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This guide focuses on the role of local health departments in electronic health information exchange. There are numerous other individuals and organizations within the Jacksonville community whose involvement and commitment to developing health information exchange was critical for many of the successes that are described in this guide. The Northeast Florida Health Information Consortium partners, including the Duval County Medical Society, the Northeast Florida Regional Health Information Organization (NEFRHO), and JaxCare, Inc., were instrumental. These original partners have been joined by the University of Florida, College of Medicine-Jacksonville and the University of North Florida to make up the recently renamed (2009) North East Florida Health Informatics Consortium (NEFHIC). Critical support from other statewide private and public sector organizations such as Blue Cross/Blue Shield of Florida and the Agency for Healthcare Administration contributed to the successes that are described in this Guide. These numerous individuals and organizations deserve our thanks and recognition for their commitment and contributions to developing Greater Jacksonville's electronic health information exchange systems.
FORWARD

This guide is intended to provide an introduction to basic concepts that might be relevant to local health departments considering a more active role in developing electronic health information exchange within their jurisdictions.

The guide is not intended to be a compilation of all opportunities for local health department involvement in electronic health information exchange, nor is it intended to be a detailed explanation of electronic health records and information exchange.* Rather, it reflects the experiences and insights gained from one local health department taking a leadership role within their community, particularly within the context of coalition development.

The contents of this guide reflect the perceptions and recommendations of the authors and are not official policies of national, state, county or city governments, the Robert Wood Johnson Foundation, or the Public Health Informatics Institute.

*General background information on e-health and the use of electronic health records is presented in Appendix A.
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Supporting Healthcare Reform through Health Information Technology

Introduction

Major societal pressure to improve our health information systems emerged as a pressing priority during the economic downturn of 2008-09 in the U.S. Rapid advances in medical technology, the developing needs of patients who are living longer lives while trying to manage chronic disease, the growing proportion of the Gross Domestic Product dedicated to healthcare, increases in the uninsured population and a poorly-organized healthcare system all have resulted in a healthcare quality “chasm” as identified by the Institute of Medicine in 2001.¹ A national consensus materialized very quickly with substantial commitment to improving health information technology (HIT) as a necessity for both economic recovery and healthcare reform. National leadership representing virtually all sectors and political philosophies concluded that both the economy and the healthcare system would benefit from more coordination and exchange of information about patients through the use of HIT such as electronic health records (EHRs).

While much of the initial focus of HIT has been on the software and hardware that will organize patients’ health information and make it electronically available, the exchange of that health information is receiving increasing emphasis, particularly with the discussion of “meaningful use” of EHRs. The focus on electronic health information exchange (EHIE) emphasizes how data can best be shared and utilized across healthcare institutions and among providers to improve patients’ health, improve the quality of care, increase efficiency, and reduce costs. Complementing this emerging focus, the National Alliance for Health Information Technology² developed the consensus definition for interoperability as it pertains to healthcare. Interoperability is the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively, and consistently, and to use the information that has been exchanged. ³

In the context of the American Recovery and Reconstruction Act (ARRA), the Health Information Technology for Economic and Clinical Health (HITECH) Act contains substantial funds for interoperable EHRs and EHIE. Many of the
provisions include important opportunities for public health (See Table 1).

**EHR Systems in Healthcare and Public Health**

Since 2004, the Certification Commission for Healthcare Information Technology (CCHIT) has led efforts to build consensus and acceptance for certain features, functions and future innovation in EHR products. Those that have demonstrated that they meet requirements in the areas of: 1) functionality, 2) interoperability, and 3) security, receive a designation as being “CCHIT-certified.”

In 2009, the HITECH provision of ARRA authorized other certification bodies to emerge, particularly around certifying EHR products that meet the “meaningful use” criteria of HITECH (the rules that define those criteria will be available for review and comment by the Centers for Medicaid and Medicare Services (CMS) in early 2010). Financial incentives for the use of certified EHRs are initially proposed to start in 2011, but by 2015 extensive financial disincentives are planned for healthcare providers that cannot demonstrate meaningful use of a certified EHR system.

The current focus through ARRA on meaningful use of EHRs is intended to:

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<tr>
<td><strong>HITECH Act Provision</strong></td>
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<td>Immediate Funding to Strengthen the HIT Infrastructure: Regional or Subnational (Subtitle C, Sec 3011)</td>
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<td>State Grants to Promote HIT: Planning and Implementation Grants (Subtitle C, Sec 3013)</td>
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<td>Assistance (Subtitle C, Sec 3012)</td>
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• Reorient medicine around illness prevention and chronic-disease management;
• Accelerate the transition to e-prescribing;
• Pay doctors based on adherence to clinical standards of care and outcomes; and
• Reduce the incidence of medication errors and consequent harm to patients.

As of fall 2009, it is not yet clear to what extent those local health departments (LHDs) that provide direct clinical services will have to meet meaningful use criteria and be eligible for/subject to financial incentives/disincentives. Few LHDs use an information system that could be certified based on current CCHIT criteria for ambulatory care or the currently proposed meaningful use criteria. However, health departments need to be familiar with the evolving certification requirements in order to be advocates and, if necessary, organizers for the community to equip the safety-net providers with the needed technology for improved quality of care and optimal reimbursements.

Health Informatics as a Public Health Issue

Although most of the media and policy focus on enhanced health informatics has been concentrated on the healthcare sector, health informatics is also of critical importance to local public health for:

• increasing recognition of healthcare errors as a major public health problem;
• supporting public health’s mission to protect the public’s health and safety;
• its potential to improve the core public health functions, including assessment, policy development and assurance, and many of the essential health services; and
• involving the public sector in the development of local healthcare systems that can improve and protect the health of people in the community.

Public Health Informatics

Public health informatics is the application of information science and technology to public health research and practice. Unless there is a major transformation of the healthcare system into a top-down, centralized system, EHIE will evolve through a decentralized, local, bottom-up approach, with some exceptions where there is a high degree of coordination of the healthcare system at the state level. The federal government (i.e. the Centers for Disease Control, Office of the National Coordinator for Health Information Technology, Department of Health and Human Services) will focus on terminology, standards, and incentives for development, creating opportunities for LHDs to play a major role in providing the leadership to build local capacity. In doing so, they will provide greater assurance that the public’s interests will be represented and the public health systems will accrue benefits with evolving EHIE systems.

Local Health Agency Leadership and Health Informatics

LHDs are prime organizations to provide leadership in building local capacity because they have substantial roles in providing both personal health and population health services (see Table 2, p9).

LHD responsibilities for core public health functions and essential public health services, such as community assessment, disease investigation, disease registries, syndromic surveillance, and immunization registries, rely increasingly on electronic information. In addition, LHD involvement in developing and using HIT can substantially improve their ability to meet recently developed accreditation and performance standards. Examples of standards calling for and supported by the use of HIT include:

Standard 1.1 B: Collect and Maintain Health Data

Standard 1.2 B: Analyze Public Health Data

Standard 1.3 B: Use Data for Public Health Action

Standard 4.2 B: Engage the Community to Promote Policies to Improve the Public’s Health

Standard 9.1 B: Evaluate the Effectiveness of Public Health Processes, Programs, and Interventions

Standard 9.2 B: Implement Quality Improvement

LHD involvement in the development of EHIE systems is consistent with the emerging concept of a multi-agency community health system with the local health department as the lead agency (see Figure 1, p9).
### Table 2

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<th>Personal Health Services</th>
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<td>Adult Immunizations</td>
<td>91</td>
<td>Communicable Disease Control</td>
<td>94</td>
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<td>Childhood Immunizations</td>
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<td>Health Education</td>
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<td>Tuberculosis Testing</td>
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<td>Epidemiology and Surveillance</td>
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<td>STD Testing and Counseling</td>
<td>65</td>
<td>High Blood Pressure Screening</td>
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<td>HIV Testing and Counseling</td>
<td>64</td>
<td>Tobacco Use Reduction</td>
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<td>EPSDT</td>
<td>59</td>
<td>Cancer Screening</td>
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<td>Family Planning</td>
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<td>Diabetes Screening</td>
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<td>WIC</td>
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<td>Cardiovascular Disease Screening</td>
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<td>Injury Control</td>
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<td>Violence Prevention</td>
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<tr>
<td>HIV Treatment</td>
<td>25</td>
<td>Occupational Safety and Health</td>
<td>13</td>
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<tr>
<td>Primary Care</td>
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**Figure 1:** Local Health Departments & the Public Health System  
Adapted from CDC/OD, OCPHP, National Public Health Performance Standards
Approaches to Local Health Department Involvement

Models for LHD Involvement

The need for LHDs to become involved in health informatics increase dramatically with the accelerated pace of development that is likely to result from the availability of ARRA funds. Models and guidelines for LHD involvement in the development of EHIE are needed, especially models where LHDs actually take leadership roles in the development of these entities and in building local capacity.

High Resource Models

There are a few collaboratives that have benefited from a steady stream of financial support and state or local health department partnership and/or leadership:

The Indiana Health Information Exchange Inc. (IHIE) is a non-profit venture backed by a unique collaboration of Indiana healthcare institutions (Regenstrief Institute, ICare Connect founded by 50 community physicians, and the Biocrossroads corporate partnership). IHIE’s goal is “to support value-driven healthcare and to transform the healthcare industry with realistic solutions to help improve quality and lower costs.” IHIE achieves its goal by providing electronic health information services that “streamline the healthcare industry by delivering information at the most critical time: the point of care.” This exchange is notable because of its implementation status, the relatively large number of providers using the system and the large number of patients in the system.

The New York State Department of Health’s Office of Health Information Technology Transformation (OHITT) is charged with coordinating HIT programs and policies across the public and private healthcare sectors. OHITT’s goals are to enable improvements in healthcare quality, increase affordability and improve healthcare outcomes for New Yorkers. OHITT is responsible for advancing New York’s health information infrastructure as a key underpinning to many New York Department
of Health (NYDOH) reforms. Funding comes from many sources, including state, private sector and federal funds.

The state of Massachusetts has been a pioneer in EHIE as well, since 1978 when it built a state-wide, centralized database for hospitals and payers. This initiative enabled CIOs of healthcare organizations and others to approach common challenges in a consistent way. This effort evolved in 2003 to the MA-SHARE initiative, with the goal of accelerating clinical data exchange, initially focusing on e-prescribing and access to medication histories from health plans by emergency departments. Finally, in 2004, MA-SHARE joined with many other agencies in the state to create Massachusetts eHealth Collaborative, a state-wide effort made up of 35 healthcare stakeholders, to fund three community-based programs to accelerate the adoption of EHRs. Funding for this effort included an investment of $50 million by Blue Cross and Blue Shield of Massachusetts.

Low Resource Models

Low resource models refer to efforts at the local level that require little external financial support to get organized and stay organized. These models especially benefit from LHD leadership to promote EHIE awareness and partnership building. One low-resource approach to developing partnerships and dialogue around EHIE is coalition development.

A coalition may be variously defined as:

- A group involving “multiple sectors of the community, coming together to address community needs and solve community problems.”
- A group of individuals and/or organizations with a common interest who agree to work together toward a common goal.
- “A mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals. The relationship includes a commitment to a definition of mutual relationships and goals; a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing of resources and rewards.”
- “An organization of diverse interest groups that combine their human and material resources to effect a specific change that members are unable to bring about independently.”
- Coalitions are also a well accepted tool of public health practice. As noted in one text on coalitions, “Public health professionals have most eagerly embraced the practice of coalition building.”

Coalition Advantages and Challenges

Advantages

Most challenges in EHIE development are social and political, not technological. Coalition members hope/believe/trust the coalition will more likely achieve results than will any member acting alone. Community coalitions ensure diversity by seeking a mix of professional and grassroots members, and with diversity of membership, the coalition can expand the range of available skills, interests, connections and motivations. Coalitions can support community capacity building by raising community competence, self-sufficiency and spirit.

Challenges

Noted challenges and barriers to coalition building include:

- The perception of creating yet another “group”
- Competing for resources with other member groups
- “Turf” issues among otherwise competing organizations
- Bad history, either from previous collaborative efforts or competitive battles
- Domination of the group by a sub-group
- Poor links to the community
• Minimal organizational capacity
• Lack of funding
• Failure to provide leadership
• Perceived or actual costs of working together

Although these issues may need to be addressed to achieve optimal results from building coalitions, they should not be seen as reasons for not doing so.

Local Example: Emergence of the Coalition Approach

The development of a coalition of those interested in health informatics in Northeast Florida emerged as state and local imperatives pressed against rapidly approaching deadlines. In this example the coalition was, as previously defined, “An organization of diverse interest groups that combine their human and material resources to effect a specific change that members are unable to bring about independently.”18 The need for a coalition emerged when Jacksonville was disqualified from eligibility for state EHIE funding, due to competition for the funding among various local interests.

The precipitating event was a new state grant initiative to support the development of regional health information organizations to facilitate data sharing. The state legislature, recognizing a need for coordination and funding throughout the state to support the development of a statewide health information network and integration of State healthcare databases, mandated funding through a House Bill in 2006.19 The idea was to spur local communities, through $100K-$400K grants, to develop local health information exchanges. The grantor agency was the Florida’s Agency for Healthcare Administration (AHCA),20 an agency independent of the Florida Department of Health (under which all local health departments reside.) AHCA is responsible for the state’s Medicaid program, the licensure of healthcare facilities and the sharing of healthcare data through the Florida Center for Health Information and Policy Analysis. The initiative stipulated one application per county or region. Competing groups from an interested region had to join forces to submit a joint application.

During the previous year, two competing Jacksonville area organizations had submitted separate applications, both of which were rejected for lack of collaboration. Although the competing groups had different technologies, different patient mixes and different stakeholders, the lack of cooperation meant the groups could not meet the state mandate for regional collaboration. Both organizations were determined to pursue funding again, but found they were unable to develop a coordinated application as the deadline approached. The local health department had been involved initially with both initiatives but was not considered heavily vested in either. At a board meeting for one of the organizations, a local community physician suggested that the health department director, as a person (and agency) with an interest in health informatics, might be a good convener of the two groups. Although new to the area, the director was well respected by both groups, and under his leadership the two competing organizations came together, joined by the local medical society, to form a coalition that worked together from February to May of 2007 to rapidly develop a collaborative grant application. They were further supported by the experience and expertise of the health department’s research institute staff in grant writing, project management and evaluation, and the health department also became the fiduciary agent and administrator for the grant funds, providing staff support for coalition meetings and activities. With the resulting success of their grant application, the group continued to work together throughout the 12-month funding period.

Lessons Learned/Recommendations

• Coalition development is an approach that has been used successfully in supporting local agency involvement in the development of a community’s electronic health information exchange. Regardless of how well- or under-resourced an exchange is, effective
coalition building is a key strategy for creating the necessary collaboration and trust.

- Coalitions and other forms of collaboration are increasingly required by funders. Current state and federal funding for e-health activities requires collaboration, since a major goal of this funding is to create ongoing exchange of information among disparate organizations; that is, moving beyond organizational-centric approaches to data management to a more patient-centric model.
Introduction to Organizational Structure & Challenges

EHIE consortia face a number of unique issues, such as reconciling different models for the exchange of information, developing data exchange/trust agreements, bringing together competing stakeholder groups, and managing competing vendors. Conflict related to any one of these issues can be a serious impediment to community development of a coordinated EHIE. Understanding these challenges is also essential to be able to build on the LHD’s strengths and to identify and take advantage of EHIE opportunities within the community. Consequently we devote this chapter to a discussion of those issues and the ways in which EHIE development coalitions can address them.

Competing Stakeholder Groups

The different stakeholder groups within the United States healthcare system not only compete for influence over the system as a whole, but also have different HIT needs. The information systems supporting these stakeholder groups are typically tailored to meet the specific needs of each, whether the software is developed internally or purchased from vendors. These major stakeholder groups include hospitals, physicians, payers, pharmacies, laboratories and public health agencies. Their disparate HIT systems, and the supporting infrastructure, have important implications for how communities coordinate EHIE.

Physicians/Ambulatory Care:

This health group, comprised of ambulatory care providers (particularly those that are not operated by hospitals or other healthcare institutions), represents a unique constituency that plays a critical role in the quality and efficiency of our healthcare system. A primary challenge to working with this group on EHIE is the group’s relatively slow rate of adoption of EHRs. The goal of implementation of EHRs in the ambulatory care setting is to move from paper to fully functional, decision-support enabled EHRs that can then
exchange information with other entities (hospitals, imaging centers, labs, pharmacies) that play a role in a patient’s care. Increasing the use of electronic health information systems among ambulatory care providers is a major factor in improving the quality and efficiency of our healthcare, and key to effective EHIE.

Payers:
Payers are perhaps the most advanced users of electronic health information systems today, and have much to gain and much to offer in establishing an EHIE entity. Hospital and provider relationships with payers can be complex, so coalition leaders must be sensitive to those dynamics. Not just a potential source of funding for the coalition, recruitment efforts should also focus on payer expertise in electronic transactions and population health/quality measurement and improvement.

Hospitals:
Hospitals are receivers of information for comprehensive in-patient care, but also provide electronic data for follow-up interaction with primary and specialty care providers. They also participate in public health surveillance related to bio-terrorism and epidemics, where electronic data transfer increases efficiency and reduces errors. Clearly, hospitals have a major role to play in EHIE, but in a community with multiple hospital systems, competition for market share can complicate the community’s ability to collaborate and organize for EHIE.

Pharmacies:
E-prescribing is a health technology being utilized to improve prescription accuracy, ensure patient safety and reduce costs. It is also an example of efficient health information exchange. E-prescribing allows prescription information to be transmitted from the prescriber, electronically, into the pharmacy system of the patient’s choice (given that both the physician and pharmacy are e-prescribing enabled.) Fully implemented e-prescribing provides both the prescriber and the pharmacist with complete patient medication history, known drug allergies, and health plan formulary and patient eligibility information.

Laboratories
As one example of EHIE, laboratory data exchange benefits include:

- Eliminates the need for physicians or office staff to manually enter lab data, scan paper lab reports, or track down missing results.
- Allows clinicians to compare results over time, graph trends, identify patients requiring interventions, and prevent unsafe or unnecessary treatment.
- Supports more efficient reporting between labs and multiple EHR systems, such as multi-office, multi-physician practices.
- Provides a reliable and cost-effective method for faster delivery of test results.\(^{21}\)

Many of the EHIEs across the country started with electronic reporting of lab results as their first type of exchange transaction.

HIT Vendors
There is an almost overwhelming number of vendor products on the market today, not just in EHR systems but also to support EHIE — products such as record locator services, data aggregators, and identity management services. These tools have developed along proprietary lines for years, and only very recently have begun moving toward more standardized approaches under the guidance of the Office of the National Coordinator for Health IT (ONCHIT) and the Health Information Technology Standards Panel (HITSP). Making these disparate, proprietary systems work together can be time consuming and expensive, and may pose a challenge to an emerging EHIE coalition, as partners seek to hold the line on costs, minimizing investments in both the EHIE and in upgrading their legacy information systems.

Technological Approach
EHIE coalitions generally have three models to select from in establishing their technological approach: 1) repository, 2) federated, and 3) hybrid,
Challenges to EHIE collaboration

Combining repository and federated approaches. The choice a coalition will be most comfortable with depends in large part on the level of trust among the members. It is not a trivial thing to entrust your data to a competing organization. Developing data sharing/trust agreements is often the most challenging aspect of establishing an EHIE coalition.

Repository Model

Health Management Technology defines the repository model as a centralized data storage model in which “all participant-contributed data gets stored in the same physical repository with logically (or ‘virtually’) segmented participant data to prevent co-mingling of information. All management of participant connections to the repository take place over secure channels with only authorized clinical and administrative users allowed access to a patient’s community health record.”

Most major healthcare providers have a health data repository. In communities where there is a single healthcare institution, a single repository approach may be very viable. However, the more complex the community’s system of healthcare is, the more difficult it is to create a single repository. In a highly competitive market, healthcare institutions and providers are more likely to be concerned about losing control of their patient data or turning it over to a competitor.

Federated Model

Health Management Technology defines a federated model of health information exchange as a “peer-to-peer or distributed architecture that allows each provider to retain control over its own data and not co-mingling their data with other data providers. This approach reassures providers who are concerned about the security and privacy of data in community exchanges and allows each provider to retain its competitive advantage with data ownership. In the federated model, data are shared across the EHIE, but the data are not stored in one central repository.” Both the National Health Information Network (http://healthit.hhs.gov) and the CDC’s vision for a public health information exchange (www.cdc.gov/phin) are based on federated models.

Federated Models typically require a Record Locator Service or similar tool that can link an individual’s health records across disparate organizations and information systems. Linking the records is only half the challenge, however; data elements must be standardized wherever possible so that, for instance, immunizations and lab values are delivered/displayed in consistent and meaningful ways to the clinician.

Some existing public health systems such as syndromic surveillance systems are based on federated technology. These systems involve regular reporting of data from provider systems accompanied by the capacity to follow-up for additional disease investigation where it is warranted. In this case, in compliance with federal and state laws, the healthcare institution retains patient health records, making available to public health only a de-identified subset of the record. Identified data can then be “pulled” by public health agencies if public health threats warrant follow-up.

Hybrid: Combined Repository-Federated System

A hybrid system is a combination of repository systems with at least one federated system. This model builds on the strengths of both systems. A centralized repository may be advantageous for some health conditions, patients or providers. For example, small physician practices may wish to participate in more centralized repositories to reduce the cost and burden of maintaining their own HIT support systems. In the hybrid model, the Federated system would link repositories that are owned and maintained by healthcare entities with a centralized repository.

The emergence of federal stimulus funding to support creation of EHIE organizations, along with the “meaningful use” criteria to incent provider adoption of EHRs, is likely to accelerate the emergence of these models and perhaps others. A major benefit envisioned for EHIE and a primary reason for significant federal funding of electronic health information systems is the potential for improved patient care through more complete and timely exchange of information. However,
healthcare institutions are likely to want to retain ownership of their health records and limit access by other healthcare institutions. Hybrid models offer the potential to facilitate meaningful exchange while allowing for the continued development of repositories where they provide some benefits.

Local Example (NEFHIC/JHIN Model)

The Northeast Florida Health Information Consortium (NEFHIC), whose formation was described in Chapter 2, had to address both the differing technologies and competing needs among stakeholder groups. One of the groups, the Jacksonville Health Information Network (JHIN), was creating a data repository model of a regional health information organization, primarily supported by hospitals and institution-based healthcare providers. The project also involved a specific software vendor and focused on a patient mix composed primarily of Medicaid and uninsured clients. A second group was brought together within the coalition, based primarily on a federated model, principally supported by private practice physician groups, relying on different software vendors and focused more on a Medicare and private insurance patient mix. Figure 4 illustrates NEFHIC’s data exchange model, as well as the alignment of the various stakeholders with the different technological approaches. Combining these approaches enabled the coalition to successfully compete for state funding dedicated to regional health information organizations (or EHIEs) in 2007.

Continued development of the JHIN further illustrated the leadership role the LHD played in supporting the development of EHIE within the community. A not-for-profit health plan that owned the JHIN played a major role as a safety-
net insurance plan for uninsured workers. When the plan was discontinued due to lack of funding, the Duval County Health Department (DCHD) assumed responsibility for the management and administration of JHIN, matching the hospital-based support.

With a central data repository infrastructure, the JHIN aggregates relevant clinical and medical claims data from organizations across the Jacksonville community, including several major hospitals, a local homeless shelter and the DCHD. Data elements include: patient demographics, allergies, medications, immunizations, visit history information (including diagnoses and procedures), and lab results. Data are transmitted securely via both HL7 interfaces as well as flat files, depending on the sending source’s capabilities and preference.

Figure 5 illustrates the relationships of the hospital and ambulatory care providers to one another and the central repository, and shows the DCHD’s relationship to the partners and its role in the EHIE.

**Lessons Learned/Recommendations**

The local health agency is typically not perceived as a major competitor nor a threat to other healthcare organizations, so can serve as a neutral convener and leader in bringing coalition partners together.

Effectively reconciling and integrating technology approaches and vendors is a critical success factor in launching a community-level EHIE.

Diagrams that show the relationship of technological structures to the community’s healthcare organizations can be very useful for clarifying how the EHIE will work. We have found these tools to be exceptionally valuable in developing a shared vision within the community, as well as being vital for communicating community assets to external groups.
Organizational Structure

The organizational structure has important implications for mobilizing the community, for resolving some of the many potential conflicts, and for positioning the community to access essential resources for the development of EHIE systems. The organizational structure is discussed in much of the coalition literature, but there is not necessarily a single “right” approach. What is optimal in some circumstances may not work as well as circumstances change — as agencies mature, as they are accepted within the community and recognized as offering access to needed resources. In this chapter we present organizational considerations and options, and address some of the issues that may warrant a change in organizational structure, and drawing from our experience of dealing with such issues.

Dedicated Resources vs. Shared Resources

Many efforts to organize EHIE tend to focus on building discrete organizational structures that have their own dedicated resources and staff. However, some research suggests that coalitions work best when the organizations that make up the coalition contribute the necessary staff, space and other resources to the coalition. Some research even suggests that coalitions with staff who play a supporting role for the coalition, rather than a visible leadership role, have higher levels of successful implementation.\(^4\) (P80)

In a shared asset approach to a coalition, the health department can provide administrative services such as contract management, accounting, project management and, in some cases, IT support. As the LHD builds its capacity to deliver essential public health services, it may be able to share expertise related to research and evaluation, particularly around grant writing. Contributing these assets to the development of EHIE is very much within the role of the LHD as the lead agency within the broader public health system (discussed in Chapter 1). This leadership role may be particularly valuable in the early development of a community organization to support EHIE, but may need to give way to more of a supporting role as the community’s system matures. In either case, it is
important for the LHD to provide guidance in a way that creates win-win situations, wherein multiple stakeholders’ needs are addressed.

Formal vs. Informal

The issue of formal versus informal structures overlaps with the issue of shared versus dedicated resources. Having dedicated resources typically requires an organization with a legal structure that permits ownership. Some research also suggests that when organizations are more formal, the investment of resources, and exchange of information among agencies, satisfaction with the group effort, and overall commitment of member organizations is greater. Incorporation is the process for creating a legally recognized organization, typically determined by state law, but also heavily influenced by federal law related to IRS tax filing status. The process of formalizing an organization usually involves filing an application with state government, followed by filing with the IRS for tax exemption, such as 501(c)3 status.

Fiduciary Agent for Unincorporated Organization

Fiduciary responsibility is another term for legal responsibility for an organization’s finances. This responsibility should be formalized as early as possible, because opportunities to obtain funds can be lost if a legal authority for retaining and dispersing funds is not identified. Typically, an organization will identify the responsibilities for accountability and ownership in its documents of incorporation, bylaws and written operating procedures. However, if a coalition is still informal and funding is limited, a lead organization such as the LHD can be an appropriate fiduciary agent for purposes of receiving intermittent grant funding from state or federal agencies.

Incorporation

Incorporation is the act of creating a legal corporation, an organization that exists regardless of the existence of its members, with powers and liabilities distinct from those of its members. Incorporation is usually necessary for an organization to enter into a contract or to hold legal ownership. Most states cannot contract with an unincorporated entity, which could impact your coalition’s ability to obtain funding. It should not be inferred that coalitions must incorporate, as an individual coalition member organization can maintain ownership of assets and one or more member organizations can serve as the fiduciary agent(s) for the coalition. This may actually be an opportunity for the LHD to serve in a leadership position, as it was for the DCHD, which has served as the coalition’s fiduciary agent (with all associated responsibilities and liabilities) for state funding. The advantages and disadvantages of formalizing your coalition through incorporation as opposed to remaining a more informal unincorporated organization should be thoroughly reviewed.

Advantages of Formal Incorporation:

- Most states will only contract with an incorporated entity to receive state-administered funds.
- An incorporated entity can solicit other sources of funding, i.e. foundation grants and funds from major donors.
- Incorporation is needed in order for an organization to assume fiduciary responsibility for all of its funds; this could reduce the potential for conflicts of interest or liabilities that could ensue from placing fiduciary responsibility with a single member organization or individual.
- An incorporated entity can directly hire staff.
- Incorporation as a 501(c)3 opens access to many sources of funding.

Disadvantages of Formal Incorporation:

- By incorporating, the coalition/consortium members themselves must assume responsibility for all funds received and expended.
- Incorporation can add complexity and bureaucracy, either real or perceived.
- Incorporation as a 501(c)3 could also limit certain lobbying and advocacy activities.
The incorporated coalition may now be viewed as competition for funds by other community organizations (even coalition members).

Bylaws

Studies of formal structures show that the more structured and task-oriented the coalition, the more effective the coalition is perceived to be by members and staff. Depending on your needs and level of organization you may or may not desire bylaws for your coalition or organization; however, having some form of defined rules provides needed guidance for accepted behavior to help ensure equality, fairness, and consistency as the coalition grows. The bylaws typically define an organization’s purpose and are rules that describe the operations of the organization. For incorporation and IRS status applications, some form of bylaws, such as articles of incorporation, are required. Articles of incorporation may be more generic so that changes can be made in operating procedures without requiring changes in corporate filing; bylaws are usually formal and rigid enough to require some form of majority to change. “Operating procedures” is another term, typically used for rules that are more easily changed.

Whether they are called bylaws, articles of incorporation or operating procedures, the written rules governing the organization should include:
1. official name,
2. purpose or mission,
3. requirements for membership,
4. officers’ titles and responsibilities,
5. what standing and special (or ad hoc) committees will exist,
6. how offices are to be assigned,
7. how meetings should be conducted,
8. how often meetings will be held,
9. how to resolve conflicts,
10. how bylaws may be amended, and
11. how the organization will be dissolved and its assets (if any) distributed.

Another important aspect of defining the organization’s purpose is formalizing a clear vision and mission to help generate support and awareness for the organization, identify partners, reduce conflict, and minimize lost time and distraction from appropriate actions.

A vision generally comes first. It describes the desired future in present tense, as if it were happening now; inspiring and uplifting images that are understood and shared by community members. It is often referred to as the “why” — what is important to your organization, your “utmost wish,” desired future outcome of your work. For example:

• “Optimal health for everyone in the community.”
• “A public health and healthcare system that has maximum quality and efficiency.”

A mission describes the purpose of the collaboration, or reason for its existence — what it is going to do. Often referred to as the “what,” the fundamental purpose of your work, why your program exists, how the vision will be accomplished. It describes what your values are, what you do, and who you serve. It can include a geographic reach and population served.
• “To create a health information exchange that improves quality and efficiency of healthcare.”

• “To coordinate the community’s health information efforts to increase resources for health information exchange.”

Goals and objectives can further explain how the mission will be achieved.

Organization Charts

Organization charts can be a very useful way of clarifying the organizational relationships within a coalition. Butterfoss points out that the structure reflected in a vertical, horizontal or circular illustration of the relationships presented by an organization chart may convey information about the “personality” of the organization. More circular charts can imply egalitarian relationships, whereas more hierarchical charts can imply leadership roles. Relationship charts, such as Figure 1 of Chapter 1, help define the role of an organization in a complex network. The more traditional hierarchical chart is very useful for showing accountability structures for internal organizations. The chart that we used for the NEFHIC helped show the roles of participating partners, illustrating the clear leadership structure within which the partners collaborated.

Local Example: Health Informatics Coalition Organization

NEFHIC has remained an unincorporated group, with the LHD in a lead role. It is likely that the consortium will eventually become incorporated, but the organization has functioned well with the LHD director having the primary role in convening the parties. In addition to convening meetings, the LHD also serves as the fiduciary agent and provides staff support related to grant writing and project management. With the LHD’s leadership and support, the community successfully competed for state regional health information organization (or EHIE) funding in 2007, and for the CMS EHR Demonstration project in 2008.

Future funding may require an incorporated entity; it is likely that NEFHIC will itself incorporate, or will transfer the organizational structure to an existing corporation.

NEFHIC Vision: The Northeast Florida community can appropriately access, utilize and benefit from interoperable and secure electronic health information systems.

NEFHIC Mission: NEFHIC is a consortium of community partners that promotes and helps to realize the use of electronic health information exchange to improve medical care and improve public health.

The Goals of NEFHIC are to:

• Convene community stakeholders who have commitments to electronic health information systems,

• Promote the adoption and utilization of EHR’s by healthcare practitioners,

• Facilitate the sharing of electronic health information and records to improve healthcare delivery and health outcomes,

• Increase efficiency, improve the quality, and reduce redundancy and fragmentation of hospital and ambulatory care through increased use of electronic health information,

• Provide a mechanism for the community to collectively and effectively pursue projects, funding, and advocacy opportunities related to the use of electronic health information.

The LHD has received some compensation to support the services that it provides to the community, both from sources internal to the community and from grants to the community for development of electronic health information services.

Lessons Learned/Recommendations

• Coalitions need to be aware of the advantages and disadvantages of different organizational structures, particularly as they relate to each stakeholder group and its interests. The organizational structure needs to be highly tailored to the unique assets and circumstances of the community.

• Less formal structures may be more appropriate in an early organization, while
more formal structures may need to evolve later. It is not critical to move quickly to a formal structure, and the LHDs can play an important role in the coalition’s success by handling organizational issues, allowing the group to concentrate their energies on pressing challenges related to EHIE.

• A leadership role for the LHD within the coalition is best achieved and maintained by serving as a mediator and coalition convener that has the confidence of the community. This role can be vital for the mobilization of energy and resources to develop EHIE in an area of community need where competition among stakeholders is intense. (See also Chapter 5.)

• Becoming highly involved in offering electronic health information services can meet pressing community needs but can possibly alienate partners who wish to provide the same services. LHDs should proceed cautiously in working with community stakeholders in order to reduce any unnecessary conflict.

Figure 6: Organizational Chart for Northeast Florida Health Information Consortium
Courtesy of Duval County Health Department/Institute for Public Health Informatics and Research 2009
Leadership/Convener

Good Lead-Agency Characteristics

Butterfoss identifies several good lead-agency characteristics for a community health coalition in *Coalitions and Partnerships in Community Health*. Many of these also apply to public health involvement in HIT/EHIE/health informatics. Some of these include:

- Strong links to and respect for the local community;
- Respect of community organizations and key leaders;
- Understanding of community health issues, priority populations, and local politics;
- Belief in collaboration;
- Adoption within its own walls of [HIT]; and
- Staff support.

Empirical research on coalitions shows a consistent relationship between leader competence and [coalition member] satisfaction.

How Leadership Can be Established

Coalitions usually form when a lead agency or convener group responds to an opportunity, threat, or mandate. Many communities are being challenged to develop health information exchange, but leadership has not emerged. Public health can fill that need for leadership. A local public health agency’s capacity to serve as a leader will depend extensively on their credibility within the community as a competent and capable organization, as well as their previous experience as a team player. Working with key stakeholders to build community capacity in other areas of the public health system, the safety net, and healthcare services is important to building social and political capital. Supporting the work of other organizations that may be directly, indirectly or tangentially related to public health is an important foundation for garnering support for public health initiatives. LHDs that have a visible and recognized record of supporting the work
of other organizations are more likely to have the confidence of the community.

Mobilization of community efforts for EHIE begins by recruiting a core group of community leaders. A common approach to coalition leadership is in the formation of steering committees composed of leaders. “Choosing a visible, well-regarded, powerful, or wealthy organization to take the lead is a good idea because action and resources may follow, but care must be taken so that the less powerful organizations in the coalition do not feel left out of influencing the coalition’s agenda, structure, and activities.” (BUTTERFOSS P96)

Identifying the Appropriate Role for the Local Health Department

Local public health departments have compelling reasons for involvement in health information exchange, and public health professionals have been foremost in embracing the practice of coalition building to address community issues; in fact, it is a well developed public health strategy. Still, it is important to consider the potential advantages and disadvantages of utilizing a health department in a coalition leadership capacity. For Duval County, these included the following:

Advantages of a health department as lead agency:
- Access to state and local funds
- Provision of considerable in-kind support for the consortium
- Clear distinction between the roles of the health department and the consortium
- Capacity to take on additional roles and responsibilities

Disadvantages of a health department as lead agency:
- Bureaucratic and cumbersome fiscal systems and requirements
- Difficulty in introducing innovative approaches to health services delivery
- Accountability to state government, possibly putting the local health department in the position of serving two masters and pleasing none

Local Example: Local Health Department as a Leader

In Jacksonville, DCHD was asked to convene NEF-HIC due to the agency’s strong ties and respected leadership among community stakeholders, including employers, insurers, and providers. The director and many of the DCHD staff had an extensive record of working with other organizations, serving on their governing boards, assisting them in grant development, supporting their work activities, and participating in joint projects with them. As a provider of clinical services to the underserved in the community, operating under the leadership of the physician director, and having worked closely with many of the safety net providers in the past, DCHD was uniquely positioned to provide leadership to the EHIE coalition. In addition to being a convener and facilitator, DCHD had also demonstrated adoption of HIT and EHIE “within its own walls,” an important characteristic of any lead agency.

Lessons Learned/Recommendations
- The LHD’s ability to serve as a leader within a community will depend on the social and political capital that has been developed and nurtured with the numerous stakeholders that may be involved with EHIE.
- Where conflict occurs, it is important to be perceived as a neutral party. Taking a position early, or appearing to side with one of the members engaged in the conflict is likely to undermine the status as a convener or facilitator.
- The LHD’s commitment to electronic health information systems (especially if taking into consideration goals for community building) can increase its credibility as a leader and neutral convener of stakeholders interested in developing community-wide EHIE.
Convening Various Stakeholders

When convening stakeholders for EHIE collaboration, all the players/owners/users of health information should be considered to ensure inclusiveness and diversity of the coalition. Stakeholders may include providers, employers, payers, vendors, public/private communities or coalitions, and state-sponsored collaborations. A membership plan, which recognizes key occupational, geographic, demographic and social characteristics representative of the area and population served by the consortium, should be considered. In addition to major stakeholders, some coalition literature suggests the inclusion of community opinion leaders and policy makers.

Bringing together diverse groups/multiple partners with apparently competing interests is a basic coalition development strategy and can lend credibility with external funders. A major advantage of the coalition approach is that the members can bring their assets to the coalition and the coalition can use the member assets to accomplish its purpose. This approach does not require a large amount of startup funding, but it does require the commitment of key stakeholders with relevant assets, especially if the only assets available are those the individual members bring to the coalition.

Often the best way to get competing interests to the table is through coalition members who already have an established relationship or connection with these organizations. This is when a face-to-face meeting is most appropriate to try to sell the new “recruit” on the consortium and then give them time to consider. The better organized you are (see Chapter 4), the easier it is to recruit and retain members.

Size of Coalition

Convening a group of interested stakeholders can begin with a small group that identifies other members who may be interested in joining the coalition, and who would add value to the group. A decision to limit the size of the coalition
can depend a lot on the coalition’s goals and overall philosophy. Some believe that as many people as possible should be involved in order to bridge interpersonal and inter-organizational differences. Others believe complexity must be kept low and membership numbers limited, and that strong, trusting relationships may only be maintained with a limited number of members. Balancing the competing concepts of broad inclusiveness against simplicity should be addressed when defining the organizational structure, including levels of membership, in order to facilitate unity of purpose and more harmonious decision making.

Purpose of Committees/Subcommittees

Depending on the degree of formalization of the coalition, there may or may not be a need for committees or subcommittees. As the organization grows, the appropriate division of decision-making power and labor may become apparent. A commonly-used and recommended structure includes the creation of a steering committee and an advisory committee, with well-defined roles for each (for instance, the steering committee makes policy and governance decisions, and the advisory committee studies issues and alternatives and makes recommendations). Depending on the direction of the coalition or the composition of its membership, further subcommittees may be created to represent the perspectives of technology vendors, employers, payers, physicians, providers (hospitals), advocacy and resources.

Local Example: Decision Making within NEFHIC

The Jacksonville community presents a potential for almost overwhelming complexity and quantity of stakeholders. (See Appendix ___ ) This complexity was simplified through the coalition’s operating procedures, which established a fairly restricted membership, with the local health department having a key role. One of the key organizations had a governing board that had hospitals in a dominant role. Another organization had independent physicians in the dominant governance role. These organizations in turn represented many other stakeholder groups. Originally, the bylaws allowed for only the four initial coalition members to be on the steering committee, which serves as the main decision making body for the consortium.

According to the bylaws, each of the four partners is entitled to one vote, though most decision making is usually done through consensus without the need for a formal vote. Each partner appoints two members to the steering committee, and while monthly meetings of the steering committee are open to much broader membership, occasional meetings of the officers and at least one member of each partner are called as necessary to address pressing issues and quickly emerging opportunities.

In addition to the use of the steering committee to simplify decision making procedures, the consortium extensively uses other committees to expand stakeholder participation. The stakeholders who participate on these various committees are also invited to attend steering committee meetings, where their input and feedback is solicited and encouraged.

Lessons Learned/Recommendations

- Decisions on EHIE coalition membership must be tailored to the needs and challenges of the community, and take into account the competition among electronic health information stakeholders as well as the various spheres of influence of key members within the community.

- Goals of inclusiveness in developing the membership may need to be balanced against effective decision making. Some of the issues of balancing the complexity and quantity of stakeholders may be addressed by having different levels of membership.

- Executive committees, steering committees, advisory committees and others, such as a technology committee, can allow for expanded participation without compromising the efficiency of decision making.
Reasons for Conflict

Conflicts arise for many reasons. As described previously, the very nature of coordinated EHIE capacity-building is likely to bring together a community of competing (and potentially conflicting) sectors, providers (hospitals, labs, physicians) and vendors (EHR). The coalition needs to be an arena where these competing interests can find and focus on their common interests to support development of the community’s capacity.

Organizational Procedures to Resolve Conflict

Formal rules for resolving conflict can be useful in reducing or negating the impact of disagreement. Rules for parliamentary procedure, such as Roberts Rules of Order, 9th Edition, have been developed over centuries of experience with democratic processes to provide fair and consistent rules for resolving conflict. These rules can also protect the rights of both minorities and majorities. This can be very important when there is a great deal of conflict or when groups are very large. However, Roberts Rules can be somewhat rigid, unnecessarily cumbersome and may interfere with free discussion. Some are critical of using parliamentary procedure because it creates “winners” and “losers”.

An alternative to formal parliamentary procedure is to use consensus-based decision making. This type of process typically attempts to seek solutions that meet all stakeholder needs, and assumes that such solutions exist. A disadvantage of this approach is that a particularly assertive individual can hold out until they get their way by simply being more persistent than everyone else. This may not happen if there is an organizational culture that everyone respects, but relying on an organizational culture can be problematic if it operates by unwritten rules, and an individual wittingly or unwittingly takes advantage of that fact. This can destroy group functioning,
particularly when there are perceptions that the uncompromising member is self-serving.

Many organizations take advantage of both formal parliamentary procedure and consensus-based decision making by using modified parliamentary procedure. For example, the organization conducts most business through consensus, freely introducing ideas of interest and engaging in the open-ended problem solving that is not viable with Roberts Rules. However, when conflict arises where consensus resolution cannot be achieved, the group reverts to parliamentary procedure for formal decision making. The group leader (chairperson or president) plays the critical role of moving from one style of decision making to the other when irresolvable conflict arises, but any member should be able to request the formal decision making process. This form of modified parliamentary procedure is commonly used by organizations to create win-win problem resolution while maintaining cohesiveness. It is particularly useful for EHIE coalitions where there is great potential for conflict, but group cohesion is critical.

Organizational Culture

Creating an atmosphere where people are respectful of diverse opinions involves effective communication. Recommendations for effective communication include:

1. One person speaks at a time.
2. Speak for yourself; don’t claim to speak for others.
3. Allow everyone a chance to speak by sharing group time fairly.
4. Be open to others’ viewpoints.\(^5\)

These principles of communication can be written into by-laws, but the best way to promote desired values and behaviors is through the participation of organizations whose members model and promote this type of organizational culture. If these principles are not entrenched, it may be important to engage in training to reorient the culture.

Conflicts of Interest

Conflicts of interest are likely to emerge with EHIE where inclusiveness of stakeholders is promoted. Many organizations develop written policies and procedures to address potential conflicts of interest. Some include these in their bylaws, particularly for decisions involving allocation of resources or engaging in contracts, if applicable.

Another approach (used by NEFHIC) is to structure the coalition in such a way that members have clear self interests in collaborating to compete more effectively for external resources. Further, while a basic purpose of the coalition might be to build the EHIE capacity of specific members, including a diverse membership can help mitigate dominance by such members. “Appointing some members for their expertise and not as representatives of a specific organization will not eliminate conflict of interest, but may help members clarify their roles in the consortium.”\(^5\)

Coalitions for EHIE may need to particularly guard against conflicts of interest created by becoming overly involved with specific software vendors. This is such a significant risk that recent proposed federal policies for the CMS Demonstration and the proposed HIT Regional Extension Centers specify that the regional organization needs to be vendor neutral or vendor agnostic. Coalition policies and procedures to reduce conflicts of interest warrant particular attention in this area.

Lessons Learned/Recommendations

- It is important for the LHD to be perceived as a neutral party concerning issues that generate conflict.
- Taking an early position or appearing to side with an organization engaged in conflict can undermine the LHD’s ability to maintain a leadership role.
- The more active the health department/facilitator becomes in the coalition and its cause, the greater the challenge to remain and be perceived as being impartial.
• A coalition should not let conflict avoidance overtake their mission. Some conflicts may naturally arise in a coalition with the inclusive and diverse membership required to build optimal community capacity.

• Policies and procedures need to recognize the unique purpose of the coalition for EHIE, including obtaining resources for its members, when framing appropriate conflict of interest policies.
External Relationships

Building community capacity for EHIE also involves building and nurturing relationships with organizations outside of the coalition. This principle is embodied in Cottrell’s concept of the Community Competence, in which a competent community is described as “one in which the various parts of the community: (1) collaborate effectively in identifying the problems and needs of the community; (2) achieve a working consensus on goals and priorities; (3) agree on ways and means to implement the agreed-upon goal; and (4) collaborate effectively in the required actions” (p. 197). Cottrell’s community competence framework includes eight dimensions including management of relations with the larger society.\textsuperscript{52, 53} Managing relations with the larger society can be critical for obtaining resources from government or philanthropic organizations outside of the community such as state or federal agencies or national private foundations. External relations may also be critical to influence state or federal policies that may be favorable to the community’s interest.

External Communications

Accessing external resources could entail being a liaison to other similar community coalitions throughout a state (i.e. RHIOs), representing the community within a particular state or nationwide organization (such as the state chapter of the Health Information Management Systems Society (HIMSS)), or being a conduit for information-sharing with various state and federal agencies. These are all means of networking that can help bring additional resources, recognition, and intellectual capital to your community or local coalition.

A coalition can engage in many activities in which the LHD, acting alone as a government agency, may not; for example, lobbying or directly trying to influence legislative action on a particular issue or bill is frequently forbidden for public health officials. Educating and informing, on the other hand, are typically permitted and may even be expected of public officials. Advocacy may reasonably fit under either type
of activity — influencing or informing — but the term can be interpreted as lobbying. While the difference in these activities may be subtle, LHDs should pay particular attention to the distinctions. It may be best for the LHD to defer to other coalition partners if there is any question of lobbying.

External Relationships

External Funding (Grants)

In addition to great opportunities for accessing intellectual capital and making appropriate contacts in relevant government agencies, an LHD may contribute to the community’s access to grant funding. Depending on the size of the LHD, they may have varying degrees of infrastructure already in place that can handle the various functions of a coalition as it develops, expands its scope, and seeks external funding. Such infrastructure includes:

1. Contract management capabilities/expertise
2. Grant writing
3. Finance and accounting
4. Legal counsel
5. Marketing
6. Media relations

As previously described, DCHD played a major role in grant writing to access external resources to build the Jacksonville community’s capacity. In addition to bringing resources to the community, DCHD itself received grant funding to offset resources that it dedicated to community capacity building.

The interactions among coalition participants can help develop symbiotic relationships where non-competing coalition members can help one another achieve their individual or organizational goals, beyond the work of the coalition.

Lessons Learned/Recommendations

LHDs can be a major asset for community efforts to access the external resources needed to build electronic health information capacity.

LHDs need to be very careful to avoid real or perceived lobbying, but many of the goals of building external relationships with key policy makers can be achieved through educating and informing.

LHDs may defer external communications that could be perceived as lobbying to other coalition partners who do not have lobbying restrictions.
Endnotes


15 Butterfoss P 35.


19 http://www.fdhc.state.fl.us/dhit/FHINgrantsProgram/FHINgrantsProgIndex.shtml

20 Agency for Healthcare Administration accessed on June 17, 2009 http://ahca.myflorida.com/

21 http://elincs.chcf.org/


34 Butterfoss, p 231

35 The Community Toolbox

36 Butterfoss, 223

37 Butterfoss, p97

38 Butterfoss, p 80.

39 Butterfoss, P 77.

40 Butterfoss


42 Butterfoss P97
44 Butterfoss, P 77
APPENDIX A:
Electronic Health Records and Health Information Exchange
For local health departments to take a leadership role in response to emerging health information and electronic information exchanges, it is necessary to understand how electronic health records (EHRs) contribute to the development of electronic health information exchanges (EHIEs), and the public health implications of this exchange. This document seeks to provide the necessary background to enable local health agencies to be informed leaders in convening their healthcare communities around EHIE development.

The Case for EHRs and EHIE

Reducing Medical Errors

In the 1999 report “To Err is Human: Building a Safer Health System,” the Institute of Medicine (IOM) identified the fragmented healthcare system as a major contributor to medical errors. The IOM asserted that it is the fragmented nature of a patient’s care occurring across a number of healthcare settings and administered by more than one provider and, perhaps more importantly, the lack of access to information among these settings and providers that allow for things to go wrong. The emphasis then was on developing a nationalized medical error reporting system. Today it is on improving the delivery of patient care through multiple-provider access to automated patient records. For example, EHR systems are being developed to transmit laboratory results electronically to the ordering provider’s EHR system, as opposed to traditional fax, chart filing or manual entry into a patient’s EHR record, reducing opportunities for manual entry errors. Emerging standards will create a consistent environment for laboratory data “to be shared and processed uniformly.” Through automatic entry into a provider’s EHR system, the results can be reviewed in a timely manner with the rest of the patient’s history, including past lab results.

By migrating from paper-based health records to an electronic information storage system that also employs computer-aided decision support, physicians will be able to improve the safety and quality of healthcare, reduce redundant care, improve efficiency, and address rising healthcare costs. In addition to the economic benefits, these technologies provide decision-support tools to providers and reduce the reliance on paper charts, thus improving the quality of patient care and decreasing the number of medical errors and related deaths. In fact, implementation of health information technology (HIT) could prevent tens of thousands of deaths a year in the United States caused by medical errors.

Reducing Costs and Improving Efficiency

In addition to improving the quality of healthcare and reducing medical errors, it has been argued that EHRs produce a financial return on investment by creating work-flow efficiencies. The argument for financial returns has been cited in studies on both a macro-economic level (savings to the “system” or nation) as well as on a micro-economic level (savings to physicians and physician practices). One study estimates that at 90 percent adoption, “HIT-enabled efficiency savings for both inpatient and outpatient care” would average about $77 billion a year, as a result of reduced hospital length-of-stay, nurses’ administrative time, drug usage in hospitals, and drug and radiology usage in the outpatient setting. A micro-economic study of physician offices found “financial benefits” to be $33,000 per provider full-time employee (FTE) per year through increased coding levels and efficiency related savings (decreased personnel costs) or revenue gain (increased visits).

Quality Improvement

The quality improvement and increased efficiency and cost reduction projected to accrue from wide scale adoption and “meaningful use” of EHRs is considered a critical element of healthcare reform. The need for quality improvement has been a focus of discussion for many healthcare stakeholders in the
21st century, including policy makers, state and federal governments, hospitals, payers, employers, and providers. Electronic health information systems can monitor the use of medical practices that have been demonstrated to produce the best outcomes, providing essential infrastructure to move quality improvement from discussion to practice. There are many programs that aim to improve quality, including but not limited to aligning payment policies with quality improvement, also known as “pay for performance,” currently implemented by many larger payers. “Meaningful use” of EHRs, which includes facilitating provider access to information of critical importance to optimal medical decisions, can be facilitated through EHIE.

**EHR Adoption Status**

Although physicians have been increasingly encouraged to adopt EHRs in their practices by many of the major authorities in medicine, prominent policy makers and experts, data show that only about 24 percent of physicians’ offices have adopted EHRs to date, and the extent of that utilization remains unclear. One study stated that only 9.3 percent of physicians used EHRs with the four basic functions (e-prescribing, computerized provider order entry, automated reporting of test results, and physician documentation) that are considered necessary for a complete EHR system.

Some challenges that present potential roadblocks to adoption of EHRs in these environments include: what to do with the paper record, choosing appropriate technology, project management, configuration needs, training needs, the case for quality, and return on investment. The most common barriers to adoption by physician offices remain cost and lack of interest in EHR systems, and although most organizations have purchased a series of systems to automate some processes in healthcare (i.e. billing, e-prescribing, lab result retrieval), healthcare providers still primarily use manual records for patient care documentation.

**EHR Perspectives among Healthcare Community Stakeholders**

**The Push by Payers**

Payers (insurers) have been instrumental in creating and, in some cases, requiring the movement from a paper-based claims and payment system to a fully automated process. Private and public insurers (like Medicare), along with a push from the Health Insurance Portability and Accountability Act of 1996 (HIPAA), have been the most prominent agents for change to more efficient electronic claims processing systems. This is partly due to a major provision of HIPAA to expand electronic data exchange between payer and provider entities. However, it probably also reflects a more systems-oriented approach to the business model associated with claims processing. As of 2000, electronic claims submission and materials management were the most widely implemented technologies in healthcare. In a study published in 2005, several experts in the HIT field, including the current National Coordinator for Health Information Technology, had determined that most payers “already had the critical functionalities” essential to providing high-quality care or improving efficiency in their field, namely advanced electronic capabilities for claim and eligibility checks.

**Hospitals & Laboratories**

Electronic health information systems have major implications for local hospitals. One of the major hospitals in Jacksonville, Florida opened a new facility in a fast growing area of the metropolitan area utilizing a paperless, electronic system. That hospital system is in the process of converting its hospital facilities to electronic information systems. These systems are typically related to in-patient records and services. However hospitals also provide ambulatory care, laboratory, diagnostic and pharmacy services.
These types of health information frequently involve information exchange, optimally through electronic systems.

The electronic ordering and reporting of laboratory data is a key component of a fully functional EHR, although frequently un- or underutilized. Although laboratory data exchange functionality is a key requirement for product certification by the Certification Commission for Health Information Technology (CCHIT), this does not mean that once a physician purchases a CCHIT-certified product, that they will necessarily use the laboratory data exchange function. In a survey conducted by the Healthcare Information and Management Systems Society (HIMSS) Analytics in 2008, of those physicians who reported that they have adopted an EHR system, only 55 percent reported utilizing lab connectivity for orders and results (although that number was up from the rate of 49 percent reported in 2006). For practices that were owned by a larger healthcare system, this utilization rate went up to 82 percent. 27

E-PRESCRIBING

E-prescribing is one of the integral steps to achieving broad deployment of the EHR. 28 The term refers to the automated prescription process for both the prescriber and pharmacist. The electronic process allows less opportunity for handwriting errors or misinterpretations 29 and minimizes call-backs to providers to clarify or verify information. For example, the Agency for Healthcare Research and Quality reports that an estimated 30 percent of all paper-based prescriptions require pharmacy call-backs. The report indicates that the implementation of e-prescribing systems could reduce these call-backs by 80 percent, and avoid more than two million adverse drug events that occur annually, of which 130,000 are life-threatening. 30 Based on many studies of the prescription process, many inefficiencies and serious health consequences will continue to be present as long as the current paper-based, hand-written system is utilized.

ENDNOTES

2 http://elincs.chcf.org/
4 Ibid.


29  www.eprescribeflorida.com

30  AHRQ - Findings from the Evaluation of E-Prescribing Pilot Sites. AHRQ Publication April, 2007
APPENDIX B:
Duval County Health Department e-Health Leadership Profile
Designation as Medicare/Medicaid EHR Demonstration Site

A major accomplishment reflecting on the value of local health department (LHD) leadership and staffing in the Jacksonville community’s e-health consortium was the successful competition for the Centers for Medicare and Medicaid Services (CMS) designation as a demonstration site for a national initiative to study electronic health record (EHR) supported pay-for-performance. The Duval County Health Department (DCHD) provided leadership for the application process by convening the community’s stakeholders as a neutral party charged with ensuring all community interests were appropriately represented; and through its grant writing capacity in developing a successful application that articulated the community’s assets within the context of the CMS Demonstration Project. DCHD worked with the County Medical Society, the North East Florida Regional Health Organization (NEFRHO), Blue Cross/Blue Shield of Florida, and local employers to develop the proposal that led to CMS designation for Jacksonville. The CMS designation was awarded in June, 2008 and the project was to begin recruitment in July 2009. With DCHD as the convener, Jacksonville was one of only three multi-county communities to receive the highly competitive designation as well as the only local health department-led application (other state health departments received the award) with the other nine designations going to state- or multi- state coalitions.

Supporting the Jacksonville Health Information Network

DCHD also serves as the administrator for a local health information exchange (HIE) system for safety net and health disparity reductions, the Jacksonville Health Information Network (JHIN). DCHD has taken on the management and development of the JHIN from JaxCare, Inc., a local grant- and city-funded initiative that included a coalition of the community’s public and private sector stakeholders determined to tackle the challenge of financing and delivering healthcare to the uninsured. Unfortunately, both grant and city funding ran out and JaxCare could no longer continue administration of the EHIE, placing the JHIN at risk of being discontinued. The DCHD, having the appropriate infrastructure, stepped up to assume responsibility for the continued development and administration of JaxCare’s information exchange initiative, with financial support from the local hospitals.

The JHIN aggregates relevant clinical and medical claims data from organizations across the Jacksonville community, including several major hospitals, a local homeless shelter and the LHD and Federally Qualified Health Center (FQHC) clinics. Data elements include: patient demographics, allergies, medications, immunizations, visit history information (including diagnoses and procedures), pharmacy and lab results. Data are transmitted securely via Health Level 7 (HL7) interfaces as well as flat files, depending on the sending source’s capabilities and preference. Figure 1 illustrates the relationships of the hospital and ambulatory care providers to one another and the central repository, and shows the DCHD’s relationship to the partners and role in the HIE.

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1 Due to the passing of the American Recovery and Reinvestment Act, the CMS project was cancelled because of the confounding factors another incentive program for EHR adoption would present to the CMS incentive project.
e-Prescribing Leadership

DCHD was the first county health department in Florida to adopt e-prescribing at their clinics as their primary method for ordering prescriptions from commercial pharmacies (external to DCHD). Through the use of personal digital assistants (PDAs), clinicians began e-prescribing in December 2008. A total of 28 PDAs were distributed from October 2008 and January 2009, and one-on-one training with clinicians was completed as of January 24, 2009. E-prescribing is particularly important for LHDs with substantial healthcare commitments, but incorporating this technology into strategies to develop community HIE for all health-care providers is even more critical to the goal of reducing medical errors throughout the community.
APPENDIX C:
Northeast Florida Health Information Consortium (NEFHIC) Membership Dynamics and Organizational Structure
Current Healthcare Environment in Jacksonville

Following is a summary of stakeholders within the various sectors of the Jacksonville healthcare industry:

- There are five major hospital systems within the Jacksonville metropolitan area, not including a military hospital which is not open to the public.
- Baptist Health has five hospitals in Jacksonville/Duval County or the adjoining counties that are considered part of the Jacksonville metro area.
- St. Vincent’s Healthcare, part of Ascension Health, has two hospitals, St. Vincent’s and St. Luke’s.
- Mayo Clinic has one of its three major hospital sites in Jacksonville, the other two being in Rochester MN and Scottsdale AZ.
- Memorial Hospital, part of the Hospital Corporation of America.
- Shands Jacksonville Hospital is affiliated with University of Florida College of Medicine - Jacksonville.

There are also several large institution-based provider/physician groups (in addition to private practice groups):

- University of Florida College of Medicine - Jacksonville
- Mayo Clinic Jacksonville
- Baptist Primary Care

Safety-net organizations in Jacksonville are heavily linked to the Duval County Health Department (DCHD), which has five primary care public health clinics, five Federally Qualified Health Center (FQHC) clinic sites, and other specialty clinics. However, St. Vincent’s, Baptist and Shands all have outreach efforts intended to serve the underinsured and uninsured.

Payers, or insurance companies, have a major role in and in many ways are on the cutting edge of electronic information exchange due to their use of the technology for claims processing. Many of the major insurance companies have a significant corporate presence in Jacksonville, including BlueCross/Blue Shield of Florida, Aetna and AvMed. The Blues have the largest market concentration with 48 percent, compared to Aetna with 24 percent and all other private insurers with 28 percent.1

Software vendors further complicate the issue of engaging stakeholders. In 2007, the Florida Medical Association did a study2 of all CCHIT ambulatory care vendors with business in Florida. At that time they were:

- Allscripts
- Cerner
- Eclinical Works
- e-MD’s
- GE Centricity
- Greenway
- McKesson-Practice Partner
- Praxis, Pulse Systems, Inc
- Sage
- Visionary

In Jacksonville, Allscripts is used by many of the institutional-based primary care providers, and NextGen has a major presence with independent practitioners.

Hospital software vendors represent another group of stakeholders. Cerner software products are used by most of the hospitals, although McKesson and Meditech also have a presence.
NEFHIC Roles and Responsibilities

The roles and responsibilities within a coalition are well defined within the coalition literature and within the guidelines and directions of other organizations. We offer the following illustrations of our organizational structure to summarize and describe how that body of literature can be applied to an organizational structure dedicated to building a health information exchange (HIE). These positions within the organization emerged very early in the consortium’s history, centered around the need for competing organizations to collaborate to access available resources—the early challenge that precipitated the development of the consortium. The formal descriptions found in the group’s operating procedures developed more out of practice than from following a prescribed framework. However the major partners were all familiar with common organizational practices, and the positions and roles reflect that familiarity.

The NEFHIC Operating Procedures describe the roles and responsibilities of the coalition leadership:

**The Chairperson will:**
- Convene the consortium,
- Conduct meetings,
- Represent the consortium in the community with respect to matters, positions and/or issues which have been approved by the steering committee, and

Perform such other duties as the Steering Committee shall from time to time determine, in writing.

**The Vice Chairperson will:**
- Represent the Consortium in the absence of the Chairperson,
- Assist the Chairperson in completing his/her duties, and
- Perform such other duties as the steering committee shall from time to time determine, in writing.

**The Secretary will:**
- Schedule and announce meetings,
- Oversee the keeping of meeting minutes,
- Coordinate correspondence and committee reports, and

Perform such other duties as the steering committee shall from time to time determine, in writing.

**The Treasurer will:**
- Oversee finances and financial records relating to activities undertaken for purposes of the Consortium,
- Submit reports and budgets that are useful in the coordination of activities, and
- Perform such other duties as the steering committee shall from time to time determine, in writing.
NEFHIC Membership Structure

Following is the membership article from the bylaws.

**ARTICLE 4: MEMBERSHIP**

4.1: The Consortium shall have such Members as shall, from time to time, be approved by the Steering Committee. For purposes hereof, the term “Member” shall refer to an organization that participates in the Consortium. Initially, the Members of the Consortium shall be JaxCare, Inc., Northeast Florida Regional Health Organization, Inc. (NEFRHO), Duval County Health Department, and Duval County Medical Society, Inc. (“Charter Member(s)”).

4.2: Each Charter Member shall be allowed to appoint two (2) persons to serve on the Consortium Steering Committee (“Representative(s)”).

4.3: Regular Members (“Regular Members) may be admitted by a simple majority vote by the Charter Members represented on the Steering Committee.

**NEFHIC Committees**

Examples of committees that the NEFHIC consortium has established are reflected in the operating procedures:

**ARTICLE 7: COMMITTEES**

7.1: **Steering Committee**: The Steering Committee shall be comprised of two (2) Representatives of each of the organizations identified in Article 4, Membership. The Steering Committee shall be the primary decision making body of the Consortium. It shall oversee all Consortium projects and staff. The Chairperson or his/her designee shall chair the Steering Committee Meetings.

7.2: **Executive Committee**: The Executive Committee shall be comprised of one (1) voting representative of each of the organizations/organization categories identified in Article 4, Membership. The Executive Committee shall act on behalf of the Steering Committee between Steering Committee meetings. The Chairperson or his/her designee shall chair the Executive Committee meetings/Calls. Any Charter Member/Steering Committee Member may call on Executive Committee meeting upon not less than five (5) business days advance notice (excluding weekend days and holidays).

7.3: **Community Advisory Committee**: The Advisory Committee shall be comprised of representatives of community stakeholders who have may be impacted by electronic health information exchange. Advisory Committee members shall be recommended by Steering Committee members and approved by the Steering Committee. Its Chairperson shall be appointed by majority vote of the Steering Committee.

7.4: **Technology Committee**: The Technology Committee shall be comprised of representatives of the member organizations and other individuals approved by the Steering Committee. It is recommended that such Committee be comprised of not less than three (3), nor more than seven (7) members. The Technology Committee shall have primary responsibility for developing policies and procedures for the recommendation of technology infrastructure, acquisition and use of technology related to the purposes of the Consortium. Its Chairperson shall be appointed by majority vote of the Steering Committee.
7.5. Ad Hoc Committees: Committees may be appointed by the Steering Committee, to address tasks or issues that are of concern to the Consortium.

The local health department has played a major role in providing staff support for meetings, taking primary responsibility for developing grant applications, managing and evaluating projects and reporting the results to the NEFHIC steering committee. This structure enables the partner organizations to participate in governing board decision-making through the steering committee and the local health department, and has functioned very well.

**ENDNOTES**

