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The COE In Public Health Informatics

Introduction by Marshall Quin

In this issue of PHINews, the following article highlights the Centers Of Excellence (COE) in Public Health Informatics. CDC began the COE program in 2005 to initiate research for new strategies and tools in Public Health Informatics. Each “center of excellence” is funded for five years to conduct two projects that enhance health care information management and improve the detection of and response to emerging public health alerts. The study and practice of public health informatics translates measurable public health results to promote health and prevent diseases, injuries or disabilities. Each center of excellence will conduct two new projects that support national priorities in informatics, and support real-time bio-surveillance for potential health threats through immediate access to data from hospitals and health care systems in major metropolitan areas across the nation. This issue of PHINews reviews the projects at Harvard and following issues this year will feature the other COEs: Indiana University, the University of Pittsburgh, and the University of Utah. For further information about the Center program contact: E. Lee Husting, Ph.D., M.P.H. Scientific Program Officer- Extramural at: eih8@cdc.gov.



Increasing the *effective engagement* of a broad range of stakeholders—consumers, clinicians, provider organizations and public health agencies—in public health surveillance and response to chronic disease is our top goal within the Public Health Informatics Center of Excellence (phiconnect.org) at the Harvard Pilgrim Health Care Institute and Children’s Hospital Boston. We are using two main

strategies to achieve this goal. The first strategy is consumer-facing and the second is provider-facing. We are weaving our strategies together around a shared technology that supports real time temporal and spatial graphing and benchmarking (or contextualization) of different streams of health information. Our use case is diabetes given the enormous toll this disease is taking on individuals and society.

*By Richard Platt, MD, MS
Kenneth D. Mandl, MD, MPH*

Our first, consumer-centered project involves engaging a diffuse community of consumers in public health reporting and cohort research about diabetes through connecting them to a newly engineered system that marries a personally controlled health record platform with an online social networking platform (PCHR/SN). Consumers will connect to and use the PCHR/SN to share information about their health, beliefs, behaviors and experiences. The PCHR/SN provides a

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Partnerships and Collaboration In Action: A deeper look into the Florida/Texas collaboration

By Lisa Williams, MPH

In the fall 2009 issue of PHINews, the partnership between Florida and Texas for surge capacity utilizing electronic data exchanged was highlighted. The Florida Integration team provided the foundation and the knowledge to assist Texas in effectively building data integration architecture for its Lab Ware System. This article will take a deeper look into the people involved, the process, the partnership, and plans for the future.

The crux of this partnership lies within PHLIP (Public Health Laboratory Interoperability Project). PHLIP provided the message guides, the vocabulary harmonization, the influenza workbook and encoding guideline and use cases that made it possible for Florida and Texas to achieve surge capacity electronic data exchange. The need for surge capacity is emphasized as one of the goals of PHLIP. To help fill this need, the Pan Flu grant Electronic Laboratory Data Exchange (ELDE) was initiated. Both Florida and Texas applied individually, but stated in both project narratives that the intent was to collaborate on this project. The collaboration was welcomed by Robin

Lusk, BA, SCT(ASCP)/AMIA, Florida Bureau of Laboratories Defense Preparedness Informatics Specialist and Project Director for this grant funded effort. Robin spoke with Grace Kubin, PhD, Emergency Preparedness Branch Manager, Laboratory Services Section, Texas Department of Health) and together they surmised that if each state had an Elec-



Grace Kubin, PhD, Texas Department of Health

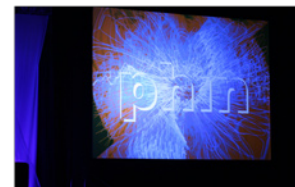
tronic Laboratory Ordering (ELO) and an Electronic Laboratory Reporting (ELR) trading partner their chance of receiving the grant award would be improved; indeed, they were correct. Robin enhanced the merger by bringing Florida's Data Integration Team into play.

Both Florida's and Texas' state public health labora-

tory (SPHL) made use of a commercial-off-the-shelf (COTS) laboratory information management system (LIMS) called Lab Ware. Together, Florida and Texas worked with the vendor to develop a single solution surge capacity model within the LIMS that worked for both states. This development steered the vendor away from their existing business model of high client-customization and instead made way for the adoption and incorporation of national PHIN-compliant PHLIP standards.

The original plan consisted of the Florida Integration Team agreeing to perform a transfer of knowledge to Texas in an effort to allow Texas to host their own Data Integration Broker engine, rather than relying entirely on Florida's Data Integration Broker engine for all HL7 message management. This process allowed Texas to function independent of Florida for all of its Electronic Laboratory Data Exchange (ELDE).

Eduardo "Eddie" Gonzalez Loumiet, MBA PMP, Data Integration Team, Florida Department of Health, emphasized that there was "lots of communication during this



Need fact sheets?
Go to: <http://www.cdc.gov/phin/resources/phin-facts.html>

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The COE In Public Health Informatics (cont)



safety bubble of sorts for the SN, extending to its use the privacy, safety and data storage protections developed for the PCHR. One challenge in doing this is to maintain the appeal and authenticity of the SN— which provides a rich forum for health information exchange and social support around diabetes—while not stifling community ownership of the forum, and the type of rich engagement and communication from which so much can be learned. As with other chronic disease, public health research about diabetes is challenged around consolidating clinically-sourced information and patient reports about health behaviors, management, symptoms and problems. The PCHR/SN may help in this area. Using this unique tool, consumers can do what they do naturally... communicate about their disease. By formalizing data structures within the system, these exchanges can be harnessed for feedback to consumers individually and collectively and used to support population level research.

By actively collaborating with a large and dynamic diabetes social network, the project has opened a door to a new

model of public health research that involves connecting with a diverse community of consumers through a *citizen surveillance model*. Aggregation and processing of information collected through this model and its meaningful feedback to those consumers takes the shape of a system we call the “RiskScape.” Building on the highly successful HealthMap project (www.healthmap.org),



Richard Platt MD, MS (left), Kenneth D. Mandl MD, MPH (right)

directed out of Children’s Hospital Boston, RiskScape is a platform for aggregating and graphically displaying diabetes information for public health stakeholders. These stakeholders include citizens/consumers as well as public health agencies and provider organizations. Data sources for RiskScape include the PCHR/SN and also surveillance data collected through our second project, ESP:Diabetes, which uses our ESP software (Electronic Medical Record Support of Public Health, <http://esphealth.org>) to extract, analyze and

report about diabetes indicators through an automated extraction of approximately one million medical records. ESP:Diabetes has a provider-oriented mien and a strong partnership with public health agencies charged with supporting those provider organizations. With the involvement of public health stakeholders, ESP:Diabetes and the PCHR/SN projects have identified

priority gap areas for diabetes reporting and response, so that extraction algorithms for the ESP project, for example, address felt needs of the public health community. Priorities include developing extraction algorithms that can shed light on gestational diabetes and pre-diabetes

especially in underserved and low-income communities. Our public health partners are also actively engaged in providing feedback on the system utilities, reporting formats and even the graphic user interface so that we can ensure that products of our work reflect the needs and preferences of all of our stakeholders.

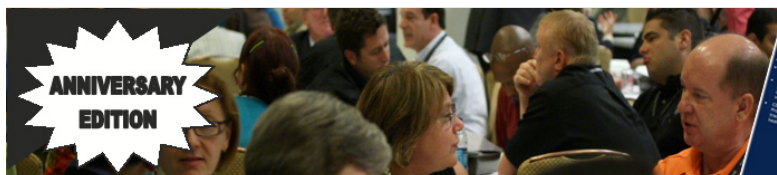
As our projects mature and enrich RiskScape, the extent and depth of diabetes information will support personalized tracking, benchmarking, organizational and population

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PHINews Turns 4!

By Marshall Quinn



To celebrate the beginning of its fourth year, the *PHINews* layout has a fresh look to reflect new goals for the future.

The Public Health Information Network (PHIN) established a solid connection to public health in June of 2007 with the first issue of the *PHINews*. Lynn Gibbs-Scharf, director of the Division for Alliance Management and Consultation (DAMC), started the quarterly newsletter, "out of a desire to improve communications with our partners in public health informatics as part of an overall communications strategy. It grew into regular partner calls, webinars, an enhanced PHIN conference, redesigned websites, and many other projects."

Originally, the articles focused on PHIN's software, access requirements, upcoming exhibitions, and speaking engagements, then grew to cover partner collaborations and the important activities happening in state and local health departments. "By the third and subsequent issues, we really began to hit our stride and define a space for *PHINews*," noted Jay Jones, a DAMC consultant and advisor who played a big part in writing, editing, and laying out the first few issues.

"This movement to a community focus, where CDC is a partner among peers, is a great development, and a marker of maturity of the PHIN Community." (John Anderton, the Associate Director for Communications Science overseeing PHINews)

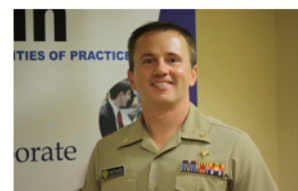
Please let us know your opinions about the topics and the new appearance of this anniversary issue by emailing your thoughts to phin@cdc.gov. The feedback we get from you is the best tool we have for evaluating our new format!

In and Around PHIN

By Danielle Kahn

- New York: A data visualization application and situational awareness dashboard was implemented this year. This has enabled dynamic manipulation and view of data collected by a variety of applications including hospital, communicable disease, school surveillance, and other epidemiological data, and provides graphical, tabular and GIS reports and visualizations to enhance situational awareness.
- Kentucky: They have partnered with their state's hospital advocacy group, the Kentucky Hospital Association, to develop direct clinical data interfaces to local hospitals for the purpose of near-real time reporting of infectious diseases. Eighteen diseases are currently

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Feedback? Go to the "Send us Feedback" link on the PHIN website



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In and Around PHIN (cont)



See PHIN Partner Call Notes:
<http://www.cdc.gov/phn/activities/applications-services/cra/h1n1response.html#support>

under surveillance by their clinical data surveillance system. Analytical tools are available to local and state level personnel to identify disease trends in space and over time. They are also involved in a project to develop pre-diagnostic data surveillance and combine this data with laboratory indicators to offer enhanced situational awareness to local health departments.

- Wyoming: Real-time Outbreak Detection System (RODS) successfully detected respiratory anomalies in Campbell County. Epidemiologists called a hospital where anomalies were detected and the ER nurse said they were slammed by the blizzard and a lot of people were without power. For example, a Hispanic family had a generator inside of their house, other family members and friends came over to this house, and after a while, everyone was feeling sick from CO buildup in the house. They went to the ER in Gillette where everyone was treated and released.

Harvard COE

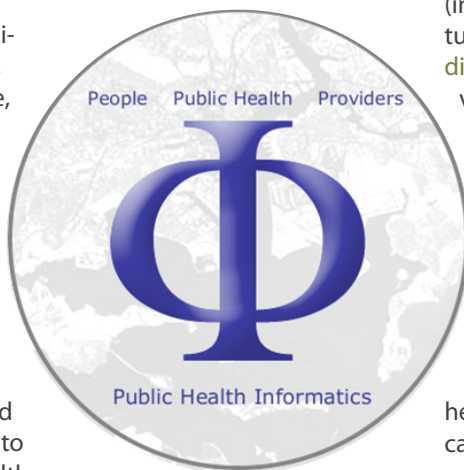
By Marshall Quin

The Public Health Informatics Center of Excellence (phiconnet.org), at the Harvard Pilgrim Health Care Institute and Boston Children's Hospital, is using electronic medical records, personally controlled health records, and social networks to improve monitoring of chronic diseases, including their occurrence, patterns of care, and impact on individuals. We are also creating a reporting platform, the RiskScape, to allow customized information for a wide array of users. These uses include better understanding of socio-economic, racial, and ethnic disparities in order to guide targeted public health prevention and intervention. We are focusing first on diabetes, diabetes in pregnancy, and pre-diabetes. The Center's partners include urban and

rural delivery systems caring for diverse and underserved populations, users of a diabetes-specific on-line social network, and the Massachusetts Department of Public Health. This work builds on our

health data for detection and reporting of infectious diseases.

We are linking our open source personally controlled health record (PCHR), [Indivo](http://Indivo.org) (Indivo.org), to the [tudiabetes](http://tudiabetes.org) social network- (tudiabetes.org), enabling individuals to link information in their health records, including behavioral information and disease status, to a wide array of lifestyle and disease management tools. Individuals can share their information in aggregate or individual form with each other, public health agencies and the clinical care community. Toward a model of broad and direct consumer engagement in diabetes reporting the PCHR/SN approach supports consented sharing of information—a design anticipated to drive



PHI is using online collaborative efforts to advance public health informatics

Center's prior CDC supported work in use of electronic

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The COE In Public Health Informatics (cont)

monitoring. Early and intensive engagement of a diversity of partners has been a boon to our work—opening the door to new models and approaches for surveillance. The heady opportunity of the Center to take surveillance in new directions brings opportunity for investigation in areas as diverse as health literacy, knowledge transfer and translational sciences considering the needs of a variety of users including community-based provider organizations that serve low-income communities and dis-intermediated consumers who will connect to RiskScape through far flung social network points. The next few years will be rich in opportunities for investigation and collaboration around these areas and we look forward to engaging with the CDC community accordingly.

Richard Platt MD, MS
Kenneth D. Mandl MD, MPH

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Harvard COE (cont)

consumer engagement in PCHR technology and greater safety/privacy of online social networking. We are working with patients to determine their needs and preferences, and to test the user interface. The team has developed the first set of formats for the graphical display and is working across disciplines to test aspects of consumer engagement and response to the system prior to opening it up for broad enrollment.

Our other major initiative, ESP:Diabetes, uses our ESP software (Electronic Medical Record Support of public health, <http://esphealth.org>). ESP is a platform for analysis and reporting of information in electronic medical records. It

was originally designed for detection and reporting of notifiable infectious diseases, like TB, and also to automate Sentinel Physician reporting for influenza-like illness. ESP uses extracts from electronic medical records, allowing compatibility with many different vendors' EMRs. We are currently developing and implementing definitions of diabetes, pre-diabetes, and

tudiabetes.org®

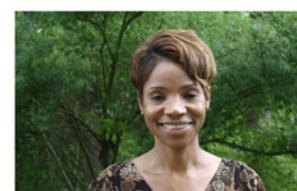
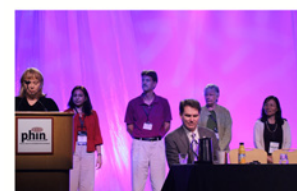
A social networking community of people touched by diabetes

diabetes in pregnancy, and creating measures of clinical status and care, (esphealth.org/trac/ESP/wiki/espdiabetes).

Within the next year we will deploy initial versions of both

the personal and EMR based systems. We will create the first stage of the interactive RiskScape reporting platform to enable public health officials, clinicians, patients, and the public to visualize and analyze the data. RiskScape will include geographic and temporal displays of diabetes types, precursors, clinical parameters, complications, patterns of care, and census

information. We anticipate the application of statistical analysis upon these data in order to provide timely, comprehensive surveillance data that will facilitate improved targeting and evaluation of interventions to decrease the incidence and sequelae of diabetes in specific, high risk populations.





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Partnerships and Collaboration In Action...(cont)



project”; this communication came in the form of biweekly webinars/conference calls and several “as needed” calls along the way. The Florida Data Integration Team spent a week with their Texas colleagues to offer “hands on” assistance as well. Eddie noted one major highlight of this collaboration was how it “strengthened our working relationship and ability to communicate better”.

Grace knows firsthand, the importance of good collaboration during a major public health event. During the initial onset of H1N1, Texas was overwhelmed by specimens and received assistance from Virginia and Tennessee. Grace witnessed the importance of developing and fine tuning the information exchange process. Many hours were spent manually typing demographic data. Grace soon realized if both Virginia and Texas were connected to the system, the process would have been much easier. Having the data sent electronically would have saved time, energy and resources. Grace lists pros of using this system: it saves time, results are available faster and there are less reporting errors. Grace offers four key points for states considering this type of partnership:

- States pursuing this type of system for their laboratory work should work collaboratively with others who are implementing it (Florida/Nebraska)
- Define goals and determine exactly what type of system your organization needs
- Be flexible and forward thinking as the system is being designed
- Communicate with partners (this was key in the success of this project)

Robin added “the two SPHL’s have forged a true partnership, which has already led to other collaborations, and will continue beyond the time constraints of the pan flu grant”. Grace would like Texas to build their own information exchange hub and she looks forward to continuing to work with her Florida colleagues. Grace would also like as many states as possible to utilize this system and embrace collaboration. There are also plans to work with Mexico on merging the two systems (currently there are weekly email exchanges).

Eddie has made friends for life. He is planning a personal trip to Texas and would also like to visit his Texas colleagues while there.

For further questions contact:

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Eduardo “Eddie” Gonzalez Loumiet : Eduardo_GonzalezLoumiet@doh.state.fl.us

Robin Lusk: Robin_Lusk@doh.state.fl.us

Notes From the Field

By Kimberly E. Smith

I have been a Senior Policy Analyst with the CDC’s National Center for Public Health Informatics since May of 2008. Recently, I was deployed to work with the CDC’s 2009 H1N1 Policy Unit. This policy unit was established to provide timely, factual, and effective policy guidance, response, and proactive leadership for CDC Emergency Operations Center (EOC) activities. During my time with the H1N1 Policy Unit, I was assigned as the policy liaison to the EOC’s Vaccine Task Force. This was the task force primarily responsible for coordinating all CDC vaccine-related activities, including vaccine distribution. Most of my work consisted of responding to congressional and

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Download Flu.gov Widgets:
<http://www.cdc.gov/Widgets/>

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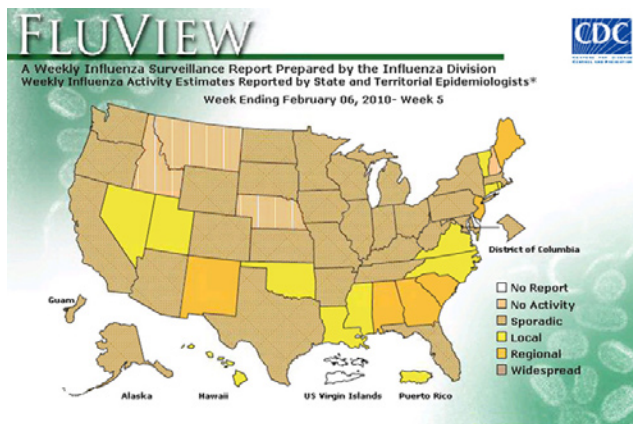
Notes From the Field (cont)

other inquiries about vaccine availability, vaccine safety, vaccine priority group recommendations, and vaccine distribution. I also assisted in developing testimony for several congressional hearings that were called to address the concerns of congressional representatives about vaccine availability, and I participated in meetings to discuss policy decisions related to vaccine distribution and administration.

Shortly after my deployment ended, I was asked to write an article for PHINews about my experience working in the H1N1 Policy Unit. I was a bit hesitant because I did not see how my experience working in the Policy Unit for the 2009 H1N1 influenza response related to the topics typically covered in PHINews. However, after some coaxing from one of the PHINews editors, I began to think about how the initiatives of the Public Health Information Network (PHIN) were a critical part of the H1N1 response.

Regardless of the policy-related duty being performed, it was always crucial to have

up-to-date information. This included information about the prevalence of the 2009 H1N1 virus, the demographic profiles of the people most infected, the demographic profiles of the people with severe outcomes, and the number of vaccine doses administered. The timeliness and accuracy of this information was crucial



www.cdc.gov/flu/weekly— Synopsis of weekly flu stats for the U.S.

to making informed decisions about how to decrease the spread of the disease and H1N1-related deaths.

Often, those who do not work in public health informatics do not have a full understanding of the infrastructure that has to be in place for timely and reliable information to be available to make critical decisions in these types of emergencies. The work of the PHIN is a key component of building the public health informatics infrastructure

that must be in place. The PHIN strives to improve the capacity of public health to use and exchange information electronically by promoting the use of standards and defining functional and technical requirements. This is an ongoing, collaborative effort that must be a priority in non-emergency situations so that the infrastructure is already in place when an emergency situation arises.

I commend those who passionately take on this challenge every day. From my perspective, informatics seems to be an under-appreciated part of public health because

it is difficult to make definitive connections between health informatics and improved health outcomes. As the urgency of the 2009 H1N1 influenza response dies down, my hope is that the PHIN community will become even more energized about efforts to develop more efficient, effective and interoperable public health information systems in the United States and worldwide. When the next public health emergency arises, people's lives will depend on it.





New Collaborative Opportunities for Syndromic Surveillance: International Society for Disease Surveillance Welcomes New Users to the Distribute Community of Practice



For ISDS: *Charlie Ishikawa, MSPH* For CDC: *LCDR John Maynard, Ph.D., BCD, USPHS*
Kimberly Wilson



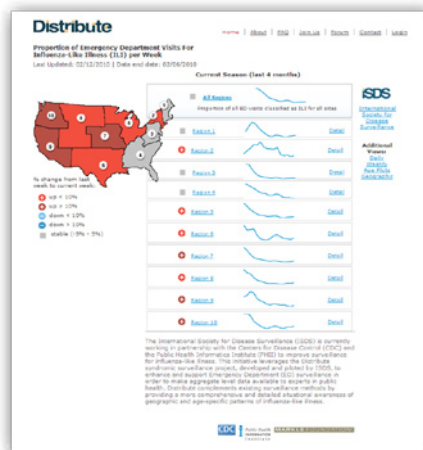
In 2009, many members of the PHIN community began sending influenza-like illness data to the Distribute surveillance system. To support this large influx of new users to the system, help them to use its data effectively in practice, and encourage involvement in the ongoing development and improvement of Distribute, the International Society for Disease Surveillance (ISDS) launched the Distribute Community of Practice (CoP). On December 1st and 2nd, ISDS convened new and founding members of the CoP as part of the preconference activities at the 2009 ISDS Conference in Miami Beach, Florida. The purpose of this meeting was to develop an action agenda that will improve Distribute for public health practitioners.



tions, attended the CoP meeting, which was moderated by ISDS' Community of Practice Coordinator, Charlie Ishikawa and supported by staff from ISDS, the Public Health Informatics Institute (PHII), and

to identify ways to collaborate and share lessons learned while working with Distribute in their jurisdictions.

Community members spent the first meeting day discussing and refining priority issues for the community of practice to address. The second day of the meeting was used to develop the member-driven action agenda. CoP members' work culminated in a number of next step activities that will enhance Distribute, including:



Distribute syndromic surveillance project website

CDC's Communities of Practice Program. Meeting participants were briefed on the history, vision, and short and long-term goals for Distribute. Community of practice members were led through several small group facilitated exercises that enabled them to get to know each other and

- Promoting of a web-based version of "Syndromic 101" among CoP members new to syndromic surveillance.
- Chartering the Distribute Community of Practice
- Initiation of a Influenza-like Illness (ILI) "Comparison/Harmonization" project and community workgroup
- Initiation of a Descriptive Data Project to improve contributor's ability to understand and interpret Distribute information.

In addition to the formal progress made, many informal

Sixty-two people, representing 28 United States jurisdic-

New Collaborative Opportunities...(cont)



www.syndromic.org website screenshot

collaborative connections occurred, with members sharing information and tools with one another.

The CoP members were participative and enthusiastic during the small group sessions, and excited about the CoP as a venue to collaborate and solve problems. Newer members hope to learn from and repurpose products of the work of the founding members, and founding members are pleased at the opportunity to capitalize on the recent investment of resources following the H1N1 response to further develop system capability to promote public health goals. They

also welcome the opportunity to gain input from community members from a wide range of backgrounds.

The ISDS has implemented an on-line collaboration space for CoP members to meet, share data, and exchange lessons learned. Additionally, members will also be able to meet via toll free national web conferences and teleconferences.

If you would like to learn more about ISDS, Distribute, or the Distribute Community of Practice, you can visit the ISDS' website at www.syndromic.org. If you would like to be added to the Community's email list please contact Charlie Ishikawa at cishikawa@syndromic.org. If you would like to learn more about communities of practice and their usefulness to public health informatics, visit the Communities of Practice Program's web site and CoP Resource Kit at www.cdc.gov/phin/communities.

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www.cdc.gov/phin/index.html

