

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION**

**Board of Scientific Counselors (BSC)
National Center for Public Health Informatics (NCPHI)**



**Summary Report
November 20, 2008
Atlanta, Georgia**

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Acronyms

AAFP	American Academy of Family Physicians
AAP	American Academy of Pediatrics
AHIC	American Health Information Community
AMIA	American Medical Informatics Association
APIs	Application Public Interface
ASTHO	Association of State and Territorial Health Officials
BARDA	Biomedical Advanced Research and Development Authority
CDC	Centers for Disease Control and Prevention
CIOs	Centers, Institutes, and Offices
COTPER	Coordinating Office for Terrorism Preparedness & Emergency Response's
CCHIS	Coordinating Center for Health Information and Service
CRA	Countermeasures Response Administration
CSTE	Council of State and Territorial Epidemiologists
DEOC	Director's Emergency Operations Center
DFO	Designated Federal Official
DHQP	Division of Healthcare Quality Promotion
DISSS	Division of Integrated Surveillance Systems and Services
DPHSS	Division of Public Health Systems and Services
DTS	Distributed Terminology System
ED	Emergency Department
EIS	Epidemic Intelligence Service
ESRI	Environmental Systems Research Institute, Inc.
FDA	Food and Drug Administration
GAP	Global AIDS Program
GCC	Global Communications Center
GDD	Global Disease Detection
GIP	Global Immunization Program
GMP	Global Malaria Program
GPHIP	Global Public Health Informatics Program
GSA	General Services Administration
HL7	Health Level Seven
HHS	Department of Health and Human Services
HIEs	Health Information Exchanges
IHR	International Health Regulation
IHS	Indian Health Services
ICD9-CM	International Classification of Diseases, Ninth Revision, Clinical Modification
IOM	Institute of Medicine
LOINC	Logical Observation Identifier Names Codes
MASO	Management Analysis and Services Office
MTC	Maximum Technology Corporation
<i>MMWR</i>	<i>Morbidity and Mortality Weekly Report</i>
NACCHO	National Association of County and City Health Officials
NCI	National Cancer Institute
NCHM	National Center for Health Marketing
NCPHI	National Center for Public Health Informatics
NIH	National Institutes of Health
NHIN	Nationwide Health Information Network
NLP	Natural Language Processing
ONCHIT	Office of the National Coordinator for Health Information Technology
OMS	Outbreak Management System

PAHO	Pan American Health Organization
PEPFAR	President's Emergency Plan for AIDS Relief
PHII	Public Health Informatics Institute
PHIN	Public Health Information Network
PCC	Poison Control Centers
SRM	Secure Reliable Messaging
SEM	Search Engine Marketing
SES	Socioeconomic Status
SNOMED-CT	Systematized Nomenclature of Medicine Clinical Terms
SNS	Strategic National Stockpile
SOA	Service-Oriented Architecture
UML	Unified medical language
VA	Veteran's Administration
WHO	World Health Organization

Board of Scientific Counselors (BSC) National Center for Public Health Informatics (NCPHI)

**November 20, 2008
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Summary Report

The Department of Health and Human Services (HHS), and Centers for Disease Control and Prevention (CDC), convened the Board of Scientific Counselor (BSC) for the National Center for Public Health Informatics (NCPHI), hereinafter referred to as the BSC-NCPHI, at CDC's Global Communications Center for its third meeting. In accordance with the provisions of public health law, this meeting was open to the public from 8:00 a.m. to 5:00 p.m. EST.

Call to Order, Welcome, Introductions

**Scott McNabb, PhD, MS
DFO, Board of Scientific Counselors
National Center for Public Health Informatics
Coordinating Center for Health Information and Service
Centers for Disease Control and Prevention**

Dr. McNabb officially called the BSC-NCPHI meeting to order, indicating that it was a public meeting and that it was being recorded in order to document the proceedings for the record. He then led participants in a round of introductions. The following individuals were in attendance:

Members

Arthur Davidson, MD
Don Detmer, MD, MA (via teleconference)
Julian Goldman, MD
Lawrence Hanrahan, PhD, MS
William "Bill" Hersh, MD (via teleconference)
Martin LaVenture, PhD, Chair
Nancy Lorenzi, PhD
Cecil Lynch, MD, MS
Sherri McDonald, RN, MPA

Ex Officio Members

Charles Friedman, PhD
Lawrence Kingsland, PhD

Federal Employees

John P. Anderton, PhD, MPA
Jason Bonander
Netaja LaRocque-Symes
Les Lenert MD
Scott McNabb, PhD, MS, DFO
Glenn Moore
Enrique Nieves, PhD, MS
Michelle Podgornik
Steven L. Reynolds, MPH
Steve Solomon, MD
James W. Stephens, PhD
Stephanie Henry Wallace, Writer / Editor
Mary Lerchan, DrPH, MS
Muzna Mirza
Mavis Stephens
Joyce Millender-Steele
David Nitschke
Tadesse Wuhib

NCPHI Update

Les Lenert, MD Director, National Center for Public Health Informatics Coordinating Center for Health Information and Service Centers for Disease Control and Prevention

Dr. Lenert extended his welcome to those present, acknowledging that they had engaged in an excellent meeting the previous evening.

He explained that NCPHI has an extensive agenda for the BSC-NCPHI to work through and is looking forward to hearing the members' input and advice on several critical issues. Since the last BSC-NCPHI meeting, NCPHI has begun to operate in the re-organizational mode (e.g., shifting from five divisions to three, with 12 programs and approximately 60 projects). In addition, NCPHI has begun to rebalance the budgets based upon an Efficient Frontier approach, taking into consideration the probability of success of the projects and the potential impact they each would have on public health. Some work remains to be done on the matrix, but the process is underway. NCPHI also released its first open source version of software, Epi Info™, which is an important milestone. The BioSense Tactical Plan has also been completed, which delineates the details of the implementation to the proposed changes to the system. The changes are radical, shifting BioSense to a peer-to-peer network versus a centralized federal system. NCPHI has also completed the latest version of the Outbreak Management System (OMS). Careful evaluation will be required to determine whether NCPHI should continue to fund the OMS. This is a complex area that requires close collaborations with other CDC centers, institutes, and offices (CIOs), and will likely be a topic that is brought before the BSC-NCPHI for review. NCPHI has also been able to work with the Poison Control Centers (PCCs) to bring that data in.

In conclusion, Dr. Lenert stressed that the BSC-NCPHI's input was truly valued as NCPHI moved forward in its endeavors.

CCHIS and CDC Update

Rear Admiral Steven L. Solomon, MD
Director, Coordinating Center for Health Information and Service
Centers for Disease Control and Prevention

Dr. Solomon extended his welcome and gratitude to the BSC-NCPHI. With respect to the continuity between balance and change, he acknowledged the significant events that had taken place over the last few weeks with the presidential election that represented change. Referring those present to the transition website, www.change.gov, Dr. Solomon stressed that this site was fascinating in terms of what it said about the future and how communication about governing is embodied in that site—the official website of the Obama transition. While the change component is clear, the other component of government is continuity. For example, the president is still elected the same way as was done 200 years ago and the Commissioned Corps of the Public Health Service began in the late 1800s. NCPHI has wonderful leadership, and is very grateful to the BSC-NCPHI, which will be a part of the continuity of the science of informatics. With respect to balance, NCPHI is appropriately focused on change. Some view change as the equivalent of threat. However, especially for informatics, change equals opportunity. The science that NCPHI has, with the assistance and support of the BSC-NCPHI, is outstanding.

The opportunity for growth, and the opportunity for the incoming administration, to focus on the role of informatics in health is extraordinary. The challenge that NCPHI faces, for which the BSC-NCPHI's help is needed, regards communication. CDC, being a science-focused agency, does not communicate well outside of its areas of expertise, and certainly has not communicated very well historically with the general public. Until a couple of years ago, CDC did not believe that that was its job. CDC believed its job was to provide information to experts, public health professions, and public health providers in various fields; and to serve the needs of fairly narrow groups. For example, the diabetes group wanted only to speak to diabetologists and the cancer group wanted to talk only to oncologists. To Dr. Solomon, the symbolism of what the Obama Administration was doing with its website and YouTube was part of the significance of the change. While this has been criticized as being largely symbolic, symbolism is significant in and of itself.

Not only has CDC had a difficult time communicating with the general public, but also the agency has had tremendous difficulty communicating with other members of the Executive and Legislative Branches in Washington. CDC's Washington office developed a dictionary to communicate what the scientists say versus what the politicians say. It is like an ethnographic experiment of completely alien cultures. Hence, CDC is challenged to communicate with the public as well as with people upon whom the agency is very dependent for support and resources. Thanks in part to some of the centers and coordinating centers, particularly the National Center for Health Marketing (NCHM) and the NCPHI, CDC has begun to tackle the communications issue in a specific way. John Anderton, Associate Director for Communications, and Steve Reynolds, Enterprise Communications Officer, are leading the effort to determine how to improve CDC's communications efforts and to disseminate

information about informatics and health marketing. People have criticized CDC as an agency, using the analogies of cocoon, ivory tower, castle surrounded by a mote, and silos. CDC is probably sensitive to such criticism given that there is some truth in it.

NCPHI would be grateful to the BSC-NCPHI about how to better communicate messages. It is really easy to underestimate what smart people know and understand about informatics. Even very smart people may have a great deal of difficulty understanding anthrax, salmonella, and the vagaries of the specificity and sensitivity of a cancer screening test—even if they at least understand what a food borne infection, lead poisoning, or the principles of diabetes are. Communicating the concepts of informatics and why that is so central to the future in health is starting from ground level. It will be a challenge to translate how there is a direct line between the work that is conducted in a center like NCPHI and people's health. Before there was MapQuest, there was TripTik. It will be necessary to take a step back to determine how to communicate the messages about informatics in multiple ways. Most people cannot see beyond where public health is now and where it needs to go. That pathway is wholly dependent upon the science and practice of informatics. In conclusion, Dr. Solomon requested the BSC-NCPHI's help in figuring out how to draw a roadmap for people to help them understand why informatics is going to make the difference.

Discussion Points

- With respect to the presidential transition and the administrative changes involved, Dr. LaVenture requested that Dr. Solomon comment on what that might mean from the center's and NCPHI's points of view.
- Dr. Solomon replied that basically no one knows anything to date, except that it was reported in the media that Senator Daschle was been selected to direct HHS. There is a White House Transition Team, as well as an HHS Transition Team. Secretary Designee Daschle will identify his aids and associates, who will then supplement those who have already been selected by the Obama-Biden Transition Team. There are team members imbedded in every federal agency, including CDC, who are gathering data to report through their chains of command in the transition. Secretary Designee Daschle will begin to formulate policy, make personnel decisions, et cetera. The www.change.gov website includes a list of federal appointees who are in political positions, which identifies non-competitive appointments that the Obama-Biden Transition Team will fill with political appointees. Dr. Gerberding is CDC's only political appointee and is, therefore, the only person who could be replaced as a matter of course in the political transition. If that were to occur, a new incoming director would have the prerogative to change his or her immediate subordinates. While these individuals are not guaranteed their jobs, they do have career appointments, so they would be guaranteed their salaries. While the vast majority of appointees are typically replaced each time there is a transition, Dr. Koplan, CDC's director eight years ago, remained on staff for 15 months following the transition. At this point it is unknown whether Dr. Gerberding will be replaced; however, there will be no change in any of the center leadership or organization at that level.
- The challenges of communication resonated with Dr. Hanrahan because Wisconsin is in the process of implementing Healthiest Wisconsin 2020, revitalizing the state health plan for the next 10 years. While internally they have convinced the public health system that informatics is a key infrastructure priority, they hit a wall with respect to the partners and the external leadership team with the term "informatics." With that in mind, perhaps the term "informatics" should not be used with partners. This relates to the concept of having multiple

ways of interacting and communicating with others. While he was not suggesting that the name of NICPHI be changed, in essence the challenge is that the culture of the science and the public health system is foreign territory to many close partners, especially the many segments of the public.

- Dr. Hersh noted that during a recent conversation, the Chief Executive Officer (CEO) of the Oregon Public Health Association said that he needed to transform his IT organization to an informatics organization. The onus is on those working in informatics to define what it is in a positive way.
- Dr. Solomon pointed out that there are people who “have a foot in both camps” (e.g., public health and informatics). He stressed that most of the world’s experts in that were either sitting around the table or were on the phone. A few days before this meeting, there was a seminar in which there was excellent representation of CDC leadership, from whom Dr. Solomon received very positive personal emails about what they had heard in this seminar. While these individuals “got it,” they still could not quite take it in. It is the difference between a cognitive or intellectual understanding and almost an emotional insight. Many individuals in public health operate on emotional insights, taking in diabetes prevention, safe food, et cetera. If the paradigm for public health is really going to be changed in this country, it will be necessary for people to attain a “gut level” understanding of informatics—just below the intellectual level where it is currently.
- Dr. Detmer indicated that the American Medical Informatics Association (AMIA) recently completed its documents to create clinical informatics as a medical subspecialty and is beginning to relate this to 24 of the Medical Specialty Boards. Contrary to what was described in the public health sense, this has been well-received and understood. Perhaps it is simply a matter of familiarity. A number of public health representatives have taken the AMIA 10 x 10 course. AMIA recently had an opportunity to speak with approximately 20 people who completed the course. Once these individuals knew more about informatics, it seemed to be a natural fit and there was a great deal of enthusiasm. While this may be a biased sample, perhaps it is simply the foreignness of the concept at this point that is challenging.
- Dr. Hanrahan clarified that to those outside of public health, “informatics” is a foreign term, and the challenge in communication and marketing is to understand their language and cognitive styles and be able to translate what public health does so that it resonates with them in their own terms.
- Dr. Goldman said that as he listened to the description and what appeared to be a disconnect in intuitive understanding in communications, one way to approach that among different groups is through Use Case Development. Sometimes it is the end users, or people in other domains and specialties, who understand the Use Case. When a solution is laid out that requires a number of agencies, technologies, et cetera, this makes informatics much more tangible, practical, and real. Thus, Use Case might be one approach to broadly convey the implications / importance of the various domains and specialties.
- Dr. McNabb noted that public health refers to these as Case Studies rather than Use Cases, so even that terminology is different.
- Dr. Lorenzi noted that BASF’s tag line was, “We don’t make the product. We make the product better.” With that in mind, she thought they should not attempt to teach the public

all of the intricacies of informatics. Instead they want to convey that with informatics, they make the product better—they make it easier to look at the digital information, sort it, shift it, et cetera.

- Dr. Friedman stressed that in order to communicate and educate effectively, it is important to understand the current viewpoints of people to whom information is being communicated. In his own experience in trying to communicate to the public health community what informatics is, he had to recognize that their understanding of informatics would naturally reflect their current use of computers, which is typically for management of large epidemiological datasets. The science underlying that is, in fact, a part of informatics. Thus, it seems that the communication task begins in a very natural way by building upon that current understanding.
- Dr. Lenert indicated that the view they were trying to promulgate was that NCPHI is a link between the clinical care system and public health, and that it helps them to reap the population health benefits of health care automation.
- With respect to how the BSC-NCPHI might be beneficial to NCPHI during the transition process, Dr. LaVenture inquired as to whether it would be reasonable to make some statements to the Obama-Biden Transition Team in terms of the context of informatics from the perspective of an outside board.
- Dr. Solomon responded that there is a very well-established protocol for doing so, which Dr. McNabb could guide them through.
- Dr. LaVenture confirmed that there was general consensus to add this topic to the agenda items for the afternoon discussion period.

Logistics and Administration

Scott McNabb, PhD, MS
Netaja LaRocque
Coordinating Center for Health Information and Service
Centers for Disease Control and Prevention

During this session, Dr. McNabb reviewed the agenda and expressed his gratitude to those who had assisted with the logistics of the meeting. Ms. LaRocque reviewed reimbursements and housekeeping issues, and requested that members of the public sign in.

Meeting Objectives

Martin LaVenture, PhD, MPH
BSC-NCPHI Chair
Director, Health Informatics
Minnesota Department of Health

Dr. LaVenture noted that this was the third in-person BSC-NCPHI meeting, in addition to one teleconference, acknowledging that they were still in a stage of discovery with respect to understanding the context of CDC and informatics as an evolving area. He expressed excitement that they were able to move forward on three important issues on the agenda:

- Following up from the last meeting, as they continued their learning process about what is occurring in the context of informatics and CDC, they could also move forward with respect to their roles on the BSC-NCPHI (e.g., scope in terms of areas of focus, how to best operate, and the work plan for the next 9 to 12 months).
- With regard to the Work Group reports, they should be able to wrap up some issues and / or come to some conclusions about those efforts: What needs to be completed? What has been completed? Should there be a written product, such as recommendations for the process?
- In terms of the broader view, they had been and would continue to think about updating the list of topics that are of concern to NCPHI in terms of tactical and strategic plans for the short-term.

BSC Charge and Work Plan: Proposed Approach

Scott McNabb, PhD, MS
DFO, Board of Scientific Counselors
National Center for Public Health Informatics
Coordinating Center for Health Information and Service
Centers for Disease Control and Prevention

Dr. McNabb stressed that CDC was committed to facilitate and take advantage of the kind offer each board member had given of their time, talent, and expertise and wanted to make the members' time as efficient as possible. With that in mind, Dr. LaVenture developed a draft timeline for goals and activities for the upcoming year. Referring to the table titled "National Center for Public Health Informatics (NCPHI) Board of Scientific Counselors (BSC) Workplan Template CY 2008-2009 Tentative Timeline" Dr. McNabb noted that three workgroups had been formed: BioSense Tactical Plan, Open Source, and Organizational Structure. Three others were also listed as potential topics for consideration by the board Standards for PH and Interoperability, Global Public Health Informatics, and Research Agenda. The next in-person

meeting for this fiscal year will be convened on May 26, 2009 in Orlando, Florida. The August meeting is expected to occur sometime near the Public Health Information Network (PHIN) conference, with the site and specific dates to be determined. A potential working conference call is tentatively scheduled for February 13, 2009 at 11:00 a.m. EDT.

The charge of the BSC-NCPHI is to “Provide scientific guidance, expert advice, and perspective regarding National Center for Public Health Informatics strategies and goals; provide peer-review of scientific programs; monitor the overall strategic direction of informatics related issues of importance to NCPHI and CDC and the Public Health Community.” A component can be added to this charge to include communications.

In 2007, CDC’s Director, Dr. Julie Gerberding, determined that each CDC National Center should have an external scientific body of experts who provide expert advice regarding National Center strategies and goals, provide peer-review of scientific programs, and monitor the overall strategic direction of the National Centers (see Section 301 (42 U.S.C. 241) and Section 311 (42 U.S.C. 243) of the Public Health Service Act). For the National Center for Public Health Informatics the first meeting of this external Board of Scientific Counselors (BSC) was June 4-5, 2008. More information can be found at <http://www.cdc.gov/maso/FACM/facmBSCNCPHI.htm>.

Tasks through August 2009 are to:

- Understand NCPHI strategy and goals; identify issues to monitor; and identify priority issues needing additional review and discussion;
- Review NCPHI funding levels, expectations, and constraints;
- Provide expert advice and perspective on issues and topics discussed at each face-to-face meeting;
- Provide a more detailed review and make recommendations for selected issues; use workgroups and outside experts as needed to complete the work between meetings and report findings to the BSC; Priority issues include the following: BioSense Tactical Plan, Open Source Options and Strategies, NCPHI Organizational Issues, Standards and CDC’s Strategy and Approach, Global Public Health Informatics, and Public Health Informatics Research Agenda and Strategies. Added to the list based on earlier comments was Communications Strategies, to include the communication to the apparent new Secretary of HHS and the role of informatics at CDC as examples;
- Provide feedback on NCPHI strategies and progress on achieving strategic goals;
- Review policy language and provide feedback and recommendations; and
- Identify communication, education, and collaboration opportunities in common with other boards.

Deliverables, on-going and at each meeting, are to provide expert advice and guidance at each meeting; recommend practical actions that can be taken to advance the science and practice of public health informatics; and create and maintain a list of emerging Informatics issues.

PROJECT DELIVERABLES	
September 2008	Workgroup recommendations on organizational issues
January 2009	Workgroup recommendations on BioSense
January 2009	Workgroup recommendations on Open Source
May 2009	Recommendations on Standards
May 2009	Recommendations on Global public health informatics
May 2009	Recommendations on public health informatics research agenda

With regard to the approach and working groups, the BSC-NCPHI will use face-to-face meetings and conference calls. Every effort will be made to seek agreement by general consensus. Voting may be used if needed, where agreement is determined by simple majority. When an item needs extended discussion and written recommendations as determined by the NCPHI or BSC members, a workgroup may be chartered. The charge of the workgroup should be clear and deliverables concrete and measurable. The workgroup activity should be time-limited in scope.

Member expectations are to serve a term as appointed; participate in three or four workgroup meetings or conference calls per year; bring the perspective of his or her experience and expertise to all discussions and decisions; keep the national interests of the NCPHI, CDC, and the public health community foremost in decisions and recommendations; and review meeting materials ahead of time and be prepared to contribute clear and focused ideas for discussion.

Dr. McNabb concluded that it was his role as Executive Secretary of the BSC-NCPHI to serve and support the board, provide the board's input and advice to NCPHI, and ensure that NCPHI responds to the board's input and advice in a formal and timely manner.

Discussion Points

- It was noted that the AMIA board meeting and a session of the 10 x 10 Course will take place on May 27, 2009.
- While no details were known at this time about the precise date for the 2009 PHIN conference, Dr. McNabb indicated that typically by January the PHIN organizers had to select dates in order to secure a hotel.
- Concern was expressed that hotel accommodations could be an issue in Orlando; however, Dr. McNabb responded that a contractor, Maximum Technology Corporation (MTC), had been engaged through a contracting mechanism available via CDC's Management Analysis and Services Office (MASO). MTC will be supporting the logistics of the Orlando meeting, including reserving the hotel rooms.
- It was suggested that a placeholder be added to the timeline table for Communications (e.g., items may be added due to the new Secretary; there may be communications with NCPHI staff during downtimes between meetings).
- Dr. Friedman noted that some advisory committees are tasked to produce reports at specific intervals, such as a summary of their recommendations on a number of topics. Based on the work plan, it did not appear that there would be specific deliverables across the board.

Instead, it appeared that NCPHI would be seeking advice as it emerged from each of the themes.

- Dr. LaVenture clarified that the charter for the BSC-NCPHI made the assumption that the meetings are an on-going set of advice that is being provided and captured. In addition, if the group believed there was a deliverable pertaining to a specific recommendation, it should be reflected in the table.
- Given that this is a new process, and that a great deal is likely to occur organizationally with potential repercussions for a long time to come, Dr. Goldman suggested that it would be beneficial to carefully document the history of the discussions and decisions, particularly as new board members are appointed in the coming years. Otherwise, it will be exceedingly difficult to understand the rationale behind the decisions that are made.
- Dr. McNabb replied that there is a public BSC-NCPHI website, on which previous agendas and minutes are posted. He is obligated to ensure that the minutes are reviewed by the chair and members, and are posted within 90 days of a meeting. There is a brief description of the history and the members' bios are posted there as well.
- In addition to formal minutes, Dr. Goldman suggested that there should be a method for tracking recommendations and decisions per se.
- Dr. LaVenture added that if the group came to consensus on particular areas, as was suggested in the approach component of the charter, those decisions should be called out and it should be clear that based on the deliberations that occurred and rationale of the board, there was consensus.
- Dr. Friedman pointed out that if each of the areas on the work plan template worked independently of one another, the board may miss an opportunity to observe relationships among them and in the ways that they reinforce each other. Parallel efforts will be underway by committees that may not sufficiently be interrelated to one another, so there should be some mechanism to ensure that there is crosstalk. Perhaps there should be some type of deliverable that cuts across all of the areas that would be delivered on a fixed date, given that this would provide the opportunity to work across the threads and see the possible synergies among them. This would also perhaps help to avoid submitting contradictory advice to NCPHI.
- Dr. Lorenzi suggested thinking about communication in a different manner. It is not just about explaining what informatics is to the public or to public health people, but also they must take into consideration the mechanism of the change process and how to communicate clearly what the group has been doing and how. This is a model of thinking about handoffs.
- Ms. McDonald stressed that the charge / history of the board should be a living document that is revisited during each meeting in order to keep the goals and objectives set forth in front of them, and to ensure that the history is imbedded.
- Dr. McNabb inquired as to whether an annual report generated by the board would be one practical manifestation of that suggestion.

- Dr. Friedman replied that an annual report would be a concrete product of what he was envisioning.
- With respect to communication, Dr. Lynch inquired as to whether somewhere within NCPHI there was a SharePoint Portal to gain access to documents and to have a more formal change / control process to address issues about how to hand things off and see changes over time, stay in touch with NCPHI, and ensure that information relative to the board's mission are posted to this repository.
- Dr. Lenert replied that at this time there was not a NCPHI SharePoint Portal, although there will be an enterprise-wide SharePoint facility. He agreed that in addition to the minutes, there should be a central repository through which to track versions of documents that go forward from the board.
- Dr. LaVenture recapped that the charter could be useful if it was viewed as a living document, an annual report would be beneficial to bring together some of the line item recommendations that are in the timeline itself and to capture crosscutting issues, and that along the way consensus and rationale for decisions / recommendations are well-captured.

Working Group Updates and Discussion: Progress to Date and Next Steps

Open Source

Cecil O. Lynch, MD, MS
Assistant Professor, Pathology Informatics Division
University of California, Davis

Dr. Lynch reported on the Open Source Working Group's activities. He reminded everyone that during the last meeting, Dr. Moore prepared an overview about some of the complexities of implementing an open source, specifically in a federal health architecture environment and with respect to the issues of adoption, participation, licensing options, et cetera that must be taken into account to proceed with that. The following are being used in the federal arena:

FEDERAL USER BASE	
National Institutes of Health (NIH)	Biowulf
General Services Administration (GSA)	Linux, JBoss, Bugzilla, JUnit, JMeter, Eclipse, Knowledge Tree
National Cancer Institute (NCI)	Protégé, Globus, JBoss, Argo UML, Eclipse
Department of Defense (DoD)	Linux, Eclipse (Aerial unmanned systems proposed)
Veteran's Administration (VA)	Vista, HL7 Work Bench
Centers for Disease Control and Prevention (CDC)	Protégé, HL7 Work Bench, Epi Info™
Indian Health Services (IHS)	VueCentric
United States Navy	Linux, Eclipse

To reflect some highlights, within the current federal health architecture, some of the older efforts include the cluster and the building of the Linux systems at the NIH to be able to engage in more complex genomic and other types of modeling that are set on a very high throughput, and open source software to be able to manage vast amounts of information. Based upon the budget that NIH had at the time, they would not have been able to institute this if they had had to go through the licensing process, set up various independent vendors, et cetera. Among various other things, GSA is currently using Eclipse, which has a very rich source of open source plug-ins that allows for the management of almost any application development problem. NCI has moved partially to Argo UML as an alternative to Enterprise Architect for their unified medical language (UML) modeling. NCI has a model-driven architecture, so they are very dependent on UML diagramming tools. These are not seamless moves. For instance, Argo UML only supports up to UML 1.4. It does not support UML 2.0, which Enterprise Architect does. Thus, NCI is not able to completely move away from the commercial applications yet because of the lag behind some of the open source development. The DoD uses Linux and Eclipse extensively. There is a line item in the 2009 recommendations from GSA to Congress that is under consideration currently that would mandate that the DoD look at open source tools to help with the development of guidance systems for unmanned aerial planes. As noted earlier, CDC's Epi Info™ was recently made open source. The IHS recently made an announcement that they would use VueCentric, which is a visual dashboard to help them integrate some applications. This is being managed by Medsphere, which is a large open source integrator.

The potential advantages that have been documented by groups that have adopted these are: 1) the lower entry "ownership" costs in general, although this does not mean in all cases it is less to go the open source route than it is to do commercial licensing because there are costs in supporting open source over time, but it is usually easier to get into it; 2) possible lower support costs, although this is not clear yet; 3) increased flexibility; 4) lack of vendor lock-in; 5) increased extensibility for functional requirements, which is probably one of the most important issues, given that no tool that is put in open source or the commercial market ever meets anyone's needs out of the box; and 6) a reusable code base, which allows for reuse of software objects.

There is some evidence that proprietary code has on average between 20 to 30 mistakes for every 1,000 lines of code [Michael Tiemann, President of the Open Source Initiative and Chief Technology Officer for Red Hat]. Open source code has less than one mistake for every 1,000 lines of code. The worst of the top 32 most popular open source applications has a 50 times better defect density than proprietary software. The reasons include the large community of code "inspectors" and bi-directional communication of code issues.

One of the major issues in implementing open source pertains to the security concerns. Even within CDC's laboratory environment, they were not able to obtain approval from security to put in an open source tool that was still in Beta development, which was a requirement to use the 2.0 features. OpenSSL, which combines some of the features of commercial products in an open source environment, is now certified by the National Institute of Standards and Technology Federal Information Processing Standards Publications (NIST FIPS) and can now be used alongside any commercial secure socket layer (SSL) security mechanisms in the federal architecture. That is a major plus that should allay some of the fears of CIOs who have been somewhat remiss about opening the doors to some open source software. This will be even more of a challenge when trying to roll tools out into the hospital environments in an effort to bridge public health and clinical care. The first barrier in a hospital environment is whomever is

managing the security and firewalls. There is a major expense associated with putting open source tools into the hospital environment.

Other benefits are that open source tends to beget open source. This has been observed with Red Hat Linux, which last year had a 22.8% annual growth rate in Red Hat Server installations versus 3% in proprietary server growth. That kind of growth was noticed by Sun Microsystems Inc., which plans a release of Solaris into an open source version because they wanted to increase their sales of server systems. Novell Inc. is also releasing their SuSE Linux Enterprise Server. In addition, last year Apelon, Inc. released their Distributed Terminology System (DTS) editor into open source in order to increase the sales of their vocabulary support.

There remain challenges that must be faced, such as getting developers interested in the “niche” public health market. This is a small part of what developers are working on in the environment. Unless someone is working specifically in the public health environment, they do not tend to contribute in that community. That said, there is a cobblestone approach to finding open source tools. This relates to the fact that the tasks the BSC-NCPHI is addressing are not independent. There is a significant requirement specific to standards for public health interoperability that has to cross over into the open source pocket because if they are going to charge people and ask for open source development, decisions must be made about some basic issues. Consideration must be given to what they will propose as their platform for open source, particularly given that the public health market is fairly small. There are still costs to support open source software. Successful examples of on-going, maintained, large, open source development systems have large funded commercial or government support organizations behind them (e.g., IBM, HP, Eclipse Foundation, Globus Foundation, DARPA, NIST, NLM, NIH and NASA fund Protégé, et cetera). CDC is using Globus, but it was not free. NSF funded over \$13.3 million to get the toolkit openly developed. It is harder and harder to keep Protégé going, given that it is difficult to garner continued funding to advance it. The seed money was fairly easy come by, but to maintain it requires on-going funding. Once an open source is deployed, there is the issue of maintaining it.

With respect to future directions, there is a need to develop a roadmap for open source based on requirements with timelines, identified funding, governance, and licensing options. A roadmap must come from CDC internally with respect to the agency’s needs, but it also must include contributions from the public health community in general. There must be communication with state and local health departments to understand their needs and requirements to help satisfy the problem that every health department has; that is, the IT department is not an informatics department. Existing tools and efforts applicable to NCPHI’s mission must be catalogued. CDC must lead by example and adopt internally, starting with an SVN repository for code release of existing CDC applications to boot strap the market. Also needed is an internal SVN for code management internal to CDC because CDC’s developers will begin working on these things, some of which may not be ready to kick out to open source or may have security considerations. A tool is needed like PHfusion for situational awareness, but it is also being used for something it should not be—attempting to integrate applications to get them to talk to each other. One of the reasons they do not talk together is because there is not a good code base for understanding how systems work together. Thus, having an SVA repository for open source tools would mean that CDC could gain some momentum by reusing some objects across the organization. There must be someone who is a master of checking source codes for consistency with other source code applications.

Discussion Points

- A request was made for Dr. Lynch to further elaborate on the meaning of the 22.8% annual growth rate in Red Hat Server installations versus 3% in proprietary server growth with respect to whether all server growth is reflected in those figures, and if so, what could be inferred from that with regard to the entire market.
- Dr. Lynch responded that he was not certain. The source of the statistic was *Government Time News*, although their source for the figure was not quoted. However, Dr. Lynch indicated that one caveat was that most of these server installations were going into Internet provider systems; that is, by far the greatest number of server installations are to maintain and run the Internet. That area has realized major growth. Five years ago this was an approximately 20% inroad into Linux and now over 70% of all of the Internet infrastructure is run on Linux servers. It is difficult to find a Microsoft Windows 2003 server clustered in a server environment.
- Dr. Davidson inquired as to whether any of the PHIN Communities of Practice were focused on open source.
- Dr. Lenert replied that this was the intent, although the primary intent with Communities of Practice was to bring people together in a programmatic area and then link them with an open source activity in the hope of creating the community and developers required to sustain the activity. CDC always imagined that there would be a government core around that, but wanted to create a group who would work together on practical problems, which would then be linked to an open source project. They wanted to start with the problem set, the practical application of the area, rather than open source.
- It seemed to Dr. Davidson that they needed to learn more about the issues before attempting to take it into a larger community. With that in mind, he wondered if that had been a primary focus in the Communities of Practice, NCPHI, or elsewhere, and if there was an effort to engage at the state and local levels to better understand how to create an open source community. They must have some knowledge about whether this is feasible from a NHPHI and general health point of view.
- Dr. Lenert responded that the intent was to create an open source community one application at a time. Based on the needs expressed and adding the seed of an open source, the hope would be to see the activity go forward. With respect to the Public Health Informatics Institute (PHII) initiative, they could develop an open source requirements document. The Communities of Practice was targeted to bring people together who were interested in this area to determine if there was a critical mass to engage in open source development. The jury is still out on that, given that Communities of Practice has only been running for three months. It is not clear yet whether everyone has to work in the same platform. It is not entirely clear whether it is more productive to focus on toolkit components or services that could then be put into an open source environment, or to build applications that are open source that could be decomposed and reusable. This is a difficult choice. While the services focus is probably the right way, it is a longer time to product. The applications route is hampered by not having an enterprise architecture due to all of the development thus far. Although efforts are underway to fix the problem, each lane has operated independently. There are some very interesting efforts. Epi Info™ 7 is .net open source, so it is open but is in a proprietary system. The new version of the BioSense

Integrator is Java. The issue is that there are several JAVA implementations of similar ideas in the field, so those will have to be merged together. In addition, open source standards are under discussion for the area of outbreak management, and the Globus toolkit is being added to in an open manner for population health summaries. There is not yet an integrated strategy, given that it is too early in some ways to do this. While it would be nice to declare that everything should be in one language, doing so would probably set them back 10 years. Dr. Lenert did not think there was anything wrong with the Epi Info™ people being in .net, for example, if that was a reasonable area. There is a .net conversion that can be used.

- Dr. Lynch agreed that demanding a single focal point for a language or platform was premature. Overtime, everyone eventually moves to a standard platform. Even when working in the same language, the way that language is implemented in different packages is different and that impacts the ability to connect to other applications. This is where the problem lies with .net implementations, given that there is then an entirely new open source development, which is linking the application public interface (APIs) to have these talk together. People typically do not like to write those types of things as part of their open source development. Therefore, moving to Eclipse or other types of open source platforms is important. With respect to integration of pieces that anyone can build plugs in for that are really full applications that can fit into that environment, and be used by others is more of a maturity process over time. That is part of the roadmap planning for eventually getting to an enterprise-wide development platform through which the true benefits of an open source can be realized by reducing the costs of implementation and maintenance over time.
- Dr. Lenert thought the BSC-NHPHI could recommend that NCPHI come up with an Enterprise Architecture view and a transition for open source. This would be a concrete action to take and the board could supervise the plan as it moved forward to ensure that it was adequate.
- Given that he was trying to frame this as a decision problem, Dr. Friedman requested that Drs. Lynch and Lenert comment on open source as opposed to what.
- Dr. Lynch responded that he would say open source as opposed to where they were currently. OMS started in Visual Basic and parts of it are in Visual Basic.net. With respect to the developers who are working on that project, some thought has been given to reworking that in some other language. There are many hodge-podges, which is true in any organization in terms of the languages. There is .net development, Java development, et cetera.
- Dr. Lenert thought it was a broader issue than language. In the past, programs have been determined by the proprietors of the software. The code base has not been released for NEDSS even though it is largely Java-based. PHIN-MS is one of CDC's messaging systems, which is a flagship product. Because of CDC wanting to control the system, the agency has never allowed others to look at the code. There was concern that a competitor would be created that would put them out of business. The issue was to preserve the program. Part of the transition to open source is to preserve the program without preserving the software. The thinking must be changed to shift from being software dependent to program dependent.
- Dr. Friedman thought this suggested a syntax to the recommendations that would state, "Instead of X do Y" so that there would be a clear reference to what might otherwise occur if this direction is not taken.

- Dr. Lynch stressed that not every piece of everything has to be open. There is nothing wrong with putting in a platform that everyone can plug into. The core of Linux, for instance, cannot be changed.
- Dr. Lorenzi pointed out that if they did not have a case study, group study, or long-term vision for how public health would be by 2020 (only 12 years from now), none of this discussion would make sense to the public health community or community at large. They must have a strategy for their vision of the future.
- Dr. LaVenture read the Open Source Working Group charge, which is to “Provide expert guidance about the tactical and strategic aspects of the National Center for Public Health Informatics Open Source implementation and its evolution to support public health needs. This will involve, but should not be limited to, issues surrounding: facilitating an environment where open source concepts are widely adopted; developing software using a decentralized model, selecting appropriate licensing models that permits flexible code use/reuse and effective software implementation within the public health domains, and providing for an effective maintenance model during the software’s life-cycle. The open source model must effectively support internal CDC and external CDC partner organizations to facilitate health information exchange using interoperable systems and national standards.” The group’s tasks are to: 1) Review, refine, and approve the working group charter; 2) Review the existing open source approach to identify appropriate use in public health; and 3) Provide recommendations concerning successful and promising practices for open source implementation. Related to the tasks, during this session Dr. LaVenture recapped the following suggestions:
 - Potential future directions
 - Vision and linking it to that direction
 - Why do we do this versus something else?
 - Components that could go into recommending going forward on open source and how that might occur, including the suggestion to charge NCPHI for an early Enterprise Architecture view of open source with an implementation plan that could be monitored on an on-going bases by the BSC-NCPHI
 - Think about the architecture proactively in terms of isolating those areas that would be appropriate / acceptable to be maintained as proprietary, and how to maintain open interfaces to allow for maintenance and for dealing with the proprietary components of the architecture
 - In the global sense, open EHR is being advocated as a way to move from silos to systems that can allow for evaluation of public health population analyses rather than centrally having disease-specific approaches (e.g., population health or public health components of an open EHR would perhaps be an area of focus to ensure that there are specifications and coordinated efforts to work in that area in order to include elements needed to serve the needs of a population or public health)

- Provide some leadership back to the Certification Commission for Healthcare Information Technology (CCHIT) with respect to how they can help to achieve the purpose of supporting the population health perspective (e.g., either through the development of an open source tool or focusing more on open standards); CCHIT does not seem to have gotten to this level yet
- Dr. Lynch pointed out that one of the issues is that NCPHI is not responsible for all of the informatics at CDC. If the board makes a recommendation, he wondered how it would go forth to someone who could make it happen across the organization.
- Dr. Lenert responded that this would go through the CDC governance process. A recommendation from the BSC-NCPHI would be introduced through that process stating that the CDC should migrate from proprietary software to open source systems where it makes sense within the agency. There are certain investments in technology, in the laboratory information systems for example, that would be difficult to walk away from. However, a measure from the group could be introduced from the board as a model to encourage enterprise architecture approaches to help CDC migrate to open source long-term as a solution for the reasons outlined during this session (e.g., improve reliability, reduce costs, ability to create public health community of practice and an informatics infrastructure that is all committed to maintaining this together).
- Dr. Detmer stressed that the issue of tracking standards was also important, so that if it was not necessarily open source, at least they would be trying to support interoperability.
- With respect to next steps, Dr. Lenert suggested modifying the charter with two additional deliverables: 1) CDC staff will work with the BSC-NCPHI members to develop the discussion from this session into the form of a draft recommendation that will be completed by January 2009 for discussion during the February 2009 conference call; and 2) Discussion of the draft recommendation on February 13, 2009.

Organizational Issues

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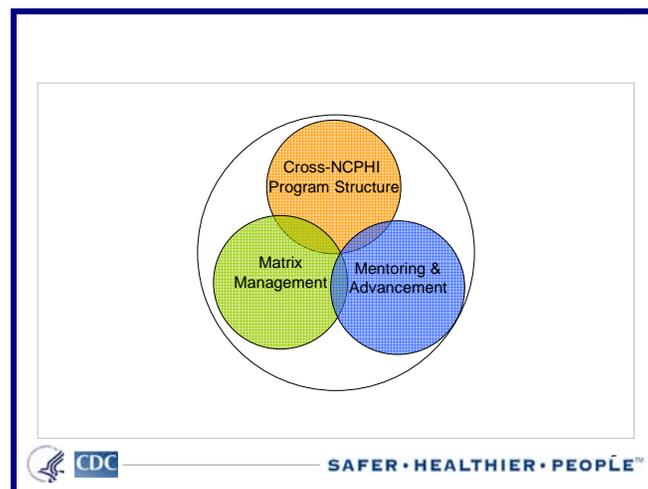
BSC voted to accept overarching principles on September 29, 2009 during a teleconference. Multiple issues around principles were discussed (e.g., program structure, matrix management, workforce mentoring, core organizational areas of partnership, and evaluation). With respect to program structure, there was agreement that this would be a sensible way of organizing projects to achieve maximum public health impact. The new organizational structure has now been launched. Matrix management will be new and different, but will help to relate to a number of different issues: Are there issues related to NCPHI's use of matrix management as it applies to CDC and partner operations? What explicit management approaches will or should be used (e.g. evidence-based management)? There was extensive discussion about workforce and mentoring. While there was agreement as to the importance of principle, there was confusion as to its scope and focus. Also discussed were the core organizational areas of partnership, and that there should be practice-focused applications. While this was not quite a principle, there was agreement that it was an important concept. There was not quite agreement about

what to do in terms of evaluation. The committee discussed the need for evaluation, with questions as to scope, framework, and duration.

Regarding matrix management the group realized that when starting a new program and new philosophy it is difficult to determine what the responsibilities are. It is easier when there is a nice chain of command. Efficiencies will require increased efforts related to communications and coordination. The program management function (e.g., standards, processes, and tools) is a core part of the NCPHI Office of the Director and serves as the primary support and guidance organ for matrixed activities. It is also feeding emerging CDC-wide information resource governance activities. This will require greater communication and collaboration. Workforce and mentoring discussions focused on creating sensible order within NCPHI first, taking people from the old way to the new way of doing things and preparing them educationally for the future. As it takes shape and matures, its broader reach within CDC and across public health will be addressed. Also discussed with regard to workforce and mentoring was the area of emerging communities of practice and how those would cross departments, areas, and disciplines.

In terms of the core areas, NCPHI now has three divisions in the proposed structure. The themes of science, research, practice-based applications and partnerships should inform all future organizational growth. Evaluation came up frequently during the September conference call. The group agreed that it is an important function for the center, but one that should not over-shadow the deep organizational work needing to be done. The bottom line pertains to the questions: How do we know this is working? How do we measure the impact of this? How do we evaluate this whole change process? Perhaps this group or another group should define a broad framework for evaluation of the new organization.

For the management approach, a systematic and methodical approach has been taken to-date regarding decision-making around project priorities and budget. NCPHI organizational strategy core principles refined program structure (portfolios of cross-NCPHI projects); matrix management (efficiency and effectiveness); and workforce and mentoring (internal NCPHI organizational structure supports career growth and advancement). Pervasive elements include emphases on science, research, practice, and partnerships; on-going effectiveness and efficiency evaluation of organizational structure to support delivery of mission; and evidence-based management (which would include the evaluation area).



Mr. Bonander added that one of the thematic questions that came out of the phone call with respect to workforce issues regarded whether this pertained to NCPHI only, all of CDC, outside of CDC, the public health informatics fellowship, et cetera. Thus, they thought the focus should first be to get NCPHI's "house in order" to make sure that there are mentoring and advancement opportunities within the organization facilitated by the structure itself. Once that is settled, consideration can be given to the informatics fellowship and other activities. The community of practice idea can also address some of these issues outside the organization. He also clarified that while the restructuring process was occurring, it was not yet official. They shifted in early September to the virtual proposed organization, but this is technically not official until MASO vets an organizational package within CDC and with CDC's human resources group. Official approval is expected in early 2009.

Discussion Points

- Dr. Friedman noted that previously there had been discussion pertaining to evaluating the change in structure, and now there appeared to be a sense of urgency to do something for a baseline since the change is already in motion. Perhaps the group should discuss what could be done before too much change occurs so that there is potential to measure the new relative to the old.
- Ms. McDonald said her first question would be: What are we trying to fix? Then they could figure out whether they had fixed it.
- Dr. Lenert responded that they were attempting to create a culture in which divisions were not competing with and withholding information from each other and not collaborating in programs. In most CDC centers, divisions have to go to scientific meetings to find out what is going on, given that there is little cross-divisional activity. The results is that there are often redundant, competitive programs. NCPHI wanted to shuffle everything to eliminate the redundancies and put in place the best experts for each area, along with teams for each project in order to find synergies and capabilities.
- With that in mind, it appeared to Ms. McDonald that they already had a baseline. While it probably was not a baseline that was countable in an epidemiological sense, social science efforts could be used to measure the baseline (e.g., interviews with objective persons to document previous problems, with a follow-up six months later, for example).
- Dr. Lynch pointed out that from past CDC reorganization efforts over the years, the measurable variables would be morale-related (e.g., people leave the organization, contentment, missing work, et cetera). Also measurable are how timelines for production of applications have improved over prior cycles for similar projects, although this is somewhat more difficult to measure. The end result is a more productive organization in all ways.
- Mr. Bonander noted that there was a pre-survey of personnel, so they do have these data.
- Dr. Lorenzi suggested that part of that survey could be replicated with some new components added. To address longitudinal changes, perhaps a survey could be conducted again in a year rather than six months because it does take a while to make changes.

- Speaking from the perspective of someone who has tried to run an informatics organization, Dr. Friedman observed that there are special things that these kinds of organizations try to do that could be the foci of questions that are probably best posed not to people in the organization, but to people within CDC but outside the organization. It seems to be very important, especially because of the kind of organization NCPHI is, to understand how it is viewed by others in CDC in addition to how people in NHPHI view the place in which they work. There are special things that informatics organizations tend to do, such as producing tools and resources that are used by people outside the organization and serve as a source of advice to others. Collaboration is much more central to such an organization's theme, which is part of the reason NCPHI was reorganized as it was. A complete evaluation would have this very interesting component to it of outward-looking investigation around some of the key efforts that NCPHI, by virtue of being an informatics organization, is trying to carry out.
- Dr. Lorenzi said that if the larger group accepted the principles set forth by the Organizational Issues Working Group, then the working group had completed its task and another group should be formed to address evaluation. Or the Organizational Issues Working Group could continue as is and shift its focus to evaluation.
- Dr. Davidson inquired as to how they started out with a core area on the first set of issues around principles focused on partnerships, practice-focused applications, and research and science, but now they were no longer the core principles (e.g., they are now labeled as pervasive elements). He requested further clarification about what "pervasive elements" meant. While he understood the need to have inward evaluation, they also heard a good story about Epi Info™, which is almost entirely outwardly focused. He was concerned that the scope of the evaluation was limited to the inward perspective. There are too many things going on to limit themselves to just getting the NCPHI "house in order." While that should occur, it should not be to the exclusion of the pervasive elements..
- Mr. Bonander responded that initially, when they had science and research, practice-oriented applications, and partnerships as one of the core elements, they mapped directly to the three divisions (e.g., physical structure). He extracted that out because science and research, practice-oriented applications, and partnerships are applied to everything that NCPHI does. If, for example, there is another physical division within NCPHI, these things ought to inform what goes on in that division. Dr. Lenert has spoken in the past about the potential for a Consumer Health Informatics Division in NCPHI. In essence, those principles ought to apply to that part of the new organizational structure.
- Dr. Davidson expressed hope that the evaluation efforts would extend beyond CDC. If he understood Dr. Nieves, it was about finding a community that wanted to participate in growth and development.
- In terms of next steps, Dr. LaVenture reminded everyone that there was a proposal on the table about either maintaining the existing group or beginning another to address evaluation. With respect to the initial charge of this working group, they needed to decide whether its charge was completed. Clearly there was a need to engage in some form of evaluation, to determine the scope of that, and not to take too much away from the busy change efforts.

- Dr. Lenert stressed that NCPHI was undertaking a massive change to the organization. If successful, it will be one of the first matrix organizations in CDC. The group has highlighted the problems, shown NCPHI the way forward, and has raised evaluation as an issue that should be addressed. NCPHI probably should work with the group in six months to determine how the change went, codify the knowledge, and assess whether they have really achieved the degree of matrix structure they would like. At this point, he thought the committee had fulfilled its charge. If they do not actually close out some business, they will never move on to other business. He did not want to keep expanding the working group's workload. NCPHI can offer updates from time to time regarding how the change is being accepted in six months or so, and can plan a more detailed survey in 12 months.
- Dr. Lorenzi cautioned against waiting six months, given that there may be some core issues to think about currently. Waiting six months to design an evaluation for something that is already established is too long. Perhaps an independent contract group should be engaged.
- While getting NCPHI's house in order is important, Ms. McDonald emphasized that NCPHI does work for use outside of the organization, which cannot be ignored. A local health department might be able to inform NCPHI quickly about where there are redundancies.
- Dr. Friedman inquired as to whether there was enough of a baseline from the survey that was already conducted, that there was no urgency to take a snapshot any further at this point within the organization.
- Mr. Bonander responded that he would have to look at the data.
- Dr. Lenert indicated that NCPHI would report back to the larger group during the spring meeting after they had an opportunity to analyze the baseline data that had already been collected.
- Dr. Davidson suggested that perhaps this could be done during the February 2009 meeting.
- Dr. Lenert thought it could be done by then.
- Dr. LaVenture wondered whether the group had any suggestions for NCPHI about key concepts they should be thinking about when examining the baseline survey data.
- Dr. Detmer expressed an interest in the workforce side.
- Dr. LaVenture wondered whether they could ask a few sample states to complete the baseline survey as well in order to capture their perceptions. While this would not be a perfect baseline, it would be a pragmatic way to take a broader look. This is an important change for CDC, so having even a little bit of data to inform the next step would be beneficial and perhaps help tell the story for other areas.
- Dr. Lenert responded that other customers include the CIOs within CDC. NCPHI has a perception problem with them as well, so they could survey some of the leadership there in terms of how easy it is to work with NCPHI, whether they are getting competent teams with whom to interface, et cetera. The point of the reorganization was to ensure an

interdisciplinary perspective, and the heart of informatics is to have the organizational, computational, and application people all on the same team.

- Dr. Freidman fully endorsed the outward looking investigation as well. He cautioned them not to underestimate how much of a cultural change, especially within a government agency, it was to move to a matrix organization structure. This is a major cultural change in an organization and it cannot be easily done. This has implications for evaluations and for how NCPHI proceeds to make the change moving forward.
- Dr. Goldman thought they were differentiating driving something top-down from an organizational structure and bottom-up: What needs to get done? Is it mission-driven? Am I empowered to do it? It seemed that explicitly exploring these two approaches would be useful in this context.
- Dr. LaVenture summarized the next steps as follows:
 - The Organizational Issues Working Group's charge is completed, but could include a write-up of the evaluation recommendation, capturing the flavor of the discussion during this session
 - By the February 13, 2009 meeting, there will be an attempt to achieve an evaluation of the current survey and consider key questions that are missing from that; and attempt to apply that survey to other centers and other stakeholders as appropriate
 - Some type of framework is needed to examine this in a broader sense of evaluation
- Dr. Freidman endorsed, as a modus operandi for the whole group, that the board finish tasks even though they may not have completely exhausted all things that could possibly be done. If it is good enough and progress has been made, there is a lot of turf to cover, and they must move forward.

BioSense

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Dr. Hanrahan reminded everyone that BioSense gets its authority from the Homeland Security Presidential Directive. BioSense is an innovative Biosurveillance program to increase the nation's emergency preparedness through the development of a national network for real time disease detection, monitoring, and health situational awareness. Its vision, mission, and values are as follows:

Vision: To provide an integrated picture of the health of the nation today and the health of its healthcare system.

Mission: To comprehensively monitor the healthcare system of the United States for evidence of acute health threats to the public.

Values: To support an open collaborative public health environment.

The BioSense Strategic Plan was developed in FY 2008. This plan outlines the details of the desired future state of the BioSense program. In October 2008, these strategies were further refined into the BioSense Tactical Plan. With respect to the process, the strategic plan detailed the future state of the program; classified new activities into eight strategic objectives and identified related major deliverables; was distributed to external stakeholders for review and feedback; and developed a high-level Work Breakdown Structure (WBS). Tactical Workgroups were established around the strategic objectives specified in the strategic plan. These workgroups were comprised of stakeholders from across NCPHI divisions and external state and local healthcare experts, and were tasked with decomposing the high-level WBS into more detailed work packages. With respect to WBS consolidation, the detailed work packages developed by the Tactical Workgroups were analyzed for interdependencies and synergies. A "Master WBS" was developed to inform the creation of the Tactical Plan. The Master WBS was utilized throughout the development of the tactical plan. The work packages developed by the Tactical Workgroups were refined into an overall approach with milestones. Feedback was incorporated from stakeholders regarding the strategic plan to inform the identification of milestones.

The tactical plan was designed to translate the previously outlined strategic plan into concrete activities; build upon current program successes; and leverage existing investments in real time surveillance systems. The tactical plan document itself includes an Executive Summary, Introduction, Roadmap (with milestones and status of activities for each focus area), Risks, and Next Steps. Specifically, the tactical plan describes the implementation of the strategic plan in the following five key focus areas: Recruitment of Data Sources and Enhanced Public Health Capacity; Technical Services and Open Collaborative Development; Enhanced Biosurveillance Functionality, Communication, Collaboration, and Workforce Development; and Scientific Research and Analysis.

Recruitment of data sources and enhanced public health capacity efforts will shift from soliciting data, to encouraging interchange at all levels of public health for more demonstrable stakeholder values (e.g., access, timeliness, efficiency, quality). The development of regional collaboratives will enable partnerships between public health jurisdictions for regional data exchange and surveillance. The support of linkages between public health and health information exchanges (HIEs) will result in advances in collaboration between healthcare and public health for the purpose of biosurveillance. Awarding of grants to state and local health departments will provide support to specific jurisdictions to improve and enable their real-time biosurveillance capabilities. Pursuing national recruitment will increase the range of data available to public health users.

With respect to technical services and open collaborative development, participation and collaboration will be driven by a federated architecture that will enable BioSense stakeholders to share data, information, applications, services, and analysis while retaining local control and stewardship. The development and deployment of Biosurveillance service infrastructure and core services will provide the basis to host, manage, and utilize services for the Biosurveillance community. The federation of existing state and local real time surveillance data sources will result in a shift to a distributed model, which allows data stewards to maintain control of data within their jurisdiction. Creating infrastructure for developing and deploying data services will result in transitions to a service-oriented architecture (SOA) for the program's application.

Implementation of a service repository for public health will allow stakeholders to locate and reuse existing services (e.g. text parsing, analytics, et cetera).

Pertaining to enhanced Biosurveillance functionality, a core set of services will be developed to provide common public health infrastructure components including: messaging, vocabulary, anonymization, Natural Language Processing (NLP), case detection, electronic lab reporting, cluster detection, clinical trials, and integration with HIEs. To achieve enhanced Biosurveillance functionality, BioSense will focus on enhancing capabilities and technologies to encourage clinical provider participation. This is expected to result in increases in partner participation through new capabilities and efficiencies that lower overall cost to exchange data and conduct public health functions. Refining and deploying Biosurveillance case detection technologies will result in the provision of timelier, more complete, and clinically detailed case detection through EMR-based reporting. Refining and deploying electronic laboratory reporting technologies will provide stakeholders with an automated laboratory reporting that is standards based, cost effective, and timely. Refining and deploying bloodstream infection monitoring technologies will increase the visibility of bloodstream infection reporting through messaging services. Ensuring operations, maintenance, and transition of existing applications will increase efficiencies, both technically and financially to the internal CDC pipeline activities.

Regarding communication, collaboration and workforce development, collaboration and commitments will be fostered among the public health community through targeted communication, collaboration, and workforce development initiatives. Development and implementation of a communications strategy and plan will improve impact through effectively developed and delivered communications messages and methods. Establishing collaborative development vehicles will enable collaborative development through the Community of Practice model. Fostering informatics workforce development will increase informatics capacity at the federal, state, and local levels through workforce development programs.

With respect to scientific research and analysis, research grants, cooperative agreements, and Centers of Excellence projects will advance biosurveillance knowledge and capabilities. BioSense's approach to scientific research and analysis includes support for research to develop innovative and promising approaches for real-time surveillance. This should result in innovative and promising technologies to improve Biosurveillance capabilities and workforce capacity.

Summary of the feedback received from Council of State and Territorial Epidemiologists (CSTE) is as follows:

- Develop a shared State and Federal purpose, vision and governance structure
- Address sustainability and integration of BioSense with current surveillance activities in states
- Operationalize ELR (by 2010) and focus on low hanging fruit such as Death Certificates
- Clarify "practical versus aspirational" approach

A fundamental issue in their feedback was that there is an overall lack of comprehension and understanding of the strategic plan. The proposed solution is to summarize the strategic plan into an executive-level document that more clearly expounds upon the concepts identified in the CSTE feedback.

Regarding next steps, the program will undergo extensive planning and budgeting efforts to ensure effective implementation of the tasks outlined. The plans are to develop detailed plans

for the various projects that comprise the BioSense program; assign resources and timelines to these projects; map project plans and timelines to funding streams; ensure budget development aligns with GAO requirements; and validate costs to provide credible and clear budget projections. With respect to performance management, the program will launch a process to update the BioSense measures and success factors. The plans for this effort are to define realistic public health outcomes and measures for the program; revise all reporting requirements both external and internal to CDC; and update target measures as funding levels for FY09 are finalized.

The BioSense program requested that the Board of Scientific Counselors consider the following in the upcoming weeks:

- Review and consideration of the tactical plan: Are the tactics appropriate? Are there any gaps?
- Weigh in on the performance measures: What are the appropriate process measures (e.g., population coverage, data types)? What are the appropriate outcome measures (e.g., health improvements; detecting the presence of an outbreak)?

Discussion Points

- Ms. McDonald expressed her appreciation, recognizing that moving toward a less centralized more global approach will be useful.
- Dr. Hersh found the plan to be greatly improved, noting that there were still some global issues that could not be addressed in the sense of how able and willing HIE's would be to feed data into this. This community that has a pretty advanced health record infrastructure has not been able to get it together in terms of HIE. This could be an impetus if people start recognizing that to participate they would need to do this. Until they have the HIE, they would have a very difficult time participating. The other issue that comes up is that there is some skepticism in the public health community about syndromic surveillance and whether the resources put into it are relative to other kinds of measures.
- Dr. Hanrahan noted that this is really the premier program to interface public health with clinical care. The impetus, authority, and directive is preparedness, but this is the opportunity to broaden it to other pandemics like diabetes and other chronic diseases. To the extent that this can be done addresses the concern that Dr. Hersh raised in terms of why so much is being invested in something that some might find questionable.
- Dr. Detmer noted that there is interest in developing a Masters level Applied Public Health Informatics competencies certification process. That would relate to this. They were invited, along with a number of organizations to collaborate in a letter to send to President Elect Obama. AMIA mentioned workforce development and CDC funding as being important priorities. Beginning in January 2009, AMIA will have a web-based newspaper called *Standards* in order to offer a one-stop shop about what is happening in the standards area internationally. One of the things that came out of the AMIA policy conference pertained to the value of looking at a common consent form for research. The idea of having the public health perspective engaged in that is a potential opportunity. There seemed to be quite a bit of interest in that, and consideration is being given to it as a topic for the 2009 conference.

- With respect to Google's involvement with disease detection, Dr. Lynch wondered whether this had been taken into account and how it fit into the BioSense strategy.

- Dr. Lenert responded that this is a difficult area. There has been the CDC National Biosurveillance Strategy Initiative, which has redefined many areas. Google representatives do believe they can do all of this by data mining. However, it is not clear what this means to the health care system.
- Dr. Lynch noted that four Google representatives attended the last HL7 Workgroup meeting. They spent quite a bit of time talking about how they get involved, not just from statistical capture of the web, but how they link into systems using HL7 standards to find messages in that infrastructure. They are quite serious about this and it goes beyond what they can capture from the web.
- Dr. Lenert responded that it created opportunities for them because they are the government, but if they undercut CDC's funding stream, this would be problematic. Yet, they are doing something interesting and valuable in this setting and they do want to do good. CDC does collaborate with Google through Dr. Gerberding's Biosurveillance Advisory Committee, but their views and strategies are not clear.
- Dr. Hersh noted that some of the major privacy groups have been critical of Google's approach, which may play into this as well.
- Dr. Friedman reminded everyone the ONC issued a collaborative health IT strategic plan in June 2009. The plan has two goals, the second of which introduced the construct of population health as an umbrella to embrace public health preparedness quality and biomedical research—all of the endeavors that use aggregated data. Seeing this presentation, he was reminded of one of the comments he makes when presenting this strategic plan about the importance of the country building one infrastructure for population health. BioSense, in many respects, is going to get there first. As such, it is going to be a resource for the nation and other components of the nation's population health infrastructure that needs to do things using some of these same methodologies in its own domains. He would like to see some explicit recognition. While this is there to be inferred, he would prefer that it be explicitly stated that many of the components being put forward as part of the BioSense tactical plan could have great potential for reusability as components of a nationwide population health infrastructure. The nation cannot afford to build separate infrastructures for the separate components of population health, so this is a major step forward that should be called out.
- Dr. Lenert replied that in the Obama Administration this could be done; however, in the Bush Administration the idea that this was dual use was not well-received. Clearly they want to make the statement that they are building components that are potentially useful (e.g., standards for summary data, interfaces for clarity, et cetera).
- Dr. Friedman indicated that the strategic plan which espoused the principles he just expressed was cleared by this administration.
- Dr. Lenert responded that it was good to know there was broad support, but CDC had been instructed otherwise in certain places with respect to dual use. The idea that BioSense would be dual use was certainly embraced early on in the program in 2006-2007.

- Dr. Davidson suggested that there may be a way to articulate movement toward dual use in the BioSense plan. The CSTE comments about sustainability and integration pertain to the question about the value. In his state, a system was put up for the DMC that was turned off. The state epidemiologists said they would not run it after it had been run for several months. They do not necessarily find ways to link value to partners. There may be ways to help hospitals do their own monitoring of hospital infections that they may not have the capacity themselves to do. This needs to be viewed not just from the perspective of a mandate to collect the data for the value to the national or a state, but that there is also a mandate in some ways for hospitals to believe that they can collect the data or find value in building these systems that will help them do their job as well. This relates to the idea about the exchange and creating value for all members that federate.
- From the perspective of dual or multiple use, Dr. Lynch pointed out that the FDA recently put out its roadmap for data standards for adverse event reporting. Part of that is also adopted heavily by NCI from the perspective of everything being built off of a standardized object model. With that in mind, he wondered if they were considering this from the BioSense perspective in terms of what the underlying model is for the data that will be collected and whether there is a way to tap into that work that is being done for the bridge model for clinical research that can extend the population research.
- Dr. Lenert replied that Dr. Lynch's company had been helping NCPHI. BioSense provides a generalized data model that has not been mapped into HL7 format. This has not been promulgated as standard as aggressively as the FDA, but the FDA did so in competition with the standards process from ONC. NCPHI has attempted to work more closely with the standards process model. The semantic interoperability pieces are critical, but BioSense is a tool for standardizing vocabulary in a hospital and transmitting the data out. A lot of standardizing of vocabularies is already being done across the country with BioSense.
- Dr. Lynch clarified that the point was the idea of reuse as they go into the grid infrastructure for doing this work. If they have adopted some pieces of that model on a grid basis, it would seem that they would want to reuse the things coming out of NCI and others for tools for analyzing some of that grid-based data. To that extent, they are tooling around specific models that might benefit NCPHI by also looking at how that tooling integrates into the grid.
- Dr. Lenert said they had not closely examined the data model piece. They have studied transport and security pretty heavily, perhaps because of the steep learning curve and difficulty of use they have heard it has. Clearly, if NCI heads down this path, that will bring the translational science people to that approach.
- Dr. Friedman stressed that they were in a very early stage of thinking about how all of these developments will come together. Nevertheless, on December 15-16, the next Nationwide Health Information Network (NHIN) Forum will take place. This will be the second trial implementation demonstration. The final choreography for this is not complete, but CDC will be part of that demonstration. The CTSA people are very interested in this, although he was not clear whether they would have any direct participation.
- Dr. LaVenture inquired as to whether the concept was to assure in the tactical plan that there was adequate linkage to NHIN in this process.

- Dr. Friedman responded that it would be great to call it out specifically in the plan, particularly given that CDC will be in attendance. In previous plans there has been explicit mention of NHIN, but he had not had a chance to check this. Although related, dual use is a somewhat different issue that pertains to BioSense and CDC's great efforts being a resource for the entire nationwide infrastructure in terms of population health because CDC will be first with many important efforts that need to be part of a larger infrastructure.
- Dr. LaVenture noted that epidemiologists have been skeptical at a state level about how all of this will work. They want a comprehensive national system and are struggling with their traditional systems and how best to modernize those. They have raised a few points that seem to be included, but there may be a communications gap. For example, CSTE's feedback to "operationalize ELR (by 2010) and focus on low hanging fruit such as death certificates" seemed to be reflected in the key focus area of "Enhanced Biosurveillance Functionality," which includes "refine and deploy electronic lab reporting technology." He wondered how best to incorporate their comments.
- Dr. Lenert thought the greatest gap from CSTE's point of view is that they would like ELR to be the number one priority and perhaps with semi-confirmed cases when they feel like it. They would like to see traditional channels strengthened. NCPHI's belief is that they cannot go forward without completing a national system of some sort first based on what syndromic analogy they put in place. Unless there is delivery on a national system, there will be no funding to continue the program to conduct ELR. CSTE probably feels the same way, but would like to see ELR funds come before the program is terminated; whereas, CDC would say the national system should be put in place first and then there would be a case to ask for funding. It is not clear how to resolve this; however, it does not seem that they will be able to sustain funding unless a fully national, real-time system is successfully created. Currently in place are the syndromic systems that have been created by the states and local that have to be stitched together into a national picture. While doing this, they can develop low cost, high utility ELR and case recognition technology. However, CSTE would say develop the technology first and then stitch it together. While CSTE's issues may actually be addressed in the BioSense tactical plan, it is a matter of priority. They would like to have the ELR everywhere first. The ELR is a different view point from what the Homeland Security Council wanted (e.g., BioSense in real-time to tell them what is going on in hospitals and to do early detection if possible). There is clearly a conflict. While it would be nice for CSTE to be patient with NCPHI and garner some credibility for NCPHI within Congress, that would be great, but Congress may not have much patience left since they want the entire US on a map with data coming in from the entire US in real-time. It is a communications and trust issue. A BioSense integrator or something like that should be in every hospital to forward critical data and provide summary measures of quality and population health. The right technology has not been developed for the integrator yet, although there is a prototype that is very close for the federating of databases at state and local levels. Perhaps the BSC-NCPHI could help to communicate better.
- Dr. LaVenture suggested that perhaps it was a matter of taking BioSense out of the broader context of surveillance, standards, and the other issues. If epidemiologists can better understand the national architecture for public health, where open source is going to fit in, and where BioSense is part of this, perhaps they will be more willing to put their resources into developing an open source component for death certificate or laboratory reporting in each of their areas knowing that it is going to contribute to a broader group.

- Dr. Hanrahan agreed that the issue is partially related to marketing, communication, and branding. The launching of the brand tended to ignore the way public health is organized in this country. What they have in front of them with the strategic and tactical plan, especially with the idea of federated surveillance, there is a solution that a federated system can be built that has local control and looks more like the way things are, but at the same time moves forward into much better technology. That is where the messaging and communication needs to focus.
- Dr. Goldman wondered what the implications were for NHIN development for the change over from the American Health Information Community (AHIC) to AHIC 2.0.
- Dr. Freidman responded that part of the charge to the AHEC successor is, over time, to assume the governance of the NHIN as it goes operational, which is expected in a limited way in 2009. This is all a graduated process and nothing will move until it is ready to be moved. Regarding an inquiry about whether this is private oversight, Dr. Friedman replied that the government remains involved in the AHIC successor. What continues is public / private oversight. The difference is that the locus of the governance body has moved from the public to the private sector. However, the notion of this being a public / private partnership does not change.
- With respect to how to conclude and the next steps or actions, Dr. LaVenture reminded everyone that this working group was charged to finish in September 2008 by reviewing the strategic plan, and was extended to review the tactical plan. Unless there is a need otherwise, this group's work will be wrapped up with the writing of a report on recommendations for the BSC-NCPHI, and summarizing the comments during this session. There is a clear transition with the Obama Administration and BioSense, which are both very significant. The group overall appeared to feel that the plan presented was a significant improvement to the previous version. It is more comprehensive, broader, and reflects major areas of focus in terms of surveillance overall. There clearly remain some issues related to communications as a sense of urgency, with questions about linking this to the NHIN as an example. The workforce issue is an important element in terms of implementing that piece as an area of emphasis. There is a notion of dual use and stressing that component and whether it is reflected in question 3 or elsewhere. Also of importance is how this fits into the actual grid piece more precisely discussed in the tactical plan.
- Dr. Davidson noted that they had received good feedback from CSTE. Hopefully, they could review CSTE's recommendations to determine what they have incorporated, what they could acknowledge, and what they could say is not possible currently. Not responding would be a failure in their ability to communicate better. They must begin to frame this in a way that partners can really hear it.
- Dr. Lenert indicated that they had just received the letter from CSTE a couple of days ago.
- Ms. McDonald expressed sadness to hear that the working group may be disbanded. In a tactical sense, this is a collection of things about what they ought to do next, but there are no real tactics.
- Dr. LaVenture stressed that the group had met their initial charge. If there was a belief that there is a next stage for the working group, the charge should be updated to include a clear deliverable.

- Dr. Lenert thought they had not done a good job of laying out the use cases for the new BioSense. The questions from CSTE reflect that they do not fully understand what NCPHI is proposing. NCPHI needs to lay out the vision of what this does: How does it work? What do you get out of each one of these things? For example, the BioSense integrator automatically detects the criteria for a case of gonorrhoea, voids that, and does not notify the CDC because it is not a notifiable condition. The BioSense integrator allows queries for hospital quality purposes into a summary data view. The federated data base technology allows the people in South Carolina to form a joint query with North Carolina, Tennessee, and Georgia to evaluate the trends of an illness that they have been monitoring in the community. It is crucial to elevate the importance of electronic lab reporting in this and to say that this is a tool for generalized lab reporting, with case recognition being earlier ELR reporting (e.g., 50% probability of a case rather than 100%; or a combination of signs and symptoms).
- Dr. Lynch suggested that perhaps one other way to view this instead of case reporting is case definition, and that they think about the reporting of elements that need to come through. That might sit better with the current efforts of CSTE on reportable events regardless of whether they are defined or not defined at some level of risk that it is a case.
- Dr. Lenert stressed that they should review the scenarios selected to ensure that they are clinically and public health wise plausible and are well-matched with the technology in order to ensure that they do not over-promise or under-promise anything. There must be a realistic view of what NCPHI expects to happen inside that. He was motivated by the compelling stories that made NHIN value come alive. Telling stories might be useful, and it would also be helpful to continue to review the tactical plan as it evolves. Phase II will be the actual work scope and resource allocations. That will not occur until February 2009.
- Dr. Davidson suggested that perhaps between this meeting and February, they could convene a call or communicate electronically. Referring to what Dr. Lenert said about a more detailed tactical plan and work breakdown structure, he wondered if this group should be involved at that level.
- Dr. Lenert thought it would be valuable for this working group to review this to determine whether if NCPHI is producing something that is plausible. If it is not, it needs to be re-worked.

Consensus

While a formal motion and vote were not made, Dr. McNabb stated that there appeared to be consensus regarding the next steps for the BioSense Working Group. The group will continue, with a modification to be made to its current charge. The group's new charge will be to review the plausibility of the case scenarios, and review the tactical plan and structure for that implementation. No objections were posed. Ms. McDonald and Larry Kingsland agreed to join the group. Dr. Lynch will not join the group, given that he may have a conflict of interest.

Epi Info™ Open Source Release

Enrique Nieves, PhD, MS, Acting Division Director
Division of Integrated Surveillance Systems & Service

David Nitschke
ITB Advisor, Epi Info™

Dr. Nieves noted that after the reorganization, the Division of Integrated Surveillance Systems and Services (DISSS) would become the Division of Public Health Systems and Services (DPHSS). Epi Info™ is a suite of tools for epidemiologists to develop questionnaires, data sets, and various file formats such as GIS. Epi Info™ began in 1985, but it took about 10 years for CDC to develop it into the Windows platform. Given that many were used to the DOS format, it took a while for people to become accustomed to the Windows platform. This format was released in 1999 (3.x) and is now at the 3.5.1 version, which is Vista compatible. The entire project was developed using several types of program languages (MS DOS, Visual Basic 6, Visual Basic 8 .net, C#). When CDC's philosophy changed to be more collaborative with respect to development, the code was reviewed to determine whether it could be released to the public. It seemed unfair to release a hodge-podge of codes that would be difficult for developers to enhance. The newest version is Epi Info™ 7, which is solely written in C# .net platform and was placed in Codeplex, a repository of open source code and programs that individuals and developers can improve and contribute to, which is for .net Window-type applications.

It was somewhat difficult to reach this point due to several challenges within CDC and the federal government bureaucracy. Since 9/11, one of the issues pertained to new security measures for the system inside the CDC firewall. Another issue regarding the fact that it takes a lot longer to incorporate new features because these must be put through a process of certification and assurances within the security standards. Thus, they decided to develop a community edition of Epi Info™ in order to release the code to the community, with the idea that the entire community would manage itself. There is a group of users known as Epi Info™ Friends, who are independent from CDC and who are very active in the Epi Info™ community. The code was released on November 14, 2008. DISSS is in the process of developing a Linux version of Epi Info™ with completely non-proprietary code. These files are going out to the public worldwide, for whomever wishes to download them, with an open source Apache 2.0 license. There are several types of open source licenses. DISSS consulted with the Office of General Council at CDC, which reviewed several types of licenses. The Apache 2.0 open source license was selected, given that it would protect the government and constituency interests better in that it allowed sharing and could safeguard CDC against any liability.

The current challenge is to set up an infrastructure within the organization to receive the contributions from the public, and to incorporate those contributions into the CDC version that goes through the security process within CDC. Dr. Nieves said he suspected that the Community Version of Epi Info™ would take off and would be the primary application at some point, while the CDC version will be used primarily by CDC, state and local health departments, and schools of public health.

Discussion Points

- Dr. Lynch inquired as to whether by the Linux version, Dr. Nieves meant C# implementation.
- Dr. Nieves responded that there is a project known as the Mono Project, which is basically a .net platform that is open source. DISSS has written C# and constructed the code in this open source environment, and has managed to get the code to compile in a Linux operating system. Currently it will be in Ubuntu, the most popular Linux operating system. This version will work with Ubuntu and will allow the users to develop data sets in the open source MySQL platform.
- Dr. Hanrahan said he thought of Epi Info™ as a desktop application. With respect to where surveillance is headed and the interaction with the healthcare sector, he wondered if there was an evolutionary development plan now that Epi Info™ is in the new friends and community environments to develop it in a way that it can be a service essentially for analysis, visualization, and reporting at the state and local levels in federated surveillance systems.
- Dr. Nieves responded that the strategy is to make Epi Info™ an application that is more integrated into either a public health grid or different systems like WHO's Open Health, for example. DISSS is currently considering modules for Epi Info™ and data synchronization, and is working with a group out of Washington State on this. DISSS also has the OMS, which they are trying to re-direct to make it more of a platform independent module that can be plugged into Epi Info™, Open Health, and some of the other systems that are open source. They are also trying to make this interoperable with the other set of NCPHI-sponsored applications, such as the Countermeasures Response Administration (CRA) application and the NEDSS Surveillance System. Of course, this strategic plan is contingent upon funding and other resources. DISSS hopes that Epi Info™ will become a popular suite so that it will be referred to, for example, as "OMS Powered by Epi Info™."
- Dr. Davidson requested further information about the Epi Info™ Friends community, what was done to engage them during the process of driving Epi Info™ to open source, and how they had an impact on the strategic plan.
- Dr. Nieves replied that a number of individuals who worked at CDC throughout the years, who helped to develop Epi Info™, are now in academia and other places. They are still interested, as are others. For years they have been asking for the code to enhance, contribute to, and help develop it further. For some unknown reason, CDC did not take the road to open source until Dr. Lenert joined NCPHI as the director and brought a new philosophy. It makes sense at this point if CDC is going to be interoperable with systems and get to the point where many routine applications are available. This community was pushing for more collaborative involvement, which is why CDC took Epi Info™ to the open source state.
- Mr. Nitschke added that Epi Info™ Friends is a Google group site that was begun by Andrew Dean, one of the original founders of the Epi Info™ project. By invitation, he was maintaining the community discussions in which the Epi Info™ Friends members engaged.
- Dr. Davidson inquired as to whether they envisioned the future of Epi Info™ as a web service.

- Dr. Nieves responded that he did not believe the entire suite would be a web service because there will be community distribution, although parts of it will certainly go in that direction if they are going to work as part of a public health grid.
- Dr. Lynch inquired as to whether standard platforms would now be C#.
- Dr. Nieves replied that C# was the “path of least resistance” with respect to the Microsoft and open source worlds. What made it possible to open sources was that the Mono Project allowed them to have a Windows application as open source because of this particular platform. Future rewrites will likely be more agnostic and in program languages that are more in sync with the open source philosophy and interoperability needs.
- Dr. LaVenture wondered whether there was anything occurring in terms of CDC support of the Epi Info™ Friends group.
- Dr. Nieves replied that the primary effort was to get the word out, ensuring that schools of public health, ministries of health, and practitioners know about this tool and the fact that coding is available for customization and enhancement by anyone who has the resources. This will help public health practice tremendously. Once Netscape went open source, many other applications came out of that. Usually when something goes open source, it takes off, so getting the word out is crucial. They must also be very conscious of the CDC security environment, which is a major challenge. It is very difficult to develop systems applications inside the CDC firewall. At some point an independent partner may be needed to help CDC speed up a lot of the development efforts.
- Dr. LaVenture noted that particularly in Minnesota, infection control practitioners use versions of Epi Info™ to track infection control activity. They gather the data from their laboratories and electronic health records and import it into Epi Info™ to create some of the graphs and charts. He indicated that earlier in the day, there was discussion regarding how to look at open EHR and support of the development of modules that examine population health and analyses. Epi Info™ is an example of a tool that provides epi-curves, basic graphics, and a lot of over-time information. He wondered if part of the vision was to allow for modules that support analysis in other large applications.
- Dr. Nieves responded they would like to maintain the focus on Epi Info™ as a tool for public health practitioners in addition to being able to handle the more micro world of outbreak management, and being able to use it in larger consolidations of data flows. Currently, CDC is engaged in discussions with Environmental Systems Research Institute, Inc. (ESRI) for the GIS component to work out the proprietary and non-proprietary issues and to determine whether some modules can be plugged in to enhance the analytic capabilities of Epi Info™. CDC would like to maintain focus on that because the foundation of the tool was the need for a tool like this for public health practitioners, and the need to create the questionnaires and data sets and to analyze the data in a micro or larger format.
- Dr. Davidson wondered how that would interface with other systems and receive data, the plans to use HL7, and the ability to aggregate data in this visualization and analysis tool.
- Dr. Nieves responded that they would have to move away from Epi Info™ in that scenario. What he meant by “Powered by Epi Info™” was recycling some of the Epi Info™ usable code to speed up a lot of the developmental applications that would handle what Dr.

Davidson mentioned. For example, OMS is outdated in terms of code. They would try to use components of Epi Info™ to help develop the next generation of OMS. Another reason to release code is to determine who can develop modules to plug into Epi Info™ to handle a larger global scenario in terms of data synchronization, such as data management working in the Director's Emergency Operations Center (DEOC) to handle data being received in real-time from different areas.

- Dr. McNabb noted that there would be a presentation in the afternoon about a global perspective.
- Dr. LaVenture expressed excitement about the work being done with Epi Info™, noting that he was with Andy Dean when he ran the first version of it on his CMP machine in Visual Basic in Minneapolis many years ago. It is likely that Epi Info™ has been used in many ways throughout the world that they may never know. An opportunity with the open source is that it will be in the growing area of public health interfaces in terms of receiving data in new ways or supporting the broader needs of public health.
- Mr. Nitschke indicated that the tools within Epi Info™ can be used independently on an ad hoc basis and can also be used as parts of other applications, for example, the creation of questionnaires that could be used to produce another application with Epi Info™ being behind the scenes powering the application known to the developer. Going open source with Epi Info™ provides a new paradigm and broadens the ability to expand Epi Info™ capabilities because there are several other projects around the world that are currently open source. For example, there are the EpiData Project in Sweden and the Epi Surveyor project, which is a PDA version that does similar work as Epi Info™. Because Epi Info™ was not open source it was difficult to integrate with open source projects. Epi Info™ now being open source provides a new avenue for integration.
- Dr. McNabb pointed out that virtually all of the epidemiologists at CDC are trained fundamentally in Epi Info™ as a part of their training process. It is one of the success stories of how to build an IT tool in that the original developers listened to the users, and it grew out of a need to meet the physical requirements. It should be written up as a way to develop an IT tool that has a wide continuing interest from all of the users. People are actively contributing to the Epi Info™ Friends forum, so there are many lessons learned. Challenging is that most epidemiologists are not well-trained in complex data structures, especially relational data bases. They can use the flat file analysis capacity of Epi Info™. It is easy to do the specific graphs, charts, and tables that are related to an epidemiologic analysis, but anything more complex challenges the ability of epidemiologists on a technical level. Consideration is being given to broadening the basic training program for Epidemic Intelligence Service (EIS) Officers to include data management and ways of dealing in more complex data environments with which everyone is faced. This is a source of tension and pushback at the agency.
- Dr. Nieves agreed, but stressed that the next generation of epidemiologists would likely be well-versed in relational data bases.
- Dr. LaVenture stressed the importance of capturing the lessons learned from the Epi Info™ story, which will help inform the open source discussion in terms of how to expand that to other parts of CDC.

- Dr. McNabb noted that Epi Info™ is trademarked because they could not copyright it, and that it is a project that CDC is very proud of.

Observations from CDC's Associate Director for Science

James W. Stephens, PhD
Associate Director for Science
Centers for Disease Control and Prevention

Dr. Stephens expressed his enjoyment from sitting in on the deliberations of the BSC-NCPHI throughout the day. He attends a number of the various BSC meetings throughout CDC, and is always amazed to observe the brain power that is brought together in a room, and the people who are willing to voluntarily provide CDC with extensive advice.

There is a requirement throughout CDC, which is new policy for all programs at CDC to undergo external peer review. CDC wants the BSCs to provide this review. To that end, they have been engaging in discussions with the various boards to get a sense of how they can be of best use to CDC in terms of providing scientific advice on programs. Boards are asked to review programs and provide recommendations, but would like to know what ways that CDC as an agency could respond to those recommendations that would be the most useful (e.g., standard templates for reports, guidelines on how to provide reports and recommendations, what format CDC should use to respond, et cetera). Perhaps it would be useful for BSCs as a whole to provide advice to CDC, highlighting specific things they would like the program to report back on at some interval. CDC recognizes that every program and every board is different, so too much standardization may not be productive. His office has generated a guidance document to provide advice to boards in terms of how to conduct reviews. This is not mandatory advice and it needs to be handled within the dynamics of individual boards and what they find to be the most useful means by which to operate.

Discussion Points

- Dr. McNabb indicated that this would be added to the agenda for the next meeting.
- Dr. Davidson noted that earlier in the discussion Dr. Lorenzi had created a visual diagram of a target and the idea that NCPHI being the center, CDC in the next ring, and other stakeholders in another ring. As they discussed what might be focused on NCPHI versus what might be more important to focus on in the CIOS, he was thinking about what the other boards were and where there is any message in these guidance activities that have been promulgated about interoperability across the entire CDC. NCPHI sees value in interpretability (IT or programs that depend upon IT to have interoperability), but it seems like that should be a guiding principle for all of the boards.
- While Dr. Stephens responded that he could not answer specifically in terms of IT interoperability, in general the idea has been raised about whether there is a mechanism to examine issues that cut across a variety of these groups. It struck him that the BSC-NCPHI board might be especially interested in that due to the very nature of the work that is conducted in NCPHI. He offered to share a list of other groups with the BSC-NCPHI, noting that there may also be interest in sharing agendas across the advisory groups. There may

be other advisory groups with whom the NCPHI board may wish to collaborate (e.g., perhaps to develop joint reports). In the sense that the work NCPHI does is tied to everything else that goes on in the organization, examining linkages would be important in understand the impact on other programs.

- Dr. LaVenture agreed that having a list of other boards would be helpful, as would the guidance document regarding peer review activities. This topic will be added to future agendas.

New Topics to Tackle

Communications

During this session, ideas were generated with respect to communications issues. The letter to the Secretary will be one component of the communications piece.

Discussion Points

- Suggestions for conveying key messages / themes to the new Secretary via a letter from the board about the importance of informatics to public health, the role of CDC, dual use principles, sustainability, funding, et cetera included the following:
 - Role as a board in supporting NCPHI efforts; as outside observers explain why the board see this activity as critical for the organization and the nation
 - Explain how the work that NCPHI does interrelates with other HHS operations (e.g., ONC, NHIN) and how all of this plays together in placing an emphasis on interoperability and being sure that it is not segregated in the sense that there is a plan for biosurveillance and for health information exchange
 - Start the letter with wording that indicates the future capability that NCPHI is working toward, and then build the excitement of what the possibilities will be once that occurs
 - Some parts of the interoperability story reside in the domain of informatics and overlap in the domain of HHS, especially with regard to medical devices and their ability to move data into the cloud; HHS support is needed in the area of medical device interpretability; most of the work has been further downstream in terms of data use in terms of NHIN; keep in mind that the data sources are medical devices
 - In addition to the stories, perhaps include an appendix for a deep dive of technology specifics to support this letter; stories are important, but must be carefully chosen to say “We would like to be able to do x x x and are working on x x x that will help to get us there. Please support us in that effort.”
 - With respect to NHIN and AMIA’s call for the spring meeting, the public has some real value in the electronic medical record realm, which has just been concerned with provisioning health care to individuals; public health is in the business of prevention; NCPHI and CDC are charged with providing that informatics backbone for public

- health; there is a major value proposition that public health brings to the NHIN and the practice of medicine, although it is future-based, public health's approach is part of the solution to the healthcare crisis in this country—funding is needed to make these impacts
- The PHIN effort in general to standardize public health data has, to a great extent, pushed the effort to standardize clinical data; CDC pushed SNOMED, LOINC, et cetera into the global world, so a significant contribution has been made from the public health sector already that has benefited all of clinical care; some challenges that must be dealt with due to the complexity of data, decisions, and support that pertain to population-based data are much more difficult in terms of predictive analyses for disease spread, et cetera are just as much about control at the individual level as it is at the population level—without that research that has been driven by public health, clinical care would have gaps
 - Dr. LaVenture will work with Dr. McNabb to draft the language of the letter, which will be emailed to members for review and comment, and it will be completed by January 21, 2009.
- The AMIA spring meeting has four tracts, one of which is Public Health Informatics. Perhaps the BSC-NCPHI, Dr. Lenert, and others could submit a panel. This is an excellent opportunity to communicate messages. By 12-15-08 NCPHI and the board will submit a panel to AMIA.
 - Define acronyms and well-document the meetings to preserve institutional memory.
 - A Communications Working Group should be formed, with the letter to the new Secretary being their first task [Drs. Hanrahan, Detmer, Lorenzi, and Davidson agreed to serve on this working group. Dr. Hanrahan agreed serve as Chair and John Anderton and Steve Reynolds may serve as staff support].

Standards

Cecil O. Lynch, MD, MS
Assistant Professor, Pathology Informatics Division
University of California, Davis

Dr. Lynch delivered the standards presentation on behalf of those who developed it, but were unable to attend.

Standards are critical for public health surveillance perspectives. A great deal of work has been done on that. Public health has long recognized the need to develop interoperable information systems to share vital public health data and information. Formally recognized biomedical standards are the most widely adopted vocabulary standards within public health:

- International Classification of Diseases, Ninth Revision, Clinical Modification (ICD9-CM);
- Systematized Nomenclature of Medicine Clinical Terms (SNOMED-CT);
- Health Level Seven (HL7); and
- Logical Observation Identifier Names Codes (LOINC)

The Consolidated Health Informatics (CHI) initiative, identified and mandated the use of vocabulary and messaging standards to facilitate electronic data and information exchange among federal government agencies. CDC is required by law to use CHI standards for both systems that they build or that they fund for others to build. There are standards associated with evaluation of clinical observations, laboratory observations, messaging, drug and pharmacy, race and ethnicity, anatomical observations, et cetera. This is part of the law and it is not open to debate.

The five components to NEDSS include: Policy (Case Notification), Standards (Message Specification Guides; Public Health Terminology—VADS), Funding (Epidemiology Laboratory Capacity Cooperative Agreements), Applications and Tools (NBS, MSS, COTS products [e.g., Rhapsody, GeoStan]), and Training (Rhapsody training). Application of standards in disease surveillance include Case Detection (LOINC, SNOMED, ICD-9 and 10), Electronic Laboratory Reporting (LOINC, SNOMED, HL7), Case Reporting (HITSP approved minimum data set; CDA Implementation) and Case Notification (PHIN Implementation Guides). PHIN compatible messaging includes secure messaging using PHINMS (ebms2.0 [Oasis ebxml], PKI, SSL, https), and secure reliable messaging (SRM) (WSI, WSRM).

With respect to application of standards in GIS, the governing bodies include: Federal Geographic Data Committee Standards, Open GIS Consortium Standards, and Geographic Names Information System (FIPS CODES – USGS has retired this standard as of January 1, 2006). Competencies include GIScience and Technology Body of Knowledge. Visualization includes: Symbology Standards: Points, Lines, Polygons; Typology Standards for Cartography and Mapping; and Color Standards for Choropleth Mapping.

Discussion Points

- Dr. Lenert indicated that there are limited resources for where to work with respect to standards, just as in everything else. They can sometimes cull standards and get that pushed through a standards organization. Other times CDC is just a participant trying to manage the process as it goes forward. Given the large number of standards organizations and potential areas for involvement, CDC clearly does not have the resources to cover all bases. Therefore, the board's input would be appreciated in trying to prioritize standards activities, taking into consideration the areas that NCPHI should lead versus areas in which other CDC organizations could assume the lead. NCPHI sends people to all of the standards meetings, sometimes having to send contractors at high hourly rates. Given the inability to hire federal employees with expertise, this is unavoidable. Most of NCPHI's expertise is through contractors employed by NCPHI. Contributions to this can be extraordinarily expensive, especially when it is a cost plus contract, in which someone on staff is taking the time out to do this. It would be helpful for the board to take into consideration the critical areas in public health for standards development, which organizations are the most important, whether NCPHI should be involved in device standards, how much activity CDC / NCPHI should be supporting in the standards area, et cetera.
- Dr. Detmer suggested that perhaps a Standards Working Group should be formed, about which the group seemed to be in agreement [The following agreed to join this group: Drs. Detmer, Goldman, and Lynch. Dr. Lynch agreed to serve as Chair and Dr. LaVenture will work with the group to help develop the charge].

- Dr. Lynch pointed out that there is a diminishing return on investment for standards that are well established, specifically terminology. There is no benefit for CDC to be involved specifically in attending meetings for SNOMED or LOINC. Contribution of codes to those systems to meet CDC's requirements is high on the priority list of those organizations. Simply submitting CDC's requirements is sufficient. CDC will never have the expertise that is at the level that the ITHDSO is going to require to make any real changes in the terminology model of how SNOMED is done, which is where participation in these organizations is most important.
- Dr. Goldman recognized the impossibility of having representation in all of the relevant activities, but it is effective to have descriptions of cases or needs that, once developed within NCPHI, could be circulated and used by various standards groups to support the needs. A working group could address finding a way to describe the needs and determine a way to share that with the various organizations so that they are all aligned.
- Dr. LaVenture suggested that they not rule out the issue of contactors. There are some highly expert individuals even at the city and county levels who could attend meetings and report back to CDC. This would also build capacity in their own regions. Therefore, consideration should be given to creative ways to build capacity among the workforce and at the same time send adequate representation to the groups that are a priority, while being mindful of budgets. One important effort is to move the workforce forward and broaden skills. That is an important limitation that the proposed working group would need to consider. With that in mind, he suggested that a draft charter be developed for the proposed Standards Working Group by the February 2009 teleconference.

Global Public Health Informatics

Tadesse Wuhib, MD, MPH

**Manager, Global Public Health Informatics Program
National Center for Public Health Informatics**

Dr. Wuhib reported on the 11th program of NCPHI, the Global Public Health Informatics Program (GPHIP). The US investment in global health has been increasing, particularly since the introduction in 2003 of the President's Emergency Plan for AIDS Relief (PEPFAR), which was a five-year \$15 billion program. PEPFAR was reauthorized at \$48 billion, and if that is not affected by the financial crisis, it will be a continued significant investment in global health on the part of the US. In the PEPFAR guidance, about 7% of funds are to be spent on strategic information that includes surveillance, monitoring, evaluation, and information systems. The second PEPFAR also alludes to health systems development, of which informatics is one of the pillars. The Atlanta operational budget for CDC's top global programs [Global Immunization Program (GIP); Global AIDS Program (GAP); Global Disease Detection (GDD); and Global Malaria Program (GMP)] is \$312.3 million and that does not include the allocation to countries where most of the PEPFAR dollars are allocated.

Informatics has overlapping needs (e.g., global, CDC, US government) that are relevant to NCPHI. There is a lack of global informatics standards, interoperability; duplication of efforts / resources (crowded with IT tools and software); fragmented information silos—multiple and poorly coordinated subsystems; and a need for global leadership. There is also a lack of a coherent, cross-cutting, and comprehensive country-level informatics strategy, architecture, and standards; implementation support; and management for CDC's support to countries. With respect to the US government, US interests to ensure global public health protection requires

international cooperation and health system strengthening. The time is right for bringing information technology to bear more positively on health information system challenges and for a global informatics and interoperability agenda. More than any time, attaining public health security depends on international cooperation and sharing of information. Recent information technology advances and standards create new opportunities to use informatics to strengthen and integrate and interoperate disparate tools and systems. There are new collaborative forums and important global initiatives in public health informatics, and there is a potential for high public health impact.

As a result of these issues, the NCPHI Governance Council approved the GPHIP as its 11th program, with core funding of approximately \$400,000 and three staff members. GPHIP is still considered to be a temporary activity, so they have to continue to show the value of this program. The key functions of GPHIP are coordination of NCPHI's global informatics efforts to provide systematic and strategic engagement in the global effort. There are two Secretariat functions, one Secretariat for CDC Global Public Health Informatics efforts, one Secretariat for WHO's Collaborating Center for Public Health Informatics. The structure includes NCPHI OD Office of Science, CDC Advisory Board, CDC Technical Working Groups, and WHO Collaborating Center Public Health Informatics Charter. The work of GPHIP addresses CDC's Goals of Healthy People in a Healthy World; and Healthy People Prepared for Emerging Health Threats. GPHIP areas of work are to create and develop a global informatics team supported by a roster of experts; support development of global partnerships, strategies, frameworks, and standards; provide country or sub-country level health information system support; open source development of interoperable epidemiologic tools on a global grid; develop and apply appropriate informatics solutions; contribute to global informatics capacity development; and enhance the science of informatics through global scientific forums. GPHIP is collecting input from the various CIOs about what they believe the priorities of this new program should be.

The proposed WHO Collaborating Center for Public Health Informatics is primarily sponsored by the Department of Health Statistics and Informatics and is co-sponsored by the International Health Regulation (IHR) Coordination. WHO recently reorganized itself and created a Department of Health Statistics and Informatics to try to organize their informatics efforts. The WHO Collaborating Center will have a linkage to the Pan American Health Organization (PAHO), which is a regional WHO office. NCPHI will serve as the Secretariat and Administrator at CDC and will access and catalyze participation of relevant entities across CDC, including through the CDC Advisory Board and Technical Working Groups. There will be a focus on public health informatics and it will be program neutral. Overall the common agenda for CDC, WHO, and NCPHI are revolving around global strategies, frameworks, and standards; supporting the implementation of the IHRs; providing country or sub-country level health information systems development, application, and management support; and support of interoperable epidemiologic tools on a global grid through open source collaborative development, which is increasingly becoming the centerpiece of WHO's and CDC's collaboration and common agenda, because it does entail a lot of the other elements.

GPHIP is under pressure to demonstrate value and generate resources. Some GPHIP project highlights / status include the following:

- DTRA Project (Uzbekistan, Kazakhstan, Georgia, Azerbaijan, Ukraine, and Armenia): initiated
- China: initiated
- Saudi Arabia: close to initiation
- IHR Global Monitoring Tool: initiated

- Global OpenHealth Grid: technical proposal under development
- PHIN and PHI 2009 in Atlanta: under discussion
- Proposed WHO Collaborating Center for Public health Informatics designation: in process

Armenia, China, Saudia Arabia, and Kenya are GPHIP's base of operational models where they articulate, implement, and support best practices of informatics. The DTRA project is grandfathered in, which is funded by DoD in support of country information systems. These programs are in various stages of implementation.

Discussion Points

- Dr. Lynch inquired as to whether there had been any standards participation in the development of ICD-11, the TCT-15 group, or also the European Commission. There appears to be a concentration of AIDS-heavy countries, but there are other surveillance efforts that would be particularly important for the US as well.
- Dr. Wuhib replied that GPHIP was just officially established in July 2008, so they are still in the development stages. Once development is settled, they will take into consideration who else should be partners. The WHO wants that to be a common agenda. They are beginning to articulate who should be involved and how to move forward with respect to the grid and standards.
- Dr. McNabb clarified that the way that collaborating center designation process goes is that a particular unit at WHO has established a working relationship with a particular entity such as the CDC. WHO sees a value in working with this group to provide technical expertise. The group that has been most aligned with NCPHI is the group at WHO's ICD-11 group is Health Metrics Network. WHO has tried to congeal all of the informatics elements of their office under the one department. There are four sections: Open Health, ICD-11, Health Metrics Network, and one other group. The IHR is a policy document that Secretary Leavitt signed in December 2005 requiring the US, as a member country, to report public health emergencies of international concern. CDC has had a long-term relationship with the team that runs the Secretariat. GPHIP is such a young program, this meeting was an opportunity to expose the BSC-NHPHI to it. As time goes on, there can be more extensive updates of the program, which fits within the board's purview.
- Dr. LaVenture noted that as this evolved, development of some activities will be very important. Perhaps there can be an update during the next in-person meeting in May 2009.
- Dr. Davidson requested further information about the statement that 7% of funding may go toward administration and that as much as \$11 billion would be spend in the next fiscal year.
- Dr. Wuhib responded that 7% is for strategic information (e.g., surveillance, monitoring, evaluation, information systems). The President's Emergency Plan for AIDS Relief (PEPFAR) reauthorization includes some additional language for health systems development, so they believe significant funding will be going into this area. With respect to what will be spent in the next fiscal year, this is very difficult to predict under the current administration.
- Dr. Davidson wondered if there was any discussion within CDC about how that might occur, and how NCPHI could play a role and the program might advance given an influx of funds.

- Dr. Wuhib replied that this is the desire. They have been dialoging with the Global AIDS Program and other centers to ensure that everyone is on board, and that their needs are being considered. The Global AIDS Program's Chief Information Officer indicated that 70% of their needs are unmet. There are great limitations on even expanding his operation in terms of FTEs. They have only two people working in this area for them.
- Dr. Freidman indicated that while the Office of the National Coordinator for Health Information Technology (ONCHIT) does not have a formal international program, they are trying to do what they can in realizing the importance of the global aspects of health IT. Dr. Lorenzi is contracted to help them with that. They are very interested in working together to align their efforts with NCPHI.
- Dr. LaVenture summarized that consideration should be given to a global vision of how this might look from the stories discussed (e.g., SARS and pandemic influenza).

Research Agenda

Les Lenert, MD

**Director, National Center for Public Health Informatics
Coordinating Center for Health Information and Service
Centers for Disease Control and Prevention**

Dr. Lenert indicated that NCPHI is committed for this fiscal year with its current activities. It would be beneficial for the board to submit recommended priorities to NCPHI by May 2009, so that this could be taken into consideration in NCPHI's 2010 funding cycle to adjust internal research priorities. NCPHI's current approach is to focus its research on the Center of Excellence. At this point, NCPHI has scaled back its R-01 commitments and other cooperative agreements for evaluation to focus on publishing a new RFA for its Centers of Excellence Program. If the board feels strongly about that current approach, he requested that they speak with him offline about this. However, given that the RFA will soon be published it is unlikely that they would be able to influence that area. His next goal would be to focus on R-01s should funds become available, followed by other types of research programs.

Informatics for Emergency Preparedness and Response for Mass Respiratory Support

Julian Marc Goldman, MD

**Director, Program on Interoperability
Center for Integration of Medicine and Innovation Technology
Massachusetts General Hospital**

Dr. Goldman indicated that he brought this topic to the board to determine whether there is a pathway that makes sense. A scenario being discussed currently in many circles is the potential for a population exposure to chemical biological weapons or an H5N1 pandemic, which may produce large numbers of affected civilians in severe acute respiratory failure. Mass respiratory support with mechanical ventilation would be required, and could require care by minimally skilled individuals in non-healthcare settings (e.g., high school gymnasiums).

With respect to current plans in such a scenario, of which there are many, there is a plan by the Biomedical Advanced Research and Development Authority (BARDA) for Non-Pharmacologic Respiratory Countermeasures [Advanced Development of Next Generation Portable Ventilators Solicitation Number: PreSol-HHS-BARDA-08-20]. There is an RFP out currently for low-cost ventilators of under \$2,000 that could be placed into the Strategic National Stockpile (SNS), with the ability to ramp-up to 10,000 units in six months. Other early planning may be addressing less expensive devices with much higher levels of ramp-up.

In thinking about such plans, there are a number of issues that must be addressed. There must be a means to permit population surveillance, with connectivity of devices and monitors at the local level for remote data access. Once a population is being managed with the devices, there must be a way to assess the population. It is necessary to monitor both the natural history of disease and to assess treatment efficacy in near real-time to determine whether patients are improving by themselves or if they deteriorate; whether there are management problems (e.g., with secretions, pulmonary barotraumas, or hypoxemia); and whether therapy is effective. Connecting ventilators, monitors, et cetera in local networks would allow for surveillance of the population as well as support of the group by relatively unskilled caregivers. It appears that what is needed is an open platform approach. With that in mind, he requested that the board take into consideration how they could provide input to the informatics implication of the current plans, understanding that the system is wide and deep. In addition, consideration should be given to whether this would fall under BioSense. Once RFPs are out and devices are in place, it is too late to deal with the connectivity and surveillance issues.

Discussion Points

- Dr. LaVenture inquired as to whether the group wanted to add this to their list for future topics as it relates to BioSense and the other pieces.
- Dr. Lenert responded that it would be excellent if the hospitals being stood up as surge capacity could connect to BioSense and that there was an electronic connecting tool. However, surge capacity is not within CDC's purview. With a new President, however, it is not yet known what the new Presidential Directives will be. Meanwhile, CDC's purview is the surveillance side of this rather than other activities. However, the idea that a smart device could be reporting to public health did not strike Dr. Lenert as being outside of the range of what NCPHI could be considering.
- Dr. Lynch thought they could perhaps play a role in pandemic flu in terms of the SNS for antivirals. He wondered whether this was within CDC's purview.
- Dr. Lenert responded that CDC manages the SNS, but not the Surge Capacity Stockpile.
- Dr. Lynch pointed out that managing the antitoxins for botulism is critical to understanding the management of botulism toxicity. If they thought it tied into distribution of antitoxin based on parameters that would allow them to rationalize distribution, a great deal of thinking would have to be done in this area. This goes a little beyond surge capacity simply because there are such limited supplies in that scenario.
- Dr. Lenert responded that this is Coordinating Office for Terrorism Preparedness & Emergency Response's (COTPER) turf. There might be an opportunity to convene a larger, broader group that might address this, but it is tricky for NCPHI because its lane of operation

is real time surveillance with BioSense. They do want to know what hospital capacity is, but they reach out to others to obtain that information.

- It made sense to Ms. McDonald that monitoring these devices in the real world would be part of the BioSense work.
- Dr. LaVenture recapped that the device issue should be added to the list to monitor, particularly with the administration transition.
- Dr. Goldman proposed that not only should they monitor it, but also there would not be very much to monitor if do not provide guidance, advice, or express their needs. While it may not fall under CDC's / NCPHI's purview, it seems inescapable that they address it somehow. "Monitor" seemed very passive.
- Dr. Lunch suggested that a presentation on this topic be made to the Joint Advisory Group for Homeland Security and HHS because they are dealing with surge capacity at that level.

Reflections on the Day

During this session, the following reflections on the day were offered by those present prior to adjourning:

- The meeting was extremely productive.
- This is an excellent group. The problems being considered are important and worthwhile. It is a pleasure to be a part of the board.
- The progress that NCPHI has made since the last meeting is extremely impressive. That progress allowed this meeting to be more effective with respect to getting more concrete direction on the work and gaps.
- It would be nice to see more information from NCPHI in real time as they are making progress. A document repository would be beneficial.
- As people practice communication, acronyms should be avoided.
- The evolution of NCPHI as an organization is becoming more positive, and the board is evolving to become more of an advisory group and is more productive.
- The Chair and Dr. McNabb were recognized for their excellent work.
- The dinner the night before was wonderful, and a lot of great ideas were put forward during this meeting.
- NCPHI really depends upon the board to be its check on its activities in terms of whether they make sense, are on the right path, are engaged in activities that will save lives and improve public health, et cetera. NCPHI needs tough love.

Public Comments

No public comments were offered during this NCPHI BSC meeting.



Certification

With no further business posed, Dr. McNabb officially adjourned the meeting.

I hereby certify that to the best of my knowledge, the foregoing Minutes of the November 20, 2008 BSC-NCPHI Meeting are accurate and complete:

1-9-09

Date

Martin LaVenture

Martin LaVenture, PhD, MPH, Chair
Board of Scientific Counselors:
National Center for Public Health Informatics