ELECTRONIC HEALTH RECORDS AT LOCAL PUBLIC HEALTH AGENCIES

Final Report

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Primaris
Digital Collaboration Solutions

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Missouri Department of Health and Senior Services

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# Table of Contents

Executive Summary .................................................................................................................. E1
- Results................................................................................................................................. E1
- Opportunities...................................................................................................................... E1
- Recommendations ........................................................................................................... E2

Purpose .................................................................................................................................. 1

Assessment ............................................................................................................................. 2

In-Depth Interviews .............................................................................................................. 2

Training .................................................................................................................................. 3

Review of EHRs ...................................................................................................................... 7

Next Steps .............................................................................................................................. 9
- EHR Selection .................................................................................................................... 9
- Financing ............................................................................................................................. 11
- Training and Support ......................................................................................................... 12

Conclusions ........................................................................................................................... 14

Appendix A: Benchmarking Study ......................................................................................... 15
- Introduction ........................................................................................................................ 16
- Objectives ............................................................................................................................ 16
- Study Design ...................................................................................................................... 16
- Results ................................................................................................................................ 17
  - Overview .......................................................................................................................... 17
  - Use of EHRs and HIE ...................................................................................................... 18
  - Barriers to EHR Use ........................................................................................................ 18
  - EHR Use per Service Offered ......................................................................................... 20
  - Billing, Data Submission, and Quality Improvement .................................................... 24
  - Agency Staffing ................................................................................................................ 24
    - Population Served .......................................................................................................... 24

Summary ................................................................................................................................ 25

Appendix: Selected Comments Received ............................................................................... 26

Appendix: Copy of Survey ..................................................................................................... 29

Appendix B: In-Depth Interviews ........................................................................................ 35
- Introduction ........................................................................................................................ 36
- Method ................................................................................................................................ 36
- Results ................................................................................................................................ 36
  - Why Did They Decide to Implement an EHR ................................................................. 37
What EHR Did They Implement
What Contributed to the Success of the Implementation
Do They Have Internal or External IT Support
What Agency Position Typically Led the EHR Implementation
Do They Use the EHR for Billing
Does the EHR Provide Any Public Health Tasks for the Agency
What Were the Greatest Obstacles They Had to Overcome
If They Were Starting Over, What Changes Would They Make
Other Comments
Summary
Appendix: LPHA EHR Usage Assessment
Appendix C: Overview of Select EHR Vendors
Patagonia Health – App Based Solutions
Insight™ (Netsmart):
NextGen Healthcare
eClinicalWorks v10 (EHR Suite)
Azara Healthcare
Stratis Health
References and Resources
Optimizing Use of Electronic Health Records at LPHAs

EXECUTIVE SUMMARY

The Missouri Health Information Technology Assistance Center (MO HIT AC), the Department of Health Management and Informatics (HMI), Primaris, and Digital Collaboration Solutions conducted the study for the Bureau of Cancer and Chronic Disease Control, Missouri Department of Health and Senior Services. The activities undertaken during this project supported existing efforts to assist Missouri public health practitioners use health information technology to enhance performance of the health care delivery system. The project examined the extent of EHR adoption in the 117 local public health agencies (LPHAs) in Missouri and provided LPHAs with initial training regarding the adoption of EHR. The project consisted of:

- A survey of the 117 local public health agencies,
- In-depth interviews of eleven of the Missouri local public health agencies, and
- A training session for the local public health agencies and Missouri Department of Health and Senior Services personnel.

RESULTS

The results of the project are detailed in the attached report. A summary of the findings is:

- Of the 117 LPHAs, 100 (85.5% response rate) responded to the survey.
- Eleven LPHAs received in-depth interviews.
- Of the respondents, 79% considered electronic health records to be an important tool.
- Only 24 of the 100 respondents currently use an EHR.
- Among these 24 agencies that use an EHR, 15 different vendor products were being used.
- Most LPHAs see the value of an EHR.
- Adoption of EHRs was primarily limited due to cost, but also for lack of necessary staff and insufficient knowledge to implement an EHR.
- Some LPHAs see less value in an EHR because they provide few medical services.
- The attendees of the training session valued the training, and the opportunity to network with peers and experts.

OPPORTUNITIES

As evidenced by the results of the project, successful deployment and use of EHRs by Missouri LPHAs presents opportunity for many benefits. These benefits include:

- Improved quality of care for the population of Missouri, especially for underserved and disadvantaged citizens,
- Reduced overall costs of providing healthcare,
- Reduced Medicaid costs,
- Improved public health reporting,
- Improve collaboration and coordination between healthcare providers, government, community organizations, and other healthcare participants.
RECOMMENDATIONS
Based on the project and the partners’ broader knowledge of EHRs, we recommend:

- Statewide deployment of EHRs to Missouri LPHAs,
- Given LPHAs’ limited finances, funding should be provided for most, if not all, of the cost of EHRs and their deployment,
- Integrating the EHRs to Missouri and federal reporting systems that require LPHA reports,
- Limiting the number of offered EHRs to reduce costs and enhance sharing of information,
- Using a modified version of MO HIT AC’s successful deployment program for LPHAs. The modifications should focus on reducing costs and increasing information sharing by deploying in regions, limiting on-site work, and using remote education and support whenever possible.
Optimizing Use of Electronic Health Records at LPHAs
Final Report

PURPOSE

This project was undertaken by the Missouri Health Information Technology Assistance Center (MO HIT AC) in the Department of Health Management and Informatics (HMI) in the School of Medicine at the University of Missouri, Primaris (a healthcare consulting firm), and Digital Collaboration Solutions (a consulting firm) at the request of the Bureau of Cancer and Chronic Disease Control, Missouri Department of Health and Senior Services. The purpose of the project was to implement the Missouri Actions to Prevent Chronic Disease and Control Risk Factors (MAP) strategy to increase electronic health record (EHR) adoption, and the use of health information technology (HIT) to enhance performance of the health care delivery system. The activities undertaken during this project supported existing efforts to assist Missouri public health practitioners achieve meaningful use (MU) objectives pertinent to population health management.

As more and more pressure is placed on providers in the health care system to increase coordination of care to improve population health, an understanding of the capacity of local public health agencies to collect, manage, analyze, and transmit health-related data electronically is essential. While the initial government focus was on expanding the use of electronic health records (EHRs) by physicians and hospitals, attention is now turning to other health care providers in the system, recognizing that coordination needs to occur among all providers of care, if the health of the population is to benefit fully from the capabilities associated with EHRs.

Electronic health records have been shown to assist local public health agencies provide better care to the populations they serve.1,2 An effective EHR system provides a comprehensive, single patient view across all programs in the agency. It enables the collection of public health data for reporting requirements and grant opportunities. A certified EHR will support all federal and state policies and standards for health information exchange, and will provide a robust infrastructure to fully support future health information exchange (HIE) relationships between local health departments, state agencies, local/regional providers, and patients and families. A certified EHR will also incorporate strong security and privacy controls, enabling the transmission of HIPAA-compliant protected health information between participating organizations. When fully implemented and used, the EHR will enable the aggregation of clinical data, providing broad visibility at a population level, facilitating care coordination across providers, track clinical quality measures and outcomes, manage authorizations and claims, and generate adequate billing for...
critical clinical preventive services from Medicaid, private insurance, etc. Given the benefits associated with the use of an EHR, this study was undertaken to examine the extent of EHR adoption and use in local public health agencies in Missouri, and to provide LPHAs with initial training regarding the adoption of EHRs.

**Assessment**

An important part of optimizing the use of electronic health records at local public health agencies is to establish baseline information on the current status of availability and use of electronic health records among the local public health agencies. The assessment establishing the baseline information consisted of the design and performance of a survey among all public health agencies in Missouri. The survey was conducted during September 2015, with participation obtained from 100 of the 117 (85.5% response rate) local public health agencies in Missouri. While 79 percent of the respondents considered electronic health records to be an important tool, only 24 percent currently use one. In addition, only four of the local public health agencies with an EHR were using a health information exchange. The biggest barriers expressed by the LPHAs to using an EHR were the cost of the hardware and software, continued maintenance cost of the system, as well as the lack of knowledge/training about selection of software and technical skills and support in the agencies. Among the 24 agencies reporting they had an EHR, there were 15 different vendor products being used. Appendix A at the back of this document contains the full report on the results of the survey among the Missouri local public health agencies.

**In-Depth Interviews**

During the period October 14 – October 27, 2015, in-depth interviews were conducted with eleven Missouri local public health agencies. These interviews were conducted by two individuals, either in person or by telephone. A standard set of questions was used by the two interviewers to gain consistency in the results obtained. In addition to the questions designed to solicit information regarding specific topics, there were also open-ended comment questions to allow the interviewees to provide additional information (see Appendix A for the interview instrument used). The interviews were used to gather information about how a local public health agency uses an electronic health record system. The purposes of the interviews were to identify best practices and potential pitfalls regarding the adoption and implementation of an electronic health record from these agencies, so that the findings could be shared with other local public health agencies contemplating the installation of an EHR, and used to identify ways to assist LPHAs with EHRs.
The staff size of the agencies interviewed ranged from 2 to 50 full-time personnel. In general, the agencies served the full age span of the population. Only two of the agencies performed in-office labs, and only about 10% of their labs were performed in the office. The state public health lab was used by three agencies, and Boyce & Bynum used by two.

Of the ten agencies with an EHR, five indicated their staff was very knowledgeable about the EHR, four indicated their staff was somewhat knowledgeable, and one indicated their staff was not very knowledgeable. Overall, the agencies indicated (on a scale of one not very efficient to five highly efficient) that their administrative process, patient care process, and overall processes were efficient (average of 3.67 out of 5.0). None of the agencies were participating in quality improvement initiatives, and only one had a patient portal. Two of the agencies’ providers used EHR templates to document their notes in the EHR and nine reported using a keyboard to enter the data. Both desktops and laptops were used extensively by these agencies, and one reported using a notepad/i-pad.

The results of the interviews could be categorized into nine general areas. These areas are: 1) why did they decide to implement an EHR; 2) what EHR did they implement; 3) what contributed to the success of the implementation; 4) do they have internal or external IT support; 5) what agency position typically led the EHR implementation; 6) do they use the EHR for billing; 7) does the EHR provide any public health tasks for the agency; 8) what were the general obstacles they had to overcome; and 9) if they were starting over, what changes would they make. Appendix B at the back of this document contains the full results of the interviews conducted with these eleven agencies.

**Training**

On October 27, 2015, a training session for all local public health agencies in Missouri and Department of Health and Senior Services personnel was held in Columbia MO at the Clinton Room at Mizzou Arena. The training session was also streamed live, so individuals unable to attend on site could participate in the conference. There were 37 on-site attendees and at least 31 different off-site attendees at various times, with 17 off-site attendees continuously on line. The materials from the training session can be viewed on the MO HIT Assistance Center website [http://ehrhelp.missouri.edu/?q=node/135](http://ehrhelp.missouri.edu/?q=node/135). The webinar recorded information has been finalized, and it has also been posted on the EHRHelp website to enable anyone to review the information. The webinar is divided into individual presentations of the various speakers. In addition, funding information from the US Department of Agriculture has also been posted on the website.
Table 1 provides a summary of the evaluations received from individuals attending the training session. The overall average received was 3.32 on a scale of 4 = strongly agree to 1 = strongly disagree.

**Table 1: Quantitative evaluation of training session**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the training sessions were clearly defined</td>
<td>3.16</td>
</tr>
<tr>
<td>The training session met my expectations</td>
<td>2.92</td>
</tr>
<tr>
<td>The content was helpful</td>
<td>3.24</td>
</tr>
<tr>
<td>The level of the seminar was appropriate</td>
<td>3.28</td>
</tr>
<tr>
<td>Participation and interaction were encouraged</td>
<td>3.76</td>
</tr>
<tr>
<td>The format was enjoyable</td>
<td>3.46</td>
</tr>
<tr>
<td>The speakers had good understanding of the topics</td>
<td>3.58</td>
</tr>
<tr>
<td>The session was appropriate, well organized, and well presented</td>
<td></td>
</tr>
<tr>
<td>Impact of Health IT for Public Health Agencies</td>
<td>3.26</td>
</tr>
<tr>
<td>Missouri LPHA Survey Results</td>
<td>3.26</td>
</tr>
<tr>
<td>Health Information Exchange (HIE)</td>
<td>3.57</td>
</tr>
<tr>
<td>Impact of Health IT for LPHA—An Implementation Success Story</td>
<td>3.29</td>
</tr>
<tr>
<td>Assessing Your EHR and Implementation Needs</td>
<td>3.22</td>
</tr>
<tr>
<td>EHR Options for LPHA</td>
<td>2.91</td>
</tr>
<tr>
<td>Funding Options</td>
<td>2.96</td>
</tr>
<tr>
<td>EHR Implementation—People, Process, &amp; Technology</td>
<td>3.36</td>
</tr>
<tr>
<td>Next EHR Implementation Steps for LPHA &amp; Closing Remarks</td>
<td>3.30</td>
</tr>
<tr>
<td>The handouts were helpful</td>
<td>3.44</td>
</tr>
<tr>
<td>The seminar was worth my time</td>
<td>3.54</td>
</tr>
<tr>
<td>The length of the seminar was appropriate</td>
<td>3.32</td>
</tr>
<tr>
<td>The training objectives were met</td>
<td>3.22</td>
</tr>
<tr>
<td>The meeting room and facilities were adequate and comfortable</td>
<td>3.64</td>
</tr>
<tr>
<td>I would recommend the training session be repeated for other staff members</td>
<td>3.26</td>
</tr>
<tr>
<td>Overall average of training session</td>
<td>3.32</td>
</tr>
</tbody>
</table>

4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree

In addition to these quantitative evaluations, a number of comments regarding the training session were also provided. The following reflects the comments received to the four open-ended questions asked.
What were the most useful aspects of the seminar?
“Handouts and the Q&A time.”
“Cost—financial and time; r/t EHR; made it apparent not practical for implementation at this time”
“Hearing about EHRs that serve public health”
“The available resources for funding of EHRs and other services available through the local public health agencies”
“Connecting with people who have been through the process; identifying what my agency needs to do for implementation of EHR; the meaningful use discussions”
“Networking and opportunity to ask questions of experts”
“This was great! Thank you! Simply gathering everyone for the conversation was a great start”
“Gaining understanding of EHRs and HIEs”
“Networking and finding additional funding sources”
“Brought together LPHAs”
“Project planning documents”
“Open forum for suggestions”
“Case studies, success story, challenges to implementation, technical aspects of implementation”
“Ideas on evaluating systems, tools”
“Found out there’s more people at DHSS who can help with EHR”
“Relationship of EHR to HIE”
“The HIE presentation was fantastic”
“The key questions to ask EHR vendor and vendor matrix will be useful to many LPHAs when evaluating vendors”
“Hearing about issues with implementing EHRs and issues LPHAs are having with funding”
“The tools that were provided to help in the evaluation stage”

What changes should be made to enhance/improve this program?
“How the list of EHR vendors available for public health--answered during the program; list of acronyms so know what each stands for during talks”
“More discussion about collaboration between LPHAs in selecting, implementing”
“Details of additional billable services”
“Feel too much information in one day”
“List of public health best options—how to work within the required bid process”
“It would be great to keep the communication going”
“More details for LPHA success stories or new avenues for billing for public health services and how EHRs specifically helps LPHAs”
“Hearing success stories; tools and teams great - most of us multitask so committees and team decisions not realistic, usually admin taking research, etc., back to the Boards”
“More concrete examples of EHR capability”
“Security of systems addressed; to me, an EHR sets us up for bigger HIPAA challenges based on what I’ve seen in the news as of late”
“Great first start on getting the conversation going regarding helping LPHAs start thinking about EHRs”

**What additional information would you like to hear about?**
“More about HIE MOHealth Connection costs; samples of different EHR vendors”
“Security issues and HIPAA”
“EHRs selected by LPHAs in other states”
“Other collaborative efforts that public health departments can work together to create pooling and share information”
“A list of EHRs that have a public health application and focus; EHR & HIPAA requirements”
“EHRs available for LPHAs”
“How can a LPHA bill for services like PB when free for others? Charging for every service previously free causes problems in the community”
“Top few EHR vendors suggested for a public health agency”
“New avenues for public health funding through EHR billing”
“Which EHRs/smaller powered EHRs are out there”
“Vendor specific to meeting public health department needs/programs”
“Talked about an EHR helping with billing--give specifics and have action/success stories (such as who is actually successful in billing for BP checks and B12 shots, which doctors' offices won't do because they don't get paid for it. How can we negotiate contracts with private insurers for services beyond immunizations? I have 1 provider who refused to pay us for TBSTs, which are required for this particular group of employees. Demonstrate how implementing an EHR would actually help our LPHA bottom line”
“How data can be used from EHR to benefit public health”
“Which EHR vendors are most useful to LPHAs specifically? How to connect EHR with state systems (ShowMeVax, Webserv, etc.) so data can be shared/ transmitted electronically”
“Are common vendors collaborating with LPHAs to enhance services; can there be larger contracts to assist smaller LPHAs”

**Other Comments**
“Great food!”
“Thank you for a very nice meeting; food great, location good”
“EHR for small rural health depts that do not offer many clinical services; unable to afford; lack of IT support; most clinical services have other record systems--lead, immunizations, WIC, webserv, use VAXCARE for flu and some adult immuno--may be used in future for patients of programs, such as chronic disease mgmt; at present, would require duplication of entry into
current systems; concern about being "left behind" re EHR, etc., If Columbia/Boone not linked to MODHSS/SMV, chances for single/rural are remote; single vendor, IT support, Interoperable with MODHSS, billing clearing house for LHD, esp, small/ rural”

“Specific contact to request participation in a follow-up discussion”

“Ways in which those of us who have EHR systems can collect data needed for public health departments, such as epidemiology and surveillance”

“Thank you for having this meeting. I learned how much I didn’t know and how much more I need to find out”

“It would make more sense to have 1-2 EHRs in state, like the MN idea”

“The room and food were wonderful--Thank you! However, directions and parking unclear; also didn’t know breakfast and lunch provided”

“My limited budget needs to go to pay staff salaries--not losing one so I can have our own EHR when we have Mowins, ShowMeVax, and WebServ. I’d like someone to talk with me about how to securely store my paper immunization consents for the 18+ years we have to hold on to them--they take a lot of room and I would love to have an idea on handling that which is my biggest health record issue”

“Sounds like some agencies have EHR, but it is not being disseminated through a health exchange”

“Could have more time for networking – formal and informal – throughout the day (not just at the beginning)

“An example project plan may have been helpful as a starter for some LPHAs. GREAT JOB!!”

**Review of EHRs**

As more and more pressure is placed on the health care system to improve the health of the population, there is an increased focus on coordinating the care provided. As more emphasis is placed on coordinating care across all providers, the role of EHRs in the system will increase. The ability of local public health agencies to collect, analyze, and transmit health-related data electronically will become increasingly essential. An electronic health record can be used to help local public health agencies achieve key public health objectives, such as improving public health reporting and surveillance activities, preventing chronic and communicable diseases, exchanging data with other community providers, labs, and pharmacies, and increasing efficiency in the provision of integrated, coordinated, and improved health care services.

As indicated by the feedback and comments, there is substantial interest in electronic health records among local public health agencies. In addition to the benefits described above, there was substantial interest expressed in obtaining more information on how local public health agencies can bill for the services they provide, and how an EHR can help with billing. There was also interest in more information about how the different state reporting systems could be linked to EHRs so that data could be transmitted directly without re-entering the information. While
the interest is there, there is also significant concerns regarding the costs associated with selecting, implementing, and maintaining an EHR. The smaller agencies are especially concerned that the costs of the EHR will outweigh the benefits they will receive from an EHR.

There was interest expressed in learning more about EHRs that are currently being used by public health agencies, both within Missouri and in other states. As a result, a brief overview of four vendors\(^1\) that have indicated they have products specifically for public health agencies are presented in Appendix C. Also included in Appendix C is information about a community health clinic vendor, Azara Health Care, which has been linked to public health agencies in other states. Appendix C also contains information about Stratis Health. While Stratis Health does not provide an EHR product, it does provide a number of very useful tools for implementing or upgrading an EHR. These brief descriptions of the various products are not to be viewed as a comprehensive review of the specific EHRs, but rather as an introduction to EHRs that might possibly be appropriate for public health agencies. Also, the vendor products reviewed are not to be construed to reflect an endorsement by the MO HIT Assistance Center for these vendors, but rather as introductory informational briefs for consideration by LPHAs that are potentially interested in an EHR.

The Health Information Technology Research Center (HITRC) has developed a vendor evaluation matrix tool that rates the basic functionalities of EHRs. This tool uses a scale from 1 (poor) to 5 (excellent) to enable individuals or organizations to do a comparative analysis across vendors. This tool can be accessed on the MO HIT AC website (http://ehrhelp.missouri.edu/?q=node/135) or the tool, along with additional tools and information can be accessed through the HITRC website (https://www.healthit.gov/providers-professionals/implementation-resources/vendor-evaluation-matrix-tool).

In addition to the tools available to assist in the selection, implementation, and use of EHRs, it is also highly recommended that, if possible, LPHAs interested in adopting and implementing an EHR should visit agencies or organizations that have already implemented an EHR to see how the system works for them and obtain any information they have to share on the things they like about the system, the things they dislike about the system, the ease of obtaining assistance from the vendor, any issues that arose during the implementation and on-going use of the system, and

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\(^1\) Materials about each of the vendor products described in this report come from the website or other materials from the vendor, including discussions. This information or content and conclusions should not be construed as the official position or policy of, nor should any endorsements be inferred by, MO HIT AC, HMI, Primaris, Digital Collaboration Solutions, or the Division of Community and Public Health, Missouri Department of Health and Senior Services.
initial as well as ongoing costs of the system. Many times, such a visit will enable LPHAs considering adoption to avoid problems as they proceed in the selection and implementation of an EHR.

**NEXT STEPS**

The *Optimizing Use of Electronic Health Records at Local Public Health Agencies* project assessed the need and current state of EHR use by LPHAs in Missouri. As described elsewhere in this report, the project used a survey, in-depth interviews, and a training session in evaluating the requirements of LPHAs for EHR assistance. This section of the report offers recommendations for next steps in meeting the EHR needs of Missouri LPHAs.

As the results of the study indicate, most of the local public health agencies in Missouri do not currently have an electronic health record, although many of the agencies recognize the benefits associated with using an EHR. As the health care industry increasingly focuses on collaboration among providers and the exchange of information across settings, it will become more and more important for all providers within the health care system to have an EHR. The coordination of patient information across all settings of care is essential in the enhancement of health of the population. This report, as well as the recordings of the training session provided, are available on the MO HIT AC website: [http://ehrhelp.missouri.edu](http://ehrhelp.missouri.edu).

**EHR Selection**

The results of the study indicated that LPHAs in Missouri are interested in receiving assistance in the identification, selection, and implementation of an EHR, as they continue to move into the technology arena. Selecting and implementing an EHR requires careful and thorough planning. To assist with this process, a tool has been developed that outlines the steps that should be completed and outlines a timeframe for completing the tasks of each of the three major milestones—selection, implementation, meaningful use. This tool can be found on the MO HIT AC website ([http://ehrhelp.missouri.edu/?q=node/135](http://ehrhelp.missouri.edu/?q=node/135)).

Appendix C provides more detailed information on four EHRs that have modules, components, or systems that are presented as being specific to public health agencies. However, our initial review of these products, and discussion with the vendors, have not convinced us that any of the current EHR products are designed to meet all the needs of LPHAs in the collection and submission of all public health data for services and syndromic surveillance, although they are being used by other LPHAs. The product that appears to come closest to meeting all the needs of local public health agencies is NetSmart. It would certainly be worth investigating this product.
in greater detail, including asking the vendor to come and provide a demonstration of the product. Therefore, a recommendation for future work to help LPHAs adopt EHRs is that further discussions be held with a select number of these vendors to explore the adaptation of their products that is required to meet the needs of LPHAs.

To develop an appropriate product for LPHAs, it is important that the vendors understand the unique requirements of LPHAs, and not simply expect the agencies to adapt to the current ambulatory care products. Identifying a small, limited number of vendors to work with will enable economies of scale, reducing costs of selection, deployment, training, and support, and also help the vendors understand the potential size of the market for such a product. Also, by selecting only a few vendors, it will be possible to approach them to discuss their willingness to participate in further interactions, as well as their willingness to accept assistance in the development of an appropriate EHR functionality for LPHAs. These interactions should also strategically involve input from LPHAs in the development process to ensure the final product meets their requirements and provides integration to state surveillance, registry, and data collection systems. A successful EHR product should minimize the re-entry of data and work effort expended by agency personnel.

There are a number of tools and strategies available to assist in the selection of an EHR, to help agencies and providers ask questions and evaluate a vendor’s product. Some information about EHR selection tools is available on the Missouri Health Information Technology Assistance Center website (http://ehrhelp.missouri.edu/?q=node/135). In addition, further information about tools, strategies, and assistance on the selection of an EHR can currently be accessed through the federal government’s Health Information Technology Resource Center (HITRC) website (https://www.healthit.gov/providers-professionals/implementation-resources/vendor-evaluation-matrix-tool). While these EHR selection tools are helpful, they typically do not provide sufficient assistance to individual LPHAs for the successful selection and implementation of an EHR.

Regardless of the EHR selected, it is important that the product fit the limited budgets, available resources, available staff time, and the workflow of LPHAs. Once a product, or a small number of products, are identified, to enhance potential success in the adoption and implementation of an EHR, one recommendation is for LPHAs located in close proximity in a region get together and work together in selecting the appropriate EHR for their agencies. This collective approach will provide some bargaining power with the selected vendor, and will also provide peer support once the EHR has been implemented. This collective approach often lets the vendor provide
concentrated assistance more easily. This approach may also allow for sharing of technical staff and, potentially, allow for negotiation for sufficient broadband, where bandwidth is an issue.

**FINANCING**

One of the biggest obstacles encountered by LPHAs in the adoption and implementation of an EHR, especially by the smaller agencies, is the costs associated with the purchase, implementation, and maintenance of the EHRs. For the LPHAs who do not provide a substantial array of clinical services, the benefits to be gained from having an EHR appear to be less than the costs of acquiring and maintaining an EHR. Even for all but the largest LPHAs, the costs associated with adopting an EHR is daunting, even if it means the agency increases its ability to bill for additional services, or to receive reimbursement more rapidly with an EHR. Local public health agencies are increasingly facing financial problems, especially with the continued decrease in state financial support for public health agencies. As a result, obtaining outside funding for assistance in selecting, implementing, and maintaining an EHR is essential.

From information provided by the LPHAs, it is clear that funding for acquisition, implementation, and maintenance of the EHRs is critical to their adoption. Potential sources of funding for these costs need to be explored in more depth. The potential sources of funding identified include foundations, professional associations, and funding through grants from federal and/or state agencies. To be successful in approaching foundations for funding, it is important that the proposal submitted clearly addresses the areas in which the foundation has expressed an interest. For the Missouri Foundation for Health (MFFH), for example, this means being able to demonstrate that the funds requested will have a positive impact on the health of the population served by MFFH, especially on maternal and child health. In requesting funding from the professional associations, it is important to show clearly how the members of the association will benefit from the project. For federal and/or state grant submission, it is important that the proposal show how the project will improve population health, enable better surveillance, improve health results for the population served by the LPHAs, and improve productivity so that LPHA staff can provide more services to clients, rather than data entry and other administrative activities.

Based on Missouri HIT Assistance Center’s experiences in assisting priority primary care physicians select, implement, and meaningfully use electronic health records, program management, deployment, and support costs were approximately $6000 per provider, or an average of about $18,000 per small practice (3-4 providers) over a three-year period. In addition, hardware costs averaged approximately $12,000 per practice and software licensing, hosting, and vendor support averaged $85,000 per practice. Therefore, the estimated total costs per
practice averaged about $115,000 over the three years to become meaningful users of electronic health records. Assuming that 50 LPHAs in Missouri wish to adopt or upgrade their EHR during the next three years, it is estimated to cost $5,750,000. Also, the adoption and use of EHRs are not one-time costs, but also involve annual licensing, hosting, and maintenance costs of about $40,000 per agency after the initial investment has been made.

Part of the ongoing costs of having an EHR, however, can be offset by an increase in the provision of, and billing for, clinical services by the LPHA. For example, as indicated in the survey conducted among Missouri LPHAs, 51 of the agencies indicated that they were providing A1c testing, but only 30 LPHAs indicated they were billing for the service. The average cost of an A1c test is currently about $49, depending upon the region and the insurer. In addition, 67 LPHAs indicated they provided cholesterol testing, but only 45 billed for the service. The average cost of a cholesterol test is about $59, again depending upon the region and insurer. Of the 82 LPHAs that indicated they provided STD testing and treatment, only 28 indicated they billed for the service, while a STD standard panel test averages $169, depending upon the region and insurer. These are only examples of the potential revenue that could be generated if the LPHAs billed for services provided. As shown in Figure 3 on pages 20-23 of this final report, there were a number of clinical services that LPHAs are providing for which they could be billing. An improvement in billing and collection with the use of the EHR would help offset the costs of adopting the EHR.

Training and Support

Successful adoption of EHRs by LPHAs will require a well-formulated training and support program. The experience of MO HIT AC provides proven methods for these activities. This experience should be modified to reflect the needs of LPHAs, their experience deploying and using EHRs, as documented in this report, and the lack of federal EHR incentive funds and other federal funds. We, therefore, make the following recommendations.

Training office staff and clinicians on the value of EHRs is important, and training should begin before the adoption of an EHR occurs in order to reach its full potential. The Health IT Workforce Curriculum Components website (http://www.onc-ntdc.org/) offers free health IT training materials. In addition, the Health Resources and Services Administration (HRSA) also provides suggestions regarding factors to consider when developing a training plan on its website (http://www.hrsa.gov/healthit/toolbox/RuralHealthITtoolbox/Selection/trainingmaterials.html) that is available free. We recommend putting in place a thorough training program based on these materials. The training should be provided online, both live and on-demand, facilitating access by LPHAs. In addition, limited in-person training can be provided.
Training is critical, but, as shown in this study, most LPHAs lack technical knowledge or staff. Therefore, they will need support to deploy, adopt, and use an EHR successfully. This report recommends modifying the support approach used successfully by MO HIT AC. That approach provided substantial one-on-one EHR deployment support for each clinical practice, with much of this support on site. Due to financial constraints, we recommend continuing to provide one-on-one support, but with a more limited quantity per LPHA and, for the most part, delivered remotely. This strategy will be facilitated by the regional grouping recommended earlier, and by limiting the number of EHRs being deployed.

A critical step in the adoption and implementation of an electronic health record is ensuring the privacy and security of the information in the system. It is the responsibility of the LPHAs, not the vendor, to protect the confidentiality, integrity, and availability of health information. The HIPAA Privacy and Security Rules protect the privacy and security of individually identifiable health information. The HIPAA Privacy Rule covers protected health information (PHI) in any medium, and the HIPAA Security Rule covers electronic protected health information (ePHI). One requirement in the HIPAA Security Rule is performing a risk analysis. ONC (Office of the National Coordinator for Health Information Technology), working with OCR (Office of Civil Rights), has created a Security Risk Assessment Tool that can be used to guide providers through the risk assessment process. The tool can be accessed at: https://www.healthit.gov/providers-professionals/security-risk-assessment-tool.

The assessment tool addresses each HIPAA requirement and the answers provided indicates if corrective action is needed to be implemented for that item. The tool provides assistance, but does not guarantee compliance with all federal, state, and local laws. A number of other resources have been developed by the Office of the National Coordinator for Health Information Technology, the US Department of Health and Human Services Office of Civil Rights, and other agencies addressing health IT privacy and security and can be found on the following website: https://www.healthit.gov/providers-professionals/ehr-privacy-security/resources. In addition, the training and support provided LPHAs for adoption of EHRs must cover security and privacy, although implementation of appropriate safeguards remains the responsibility of the agencies.

Once an EHR has been selected and implemented, continued technical training on how to use the product effectively and efficiently is often needed, especially when staff turnover occurs. If a group of agencies in a region has implemented the same EHR, then regional training can be provided more cost effectively to assist everyone in learning how to run specific reports and how to perform analytics on the data in the EHR to be able to use the information to improve health outcomes of the population served. This training can, again, be either face-to-face or via remote
applications. In addition, a train-the-trainer approach can be used to provide training to one member of the group, who can then become the go-to individual for others to contact with questions or when assistance is needed.

Finally, while vendors provide ongoing support for their products, there are many other post-implementation support requirements. Therefore, we recommend putting in place an ongoing remote support program. This support can be provided by phone, email, and other online communication methods. It would be complemented by the MO HIT AC online information resources, with additions related to LPHAs and the Stratis Health Care online resources described in Appendix C. During the deployment of EHRs by LPHAs, the deployment staff can provide much of the post-implementation support. Beyond that, this support would be valuable to continue if funding is available.

**Conclusions**

It is increasingly important that local public health agencies have interoperable electronic health record systems so they can continue to play major roles in improving the health of the population, and not be marginalized as other providers implement EHRs and join health information exchanges. Improving the health of the population requires the sharing and exchange of information among all providers and systems that serve the population. The effective use of an EHR will enable public health agencies engage in information exchange in today's health care environment. Furthermore, these initial new roles and activities in public health will be appropriately supported by revenue generated with billing for clinical work.

The issues of EHR selection, financing, training, and support are not discrete problems for local public health agencies, but rather are intertwined barriers to the successful implementation of an electronic health record. While intertwined, they can be addressed somewhat sequentially, with how to finance the acquisition of an EHR the initial barrier to be overcome. Tied to the financing issue is the selection of an EHR, since the amount of financing that will be needed is somewhat dependent on the EHR chosen. Then once an EHR is chosen, continued training on how to use the EHR and support of EHR use are critical in improving billing and exchanging information to improve the outcomes of the population served.
APPENDIX A: BENCHMARKING STUDY

OPTIMIZING Ehrs IN LOCAL PUBLIC HEALTH AGENCIES

Benchmarking Study

Missouri Health Information Technology Assistance Center
Department of Health Management and Informatics, University of Missouri
Primaris
Digital Collaboration Solutions
Division of Community and Public Health,
Missouri Department of Health and Senior Services

October 2015
INTRODUCTION

This study was undertaken by the Missouri Health Information Technology Assistance Center (MO HIT AC), the Department of Health Management and Informatics (HMI) in the School of Medicine at the University of Missouri, Primaris (a healthcare consulting firm that works with healthcare providers to improve quality, patient safety, clinical outcomes, improve patient experiences, and reduce costs by translating healthcare data into actionable information), and Digital Collaboration Solutions (a consulting firm) under a contract with the Division of Community and Public Health in the Missouri Department of Health and Senior Services. In addition, the Missouri Association of Local Public Health Agencies (MoALPHA) and the Missouri Public Health Association (MPHA) provided letters of support for the study, encouraging their members to participate in the study.

As more and more pressure is placed on providers in the health care system to increase coordination of care to improve population health, an understanding of the capacity of local public health agencies to collect, analyze, and transmit health-related data electronically is essential. While the initial focus was on expanding the use of electronic health records (EHRs) by physicians and hospitals, attention is now turning to other health care providers in the system, recognizing that coordination needs to occur among all providers of care, if the health of the population is to benefit fully from the capabilities associated with EHRs. Consequently, this study was undertaken to examine the extent of EHR availability and use in local public health agencies.

OBJECTIVES

The objectives of this study were: 1) to determine the current use of health information technology among local public health agencies (LPHAs); and 2) to gain a better understanding of the assistance needed to enable LPHAs to acquire, implement, and use electronic health records and health information exchanges more effectively in the coordination of care provided to their clients. Through the conduct of this benchmark study, the information gained will guide the development of training and assistance needed to increase care coordination among the providers of care to the population in Missouri.

STUDY DESIGN

To achieve the objectives of the study, a survey of all local public health agencies in Missouri was conducted during September 2015. Information to be obtained with the survey was based on a
literature review, input from individuals at the Missouri Department of Health and Senior Services and Missouri Department of Social Services, the Missouri Medicaid Program, MO HIT AC, HMI, Primaris, and Digital Collaboration Solutions. The questions to obtain the desired information were formulated, reviewed, redrafted, and finalized by the previously identified groups. These questions were then entered in Survey Monkey, and additional review and testing completed to ensure that the questions provided valid data and that the flow of the questions in the survey was logical and correct. Before the survey was administered, approval was obtained from the University of Missouri Institutional Review Board.

Recipients of the survey were asked about the availability and use of electronic health records, health information exchanges, and the services provided and billed for by their agencies. The survey was distributed to the Executive Directors of 117 local public health agencies via Survey Monkey the first week of September. This was a self-reporting survey, although support was available to answer questions from respondents via telephone. A follow-up e-mail was sent to non-respondents the second week of September reminding them of the survey and requesting their participation. During the third week of September, telephone calls were made to non-respondents soliciting their participation, and offering to provide a printed copy of the survey if desired or to obtain their survey information over the telephone, if that was more convenient. Additional telephone follow-up with non-respondents was conducted during the fourth week of September. There were 100 responses (85.5%) received from the 117 agencies.

**RESULTS**

**Overview**

- Responses were received from 100 of 117 Public Health Agencies (85.5%) in Missouri surveyed during September 2015
- Although the majority of responders (79.0%) consider electronic health records (EHRs) to be an important tool, most (76.0%) do not currently use one
- Only one of the 24 current EHR users did not consider the EHR to be important
- Of those agencies currently using an EHR, the majority (66.7%) stated that the EHR is used effectively
- Most agencies (82.5%) are not currently using a health information exchange (HIE), and most (68.8%) do not plan to use one in the future
- Of the 23 reporting agencies with an EHR, only 4 (17.4%) indicated they are currently using an HIE

Figure 1 provides a summary of the information reported on the survey.
Figure 1: Current Status and Future Plans Regarding EHRs and HIEs

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you consider EHRs to be an important tool for public health agencies?</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>Do you currently have an EHR?</td>
<td>76</td>
<td>24</td>
</tr>
<tr>
<td>Does the agency use the EHR effectively?</td>
<td>67</td>
<td>33</td>
</tr>
<tr>
<td>Are you currently using a health information exchange (HIE)?</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>Does the agency plan to use a health information exchange (HIE) in the future?</td>
<td>53</td>
<td>47</td>
</tr>
</tbody>
</table>

Use of EHRs and HIE

- Among the 24 agencies currently using an EHR, Insight was the vendor with the most users (4), followed by Practice Fusion with 3 users, and Cerner and eClinical Works with 2 each; there was a total of 15 different products used.
- The majority of agencies utilizing health information exchanges (HIEs) use them for public health reporting (90%), and receiving lab results (71%).
- Less than 20% of the reporting agencies use HIE for interoperable care transitions/alerts with other providers or direct message of continuity of care document (CCD).
- Missouri Health Connection was the most commonly used HIE (6 agencies).
- Also, 32.2% stated they would like to use an HIE for direct message of continuity of care document, interoperable care transitions with other providers, and interoperable care alerts with other providers.

Barriers to EHR Use

- Nearly two-thirds of reporting agencies (64.3%) are using computer equipment that is at least 4 years old, and about 10% of those are over 5 years old.
• The age of computers did not vary substantially between agencies that had an EHR and those that did not, with 60.9% of computers in agencies with an EHR were at least 4 years old compared to 65.3% in agencies without an EHR

• Responders also indicated a number of challenges with which they identified, with the greatest challenge being funding, including funding for software (82%), funding for continued maintenance cost of the system (76%), funding for implementation of services (70%), and funding for hardware (68%)

• Concern was also expressed about having inadequate knowledge/training about selection of software (63%), lack of technical support (49%), internal staffing challenges to manage implementation (42%), current work flow and processes (42%), and lack of continued training on the system (31%)

• Concerns about security issues (37%) and concerns about privacy issues (25%) were also expressed

Figure 2: Challenges Associated with Using Health IT/EHR in the Agency
**EHR Use per Service Offered**

- Agencies were asked which services they offer, if offered if they billed for the service, and if offered if they used an EHR for it.
- Generally, very few of the agencies providing a service use an EHR for that service.
- Figure 3 reports response regarding the number of agencies providing the service, billing for the service, and using an EHR for the service.

Figure 3: Services Provided, Billed For, and EHR Used

- **A1C testing**: 7 provided, 30 billed, 51 used EHR.
- **Animal bite**: 2 provided, 5 billed, 80 used EHR.
- **Behavior health services**: 0 provided, 0 billed, 0 used EHR.
- **Birth/ death certificates**: 10 provided, 65 billed, 93 used EHR.
- **Blood pressure checks**: 6 provided, 10 billed, 90 used EHR.
- **Blood sugar testing**: 7 provided, 34 billed, 76 used EHR.
- **Breast feeding counseling**: 9 provided, 9 billed, 89 used EHR.
- **Breast feeding education**: 9 provided, 10 billed, 94 used EHR.
- **Cholesterol testing**: 7 provided, 43 billed, 67 used EHR.
- **Clinical breast examinations**: 8 provided, 17 billed, 34 used EHR.
- **Communicable disease prevention**: 8 provided, 11 billed, 94 used EHR.
Dental services
DNA testing
Drug abuse counseling
Emergency preparedness planning
Employee/adult physicals
Family planning services
Flu shots
General/primary care clinics
Health education
Height/weight measurements
Hemoglobin test
Hepatitis information/prevention
HIV testing and prevention programs

Provide
Bill
Use EHR

OPTIMIZING USE OF EHRs AT LPHAs – FINAL REPORT
<table>
<thead>
<tr>
<th>Service</th>
<th>Provide</th>
<th>Bill</th>
<th>Use EHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home health services</td>
<td>20</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Immunizations (other than flu/travel)</td>
<td></td>
<td>25</td>
<td>80</td>
</tr>
<tr>
<td>Indoor air quality control program</td>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Laboratory testing (blood draw)</td>
<td>11</td>
<td>51</td>
<td>70</td>
</tr>
<tr>
<td>Lead testing</td>
<td>9</td>
<td>53</td>
<td>88</td>
</tr>
<tr>
<td>Occupational therapy</td>
<td>11</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>On-site sewage program</td>
<td>1</td>
<td>25</td>
<td>62</td>
</tr>
<tr>
<td>Pap smear screening/pelvic exam</td>
<td>11</td>
<td>27</td>
<td>39</td>
</tr>
<tr>
<td>Physical therapy</td>
<td>6</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Pregnancy testing</td>
<td>10</td>
<td></td>
<td>68</td>
</tr>
<tr>
<td>Prenatal case management</td>
<td>3</td>
<td>32</td>
<td>51</td>
</tr>
<tr>
<td>Rabies clinic</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Referral and health information</td>
<td>4</td>
<td>3</td>
<td>74</td>
</tr>
<tr>
<td>Service</td>
<td>Provide</td>
<td>Bill</td>
<td>Use EHR</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------</td>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>Reproductive health/ birth control svcs.</td>
<td>24</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Respiratory therapy</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Restaurant inspections</td>
<td>28</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Sexuality education programs</td>
<td>38</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>STD testing and treatment</td>
<td>28</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Show Me Healthy Woman services</td>
<td>38</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Specialty medical clinics</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Sports physicals</td>
<td>11</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Travel immunizations</td>
<td>19</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>TB testing and treatment</td>
<td>52</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Vital signs measurement</td>
<td>59</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Well child examinations</td>
<td>10</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Women, Infants, and Children (WIC) svcs</td>
<td>34</td>
<td>18</td>
<td>16</td>
</tr>
</tbody>
</table>

The chart above illustrates the distribution of services provided, billed, and using EHR systems across various medical services. The numbers indicate the percentage of providers who offer each service, with the majority using EHR systems for billing and management purposes.
Billing, Data Submission, and Quality Improvement

- Nearly all (95) agencies bill services to Medicaid, and most also bill to Medicare (69), and private insurers (56)
- While a higher percent of agencies without an EHR (96.1%) reported billing Medicaid compared to agencies with an EHR (91.7%), this changed for Medicare (without an EHR at 68.4%, with an EHR at 70.8%) and for private insurance (without an EHR at 52.6% and with an EHR at 54.1%)
- More than half of the agencies collect and send data/information to regulatory/legal entities (such as the state, CMS, etc.) in each of the following ways:
  - Manually - 56 agencies
  - Electronically - 60 agencies
  - Through software provided by state for specific reporting - 55 agencies
- The majority (61%) of responding agencies do not participate in any quality improvement initiatives. However, several do participate in:
  - National Public Performance Standards Program - 7 agencies
  - Mobilizing for Action through Planning and Partnership - 15 agencies
  - National Voluntary Accreditation for Public Health Departments - 7 agencies
  - Missouri Voluntary Local Public Health Agency Accreditation - 19 agencies

Agency Staffing

- On average, each reporting local public health agency had 16 full-time staff and 4 part-time staff
- The size of full-time staff in the agencies ranged from 0 to 126
- The size of part-time staff in the agencies ranged from 0 to 15
- For agencies with less than 5 full-time staff, only 7.1% had an EHR; for agencies with more than 25 full-time staff, 46.2% had an EHR

Population Served

- As the size of the population served increases, so does the likelihood of the agency having an EHR
  - Only 16.7% of agencies serving a population of less than 10,000 had an EHR
  - Of the agencies serving a population of 50,000 or more, 45.0% had an EHR

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1 These numbers do not sum to 100 since agencies reported using more than one method of collecting and submitting data.
• The same relationship was observed for the number of clients served by the agencies
  o For agencies serving less than 1,000 clients, only 14.3% had an EHR
  o For agencies serving 25,000 or more clients, 57.1% had an EHR

**SUMMARY**

A survey of all local public health agencies in Missouri was conducted during September 2015. There was an 85.5 percent response rate received, with almost all agencies answering all questions on the survey. Of the respondents to the survey, only 24 percent are currently using an EHR, although 79% consider EHRs to be important. It was also found that even agencies with an EHR are not currently using a health information exchange.

Among the 24 responding agencies with an EHR, there were 15 different vendor products being used. *Insight* was used by four of the agencies, with *Practice Fusion* used by three agencies, and *Cerner* and *eClinical Works* each being used by two agencies.

While many agencies bill Medicaid, Medicare, and private insurers for services, there is substantial variation among agencies regarding billing for services provided. However, while the billing variations occur, they do not seem to be related to the use of an EHR.

As more and more pressure is placed on the health care system to improve the health of the population, there is an increased focus on coordinating the care provided. As more emphasis is placed on coordinating care across all providers, the role of EHRs in the system will increase. The ability of local public health agencies to collect, analyze, and transmit health-related data electronically will become increasingly essential.
APPENDIX: SELECTED COMMENTS RECEIVED

When asked if an EHR was not considered to be an important tool for public health agencies, the following are illustrative of comments received from respondents:

We are a small agency with a limited budget, and the funds just aren’t there.

Not for a small agency like ours, where we do not really have medical records besides immunizations.

Not yet, I think LPHAs would need IT staff to address security, HIPAA IT policies, and maintenance. Perhaps obtaining through a state database may alleviate local IT staff.

Too costly for the benefit of a small agency like our own.

We do not do primary care, and have a very limited number of paper charts. Most of our information is already available electronically through the Missouri Department of Health’s immunization registry and communicable disease software.

We do very little in the way of medical services, so it is not cost effective.

When asked why the agency did not use the EHR effectively, the following comments were received:

Staff resistance to change.

Our current system is too big for our agency and is not cost effective; looking at other systems

We only use this for appointments at this time

Total use for home health patients; no use for public health purposes

We are learning the new system and are not at a competent level with it yet. Also, we are only using the EHR system in the home health portion of our building.

When asked about their current challenges regarding the use of health IT/EHR, the following responses were received:

Questionable integration with state required systems.

Being able to develop new reports for data within the system. Have concerns about need in our small agency related to the cost of implementation.
Unnecessary.

Small caseload, which makes the need for electronic records less beneficial.

Fiber optic services very scattered in area; services not adequate.

Slow internet.

Not applicable.

The following responses are representative of comments received regarding what the agency needed to be able to implement an EHR; the common theme was funding, training, and ongoing IT support:

Funding, training, and integration with state systems.

Software, training, money.

Resources to acquire the technology.

Get rid of inefficient staff.

Staff time.

Resources.

Funding to purchase equipment and software, staff training, and ongoing IT support.

Funding for up-front implementation and continuing costs, plus training on use.

Update computers.

Public health focused EHR.

Trained staff, updated software, funding to implement the program, and time!

Funding to pay for the system and maintain it; help determining if we even need it.

Knowledge about specific programs, funds to purchase.

Financial incentives and resources.
Funds to purchase EHR, knowledge on which EHR would work best for our agency, how to implement the system, and how the information can be linked to other EHRs.

Statewide consensus among peer agencies.

When asked why the agency wasn’t planning on using a health information exchange (HIE) in the future, the following comments were received:

*Not familiar.*

*Actually unsure at this time.*

*Probably can’t afford it.*

*The state has mentioned the use of HIE in regards to LPHA, but do not have any further guidance at this time.*

*Not needed.*

*I would have to learn more about it.*

*Funding, staff training, time.*

*Do not know that we need to use one.*

*I don’t understand how/who I would exchange information with.*
APPENDIX: COPY OF SURVEY

Dear Missouri Local Public Health Agency:

Thank you for participating in the 2015 Optimizing Electronic Health Records at Local Public Health Agencies (LPHA) benchmarking study conducted by the Missouri Health Information Technology Assistance Center, Primaris, and the Missouri Department of Health and Senior Services, Bureau of Cancer and Chronic Disease Control. This project is supported by the Missouri Public Health Association and the Missouri Association of Local Public Health Agencies.

Your insights are very much appreciated, so we can continue to provide the services needed to advance further the adoption and effective use of Health IT in Missouri’s Local Public Health Agencies.

2015 Missouri Optimizing EHRs in LPHAs Benchmarking Study

1. Is your organization a Public Health Agency?
   ___Yes
   ___No

2. Please list the communities/counties for which your agency has public health responsibilities?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

3. Who at your agency is in charge of health information technology?
   Name ______________________________________________________
   Title ______________________________________________________

4. Is this person the respondent to this survey?
   ___Yes
   ___No

An electronic health record (EHR) is a digital version of a patient’s paper chart. EHRs are real-time, patient-centered records that make information available instantly and securely to authorized users.

5. Do you consider EHRs to be an important tool for public health agencies?
   ___Yes
   ___No (If no, why not?)
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
6. Do you currently have an EHR?
   ___Yes
   ___No (Please go to question 9)

7. What is the name of your EHR software?
   ___AllScripts
   ___Amazing Charts
   ___Cerner
   ___eClinical Works
   ___eSolutions
   ___Horizon/Aegis
   ___Insight
   ___Isalus
   ___Practice Fusion
   ___Other ________________________________

8. If you have an EHR, does the agency use it effectively?
   ___Yes
   ___No (If no, why not?)

8. If you have an EHR, does the agency use it effectively?
   ___Yes
   ___No (If no, why not?)

9. What are your current challenges to the use of Health IT/EHR in your practice? (Check all that apply)
   ___Concerns about privacy issues
   ___Concerns about security issues
   ___Current workflow and processes
   ___Funding for hardware
   ___Funding for software
   ___Funding for continued maintenance cost of system
   ___Funding for implementation services
   ___Inadequate knowledge/training about selection of software
   ___Internal staffing challenges to manage implementation
   ___Internal staff attitude with effective use
   ___Lack of continued training on the system
   ___Lack of technical support
   ___Leadership does not see value and/or return on investment
   ___Loss of productivity during initial use
   ___Other ________________________________

10. What type of computer do you use (e.g., Microsoft desktop, Microsoft laptop, Apple desktop, Apple laptop, Android tablet, etc.)? Please list all used in your office.

   ______________________________________________________________

   ______________________________________________________________
11. How old is your computer equipment?
   ___ Less than one year old
   ___ 1 – 2 years old
   ___ 3 – 5 years old
   ___ More than five years old

12. What do you need to be able to implement an EHR (e.g., resources, trained staff, etc.)?
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

13. In which quality improvement initiatives does the agency participate? (Check all that apply)
   ___ None
   ___ National Public Health Performance Standards Program
   ___ Mobilizing for Action through Planning and Partnership (MAPP)
   ___ National Voluntary Accreditation for Public Health Departments (PHAB)
   ___ Missouri Voluntary Local Public Health Agency Accreditation (MICH)
   ___ Other
   ______________________________________________________________________
   ______________________________________________________________________

14. The following questions have three parts: First, please check the box in the first column if your agency provides the service, and then second, please check the box in the second column if you bill for that service, and third, please check the box in the third column if you use an EHR for that service. If the agency does not have an EHR, then the third column should be left blank; an EHR may or may not be appropriate for all services listed in the table.

<table>
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<tr>
<th>Service</th>
<th>Provide</th>
<th>Bill</th>
<th>Use EHR</th>
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<tbody>
<tr>
<td>a. A1C testing</td>
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<td>b. Animal bite</td>
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<td>c. Behavior health services</td>
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<td>d. Birth and death certificates</td>
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<td>e. Blood pressure checks</td>
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<td>f. Blood sugar testing</td>
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<td>g. Breast feeding counseling</td>
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<td>h. Breast feeding education</td>
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<td>i. Cholesterol testing</td>
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<td>j. Clinical breast examinations</td>
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<td>k. Communicable disease prevention</td>
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<td>l. Dental services</td>
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<td>m. DNA testing</td>
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<td>n. Drug abuse counseling</td>
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<td>o. Emergency preparedness planning</td>
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<td>Service</td>
<td>Provide</td>
<td>Bill</td>
<td>Use EHR</td>
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<td>p. Employee/adult physicals</td>
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<td>q. Family planning services</td>
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<td>r. Flu shots</td>
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<td>s. General/primary medical care clinics</td>
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<td>t. Health education</td>
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<td>u. Height/weight measurements</td>
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<td>v. Hemoglobin test</td>
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<td>w. Hepatitis information and prevention</td>
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<td>x. HIV testing and prevention programs</td>
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<td>y. Home health services</td>
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<td>z. Immunizations (other than flu/travel shots)</td>
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<td>aa. Indoor air quality control program</td>
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<td>ab. Laboratory testing (blood draw)</td>
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<td>ac. Lead testing</td>
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<td>ad. Occupational therapy</td>
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<td>ae. On-site sewage program</td>
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<td>af. Pap smear screening and pelvic examination</td>
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<td>ag. Physical therapy</td>
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<td>ah. Pregnancy testing</td>
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<td>ai. Prenatal case management</td>
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<td>aj. Rabies clinic</td>
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<tr>
<td>ak. Referral and health information</td>
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<td>al. Reproductive health/birth control services</td>
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<td>am. Respiratory therapy</td>
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<td>an. Restaurant inspections</td>
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<td>ao. Sexuality education programs</td>
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<td>ap. Sexually transmitted disease testing and treatment</td>
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<td>aq. Show Me Healthy Woman services</td>
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<td>ar. Specialty medical clinics</td>
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<td>as. Sports physicals</td>
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<td>at. Travel immunizations</td>
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<td>au. Tuberculosis (TB) testing and treatment</td>
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<td>av. Vital signs measurement</td>
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<td>aw. Well child examinations</td>
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<tr>
<td>ax. Women, Infants, and Children (WIC) services</td>
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<td>ay. Other (Please list)</td>
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<td>az. Other (Please list)</td>
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<td>ba. Other (Please list)</td>
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<td>bb. Other (Please list)</td>
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</table>
15. If your agency bills for services, which type(s) of insurer does your agency bill? (Check all that apply)
   ___Medicaid
   ___Medicare
   ___Private insurer (Please specify which insurers.)

16. How does your agency collect and send data/information to regulatory/legal entities, such as CMS, the state, etc.? (Check all that apply)
   ___Manually
   ___Software provided by state for specific reporting
   ___Electronically
   ___Other ______________

Health information exchange (HIE) is the mobilization of healthcare information electronically across organizations. HIE may also refer to the organization that facilitates the exchange.

17. Are you currently using a health information exchange (HIE)?
   ___Yes
   ___No (Please go to question 20)

18. For what is the agency using the health information exchange (HIE)? (Check all that apply)
   ___Direct Message of Continuity of Care Document (CCD)
   ___Public Health Reporting
   ___Receiving Lab Results
   ___Interoperable Care Transitions with Other Providers
   ___Interoperable Care Alerts with Other Providers
   ___Other ________________

19. Which HIE does the agency use?
   ___LACIE (Lewis and Clark Information Exchange)
   ___Missouri Health Connection
   ___Tiger Institute
   ___Other _______________

(Please go to question 23)

20. Why doesn’t the agency use an HIE?

____________________________________________________________________________________

21. Does the agency plan to use a health information exchange (HIE) in the future?
   ___Yes
   ___No (If no, why not?)

____________________________________________________________________________________

____________________________________________________________________________________
22. For what would the agency like to use an HIE? (Check all that apply)
   ___Direct Message of Continuity of Care Document (CCD)
   ___Public Health Reporting
   ___Receiving Lab Results
   ___Interoperable Care Transitions with Other Providers
   ___Interoperable Care Alerts with Other Providers
   ___Other ____________________________

Brief questions about your agency:

23. What is the size of the population you serve? __________________________

24. What was the number of direct care patients/clients served last year? ______

25. How many staff members does the agency have? _____Full-time _____Part time

   Thank you for your participation!
APPENDIX B: IN-DEPTH INTERVIEWS

RESULTS OF IN-DEPTH INTERVIEWS

WITH SELECT

MISSOURI LOCAL PUBLIC HEALTH AGENCIES

Missouri Health Information Technology Assistance Center
Department of Health Management and Informatics, University of Missouri
Primaris
Digital Collaboration Solutions

Division of Community and Public Health, Missouri Department of Health and Senior Services

October 2015
INTRODUCTION

There is consensus that changes are needed in the health care delivery system in the United States to improve health care quality, safety, and patient experiences, and to lower the costs of health care. There is also increasing evidence that electronic health records (EHRs) can improve clinical health outcomes and coordination of care and, therefore, the health of the population.\textsuperscript{3,4,5} There is increasing awareness that EHRs can increase the timeliness and accuracy of data collected and shared, and enhance the performance of the health care delivery system. There is also increasing recognition that public health agencies are a vital part of the health care delivery system, and there is a need for them to be able to adopt and meaningfully use EHRs and to link with other providers in the health care delivery system. Building upon the information obtained in a survey conducted among all local public health agencies in Missouri, a more in-depth assessment was conducted among a smaller number of agencies.

METHOD

During the period October 14 – October 27, 2015, in-depth interviews were conducted with eleven Missouri local public health agencies. These interviews were conducted by two individuals, either in person or by telephone. A standard set of questions was used by the two interviewers to gain consistency in the results obtained. In addition to the questions designed to solicit information regarding specific topics, there were also open-ended comment questions to allow the interviewees to provide additional information (see Appendix A for the interview instrument used). The interviews were used to gather information about how a local public health agency uses an electronic health record system. The purposes of the interviews were to identify best practices and potential pitfalls regarding the adoption and implementation of an electronic health record from these agencies, so that the findings could be shared with other local public health agencies contemplating the installation of an EHR.

RESULTS

The full-time staff size of the agencies interviewed ranged from 2 to 50. None of the agencies were participating in quality improvement initiatives, and only one had a patient portal. In general, the agencies served the full age span of the population. Only two of the agencies performed in office labs, and only about 10% of their labs were performed in the office. The state public health lab was used by three agencies, and Boyce & Bynum used by two. Two of the agencies’ providers used EHR templates to document their notes in the EHR and nine reported using a keyboard to enter the data. Both desktops and laptops were used extensively by these agencies, and one reported using a notepad/i-pad. Of the ten agencies with an EHR, five indicated their staff was very knowledgeable about the EHR, four indicated their staff was somewhat knowledgeable, and one indicated their staff was not very knowledgeable. Overall, the agencies indicated (on a scale of one not very efficient to five highly efficient) that their administrative process, patient care process, and overall processes were efficient (average of 3.67 out of 5.0).
The results of the interviews could be categorized into nine general areas. These areas are: 1) why did they decide to implement an EHR; 2) what EHR did they implement; 3) what contributed to the success of the implementation; 4) do they have internal or external IT support; 5) what agency position typically led the EHR implementation; 6) do they use the EHR for billing; 7) does the EHR provide any public health tasks for the agency; 8) what were the general obstacles they had to overcome; and 9) if they were starting over, what changes would they make. Each of these areas will be discussed in the following paragraphs.

Why Did They Decide to Implement an EHR

The interviewees were asked to provide the top three reasons the agency decided to adopt an EHR. The top reason across the respondents was to “get rid of paper,” which would also decrease the need for filing, reduce need for storage space, and prevent the loss of records. They also indicated they believed the EHR would provide better billing functions, improve portability by allowing the data to follow the patient no matter what clinic they went to, improve communications between their two clinics, and enhance data retrieval and reporting capabilities. While some indicated they considered it a mandate (either a Federal mandate or because the health system with which they associated had an ERH), other respondents indicated they wanted to be pro-active in adopting an EHR, that the EHR would make them more up-to-date, and that it would enhance professionalism. They also indicated they the EHR would improve efficiencies, be time saving, help with HIPAA compliance, improve legibility of writing, standardize documentation and process, and provide immunization registry support.

What EHR Did They Implement

There were several different products implemented by these local public health agencies. Three of the agencies had implemented Insight, two had implemented AllScripts, two had implemented Cerner, and Practice Fusion, Health Fusion, and Kareo, had each been adopted by one agency. One of the agencies indicated they only had something for scheduling now, and not a full EHR.

What Contributed to the Success of the Implementation

One of the key success factors identified by several agencies was the training and support they received from their vendors. The respondents also indicated the importance of having an engaged receptive staff and management, and to have patience in the implementation process. One indicated that having their own internal IT department and super user group was critical. One agency indicated they were still in the process of implementing their EHR.

Do They Have Internal or External IT Support

Most respondents indicated they had internal IT support on an ongoing basis and did not rely on an external agency. One indicated that they did receive some IT support from the health system with which they were associated. In general, they relied on the vendor to provide the necessary
support when upgrades were made in the system. None of the respondents contracted with an external IT company for support.

**What Agency Position Typically Led the EHR Implementation**

There was no consistency across the agencies in terms of who led the EHR implementation process. The following agency positions were the leaders: administrator, clinic manager, clinical nurse manager, community health manager, EHR coordinator, executive assistant/custodian of records, IT lead, office supervisor, quality improvement manager, and support staff/billing specialist. In addition to having an individual identified to lead the EHR implementation process, it is also important that all staff are engaged in the process. Communications about what is going on, through staff meetings, memos, and e-mail is critical. Several agencies indicated that establishing a group of super users was an important component of engaging the rest of the staff and making the implementation go smoother.

**Do They Use the EHR for Billing**

Seven of the ten respondents to this question indicated they currently used an electronic bill produced in the office that was then sent to a clearinghouse. One indicated they produced a paper bill in the office and sent it to a billing service. One indicated they had central billing as part of a larger organization, and one indicated that HealthWeb did direct access from the patient database. In terms of the services for which the agency bills, the range was from all services provided by the clinic, to Medicaid supported services and family health services, to immunizations and women’s health. Only one agency is participating in the Medicaid incentive program.

**Does the EHR Provide Any Public Health Tasks for the Agency**

The agencies send immunization data to the state Immunization Registry and one indicated they were using state provided tools to submit data. Ten of the eleven agencies indicated that they do not use the EHR to report disease outbreaks, and one indicated they did have an epidemiology module in the EHR, but not whether or not they used it to report outbreaks. In terms of receiving information from the Department of Health and Senior Services, they indicated they do not receive any data from the state into the EHR, but do use state provided forms, tools, and applications to receive information. They also indicated they use state provided forms, tools, and applications to send data to the Department of Health and Senior Services, but one did indicate they use the EHR to report immunization and surveillance data to the state. None of the agencies do queries of their EHRs.

**What Were the Greatest Obstacles They Had to Overcome**

The one obstacle mentioned by several agencies was giving up the paper. Other obstacles mentioned were: getting everybody to work, getting buy-in from the nursing staff, setting up the
immunization registry communication, time and stretched staff, understanding what was going on and getting the health system up to speed on local public health agency practices, conversion from a previous EHR to the current EHR, the separation of staff in two different locations, and selecting and implementing the right hardware mix. One agency commented “we had a very good staff, very little turnover, but the change was substantial for the workflow and staff behavior.”

If They Were Starting Over, What Changes Would They Make

The agencies expressed a number of different thoughts as to what they would do differently if they were starting over with an EHR. A common theme involved allocating more time for project oversight, better time management, waiting until not so busy, and moving slower to go live. The following statements are those made by the respondents: Research the EHRs more and look at more vendors; set the system up a little differently, this has evolved over time; more functionality set-up prior to go live; ask more questions, and really look at the internal and EXTERNAL workflow—where do we get data from, where do we need to send it—we were internally focused.

Other Comments

When asked if there were any other comments they would like to make, the following comments were received from some of the respondents.

“We had to communicate the reasons for making the significant change; we have to do this to be current. We had to do it while we had some dollars to do so. We tried to show that we would be there to support one another. Making this change will prepare us for the future and improve our patient care.”

“Public Health Accreditation Board creates the framework of what a good public health looks like. Consistency is key. Our patients have more lifestyle issues than patients in other areas of Missouri.”

“We should have had more information included in our software contract, especially since the EHR we purchased was replaced when AllScripts bought them. Not an easy transition. AllScripts said they could manage dental when we added dental services. However, they really couldn't and we had to customize a lot to make it work. Vendors don't really understand our world.”

“They do not have an EHR. Funding is the main reason. Due to budget cuts, they have gone from 250 to 150 employees over several years.”

“They do not provide primary care due to funding/layoffs. They provide tuberculosis control, HIV and Hepatitis Surveillance, Disease Intervention Services, Community education; Medical records for Hepatitis, immunization, and lead testing. Provide leadership & tailored education on HIV, STIs, and Hepatitis trainings throughout the region. Refer HIV/STI testing
and treatment to community providers; convene regional prevention advisory groups and contract services for HIV/STI prevention services.”

“Have a tuberculosis clinic, use reminder cards. Focus is on health of women and children. "Show Me Women Program," smoking cessation education. They work through several of the catholic schools in St. Louis area, screening for asthma, lead, and other things. She believes an EHR would be useful and would like to have one, but funding is the issue. And, since all of the layoffs, there is not a lot of staff to learn a new system.”

**SUMMARY**

As indicated earlier, these interviews were used to gather information about how some Missouri local public health agencies use electronic health record systems. The purposes of the interviews were to identify best practices among these agencies, as well as recognize potential pitfalls regarding the adoption and implementation of an electronic health record. The findings in this report are being shared with other local public health agencies and other entities to provide some guidance to them in their journey to adopt and use an electronic health record.

As the responses indicate, a major problem identified involved not allocating sufficient time to look at multiple vendors and do more research into the various EHRs. These agencies also indicated that better time management and the allocation of more time for project oversight would have been very helpful. It is important to look at both internal and external workflow to ensure that it is possible to answer the questions where data is received from and where the data need to be sent. It is also important that the vendors evaluated understand the world of local public health agencies.

While federal subsidy monies are not available for the MO HIT Assistance Center to provide free consultations to LPHAs for the selection, adoption, and implementation of EHRs, the Assistance Center continues to offer services on a fee-for-service basis. The experiences gained during the past six years of operations enables the Assistance Center to be more efficient in the delivery of consultative services, and, therefore, is able to provide these services at a lower cost that initially.
APPENDIX: LPHA EHR USAGE ASSESSMENT

Introduction

This questionnaire is used to gather information about how a Local Public Health Agency uses an Electronic Health Record System. By going through this exercise best practices and potential pitfalls may be identified which can be shared with LPHAs contemplating the installation of an EHR system. The EHR lead along with any additional staff should provide input to this process.

Agency Name:
Date:

Who is providing input for this EHR Usage Assessment?

1. KEY CONTACTS/MEMBERS OF MEANINGFUL USE TEAM:
   a) Administrator/Argentina Name______________________________________________________________
   b) PRIMARY EHR Project Lead/Key Contact
      NAME:________________________________________ Title__________________________
      Email_________________________________________ Phone__________________________
   c) IT Contacts/IT Consultant: (This person(s) may be an employee, or may be a consultant or other external person).
      NAME________________________________________
      Title________________________________________
      ORGANIZATION
      NAME/ADDRESS________________________________________
      E-mail________________________________________
      Phone________________________________________
      If external consultant is used, do you plan to continue this service?________________________
   d) OFFICE MANAGER
      NAME________________________________________ Title__________________________
      Email________________________________________ Phone: _________________________
   e) Total number of non-provider staff in the office (i.e., exclude nurses, NPs, and PAs): ___

2. PRACTICE MANAGEMENT AND FUTURE EHR INFORMATION:
   a) Does the agency have an electronic Practice Management System (PMS) used for scheduling and billing other than the EHR system?
      Vendor______________________ Product______________________
      Version #________________________
   b) What EHR system(s) are you currently using? ____________________________________________
3. **BILLING:**
   a) What is your current method of billing?
      - Electronic Bill produced in the office and sent to a clearinghouse. Identify clearinghouse
      - Paper Bill produced in the office and sent to a Billing Service. Identify billing service
      - Electronic bill produced in the office and transmitted to billing service. Identify
      - Central billing as part of a larger organization. Explain.
   b) What services are you currently billing for?

4. **ELIGIBILITY FOR ANY EHR INCENTIVE PAYMENTS**
   a) Are you currently participating in the Federal or State EHR Incentive Programs?
      b) If so, which incentive program are you participating in?

5. **PATIENT INFORMATION**
   a) What patient populations are the primary focuses of your Agency? Please rank in order of importance with “1” the most important. Clarify as desired.
      - Children/adolescents under age 18
      - Women child-bearing age. Do you do OB in the office?
      - Men, age >18 through middle age
      - Age 65+
      - Walk-ins are used as a promotional strategy
      - Same day appointments are used as a promotional strategy
      - Other patient population.
   h) Other patient population.

6. **QUALITY IMPROVEMENT INITIATIVES:** Does the practice currently participate in any Quality initiatives?
   a) PQRI Incentive Program.
   b) Electronic-Prescribing incentive program. Which providers?
   c) Chronic Disease or Preventive Care Reporting/Use of a chronic disease registry
d) ___Mail/call patients to remind them of due/overdue chronic or preventive care (i.e., not just appointment reminders) 

e) ___Standard treatment plans/orders for certain conditions (i.e., preventive care, diabetes, etc.) 

f) ___HEDIS Reporting for health plan(s). Which health plans: ____________________________

g) ___CMS Demonstration Project. Identify: ____________________________

h) ___Beacon Community ____________________________

i) ___Other Quality Incentives ____________________________

7. PATIENT PORTAL:
   a) Do you have a patient portal? ___Yes ___No
   b) If yes, what percent of your patients participate? __________
   c) Do all providers use the portal? __________
   d) For what functions is the portal used?
      a. ___Allows patients to complete past medical, social, family history prior to appointment
      b. ___Complete Registration/demographics/insurance prior to appointment
      c. ___Refill requests
      d. ___Appointment requests
      e. ___Patient Education
      f. ___To ask questions
      g. ___Communicating Lab results
      h. ___Reminders for Care
      i. ___Other: ____________________________

8. LABS: Approximately what percent of labs are performed in the following locations?
   a) In the Office: _____%
   b) Lab Corp: _____%
   c) Quest: _____%
   d) Hospital: _____%
   e) Other Lab: _____% Identify lab/s ____________________________

9. PATIENT EDUCATION:
   a) Do you use your EHR to access and provide patient education? ___Yes ___No

10. How do your providers document their notes in the EHR?
    a) ___Dictation/Transcription
    b) ___Dictation using Voice Recognition
    c) ___Templates
    d) ___Keyboard
    e) ___Other – explain ____________________________
11. What data entry devices are you currently using?
   a) ___desktops
   b) ___laptops
   c) ___Note pads/I-pads

12. What were your top three reasons for implementing an EHR?
   a) ______________________________________________________________
   b) ______________________________________________________________
   c) ______________________________________________________________

13. CULTURAL ASSESSMENT AND CHANGE MANAGEMENT
   a) Did you hold regular meetings with the entire staff during the EHR implementation?
      ___Yes       ___No
   b) What was the level of involvement and commitment of your provider staff during the EHR implementation?
      ___All providers were involved and committed.
      ___Some but not all providers were involved and committed.
      ___No provider were completely involved and committed.
      Comments: __________________________________________________
   c) Who led the EHR selection and implementation process?
      ___Mid-level providers
      ___Office Manager
      ___Other staff.
      ___Entire Staff
      Comments: __________________________________________________
   d) How knowledgeable would you say your staff is about your current EHR?
      ___Very knowledgeable. Management shares information obtained with the entire staff at regular meetings.
      ___Somewhat knowledgeable. Some information is shared with staff.
      ___Not very knowledgeable. Staff learn on their own with no formal channels to share information.
   e) How are decisions made in the office (e.g., made by physicians, made by nurses, made by office manager, team participation, etc.)
      _____________________________________________________________
   f) How is change communicated to others in the office (e.g., memos, staff meetings, informally, etc.)?
      _____________________________________________________________
g) Rate the overall efficiency of your practice:

Highly Inefficient

Highly Efficient

a. Administrative Processes 1 2 3 4 5
b. Patient Care Processes 1 2 3 4 5
c. Overall Processes 1 2 3 4 5

14. PATIENT ENGAGEMENT. Has there been any discussion with the patient population about the current EHR system? Does your agency actively seek patient input and feedback about agency operations?

15. MISCELLANEOUS

a. How do you extract data and how do you submit it to the state as required?

b. Do you use the EHR for Home Health services and billing?

c. Are you using the EHR for Outbreak Mitigation?

d. How do you receive reporting information from the Missouri Department of Health?

e. How do you send reporting information to the Missouri Department of Health?

f. Do you have any kind of query capability from your EHR into any Public Health database?

16. LESSONS LEARNED

a. What one thing that contributed most to the success of your EHR implementation?

b. What would you have done differently if you were starting again?

c. What was the hardest obstacle that you had to overcome?
Appendix C: Overview of Select EHR Vendors

Missouri Health Information Technology Assistance Center
Department of Health Management and Informatics, University of Missouri
Primaris
Digital Collaboration Solutions

Division of Community and Public Health, Missouri Department of Health and Senior Services
Patagonia Health Inc. is a healthcare software supplier that has built a cloud and apps-based software solution. The solution includes an integrated, federally-certified, electronic health record (EHR), practice management (PM), and Billing software. The company’s mission is to solve two major barriers to EHR adoption—usability and cost—and address customers’ number one problem: billing. Patagonia Health’s one-of-a-kind apps-based system represents a paradigm shift in the EHR software industry, and its highly-intelligent solution uses sophisticated technology that is extremely easy to use. Innovative and unique apps provide timely data for organizations to improve workflow, streamline operations, and take their organizations to the next level.

Meeting Local Public Health Agency Demands

Local public health agencies (LPHAs) have to meet stringent requirements around surveillance and reporting due to state, federal, grant, and county funding. They need a public health EHR solution that meets their compliance requirements and fits their workflow needs. And, given the current economic environment, local health agency leaders are looking to maximize reimbursements while improving efficiencies. By working with local public health agencies, Patagonia has designed public health-specific apps that meet specific public health requirements of clinical, billing, administrative, and managerial staff. The apps are designed to capture all the required data in a structured format via an intelligent user interface. They allow LPHAs to improve workflow, increase efficiency, achieve compliance with federal Meaningful Use standards, and get instantaneous access to financial information.

Health apps: Patagonia has developed four apps specifically for LPHAs. These apps are: Patient Registration App, Clinical App, Billing and Financial App, and State and Federal Reporting App. These four apps are discussed in greater detail below. The following diagram shows an overview of the apps provided by Patagonia. The applications shown in light gold in the diagram come standard as part of the Patagonia electronic health record system. Apps that are customized for public health are shown in dark gold. Agencies are able to choose which apps they need to manage their workflow. All of Patagonia’s apps work together for one integrated solution.

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* Materials about each of the vendor products described in this report come from the website or other materials from the vendor, including discussions. This information or content and conclusions should not be construed as the official position or policy of, nor should any endorsements be inferred by, MO HIT AC, HMI, Primaris, Digital Collaboration Solutions, or the Division of Community and Public Health, Missouri Department of Health and Senior Services.
LPHA Apps Designed for Public Health Agencies

**Patient Registration App:** LPHAs have unique requirements because they must register each patient into a certain program. With the Patagonia Health app, each patient in each program automatically slides to a different scale for payment, depending on his or her family income. This can be very efficient for those agencies using a sliding fee schedule for payment. The system then generates a declaration of income for the patient to electronically sign via a signature pad.

**Clinical App:** This app contains all of the necessary clinical public health forms (Child Health including Bright Futures, Maternal Health, WISEWOMAN, Breast Cancer and Cervical Cancer Screening Program, Family Planning, Sexually Transmitted Diseases, Adult Health, Behavioral Health, TB Clinical Forms, Communicable Diseases/Epidemiology, Refugee Health, Immunization Services, etc.). Patagonia Health customizes clinical forms for each agency. Data collected here are structured and available for reporting at the state and federal level. The intelligent system ensures that a user only has to enter data once and then it automatically flows throughout the system.

**Billing and Financial App:** Patagonia Health electronically connects to more than 2,000 payers from across the nation, including Medicaid, Medicare, BCBS, United, Managed Care Organizations (MCOS), etc. There’s no need to upload and download forms 835 and 837, which simplifies the billing process. Current Patagonia Health clients experience rejections less than 0.4 percent of the time, increasing their departmental revenue. And, they are getting paid faster (on average, in 8 days). Finally, the app includes a number of unique public health billing and
**reporting requirements** (e.g. revenue by program, debt set-off, company/roster billing, and county reports, etc.).

**State and Federal Reporting App:** LPHAs have a unique need to report to state and Federal agencies for programs like Title X (Family Planning), and the Maternal and Child Health Title V Block Grant. Patagonia Health includes a comprehensive set of reports that makes it easy to meet this requirement. Additionally, Patagonia Health connects to state labs and systems like AHLERS™.

**Interoperability**
- Patagonia Health is ready and compliant to connect with the state HIE, immunization registries, electronic disease syndrome surveillance systems, and labs
- Data transfer
- Import clinical data from other EHRs via federally-defined Continuity of Care Record (CCR) and Clinical Document Architecture (CDA) format
- Generate the Continuity of Care Document (CCD) in XML for integrating with other EHRs

**Cost**
One up-front price for (implementation and training), followed by an all-inclusive monthly payment. RFP is needed for exact cost.

**More Information**
Website: [http://patagoniahealth.com](http://patagoniahealth.com)
INSIGHT™ (NETSMART): A Complete Practice Management and Electronic Health Record Suite for Public Health

Local public health agencies require a technology partner that provides them with a comprehensive information management system, as well as public health-specific expertise and high-quality support. Netsmart provides an all-encompassing set of solutions, including practice management, a complete ARRA certified EHR, clinical options, and functionality to meet state and national requirements. More than 140 public health agencies and 10 state health departments across the country rely on Netsmart as their technology partner to help them provide high quality services with maximum efficiency.

Netsmart’s CareRecord electronic health record is completely integrated, web-based solution with comprehensive clinical, financial management, and operational features designed for public health. This EHR uses workflows recommended by the Public Health Informatics Institute. It provides an integrated inventory management system for medications, immunizations, and supplies, and supports multiple sliding fee scales by program. CareRecord supports a wide variety of public health programs, such as immunizations, adult/child health, family planning, STD/HIV, tuberculosis, and case management. CareRecord integrates behavioral/mental health and addiction treatment, management programs, and services in one solution. It is configurable, so LPHA staff have the forms and workflows that fit their day-to-day public health program needs.

**Meeting Local Public Health Agency Demands**

How does Netsmart’s CareRecord help LPHAs provide better care?

- Designed specifically for local health departments
- Complete 2014 ONC certified EHR eligible for Meaningful Use funds
- A comprehensive, single patient view across all programs
- Public health data collection for reporting requirements and grant opportunities
- Supports all federal and state policies and standards for health information exchange
- Robust infrastructure to fully support future health information exchange (HIE) relationships between local health departments, state agencies, local/regional providers, and patients and families
- Configuration and reporting tools for non-programmers
- Strong security and privacy controls, enabling the transmission of HIPAA-compliant protected health information between participating organization
A supporting solution in Netsmart for care coordination is the CareManager module. This module enables the aggregation of clinical data, provides broad visibility at a population level, facilitates care coordination across providers, tracks clinical quality measures and outcomes, and manages authorizations and claims.

**Clinic Modules**

Special program-based NetSmart clinic modules help to manage specific programs and functions effectively. Each module includes data collection, data management, treatment, reporting, and contact management.

- **Communicable Diseases:** STD, HIV/AIDS, and TB
- **Family & Child Health Services:** Family Planning (including Title X Reporting), Maternal and Prenatal Health, Child Health, and Breast and Cervical Cancer Screening
- **Case Management:** Comprehensive case management and provider charting capabilities (The Omaha System)
- **Additional Specialized Modules:** Available, as needed, for epidemiology, event management, pharmacy, and mobile clinics, and programs
- **State Specific Reporting:** Available for select states with new states and reports added on an ongoing basis.

**Advanced Capture Package:** As an optional add-on solution Bundle, the Advanced Capture Package provides even more automation and efficiency for managing content, allowing NetSmart clients to do more with less. Quickly and easily capture emails, faxes, or other documents into the consumer chart, improve content availability with “full-text” searching, and provide additional automation and flexibility into the solution using **Perceptive Workflow**.
The Netsmart Difference

Netsmart’s Insight clients enjoy unequalled benefits of being members of the largest connected public health client community. Thousands of Netsmart clients interact and share ideas daily on Netsmart Community, on Insight user group calls and meetings, and at Netsmart’s annual client conference CONNECTIONS.

Insight User Groups

Netsmart user groups provide the company with valuable feedback and a "user perspective" on new product features and enhancements. In addition to the national Insight User Group, several state-specific Insight user groups meet regularly by phone and in person for dialogue about state reporting and other topics related to how to get the most out of Insight.

Cost
RFP needed for exact cost.

More Information
NextGen Healthcare

NextGen Healthcare signals the end of silo systems that make it difficult for practices to exchange data. Its vendor-agnostic solutions solve the problem of data sharing once and for all. Now, providers can gain up-to-the-minute access to a complete patient record anytime, anywhere. NextGen® solutions make this information easily accessible within normal workflows. The whole care team can view, document, and exchange data with one another, as well as with hospitals, labs, pharmacies, colleagues, and payers. And, that means better care and better outcomes for both patients and practices.

NextGen Ambulatory EHR

NextGen’s EHR is intelligent, integrated, and interoperable. Certified by ONC-2014 as a complete EHR, it is also Meaningful Use Stage-2 ready. Products exist for 27 specialties, including public health:

NextGen Healthcare provides integrated solutions that enable NextGen Ambulatory EHR to exchange standards-based data with any public health entity in real time, within normal provider workflow. NextGen will also develop custom connectivity and robust collaborative care solutions.

- **Patient Portal**: meets MU requirement for Stages 1 and 2
- **Practice Management**: ahead of the curve on emerging government regulations
- **Population Health Management**: coordinate care, elevate community health, and drive productivity; engage in data sharing
- **Analytics**: dashboard allows for monitoring of performance metrics

Interoperability

In partnership with Mirth Connect, NextGen allows for easy exchange of data across disparate systems. Mirth interoperability solutions allow clients to integrate real-time health information from virtually all EHR systems. They enable different hospitals, practices, and ancillary care providers to efficiently drive actionable workflows, standards-based data exchange, and analytics for better decisions.

**NextGen Share** allows clients to find connected providers and organizations on the network; compose and exchange a referral with clinical documents; and count such transactions for
their Meaningful Use stage 2 attestation. NextGen Share is built in to the NextGen EHR, and requires no upfront license fees, transaction fees, or new hardware.

https://www.nextgen.com/
https://www.nextmd.com/ud2/Login/Login.aspx
http://www.softwareadvice.com/medical/nextgen-profile/?layout=var_c0
https://www.youtube.com/watch?v=_KfEL0qbs5g
eClinicalWorks V10 is Building Bridges to Better Care™. Clinical data comes in many forms. eClinicalWorks supports a wide range of interfaces to exchange clinical data between external vendor systems and its EHR.

Immunization Registries

eClinicalWorks provides a confidential and automated mechanism to submit and retrieve patients’ immunization records to and from the public health agencies. The data submitted contains the necessary elements to support the agency’s vaccine inventory management system. This interface allows the eClinicalWorks users to meet the MU Stage 2 immunization measure.

Outbound Data Submission

The vaccine information along with the necessary demographic information is submitted upon the successful documentation, periodically to the state without any user intervention. This interface uses HL7 2.3.1 and HL7 2.5.1 data standard and leverages multiple secured transport mechanisms, as per the state requirements.

Vaccine Query/Retrieve

Users have the capability of querying the state for a patient’s immunization record from within the EHR. The state responds with historical immunization data, which can be viewed and imported into the patient’s chart within eClinicalWorks.

Current integrations include Syndromic Surveillance. eClinicalWorks provides a secure mechanism to submit the necessary patient clinical data to public health agencies. The information is submitted upon review of a Progress Note periodically to the health agency without any user intervention. This interface uses a PHIN data set and leverages multiple secured transport mechanisms as per the state requirements. Syndromic Surveillance interfaces allow users to meet the MU Stage 2 Syndromic Surveillance measure from the menu set.
Cost
EHR Only = $449 Per Month/per provider. No start-up cost
See Link for more: https://www.eclinicalworks.com/products-services/pricing/

Applied
“ eClinicalWorks EMR Practices: Join SHARE at a low price “
http://sharearkansas.com/eclinicalworks

More Information
https://www.eclinicalworks.com
https://www.eclinicalworks.com/products-services/population-health-ccmr/
https://www.eclinicalworks.com/products-services/interoperability/clinical-integrations/
Azara Healthcare is a leading provider of data-driven reporting and analytics for the Community Health marketplace. Azara Healthcare’s solutions empower Community Health Centers, Primary Care Associations, and Health Center Controlled Networks to improve quality and efficiency in all aspects of their care delivery through actionable data.

Azara Healthcare provides the community health care market with a suite of business solutions that enables providers, health centers, and the organizations that represent them to improve their level of patient care, while at the same time assuring the costs to provide care are monitored, controlled, and managed with simple, easy to use, information technology. This set of solutions enables community health providers to see and analyze data on their patients and performance, assuring downstream decisions are based on facts and trends rather than guesses or hypotheses. Azara Healthcare’s offerings are designed for quick, efficient, and cost-effective deployment with accelerated Quality Improvement as its number one goal. Among other purposes, the company’s offerings facilitate health center transformations to highly efficient, team-based care delivery models, allowing for the delegation of appropriate work away from the provider to the less expensive support resources on the team. Azara Healthcare DRVS also provides the tools to meet Federal criteria for Meaningful Use and receive the associated technology reimbursements.

Azara Healthcare’s centralized data warehouse and reporting architecture is best suited for uniform and consistent reporting and performance benchmarking.

- Designed for the end-user, not just IT
- Community Health Center focused
- Upfront data validation, streamlined data process
- Interoperable and extensible
- Heterogeneous electronic health records (EHR) and practice management (PM) platforms
- Scalable to a national level

A full set of standards-based clinical compliance reports, quality measures, and registries are included. In addition, reports for visit planning, referral management, transitions of care, and finance and operations are available.

**Clinical Registries**
Adult Female Primary Care, Adult Male Primary Care, Pediatric Primary Care, Immunizations, Asthma Management, Diabetes, Labs, Obstetrics, HIV, Hypertension, Depression
Operations

Patient Visit Planning / Huddle Report, Transitions of Care, Walk-In/Same-day Scheduled Patient Care, 3rd Next Available, Risk Registry, Uninsured Registry, Referral Management, No Shows

While this vendor focuses on Community Health Centers, the reason for inclusion here is the possibility of Local Public Health Agencies linking with Community Health Centers to ensure the coordination of care for patients who are using the services of both agencies. Without integrated communications, providers may lack the information to ensure the patient is receiving the most appropriate care for their conditions.

**Stratis Health**

**Local Public Health Agencies - Health Information Technology Toolkit**

Stratis Health is working to advance e-health and health information technology across the continuum of care and throughout communities to improve the quality, safety, and efficiency of care for patients.

Local public health agencies with robust e-health and health information technology (HIT) capabilities will improve the quality of patient care, in the delivery of health care overall, while positively impacting the organization’s bottom line. Key to this success is the use of a comprehensive electronic health record (EHR) system.

Local public health agencies can use Stratis Health’s *Health Information Technology Toolkit for Local Public Health Agencies* to implement a comprehensive EHR system, overhaul existing systems, or acquire individual HIT applications. The toolkit can help local public health agencies effectively engage in e-health activities by optimizing the use of an EHR and facilitating information sharing through health information exchange (HIE) and other forms of HIT.

The tools focus on e-health functionality, people, policy, and processes for success in the local public health agency environment. These tools can help in planning and making the right choices for LPHAs to achieve success in today’s health care environment.

Tools include:

- Brief statement of purpose - know why and when to use each tool
- Instructions for use – a guide for effective use of each tool
- Option to customize – customize tools for your own needs and to help you perform tasks

**Getting Started**

The toolkit has three experience levels. Read through all the tools to understand how to plan future actions to establish an enabling IT platform with interoperable EHR and effective HIE.

Understand and determine your local public health agency’s current level of experience with HIT and e-health projects. Develop an organizational strategy for advancing e-health based on using all of the tools for your agency’s experience level. Complete lower levels before proceeding to the next higher level. Construct your own timeline based on the applications, technology, and operational activities being undertaken. Each tool indicates how long it takes to implement.
Experience Level

<table>
<thead>
<tr>
<th>Experience Level</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1:</td>
<td>For all organizations.</td>
</tr>
<tr>
<td>Level 2:</td>
<td>For organizations with more resources.</td>
</tr>
<tr>
<td>Level 3:</td>
<td>For organizations interested in advanced topics.</td>
</tr>
</tbody>
</table>

The tools within the local public health agency toolkit are applicable to either a new HIT implementation or HIT replacement/upgrade effort. See the following website for additional information about Stratis Health--https://www.stratishealth.org/expertise/healthit/.

Overview

The Overview section introduces the structure and navigation of the local public health agency toolkit and the documents within the toolkit. The tools within the local public health agency toolkit are applicable to either a new HIT implementation or HIT replacement/upgrade effort.

<table>
<thead>
<tr>
<th>#</th>
<th>Tool</th>
<th>Use</th>
<th>Purpose</th>
<th>Experience Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Toolkit Overview: EHR and HIE Tools for Local Public Health</td>
<td>This is an inventory of all the tools. (5-page Word doc)</td>
<td>Inform</td>
<td><img src="green" alt="Level 1" /></td>
</tr>
<tr>
<td>2</td>
<td>Overview of e-Health</td>
<td>Provides an overview of e-health. (5-page Word doc)</td>
<td>Inform</td>
<td><img src="green" alt="Level 1" /></td>
</tr>
<tr>
<td>3</td>
<td>e-Health Scenarios</td>
<td>Describes the use of EHR and HIE in real life scenarios. (13-page Word doc)</td>
<td>Inform</td>
<td><img src="green" alt="Level 1" /></td>
</tr>
<tr>
<td>4</td>
<td>Laws and Mandates for e-Health</td>
<td>Identifies activities undertaken by states (with a focus on the state of MN) to promote e-health activities. (5-page Word doc)</td>
<td>Inform</td>
<td><img src="green" alt="Level 1" /></td>
</tr>
<tr>
<td>5</td>
<td>Issues and Concerns Associated with e-Health</td>
<td>Reviews concerns about e-health. (5-page Word doc)</td>
<td>Inform</td>
<td><img src="green" alt="Level 1" /></td>
</tr>
</tbody>
</table>
### Assess

The Assess section provides tools to kick off the e-health planning process. The tools in this section include surveys, inventories, and assessments of your staff's current attitudes toward information technology, computer skills, and technical infrastructure. Use these tools to assess your organization's readiness for an e-health project.

<table>
<thead>
<tr>
<th>#</th>
<th>Tool</th>
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</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>e-Health Glossary</td>
<td>A link to The Minnesota e-Health Glossary to help clarify terms or abbreviations. (1-page Word doc)</td>
<td>Inform</td>
<td><img src="https://static.unicode.org/variants/green.png" alt="Green" /></td>
</tr>
</tbody>
</table>

#### Assess

- **HITPAC and HIE Projects**
  - Describes the state of Minnesota’s objectives for the Minnesota Health Information Exchange. (28-minute webinar) [transcript](#) (7-page PDF)

- **Readiness Assessment for e-Health Adoption in Local Public Health**
  - Assess organization's readiness for e-health initiatives. (4-page Word doc)

- **Interoperability for EHR and HIE**
  - Defines standards for interoperability. (4-page Word doc)

- **EHR Technology Readiness Inventory**
  - Identify and document existing EHR hardware in order to assess and budget required hardware. (6-page Word doc)

- **HIE Technology Readiness Inventory**
  - Describes HIE technology and assesses organization's readiness to participate in HIE. (4-page Word doc)

- **Sample Authorization for Release of Information**
  - This tool provides an example patient information release form. (1-page Word doc)

- **IT Staffing Inventory**
  - Determine which IT staffing skills may be needed to implement specific HIT components. (6-page Word doc)
Plan

The Plan section tools provide a basis for planning a successful e-health project. Many HIT vendors do not support planning, instead relying on the organization for the majority of planning. Investing the time and resources up front will mean spending less time and resources during implementation—and will reap greater value.

<table>
<thead>
<tr>
<th>#</th>
<th>Tool</th>
<th>Use</th>
<th>Purpose</th>
<th>Experience Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IT Leadership</td>
<td>Use this tool to determine roles and activities for team members as you plan your implementation. (3-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Communication Plan</td>
<td>Build your communication plan. (6-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Visioning, Goal Setting, and Strategic Planning for EHR and HIE</td>
<td>Describes a vision for HIT, goal definition and suggestions for strategic planning. (8-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Project Management</td>
<td>This tool provides an overview of key elements to help plan for HIE or other e-health initiatives. (9-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Effective Project Management</td>
<td>Describes the principles of project planning. (59-minute webinar) transcript (12-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Tool</td>
<td>Use</td>
<td>Purpose</td>
<td>Experience Level</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>------------------</td>
</tr>
<tr>
<td>6</td>
<td>Change Management</td>
<td>Describes change management and possible barriers to making changes. (6-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Workflow and Process Redesign for EHR and HIE</td>
<td>Highlights workflow and process improvement elements for consideration during implementation. (7-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Workflow Redesign and EHRs</td>
<td>Describes how to use various techniques and tools to document process workflows. (42-minute webinar) transcript (9-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>The Model for Improvement: Plan, Do, Study, Act</td>
<td>Describes the Plan, Do, Study, Act (PDSA) quality improvement process model. (51-minute webinar) transcript (10-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Requirements Analysis and Prioritization for EHR and HIE</td>
<td>Define the requirements specific to your organization. (5-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Exchange of Clinical Summaries via CCR, CCD, C-CDA</td>
<td>Defines how clinical data may be shared with providers and clients. (3-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Total Cost of Ownership and Return on Investment for EHR and HIE</td>
<td>Documents cost components for an HIT initiative. (2-worksheet Excel spreadsheet)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Chart Conversion and Pre-load Planning</td>
<td>Defines method from convert paper chart data into the EHR. (3-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Rollout Strategies</td>
<td>This tool describes how an application may be rolled out. (2-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Space Planning</td>
<td>Use this tool to plan and manage your health information technology space and physical layout considerations. (6-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
</tbody>
</table>
Select

The Select section provides the foundation for a solid HIT selection process by helping you understand the marketplace and conduct all aspects of vendor selection and contracting. The extent to which you need to review the marketplace depends on your overall IT strategy. If you are part of a corporate structure, the selection process may be performed for you. However, the assessment, planning, implementation, maintain, and optimize tools still will be important for you to use.

<table>
<thead>
<tr>
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<th>Purpose</th>
<th>Experience Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><a href="#">Vendor Selection Code of Conduct</a></td>
<td>Review your code of conduct or adopt one. (2-page Word doc)</td>
<td>Action</td>
<td>🟢</td>
</tr>
<tr>
<td>2</td>
<td><a href="#">Vendor Issues - How to Partner</a></td>
<td>Identifies ways to work effectively with vendors. (58-minute webinar) transcript (14-page Word doc)</td>
<td>Inform</td>
<td>🟣</td>
</tr>
<tr>
<td>3</td>
<td><a href="#">EHR and HIE Vendor Selection and Understanding the Marketplace</a></td>
<td>Understand the HIT and EHR marketplace, including products available, vendors, CCHIT certification, requirements analysis, request for proposal (RFP), due diligence, key differentiators, and contracting. (3-page Word doc)</td>
<td>Inform</td>
<td>🟢</td>
</tr>
<tr>
<td>4</td>
<td><a href="#">Soliciting Bids for EHR and HIE - RFI, RFB, RFP</a></td>
<td>Describes the steps to take and provides tools to use in acquiring e-health services and applications. (7-page Word doc)</td>
<td>Action</td>
<td>🟢</td>
</tr>
<tr>
<td>5</td>
<td><a href="#">Hardware and Mobile Device Selection and Security</a></td>
<td>Use to identify appropriate hardware for your e-health applications. (5-page Word doc)</td>
<td>Inform</td>
<td>🟢</td>
</tr>
<tr>
<td>6</td>
<td><a href="#">Participation Data Sharing Agreements</a></td>
<td>Identifies data sharing agreements that you may need to execute. (2-page Word doc)</td>
<td>Inform</td>
<td>🟣</td>
</tr>
<tr>
<td>7</td>
<td><a href="#">EHR Request For Proposal</a></td>
<td>Use as an RFP template that can be customized to fit the need of the agency. (17-page Word doc)</td>
<td>Action</td>
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</tr>
<tr>
<td>8</td>
<td><a href="#">Vendor Selection Due Diligence</a></td>
<td>Use for conducting an objective, side-by-side comparison of vendors. (5-page Word doc)</td>
<td>Action</td>
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</tr>
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<tr>
<td>9</td>
<td><strong>Vendor of Choice and Contract Negotiation for EHR and HIE</strong></td>
<td>Understand the realities in selecting an EHR or other HIT. Assist in negotiating a favorable contract with your vendor of choice. (8-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
</tbody>
</table>

**Implement**

The Implement section builds upon the previous tools to help you address the specific application, technology, and operational elements that have been acquired and will now be implemented. These tools help with the tactical issues to be addressed in any implementation, including sample project plans, issues logs, training plans, and testing plans.

<table>
<thead>
<tr>
<th>#</th>
<th>Tool</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Implementing Systems Overview</strong></td>
<td>This tool provides an overview of a typical implementation of an EHR system. (8-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Managing HIT Projects</strong></td>
<td>Defines project planning requirements for an implementation. (3-page Word doc)</td>
<td>Inform</td>
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</tr>
<tr>
<td>3</td>
<td><strong>Project Plan</strong></td>
<td>Use this tool to develop a project plan for your organization. (2-worksheet Excel spreadsheet)</td>
<td>Action</td>
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</tr>
<tr>
<td>4</td>
<td><strong>Issues Management</strong></td>
<td>Defines an issues management program. (3-page Word doc)</td>
<td>Action</td>
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</tr>
<tr>
<td>5</td>
<td><strong>Vendor Issues Management</strong></td>
<td>Presents techniques to manage issues with your vendors. (68-minute webinar) transcript (15-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td><strong>Workflow and Process Improvement with EHR and HIE</strong></td>
<td>Highlights workflow and process improvement elements for consideration during implementation. (4-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td><strong>Data Management</strong></td>
<td>Identifies how to manage and maintain data quality. (5-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
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<tr>
<td>8</td>
<td>Change Control</td>
<td>Defines a change control process for all system components. (6-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Using Direct for HIE</td>
<td>Describes the Direct protocol and how to get started using it. (3-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Using CONNECT for HIE</td>
<td>Describes the Connect protocol and how to get started using it. (2-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Managing Person and Provider Identification</td>
<td>Describes process to identify persons and providers in an HIE setting. (4-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Managing Person Consent</td>
<td>Describes process to manage personal consent forms. (3-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>System Build</td>
<td>Defines the tasks and responsibilities performed during system build. (4-page Word doc)</td>
<td>Inform</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>EHR and HIE Policies and Procedures Checklist</td>
<td>Use this checklist to evaluate policies and procedures you may need. (3-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Training Plan</td>
<td>Use the training plan tool to define training requirements, plan and track training. (4-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Testing Plan</td>
<td>This tool describes the types of tests typically performed on EHR and other HIT systems. (3-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Go-live Checklist</td>
<td>Validate and plan go-live activities. (3-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Communicating with Clients about EHR and HIE</td>
<td>Describes communication process to update Client on e-health activities. (3-page Word doc)</td>
<td>Inform</td>
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</tr>
</tbody>
</table>

Maintain

The Maintain section provides tools for ensuring that your e-health investment is meeting the goals established at the beginning of the project. Regular maintenance activities will ensure that
your organization is getting the most return from its investment in e-health. The tools in this section highlight maintenance activities that should be incorporated into your operational activities.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Ongoing System Maintenance, Administration, and Data Quality Management</strong></td>
<td>This tool provides guidance on system maintenance, system administration, and data quality management. (4-page Word doc)</td>
<td>Inform</td>
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</tr>
<tr>
<td>2</td>
<td><strong>Ongoing Exchange Partner Communications</strong></td>
<td>Describes how to communicate with your exchange partners. (4-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>Monitoring SMART Goal Achievement to Assure Effective use of EHR and HIE</strong></td>
<td>This tool provides guidance to ensure that goals of the e-health initiatives are being met. (5-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>EHR and HIE Adoption Milestone Results</strong></td>
<td>Measure the extent to which your e-health activities are adopted. (4-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>EHR and HIE Satisfaction Surveys</strong></td>
<td>Assists with conducting satisfaction surveys. (4-page Word doc)</td>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td><strong>EHR and HIE Return on Investment Analysis/Benefits Realization</strong></td>
<td>Links the achievement of your goals with actual cost for a return on investment. (2-worksheet Excel spreadsheet)</td>
<td>Action</td>
<td></td>
</tr>
</tbody>
</table>

**Optimize**

The Optimize section focuses on gaining optimal value from specific functionality within EHR and HIE. Fine tune skills and explore ways to improve the use of the EHR and HIE. The Optimize tools provide tips from users who have already made the journey—and recognize that the journey is ongoing.

REFERENCES AND RESOURCES


RESOURCES
http://ehrhelp.missouri.edu/?q=node/135
https://www.healthit.gov/providers-professionals/implementation-resources/vendor-evaluation-matrix-tool
http://www.onc-ntdc.org/
http://www.hrsa.gov/healthit/toolbox/RuralHealthITtoolbox/Selection/trainingmaterials.html
https://www.healthit.gov/providers-professionals/ehr-privacy-security/resources
http://patagoniahealth.com
http://patagoniahealth.com/solutions/integrated-ehr-features/
http://patagoniahealth.com/customers/case-studies/
http://www.ntst.com/Communities-We-Serve/public_health.aspx
https://www.nextgen.com/
https://www.nextmd.com/ud2/Login/Login.aspx
http://www.softwareadvice.com/medical/nextgen-profile/?layout=var_c0
https://www.youtube.com/watch?v=_KfELOqbs5g
https://www.eclinicalworks.com/products-services/pricing/
http://sharearkansas.com/eclinicalworks
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