




Staying True to Our Mission

2013 Public Health Annual Report



Scientific Technologies Corporation
Advancing Public Health Outcomes through Information Technology



“Our imagination is the only limit to what we can hope to have in the future.”

—**Charles F. Kettering**

*American inventor, engineer, businessman,
and the holder of 186 patents.*



→ STC turns focused imagination into public health products and services.

Imagine a life without disease because basic prevention methods were widely used and tracked. Imagine innovative and new tools for states, providers and consumers to reduce the impact of disease and improve people's lives. Imagine what you could do to raise the bar one notch toward disease prevention.

We at STC think about this every day. We envision populations fully protected against vaccine-preventable diseases. We envision populations at risk to outbreaks and notifiable diseases are protected as a result of rapid responses due to the availability of real time information and accurate situational awareness. We envision that there is no impact on

family health care because records and information are always available, even through disruption caused by natural disasters.

STC is a company that turns focused imagination into public health products and services. We turn expertise into health information and knowledge that empowers physicians, nurses, hospital caregivers, pharmacists, insurers, public health professionals and now the patient themselves.

We believe our community of health partners when they tell us, "If you provide timely and accurate information when we need it, we can provide the best

care and empower individuals with improving their health.” We strive to do this with every product and service.

Reflecting on John Snow and his cholera fight: Do we think he cared about the health of others? Unquestionably. Do we think he was one of the first epidemiologists? Beyond doubt. Do we think he saw the value in current information? Most definitely. How do we think he thought of removing that pump handle? Imagination.

Consider what we are doing with our health partners today but imagine what STC and our partners will accomplish tomorrow.

Sincerely,



Michael L. Popovich | CEO



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1 Executive Summary

➡ The work STC does, and the products we have created over the years, have significant direct value to providers, pharmacies, retail health organizations, HIEs, health plans, pharmaceutical manufacturers, and consumers.

Since its incorporation in 1988, Scientific Technologies Corporation (STC) has grown from a small public health technology and consulting firm to a nationally recognized organization with clients across the country, providing solutions, products and expertise in immunization, surveillance, outbreak management, public health assessment, feasibility studies and interoperability.

STC's public health-driven informatics systems and services include Immunization Information Systems (IIS), disease surveillance and case management, interoperability and Meaningful Use (MU), and epidemiological studies for public health agencies, non-profit organizations and corporations. STC's public health experts are a team of highly dedicated individuals with experience in public health practice, epidemiology, nursing, informatics, deployment and system integration. The team operates under STC's Public Health Framework promoting a rigorous, strategic, and collaborative approach to assessment, planning, implementation, evaluation and research.

In 2013, STC's influence in the public health community has never been more evident since STC first aligned as a public health solution provider in the mid-1990s. This was due to the ability to innovate, expand market reach, and increase efficiencies.

STC intentionally set out to "Innovate Beyond the Bar" in 2013. SMaRT, MyIR.net, VOMS, IWeb™, WIR, Sentinel, PRISM Integration with Sentinel, ImmsLink, Open Immucast, Storage and Handling all were created or significantly enhanced in 2013 to stay ahead of the ever changing demands of the Health Information Technology (HIT) marketplace. No one else but STC offers such critical public health solutions that extend into the private and consumer sectors. No one else but STC builds their own solutions, makes other solutions more useful, and figures out how to effectively consume open source solutions. No one else but STC has a team of professionals to aid public health and its stakeholders in achieving its interoperability, VTrckS, VFC reporting, and other on-boarding initiatives with which to exchange a multitude of information with a plethora of providers.

STC also set out to enter into new markets in 2013. The work STC does, and the products we have created over the years, have significant direct value to providers, pharmacies, retail health organizations, Health Information Exchanges (HIEs), health plans, pharmaceutical manufacturers, and consumers. An outcome of this was a contract with the State of California HIE to create an immunization gateway which STC continues to expand to other aspects of health information exchange. An outcome of this was the acquisition and enhancement of the ImmsLink product that provides a MU2-certified solution for

providers, currently giving STC subscription contracts with hundreds of providers across the country. An outcome of this was a study with a large pharmacy chain to analyze the impact of adult immunization rates and the reduction of vaccine-preventable diseases associated with pharmacies issuing immunizations to the public. Many new markets were cultivated in 2013 and STC will continue to pursue markets in the public, private and consumer sectors that offer promising outcomes for STC in 2014 and beyond.

Through successfully innovating and expanding into new markets and greatly improving our efficiency, STC finished 2013 with significant growth. More importantly, this growth is sustainable and can be built upon for future growth. With growth comes

new opportunity for further innovation. With growth comes new opportunity for stimulating projects for all of us. And, with growth comes the opportunity for STC to have an impact on the health and well-being of children and their families across this great country.

The health care system has many challenges still ahead. STC is uniquely positioned to assist the public, private and consumer sectors in addressing these challenges. The work completed in 2013 made these opportunities possible. It is now our challenge to seize the moment by continuing to expand our reach and innovate in areas where we can make the greatest impact on the public's health, all while staying true to our mission: *Advancing Public Health Outcomes through Information Technology.*





2 Staying True to Our Mission

STC's goal is to ensure healthy populations through partnership, expertise and applied use of information technology. In the early 1990s, STC was one of the first adopters of the value of immunization registries and the data that could be used for decision support to augment clinical practice, targeting the reduction and impact of vaccine-preventable disease on children.

With the support of physicians, organizations, and policy and vaccine experts, STC's public health and software professionals led many of the early efforts and best practices to not only implement statewide registries but an immunization information system to meet all their state needs.

In 2013, STC supported almost a third of the country's statewide immunization registries and worked in some capacity with **65%** of the immunization programs in the U.S. STC supports immunization information systems in thirteen states with records belonging to over **24 million** patients. These systems support nearly **78,000** users and facilitate the transfer of **93,000** HL7 messages every day.

Our efforts continue to grow and a primary goal of STC through the next decade is to increase the value of these national health data assets.

3 Working Together 2013 Clients & Partnerships

Alaska – Department of Health and Social Services, Division of Public Health, Section of Epidemiology

Client since 2004

Products:

- Alaska Immunization Information System (VacTrAK)
- Disease Surveillance/Management system (AKSTARS)

Arizona – Department of Health Services

Client since 1993

Product:

- Arizona State Immunization Information System (ASIS)

Indiana – State Department of Health

Client since 2002

Product:

- Children and Hoosier’s Immunization Registry Project (CHIRP)

Louisiana – Department of Health and Hospitals, Office of Public Health

Client since 2001

Products:

- Louisiana Immunization Network for Kids Statewide (LINKS)
- Louisiana Infectious Disease Reporting Information System (IDRIS)
- MyIR.net
- SMaRT (Surveillance, Monitoring and Right-time Trends Tool)

Maine – Department of Health and Human Services

Client since 2005

Product:

- Maine Immunization Program (MIP) ImmPact2 – WIR

Mississippi – Department of Information Technology Services as contracting agent for Mississippi State Department of Health

Client since 2009

Product:

- Mississippi Immunization and Disease Surveillance System (MIDSS)

Montana – Department of Public Health and Human Services

Client since 2010

Product:

- Montana Immunization Information System Replacement (imMTrax) – WIR based Immunization Registry Database (PHDS/WIZRD)

New Hampshire – Department of Health and Human Services

Client since 2006

Product:

- New Hampshire Electronic Disease Surveillance System (NHEDSS)

New Mexico – Department of Health Client since 2013

Product:

- Vaccine Ordering and Management System

Oklahoma – State Department of Health Immunization Service, Disease and Prevention Services

Client since 2011

Product:

- Patient Status Web Service – Stand Alone Forecaster Module

Rhode Island – Department of Health

Client since 2013

Service:

Interoperability Support

Texas – Department of State Health Services

Client since 2008

Product:

- Stand Alone Forecaster Module

Utah – Department of Health

Client since 2000

Product:

- Forecast Module for Utah Statewide Immunization Information System

Washington – State Department of Health

Client since 2003

Product:

- Washington State Immunization Information System (WAIS)

West Virginia – Department of Health and Human Resources

Client since 1998

Product:

- West Virginia Statewide Immunization Information System (WVSIS)

Wyoming – Department of Health

Client since 2000

Product:

- Wyoming Immunization Registry (WyIR)

Mid-America Regional Council (MARC) – Missouri & Kansas

Client since 2007

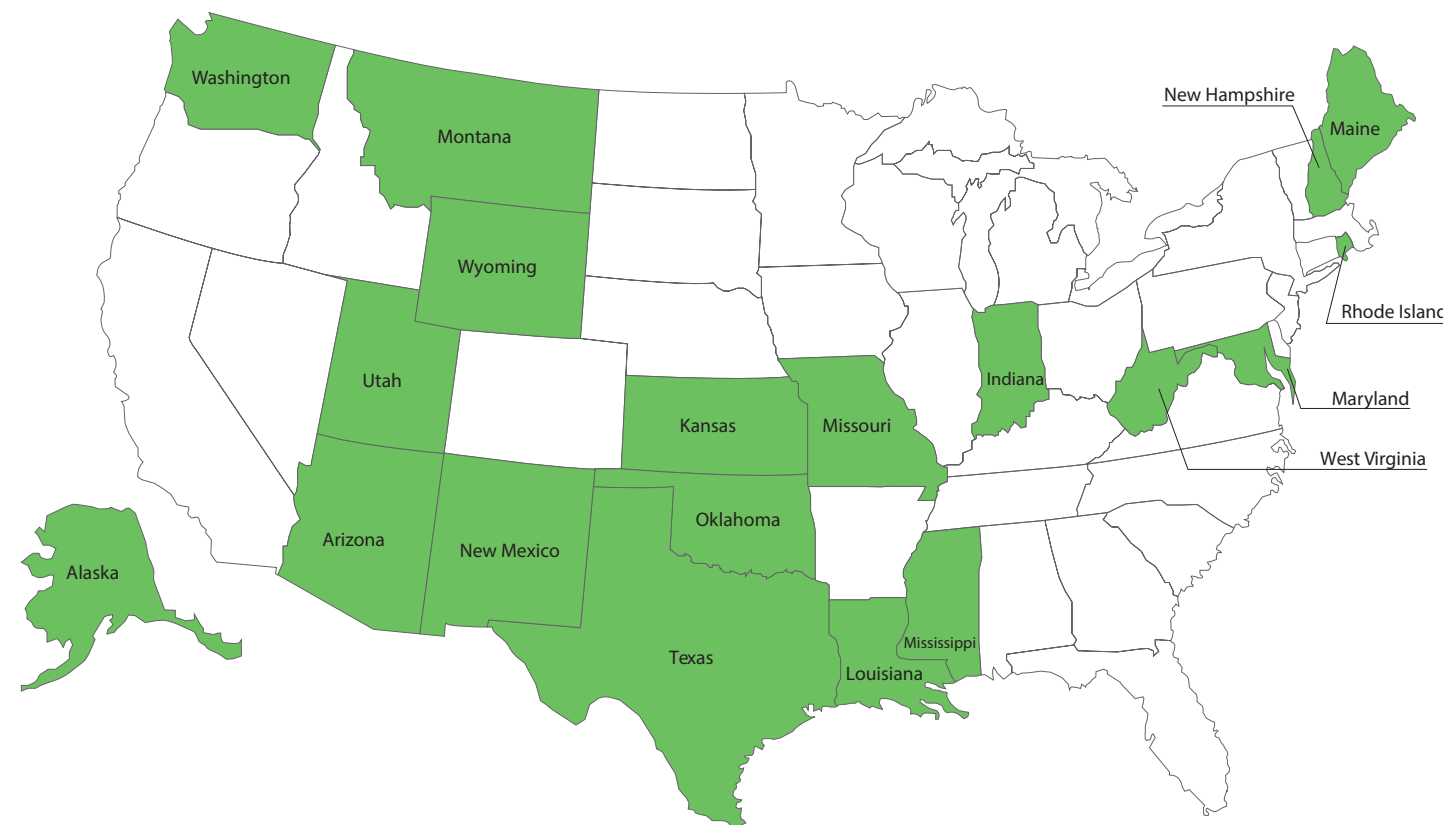
Product:

- Cross-border Public Health Information Exchange (X-Sentinel)

Partnership Organizations & Institutions

- The Healing Hands Foundation – Baltimore, MD
- DSPanel – Stockholm, Sweden
- Intelligent Health Solutions – Ontario, Canada

- MD-EMR – League City, Texas
- POD and Associates – Albuquerque, New Mexico
- Audacious Inquiry – Baltimore, MD



▶▶ Figure 1. Working Together – 2013 Clients & Partnerships.

4

Interoperability Connecting Systems in a Meaningful Way

 The services STC provides to support interoperability efforts were formally organized into the STC Interoperability Center of Excellence.

Interoperability is the ability to enable systems and organizations to work together and it is also a buzz word for 2013 with the Affordable Care Act. Meaningful Use requirements, HIEs, advancing technologies and a shrinking virtual world confront us today. New technology is being introduced in hospitals and labs at an ever-increasing rate. The need for “plug-and-play” interoperability has attracted great attention from both healthcare providers and industry. While the standards for interoperability continue to improve, STC focused on the interoperability between providers, states, and retail health. As the technology excelled, STC worked extensively with providers and states to improve overall data quality.

2013 also marked a year to increase the usability of the states’ data in a meaningful and visual manner using tools such as SMaRT, STC’s data visualization and outcomes monitoring tool. Not only were the tools to support interoperability enhanced, but the services STC provides were formalized with the formation of STC’s Interoperability Center of Excellence that worked with nine states and over thirty EHR vendors to facilitate the development, data quality improvement, and implementation of immunization interfaces. Interfaces ranged from state to state, intra-state IIS, and EHR to IIS, while focusing on utilizing new technology, increasing data quality, and improving immunization best practices.

State-to-State Interoperability

In 2013 STC established a market-leading interface across state IISs with different vendors in order to improve patient vaccine coverage outcomes. STC’s client states, Washington and Mississippi, have projects underway to share data with their respective neighboring state IIS in Oregon and Alabama. Patients of all ages frequently seek vaccinations in a bordering state. This commonly occurs for things such as employment or school entry vaccinations when a patient lives or works along the border between states.

The Washington State IIS (WAIS) and Oregon IIS (Alert) were early adopters of state-to-state data exchange to capture vaccinations on state residents that sought care at a provider location in the other state. This exchange has been a monthly (or a longer timeframe) self-generated flat text file that is sent to the other IIS based on the patient’s state of residence.

This year the two states expressed interest in moving the function to HL7 messaging so that providers could have these data available at the point of service to

Leveraging STC’s long-standing and proven state-to-state technology, an HL7 query will be used so that when the provider looks in their state IIS for patient data they will also be querying the other state’s IIS to find additional vaccination data. These data will then be stored in the querying state’s IIS record. This functionality previously was only used in emergency/disaster situations.

The other function that will continue to be needed is a regular update of patients who visit providers in the opposite state because not all providers will complete the query process. This will now be completed using HL7 messaging.

Both STC who supports the WAIS and HP who supports the ALERT system agreed to provide the technical support to develop the needed functionality. This will become a functionality that can be replicated in the IIS of each STC client state as well as the states that use the HP-supported WIR solution to exchange data. STC expects to have the WAIS functionality in place by February 2014. The STC Mississippi IIS (MIIX) and the Alabama IIS (ImmPRINT) have also begun testing state-to-state data exchange by allowing MIIX to directly query ImmPRINT for additional patient vaccinations and vice versa. This process makes it possible to view vaccinations that may be missing in the state IIS so that unnecessary vaccinations are not administered.





State Interoperability

In addition to our continued support of existing STC IISs, STC expanded its interoperability professional services by working directly with provider groups and other non-STC IISs. These additional services are part of the STC Interoperability Center of Excellence which has excelled in leading the nation in interoperability expertise.

West Virginia – Assistance with Interoperability Launch

The West Virginia Department of Health and Human Resources (WV DHHR) which uses STC's IIS received a Centers for Disease Control and Prevention (CDC) grant to launch their interoperability functionality. The program had a goal to onboard thirty-five provider practices using HL7 messaging and STC's data screening tool, PHC-Hub™. The grant required that the West Virginia Statewide Immunization

Information System (WVSIIS) staff receive training on how to onboard providers, read HL7 messages, use the PHC-Hub™ tool, and select the providers who are most ready and engaged to participate in the project. The project also entailed working with the providers who opted to send data to the WVSIIS via an interface with the HIE. This project had an unusually short timeframe of eight months.

STC was engaged to work with the DHHR immunization program staff to train and support their staff to do this work on their own while completing a portion of the work as well. STC has always used a team of staff to complete interoperability projects but because the timeline was short and it required a large amount of time at the client site and around the state of West Virginia, a different model was used. For this work, one STC public health advisor served as a project manager, STC corporate technical staff

provided onsite training for the WVSIIS staff, and a team of two additional STC public health staff were engaged to complete the onboarding tasks – one of whom was onsite in the WVSIIS office.

Thirty-two private provider organizations and an additional nineteen were onboarded via the HIE at project completion. Of the 107 total facilities, 15 facilities changed from importing data via flat text files and 92 others entered data manually into WVSIIS prior to the import project. These interfaces involved 10 different EHR products. Because of the timing of this project most of the interfaces were created using v2.3.1 HL7 messages.

Rhode Island – EHR Immunization Data Quality

In September, STC was awarded a contract with the Rhode Island Department of Health to support their state IIS (KIDSNET) interoperability work. STC was chosen as the awardee based on our broad experience with EHR vendors and our knowledge of the nuances of the applications and the ways that their end users impact data quality.

The Rhode Island work is one-year contract which focuses on working directly with providers and their respective EHR systems. The contract focuses on moving providers toward onboarding, collaborating with providers to implement best practices in the use of the EHR, and working with the vendor to provide needed enhancements. The end goal is to support the ability of the providers to provide complete and

accurate data to the KIDSNET system. STC will also provide the Rhode Island Department of Health consultative services on KIDSNET as requested and assist with transitioning KIDSNET to HL7 v2.5.1 messaging as needed.

Maine – Healthcare Network Data Exchange to IIS Support

MaineHealth, one of the nation's top 100 integrate healthcare delivery networks, contracted with STC to facilitate their data exchange with the Maine IIS (ImmPact). Through this project, Maine medical providers associated with MaineHealth sent their immunization data to ImmPact. STC coordinated efforts with the MaineHealth IT staff to update to their EHR, validating their data quality, and we worked with ImmPact to ensure the planned functionality meet the needs of the provider community. The end result was much higher data quality being sent to ImmPact and the providers were able to get more accurate inventory and forecasting in return.

California – Support for Innovation

California Health eQuality (ChEQ), a program of the Institute for Population Health Improvement at the University of California, Davis, is promoting coordinated care through HIE. The ChEQ programs — including a trusted exchange environment, improved public health capacity for electronic reporting, accelerated HIE funding opportunities, and monitoring of HIE adoption — aim to lay a foundation for improved quality of care for all Californians.

With the dense population and vast size of the state of California, the sharing of health information is challenging. California has ten different regional immunization registries throughout the state that currently have been attempting to centralize their data.

California has also recognized the disconnect in continuity of care for patients with high impact conditions such as cancer. These patients see multiple providers and often have the same tests and procedures performed for each provider due to the challenges of sharing health information.

In the last year CHEQ has launched two innovative projects to solve these health information challenges: the California Immunization Gateway and the California Health Information Home. The Immunization Gateway helps to share data between many of the immunization registries and the Health Information Home is a central place to store patient health information for high impact conditions. On both efforts, as described below, STC worked as a close partner with CHEQ to define and refine the business requirements as well as designing and implementing the software solutions to address the existing challenges.

California Immunization Gateway

The California Immunization Registry (CAIR) system has been developed with a decentralized approach. The CAIR system contains ten immunization regions, each operating its own regional immunization registry, with each managing its provider recruitment and training independently. In recent years, the regional registries have moved toward centralization in terms of IT service consolidations (server operation), but

data still remains in localized systems. Seven of the ten regional immunization systems use the same registry software:

- Northern California (15 counties)
- Greater Sacramento Area (7 counties)
- Bay Area (13 counties)
- Central Valley (7 counties)
- Central Coast (3 counties)
- Los Angeles-Orange (LA county and 2 cities, Orange county)
- Inland Empire (1 county and 1 city)

Approximately 88% of California children live in the seven regions. The system used by each of these seven regions supports immunization records updating through data exports in flat file format, but it does not have the capacity to electronically receive immunization data from EHR systems to meet MU standards as defined in the ONC Final Rule.

The California Immunization Gateway project provided a system solution to support the seven immunization regional registries. By enabling them to receive electronic transmission of immunization events from healthcare providers, system users have up-to-date, accurate, and complete immunization information for millions of children in California. The system eliminates a barrier for eligible providers and hospitals to fulfill their public health MU requirements and receive incentive payments.

The California Immunization Gateway project provides a technical solution and support for the seven immunization regional registries, the California Health Information Organizations (HIO), and the State's provider community to ensure the immunization records from certified EHRs to the specified CAIR

registry adhere to MU standards. Users receive electronic notice of immunization events ensuring that they have up-to-date, accurate, and complete immunization information for millions of children in California. The system eliminates a barrier for eligible providers and hospitals to fulfill their public health MU requirements and receive incentive payments.

The solution consists of three application components:

Immunization Gateway Service

The gateway is a web service-based application that receives HL7 immunization messages from HIOs, HIE hubs, and certified EHRs. This service validates and parses messages and routes them to the appropriate CAIR Registry. A user interface allows the CAIR technical support staff to monitor and manage all message exchange activities. The gateway service increases the timeliness and quality of immunization events captured in centralized registries, where it is through intelligent use of this information that population health impacts to vaccine-preventable disease are mitigated. An effective and efficient gateway is core to this overall effort and as such adds value to support providers' incentives to comply with MU and to the state immunizers by increasing their ability to know what vaccines to give a specific patient. It also add value to the State to support risk assessments, vaccine accountability, and cost management.

Provider Registration Portal

The Provider Registration Portal assists eligible providers, who as participants in MU Stage 1, register via the online form for the CAIR Provider/ Agency Access Agreement and the CAIR Data Exchange Screening Form. The Portal captures and validate the provider data from the online forms and issues to successfully registered providers the unique location ID, facility IDs, and passwords, as well as the online address of the Message Validation Service. Secure

email is used to transmit the information. The Portal provides online help with technical information and assistance to ensure effective communication of data exchange specifications and integration into EHRs and provides a user interface for administrators to manage provider profiles and the registration processes. Eligible providers and hospitals take the first step of registration to meet the MU requirements. The Portal collects provider and facility/clinic information and ensures that message acknowledgement is delivered appropriately for organizations with multiple offices and locations or with multiple provider IDs for a location.

Message Validation Service

The web service-based Message Validation Service tool includes a graphical user interface to illustrate specific problem areas and provides the functionality to support message validation following the CDC HL7 v.2.3.1 and v.2.5.1 standards. This component logs the testing processes and sends the validation results to the submitters. A user interface to support the administrator provides for management of the message submitters, message definitions, and validation results. The Message Validation Service provides an important testing platform for HIOs and eligible providers, with test data or 'dummy data' being used in the validation processes and the testing environment.



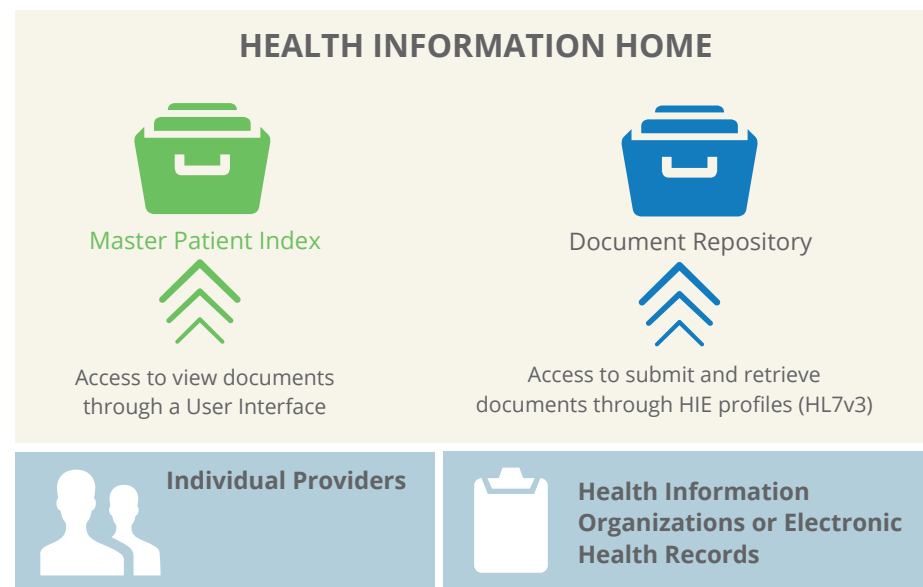
The tool has been so successful that the California Department of Public Health is now expanding the domain areas to include electronic laboratory reporting for infectious diseases, blood lead testing results, and cancer registry reporting.

California Health Information Home

CHeQ operates under the auspices of the Office of National Coordinator (ONC) State Health Information Exchange (HIE) Cooperative Agreement. As such the CHeQ programs have a unique insight into the operations of the state HIEs and the vast amount of information flowing through them. This insight has led them to the realization that while the information repositories and interoperability are a boon for healthcare in general, there is still a lack of support for specialized scenarios where multiple providers in multiple settings need to share information centered on individual patients with high-impact conditions such as cancer.

CheQ's unique position and the recent advancements in technology allowed for the adoption of open source solutions for population health purposes which led to the concept of the Health Information Home (HIH). HIH is a single location where all of the information for an individual related to a specific condition could be collected and made available to that individual's healthcare providers.

From that original concept STC proposed a design that would bring the HIH into the forefront of health information exchange. The design is based on the use of the NwHIN CONNECT healthcare messaging gateway as its core component. The federal government developed CONNECT as the backbone for connecting healthcare agencies, such as the Centers for Medicare and Medicaid Services (CMS), the U.S. Department of Veterans Affairs, and the CDC as well as allowing HIEs to share information with these agencies and amongst themselves.



▶▶ **Figure 2.** The CheQ Health Information Home (HIH).

The first phase of the HIH is currently being built and is geared towards the needs of cancer patients and providers through a partnership with the Athena Breast Health Network, which operates at five University of California cancer centers. Given that patients with high impact conditions usually have many different providers, the HIH will accept and store patient information in order to increase continuity of care so that tests and/or procedures are not reordered when a patient sees another physician or specialist. The future vision for the HIH includes expanding the breadth of interest to other high-impact conditions such as diabetes, asthma, and obesity.

Pfizer Grant Project: Bi-Directional Immunization Interface in Pharmacies

In June 2013, the Washington State Department of Health completed a two-year grant with the CDC evaluating adult immunization coverage. The project identified critical gaps in immunization data-sharing and decision-making tools within adult locations of care. In addition, a survey by the Washington State Pharmacy Association found that while 468 community pharmacy locations each administered more than 100 influenza injections in 2012, only twelve pharmacies reported giving more than 100 pneumococcal vaccines, demonstrating a high potential for missed vaccination opportunities. The adult grant also resulted in stakeholder discussions with pharmacy chain leadership revealing a strong desire for bi-directional interfaces with the IIS.

Studies consistently show pharmacist vaccinations can influence coverage rates and increase access to vaccinations¹²³. Without IIS access at the point-of-care, missed opportunities are frequent – up to 62% of the time for influenza vaccination⁴. The CDC, recognizing the need for this intervention and the prevalence of missed opportunities, sent a letter to pharmacists and community vaccinators in 2012 requesting that they take advantage of IIS tools to raise immunization rates.⁵

STC partnered with the Washington State Pharmacy Association to apply for a Pfizer grant to increase adult immunization rates. STC proposed a bi-directional tool that integrates with the pharmacists' systems, providing an opportunity to increase patient care and quality and increase workflow efficiencies to benefit patients who gain protections against vaccine-preventable diseases. As an intervention tool, STC's solution will provide pharmacists with access to immunization data at the point-of-care to inform patients on needed vaccinations, and we will evaluate the impact on vaccination coverage rates and reduction of missed vaccination opportunities. The evaluation design is a prospective cohort study that follows rigorous study protocols featuring several intervention cohorts and non-intervention controls. If funded, the tool implementation and study evaluations will take place through 2015.

1. Grabenstein, J.D., et al., Effect of vaccination by community pharmacists among adult prescription recipients. *Medical care*, 2001. 39(4): p. 340-8.
2. Higginbotham, S., A. Stewart, and A. Pflanzgraf, Impact of a pharmacist immunizer on adult immunization rates. *Journal of the American Pharmacists Association : JAPhA*, 2012. 52(3): p. 367-71.
3. Higginbotham, S., A. Stewart, and A. Pflanzgraf, Impact of a pharmacist immunizer on adult immunization rates. *Journal of the American Pharmacists Association : JAPhA*, 2012. 52(3): p. 367-71.

4. Allred, N.J., et al., The impact of missed opportunities on seasonal influenza vaccination coverage for healthy young children. *Journal of public health management and practice : JPHMP*, 2011. 17(6): p. 560-4.
5. Taitel, M., Cohen, E., Duncan, I., & Pegus, C., Pharmacists as providers: Targeting pneumococcal vaccinations to high risk populations. *Vaccine*, 2011. 29(45): p. 8073 - 8076. doi:10.1016/j.vaccine.2011.08.051.

Data Visualizations and Outcomes Monitoring Solution – SMaRT

+ Innovative Public Health Informatics Tool Becomes Reality

Departments of Health are inundated collecting large amounts of data through state programs. A vast wealth of information exists, housed within disparate databases and managed by separate programs. Meanwhile, the speed of data acquisition is increasing through electronic messaging, and MU is the latest driver accelerating flow of information into public health data systems. Keeping up with the quantity and managing quality becomes even more challenging as resources are squeezed. Important trends, outcomes, and population health stories remain hidden under layers of complicated data elements. Valuable time is spent on retrospective reports to satisfy requirements while evidence-based decision making suffers.

A divergence from traditional public health reporting is needed. While traditional Business Intelligence

(BI) tools are well-established in the business and banking worlds, major translations are required for public health use. As a result, these tools have remained mysterious and unused in public health practice. To address this need, STC began laying the groundwork in 2011 to design a data visualization and outcomes monitoring tool called SMaRT (Surveillance, Monitoring and Right-time Trends). In 2013, Louisiana contracted with STC to build the first BI tool for immunizations, and we are now excited and proud to implement SMaRT for the Louisiana Immunizations Program.

The Louisiana Immunizations Program organized their SMaRT tool around five permeating themes:

- Coverage Rates
- Missed Opportunities
- Vaccine Inventory
- Vaccination Safety
- Quality of Data Submitted to the IIS

💡 The development of the SMaRT tool entailed the following major steps:

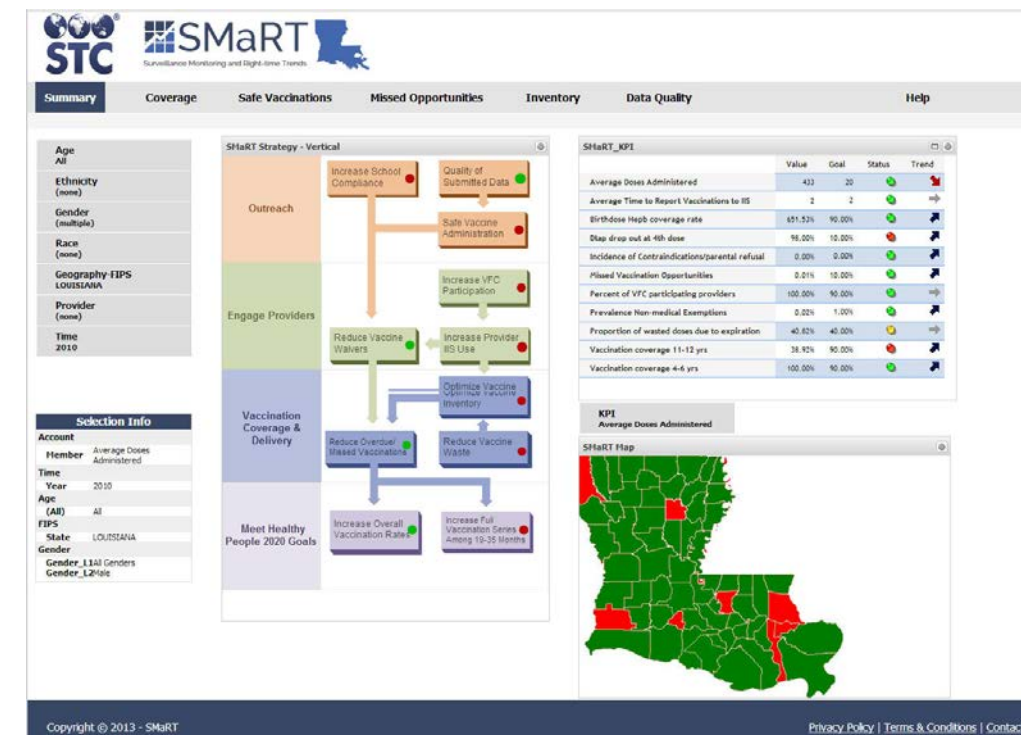
- 1 Identify the program's needs and how they envision the system will meet their needs.
- 2 Interview stakeholders to identify the most useful statistics and types of data.
- 3 Identify who will use the system (audience: staff, providers, general public) and define any appropriate access levels.
- 4 Choose a technology platform that best fits the scope of use and meets the needs.
- 5 Choose the appropriate BI tool.
- 6 Define specific content that will be displayed using the BI tool identified.
- 7 Identify data source(s) needed: what data fields to pull from database and any backend calculations prior to moving to BI data model.
- 8 Build underlying data model for the UI.
- 9 Identify data hierarchies (necessary for drill-downs).
- 10 Identify variable relationships (necessary for ad-hoc slicing of data).
- 11 Build the user interface.
- 12 QA and deploy.

SMaRT is cloud-based, secure, and operates externally from the Louisiana IIS. Many users can be logged in and working in SMaRT without any added demands on the database and users have no access to patient IDs. Secure and fast, users can be assigned specific access and viewing privileges.

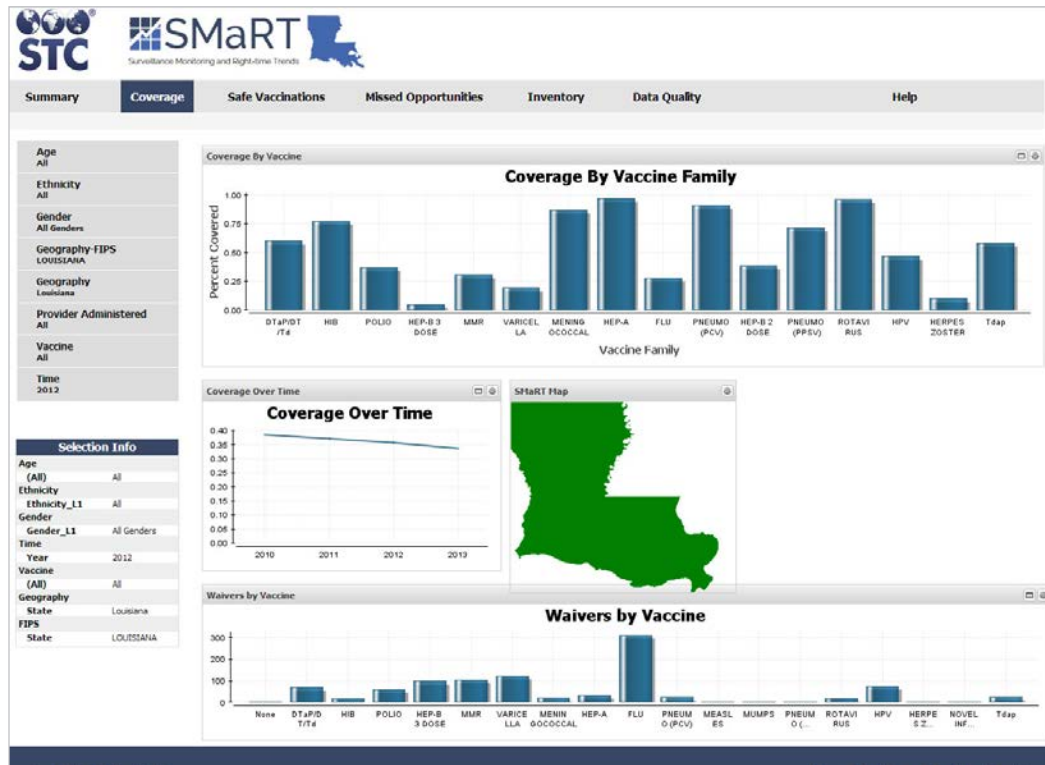
+ Meaningful Visualizations Focus on Program Priorities

The content had to be meaningful and represent all of the major activities within the immunization

program. To accomplish this, an Overview Page was designed containing an Immunization Strategy Map and Key Performance Indicators (KPIs) were defined to align with objectives from the Strategy Map. The Strategy Map shows at-a-glance how the program is doing toward meeting all their goals and objectives. The KPIs provide further insight into specific statistics of programmatic importance. A geographic map that allowed for ad-hoc drill down into each county or parish ZIP codes was also added to illustrate any geographic trends within the KPIs.



▶▶ **Figure 3.** SMaRT Summary page for Louisiana provides the program's situation with a Strategy Map, KPI List, and a drill-down geographic map.



▶▶ **Figure 4.** SMaRT Immunization Coverage page, showing vaccination coverage rates by vaccine family, coverage over time, a drill-down geographic map, and non-medical waivers by vaccine family. Left-side menu selects variables for slicing: age, gender, race, VFC status, provider and time frame.

- Major challenges had to be solved!**
- Complex immunization data.
 - Focus on informative metrics (avoid information overload).
 - Choosing the right metrics.
 - Security of system and data.
 - Dealing with different users and varying viewing privileges.

The KPI is a measure of performance and is comprised of a set of quantifiable measures displayed as a table. While choosing KPIs and determining how they would be calculated, we defined KPIs in terms of making progress toward strategic goals. If a reportable metric could not directly relate toward meeting a strategic

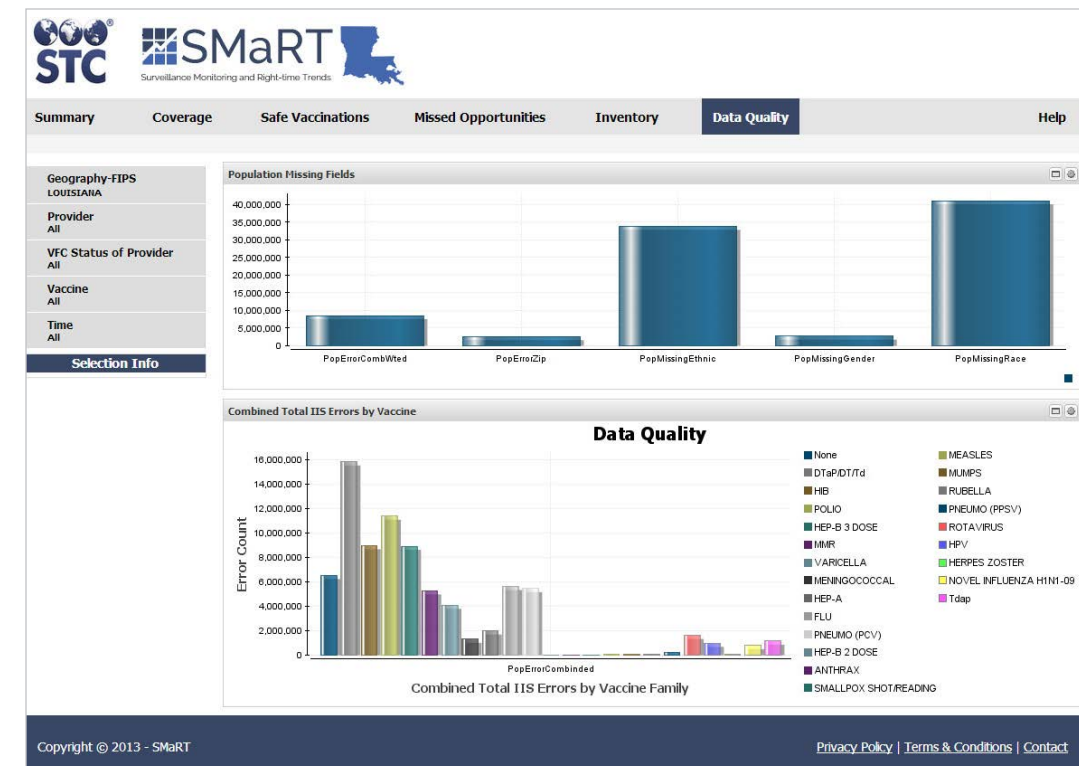
goal, it was rejected or modified until it met our criteria.

With so much data available, we encountered a challenge in that there were many KPIs from which to choose for any given program objective. With SMaRT's flexibility and expandability, programs can choose information, statistics, and metrics personalized to meet their programmatic needs, with the ability to modify or add later. STC Public Health Advisors worked closely with Louisiana program staff to select a meaningful combination of KPIs that could guide staff to specific program areas for decision-making. The same strategy was used when building the

Strategy Map and in choosing the additional themed pages for further drill-down and data exploration.

Louisiana staff needed ad-hoc analyses to enable the drill-down into the data. Therefore, easy-to-view-and-navigate visualizations were designed for key measures. To keep the program focused on their most important goals, any metrics used had to relate to a benchmark or target outcome. Normalized measures and rates were used in preference to counts, and we used federal recommendations whenever possible. The addition of data slicers allows

users to look at specific populations of interest (age groups, race, VFC status) over any specific time frame (last year, last 2 years, last January, etc) and within any geographic area (statewide, county, city or ZIP). With so much flexibility, visualizations had to be easy to interpret (we avoided fancy graphics and focused on informative visualizations) and status changes had to be easy to see. Finally, the data model was designed so that future expansion would be relatively easy, quick, and inexpensive, should any program want to add new metrics or visualizations.



▶▶ **Figure 5.** SMaRT Data Quality page, showing frequency of missing data fields in vaccination records submitted to the registry by field type, along with frequency of missing data fields by vaccination. Left-side menu selects variables for slicing by provider, time, geography, and VFC status of provider and vaccine.

5 STC Expands into Provider and Consumer Support

State to state interfaces and large national interfaces with pharmacies are now a reality, propelling states and healthcare providers to improve communication across borders.

This year STC expanded its professional services exponentially by supporting the community on all levels of immunization and disease surveillance support. Not only did we continue to support our client states and their ongoing innovative projects, but we also broke the barrier into the provider and consumer area of support. STC developed groundbreaking products such as MyIR and SMaRT to provide new useful tools available at the fingertips of providers and consumers with the goal of enabling

better and more efficient health care. We continue to break boundaries with our Interoperability Center of Excellence as we connect an increasing number of providers with their state immunization information system and connect labs with the state disease surveillance programs through the use of ELRs. State to state interfaces and large national interfaces with pharmacies are now a reality, propelling states and healthcare providers to improve communication across borders.

Consumer Support

+ Consumer Empowerment - Powered by MyIR.net

Over 90 percent of the U.S. population is unable to directly access their immunization records managed by state immunization programs. This disengagement of approximately 280.6 million individuals from an important part of their own health records has been long standing. Its consequences have not been well studied but surely include under- and over-immunization, barriers to school-entry, increased out-of-pocket costs, and missed opportunities to receive valuable preventive health services. These circumstances seemed likely to persist well into the future – until the release of STC’s MyIR.net in the fall of 2013.

First deployed by the Louisiana Department of Health and Hospitals, Office of Public Health Immunization Program, MyIR.net is a web-based application that provides consumers who have been approved by their healthcare provider with free access to copies of their family’s IIS-based immunization records. Consumers pre-register online and then visit their healthcare provider for authentication and approval. Providers may also initiate consumer registration and approval. Afterwards, consumers may freely access copies of their family’s records at any time.

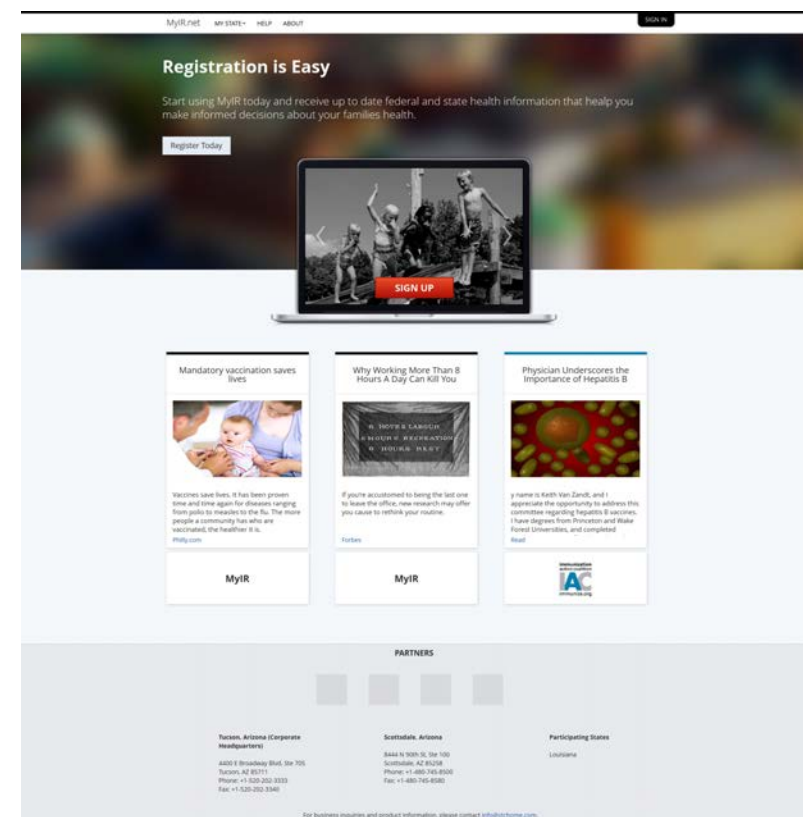
MyIR.net was constructed to operate with any state IIS capable of receiving and responding to HL7 queries – just about every IIS in the nation. Because of this flexibility, the IIS of any state will not require additional coding in order to integrate with MyIR.net.

It also means that consumers benefit from receiving a consolidated, up-to-date immunization record in a state-specific format. This facilitates immunization awareness, daycare and school entry, and improving up-to-date vaccination status. MyIR.net also allows consumers to transfer copies of their immunization records to any of several Blue Button-compliant repositories such as Personal Health Records systems or healthcare provider Electronic Medical Records systems.⁶

Healthcare providers benefit from MyIR.net as utilizing it will decrease their unreimbursed administrative burden of repeatedly providing hard-copy records to their patients. They also benefit from improvements to their patient population’s immunization rates, an outcome that may result

in increased health insurance payments or reimbursements. Healthcare providers and the states benefit from consumer engagement by increasing immunization record accuracy. The consumer adds another layer of data quality checks that may have been tedious before.

Louisiana’s first-in-the-nation deployment of MyIR.net began with a large private and academic group practice in Baton Rouge. STC trained over thirty staff in the application’s simple workflow and features in two one-hour sessions. They began the process of enrolling consumers and their family members four days later. Additional healthcare providers are onboarding with the goal to achieve statewide participation among Louisiana’s 2,600 IIS-participating providers by early 2014.



▶▶ Figure 6. MyIR.net Registration page.

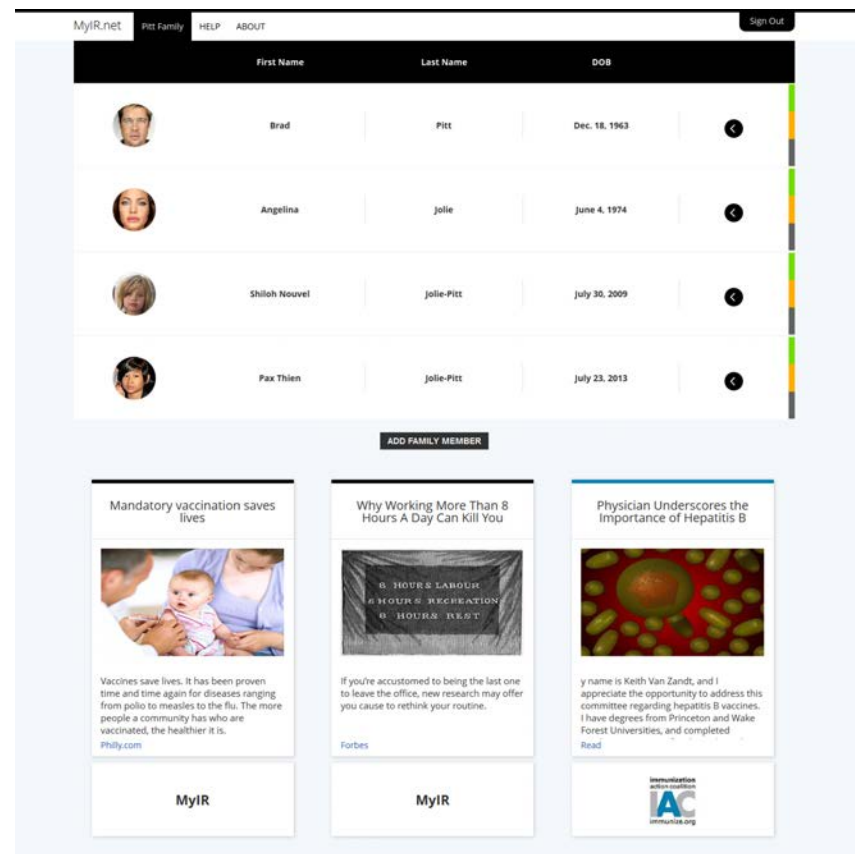
6. “Blue Button” the Blue Button Logo, and the Blue Button Combined Logo” are registered trademarks of the U.S. Department of Health and Human Services, an agency of the United States Government, which reserves all rights.

Five additional states have subscribed to MyIR.net and each will be deploying the application in early 2014, with additional states positioned to onboard soon thereafter. STC will be releasing a new version in March 2014 that will improve the user experience, with additional features such as automated passive reminders and consumer notifications of due and past-due immunizations. STC has optimized the application for mobile devices including smartphones with a parallel release. MyIR.net offers state immunization programs a robust suite of administrative tools to control consumer and provider accounts, create management reports, and configure a variety of functional elements.

STC carefully designed MyIR.net with feedback from diverse national, state, and federal immunization

professionals. The application is hosted on the Amazon® secure HIPAA-compliant Cloud, eliminating the need for states to install or maintain any hardware or software and helping to ensure data security and confidentiality.

Consumer empowerment through the use of innovative health information technology such as MyIR.net is currently a national priority initiative in government and the healthcare environment. Research has shown that consumers with more direct access to personal health information become more involved and active in matters relating to their health. MyIR.net is changing the way people receive this information and promises to impact health behavior and outcomes in ways not previously possible.



▶▶ Figure 7. MyIR.net Family Record page.

Provider Support

+ Provider Outreach & Training

The ability to have direct contact and relationships with all aspects of our client base is core to STC's mission and values. This allows us to offer our knowledge and expertise to our clients who are providing daily

patient services to ensure they utilize the systems to their utmost capacity, while having a mechanism for STC to understand the workflows of the provider's office. This relationship gives

providers confidence that they are using the system correctly, while allowing STC to understand issues in the system that may be affecting patient care and having an avenue to get them addressed quickly.

In 2013 STC expanded its service offerings by providing direct provider outreach, training and support to the IIS end users and key stakeholders. The focus for 2013 was to expand these services throughout Montana and Washington and in 2014

STC will begin to expand to other states with new provider outreach contracts in place. STC is able to provide expert IIS training, advocacy, and support services to thousands of providers who administer vaccines.

"These are services STC has not traditionally provided to our state health department clients. We realized that this service helps the clinical community to use IWeb to its fullest capabilities and assists the provider to better serve their patients. STC's core mission has always been about improving public health outcomes."

-Todd Watkins, STC President.

STC is starting in 2014 with a new partnership with the Delaware Department of Health and Human Services Division of Public Health. The new partnership is centered on the CDC Vaccine for Children (VFC) Program mandatory site visits and builds upon the provider services established in 2013. STC will be working with Delaware VFC providers to ensure the VFC Program requirements are met

and that providers are storing and administering VFC vaccine appropriately. During these visits, VFC providers are taught to use best practices in storage and handling, as well as ways to increase vaccination coverage for their patients. Using these proven best practices when engaging provider participation in quality improvement projects, which can improve patient care and the provider practice's bottom line.

💡 STC plans to expand these services in 2014 to include:

● End user support tools and outreach

- Answer desk support.
- Data quality support.
- Training and outreach.
- Reports and analytics to help inform immunization programs.
- Facilitation and coordination of user groups.

● Training support library

- End user materials and tips built throughout the system.
- Documentation and training materials for end users.
- Analytics.

6 Public Health Innovation through Leadership

STC and Partners Present a Year of Accomplishments at American Immunization Registry Association (AIRA) 2013 IIS National Meeting

In October 2013, STC collaborated with partnering states to make nine presentations at the AIRA 2013 IIS National Meeting – more than any other participating sponsor – each describing state IIS leadership in innovation and outcomes improvement. Topics presented included retail pharmacy integration, bi-directional data exchange, consumer records access, IIS data analytics, provider on-boarding, open-source immunization forecasting, vaccine dose-level accountability, and IIS-integrated population-based health promotion materials delivery.

STC was again a Gold Sponsor this year, and Erich Daub, STC Consumer e-Health Lead and Senior Public Health Advisor, was a member of the AIRA 2013 IIS National Meeting Planning Committee.

STC's Judy Merritt, a national leader on vaccine forecasting who has served as a subject matter advisor to the CDC, co-presented at a plenary session on vaccine forecasting.

One of the most well-attended break-out sessions – with over 120 attendees – included Washington State's Lonnie Peterson presenting on their Immunization Program's implementation of an e-mail system to convey age-appropriate health promotion information to virtually every Washington household with children. In the same session, Quan Le from the Louisiana Immunizations Program and STC's Erich Daub co-presented and demonstrated STC's MyIR Consumer Records Access solution, currently in pilot deployment in Louisiana.

The AIRA IIS National Meeting was a rapidly-deployed substitute for the CDC's previously scheduled National Immunization Conference (NIC) which was a victim of budget cuts. AIRA and the immunization community quickly reprised their 2012 Meeting with fresh content for 2013. Attendees gave the conference high marks.



The STC presentations at the AIRA IIS National Meeting were well attended, with lengthy and productive follow-up discussions and information exchanges:

Applied Use of Bi-Directional Exchanges: A Case Study of Rockwood Clinic

Judie Johnson (Rockwood Clinic); Brandy Altstadter (STC)

Washington State's Initiative to Increase Pharmacist Access and Reporting to the Washington State Immunization Information System

Marci Getz (WA); Jenny Arnold; Kennedy, Erin D.; Lindley, Megan C. (CDC/OID/NCIRD); Kristina Crane (STC)

It's not just about the Software anymore

Lisa Rasmussen (MT)

On-Boarding Large Provider Groups & Healthcare Systems – Unique Issues and Lessons Learned

Ray Manahan (Swedish Healthcare); Janet Balog (STC)

Improving Vaccine Accountability: A Case Study of Group Health Cooperative

Kris Moore (Group Health); Jan Hicks-Thomson (WA); Kristina Crane (STC)

Moving a Commercial Forecasting Product to Open Source Electronic Medical Record-IIS Interoperability: Balancing Provider Recruitment with Data Quality Needs

Nathan Bunker, Judy Merritt (STC)

Statewide Consumer Access to Immunization Records: Louisiana's Implementation of a Web-Based, Nationally-Capable System

Ruben Tapia, Quan Le (LA); Erich Daub (STC)

Leveraging Immunization Data for Public Health Analytics and Data Visualizations

Ruben Tapia, Quan Le (LA); Jennifer Simpson (STC)

Reaching families electronically through the Washington State Immunization Information System

Lonnie Peterson, Belinda Baker, Michele Roberts, Denise Hawthorne (WA); Chrissie Gorman (STC)

Washington State Health Plan Partnership

STC facilitates a public-private partnership between the Washington State Immunization Program and the Health Plan Partnership whose goal is to increase immunization rates throughout Washington.

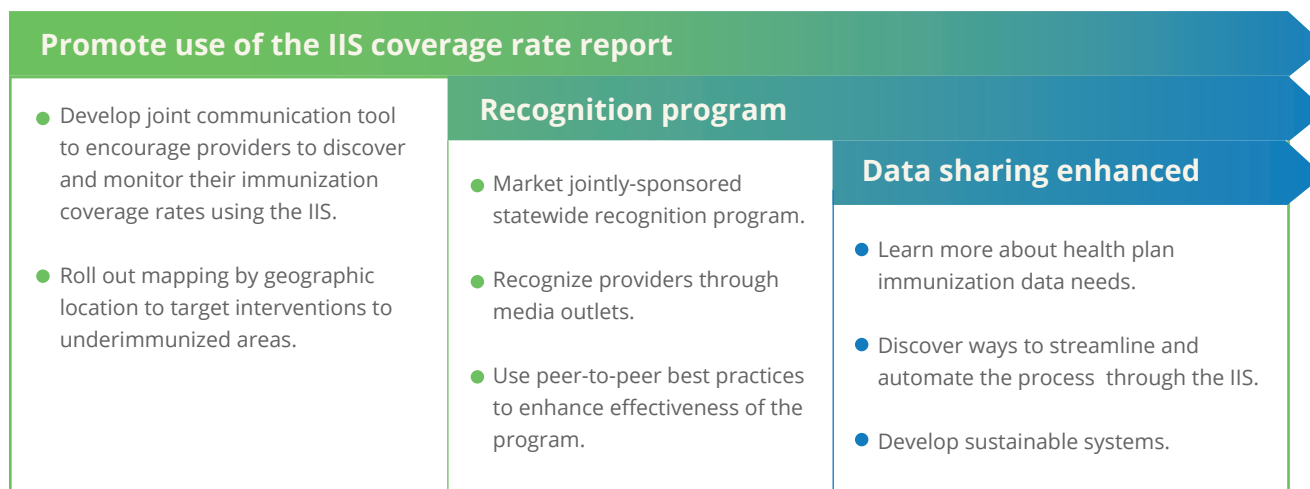
The partnership consists of the quality coordinators for each of the health plans that have members in Washington. The group has worked to collaborate on increasing IIS use within their member providers and increase awareness of the Child Profile Health Promotion Materials.

In 2014, the health plans and public health partners will work to increase immunization rates and meet HEDIS and AFIX measures at the clinic level by using the Washington State Immunization Information System (WAIS) through the joint development and sponsorship of a provider recognition program.

The drivers for this work include:

- Both health plans and public health work with clinics to increase immunization rates. Health plans submit data for HEDIS reports and public health conducts immunization quality improvement (AFIX) visits with clinics.
- Health plans and public health recognize the importance and role of the healthcare provider and clinic team in improving immunization rates.
- The valuable information collected from the measures can be used to target intervention strategies to benefit the provider, health plan, public health, and ultimately, the patient.
- The ability to develop coordinated and consistent messaging to providers.

Over the next year, the group will be implementing this program through a phased plan:



▶▶ **Figure 8.** Provider Recognition Program.

RISE Flu Fighters

+ Community Service Project Demonstrates Dramatic Results Possible in Answering Troublesome National Health Questions

STC has earned a reputation for innovative work in public health information technology and early in 2013, CEO Mike Popovich, decided to apply the company's creative capabilities to help solve longstanding health issues. He assembled a small team of volunteers who determined the first public health issue they would address: How could we get more people to get flu shots? A majority of Americans choose not to get vaccinated against flu. Even when flu shots are offered at a company location, at no cost to the employee, only 35-40% of employees, on average, stop by to receive a vaccination.

Having chosen a challenge to tackle, the team dubbed the effort RISE (Reduce Influenza Sickness Experiment). Popovich filled out his team of volunteers, seeking "... some of the smartest people I know." The resulting group came from government, industry, the non-profit sector, academia, and a teenaged winner of an Intel Science Fair prize. He also recruited innovation consultant Dale Dauten to lead the idea generation



process. (You can learn more about the initial group of volunteers at www.RISEflufighters.com under "About.")

The new RISE Flu Fighters team undertook an idea generation program and developed hundreds of ideas. These were winnowed down to a list of 79 ideas to be held for future consideration, then those were narrowed to seven experiments. Six of the experiments moved forward, all of which show promise for increasing awareness and participation in flu vaccination programs.

The experimental teams made progress in creating church-based and airport-based initiatives, an awareness campaign built for social media, and an online app for flu information. Two of the experimentation teams were able to do trials of a new approach to participation in vaccination programs, one working with employers and one with schools.

Whereas most employee and school flu shot campaigns are built around "Don't get sick," the STC experiment switched the emphasis to protecting the office/school, asking for help in creating a No Flu Zone™.

You Didn't Get It From Me™

Using the motto "You Didn't Get It From Me™," the program included displaying posters and distributing stickers (akin to "I Voted" stickers), as well as sending a series of informational emails and providing a flier to be given to all employees/students. In the first test of the program, at STC, 86% of employees joined in and got vaccinated. At the second company to implement the program, 72% got flu shots. Results from two other employers are still coming in, as are results from the school program. Thus far in the school program, one nurse reports having achieved a level above 90% and the other schools appear to be moving toward rates of 70-80% or higher.)

Given this dramatic success, Mike Popovich and STC have decided to make the No Flu Zone™ program available to other organizations and hope to have a broader program available for next year's flu season.



IWeb Advances

STC's IWeb applications are used for population-based IIS solutions. During 2013, STC added key enhancements to this long-standing application to further support the state immunization programs and the providers' immunization workflows.



immsLink

ImmsLink, a new product to STC in 2013, is a full-featured bi-directional interface that allows a provider to log into their state's immunization directory from inside their EMR application.

ImmsLink is integrated into the provider's workflow, allowing two methods of entering immunization information to the registry:

Real time direct entry of the data into the state registry as the provider sees each patient.

Use of the ImmsLink Uploader component that reads the provider's database looking for new immunizations added since the last time the program was run, and then builds HL7 records to transmit to the state registry. This transmission can be set to a nightly, weekly, bi-monthly or monthly schedule, depending on needs.

Depending on how the state registry operates, either upload method eliminates the need for double entries, allowing the provider to stay focused on patient care, not on operating state registry websites. The important distinction is the program reads the EMR database, not the billing database, so the data being sent to the registry is much more complete.

The ImmsLink Reconciler (Downloader) component reads the patient immunizations recorded in the state registry and with one key stroke, the provider is able to download any registry records that are not yet part of a patient's EMR chart, thereby ensuring permanent, complete and accurate records for each patient, both in the EMR chart and at the state registry site.

+ 2D Barcoding

Vaccine labels are just as important as the immune-boosting agents in each vial. Every vaccine label contains information indicating a vaccine's product, lot number, and expiration date. The National Childhood Vaccine Injury Act and American Academy of Pediatrics require that each patient vaccine record contain the product, lot number, and expiration date corresponding to each vaccine a patient receives. Yet, when public health professionals examine vaccine records within IISs, much of the data is either missing or inaccurate. EMR systems are fabulous with robust tools that enable healthcare providers to record patient data quickly and efficiently. However, many EMR systems lack robust tools for documenting and



managing vaccine information, which leads to errors in the EMR system. Those mistakes then travel from the EMRs to the IIS leaving the local and state public health community little help in the event of a vaccine product recall.

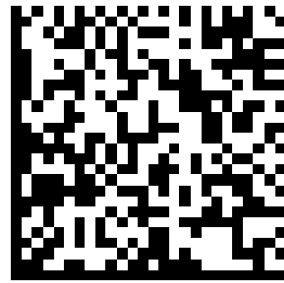
Scanning two-dimensional (2D) barcodes could eventually render manual entry obsolete, thus saving millions of dollars and hours of time – according to a recent study⁷. Together the CDC and RTI International forecasted that 2D barcode scanning, if widely implemented, could save the healthcare community up to \$334 million by the year 2023. More importantly, it could reduce the time it takes physicians and nurses to document immunizations by 36 to 39 seconds per dose.

The 2D barcodes can carry more information than their 1D counterpart. Accordingly the CDC for the past two years has been testing the effectiveness of 2D barcodes that contain the vaccine product, NDC, lot number, and expiration date.



▶▶ **Figure 9. One-dimensional barcode**

In August 2012, the CDC launched a pilot that gave approximately 220 private providers, publically-funded health services, and one pharmacy access to vaccines with 2D barcodes, with twelve states participating. The 2D barcode scanning led to an overall decrease in documentation errors and



▶▶ **Figure 10. Two-dimensional barcode**

offered the potential that facilities could provide increased clinical decision support concerning vaccination.

As a result of the pilot's success, the CDC issued grants to implement 2D barcodes and barcode scanners to healthcare facilities. The most important challenge the states must meet is ensuring that the source information encoded in the barcode reaches the IIS so that healthcare providers can better take advantage of the tools available within the IIS, including better inventory management and increased dose level accountability.

The CDC awarded one of the 2D barcode grants to the State of Mississippi who worked with STC to develop and implement the 2D barcode functionality within IWeb. With the functionality added by STC, providers can easily scan vaccine vials with the 2D barcode and have the data populate quickly within the system. This added functionality will support both inventory management and administered vaccine documentation. While vaccine manufacturers continue to roll out 2D barcodes on vaccine vials, STC will continue to support manual data entry and 1D barcode scans. The hope is that in time all providers will be able to take advantage of the 2D barcodes and interfaces between their EMR and IIS.

7. Prospective cost-benefit analysis of a two-dimensional barcode for vaccine production, clinical documentation, and public health reporting and tracking Alan C. O'Connor, Erin D. Kennedy. RTI International, 3040 Cornwallis Road, P.O. Box 12194, Research Triangle Park, NC 27709, USA. Immunization Services Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, GA 30333, USA.

+ Online VFC Provider Agreements

STC clients continue to expand the online Provider Agreements for the Vaccine for Children (VFC) program. The initial agreements were rolled out in 2012, which included the capability for states to use IWeb to enroll and re-enroll their VFC providers through an online process of filling out and submitting the VFC Provider Agreement. Alaska was the first state to utilize the new online provider enrollment functionality and it has expanded to Washington and Mississippi.

With this enhancement, state public health officials and VFC providers save time and resources by taking the process online. No need to print the eight-page provider agreement for each provider and mail hundreds of pieces of paper across the state! It also

saves and stores the information from year to year, so providers only need to update what has changed the next time they renew their VFC enrollment. Public health officials have found this feature to save hundreds of hours in staff time because they do not have to manually add information from paper into an electronic tracking tool. Users are also able to run completion reports as well.

This enhancement also allows states who use the IWeb vaccine ordering feature to ensure they have signed provider agreements before providers are allowed to order more vaccine. The patient populations the VFC provider serves can also be tracked and verified through the provider enrollment/renewal process. This information can be easily aggregated and then provided to the CDC.

Syndromic Surveillance System Advances

+ AHEDD Best in the Nation

The New Hampshire Department of Health and Human Services (NH DHHS) is a pioneer in public health syndromic surveillance. Their pilot syndromic surveillance system, AHEDD (Automated Hospital Emergency Department Data), through over the counter (OTC) sales data was implemented in 2002. With the implementation of AHEDD, the State has been leading the nation in public health syndromic surveillance. Since 2005, the system has received real-time ED data and analyzed over 160 conditions to support the state public health surveillance and preparedness program.

From day one of this visionary project, STC has partnered with the NH DHHS to implement innovative solutions in syndromic surveillance. In 2013, STC provided consulting services for the NH DHHS in biosurveillance and AHEDD improvements with Abacus Service as the IT service provider. STC provided public health solution recommendations, including ICD-10 transition, a new challenge for public health surveillance. This work helps the NH DHHS and providers in the State to better meet MU requirements and adds great value for improving public health preparedness.

Sentinel Advances

+ New Features and Functionality

The year 2013 was an historic one for STC's Sentinel disease surveillance and management system. The Sentinel User Interface was completely redesigned to be more end-user friendly, responsive, and intuitive. In addition, STC rolled out more new features and functions to Sentinel than ever before. These enhancements continue to make Sentinel a world class, comprehensive disease surveillance and management system.

The Sentinel web-based application is design to support state and local communicable disease reporting activities. Sentinel, along with STC's inter-jurisdictional surveillance system, X-Sentinel, and the Outbreak Management System, are applications designed to be integral components of a statewide disease, bioterrorism, and emergency preparedness system.

The sleek new User Interface allows an end-user to more clearly see the data fields they want to capture. The application's tabular sections follow a logical layout to support disease investigation and reporting. The embedded CDC case reporting forms are integrated into the application. All of these enhancements, along with many other improvements, enable quicker and easier access to patient data.

+ Sentinel Rated as Excellent Functionality

In the spring of 2013, the Public Health Informatics Institute (PHII) conducted an evaluation of the top electronic disease surveillance systems. The CDC Division of Notifiable Disease and Healthcare Information contracted PHII to conduct these evaluations. STC was one of only six systems evaluated. The results were dramatic. STC's Sentinel application, which is categorized by PHII as a specialized system, had several areas of excellence. The evaluation determined that the strongest sections of Sentinel were in the critical areas of Technical

Design, including Technical Design and Architecture; Security and Privacy; and the User Interface. Areas where the Sentinel application was evaluated at over the 90 percentile include: Event Notification and Validation; System Support and Administration; Data Capture; and Data Analysis, Visualization and Reporting. The PHII evaluation, along with client and end-user feedback, confirm the importance of STC and STC's disease reporting and management systems in supporting state and local disease mitigation efforts.

In 2014, STC will continue to work with clients to improve the Sentinel tool. Goals for the year include continuing to evolve the electronic laboratory reporting functionality, finalizing the Influenza-Like Illness (ILI) module, and further enhancing the Tuberculosis (TB) module. STC also will further explore new teaching and training methods to support client and end-user training experiences. STC realizes the importance of initial and continuing education and application training.

+ Cross-state Disease Surveillance in MARC

The Mid-America Regional Council (MARC) serves the Kansas City metropolitan area, across the states of Kansas and Missouri, encompassing 119 cities in nine counties. The surveillance of reportable diseases in a cross-state region such as this has been an immense challenge for public health agencies. STC developed an information system, X-Sentinel, to support MARC in disease and event case management across the state borders. X-Sentinel helps state and regional health agencies share information among multiple health jurisdictions, automates the communication, and standardizes the workflow. In 2013, STC supported MARC in X-Sentinel improvements, including a newly updated rules engine for mapping data from the state electronic disease surveillance systems from both Kansas and Missouri as well as the addition of new GIS maps.

8 STC 2013 Leadership

Executive Team

Michael Popovich – Chief Executive Officer

Todd Watkins – President

Richard A. Camuso – Chief Operating Officer

David Rose – Chief Technology Officer

Public Health Team

Jennifer Simpson – Epidemiology

Janet Balog – Interoperability

Brandy Altstadter – Pharmacy

Erich Daub – Consumer Engagement

Kristina Crane – Provider Services

Deborah Allwes – Public Health

Robert Perry – Health Informatics



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