

1. Title

Promoting Access to Services for At-Risk Populations: Advanced Use of an EHR at the Institute for Family Health

2. Background knowledge

Community health centers' (CHCs) experiences in underserved communities reflect the well-documented reality that disparities in meaningful access to care – whether because of insurance status, language/cultural barriers, health literacy level, or other reasons – contribute to poor health outcomes. Persons of color live fewer, sicker years than their white counterparts, are disproportionately affected by the growing burden of chronic illness, and are over-represented in the ranks of the uninsured. There is evidence that lack of health insurance may be linked to more than 45,000 deaths annually, and low-income Americans routinely report having poor health more frequently than those with higher-incomes. Across the U.S., disparities in health have not improved significantly, despite substantial efforts to reduce them. CHCs serve a disproportionate number of patients from communities affected by access barriers, and have made the elimination of these disparities central to their mission.

Electronic health records enable CHCs and other providers to employ innovations to improve access to care, particularly preventive care and care for chronic illnesses, in which disparities are entrenched. A majority of CHCs have or will soon adopt EHRs, and are striving to achieve federal “meaningful use” standards related to quality, care coordination, and patient engagement. Unfortunately, achievement of these criteria may not be enough to increase access by patients most at risk of poor health outcomes.

The Institute for Family Health is a federally-qualified health center network that develops innovative ways to provide primary health services to both urban and rural underserved populations based on the family practice model of care. The Institute operates 17 full-time health centers and nine part-time sites in Manhattan, the Bronx, and the Mid-Hudson Valley region of New York State that together serve 90,000 patients annually. In 2002, the Institute became one of the first CHCs in the country to implement an EHR system, Epic (Verona, WI), throughout its network. Since then, the Institute has been nationally recognized for its leadership in using health information technology to improve care of underserved populations.

3. Local problem

A majority of patients at the Institute for Family Health are at risk for poor health outcomes by virtue of their low socioeconomic status, minority ethnicity, or lack of insurance. The Institute highlighted these risks through a detailed analysis of clinical data within its EHR, which found that black and Hispanic patients with diabetes come into our care with higher blood glucose levels than white patients, reflecting the complex set of factors that contribute to health disparities. While these patients are provided equal levels of care at the Institute and experience similar improvements over time, our minority patients do not achieve the same level of diabetes control as our white patients without enhanced efforts.

To improve care for its disadvantaged population, the Institute has devoted significant resources to developing a robust EHR system that prompts providers to ensure timely preventive screenings; supports interdisciplinary team care for chronic diseases; allows patients to access their records remotely; and can be used to analyze disparities in service use and outcomes. Nonetheless, these enhancements may not reach those patients at highest risk of preventable illness due to barriers in accessing care, including:

- Patients with low health and computer literacy, as well as Spanish-speaking patients, who may have difficulty accessing high-quality health information important to self-management due to language barriers;
- Patients living in institutional settings (such as group homes for the developmentally disabled) or those participating in programs to address special needs (such as foster care agencies and addiction services) whose complex condition makes care coordination challenging;
- Patients with chronic illness who experience barriers to accessing services or effective self-management, and who would benefit from a higher level of outreach and case management.

While committed to creating a system of care that addresses the needs of all patients, the Institute, as one of the largest health center networks in New York State, must also pay close attention to sustainability. All of the Institute's health information technology initiatives must be designed to support our patient-centered medical home model. We also ensure that projects will be replicable across our network and by other safety net providers, so that any initial investment of resources can yield a significant return for our organization and for others.

4. Intended improvement

The Institute's commitment to providing full access to high quality care for all patients, including high-risk, hard-to-reach patient groups, served as the impetus for three recent innovations that align with National Priorities Partnership, patient-centered medical home, and meaningful use goals:

- **NPP Goal 1: Engage Patients and Families in Managing Health and Making Decisions about Care:** The Institute's aim is to ensure that its patient portal, known as *MyChart-MyHealth/MiRecord-MiSalud*, is both accessible and useful to its patients, including those with potential barriers of language, low health literacy and limited computer skills. Our enrollment objective is to double the total number of patients using *MyChart-MyHealth* in the next year, and to enroll at least 20 percent of patients who prefer to speak Spanish as users of *MiRecord-MiSalud*.
- **NPP Goal 2: Ensure Patients Received Well-Coordinated Care across all Providers, Settings, and Levels of Care:** Our aim is to establish health information exchange to coordinate care for at-risk populations receiving care in institutional settings or programs addressing unique needs. Our objective is to promote active use of InstituteLink as measured by the number of system logins by community partners to review records, the number of uploaded consult reports, and the number of follow-up appointments made by system users.
- **NPP Goal 3: Improve the Health of the Population:** Our aim is to identify patients at highest risk for chronic illnesses prevalent in our communities, and to provide targeted outreach and services. Our objective is to provide patient outreach and care management that enables us to meet condition-specific goals related to accessed services, improved clinical measures, and reduced disparities.

The interventions described here were developed and implemented in response to emerging barriers to access identified by Institute clinicians and staff. For example, in early 2010 the Institute opened the ACCESS primary care program to serve 900 developmentally disabled adults residing in group homes in Ulster County; it quickly became evident that group home staff would greatly benefit from remote access to residents' electronic medical records.

5. Planning the intervention

For each of the achievements described below, a similar model of change of was used: 1) identify an at-risk patient population based on health condition or demographics; 2) establish a project team, including clinical, IT, and administrative leadership and, most essentially, a champion; 3) set goals and measures; 4) customize the EHR; 5) test the new functionality; 6) implement; and 7) assess processes and impact.

Patient Portal: Prior to implementing our patient portal, *MyChart-MyHealth*, the Institute conducted focus groups and usability testing with patients that informed modifications to the language, layout, and navigation that pose potential barriers to use. We found that many patients wanted guidance in understanding the information they viewed in the portal. However, commercially-available health information libraries are expensive and not sustainable for an organization like ours. In response, we partnered with the National Library of Medicine to create MedlinePlus Connect. MedlinePlus Connect automatically converts a patient's list of diagnoses into hyperlinks that direct them to free consumer health information available on NLM's MedlinePlus.gov website.

We also wanted to ensure that Spanish-speaking patients had equal access to the portal, given the role that language barriers play in misdiagnoses, misunderstood treatment plans, and lack of adherence. To ensure high accessibility, we conducted a rigorous translation process, used MedlinePlus Connect to create direct links to Spanish-language consumer health information, and created online tutorials and hands-on classes for patients with limited computer skills.

InstituteLink: The Institute created a standardized procedure to offer Epic’s “provider portal” to a growing number of community providers. This included training staff to outreach to and train partner providers and development of a standard data-sharing agreement. The provider portal, known as InstituteLink, is a real-time, web-based EHR tool which enables us to share confidential health information electronically with community health care providers in order to coordinate care for our patients. Through InstituteLink, community providers can view patient encounters, charts, diagnoses, medications, images and laboratory results. They are able to upload their own consult reports or discharge summaries, and schedule follow-up appointments with the primary care provider online.

Chronic Disease/Risk-based Outreach: The Institute is also extending its EHR by creating patient registries and using risk-scoring to identify and outreach to patients at elevated risk for developing disease and poor health outcomes. After an intensive development process, we launched a diabetes registry that enables providers and outreach staff to identify specific patients in need of intervention, and to monitor care processes and outcomes at the provider, health center, and organizational level. These measures can be displayed by racial and ethnic groups at all levels, enabling staff to identify and address potential disparities. We developed a similar registry for patients with congestive heart failure, which stratifies them based on disease stage (A through D); and we are close to completing a registry for patients with HIV.

Complementary to this effort is an initiative to use risk-scores to guide efficient use of outreach and health care resources. The Institute’s pilot project for risk-based patient outreach focused on New York City patients at elevated risk for colon cancer. Using risk factors identified in a study by Driver, we created a risk scoring scale that assigned evidence-based risk points for age, smoking status, obesity, alcohol use, and family history of colon cancer, as documented in patients’ EHRs. The report is sortable by all key variables including total risk score, provider, and practice site. We are now using EHR data to develop a scale for identifying patients at highest risk of developing diabetes. Using this information, specially-trained outreach workers will contact patients and encourage them to come in for preventive care.

6. HIT Dimensions Utilized

The Institute’s EHR system, *EpicCare*, is a robust ambulatory care system with a practice management system, patient portal, provider portal, and custom reports. The flexibility of our EHR precipitated the innovations described here, but in all cases the Institute invested in a significant amount of custom development to ensure that new features would be useful and relevant to our patients, providers, and health care partners.

Each of the applications described above has been integrated into the Institute’s EHR system and practice workflows. Features of the patient portal, such as messaging and appointment-scheduling, were programmed to meet practice and clinical needs. For example, with the introduction of the Spanish portal, message routing was created to a pool of staff available to provide translation for providers as needed. Our use of InstituteLink, the information gateway for collaborating health care providers, has been unique in its focus on partnerships with emergency departments and residential facilities. The risk-based initiatives have required us to adapt published risk scoring algorithms to data elements available in the EHR, and apply those algorithms to the patient data set, resulting in the production of stratified patient lists used by outreach staff.

All health information technology projects at the Institute make use of nationally-recognized standards where they have been established. The Epic EHR is CCHIT-certified. Whenever possible, we set goals and evaluate projects using “industry standard” quality measures such as those developed by HEDIS, NCQA and the American Diabetes Association.

Each intervention has a set of process and/or outcome measures to assess its impact.

- The measures for patient portal impact are patient *enrollment*, including enrollment of patients with Spanish as their preferred language, and patient *use* of the website.
- The measures for care coordination through InstituteLink are the frequency with which community providers access patient health information and utilize portal communication features.
- Each of the registry and risk-based outreach programs has condition-specific goals related to accessed services, improved clinical measures, and reduced disparities.

7. Outcomes

Patient Portal: The Institute has enrolled over 11,000 patient users since implementing the English-language portal over two years ago. Since the January 2011 implementation of *MiRecord-MiSalud*, over 260 patients with Spanish as their documented language preference have enrolled to use the portal, and this number is growing quickly as marketing activities expand. Tracking data show that patients have used the portal to send over 27,000 messages to their providers, requested 4,500 prescription renewals, and scheduled 4,100 appointments. We recently began tracking use of the MedlinePlus Connect links within the portal and have found that, in just a two-month period, over 1,500 unique patients linked from the portal to information addressing 788 different health and medication topics. The project won a national innovation award from DHHS and is now available for use with any vendor's portal application.

InstituteLink: Institute primary care providers are now using InstituteLink to coordinate patient care with six agencies, including one hospital emergency department; a 25-site agency that serves nearly 2,000 people with developmental delays or disabilities; a leading youth development, education, and family service agency that serves over 20,000 program participants annually; a comprehensive residential treatment program for formerly incarcerated women; a network of programs working interactively to provide care for families with multiple social, economic, medical, and psychological needs; and an organization providing innovative addiction treatment. We continue to build relationships with a range of additional community partners. Our data show that staff at these agencies have logged into the InstituteLink portal an average of 300 times per month since its launch eight months ago.

The success of this intervention can be illustrated by its use at a group home for developmentally disabled adults. Previously, patients had to be accompanied to their primary care visits by a psychiatric nurse who could accurately convey clinical information to the provider. Now, the nurse can send information to the provider electronically, and a lay staff guide can accompany patients to their appointments, greatly streamlining the appointment scheduling process and speeding access to care.

Chronic Disease/Risk-based Outreach: The Institute has established EHR-based registries for diabetes and congestive health failure (CHF), conditions for which our minority patients have a history of disparate health outcomes. Through the diabetes registry, a cohort of 1,241 patients was identified with clinical measures indicating a lack of diabetes control (A1c > 9, blood pressure >140/90, or LDL > 130). An outreach team has contacted these patients for care management services, resulting in dramatic reductions in the number of patients with uncontrolled diabetes measures. The Institute has also successfully established a CHF registry and begun conducting targeted outreach to patients with CHF and tracking project outcomes.

The Institute's risk-based outreach initiatives began with a pilot effort focused in increasing colon cancer screening among patients at increased risk of developing the disease; the pilot effort indicated higher screening completion rates among those with higher risk factor scores who were targeted for enhanced outreach. We are presently completing a customized scoring system for risk of developing diabetes. Scoring is based on a longitudinal analysis of factors documented in our EHR which we have found to be associated with the eventual onset of diabetes, including factors not incorporated in other studies, such as patient race (odds ratio=3.48 for black/African American) and diagnosis of depression (odds ratio=1.83).

8./9. Barriers Encountered and Challenges Faced

Aspects of each project described here represent a solution to a barrier encountered in meeting project goals. For example, the development of MedlinePlus Connect in partnership with NLM resulted from a lack of comprehensive, affordable electronic health education libraries that were also available in multiple languages. The Institute sought such a resource for patients using the portal to aid them in better understanding their health conditions and medications. Similarly, the Institute's interest in providing risk-based outreach to patients at highest risk of developing diabetes was slowed by a lack of published risk scales that addressed the range of risk factors faced by the Institute's diverse patient population. As a result, the Institute decided to develop a risk-scoring system that is customized to incorporate factors important in our own patient population, such as race and ethnicity. In our experience, we have found that care goals involving advanced use of HIT often requires customization and unique solutions, requiring skilled, flexible staff and additional resources.

In each case, providers and staff have been asked to adapt to new EHR functions and workflows and, perhaps most importantly, to think about the care of patients in a new way. A team of "superusers," physicians with enhanced EHR training, are located throughout the Institute's network to aid colleagues and staff, and to encourage optimal use of new features. For some initiatives, such as *MyChart-MyHealth*, a clinical champion has conducted site meetings throughout the network to alleviate concerns about the new functionality, excessive patient messaging for example, as well as to provide training in the new functions. The Institute's consistent focus on its mission to serve disadvantaged patients, to provide them with a high-quality medical home, and to eliminate health disparities provides a common sense of purpose when implementing new initiatives, if not complete agreement on specific processes.

10. Summary

The most important success of our interventions has been a realignment of our care approach to one in which we think outside the walls of our practices to support patients, especially those at highest risk. The Institute's customized implementation of *MyChart-MyHealth/MiRecord-MiSalud* has enabled us to set high goals for enrollment and use of the patient portal, as the site is designed to be easily accessible in English and Spanish with training programs available to assist those who need extra help. We even supply patients with lists of community sites that maintain publicly available computers with Internet access.

InstituteLink has proven to be an invaluable tool for communicating with community providers in the care of patients with complex needs. There are numerous "success stories" in which care has been more efficient, effective, and sensitive to patients' needs. In another example, the implementation of InstituteLink at a rural emergency department has provided critical information when residents with cognitive impairments living in a nearby senior housing have made emergency room visits.

The registry and disease risk tools have enabled us to be proactive in meeting the needs of high-risk patients who may benefit from enhanced outreach. While tools like the Institute's point-of-care alerts have supported significant improvements in quality of care at office visits, other tools are needed to reach those who do not regularly come in for care.

11./12. Interpretation and Conclusions

The Institute's experience providing care in disadvantaged communities argues against an approach to quality improvement in which "rising tides float all boats." Improved care outcomes will require that patients, particularly those with chronic illness, be full partners in their own care. Our experience with the patient portal, especially tracking of messaging features and use of the MedlinePlus health information links, demonstrate that patients are ready to take on this role.

The coordination of care through InstituteLink continues to be assessed through process measures at this point, but we see increased sharing of information and an accumulation of examples in which this information is making a difference in the care of high need patients. Continued analysis will need to be conducted to assess the impact of this tool on care process, outcomes, and costs.

Finally, detailed analysis of diabetes data has demonstrated that our patients of color with diabetes come into our practices sicker than other patients, and will remain at higher risk of poor health outcomes if special efforts are not made. Our initiatives to identify and outreach to those at risk have begun to demonstrate real improvements in diabetes control.

13. Financial Considerations

The Institute has been successful in securing government and private funds for many of our HIT projects. The development of the Spanish-language patient portal and MedlinePlus Connect described above is funded by HRSA and the National Library of Medicine. The risk-scoring initiative is also funded by HRSA. We have secured private funding to develop our diabetes and congestive heart failure registries. The original implementation of InstituteLink was paid for in-kind, but as a result of its success we have secured private funding to extend this capacity to other providers serving our communities.

It is important to note that grant funding does not cover the full costs of these initiatives, and the Institute devotes significant resources in-kind. For this reason, we prioritize investing our resources in projects that may lead to increased efficiencies and reimbursement incentives in the future. The projects described above clearly align with federal “meaningful use” standards, for which we will be receiving enhanced reimbursement. While we have not tracked cost savings associated with the introduction of these applications, feedback from providers across our care network indicate that streamlined processes, such as asynchronous patient communication (i.e., reduced phone “tag”), uploaded consult reports, and outreach systems for high-risk patients have improved both communication and efficiency.

Accurately assessing return on investment difficult. Our goal is to generate cost-savings across the health care system by preventing disease and service over-use in those at highest risk. Savings are therefore not readily calculable, and may in fact accrue to tertiary care systems and payors rather than to our own organization.