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PUBLIC HEALTH INFORMATION NETWORK
CONNECTING PUBLIC HEALTH

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From the Director


David L. Lakey, M.D.

Improving public health in Texas is a partnership between the state and local health departments. There is no better example of that partnership than the collaboration on the Texas Public Health Information Network and the NEDSS Base System, and the credit for these projects goes to my staff and our local health partners.

In October, Texas introduced the Texas Public Health Information Network, or "TxPHIN." This new user friendly online tool will be linked to many public health operations and preparedness support applications. The state envisions TxPHIN as the one-stop shop for all public health technology needs.

Features available through TxPHIN include a newer version of the Health Alert Network, instant messaging and an iPhone® application. Other parts of the new network include functions, such as an online school absenteeism tracker and syndromic surveillance.

Another successful collaboration between state and local public health officials is the National Electronic Disease Surveillance System (NEDSS). The Texas Department of State Health Services implemented the CDC-provided NEDSS Base System (NBS) for statewide web-based reportable disease surveillance in May 2004. This system targets 65 state participating local health departments and 8 regional public health offices and provides them 24/7 accessibility. The NEDSS Base System represents a dramatic paradigm shift toward a person-based information system that facilitates data-driven decisions at the local, regional and state level.

The historical support and long-term financial investment in the NEDSS Base System by CDC's National Center for Public Health Informatics has proven to be a wise and cost-effective approach. We look forward to the continued partnership with CDC and our local public health partners on this system and the many other opportunities to improve public health in Texas.

David L. Lakey, M.D.
Commissioner, Texas Department of State Health Services

CDC Public Health Informatics

In and around PHIN

- Los Angeles County has developed an Optical Character Recognition application that will allow them to gather, process, research, and report on data efficiently and effectively. This application will be used to track participants of H1N1 vaccination program, where data will be fed into the Countermeasure and Response Administration (CRA) system for quick reporting and decision making.

PHIN Headquarters, Atlanta, GA

- Florida and Texas have formed a partnership for surge capacity in the event of Pan Flu, utilizing electronic data exchange. The Florida Integration team provided knowledge transfer to the Texas team in building a data integration architecture for its Labware System. This system is able to support bi-directional exchange of electronic orders and results, between two states or between a state and the CDC, using the Florida PHINMS Route-not-Read (RnR) hub. Bi-directional laboratory ordering and reporting under surge conditions creates the necessary redundancy to ensure timely surveillance when it is most needed.

- Michigan (and neighboring Ontario) started the Great Lakes Border Health Initiative (GLBHI), an excellent example of cross-border collaboration. GLBHI aims to formalize and strengthen relationships between public health and emergency preparedness agencies responsible for communicable disease tracking, control and response. Participants to date include Michigan, Ontario, Minnesota, New York, Indiana, Pennsylvania, Ohio and Wisconsin.

- Missouri has successfully collaborated across their IT and programmatic divisions (along with other stakeholders) to develop a new reportable disease surveillance system (WebSurv). This new web-based system replaces the legacy client-server system (MOHSIS) that has been in place for many years. WebSurv was developed to include several stand-alone systems being used by the Missouri Department of Health and Senior Services including TB Infection and Disease reporting systems. WebSurv is more comprehensive in data collection and much easier to access and use across the state.

In and around *(continued)*

- The International Society for Disease Surveillance (ISDS) is planning the launch of a community of practice for users of the Distribute system. The community will focus on both implementation issues and promising practices for the use of emergency department (ED) influenza like illness (ILI) data obtained through Distribute. The focus will support the project's goals to improve the timeliness, availability and accessibility of summarized ED surveillance data related to H1N1 in the US.

- H1N1 clinical and case reporting forms have been uploaded to the Epi Info collaboration site for use by the community. Forms can be customized to fit user needs.

- The Kick-off Meeting for the new Public Health Informatics Centers of Excellence was held Thursday, October 29th. The CoE Directors became familiar with each other's upcoming activities, found areas of collaboration and synergy, and identified specific areas that CDC leadership can support their efforts to develop translational projects making health impacts. The Centers of Excellence are:
  -Harvard Pilgrim Health Care, Boston
  -Indiana University, Indianapolis
  -University of Pittsburgh, Pittsburg
  -University of Utah, Salt Lake City

The Value of the NEDSS Base System (NBS) in Texas during H1N1

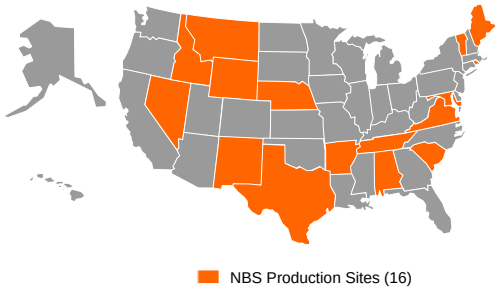
by Behnoosh Momin

On May 5th 2009, the first U.S. citizen died of H1N1 or "swine flu" as it was previously called. The person was a relatively young woman with underlying chronic health conditions, living in the Rio Grande Valley of Texas near the Gulf of Mexico. Texas had become "ground zero" for the outbreak that threatened to turn into a global pandemic. What the public needed was assurance that they were being protected.

During this time, the Texas State Department of Health Services' surveillance branch had created a series of flu-specific surveillance questions for its local health departments. The questions allowed the departments to capture information about the people sick with the H1N1 influenza. Using the NEDSS Base System (NBS), Texas was able to quickly and effectively protect the people living in or visiting its state, and to report cases to the CDC in a timely manner.

An electronic disease surveillance system, the NBS allows state health departments to report infectious diseases to CDC and helps state and local public health manage their disease investigations and patient records. Data collected and stored in the 16 NBS state installations facilitate the rapid investigation of community health problems and health hazards while helping the CDC maintain an effective national disease surveillance system.

U.S. Map of NBS Production Sites



The ability of the Texas DSHS to quickly create its H1N1-specific questions to accommodate reporting of influenza cases demonstrated the flexibility and responsiveness of the NBS to rapidly changing public health situations. This adaptability extended across more than just Texas' 254 counties. Describing the ease with which the state health department surveillance team configured the NBS to meet the challenge, Doug Hamaker, NEDSS Coordinator for the Texas SDHS said, "Within hours of Texas having the system configured, and before any of the other 15 NBS states had a swine flu case confirmed and reported, we had shared the work we had done using the NBS with the rest of the NBS user community."

[1] The City of Houston jurisdiction is the only one currently outside the NBS.

The Value of the NEDSS Base System (NBS) in Texas during H1N1 *(continued)*

Value of NBS in Texas

Texas NEDSS Team: Doug Hamaker: Coordinator, Peter Varnell: Technical Lead, Pamela Stuart: User Services Lead

The NBS has provided the state of Texas with access to data repositories that are no longer limited to a small number of resources at a central location. Epidemiologists now have data access that facilitates data-driven decisions at the local, regional and state levels. The architecture of the system has made it possible for Texas to develop in less than 48 hours the web template for reporting H1N1 cases. This template served as a model for other states using the NBS so they could immediately begin reporting H1N1 cases to CDC.

NBS as a cost-effective approach for Texas

The NBS has proved to be much more cost effective for the state of Texas as a state purchased vendor provided solution would be significantly more expensive than the NBS. Purchasing a product would also run the risk of deviation from national standards and risk loss of vendor support if the product is not profitable.

NBS as a state-wide tool

The NBS allows for consistent availability of data from a single, centralized installation to all approved public health partners. The NBS, as a tool, is also written to support standardized business practices for the state of Texas as well as other states across the nation. Successful business practices include aggregation and documentation of case information, communication, case definitions and workload metrics.

CDC AND NCPHI support

NEDSS Coordinator, Doug Hamaker, along with his team believes that "teaming with NCPHI in terms of guidance and support of the NBS is a very win-win collaboration. The NBS is a cost effective solution for both the state of Texas and the CDC, thus providing for an all around good stewardship of federal funds. Plus, the NBS has the advantage of positioning our State on the leading edge of CDC-driven technologies, methods, and practices." The success of the NBS within any one state has a multiplier effect across the nation, since the 16 states using the NBS make it one of the most widely used "PHIN" systems across the nation.

The Value of the NEDSS Base System (NBS) in Texas during H1N1 *(continued)*

"I look forward to the continued partnership across the states using the NBS. The ability to share NBS resources and customizations with other States gives great credit to the vision the CDC has strived to create," states Doug. He further adds, "the CSC NEDSS team has become invaluable in terms of their ability to provide technology to address the core business needs of our public health case surveillance efforts. Their efforts have greatly benefited us here in Texas, but the CDC model as exemplified by the NBS has demonstrated that the benefits to one state are simultaneously shared across 15 other NBS states!"

A Novel Virus Leads to a Novel Partnership

by Rick Jones & Lisa Williams

Recently, the CDC entered into a partnership with the International Society for Disease Surveillance (ISDS) and the Public Health Informatics Institute (PHII) that focuses on enhancing a surveillance tool that was developed by ISDS in 2006. The system is called "Distribute" and the originating participants envisioned a tool that would help them understand how prevalent influenza-like illness (ILI), or "flu", is in their respective communities. It is estimated that influenza claims 36,000 lives each year and the Distribute tool can alert local public health authorities to the presence of the flu virus that causes those deaths.

The intention of this project is to extend the collection of data beyond the original eleven public health jurisdictions that initiated the project and solicit involvement from a significant majority of the US states and territories. As the information is gathered, it is visualized in the form of an epi-curve on the Distribute website. The group is also leveraging relationships with the National Association of County and City Health Officials (NACCHO), the Association for State and Territorial Health Officials (ASTHO), and the Council of State Territorial Epidemiologists (CSTE) to enhance collaboration and communication across jurisdictions.

Many public health jurisdictions already collect syndromic surveillance data originating in local emergency departments in order to have visibility of ILI in their area. A unique feature of the Distribute project, is that CDC and its public health partners can provision data in a collaborative space beyond the CDC firewall to enable decision-making at various levels. The visualizations that reside on the website enable the user to see how the disease is progressing in neighboring communities. As more public health jurisdictions begin submitting their data to the CDC and ISDS, the data will represent a larger percentage of the US population and can provide support for critical decision making.

Enabling participation

The project is composed of two key elements: recruiting and technical oversight. The recruiting activity is ongoing and has been spearheaded by the CDC and ISDS. Both partners have been reaching out directly to public health jurisdictions to facilitate the acquisition of their data and develop a more robust tool for surveillance. As of this writing, 18 public health jurisdictions are contributing to the project with many more in progress. The next phase of recruiting has begun and larger metro public health departments are now being solicited to get involved. The technical assistance team is leveraging a suite of technologies that address specific issues of data exchange which are based on lessons learned from the Distribute pilot and the BioSense program.

A Novel Virus Leads to a Novel Partnership

(continued)

Working through challenges

Understanding the value of this project is easy, but committing the resources to working with the partnership presents a separate challenge. In order to overcome those challenges CDC has granted the 62 Public Health Emergency Response (PHER) grantees permission to use their grant funds to accommodate the needs of the project (hire staff, purchase equipment, etc). Technical assistance remains available and CDC has granted the partnership permission to deploy CDC informatics experts to the field where needed. Their purpose will be to provide onsite technical consultation for the provisioning of data to the collaborative workspace.

Upcoming issues of PHINews will provide further updates on the progress of the project. You may also visit http://www.syndromic.org/ to learn more.

New Hampshire: A Small State Making Big Progress

by Claudia Vousden and Brook Dupee

Christie Vu & Danielle Kahn, CDC's National Center for Public Health Informatics with Brook Dupee, Chief, DHHS Bureau of Public Health Informatics

Public Health Information Network (PHIN) Certification supports development and implementation of applications and information systems and helps ensure the secure and efficient exchange of public health data. As a small and predominantly rural state, New Hampshire is experiencing noteworthy progress toward establishing interoperable systems that support both routine public health activities and emergency preparedness and response.

New Hampshire maintains Communicator!NXT, a web-based system that enables direct alerting with dissemination of thousands of phone messages, emails, faxes, and pager prompts in a matter of minutes. Communicator!NXT is part of the larger public health information sharing system known as the Health Alert Network (HAN). In June 2009, New Hampshire became the third state to meet the PHIN requirements and achieve certification for direct alerting.

Nothing good happens in the absence of good people, and Brook Dupee, Chief, Bureau of Public Health Informatics, New Hampshire Department of Health and Human Services (DHHS), attributes their success, at least in part, to the support of senior state officials and an inclusive approach that reaches across state agencies as well as public health programs. "Smaller states need to look for creative ways to manage public health IT projects, especially during economically challenging times" said Dupee. "In New Hampshire, we were able to successfully redefine our working relationship with the state's IT agency, and as a result, resources are now focused on high value PHIN projects."

For direct alerting, Denise Krol, HAN Coordinator at DHHS, and key staff of the New Hampshire Department of Information Technology (DoIT) formed the core of a multi-disciplinary team of public health and IT experts. Ms. Krol developed scenarios that allowed testing of all modes of communication – email, fax, phone and pager. The team worked with the Centers for Disease Control and Prevention (CDC) subject matter experts for months on this project.

New Hampshire: A Small State Making Big Progress *(continued)*

In the official notice of certification, PHIN Certification team lead, Mark Winarsky, wrote that this achievement "demonstrates New Hampshire's commitment to implement PHIN standards and practices that improve your overall capacity to exchange electronic public health information across jurisdictional lines, a benefit during both emergency and day-to-day operations."

Denise Krol, DHHS HAN Coordinator, and Danielle Kahn, CDC's National Center for Public Health Informatics

The time spent to become certified and improve system performance has paid off in real-life events. During the spring 2009 emergence of H1N1 influenza, 14 HAN messages were sent in a two-week period to thousands of physicians and other health care providers, public health partners, and responders throughout the state. This record number of messages disseminated within such a short time frame helped recipients stay informed of the constantly changing recommendations for identification, treatment, and control of the H1N1 outbreak.

While happy with their third-in-the nation certification and the success of getting messages out about H1N1, neither Ms. Krol nor the DoIT team are slowing down in their quest to make communication smoother and more readily accessible to New Hampshire's public health community. The state is also on track for certification in Varicella and TB case notification by the end of 2009.

Open Conversations with AMIA 10x10 Graduates: How has the program benefitted you?

By Marshal Quin

In the Fall issue of last year's *PHINews,* we ran an article titled "Wanted: Public Health Informaticians." In it we described the collaboration between the American Medical Informatics Association (AMIA) 10x10 program and our External Workforce Development team to address the growing need for informaticians in public health. The 10x10 goal is to train 10,000 health professionals in informatics by the end of 2010 through an online certificate program. The Program's curriculum targets professionals at state or local public health agencies and aims to give participants a general understanding of the challenges and unlimited growth possibilities in public health informatics. The AMIA course takes about 5 hours a week for up to 12 weeks. A variety of public health experts with different job roles and different levels of education have completed the certificate and found great returns from the Program. In addition, the online format has been lauded as more accommodating to participants' hectic schedules.

Graduates have gained many beneficial resources from the course through networking with other public health professionals to the actual study materials, such as textbooks, articles, and online resources. Kevin Stevens, epidemiologist at the Marion County Health Department, works on a CDC-funded Health Information Exchange project with the Regenstrief Institute and he…

Kevin Stevens, Epidemiologist, Marion County Health Department

"frequently refers to his text book and course material in order to communicate with the medical informatics staff."

Dr. Sheree Poitier, the Area Medical Director in the Los Angeles County Public Health Department, is implementing their Picture Archive & Communication Systems (PACS). Dr. Poitier identified how helpful the knowledge gained from the Program was to her as she worked on replacing the current system of capturing X-rays (standard plates/films) with the new PACS digital system that captures and stores X-ray images digitally. She credits the AMIA program with providing an…

Dr. Sheree Poitier, Area Medical Director, LA County

"understanding of how to approach the problem and acquire the language of the field to communicate with the 'big boys' in the field."

Open Conversations with AMIA 10x10 Graduates: How has the program benefitted you? *(continued)*

PACS can now store literally millions of images that are displayed on monitors, instead of the old fashioned View Boards typically seen at the doctor's office. Dr. Poitier recommends that anyone considering the 10x10 program in the future should have a project that they can directly apply the learning towards.

Participants contacted for this update shared future plans to take courses and get more involved in public health informatics. Kevin Stevens was accepted to the University of Illinois at Chicago (UIC) Public Health Informatics Certificate program and will begin in the Spring of 2010. Yukiko Yoneoka is a Data Quality Analyst for the Utah Statewide Immunization Information System (USIIS) and believes that, "developing accurate data linkage algorithms and de-duplication systems is very critical for the future. Not very many people are aware of the problem yet."

Yukiko also supported attendance at the AMIA annual conference, as health care professionals brought real examples and experiences to the conference that provided greater depth to her AMIA informatics education.

Feedback from such well qualified professionals is a great endorsement to anyone considering the AMIA 10x10 program. If you are also thinking about the Program and would like more information, please visit, http://www.amia.org/10x10.

PHLIP Proves That Less Time on Data Management Means More Time for Public Health

by Behnoosh Momin

With its inception in 2006, the Public Health Laboratory Interoperability Project (PHLIP) began as a collaborative messaging and vocabulary project between the Association of Public Health Laboratories (APHL), CDC and seven state public health labs. The purpose of the project is to enable standardized electronic exchange of laboratory data, primarily focusing on nationally notifiable diseases. The PHLIP community has developed the initial framework for vastly improved data exchange and includes three key pieces: harmonization of vocabulary and messaging guides, implementation of production level messages, and building collaboration.

Harmonization of vocabulary and messaging guides

In an effort to harmonize vocabulary and messaging guides, seven states joined forces with representatives from CDC's Coordinating Center for Infectious Diseases, and created a centralized category sheet which includes all influenza tests. Their goal was to standardize the tests with common names and apply standard codes. Three state public health laboratories sent the first set of HL7 Influenza Laboratory results to CDC the week of March 31, 2008. Data received from the states were used to analyze current flu strains to support development of the flu vaccine. This represents a major accomplishment in standards-based laboratory data exchange utilizing PHIN standards and infrastructure. The CDC Influenza Division is enthusiastic to have more states utilize the PHLIP framework to send their surveillance data via HL7.

Implementation of production level messages and building collaboration

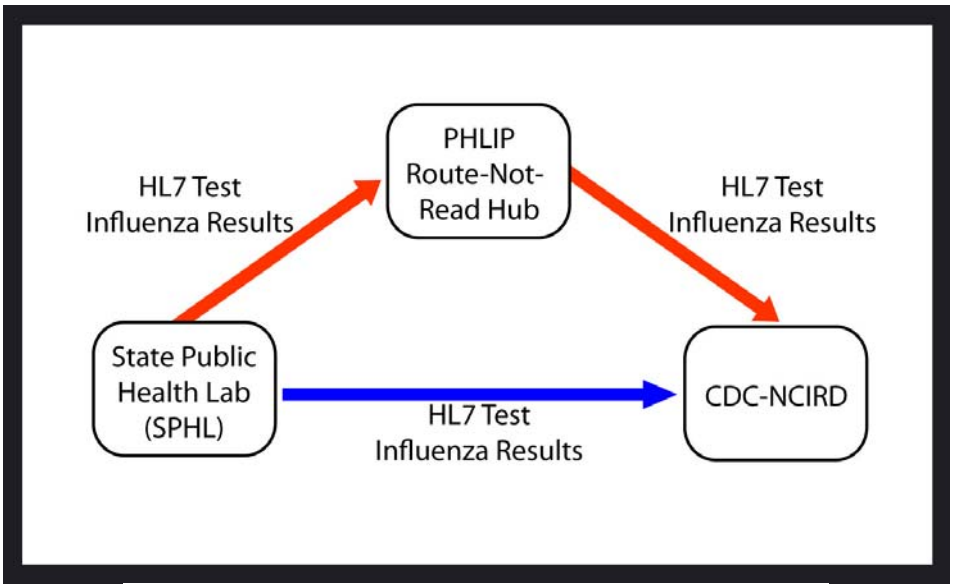
CDC has played a key role in the implementation of production level messages. Specific areas of CDC support include the use of various PHIN Messaging and Vocabulary applications such as PHIN MS, Data and Message Brokering (DMB), Secure Data Network (SDN), and PHIN Vocabulary Access and Distribution System (VADS). The final key piece to the project is to be able to share what was learned with other national organizations and standards efforts. Members of the Vocabulary and Messaging Community of Practice (CoP) and the Laboratory Messaging CoP have made contributions to PHLIP by exchanging lessons learned regarding the standards needed to send information electronically. Currently, fifteen influenza agents have been standardized and standard codes are in process. Four of the seven pilot states are in production. Additionally, there are six states in testing with the CDC, and twelve other states are in development.

PHLIP Proves That Less Time on Data Management Means More Time for Public Health *(continued)*

Project Impact

The PHLIP project has had a significant impact on public health by:

- reducing the time required to identify an outbreak or terrorist event
- improving data sources for active surveillance
- supporting continuity of operations and surge capacity to support public health in impacted areas, and providing specific influenza data for analysis of flu strains to support the development of seasonal flu vaccines
- utilizing expertise across the public health community to develop shared solutions



States can send data using the direct send route or the Route-not-Read (RnR) hubs. As the network continues to grow, the RnR hubs become important elements to decrease the complexities associated with point-to-point messaging.

PHLIP has also allowed for development of a collaborative framework to solve current and future public health informatics challenges. APHL and CDC will facilitate more rapid adoption of PHLIP and PHIN standards in subsequent states. PHLIP represents a tangible realization of the PHIN standards for laboratory data exchange.

PHLIP Proves That Less Time on Data Management Means More Time for Public Health *(continued)*

Long term goals for PHLIP include involvement of fifty states and sixty nationally notifiable diseases; standard electronic messages; bidirectional data exchange; a shared library of harmonized test and result codes; and regional routers that provide inter- and intra- network connectivity.

Although its impact has been observed, PHLIP encounters several challenges similar to other applications. High costs associated with developing systems or enhancing existing systems to meet standard requirements have proved to be of great concern. Variations in local, state and national security and privacy regulations and an evolving infrastructure continue to pose challenges. Despite the obstacles, the PHLIP team continues to develop long term goals to include all fifty states and standardize electronic bi-directional laboratory data exchange to better assist the public health community.

PHINews **Staff**

Editor:
Nicole Fehrenbach

Managing editor:
Lourdes Martinez-Cox

Graphic support:
Adam Arthur

Staff writers:
Rick Jones
Behnoosh Momin
Marshall Quin
Claudia Vousden
Lisa Williams

Contributing writer:
Brook Dupee
David Lakey

Publisher:
NCPHI's Division of Alliance Management and Consultation (DAMC)

For more information, please contact:
PHIN@cdc.gov

CDC Reorganization: Changes to Support Public Health

By Lisa Williams

"There is nothing wrong with change, if it is in the right direction"
-Winston Churchill

Walter Harris, MBA, Chief Management Official and Acting Deputy Director for Informatics at the CDC National Center for Public Health Informatics (NCPHI), took part in a very candid conversation regarding the impending changes for NCPHI, how these changes will affect partnerships and collaboration, and moving forward, what this means for Informatics at CDC.

Mr. Harris began the conversation by rehashing a couple of key points, which tie into the vision that CDC's Director, Dr. Thomas Frieden has for the future of CDC. The two key points- strengthening partnerships (in particular our ability to support state and local public health) and establishing a stronger presence in informatics and surveillance (both internally and externally), doing so will place CDC in a position to successfully move toward the end goal of increasing agency's effectiveness in public health. According to Mr. Harris, one of the primary goals of the re alignment is to "establish fewer layers within the agency." Mr. Harris went on to say, "as a result (of providing fewer layers) we can improve state and local support, by providing health and information services that properly allow them to do their mission of protecting the public's health. This is the primary driver for the re organization of the agency."

"Re organization efforts for informatics, is focused on developing programs and systems that provide accurate and timely data. The tools and systems should be developed in a way that reflects the needs of our customers. We should also develop systems and tools that will fully support CDC's ability to the public with measurable outcomes". Mr. Harris added. As the conversation continued, themes concurrent to the discussion focused on the collaborative process, strengthening partnerships, and providing transparency.

Walter Harris, MBA, Chief Management Official and Acting Deputy Director, National Center for Public Health Informatics

Mr. Harris has had extensive experience with both private and federal organizational changes. He mentioned that the both processes for change run in parallel with continuity of operations, and that private and federal employees embrace change in similar ways. Change is often uncomfortable, but is sometime necessary to fulfill the mission, vision and goals of an organization. As we move forward in restructuring Informatics, it is important to maintain our core mission of protecting our nation's health, enhance and establish partnerships, create a stronger presence in informatics and continue to focus on ways to fortify collaboration and transparency.