



Electronic Health Records

An Environmental Scan of Local Health Departments and State Hospitals

February 2015

CRAIG P. TANIO, M.D., CHAIR

BEN STEFFEN, EXECUTIVE DIRECTOR



Commissioners

Craig P. Tanio, MD, MBA, Chair
Chief Medical Officer
ChenMed

Garret A. Falcone, NHA, Vice Chair
Executive Director
Heron Point of Chestertown

Michael S. Barr, MD, MBA, FACP
Executive Vice President
National Committee for Quality Assurance

John E. Fleig, Jr.
Chief Operating Officer
UnitedHealthcare Mid-Atlantic Health Plan

Paul Fronstin, PhD
Director, Health Research and Education
Program
Employee Benefit Research Institute

Kenny W. Kan, CPA, FSA & CFA
Senior Vice President/Chief Actuary
CareFirst BlueCross BlueShield

Michael McHale, MHA, NHA
Chief Executive Officer
Hospice of the Chesapeake

Barbara Gill McLean, MA
Retired Senior Policy Fellow
University of Maryland School of Medicine

Kathryn L. Montgomery, PhD, RN, NEA-BC
Associate Dean, Strategic Partnerships &
Initiatives, Associate Professor
University of Maryland School of Nursing
Ligia Peralta, MD, FAAP, FSAHM
President and CEO
Casa Ruben Foundation

Frances B. Phillips, RN, MHA
Health Care Consultant

Glenn E. Schneider, MPH, BS
Chief Program Officer
The Horizon Foundation

Diane Stollenwerk, MPP
President
StollenWerks, Inc.

Stephen B. Thomas, PhD
Professor of Health Services Administration,
School of Public Health
Director, Maryland Center for Health Equity
University of Maryland, College Park

Adam J. Weinstein, MD
Medical Director
Nephrology and Transplant Services
Shore Health Systems

Table of Contents

Background.....	4
Environmental Scan Key Findings.....	4
Increasing Collaboration	5
Remarks.....	6
Appendix A: Listing of LHDs and SHs.....	7
Appendix B: EHR Survey Questionnaire	8
Appendix C: About the DHMH EHR Needs Assessment.....	11
Appendix D: EHRs in Use by LHDs and SHs.....	12
Appendix E: About VistA	14

This information brief (brief) was completed by Angela Evatt, Chief, Health Information Exchange, within the Center for Health Information Technology & Innovative Care Delivery under the direction of the Center Director, David Sharp, Ph.D. For information on this brief, please contact Angela Evatt at 410-764-3574 or by email at angela.evatt@maryland.gov.

The Maryland Health Care Commission thanks local health departments, State hospitals, and the Department of Health and Mental Hygiene for their contributions to this brief.

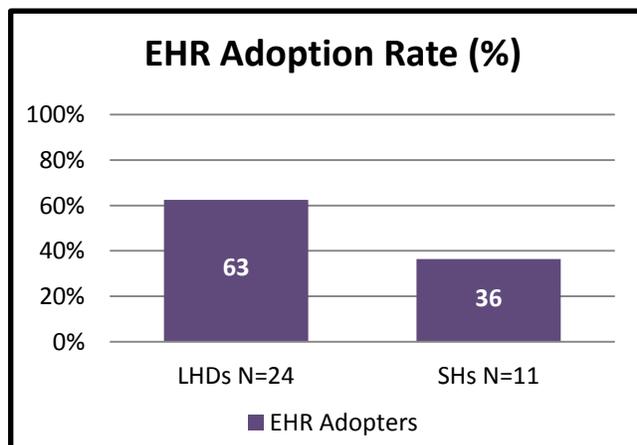
Background

The Maryland Health Care Commission (MHCC) is responsible for advancing the diffusion of health information technology (health IT) statewide.¹ In the fall of 2014, MHCC conducted an environmental scan (scan) to determine the adoption of electronic health records (EHRs) in local health departments (LHDs) and State hospitals (SHs).² Survey questions focused on assessing EHR technology in place today, identifying LHD EHR implementation challenges, and exploring opportunities where collaboration could enhance user capabilities among LHDs.³ The Department of Health and Mental Hygiene (DHMH), Office of Information Technology (OIT) is in the preliminary stages of identifying an EHR solution for SHs.⁴ In October of 2014, OIT requested funding from the Maryland Department of Information Technology to engage a contractor to conduct an EHR needs assessment.^{5, 6} A funding decision is expected to be made around July 2015. OIT anticipates identifying an EHR solution collaboratively with LHDs and SHs. LHDs have flexibility in deciding to adopt the State EHR solution; however, SHs are expected to implement the same technology.⁷ OIT anticipates completing the EHR system selection process in 2015 and integrating the technology in all SHs within a three-year timeframe.

Environmental Scan Key Findings

Landscape

EHR adoption is fairly new for most LHDs and SHs. The average length of time LHDs have been using EHRs is approximately six years.⁸ Several LHDs reported implementing more than one EHR in order to support various clinical programs (e.g. primary care, behavioral health, dental, etc.). Most EHRs in use by LHDs and SHs are web-based, as opposed to maintaining the software on a client or local server.^{9, 10, 11} As part of the



¹ Md. Code Ann., Health-Gen. §19-103(5).

² There are a total of 24 LHDs and 11 SHs. See Appendix A for a listing of all LHDs and SHs.

³ See Appendix B for a copy of the LHD and SH EHR Survey Questionnaire.

⁴ OIT will also consider LHDs when selecting the EHR solution.

⁵ OIT is responsible for IT planning and operations, systems development, IT governance and management, and the security of enterprise information systems. More information about OIT is available at: dhmh.maryland.gov/oit/SitePages/Office-of-CIO.aspx.

⁶ See Appendix C for more information about the DHMH EHR Needs Assessment.

⁷ Funding for LHDs is primarily from county governments.

⁸ While a few LHDs have been using the same vendor for more than 10 years, the majority did not start using EHRs until around 2010.

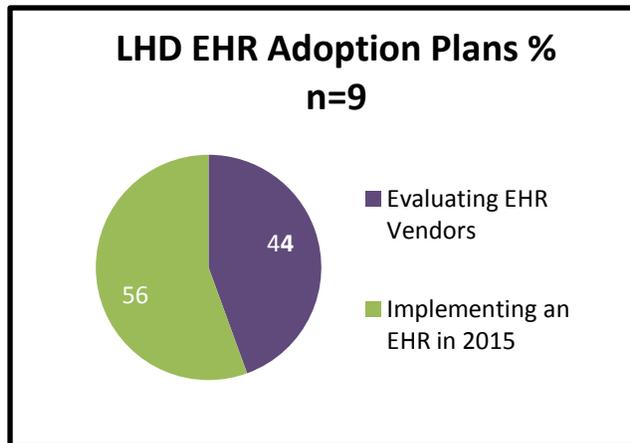
⁹ Web-based EHRs are developed and maintained by programmers within a single proprietary company. The product's design, or source code, is confidential and belongs only to the developer of the web-based EHR, which typically charges a licensing fee to the provider organization for the right to use the software.

¹⁰ See Appendix D for a listing of the EHRs in use by LHDs and SHs.

¹¹ Eastern Shore Hospital Center adopted an open source EHR in 2005, known as eChart; the open source EHR is a client-server based system that does not operate through a web browser.

scan, LHDs and SHs were asked about their views on adopting an open source EHR and almost all decided against it due to the uncertainty of maintenance costs. Open source EHRs allow users to make programming changes to the technology provided they share the code with the vendor.¹² In general, providers with access to programmers tend to be more willing to implement open source EHRs.

While SHs are required to implement a solution identified by OIT, LHDs have flexibility in selecting an EHR. Four LHDs reported that they are in the process of evaluating EHR solutions; five LHDs indicated plans to implement an EHR in 2015.



LHD Challenges

Several challenges impact adoption of EHRs and include: cost to acquire, update, and maintain an EHR system; ability to find a solution that meets the facility's needs; and limited availability of technical resources. LHDs reported limitations on the availability of funding to implement and maintain EHRs. LHDs noted the need for an EHR system that can support various clinical programs and integrate with their financial systems.¹³ EHRs that are integrated with financial systems eliminate the need for dual data entry. LHDs also discussed the need for an EHR that could, in the future, be used for public health reporting to the State (e.g., immunization and cancer registry reporting). In addition, LHDs indicated a need for greater access to technical support in managing EHR systems. Most LHDs contract with technology vendors for additional support as many do not have adequate staffing and/or proper training to assist them with their IT needs.¹⁴

Increasing Collaboration

Workgroups

Establishing LHD lead EHR workgroups (workgroups) is expected to facilitate learning and diffusion of EHR best practices. Shared successes and lessons learned will help guide LHDs in becoming effective users of the technology. The use of workgroups will enable participants to address issues pertaining to training and problem solving. The workgroups can also explore connectivity to the State-Designated Health Information Exchange (HIE), the Chesapeake Regional Information System for our Patients (CRISP). Connecting to the State-Designated HIE allows health care providers to appropriately access and securely share electronic health information to enhance

¹² The Veterans Health Information Systems and Technology Architecture (VistA) is an example of open source technology. See Appendix E for more information about VistA.

¹³ VistA does not provide a billing module.

¹⁴ Several LHDs receive additional technical support through regularly scheduled IT/network manager meetings.

care delivery.¹⁵ Over the next several months, MHCC plans to work with LHDs in convening the workgroups.

User Resource Guide

A LHD user resource guide (guide) can provide a centralized source of basic information as it relates to current EHRs in use by LHDs and contact information. The guide is expected to help improve awareness about LHDs' use of EHRs by making available select information to users. Over the last several months, MHCC has worked with LHDs to establish a framework for the guide. Several LHDs are already considering ways to enhance the guide in the future. The MHCC anticipates transitioning the maintenance of the guide to LHDs later this year.

Remarks

EHRs are a transformational tool in changing the way care is delivered by moving away from a mostly paper-based process to one that utilizes electronic information to assist providers in delivering high quality care. Widespread adoption of EHRs is necessary; however, not sufficient in transforming the way care is delivered. Eventually, LHDs and SHs will need to be connected to the State-Designated HIE to benefit from sharing patient-level electronic information between different providers. Moving forward, MHCC expects to continue collaborating with LHDs and SHs as they digitize the way care is provided.

¹⁵ All 47 general acute care hospitals in Maryland participate with CRISP, as well as various long-term care, radiology, and laboratory facilities. CRISP enables the availability of patient information to its participating organizations through a variety of HIE services at no cost. For more information about CRISP and CRISP HIE services, visit, crisphealth.org.

Appendix A: Listing of LHDs and SHs

Local Health Departments

1. Allegany County
2. Anne Arundel County
3. Baltimore City
4. Baltimore County
5. Calvert County
6. Caroline County
7. Carroll County
8. Cecil County
9. Charles County
10. Dorchester County
11. Frederick County
12. Garrett County
13. Harford County
14. Howard County
15. Kent County
16. Montgomery County
17. Prince Georges County
18. Queen Anne's County
19. St. Mary's County
20. Somerset County
21. Talbot County
22. Washington County
23. Wicomico County
24. Worcester County

State Hospitals

1. Clifton T. Perkins Hospital Center*
2. Deer's Head Hospital Center
3. Eastern Shore Hospital Center*
4. Holly Center
5. Potomac Center
6. Springfield Hospital Center*
7. Spring Grove Hospital*
8. Thomas B. Finan Center*
9. Western Maryland Hospital Center
10. John L. Gildner Regional Institute of Children and Adolescents – Rockville **
11. John L. Gildner Regional Institute of Children and Adolescents – Baltimore **

* *Psychiatric hospitals*

** *Residential treatment centers for youth*

Appendix B: EHR Survey Questionnaire

Respondent Name: _____

Title: _____

Organization: _____

Telephone: _____

Email Address: _____

1. Has your facility adopted an EHR? *(select one)*

An EHR is a digital patient health record that can contain information about a patient's medical history, diagnoses, medications, etc. EHRs do not include Excel, Access, or similar tools.

- Yes *(Skip to question 2)*
 No *(Skip to question 7)*

Questions for Facilities That Have Adopted an EHR

2. What is the name of your EHR product(s)?
3. How long has your facility been using this EHR? *(select one)*
- Less than 1 year
 1-2 years
 3-4 years
 More than 4 years
4. Which EHR features are used by your facility? *(select all that apply)*

Clinical Documentation

- Physicians' Notes
 Nursing Assessments
 Problem Lists
 Medication Lists
 Discharge Summaries
 Advance Directives

Test and Imaging Results

- Laboratory Reports
 Radiologic Reports
 Radiologic Images

Consultant Reports

Decision Support

Clinical Guidelines

Clinical Reminders

5. Are you interested in switching your EHR? *(select one)*

Yes *(Go to question 6)*

No *(Survey Complete)*

6. Are you interested in adopting an open source EHR product? *(select one)*

Open source technology allows for universal access to a product's design or blueprint and universal redistribution of that design or blueprint; the computer program's source code is publically available and can be modified by anyone. The Veterans Health Administration uses an open source EHR product known as VistA. On the other hand, proprietary software has source code that cannot be modified by anyone except the developers who are legally allowed to copy or modify it.

Yes *(Explain)*

No *(Explain)*

Questions for Facilities That Have NOT Adopted an EHR

7. Is your facility *(select one)*

Assessing EHR vendors

Implementing an EHR within 12 months

Implementing an EHR beyond 12 months

Undecided about implementation timelines at this time

8. Is there a particular EHR product that your facility is considering implementing? *(list)*

9. Are you interested in adopting an open source EHR product? *(select one)*

Open source technology allows for universal access to a product's design or blueprint and universal redistribution of that design or blueprint; the computer program's source code is publically available and can be modified by anyone. The Veterans Health Administration uses an open source EHR product known as VistA. On the other hand, proprietary software has source code that cannot be modified by anyone except the developers who are legally allowed to copy or modify it.

Yes *(Explain)*

No *(Explain)*

10. What are the top three challenges associated with adopting an EHR that your facility has encountered, with 1 being the most challenging, followed by 2 then 3. *(select three in ranking order)*

- EHR product's ability to meet facility's needs
- Limited availability of facility's technical resources
- Competing priorities
- Cost to acquire an EHR system
- Cost to update and/or maintain an EHR system
- Unclear return on investment
- Privacy/security concerns
- Staff education and training
- Workflow re-design
- Other (specify):

Appendix C: About the DHMH EHR Needs Assessment

In order to purchase a standard EHR for SHs, a centralized decision must be made by DHMH. The OIT submitted an Information Technology Project Request (ITPR) in October 2014 to request funding to conduct the assessment.¹⁶ If approved, the assessment will serve as the foundation for establishing the essential elements of a request for proposal to procure services for the development and implementation of a web-based EHR system. The assessment is anticipated to begin in 2015 and will engage staff from SHs, LHDs and other subject matter experts to evaluate the requirements for a web-based EHR system that meets SHs' and LHDs' needs.¹⁷ Among other things, the new EHR system will enhance DHMHs' technology architecture, replacing an aging health management information system (HMIS).¹⁸ Implementation of the chosen EHR is not expected to begin until late 2016.

¹⁶An ITPR is a system that supports a two-step approval process: (1) a Project Planning Request; and (2) a Project Implementation Request. This process exists to ensure that Maryland State agencies follow a standardized approach to requesting approval and funding for Major Information Technology Development Projects. For more information, visit: doit.maryland.gov/policies/Documents/policyplanning/ITPRguidelines.pdf.

¹⁷ A subject matter expert is an individual who has specialized skills or knowledge about a particular business process or area.

¹⁸ HMIS is more than 25 years old, does not have the ability to process electronic medical records, and is not accessible via the web.

Appendix D: EHRs in Use by LHDs and SHs

No.	LHD	EHR(s)
1	Allegany County	PatTrac
2	Anne Arundel County	INSIGHT
		Patterson (dental)
3	Baltimore City	INSIGHT
4	Baltimore County	Visual HealthNet
5	Calvert County	NextGen
		PatTrac
		SMART
6	Caroline County	-
7	Carroll County	-
8	Cecil County	PatTrac
9	Charles County	PatTrac
		SMART
10	Dorchester County	ProtoMed
		SMART
		Celerity
11	Frederick County	INSIGHT
12	Garrett County	PatTrac
13	Harford County	-
14	Howard County	CareClix
15	Kent County	PatTrac
16	Montgomery County	NextGen
17	Prince Georges County	Patagonia
		Webchart
		SMART
18	Queen Anne's County	AllScripts
		Celerity
		PatTrac
19	St. Mary's County	PatTrac
20	Somerset County	-
21	Talbot County	PatTrac
22	Washington County	PatTrac
23	Wicomico County	Patagonia
24	Worcester County	Anasazi
		Patagonia

Note: A strikethrough (-) represents those LHDs that have not yet adopted an EHR.

No.	SH	EHR(s)
1	Clifton T. Perkins Hospital Center	-
2	Deer's Head Hospital Center	Optimus
3	Eastern Shore Hospital Center	eChart
4	Holly Center	-
5	Potomac Center	PatTrac
6	Springfield Hospital Center	-
7	Spring Grove Hospital	-
8	Thomas B. Finan Center	-
9	Western Maryland Hospital Center	Optimus
10	John L. Gildner Regional Institute of Children and Adolescents - Rockville	-
11	John L. Gildner Regional Institute of Children and Adolescents - Baltimore	-

Note: A strikethrough (-) represents those SHs that have not yet adopted an EHR.

Appendix E: About VistA

The Veteran Health Information Systems Technology Architecture (VistA,) more formally known as VistA Computerized Patient Record System, is an open source EHR developed by the United States Department of Veterans Affairs (VA). Over the past 35 years, VistA has been designed by clinicians to embody clinical workflow processes that support VA models of care delivery. VistA is one of the largest and most rapid deployments of an EHR as it is utilized by the largest medical system in the United States, providing care to over eight million veterans across 163 hospitals, over 800 clinics, and 135 nursing homes. In 1997, the VA released the source code for VistA under the Freedom of Information Act. Since then, EHR vendors have used the VistA source code to create commercial versions (e.g., Medsphere Systems Corporation has a commercial product known as “OpenVistA”).¹⁹

VistA utilizes a client-server architecture, which links together workstations and personal computers enabling health care providers to review and update patients’ EHRs. VistA is used in hospitals, ambulatory and long-term care settings. Among other things, VistA supports Health Level 7 International standards for HIE and include modules for computerized physician order entry, laboratory tests, MRIs, patient care diet orders, electronic prescribing and other clinical documentation. VistA does not include a billing module since VA health care is free for qualified veterans.²⁰

¹⁹ WorldVistA. Available at: www.worldvista.org.

²⁰ WhatIs.com, *VistA EHR*, August 2012. Available at: whatis.techtarget.com/definition/VistA-EHR.



4160 Patterson Avenue
Baltimore, MD 21215
410-764-3460
mhcc.maryland.gov