

***“Health Information Technology: Managing Federal Resources to
Reduce Health Disparities”***

**Subcommittee on Government Management, Organization and
Procurement**



Testimony of

Neil S. Calman MD
President and CEO
16 East 16th Street
New York, NY 10003

November 1, 2007

***“Health Information Technology: Managing Federal Resources to
Reduce Health Disparities”***

**Subcommittee on Government Management, Organization and
Procurement**

Testimony of

Neil S. Calman MD
President and CEO
The Institute for Family Health

EXECUTIVE SUMMARY

The Institute for Family Health is a federally qualified health center (FQHC) network operating primary care practices in the Bronx, Manhattan and, recently in the Mid-Hudson Valley as well. Founded in 1983, the Institute is dedicated to developing innovative ways to provide primary health services to underserved populations based on the family practice model of care. The Institute operates 16 full-time practices, and eight part-time practices that provide care for the homeless. Several additional clinical programs serve special populations, such as five Ryan White HIV/AIDS programs, and two free clinics that provide comprehensive primary care to the uninsured. Of the 75,000 patients served at the Institute’s sites, 67% are Black or Hispanic; 12% are uninsured; 40% receive Medicaid; 65% are below 200% of the federal poverty level; and 18% are estimated to require services in a language other than English. In 2006, over 1,000 patients served were homeless and more than 600 had HIV/AIDS. **Patients served by the Institute’s centers suffer disproportionately from an array of health problems prevalent in low income neighborhoods, including high rates of asthma, diabetes, hypertension, obesity, depression, mental illness, and substance abuse.**

In 2002, the Institute became one of the first community health center networks in the nation to implement a fully-integrated electronic medical record and practice management system throughout its network of ambulatory clinical sites. The Epic EHR (Epic Systems, Verona, Wisconsin) has allowed the Institute to enhance its services and significantly improve patient care through improved record-keeping, tracking systems, best practice alerts at the point of care, printable visit summaries given to patients at the end of each visit and a vast library of health education materials available to patients in multiple languages.

The motivation to develop this system was due, in part, to work developed by Bronx Health REACH, a CDC-funded project of which I am principal investigator. Bronx Health REACH involves more than 40 diverse organizations committed to eliminating racial disparities in diabetes and cardiovascular disease. Through its preliminary research and the implementation of a community action plan, the Coalition identified and highlighted vulnerabilities to disparate care faced by people of color: the importance of consistent, preventive care; building trust in our services in the communities we serve; and managing the chronic diseases suffered by our patients through sophisticated technology. **The Institute’s leadership recognized that, when placed in the service of underserved communities, EHRs offer tremendous potential to improve health outcomes and to aid in the reduction of racially and ethnically based**

disparities. However, this is not a guaranteed outcome of their implementation. Similarly, though health information exchange can improve care, it runs the risk of increasing disparities in care unless certain very specific criteria are developed. What follows below are specific recommendations for insuring that we get the maximum benefit for vulnerable populations out of the funding that we are about to spend on implementation health information technology nationally and implementing the national health information network.

Recommendations for Implementing Health Information Technology and Health Information Exchange to Maximize the Potential Benefits in Reducing Racial, Ethnic, Language and Economic Disparities in Health Care and Health Outcomes

The following recommendations are made to assist the legislature in maximizing the opportunities that health information technology provides in helping to reduce disparities in health care practices and health outcomes for people of color.

1. Insure that all legislation that supports the implementation of electronic health records targets those patients at highest risk on our society. This requires that
 - a. all developments have organized ways to ensure community participation in their planning and execution; and
 - b. providers in the health care safety net – community health centers and public hospitals – are included as primary targets for funding implementation of health information technology.
2. Insure that all legislation that supports health information exchange (HIE) includes provisions that safety-net providers – specifically community health centers and public hospitals – must be included in HIE networks.
 - a. This requires that they first be given the resources to implement electronic health records; and,
 - b. Specific funding for implementation and maintenance of connectivity to HIE networks for safety net providers who may otherwise be unable to pay for the needed interfaces of their systems with these networks.
3. Fund the integration of all EHRs, especially those in safety net facilities, into local, regional and state health department systems that monitor the disease burden in the community and help people optimize their preventive health care measures.
4. Mandate that all EHR systems capture data on race, ethnicity, gender and primary language so that providers can examine disparities that exist in treatment within their systems and address them through targeted efforts aimed at high risk populations.
5. Encourage EHR vendors to provide a mechanism for alerting providers to clinical trials which may be relevant to their patients. People of color are underrepresented in many clinical trials in this country and EHRs provide an easy way to identify patients who meet clinical trial criteria so that they may be offered the opportunity to participate. This improves the relevance of clinical findings of these studies to ethnically diverse populations.

6. Create criteria for EHR certification that require that information produced for patient consumption, such as health education materials, visit summaries, portals that allow patients internet access to their own health information – all be made available in multiple languages and at a 4th grade literacy level when needed.
7. Insure that rural areas are funded to deploy broadband technology and that broadband access is provided in all public housing being built. A timetable should be set to retrofit all existing public housing facilities with broadband capability.
8. Require the input of communities of color in planning privacy and security requirements for health information exchange, and in developing consent procedures for participation in health information exchange. There are well documented, legitimate reasons that issues of privacy, security and consent procedures will play out differently in communities of color. It must be re-established that information provided by patients and entered in their electronic health records, as well as information shared in health information exchange networks, is not subject to government use for purposes of identifying undocumented immigrants.
9. Provide resources for health information technology adoption in prisons, in the foster care system, for homeless health care providers, for migrant health care providers and for other providers serving vulnerable populations, so that these mobile and transient patients can have records that are available wherever they go for care.
10. Create a national system for specifically monitoring the impact of health information technology and health information exchange efforts on vulnerable populations, and tie future funding to successes in eliminating disparities in participation in these efforts and ultimately in the care improvements which result.

XXXXXX

“Health Information Technology: Managing Federal Resources to Reduce Health Disparities”

Subcommittee on Government Management, Organization and Procurement

Testimony of

Neil S. Calman MD
President and CEO

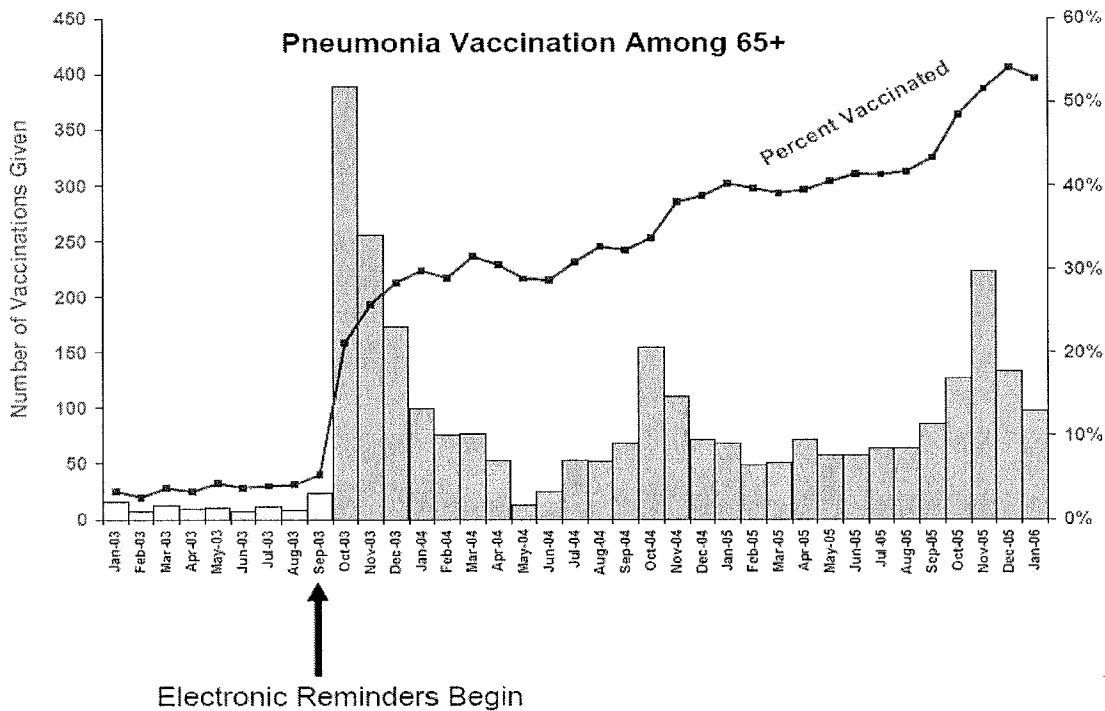
The Institute for Family Health

The Institute for Family Health is a federally qualified health center (FQHC) network operating primary care practices in the Bronx, Manhattan and, recently in the Mid-Hudson Valley as well. Founded in 1983, the Institute is dedicated to developing innovative ways to provide primary health services to underserved populations based on the family practice model of care. The Institute operates 16 full-time practices, and eight part-time practices that provide care for the homeless. Several additional clinical programs serve special populations, such as five Ryan White HIV/AIDS programs and two free clinics that provide comprehensive primary care to the uninsured. Of the 75,000 patients served at the Institute’s sites, 67% are Black or Hispanic; 12% are uninsured; 40% receive Medicaid; 65% are below 200% of the federal poverty level; and 18% are estimated to require services in a language other than English. In 2006, over 1,000 patients served were homeless and more than 600 had HIV/AIDS. **Patients served by the Institute’s centers suffer disproportionately from an array of health problems prevalent in low income neighborhoods, including high rates of asthma, diabetes, hypertension, obesity, depression, mental illness, and substance abuse.**

In 2002, the Institute became one of the first community health center networks in the nation to implement a fully-integrated electronic medical record and practice management system throughout its network of ambulatory clinical sites. The Epic EHR (Epic Systems, Verona, Wisconsin) has allowed the Institute to enhance its services and significantly improve patient care through improved record-keeping, tracking systems, best practice alerts at the point of care, printable visit summaries given to patients at the end of each visit and a vast library of health education materials available to patients in multiple languages.

The motivation to develop this system was due, in part, to work developed by Bronx Health REACH, a CDC-funded project of which I am principal investigator. Bronx Health REACH involves more than 40 diverse organizations committed to eliminating racial disparities in diabetes and cardiovascular disease. Through its preliminary research and the implementation of a community action plan, the Coalition has identified and highlighted vulnerabilities to disparate care faced by people of color: the importance of consistent, preventive care; building trust in our services in the communities we serve; and managing the chronic diseases suffered by our patients through sophisticated technology. **The Institute’s leadership recognized that, when placed in the service of underserved communities, EHRs offer tremendous potential to improve health outcomes and to aid in the reduction of racially and ethnically based disparities.**

The EHR system has enhanced the quality of patient care provided at the Institute’s sites, demonstrably increasing compliance with preventive care guidelines. Much of this improvement is due to the implementation of clinical decision supports, also known as “best practice alerts” or BPAs, triggered by evidence-based practice guidelines such as annual pap smears, obtaining mammograms at the recommended intervals, flu vaccines, and blood sugar testing for diabetics. Several clear examples of performance improvements in the care of patients with chronic illnesses can be reported in the period following the implementation of BPAs. The implementation of a BPA alerting physicians that pneumococcal vaccination is recommended for their patients resulted in an 18-fold increase in the rate of pneumococcal vaccines, as shown below. Similarly, a BPA for at-risk diabetic patients resulted in a 55% increase in the rates of referrals for ophthalmology (eye) appointments. The Institute’s success in implementing clinical decision supports and using EHR data to improve quality has laid the groundwork for creating a premier laboratory for testing broader public health initiatives to improve community health through primary care interventions.



The Institute has devoted significant resources and time in workflow redesign to advance communitywide health improvements through its collaborative efforts with the New York City Department of Health and Mental Hygiene (NYC DOHMH), one of the world’s largest public health agencies. With approximately 6,000 employees and an annual budget of more than \$1.5 billion, the Department’s programs encompass areas of disease control, environmental health, epidemiology, health care access and improvement, health promotion and disease prevention, and mental hygiene, serving the more than 8 million New York City residents as well as more than 3 million others who work or visit the City each day. The Institute’s work in collaborating

with the NYC DOHMH has enabled us to make sure that our patients receive the most up-to-date information about diseases prevalent in the communities we serve as well and, at the same time, informing the health department of the illnesses we are seeing in those communities for their further investigation.

The Institute's goal in establishing an EHR system was not only to improve the quality of patient care at its own practices, but to improve the health of the communities it serves. Federally qualified health centers have an important role to play in, and an obligation to advance, the harnessing of information technology for coordinated, communitywide efforts to improve health.

The following examples illustrate the importance of having an EHR as one tool in addressing health disparities in communities of color in the United States.

Syndromic Surveillance System

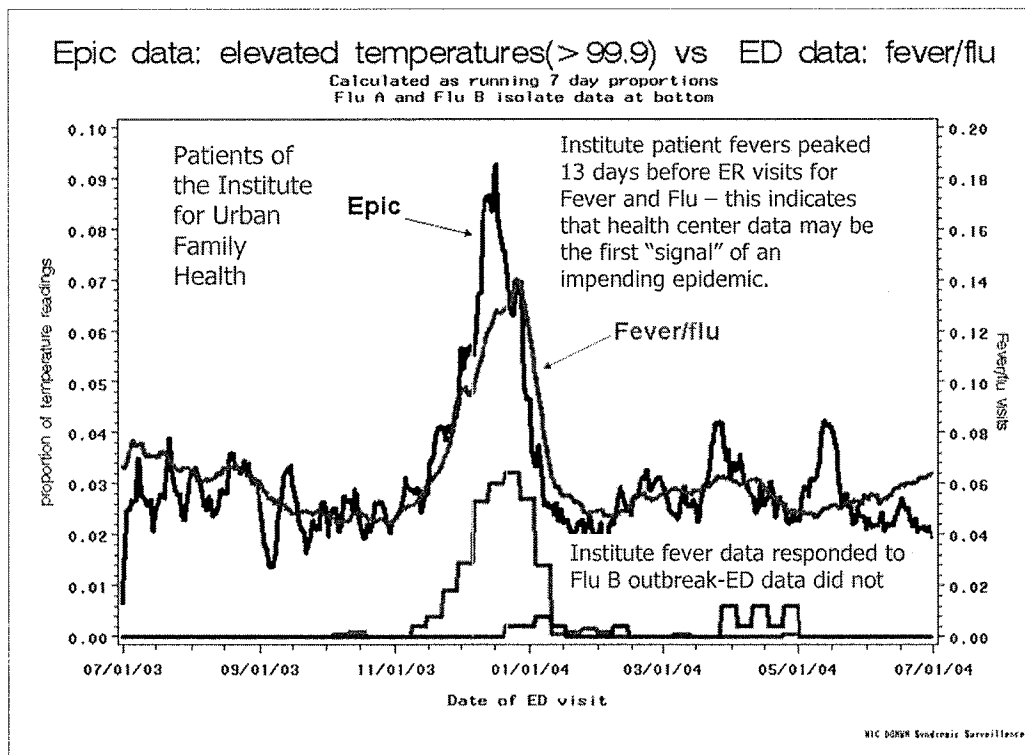
It is a well known but sad fact of public health that most disease outbreaks emerge from low income communities where health care is less available for a variety of reasons, including inadequate insurance coverage, lack of health education, and poor access to primary care. In addition, more people live in overcrowded or substandard housing, and many are homeless. Thus, linking patients in these communities to systems which are developed to monitor emerging disease epidemics is critical. These systems, commonly referred to as syndromic surveillance systems, obtain data from a variety of sources to identify disease outbreaks.

The Institute is the first community health center network in the United States to integrate clinical EHR data with a syndromic surveillance system. The NYC DOHMH system, established in 2002, monitors emergency department visits to detect disease outbreaks early. Chief complaint information is transmitted electronically to the health department daily, where it is analyzed for temporal and spatial aberrations. Respiratory illness, fever, diarrhea, and vomiting are the key syndromes analyzed. Statistically significant changes are investigated to determine their public health importance. Most bioterrorism agents and infectious disease epidemics of concern have a non-specific *prodrome* – a period when mild symptoms occur before the time when patients with more serious symptoms appear in ERs and hospitals. Detection of patients during this prodrome provides health departments with an early warning that may enable them to identify individuals who have been exposed and implement control measures to limit morbidity and mortality.

To enable this type of detection, the Institute has linked ambulatory EHR data from its practice sites to DOHMH's syndromic surveillance system. The Institute implemented the Public Health Information Networking Messaging System (PHIN-MS) – a secure encrypted data transfer mechanism by which daily data abstracts are transmitted to the health department. Every night, data on roughly 600 patient visits are downloaded to DOHMH. The data are compared to data from prior periods in previous years, and geospatially analyzed to detect any "outbreaks" of new symptoms or diseases. Early identification of illness in our practices can help the entire community.

While invisible to the clinical providers, the data integration allows for the identification of disease outbreaks, which are communicated to Institute clinical leadership by staff at DOHMH. Specific information is then communicated to providers through EHR alerts or other means, depending on the information to be conveyed. The Institute documents its response to the DOHMH notification, and provides this to the appropriate DOHMH staff.

The Syndromic Surveillance System integration provides the Institute and DOHMH with the ability to identify and act on new diseases and problems in our communities during a period when mild symptoms occur, prior to patients with more serious symptoms appearing in ERs and hospitals. Working with DOHMH, the Institute analyzed the EHR data to determine what clinical factors could predict both the rise and peak of a potential epidemic before it had surfaced in emergency room data. Ultimately, we determined that gauging measured temperature greater than 100° could enable us to predict the peak flu epidemic almost 10 days before the ER data, and days more before isolates were available to confirm the diagnosis. For example, during the period of March to May 2004, an outbreak of Flu B circulating in NYC was identified in the Institute's EHR temperature data days earlier than in the ER data. This demonstrates that community health centers are sentinels which, with the appropriate technology, can aid in detecting and reporting, and ultimately, preventing the spread of new diseases and problems in our communities.

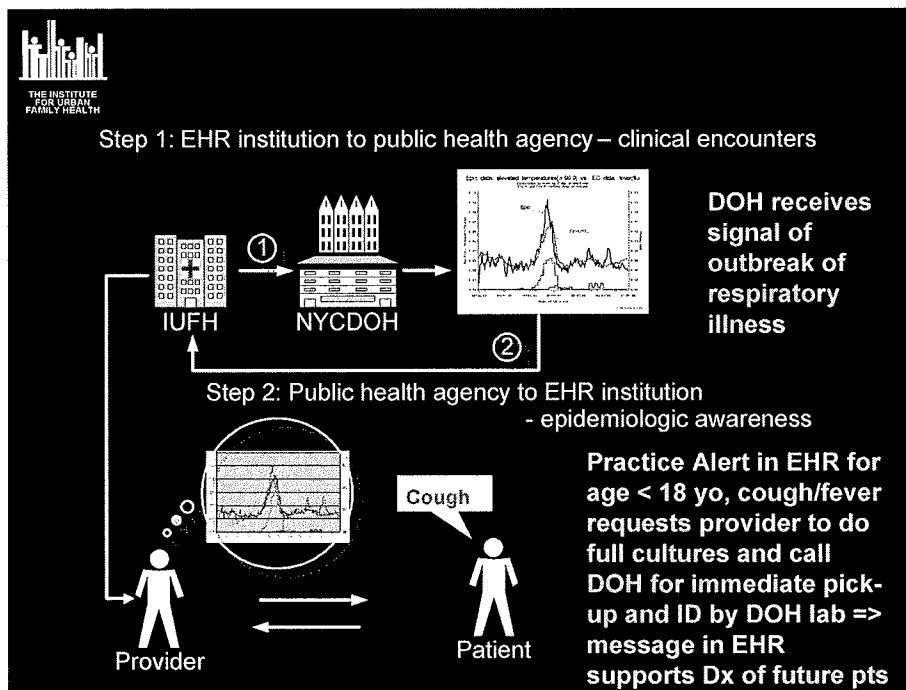


In the summer of 2007, there were two separate cases where epidemiologic alerts were transmitted from the health department, and the Institute immediately built decision supports in the EHR and linked them to documentation and order sets to enable providers to rapidly consider the new information provided by the department.

In the first case, a snack product called Veggie-Booty caused national concern when packages were found to be contaminated with Salmonella and a number of clinical cases were confirmed. As soon as this bulletin was received by the Institute, an alert was introduced into the system that was triggered by a chief complaint of diarrhea. This alert prompted the provider to ask about possible consumption of Veggie-Booty, and recommended appropriate diagnostic and therapeutic interventions if the history was confirmed.

A month or so later, there was an outbreak of Legionella pneumonia in the Parkchester area of the Bronx. An alert was introduced specifically for patients in our Parkchester center which prompted action by the provider in the event a patient in that area presented with respiratory symptoms. Thus the rapid integration of health department information into alerts at the point of care was accomplished successfully.

The bilateral communication with between our community health center network and the NYC DOHMH can be depicted in the diagram below.



Chronic Disease Management and Outcomes Reporting

Some of the greatest challenges facing public health and primary care providers today are the chronic disease “epidemics” such as diabetes, heart disease, and HIV. Computerized clinical decision supports within an EHR system can improve providers’ adherence to practice guidelines to address these conditions. In collaboration with the NYC DOHMH, the Institute has developed and implemented a model clinical decision support system at its practice sites that is

organized around New York City's public health priorities outlined in the *Take Care New York (TCNY)* initiative.

Launched in March 2004, *TCNY* set an ambitious agenda to prioritize coordinated actions that can help New York City improve health in ten key areas, each of which causes significant illness and death but is amenable to intervention. NYC DOHMH has estimated the health care burden and amenability to intervention, and established population-level targets for each of these priority intervention areas. The ten *TCNY* goals for patients are:

1. Have a regular doctor or other health care provider.
2. Be tobacco-free.
3. Keep your heart healthy
4. Know your HIV status.
5. Get help for depression.
6. Live free of alcohol and drugs.
7. Get checked for cancer.
8. Get the immunizations that you need.
9. Make your home safe and healthy
10. Have a healthy baby.

The Institute developed a model EHR-based clinical decision support system, built around these public health priorities, that produces, transfers, and applies locally relevant knowledge, applicable to both the target population and the New York City community as a whole. Through the development of this model, the identification of functional requirements for such a system, and an evaluation of its effectiveness, both the personal health care and public health benefit of such a system is being established.

The Institute's EHR-based clinical decision support is a knowledge management system that assists clinicians in problem solving (e.g. diagnosis) and decision making (e.g. treatment planning) in health care settings. Through this initiative, clinical decision supports have been built around New York City's *Take Care New York* initiative to address ten specific health objectives. The Institute's efforts focus on preventive care decision supports which can be accessed and used at the point of care by a clinician interfacing with the EHR. These supports are largely in the form of automated clinical reminders or "best-practice alerts" (BPAs) which can provide patient-specific advice at the time of a patient encounter.

The EHR-based clinical decision support system is used by the Institute's clinical services staff, including all providers, nurses, residents and the quality improvement and practice management teams. There are several levels of utilization within each clinical department which are defined by the role of the staff member. Members of the practice management team have the greatest involvement in the development and implementation of the clinical decision support system. All other members are end users of the system and have an interactive relationship with the system. The Institute provides quarterly reports on the use of *TCNY*-related clinical decision supports to NYC DOHMH, which, in turn, provides feedback to the Institute.

The development of each clinical decision support required needs analysis and design, logic/tool building, validating, implementation, training, and go live production. In addition there are

several post-implementation activities that require on-going support and maintenance, including data analysis and functional evaluation. In order to remain current with all public health standards and policies, the Institute, with guidance and support from the DOHMH, reassessed all clinical decision supports and re-programmed necessary adjustments to the developed software lifecycle and performed many rounds of fine-tuning.

For example, to help patients who actively use tobacco or who may be at high risk for tobacco use, we prompt providers to take a complete tobacco use history and to update this history as appropriate. The system then completes a series of algorithms to determine whether or not to trigger an alert to the provider based on diagnoses, health maintenance topics, gender, or age. The alert received by the provider will prompt him/her to review medications, order procedures, and click a link to obtain current guidelines or other patient education material. In the tobacco use example, patients can be linked directly to a separate health initiative, the New York State Quitline, to obtain assistance and support to stop smoking,

The EHR-based clinical decision support system built around public health priorities has improved adherence to clinical guidelines among Institute providers, including depression and cancer screening. This effort has resulted in the development of a model decision support system, which includes over 40 expert-reviewed clinical measures and provides a foundation for implementing EHR-based, public health-oriented, quality improvement tools throughout New York City. Having recently acquired its own EHR licenses, the NYC DOHMH plans to roll out the model decision support system developed with the Institute at public health clinics and other ambulatory settings across the City. This expansion will enable NYC DOHMH to enhance its ability to measure progress on its *TCNY* objectives, and, with the introduction of related clinical decision supports, to enhance its progress towards improved chronic disease management.

Racial and Ethnic Disparities in Health

While quality improvement efforts in health care have led to substantial improvement in health across racial and ethnic groups, these improvements have not succeeded in closing the gap in health outcomes between certain minority populations and those of white America. Racial and ethnic disparities in health have been widely documented in our community and across the country. Over 80% of the hundreds of studies looking at race and health outcomes confirm that people of color get inferior care and have poorer health status. While minority communities have typically been the last to benefit from advances in medical technology, EHRs hold much potential for improving health care in these communities.

The Institute has launched a critical initiative, based on its organizational experience and interest in eliminating racial and ethnic disparities in health outcomes. The goal of this initiative is to demonstrate the use of an EHR system to identify disparities in health processes and outcomes among its own patients, to explore the root of these disparities, and to implement interventions to address them. This initiative grew out of earlier work to identify the community's perspective on health disparities, and findings that included widespread distrust and fear of the health care system, feeling undervalued and disrespected, difficulty communicating with doctors, concerns about the competency of

community doctors, and the importance of self-advocacy.¹ The Institute's EHR implementation and workflow redesign was conducted with these findings in mind, resulting in features such as flat panel monitors that enable patients to view the EHR screen, and printed visit summaries that highlight key information for patients.²

The Institute is furthering this agenda by exploring specific care processes that may contribute to health disparities. We will identify the specific elements in care among practice sites and practitioners that contribute to the highest quality of care and optimal health outcomes for patients at the Institute's health centers, and to determine whether these elements can be replicated at additional practice sites to improve patient outcomes. The Institute's initial efforts in this area focus on disparities among patients with diabetes, one of the most prevalent conditions affecting our patients and the communities we serve. This effort is managed by the Institute's Continuous Quality Improvement (CQI) staff, which reviews data system-wide to identify health disparities and best practices, and communicates them to Institute providers. As best practices for reducing racial and ethnic health disparities are identified, they will be integrated into the EHR's clinical decision support system. End users of the system will be prompted to follow the recommended guidelines. The impact of alerts and other practices resulting from this effort are monitored by the CQI staff.

Together with a project advisory committee, the Institute is establishing measures of optimal health outcomes for diabetic patients and identifying areas of potential intervention that are likely to be sources of variation in diabetes outcomes, and that are actionable in the context of our healthcare system. We are conducting case-control analyses of our data in order to identify areas in which well-controlled and poorly-controlled diabetes patients differ in their interactions with our healthcare system, and analyzing the extent to which these differences correlate with race.

Upon identification of differences in clinical practices, as well as differences in provider or patient behaviors that mediate the relationship between race and diabetes outcomes, the Institute and advisory board selected best practices to be replicated. The two practices which appear to have great promise for improved diabetic control are increasing the frequency of visits early in the treatment of the disease, and increasing the use of nutritionists and health educators to help patient develop a deeper understanding of diabetes and its treatment. Implementation of the best practices involves EHR programming, staff training, and data monitoring and analyses to ensure appropriate application of these interventions and to measure their impact.

By building best practices for addressing racial and ethnic health disparities into its EHR, the Institute is able to implement quality improvement efforts that have an impact not just on overall health care quality, but have the potential to break through "parallel improvements" to truly reduce gaps in disparate health outcomes. This model can be

¹ Kaplan SA, Calman NS, Golub M, Davis JH, Ruddock C, Billings J. Racial and ethnic disparities in health: a view from the South Bronx. *Journal of Health Care for the Poor and Underserved*. 2006 Feb;17(1):116-27.

² Calman, NS, Golub M, Kitson K, Ruddock C. Electronic Health Records: The Use of Technology to Eliminate Racial Disparities in Health Outcomes. In: *Medical Informatics: An Executive Primer*. Health Information and Management Systems Society, Chicago, IL. Kenneth Ong, MD, Editor. January 2007.

replicated by other health care providers to help them address health disparities in their communities.

Public Health Registries

Low income communities in New York City, which are also largely communities of color, often lack a primary care home and receive sporadic care. In order to insure that children are properly immunized and tested for lead poisoning, the Institute has worked with the NYC DOHMH to create the real-time exchange of public health data. Our joint development started with the Citywide Immunization Registry. The Institute purchased and programmed an immunization interface license with Epic in HL7 format allowing the exchange of outgoing immunization information to be received by the registry. This initiative is currently being implemented and is in the technical testing stage.

The Institute is the beta testing site for the initiative to link clinical EHR data with NYC DOHMH's citywide immunization and lead registries, having provided historical batch data for this purpose. The linkage between the two organizations allows for continuous updates to the City's registries, enabling NYC DOHMH to maintain current data in the registry. It also allows the Institute's providers to make online submissions to the registries directly from the patient's EHR, eliminating the need for separate documentation and submission of required registry data.

The creation of linkages between ambulatory care providers and public health registries creates value in several ways. Health care providers experience greater efficiencies in documenting and submitting reportable data, leading to improved reporting and more complete public health data. Two-way integration with EHRs, once fully operational, will enable authorized providers to access immunization and lead test histories from the registry, and can be linked to clinical decision supports. The outcome of this endeavor will allow the Institute and the DOHMH to generate registry information updates and evaluation regularly and with limited errors.

Some General Considerations

Costs and Benefits

The Institute's work on the initiatives implemented in collaboration with DOHMH has been supported with grant funds provided through DOHMH's Primary Care Information Project. The racial and ethnic health disparities initiative is supported by the Commonwealth Fund, building on years of support by the Centers for Disease Control REACH Initiative. Additional staff costs have been covered by the Institute, as addressing community needs is an integral part of its mission.

The value of an EHR system is driven by its functionality. Thus, these initiatives increase the value of our system by enhancing its ability to serve as a tool for improving the health care we deliver to the community, particularly with regard to chronic care, preventive care, and the elimination of health disparities. Once the models have been developed and implemented to incorporate public health data and health priorities, and to address health disparities, they can be modified to address changing needs. These models are replicable applications that can be

translated across EHR products and across communities. Is there a return on our investment in the EPIC EHR and the public health functionality we have built into it?

Improved Provider Productivity?	<i>Probably</i> – depending on decision supports keeps providers from reviewing flow charts for all chronic diseases. If no alerts appear, all required health maintenance and secondary preventive procedures are done and up to date.
Improved Efficiency of Support Staff ?	<i>Yes</i> - improved messaging, faster communication
Reduction in Support Staff ?	<i>No</i> – More outreach staff needed to follow-up on new information on patients not previously available. EHR reports highlight areas of performance weakness in the delivery system that often require new resources to fix.
Improved Outcomes for Patients in Pay-for-performance Plans ?	<i>Yes</i> – proven interventions work to improve compliance with some preventive measures– however this has not been a universal experience with all decision supports in all chronic disease areas.
Improved staff retention?	<i>Unknown</i> at present – needs to be studied
Improved patient satisfaction?	<i>Definitely.</i> Patients note increased involvement in their care, improved access to health information, and increased confidence in their providers.
Increased physician work in patient follow-up and outreach?	<i>Definitely</i> – more information means more follow-up is needed. It takes more time and resources to deliver the improved care that EHRs allow us to provide.
Need for new staff for software, hardware, network support?	<i>Yes</i>
Need to develop outreach staff for report follow-up?	<i>Yes</i> – and staff needs to be bilingual in our population. These are new job functions.
Decrease in health disparities?	<i>The promise is there.</i> The proof is not yet in whether we can decrease disparities in outcomes within a center or network, since people of color come in with poorer historical care and at worse levels of disease. EHRs enable us to study this and increase interventions for those at higher risk – which holds great promise for decreasing disparities in care.

System Cost

In an implementation like this, it is almost impossible to identify the costs in a way that would be meaningful for those who would want to engage in such an effort. The actual costs of purchasing the software from Epic, configuring it and developing its functionality in our health center network is approximately \$50,000 per provider. The ongoing costs run approximately \$9 per patient visit, but about half of that amount is development work that is supported by research and HIT implementation funding in our system.

Beyond the finance however, lies the most important aspect of these projects. They demonstrate the important role that community health care providers can play, both as leaders and participants, in health information technology projects aimed at improving community health and decreasing disparities.

Due to the important roles that patients play on both the Institute's Board of Directors and Project Advisory Committees, the Institute ensures that its patients are represented in the development and assessment of HIT systems and standards. We believe that participation by those at all levels of the health care system is required for an optimal, truly integrated health information system to become a reality.

Privacy Protection

The Institute maintains the privacy and security of data entered into the Epic system through a series of system features, such as password protection, strict control of access to system modules based on users' assigned roles, further restrictions for records containing sensitive information, such as employees who are patients, "break the glass" features requiring justification for record access, and an audit trail tracking user access to records. System access from remote locations is secured through a private frame relay network. There is an industry standard (Watchguard) firewall in place to prevent access to the Institute's network from external sources. Access from external locations, such as providers accessing the system from home, is done via encrypted Virtual Private Network connections.

All data provided for the syndromic surveillance system, EHR-based clinical decision support system, and the city-wide immunization registry is de-identified. The de-identification process includes stripping all identifying information from the feed. An automatically generated internal database identifier is used to link all necessary health information, which is passed through a secure encrypted data transfer mechanism to the DOHMH.

Dissemination of Knowledge

Institute leaders participate actively in local, state, and national forums on the adoption and assessment of electronic health records. I serve on the Executive Committee of New York City's Primary Care Health Information Consortium, a group formed by the NYC DOHMH, the Primary Care Development Corporation, the Community Health Care Association of New York State, and more than 30 community health centers. I also serve on the New York State e-Health Consortium, a statewide group that examines policy regarding the use of HIT and coordinates the

work of over 25 Regional Health Information Organizations (RHIOs), and on the National Quality Forum Ambulatory Care Measures Disparities Subcommittee.

I have presented the Institute's work on using electronic health records to improve public health and reduce health disparities to the National Association of Community Health Centers, the Agency for Healthcare Research and Quality, and the Health Resources and Services Administration.

Finally, the New York City Department of Health and Mental Hygiene, in partnership with the Institute for Family Health and Columbia University's Department of Biomedical Informatics, has received designation as a National Center of Excellence in Public Health Informatics, and I serve as the principal investigator of one of the Center's two major initiatives.

The Institute is committed to the use of health information technology to improve the health of our patients, the communities we serve, and the public, and to insuring that the advances in health care made possible by HIT benefit all members of the community – especially those living in low income, minority, and underserved communities. We are further committed to making the lessons we learn widely available through presentations and publications and ongoing involvement of the community in our future HIT endeavors.

Could Implementing Health Information Technology and Health Information Exchange Worsen Racial, Ethnic, Language and Economic Disparities in Health Care and Health Care Outcomes?

Disparities could worsen if:

- The computer literacy gap gets added to the health literacy gap as an obstacle that people have to overcome;
- Only providers who treat wealthy patients have access to funding to pay for technology implementation and for participation in health information exchanges;
- Safety net providers use resources currently needed for other critical issues to pay for their technology, and therefore have to reduce other needed services;
- Patient portals and email correspondence are used more and more, and this leaves lots of patients out of the system;
- Fear of government access of health records acts as a disincentive for patients who are undocumented to use health services;
- Groups of patients, especially underrepresented minorities who are discriminated against now in the health care system, have real fears about misuse of their health care information;
- Uninsured patients may not have a medical home – so they may not have the same access to someone who can explain why they should participate in the NHIN, may not have a consolidated primary care record, may go to providers who don't have EHRs;

Recommendations for Implementing Health Information Technology and Health Information Exchange to Maximize the Potential Benefits in Reducing Racial, Ethnic, Language and Economic Disparities in Health Care and Health Outcomes

The following recommendations are made to assist the legislature in maximizing the opportunities that health information technology provides in helping to reduce disparities in health care practices and health outcomes for people of color.

1. Insure that all legislation that supports the implementation of electronic health records targets those patients at highest risk on our society. This requires that
 - a. all developments have organized ways for community participation in their planning and execution; and,
 - b. providers in the health care safety net – community health centers and public hospitals – are included as primary targets for finding implementation of health information technology.
2. Insure that all legislation that supports health information exchange (HIE) includes provisions that safety-net providers – specifically community health centers and public hospitals – must be included in HIE networks.
 - a. This requires that they first be given the resources to implement electronic health records; and
 - b. Specific funding for implementation and maintenance of connectivity to HIE networks for safety net providers who may otherwise be unable to pay for the needed interfaces of their systems with these networks.
3. Fund the integration of all EHRs, especially those in safety net facilities, into local, regional and state health department systems that monitor the disease burden in the community, and help people optimize their preventive health care measures.
4. Mandate that all EHR systems capture data on race, ethnicity, gender and primary language so that providers can examine disparities that exist in treatment within their systems and address them through targeted efforts aimed at high risk populations.
5. Encourage EHR vendors to provide a mechanism for alerting providers to clinical trials which may be relevant to their patients. People of color are underrepresented in many clinical trials in this country and EHRs provide an easy way to identify patients who meet clinical trial criteria so that they may be offered the opportunity to participate. This improves the relevance of clinical findings of these studies to ethnically diverse populations.
6. Create criteria for EHR certification that require that information produced for patient consumption, such as health education materials, visit summaries, and portals that allow patients internet access to their own health information, be made available in multiple languages and at a 4th grade literacy level when needed.

7. Insure that rural areas are funded to deploy broadband technology, and that broadband access is provided in all public housing being built. A timetable should be set to retrofit all existing public housing facilities with broadband capability.
8. Require the input of communities of color in planning privacy and security requirements for health information exchange, and in developing consent procedures for participation in health information exchange. There are well documented, legitimate reasons that issues of privacy, security and consent procedures will play out differently in communities of color. It must be re-established that information provided by patients and entered in their electronic health records, as well as information shared in health information exchange networks, is not subject to government use for purposes of identifying undocumented immigrants.
9. Provide resources for health information technology adoption in prisons, in the foster care system, for homeless health care providers, for migrant health care providers, and for other providers serving vulnerable populations so that these mobile and transient patients can have records that are available wherever they may go.
10. Create a national system for specifically monitoring the impact of health information technology and health information exchange efforts on vulnerable populations, and tie future funding to successes in eliminating disparities in participation in these efforts and ultimately in the care improvements which result.

XXXXXX

For more information contact:

Neil S. Calman MD
President and CEO
The Institute for Family Health
16 East 16th Street
New York, NY 10003
212-633-0800 x 1255
ncalman@institute2000.org
www.institute2000.org