Framing Discussion At the ImmTech Strategies Summit: Findings from the Web-Based Survey

June 9, 2006

For more information, please contact:
Lisa Kerber, Ph.D.
St. David's Community Health Foundation
(512) 879-6614
Lisa@sdchf.org
www.sdchf.org

TABLE OF CONTENTS

EXECUTIVE SUMMARY

What was the survey's goal?
The survey's goal was to provide a starting point for discussion at the ImmTech Strategies Summit, a two-day summit in June 2006 that will bring stakeholders together to develop strategies for improving immunization information systems (IIS) in Texas.

How was the survey conducted, and how many people completed it?
Ninety-two respondents from across Texas completed the Web-based survey from May 15, 2006 to June 2, 2006. The majority of respondents were invitees to the Summit who received an email asking them to participate in the survey. This survey is not representative in the statistical sense. Each response represents an important view that *any* number of people share.

What immunization information systems do the respondents use?
Eighty-seven percent of respondents reported using ImmTrac either by itself, with a local IIS, or with the Texas Web-based Integrated Client Encounter System (TWICES) (see Table 4).

How do healthcare providers in Texas use immunization information systems?
About 75 percent of respondents reported using their systems primarily for recording and assessing immunization histories for individuals. Almost a third reported using their systems for managing the inventory of vaccines and reminder and recall for patients (see Table 5).

What did the respondents cite as some areas for improvement?

- Timeliness of data entry: The turn-around time for adding consent information, adding new children to the registry, and adding vaccines for children already in the registry should be decreased.
- Making the systems more user-friendly: Simplify the processes for adding new patients to system, correcting inaccurate patient information, and data entry.
- IT and help desk support (see Table 6).

What are some additional enhancements that providers would like to see in the systems?

- Link to Vaccine Adverse Event Reporting System.
- Information on vaccine contraindications.
- Additional data elements such as lead and PKU screening (see Tables 7 and 8).
- Electronic reporting capability through electronic medical record.
- Immunization rate reporting, including geo-mapping (see Table 9).

What can stakeholders in Texas do to increase the systems' utilization and effectiveness and ultimately increase the immunization rate in Texas?

- Work on areas cited as needing improvement.
- Enhance the systems' functionality.
- Improve data sharing and connectivity among the different systems.
- Develop outreach initiatives aimed at parents and providers.
- Develop ways to effectively register newborns and children.
- Train and support providers in private practice and private and public clinics.
- Support legislation that encourages utilization of the systems.

BACKGROUND AND PURPOSE

Immunization Information Systems

By two years of age, over 20 percent of children in the United States typically have seen more than one healthcare provider, resulting in scattered paper medical records.[1] Immunization information systems (IIS) help providers and families by combining immunization information from different sources into a single record and providing official immunization records for school, day dare, and camp entry requirements. Providers of immunizations in Texas use ImmTrac, the state's system developed by the Texas Department of State Health Services, and other local immunization information systems.

The consolidation of immunization information into one reliable source offers several benefits to families, healthcare providers, and society at large. IIS help immunization programs identify populations at high risk for vaccine-preventable diseases and can target interventions and resources efficiently. IIS can remind families when an immunization is due or has been missed. The systems also save money by ensuring that children get only the vaccines they need and improve office efficiency by reducing the time needed to gather and review immunization records. IIS protects the privacy of all users, including children, families, and providers.[2]

The Survey

The survey's main goal was to provide a starting point for discussion at the ImmTech Strategies Summit, a two-day summit that will bring stakeholders together to develop strategies for improving immunization information systems in Texas. The purposes of the survey were to better understand 1) how healthcare providers in Texas use immunization information systems, 2) what enhancements they would like to see in the systems' functionality, 3) and how to increase the systems' utilization and effectiveness to ultimately increase the immunization rate in Texas.

DATA AND METHODOLOGY

The Planning committee for the ImmTech Strategies Summit sponsored the Web-based Zoomerang survey. Representatives of Austin Travis County Health and Human Services, Indigent Care Collaboration, St. David's Community Health Foundation, Texas Children's Hospital, and Texas Department of State Health Services made up the Planning Committee. Staff from St. David's Community Health Foundation constructed the survey with input and feedback from all committee members.

In May 2006 staff from St. David's Community Health Foundation sent emails, along with information about how to register for the summit, to 41 invitees to the ImmTech Strategies Summit, asking them to participate in the online survey. These specific invitees were people who actively use IIS. They included people who work for city and county health departments, school district health departments, private non-profit clinics, private for-profit doctors' offices, clinics, hospitals, and Vaccine for Children providers in Austin and Travis County. The survey was also emailed to about 2,000 members of the Texas Pediatric Society. The Web-based survey

was made available to the public on the St. David's Community Health Foundation's website, and as people registered for the Summit, an email confirming their registration included instructions and a link for completing the survey.

This survey is not representative in the statistical sense. Each response represents an important view that *any* number of people share. The percentages shown in the tables can act as a guide to interpreting the salience of the issues.

Ninety-two respondents completed the survey from May 15, 2006 to June 2, 2006. The survey took about five to ten minutes to complete. Seventy-four percent of respondents reported they were healthcare providers; 38 percent said they were in administrative or managerial positions (Table 1). Among providers, 53 percent said they were doctors, and 34% were nurses (Table 2). Table 3 shows the city where respondents said they were employed.

Table 1. Responsibilities of Survey Respondents, 2006*

Healthcare provider	66	74%
Administrative or managerial	34	38%
Data entry	13	15%
Technical support	9	10%
QAQC of data	1	2%
Billing staff	1	1%
Health educator	1	1%
Patient representative	1	1%
Registry coordinator	1	1%
Teacher, program developer	1	1%

* Sum is greater than 100% because some respondents had multiple responsibilities.

Table 2. Type of Healthcare Provider Among Respondents, 2006

	n	%
Medical doctor	37	53%
Registered nurse	24	34%
Licensed vocational nurse	4	6%
Medical assistant	3	4%
Nurse practitioner	1	1%
Emergency medical technicians	1	1%
Total	70	100%

Table 3. Cities Where Respondents are Employed, 2006

	n	%
Austin	23	25%
Houston	10	11%
San Antonio	7	8%
El Paso	4	4%
Dallas	3	3%
Galveston	3	3%
Lubbock	3	3%
Waco	3	3%
Amarillo	2	2%
Fort Worth	2	2%
Georgetown	2	2%
New Braufels	2	2%
San Angelo	2	2%
San Marcos	2	2%
Abilene	1	1%
Buda	1	1%
Corpus Christi	1	1%
Decatur	1	1%
El Campo	1	1%
Garland	1	1%
Grapevine	1	1%
Harlingen	1	1%
Humble	1	1%
Keller	1	1%
Livingston	1	1%
Mesquite	1	1%
Odessa	1	1%
Pflugerville	1	1%
Plano	1	1%
Sugar Land	1	1%
Tyler	1	1%
Missing	7	8%
Total	92	100%

USING THE SYSTEMS

Eighty-five percent of respondents reported using ImmTrac either by itself, with a local IIS, or with the Texas Web-based Integrated Client Encounter System (TWICES) (Table 4). TWICES maintains immunization history data for children served by public and private clinics, bills Medicaid through the Texas Medicaid and Healthcare Partnership, and reports immunization data to ImmTrac.[3]

Table 4. Use of Specific Immunization Information Systems by Survey Respondents, 2006

	n	%
ImmTrac only	38	41%
ImmTrac and TWICES	28	30%
A local system only	5	5%
ImmTrac and Houston Harris County Immunization Registry	5	5%
ImmTrac and San Antonio Metropolitan Health District system	5	5%
ImmTrac and other local system	3	3%
TWICES only	3	3%
ImmTrac and Tarrant County Immunization Registry	1	1%
Missing	4	4%
Total	92	100%

About 78 percent of respondents reported using their systems primarily for recording and assessing immunization histories for individuals. Almost a third reported using their systems for managing the inventory of vaccines and reminder and recall for patients (Table 5). "Other" responses included "immunization level assessment," the uploading of information to ImmTrac, and the generation of state reports.

Table 5. Ways in Which Primary System is Used Most, 2006*

	n	%
Individual immunization record-keeping	72	78%
Client immunization assessment	69	75%
Forecast next shots due	29	31%
Managing inventory of vaccines	28	30%
Reminder/recall	25	27%
Billing purposes	9	10%
Other	5	5%
Comprehensive Clinic Assessment Software Application (CoCASA)	3	3%

* Sum is greater than 100% because some respondents reported more than one use.

IMPROVING THE SYSTEMS

Table 6 shows the percentage of respondents who agreed or disagreed with certain statements in descending order of people who agreed. Capabilities at the top of the list were most often cited as the systems' strengths. Functions and issues at the bottom of the list and *adding new patients to system* were most often cited as areas that may need improvement.

Table 6. Percentage of Respondents Who Agreed or Disagreed with Following Statements, 2006*

	Disagree	Neutral	Agree
It is easy to print individual immunization records.	3%	7%	90%
It is easy to log on to your system.	7%	15%	78%
It is easy to add new patients to your system.	25%	10%	65%
The system is user-friendly.	8%	29%	63%
It is easy to obtain immunization reports for your clinic or group of clinics	15%	23%	62%
The training you received to use the system was adequate.	13%	25%	61%
Data entry is easy.	16%	28%	56%
Help desk support is readily available.	20%	24%	55%
It is easy to correct inaccurate patient information.	29%	21%	51%
Local IT support for your system is adequate.	23%	30%	48%
Patient immunization information is usually complete and up-to-date.	26%	29%	45%

* Numbers are not shown because they are not necessary to interpret the findings.

Timely Data Entry

Less than half of the respondents agreed that a patient's immunization information is usually complete and up to date. Several respondents, in statements made on the survey, suggested that the turn-around time for adding consent information, adding new children to the registry, and adding vaccines for children already in the registry should be decreased. Delays of 90 days were cited. Many said that decreasing the time it takes to have submitted data entered into ImmTrac is crucial to its success. Suggestions for decreasing the turn-around time included setting timelines for inputting records, "insisting that vaccines administered by *any* public entity be *promptly* entered into the data base," and allowing providers to input the data directly.

IT and Help Desk Support

Forty-eight percent agreed that local IT support is adequate, and 55 percent agreed that help desk support is readily available. One respondent suggested having more customer representatives available to help with ImmTrac because voicemail messages and email responses are often inadequate in solving her issues. A respondent explained that ImmTrac's IT staff has responded well to feedback, and IT Support seems to be improving.

Technical Issues

Ease of Use

Sixty-three percent of people agreed that their primary immunization information system is user-friendly (Table 6). Several respondents gave specific suggestions on how to improve

ImmTrac's ease of use. According to a respondent that uses ImmTrac and TWICES, "ImmTrac could be more user-friendly, such as, when looking up a client record, one should not have to re-enter information again after locating a client in the system. The person entering data has to jump screens, which takes time. The older version rolled over if the person typed in a name for look-up." Currently, the data entry person has to type it again. "The older system let us enter series at one time, going across the screen. Now, it is a single entry for each date." Other suggestions on how to make ImmTrac more user-friendly included:

- Decrease the key strokes necessary for data entry.
- Design touch screens.
- Simplify the consolidation of duplicate patients.
- Simplify the entry of new patients.
- Design an "easy way to correct inaccuracies."
- Make correction of errors possible without deleting all the items that have already been entered.
- Allow documents to be scanned into the registry.
- Offer accurate cross referencing of vaccines such as the new Tdap versus Dta P and Td.
- Design a way to process ImmTrac consents without each provider having to look up children before submitting.
- Do not allow passwords to time out.
- Allow copy and paste functions for dates when entering histories.
- Create a shortcut for data entry when inside the immunization record; the short cut would return to the client search without going back through all of the screens.
- Automatic link from ImmTrac to providers' electronic billing systems.
- Allow providers to enter a new patient as they receive immunization information from the patient and permission from parent. Currently, providers have to continue to double-check to see if the patient has been entered. "It is a waste of our time repeating the same task over and over."
- Make ImmTrac HL-7 compliant and interface it to Epic and other major EMR systems in TECSYS such as JMJ and All Scripts.
- Fix the algorithms so that immunization requirements are properly predicted. Currently, there are a few cases that are inaccurate.
- "The system has not kept up with new immunizations that are not currently under mandate. It would be easier to have slots available for certain shots (ex. Varicella) as the shot comes out, rather than waiting for the mandate. Then, you would not have to send out additional requests or go through the student's cumulative folder."
- Having ImmTrac on a computer network in the office, rather than only on one computer would be beneficial.
- According to respondents, many providers have difficulty submitting information by fax because the fax line is often busy.

Respondents of other systems also had specific suggestions. According to a respondent who uses the Houston-Harris County Immunization Registry, the HHCIR's secure identification card limits the accessibility of the system for more users. According to a TWICES user, the format of the personal shot record in TWICES is not conducive to rapid assessment. The *Forecast Function* report should include all the vaccines to be administered. It should include

Hepatitis A and influenza. Another response cited the need to "allow access to TWICES to look up our own clients."

Data Exchange

Several responses referred to the technology and programming necessary for exchanging data. "When there is a lag because one system doesn't talk to the other, the actual percentage of children who are immunized is skewed or incorrect." Respondents would like programmers to:

- Allow ImmTrac to interface with electronic medical records (EMRs)
- Allow exchange of immunization information across systems such as registries and schools.
- Allow providers to enter new clients as they are seen in their practices.
- Create interfaces with proprietary billing systems such as Medical Manager and allow ImmTrac to synchronize with clinic appointment systems.
- "Create linkages to other states and national registries."

Several respondents spoke of the need for more interconnectivity between ImmTrac and TWICES:

- "ImmTrac and TWICES do not talk to each other."
- TWICES does not allow the data entry person to enter the validation of previous immunizations administered. If ImmTrac were to upload to TWICES, it would save staff members from entering information twice. Because the data is already in the billing system, it would be beneficial if TWICES could interface with the registry. One input would go to all databases. There would be no duplication.
- If TWICES were to load into ImmTrac daily, providers would not have to repeat immunizations, and children would not receive unnecessary costly immunizations.

When asked what local health departments could do to improve the use of immunization information systems, a few respondents emphasized the importance of using only one system: "It would be nice if we all utilized one system!" "Having one registry would make our job so much easier. To have to check two separate systems for every single child immunized is a burden." And "Use ImmTrac, or make sure the data is dumped into ImmTrac."

Schools and Data Sharing

The survey collected the following recommendations related to data sharing among schools and school districts:

- Create a way for school districts to upload their data in bulk to ImmTrac and then encourage school districts to do so.
- "Allow system to extrapolate students to generate the state-mandated reports that school districts have to generate annually. Currently, data entry is required twice, and school districts may not have the resources to double enter."
- "Interface state reports that school districts are required to submit so that we could get all school-aged children entered."

- According to a respondent who uses Region XIII Educational Service Center, "The system currently does not interface with other districts. Students drop out of the system when they move out of the district."

Some respondents noted how valuable the registries were after Hurricanes Katrina and Rita. For example, "Houston-Harris County Immunization Registry was invaluable to us in the school districts as we were able to obtain information on students from Louisiana, thereby avoiding additional vaccines and cost of same."

Quality of the Data

Several respondents believed there should be better monitoring of the data to improve its quality. "Data entry is not double checked for faulty dates of immunizations. Often, invalid doses, duplicate doses are entered." According to one respondent who uses ImmTrac and TWICES, the "shots needed information is inaccurate. It doesn't take into account the exceptions for PCV7, HIB, etc. Also it doesn't include Hepatitis A rules. The recall lists generated are inaccurate, and we have to manually check every child, which eats up a lot of time."

When asked how to achieve the goal of having 85 percent of Texas children enrolled in ImmTrac, one respondent suggested that a first step would be to encourage private providers to keep a TWICES data base for their clinics because "the data entry is easier, the searches are easier, and the immunization records are generally more accurate. The forecast record is printable, and in case the child is behind, includes the acceptable minimum intervals. It includes a vaccine inventory module. Then the private providers would have TWICES upload into ImmTrac." A second step would be to "establish a county-wide registry along the lines of TWICES and ask that the providers send their immunization records to a central location for data entry. The county registry would upload into ImmTrac. The benefit of sending the records to a central location for data entry [may be that] the data entry is more accurate" because the training would be fairly extensive and there would be quality assurance checks done frequently. These processes "would take the burden of data entry away from the private office."

Added Functionality

When users were asked what kinds of added functionality they would like to see in their immunization information systems, a majority said a "link to Vaccine Adverse Event Reporting System" (Table 7).

Table 7. Desired Types of Added Functionality In Primary System Used, 2006*

Link to Vaccine Adverse Event Reporting System (VAERS)	53%
Vaccine Inventory Management Capabilities	44%
Information on vaccine contraindications	43%
CASA	30%
Other	14%
None	14%

* Sum is greater than 100% because some respondents suggested more than one type.

Respondents would also like the system(s) to offer:

- Immunization rates by city, zip code, and county
- More links to other TWICES users
- Individual histories of patients' adverse reactions to vaccine
- Better tracking and alerts for practices
- A printable forecast report that includes recommended and minimum intervals
- Tuberculosis testing results with readings
- A way of documenting if a child has had chicken pox and therefore does not need vaccine
- For children in foster care, a list of the child's chronic conditions
- Status reports, like duplicate record reports, provided by ImmTrac to local health departments
- Automatic and accurate import/export from TWICES
- Ability to delete duplicate records as well as delete duplicate shots within a record
- A monthly summary of each vaccine broken down into "private" or "Vaccines for Children"
- A national registry
- Inclusion of adult immunization records, a lifetime registry

Additional Data Elements

When asked what additional data elements they would like to see included in their systems, about half of the respondents said "lead screening" and "PKU screening" (Table 8). Respondents would also like to have access to this data: personal history of allergic reactions and serious or chronic health problems, most recent hematocrit or hemoglobin, a child's eligibility for Texas Health Steps, a child's tuberculosis testing results and comment section for positives, eligibility for flu vaccine, and Hepatitis B Immune-Globulin (HBIG) doses for patients needing them.

Table 8. Desired Additional Data Elements in Primary System Used, 2006*

Lead screening	48%
PKU screening	46%
Other newborn screening	42%
Asthma screening	24%
Other	14%
None	37%

* Sum is greater than 100% because some respondents suggested more than one element.

Making ImmTrac More Helpful to Organizations Submitting Data

When respondents were asked specifically about how to make ImmTrac more helpful to their organizations, 64 percent said "electronic reporting capability through electronic medical records," and 62 percent would like to see "immunization rate reports" (Table 9).

Table 9. Desired Capabilities that ImmTrac Could Offer to Make it More Helpful to Provider Organizations, 2006*

Electronic reporting capability through electronic medical records	64%
Immunization rate reports	62%
Geo-mapping capability to assess immunization rates by area	54%
Schedules for school-required immunizations	49%
Inventory control	41%
Facilitation of data entry	13%

* Sum is greater than 100% because some respondents suggested more than one improvement.

Other ideas to make ImmTrac more helpful to organizations included:

- Ability to search by county with only *date of birth* and *sex of patient*
- Simplified look-up codes for vaccine types
- An easier way to add new patients
- Ability to enter lot numbers once for use in the pull-down menu
- Ability to enter more than five immunizations at one time
- Quicker turnaround time for receiving reports
- Reports produced by ImmTrac that would allow school nurses to determine how many children at individual schools need immunizations

OUTREACH, REGISTRATION, AND TRAINING

Many respondents suggested improvements in outreach and training. When asked what local health departments could do to improve the use of IIS, several respondents cited the need to better promote the benefits of the system to increase enrollment and utilization. One response suggested "go from a passive outreach model to a proactive model," and another said "take a leadership role in fostering use of this registry." One respondent emphasized the need for "more communication between local health departments."

Increasing Awareness among Parents

A general media campaign could make parents more aware of registries and their benefits. Parents must be convinced that it is safe and confidential. Awareness campaigns may be especially beneficial during prenatal and postpartum maternal visits. Outreach to parents can emphasize the benefits of the reminder/recall feature. A public service announcement could refer to experiences of Katrina and Rita evacuees and how the registries help to ensure that children will not need to be re-immunized should the parents lose their records. Another idea

was to include the enrollment forms with the pamphlets used at health fairs so that parents can sign and send or fax them on their own.

Improving Private Providers' Participation

Several respondents made suggestions for improving the participation of private providers:

- Collaborate with Texas Pediatric Society to mobilize pediatricians to participate in ImmTrac.
- Make the programs more accessible to private doctors' offices.
- Have representatives travel and explain how to use systems.
- Standardize training for new users.
- Offer in-person training.
- Educate medical office staff about the importance of ImmTrac.
- Encourage providers to assess vaccine records at all visits—sick or well.

Registration and Consent

Respondents offered these suggestions for improving the registration process and increasing participation:

- "Have everyone sign on at birth."
- Pre-register all newborns while they are still in the birthing centers.
- "Fix the birth registration problems at the major birthing hospitals."
- Register and update at each check-up.
- Allow nurses in private offices to enroll patients when a child is not already in the database.
- Continue school data entry. School nurses could get ImmTrac forms completed.
- When parents apply for Medicaid, have them sign consent forms and register.
- Send consent forms to all children five and under in Texas so that valuable clinic time is not taken up.

One provider explained that obtaining "consent from parents when a child is not in the system is difficult." Also, the "return rate for the consent form that we have to mail out for parents to sign is low."

Training

Several of the respondents cited the need for local health departments to offer additional initial training on using the system(s) as well as ongoing technical assistance and support for questions and problems. Some respondents provided specific suggestions of in-service days or a quarterly teaching session. Another respondent suggested that training school nurses on how to access the databases would help prevent them from calling the city or state health departments for assistance. One respondent noted that "the importance of record keeping as well as administering immunizations" should be emphasized within local health departments. Specific topics covered at trainings for ImmTrac should include information on how users must first

screen records for a person's registry status, how to enter data, and how users must be consistent in naming so that the number of duplicates decreases.

MAKING EFFECTIVE POLICIES

Many respondents spoke of regulations and law. Several respondents stressed the importance of passing legislation so that parents must "opt out" rather than "opt in." Many suggested that all public and private providers of children's vaccines be required to participate in ImmTrac. Someone believed Medicaid providers specifically should be required to use ImmTrac. If law were to mandate participation, some suggested penalties for organizations who did not comply. Others suggested incentives to motivate organizations to use ImmTrac. One respondent suggested requiring schools, preschools, and daycares to enter immunization data for all of their children.

Other suggestions included eliminating restrictions for Vaccines for Children (VFC) and making all children eligible. Someone suggested supporting legislation that would make it easier for records to be sent. Several respondents wanted the State to provide funding for data entry at their hospitals or clinics.

THE SUMMIT

The findings described in this paper can contribute to discussion at the ImmTech Strategies Summit in Austin, June 12th-13th, 2006. The goal of the Summit is to facilitate discussion, collaboration and commitment among statewide immunization stakeholders and define steps needed to improve current immunization information systems. The thoughtful and detailed responses offered by survey respondents and presented in this paper can contribute to the breakout sessions, which will focus on key programmatic and technical issues, and the roundtable discussions, which will result in recommendations and strategies for strengthening IIS connectivity in Texas.

---

[1] "Welcome to Immunization Information Systems." National Immunization Program, Centers for Disease Control. Available: http://www.cdc.gov/nip/registry/Default.htm. June 2, 2006.
[2] "What are IIS?" National Immunization Program, Centers for Disease Control. Available: http://www.cdc.gov/nip/registry/what_iis.htm#support. June 2, 2006.
[3] Texas Department of State Health Services, Disease Prevention and Intervention Section, *Annual Report on How to Increase Immunization Rates in Texas*, September 30, 2004. Available: http://www.dshs.state.tx.us/immunize/docs/2004_Ann_Rept.pdf. June 5, 2006.