

The National Vaccine Plan: Ten Years of Future Opportunities for State Immunization Programs

White Paper Author

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Overview

"The 20th century could be considered the century of vaccines. The life spans of Americans increased by more than thirty years in large part because of vaccines, and mortality from infectious diseases in the United States decreased 14-fold."¹

Thirty years added to your life. Fourteen times fewer deaths due to vaccine preventable disease. These are the opening observations of the 2010 National Vaccine Plan (NVP), released by the U.S. Department and Human Services on February 16, 2011. These observations also owe much to the efforts of state immunization programs and their registries. The 2010 National Vaccine Plan – a ten-year strategy for all activities vaccine-related – speaks to this fact in several ways.² The Plan outlines a comprehensive approach toward five overarching goals, each with a number of objectives and strategies intended to increase vaccine benefits and reduce vaccine risk. In the spring of 2011 DHHS will release a companion Implementation Plan – a set of indicators to measure progress and action items for achieving the NVP goals. The 5 NVP goals include:

- Goal 1: Develop new and improved vaccines.
- Goal 2: Enhance the vaccine safety system.
- Goal 3: Support communications to enhance informed vaccine decision-making.
- Goal 4: Ensure a stable supply of, access to, and better use of recommended vaccines in the United States.
- Goal 5: Increase global prevention of death and disease through safe and effective vaccination.

The NVP also identifies ten "Priorities for Implementation." Each of these is mapped to one or more of the Plan's goals, and each suggests areas expected to be emphasized in the forthcoming Implementation Plan. Several are directly relevant to state immunization programs.

¹ U.S. Department of Health and Human Services. *2010 National Vaccine Plan*. Washington, D.C., February 16, 2011. Available at: http://www.hhs.gov/nvpo/vacc_plan/

² The NVP was last updated in 1994.

Opportunities

Within the 147 strategies referenced in the Plan there are several with implications for state immunization registries. We identify eighteen below and describe ways in which state immunization registries might be impacted and opportunities that exist to leverage or grow registries over the next ten years in support of these strategies.

- Objectives 2.3 and 2.4 deal with enhancing the timely detection of vaccine safety “signals” and improving their evaluation. Objective 2.6 aims to increase knowledge about why certain individuals may be adversely affected and not others. Strategies for these Objectives include improving the use of active and passive surveillance systems, increasing the quantity and representativeness of the population under surveillance for epidemiologic study, and characterizing risk groups and risk factors.

State immunization registries routinely capture reports of adverse reactions following immunization events, as well as vaccine contraindications, and information concerning a patient’s health status. As new vaccines or new formulations are introduced, registries are uniquely poised to provide population-wide or cohort-specific data on potential complications of vaccine events, possible risk and protective factors, and other information that could support focused epidemiologic evaluations. Special enhancements could easily be made to registries to allow providers to report in greater detail information about these patients and these events. These features could be selectively deployed in ways that do not burden day-to-day registry users and their workflows.

- Four Objectives (3.1, 3.3, 3.4, and 3.5) address communicating and informing providers, decision-makers, and the public about vaccine benefits and risks. Several strategies associated with these Objectives offer opportunities to leverage registries and immunization program efforts.
 - *Strategy 3.1.2 – Conduct research on factors that affect decision-making about vaccination for individuals and families, providers, and policy-makers.*

State immunization registries can capture the reasons patients give for refusing vaccinations. Enhancements could easily be deployed that would record additional details concerning these circumstances. Standardizing these measures would allow for robust temporal, geographic, and demographic comparisons, and this information could then be used locally to inform public and professional education efforts.

- *Strategy 3.1.4 – Evaluate the effectiveness of messages and materials in addressing the information needs and concerns of the public and under-immunized populations.*

Information in many state immunization registries can serve to identify population cohorts, such as under-immunized groups, that can be followed to assess the effectiveness of educational and other interventions designed to increase vaccine uptake and raise immunization rates. Modest enhancements to registries could support modules that would specifically track such interventions and provide indicators useful in evaluating their effects.

- *Strategy 3.3.2 – Respond in a rapid, coordinated, consistent, and effective manner to emerging vaccine issues and concerns (e.g., supply, safety, or public health emergencies).*

The utilization of registries in support of the Novel 2009 Influenza pandemic clearly demonstrated the power and life-saving potential of these critical public health assets. Registries routinely afford public health authorities the means to rapidly identify and intervene when there are potential safety issues with vaccine lots, recalls, or the need to conduct mass immunization operations. Further development of these capabilities, including those that can support mass dispensing operations through field deployment of mobile devices, could substantially streamline emergency response as well as adding additional capabilities to day-to-day vaccine management activities.

- *Strategy 3.4.1 – Develop, implement, and evaluate a long-term strategic communications plan and program aimed at educating parents, caregivers of children, adolescents, and adults about VPDs³; the benefits and risks of vaccines; and vaccine recommendations.*

As registry capabilities grow, so does their utility. For example, the Washington State Department of Health has for several years used its registry's Health Promotion Module to support the dissemination of health-related anticipatory guidance materials to age-specific population cohorts. These materials educate parents and caregivers about developmentally-related prevention and wellness actions they can take – including immunization – to ensure their children's health. Electronic alerting options and other related registry enhancements could easily supply immunization information to parents through e-mail alerts or text messages. Modest improvements to registry reminder recall capabilities could further the dissemination of educational information.

³ Vaccine Preventable Diseases.

- *Strategy 3.4.3 – Evaluate new media (such as mobile technologies and social media) and utilize it appropriately to reach target audiences with accurate and timely information about vaccines and to respond to emerging concerns and issues.*

During the response to the Novel 2009 Influenza pandemic, many local health jurisdictions noted opportunities to remind residents via automated cell phone calls regarding their appointments for community-based mass immunization events. In 2010, STC released *MyIR®*, a personal immunization history and forecasting application for the *iPhone®* (now available for other devices). *MyIR®* could be configured to interface with a state's registry, affording individuals a real-time, accurate and complete personal immunization record and an alerting mechanism to remind users of immunizations that are due or past-due.

- *Strategy 3.4.4 – Enhance awareness of the importance of immunization as part of preventive health care among parents, adolescents, and adults.*

In 2011 eligible healthcare providers will begin receiving federal incentive payments for adopting certified Electronic Medical Records systems. Those that demonstrate the "meaningful use" of these systems by interfacing with state immunization registries could disseminate preventive guidance to patients which the registry generates according to patient-specific criteria. Regardless of the specific EMR used, the state's registry is leveraged in a standardized way to increase the delivery of timely, age and gender-appropriate preventive health care information to persons in the context of a health care encounter.

- *Strategy 3.5.4 – Provide policy-makers with data necessary to make informed decisions on the utilization of vaccines in mass vaccination programs for public health emergencies.*

During the Novel 2009 Influenza pandemic, immunization registries formed the backbone for planning and implementing mass immunization events in many states and communities. Much was learned about how additional enhancements could increase their utility. Feature improvements could support the evaluation of mass immunization events, an under-emphasized issue following the 2009 pandemic. Other improvements would allow real-time or near real-time tracking of individuals through mass immunization events and produce efficiency and quality improvement reports and metrics. Additions to current Pocket-of-Need reports could improve the selection of location for mass immunization events. Modifications to Mass Immunization registry modules could support their use on mobile devices in the field. Additional development could increase the utility of registry "Dashboard" displays,

making important at-a-glance situational awareness information instantly available to decision-makers.

- Objective 4.2 includes strategies that address the "...consistent and stable delivery of vaccines for the U.S." Four strategies in particular offer registry programs opportunities to increase their capacities in this regard.
- *Strategy 4.2.2 – Enhance public sector infrastructure to support and sustain adult immunization activities, including addressing disparities in vaccination rates among racial and ethnic minorities and unvaccinated refugees resettling to the U.S.*

Increasing attention to vulnerable populations is a strong theme in the 2010 NVP. Experience with the Novel 2009 Influenza pandemic further emphasized the need for registries to be able to identify, track and evaluate interventions focused on under-served individuals. Registries could pursue enhancements to geographically characterize their populations on the basis of different risk factors or other attributes. Many state immunization programs are pursuing 3rd Party reimbursement activities that include modifications in their registries to support billing health insurance providers; additional data might be available through these modifications that could better characterize populations in need of more intensive immunization outreach efforts.

- *Strategy 4.2.3 – Expand access to vaccination at medical care sites for children, adolescents, and adults, such as by increasing hours of operation and establishing specific vaccination clinics at selected times of the year (e.g., "back to school" campaigns).*

One outcome of the Novel 2009 Influenza pandemic was the involvement of "non-traditional" health care providers such as pharmacies, OB-GYN providers, and school systems. Many continue to supply information to their state's registry. These "new" providers could be leveraged in seasonal or other outreach campaigns. Schools, in particular, could benefit from enhancements to registry modules that would increase their use of the registry in assuring compliance with back-to-school immunization requirements as well as their participation in other community mass immunization events.

- *Strategy 4.2.7 – Implement, monitor, and evaluate evidence-based interventions designed to raise and sustain high vaccination coverage across the lifespan.*

Increasingly registries are being recognized as a unique and mature source of population-based information useful in improving a variety of preventive health services. Recently, the U.S. Preventive Health Services

Task Force noted the need for more rigorous evidence of the effectiveness of interventions (such as reminder recall and vaccine ordering) on practice-based immunization rates. Registry data and applications can be used to respond to this need, as well as to routinely assess the impact of registry features and immunization program activities on vaccination rates.

- *Strategy 4.2.9 – Prepare, practice, and evaluate mass vaccination activities, including vaccine administration, for scenarios such as an outbreak of a VPD, for a biological attack, for the critical workforce in advance of an influenza pandemic, and for the entire population, prior to and during, an influenza pandemic.*

Communities utilizing their state's registry during the Novel 2009 Influenza response noted several areas where enhancements could improve the planning and delivery of mass immunization events. Among local health jurisdictions surveyed in one state many desired a way to conduct advance client registration within the state's immunization registry to speed clinic flow. Others were interested in automating data capture in mass immunization clinics through the use of bar-codes affixed to materials at each station and by scanning driver's licenses for patient demographics. Just-in-time training videos, available through state immunization web sites, were utilized by several states. Other areas where registry enhancement might benefit future events included modifications to vaccine ordering functionality (to allow reallocation and report generation among event managers) and modifications to mass immunization modules to improve their flexibility and use in the field.

- Objective 4.4 addresses the ability to monitor immunization coverage through several strategies that rely specifically on registry functionality.
- *Strategy 4.4.1 – Identify, implement, and evaluate cost-effective and rapid methods, such as the use of IIS or internet panel surveys, for assessing vaccination coverage by categories, including age groups, groups at risk of under immunization, by type of vaccine, and type of financing.*

Additional analytic capabilities, integrated within state registry systems, can significantly inform decision-makers about vaccine coverage, pockets of need, and under-served at-risk groups. Increasing the integration of Geographic Information Systems (GIS) with registry systems adds the ability to spatially analyze and address coverage issues. Registry adjuncts, such as STC's forthcoming PHC-Hub module, can provide secure platforms where provisional registry records can be manipulated before importing them into the registry's production database. When combined with enhanced user-configurable data validation this allows registry managers unique control over data quality and assures that assessments based on registry data are complete and accurate.

- *Strategy 4.4.2 – Improve the completeness of, use of, and communication between, IIS and EHR to monitor vaccination coverage.*

The federal HITECH Act of 2009 provides a roadmap for healthcare providers to adopt certified Electronic Health Record (EHR) systems that can exchange immunization data with state registries.⁴ State registry programs, however, have unique requirements concerning data quality and completeness that may transcend the currently adopted federal EHR certification and test standards. There will be a continuing need to devise mechanism with registries that ensure data quality and consistency, as well as being able to account for additional registry-related functions (e.g. vaccine ordering, reminder recall, forecasting, etc.). EHR systems will continue to evolve. The HITECH Act does not require bi-directional data exchange until possibly as late as 2015, but registries are strongly committed to establishing this at the earliest opportunity and to not diminish their current capabilities in this regard.

- *Strategy 4.4.3 – Support the adoption of national certified, interoperable health information technology and EHR for immunization.*

Several states are currently recipients of federal funds supporting registry interoperability enhancements. Work to add healthcare provider interfaces to state registries under this funding stream is occurring simultaneous with federally-directed efforts to coordinate the exchange of health care information through centralized authorities. These parallel efforts support each other with respect to data exchange standards but are at crossed purposes regarding the way data is routed to and from the registry. Registries would benefit from implementing tools that support both direct provider-to-registry exchange as well as exchanges mediated by a centralized system. This may be particularly important during public health emergencies when changing circumstances demand flexibility in operational capabilities and rapid deployment of new workflows and reporting requirements.

- Objective 4.6: Educate and support health care providers in vaccination counseling and vaccine delivery for their patients and themselves.
- *Strategy 4.6.5 – Expand the incorporation of vaccinations and the use of IIS into quality improvement programs such as the Healthcare Effectiveness Data and Information Set.*

⁴ Information on Health Information Exchange (HIE) is available from the Office of the National Coordinator for Health Information Technology, U. S. Department of Health and Human Services, at: http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov_onc/1200

Health care providers are empowered when they have detailed information that is relevant to their practice population. Immunization registries have the data necessary to inform providers not only about their own patients but how their vaccine coverage and uptake patterns compare to their peers in other (anonymized) practice settings. Modest modifications to current registry reporting features could substantially aid providers in evaluating their approach to immunization management, including the use of configurable quality assurance and performance improvement metrics, data quality and validation checks, and record auditing capabilities.

Of the ten priority implementation areas identified in the NVP, one is squarely aimed at state registry programs:

“Priority H: Increase and improve the use of interoperable health information technology and electronic health records.”

An unprecedented effort is underway to automate Electronic Health Records (EHR) and Health Information Exchange (HIE). Fueled by federally funded initiatives, health care providers and hospitals are adopting EHRs and interfacing with a variety of public health data systems, including Immunization Registries which themselves have been the recipients of recent federal Interoperability grants. Because of the need for close coordination to achieve maximum data quality and interfaces with incentivized providers, state immunization programs need to carefully chart a course toward implementing and sustaining secure data exchange with providers and other sources of information content relevant to registry operations and program objectives. Mindfulness of the NVP objectives and strategies will be essential if registries are to fulfill national expectations under a backdrop of new and evolving health data exchange efforts.

Next Steps

State immunization programs should evaluate the implications and opportunities of the NVP for their registries and program efforts. Enhancements should be carefully planned in ways that will build on existing capabilities and service multiple objectives. There will be opportunities to participate in a series of upcoming nationwide meetings sponsored by DHHS. These meetings will help to identify priorities and develop the NVP Implementation Plan in ways best suited to local circumstances.

Once the NVP Implementation Plan is available, immunization programs should evaluate the metrics and indicators described in it and determine which indicators their registry operations currently support and those for which registry

modifications will be needed. These indicators will also likely suggest new programmatic approaches that could be supported by the registry. Some of these new approaches might benefit from pilot testing with defined populations or selected healthcare providers who utilize the registry in certain ways.

The 2010 National Vaccine Plan offers state immunization programs many avenues by which to improve operations and outcomes. It also can serve as the basis for productive dialogue between public health and other stakeholders, including healthcare providers, health information technology and data exchange agencies, among others. This dialogue could provide the catalyst for joint efforts to protect the public's health, reduce risk, and inform and educate all constituencies.

The National Vaccine Plan and its appendices is available for downloading at: http://www.hhs.gov/nvpo/vacc_plan/

About Scientific Technologies Corporation

Scientific Technologies Corporation (STC), an Arizona corporation established in 1988, provides domain expertise and information technology solutions to address complex real world problems in community, regional, state/provincial, and national public health programs. STC is committed to public health – our vision and mission is Advancing Health Outcomes through Information Technology with the goal to support worldwide disease management across all peoples and borders.

STC is an industry leader in developing, implementing, and supporting jurisdiction-wide public health information systems. The STC team offers a unique blend of health information technology engineers, systems architects, and developers as well as public health, clinical, and medical experts who excel in bringing state-of-the-art approaches and information to bear, while also creating new solutions, generating fresh collaborative insights, and producing an improved public health infrastructure.

STC is committed to the continuous improvement of our products and services through client feedback and on-going implementation and augmentation of emerging national standards and advancements in technology.

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