf and a reference guide to locate specific strategies within the monograph is available at www.jointcommission.org/assets/1/18/Strategies_-_Improving_Health_Care_Personnel_Influenza_Vaccination_Rates.pdf.

LAKE SUPERIOR QUALITY INNOVATION NETWORK

The Lake Superior Quality Innovation Network (LSQIN) is a multistate network (Michigan, Minnesota, and Wisconsin) funded through the Centers for Medicare and Medicaid Services (CMS) to implement key elements of the U.S. Department of Health and Human Services' National Quality Strategy and federal health reform efforts, which include improving adult vaccination rates. In Michigan, the LSQIN efforts are coordinated through MPRO. The LSQIN provides free evidence-based resources to improve adult immunizations. Participants in this initiative receive assistance with data analysis and quality reporting programs, including the Physician Quality Reporting System and meaningful use of electronic health record. They also provide a variety of webinars and events for those who are providers of adult immunizations. More information is available at www.lsqin.org/initiatives/adult-immunizations/.

MICHIGAN ASSOCIATION FOR LOCAL PUBLIC HEALTH

Through this grant project, MALPH has compiled many vaccination-related resources from the MCIR Region pilot sites, its mini grants, and elsewhere. This reference guide with its clickable weblinks is available online, as well as many other immunization tools and resources. More information is available at https://malph.org/.

MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES

Similar to the CDC's site, MDHHS maintains a website with resources and information guides for multiple audiences: the public, schools, healthcare providers, and LHDs. More information is available at https://www.michigan.gov/mdhhs/0,5885,7-339-73971_4911_4914---,00.html.

MDHHS information on vaccine waivers and their immunization clearinghouse are described more fully below.

Vaccine Waivers

Since January 2015, parents and guardians opting out of vaccinating their children must receive a non-medical waiver from their local LHD. They must also speak with a health educator from their LHD about their concerns and questions regarding immunizations prior to signing the waiver. More information is available at https://www.michigan.gov/mdhhs/0,5885,7-339-73971_4911_4914_68361-344843--,00.html.

Clearinghouse

The MDHHS maintains a clearinghouse on its website with a list of materials devoted to vaccines and immunizations available free of charge. The page offers many resources and materials for directed healthcare providers, parents, and patients. The materials range from informational brochures, packets, and posters to promotional posters and flyers. The promotional materials are available in English, Spanish, and Arabic while most of the more densely informational materials are available in English and a few in Spanish. More information is available at http://www.hpclearinghouse.org/preframestart.htm.

NORTHERN MICHIGAN VACCINE PREVENTABLE DISEASE TASK FORCE

The Northern Michigan Vaccine Preventable Disease Task Force, coordinated and led by Munson Healthcare, is working to inform, educate, and support policy change that reverses the region's low vaccination rates and supports healthy communities. The task force brings together four of northern Michigan's health departments, school districts, the local Great Start Collaborative, as well as local providers and community health advocates. More information is available by contacting the task force chair, Amanda Woods, at awoods@mhc.net.

Childcare Immunization Toolkit

The task force developed a toolkit to assist childcare providers in educating parents about the risks of housing an unvaccinated child. It includes child care laws, regulations, and rights as they relate to immunization; disease-specific child exclusion guidelines; information on using the MCIR; sample letters child care providers can send to parents about the importance of immunization and required vaccines; reliable information about immunization; and affordable vaccine provider locations. To view the toolkit, contact Amanda Woods at awoods@mhc.net.

Vaccination Guide for Religious Leaders

The task force also created a guide for religious leaders to inform them about vaccination and to help them talk with their parishioners about the benefits of vaccination, the risks of not vaccinating, and other general information about vaccinations. The guide also includes an overview of several religion's stated view or stance on immunizations and a letter from the Catholic Medical Association stating their support for vaccinations. To access this clergy-focused resource guide, contact Amanda Woods at awoods@mhc.net.

MICHIGAN ASSOCIATION FOR LOCAL PUBLIC HEALTH

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