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Missouri Rural Health Clinics and Electronic Health Records

Survey Results

Missouri Health Information Technology Assistance Center
DEPARTMENT OF HEALTH MANAGEMENT AND INFORMATICS
SCHOOL OF MEDICINE
UNIVERSITY OF MISSOURI

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EXECUTIVE SUMMARY

OVERVIEW

The Missouri Health Information Technology Assistance Center (MO HIT AC) and the Department of Health Management and Informatics (HMI) conducted the study. The project examined the extent of EHR and HIE adoption in the 382 rural health clinics (RHCs) in Missouri through a brief survey issued to all 382 RHCs. 77 of the RHCs were either clients of MO HIT AC or had received meaningful use payment from CMS, and, therefore, these clinics were known to have an electronic health record (EHR). These clinics were divided into a separate group from the other 305 RHCs, and received a slightly modified survey without the question asking whether they had an EHR. The group of 77 RHCs known to already have an EHR was designated as subset 1, and the remaining RHCs fall into subset 2.

RESULTS

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

- Of the 382 RHCs, 132 (34.6% response rate) responded to the survey.
- The response rate for subset 1, known to have an EHR already, was 63.6%; the response rate for the remaining 305 RHCs was 27.2%.
- Of subset 1 responders, 73.5% were part of a multi-site organization, compared to 84.3% of subset 2 responders.
- Of responders in subset 2, 81.9% currently had an EHR.
- There were 26 different EHRs used by the 116 RHCs responding to this question.
- Approximately 60% of responders in both groups also use a health information exchange (HIE).
- For the RHCs currently not connected to a HIE, cost and organizational barriers were the most frequent reasons provided.
- Reported challenges to using an EHR were mainly funding and other barriers to implementing a system, including lost productivity during initial use.

OPPORTUNITIES

Successful deployment and use of EHRs by Missouri RHCs presents opportunity for many benefits, which include:

- Improved quality of care for the population of Missouri, especially for underserved and disadvantaged citizens in rural areas,
- 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 results of the survey, following are suggested recommendations:

- Statewide deployment of EHRs to rural health clinics in Missouri should be a priority
- Use the successful deployment program of the MO HIT AC, modified to reduce costs and increase information sharing by deploying EHRs in regions, limiting on-site work, and using remote education and support whenever possible.

MISSOURI RURAL HEALTH CLINICS AND ELECTRONIC HEALTH RECORDS
Survey Results

Overview of Rural Health Clinics

Rural health clinics (RHCs) operate under the Rural Health Clinic Services Act of 1977 (P.L. 96-210). Rural health clinics were established to address an adequate supply of physicians serving Medicare and Medicaid patients in rural areas and to increase the use of non-physician practitioners in rural areas. To qualify as a rural health clinic, the organization must be located in a non-urbanized area and in an area designated within the previous four years by the Health Resources and Services Administration (HRSA) as either a primary care geographic health professional shortage area (HPSA), a primary care population-group HPSA, a medically underserved area (MUA), or a governor-designated and Secretary-certified shortage area.[1] These organizations are required to use a team approach to physicians working with non-physician practitioners to provide services.

RHCs are classified as provider-based RHCs or independent RHCs. RHCs can be organized as public, tax-exempt, or investor-owned health care facilities. The *provider-based RHCs* are owned and operated as part of a health organization (often a hospital system), which participates in Medicare and these RHCs operate under the licensure, governance, and professional supervision of that organization. The *independent RHCs* are freestanding clinics owned by a provider entity, often by physicians or physician groups. These RHCs may be part of a larger health system, but either don't quality for, or have not sought provider-based status.

Rural health clinics are paid an all-inclusive rate from Medicare that is subject to a maximum payment per visit that Congress establishes and is updated annually based on the percentage change in the Medicare Economic Index and subject to annual reconciliation. Laboratory tests and technical components of RHC services are paid separately. Medicaid visits are reimbursed based on reasonable costs or an alternative Prospective Payment System established by states. Effective January 1, 2016, RHCs can bill for Chronic Care Management Services when all the requirements of those services are met and Advanced Care Planning is a stand-alone billable visit in a RHC.[2]

Benefits of Health Information Technology in RHCs

Health information technology (HIT) has been shown to offer a number of opportunities for RHCs to improve the quality, safety, and effectiveness in the delivery of health care services in rural areas.[3,4] Health information technology can also be used to help providers manage the health of the population they serve. It is recognized, however, that implementing, maintaining, and optimizing HIT presents a number of challenges for rural

providers and facilities, especially given the limited resources and technology expertise in many of these rural health clinics. The limited sharing of important medical information by rural health clinics with other health care providers presents an obstacle to care coordination and improved population health.

A major way that health information technology can be used to improve quality of care is by avoiding duplication of tests and medical errors, especially with electronic prescribing of medications.[5] Many patients receive health care services from multiple health care providers, especially when the patients have multiple chronic conditions. HIT can be used to ensure efficient, coordinated, and secure exchange of information by enabling instant access to patient information, providing disease surveillance, and allowing coordination of care across different providers. In addition, decision support systems within HIT systems can provide health care professionals with the most current information about the conditions they are treating, enabling them to incorporate new treatments and therapies as they become available. HIT also enables patients to become more engaged in their health care, allowing them to track health conditions and access provider visit notes and test results.

While health information technology and telehealth/telemedicine provide related and complementary activities, they use technology to improve health care and efficiency in the health care system in very different ways. HIT involves the storing and exchanging of health care data through the use of electronic health records (EHRs) and clinical decision support tools. Telehealth, on the other hand, uses communication technologies to provide health care services, communicate with patients, and train providers from a distance.

MISSOURI RURAL HEALTH CLINICS

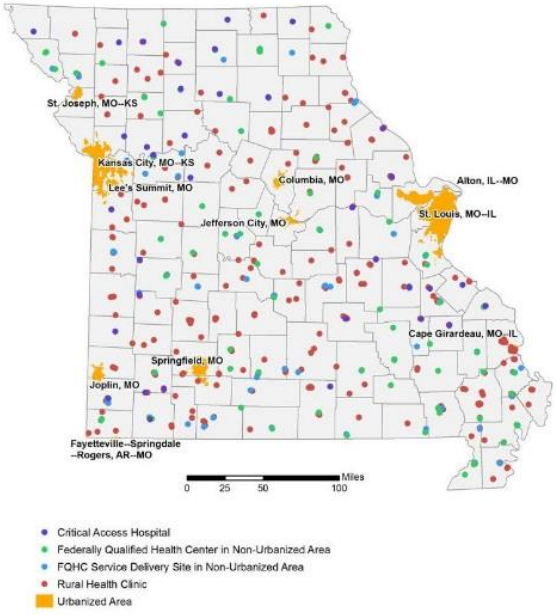
In Missouri, as in other states, establishing and sustaining a health care system is a challenge. The communities in rural Missouri face different health care and wellness issues than do their urban counterparts, as reflected in the data following data. The total population in Missouri in 2014 was 6,063,589, and 1,553,580 of these individuals lived in rural areas. Per capita income in rural areas was $33,706, compared to $44,372 in urban areas. The poverty rate in rural areas was 19.4 percent, compared to 14.3 percent in urban areas; the rural unemployment rate in 2014 was 6.9 percent, compared to the urban unemployment rate of 5.9 percent.[6]

Most rural communities have fewer physicians than urban areas, and may not have specialists available at all. Consequently, the health of rural residents may be more serious at time of diagnosis, placing more pressure on the rural health care system. As

a result, rural health clinics are vital for providing primary and preventive care to the rural population.

In 2015, there were 382 rural health clinics in Missouri, providing an important source of primary care services in rural Missouri. Map 1 provides an overview of rural health care facilities in Missouri, with rural health clinics represented by a reddish-brown dot (•) on the map.[7] Given the importance of electronic health records (EHRs) for managing and documenting the quality of care provided to patients and coping with the demands of practice transformation, a study was undertaken to obtain information on the extent to which RHCs in Missouri have adopted and are using EHRs to support clinical services.

Selected Rural Health Care Facilities in Missouri



Sources: U.S. Census Bureau, 2012 TIGER/Line.
Centers for Medicare and Medicaid Services;
U.S. Department of Health and Human Services;
October 2015.

RHIhub Rural Health Information Hub

STUDY METHODOLOGY

Using the CASPER Report 0006D listing[8] of Rural Health Clinics from the Centers for Medicare and Medicaid, 382 rural health clinics were identified in Missouri. This report provided names, addresses, and telephone numbers for the clinics. Before beginning the survey, these 382 rural health clinics were divided into two subsets of clinics to be contacted and asked to participate in the survey. The first set of clinics included the 77 rural health clinics who were clients of the Missouri Health Information Technology Assistance Center or who had received payment from CMS for meaningful use and, therefore, the presence of an electronic health record (EHR) in their clinic was known. As a result of knowing these clinics had an EHR, Question 2 on the survey asking if they had

an EHR was eliminated from their survey; but, all remaining questions on the survey were identical in the two groups. The second set of clinics included the other 305 rural health clinics about which knowledge regarding the presence of an EHR in their clinic was not known.

To administer the telephone survey, the Call Center in the Health Behavior Risk Research Center (HBRRC) in the Department of Health of Health Management and Informatics, University of Missouri was used. Based on the telephone information obtained from the CASPER Report 0006D, each of the 382 clinics was contacted by telephone and asked to participate in a brief survey. The survey was conducted between January 15 and March 1, 2016. Appendix A contains a copy of the surveys administered, the cover letter provided explaining the purpose of the survey, and the informed consent document. Since the purpose of the study was to assess the status of EHR adoption and use in rural health clinics in Missouri, the survey was kept short to enhance response rates.

FINDINGS

The overall response rate to the survey was 34.6%, with 132 of the 382 RHCs responding to the survey. The response rates between the two subsets of RHCs, however, were significantly different. Of the 77 RHCs who were clients of the MOHIT AC, 49 responded to the survey, for a response rate of 63.6%. Of the 305 RHCs for whom the adoption of an EHR was not known, only 83 responded to the survey, for a response rate of 27.2%.

The characteristics of the survey respondents in the two subsets were also different in terms of their organizational structure. Of the 49 respondents in the first subset, 36 indicated their rural health center was part of a multi-site organization (73.5%), compared to 70 of the 83 respondents in the second subset (84.3%). Of the 83 respondents in the second subset, 68 indicated that the rural health clinic currently had an electronic health record (81.9%). The other 15 (18.1%) indicated that they did not have an EHR and so were directed to skip questions regarding the use of the EHR.

When RHCs who were part of an organization with multiple locations or sites were asked if all sites were using the same EHR, the responses between the two subsets of RHCs were similar. Of the first subset, 33 of the 36 organizations indicated they were all using the same EHR (91.7%), while of the second subset, 54 of the 60 organizations (90.0%) indicated they were all using the same EHR.

Table 1 provides information regarding the software venders/applications that were being used by the organizations with an EHR. The numbers in the table reflect the number of respondents, while the numbers in parentheses reflect the percent of respondents using that software. Information is provided for both the subset of respondents who were clients

of the MOHIT AC (subset 1) and for the RHCs who were not clients (subset 2). As can be seen by the data, Cerner was the dominant vendor used by the RHCs in subset 1, while Epic was the dominant vendor used by the RHCs in subset 2.

Table 1: Software Vendors Used by Rural Health Clinics in Missouri

	Subset 1 (n=48)		Subset 2 (n=68)		All Respondents	
Vendor	**#**	**%**	**#**	**%**	**#**	**%**
Allscripts	2	4.2%	9	13.2%	11	9.5%
Aprima	0	0.0%	2	2.9%	2	1.7%
Athenahealth	0	0.0%	2	2.9%	2	1.7%
Cerner	20	41.7%	3	4.4%	23	19.8%
CompuGroup	0	0.0%	0	0.0%	0	0.0%
eClinical Works	1	2.1%	1	1.5%	2	1.7%
EHS (Greenway)	1	2.1%	0	0.0%	1	0.9%
Epic	2	4.2%	37	54.4%	39	33.6%
GE Centricity	2	4.2%	1	1.5%	3	2.6%
Greenway	4	8.3%	0	0.0%	4	3.4%
Integrity (Greenway)	0	0.0%	1	1.5%	1	0.9%
Meditech	2	4.2%	0	0.0%	2	1.7%
NextGen	1	2.1%	2	2.9%	3	2.6%
Practice Partners	4	8.3%	0	0.0%	4	3.4%
Other	9	18.8%	10	14.7%	19	16.4%
EMV	1	2.1%	0	0.0%	1	0.9%
Integrate	1	2.1%	0	0.0%	1	0.9%
Secure	1	2.1%	0	0.0%	1	0.9%
McKesson	1	2.1%	0	0.0%	1	0.9%
Care 360	1	2.1%	0	0.0%	1	0.9%
eMD	1	2.1%	0	0.0%	1	0.9%
Practice Fusion	3	6.3%	1	1.5%	4	3.4%
Health Fusion	0	0.0%	1	1.5%	1	0.9%
GWC*	0	0.0%	3	4.4%	3	2.6%
Pulse	0	0.0%	3	4.4%	3	2.6%
Sevocity	0	0.0%	1	1.5%	1	0.9%
Soapware	0	0.0%	1	1.5%	1	0.9%
Total	48	100.0%	68	100.0%	116	100.0%

* All 3 migrating to Meditech by Summer 2017

As explained in the survey, a Health Information Exchange (HIE) is the mobilization of health care information electronically across organizations. HIE may also refer to the organization that facilitates the exchange of information electronically. When asked if their RHC was using a health information exchange (HIE), 30 of the first subset

respondents indicated yes (61.2%), while 51 of the second subset respondents indicated yes (61.4%). As indicated, the RHCs in the two subsets are very similar in their use of a HIE.

Table 2 provides information on the types of activities for which the RHCs are using a HIE. Respondents were asked to indicate all activities for which a HIE was used, so the total number of uses in Table 2 are larger than the number of respondents. As the data indicate, subset 1 predominantly used the HIE to share patient information with other providers, while subset 2 was more evenly divided in how they used the HIE.

Table 2: Types of Activities RHCs Are Using a Health Information Exchange

	Subset 1 (n=30)		Subset 2 (n=51)		All Respondents	
Activity	**#**	**%**	**#**	**%**	**#**	**%**
Direct Message of Continuity of Care Document (CCD)	3	10.0%	41	80.4%	44	54.3%
Receiving or Sending Information to/from a Hospital ER	4	13.3%	40	78.4%	44	54.3%
Sharing Patient Information with Other Providers	25	83.3%	42	82.4%	67	82.7%
Public Health and Other Reporting	7	23.3%	11	21.6%	18	22.2%
Receiving Laboratory Results	9	30.0%	42	82.4%	51	63.0%
Care Transitions with Other Facilities	7	23.3%	40	78.4%	47	58.0%
Care Alerts with Other Facilities	0	0.0%	5	9.8%	5	6.2%
VA Blue Button	0	0.0%	0	0.0%	0	0.0%
Other	2	6.7%	4	7.8%	6	7.4%
Immunization Registry	1	3.3%	0	0.0%	1	1.2%
Patient/Record Access	1	3.3%	0	0.0%	1	1.2%
Practice Management and Billing	0	0.0%	2	3.9%	2	2.5%
Prescriptions	0	0.0%	2	3.9%	2	2.5%
Total	30		51		81	

When asked which HIE the rural health clinic used, 20 of the 30 respondents in subset 1 (66.7%) indicated they used Missouri Health Connection, 2 of the 30 indicated Tiger Institute (6.7%), 7 (23.3%) indicated they used another HIE, and 1 (3.3%) did not know which HIE the clinic used. The following information exchanges were identified in the "other" category (the number in parentheses reflects the number of rural health clinics indicating they were using the exchange): Practice Partners (1), Primaris (3), KNO2 (1), McKesson Relay (1), and Allscript (1). These other exchanges identified are vendor-based information exchanges, and are not integrated health information exchanges. These vendor-based systems are typically used by health systems to exchange information among their members who are using the same platform.

In subset 2, 32 of the 51 respondents (62.7%) indicated they used Missouri Health Connection, and 1 of the Missouri Health Connection users indicated they also used LACIE (Lewis and Clark Information Exchange) indicated they used LACIE (Lewis and Clark Information Exchange), 8 respondents (15.7%) indicated they used other exchanges (the number in parentheses reflects the number of rural health clinics indicating they were using the exchange): Athena (2), Care Everywhere (1), CPSI (2), Health Fusion (1), Sevocity (1), Integrity (1), and 11 indicated they did not know which HIE their clinic used. Table 3 provides comments made by the RHCs as to why they were not currently using an HIE.

Table 3: Reasons Provided for Not Using a HIE

Subset 1 Reasons	**Subset 2 Reasons**
Can't afford it--clinic is only 3 years old	1- cost, 2- impracticality of training older doctors on the system
Connected with a nursing home	Bigger org in control of that
Connectivity issues, will implement in March	Cost, inability to get senior doctors to switch from paper system they're familiar with to electronic system
Cost and security for a small clinic	Cost, pediatrics uses some electronics
Didn't feel the need, being bought out	Cost. Too small of an organization
Just a small outfit	Currently using an ACO portal, not familiar with HIEs (4)
Just are not	Currently working on implementing
Just don't have it set up (4)	Doesn't know
Larger organization has not implemented it	Don't have capability or need, done by fax
Meaningful use was expensive and hard to coordinate--financial reasons	Following the policy of cox health facility which owns them
No funding	Getting ready to use it next month
No idea	Just an affiliate
Partner not implemented	Looking into it
	No computers because of no funding

Those RHCs not currently using a HIE were asked if they planned to use a HIE in the future. Of the 19 subset 1 RHCs responding to the question, 12 indicated yes (63.2%) and 7 (36.8%) indicated no, they did not plan on using a HIE in the future. Of the 31 subset 2 RHCs responding to the question, 19 indicated yes (61.3%) and 12 (38.7%) indicated no. As these data indicate, the responses regarding plans to use a HIE in the future are very similar between subset 1 and subset 2, with slightly over 1/3 in each subgroup not planning on using an HIE in the future.

For those RHCs indicating that they were planning on using an HIE in the future, they were requested to indicate for what they would like to use it. Their responses are provided in Table 4. Respondents were asked to indicate all activities for which a HIE was used, so the total number of uses in Table 4 are larger than the number of respondents. As the data indicate, there is not a significant difference between planned uses between the two subsets of RHCs. Overall, 80.6% of the respondents indicated they would plan on using the HIE to share patient information with other providers, while 71.0% indicated they would use it for receiving laboratory results. Only 51.6%, however, indicated they would plan on using it for care alerts with other facilities.

Table 4: Types of Activities for which RHCs Plan on Using a HIE

	Subset 1 (n=12)		Subset 2 (n=30)		All Respondents	
Activity	**#**	**%**	**#**	**%**	**#**	**%**
Direct Message of Continuity of Care Document (CCD)	8	66.7%	11	57.9%	19	61.3%
Receiving or Sending Information to/from a Hospital ER	9	75.0%	13	68.4%	22	71.0%
Sharing Patient Information with Other Providers	10	83.3%	15	78.9%	25	80.6%
Public Health and Other Reporting	7	58.3%	10	52.6%	17	54.8%
Receiving Laboratory Results	10	83.3%	12	63.2%	22	71.0%
Care Transitions with Other Facilities	9	75.0%	10	52.6%	19	61.3%
Care Alerts with Other Facilities	6	50.0%	10	52.6%	16	51.6%
Other	1	8.3%	9	47.4%	10	32.3%
Medication records	1	8.3%	1	5.3%	2	6.5%
Patient Communications		0.0%	1	5.3%	1	3.2%
Patient Portals		0.0%	1	5.3%	1	3.2%
Prescriptions		0.0%	4	21.1%	4	12.9%
Just between Local Facilities		0.0%	1	5.3%	1	3.2%
Maintain health records		0.0%	1	5.3%	1	3.2%
Total	12		19		31	

The rural health clinics were then asked which types of health care organization in their community they would like to coordinate care with electronically. Again, they were asked to check all types of health care organizations that apply, and so the total number of responses in Table 5 is much higher than the number of respondents in each subset of RHCs. As the data indicate, respondents in subset 2 appear to have a greater desire to coordinate the care they provide with other types of health care organizations than do respondents in subset 1. In the question asked, nursing homes were divided into intermediate care facilities and skilled nursing facilities. A number of respondents listed nursing homes in the “other” category, not differentiating between the types of nursing home.

Table 5: Type of Health Care Organizations to Coordinate Care

Type of Organization	Subset 1 (n=25)		Subset 2 (n=67)		All Respondents	
	#	%	#	%	#	%
Behavioral Health Hospitals/Clinics/Centers	10	40.0%	43	64.2%	53	57.6%
Behavioral Health Professionals	11	44.0%	42	62.7%	53	57.6%
Community Health Centers	10	40.0%	44	65.7%	54	58.7%
Department of Corrections	7	28.0%	38	56.7%	45	48.9%
Department of Mental Health	9	36.0%	42	62.7%	51	55.4%
Diagnostics Centers	12	48.0%	43	64.2%	55	59.8%
Dialysis Centers	13	52.0%	41	61.2%	54	58.7%
Home Health Care Agencies	15	60.0%	42	62.7%	57	62.0%
Hospice Services	14	56.0%	42	62.7%	56	60.9%
Hospitals	21	84.0%	60	89.6%	81	88.0%
Independent Living Organizations	8	32.0%	40	59.7%	48	52.2%
Intermediate Care Facilities	12	48.0%	41	61.2%	53	57.6%
Laboratories	15	60.0%	45	67.2%	60	65.2%
Medicaid	13	52.0%	44	65.7%	57	62.0%
Other Rural Health Clinics	18	72.0%	47	70.1%	65	70.7%
Pharmacies	15	60.0%	49	73.1%	64	69.6%
Post-Acute Care Facilities	15	60.0%	41	61.2%	56	60.9%
Primary Care Providers	17	68.0%	49	73.1%	66	71.7%
Rehabilitation Hospitals	15	60.0%	41	61.2%	56	60.9%
Rehabilitation Outpatient Facilities	15	60.0%	41	61.2%	56	60.9%
Skilled Nursing Facilities	12	48.0%	41	61.2%	53	57.6%
Specialty Providers	18	72.0%	51	76.1%	69	75.0%
Other:	25	100.0%	38	56.7%	63	68.5%
Health Departments	5	20.0%	0	0.0%	5	5.4%
Medical clinics	1	4.0%	0	0.0%	1	1.1%
Nursing homes	18	72.0%	7	10.4%	25	27.2%
What hospital would allow/decides	1	4.0%	1	1.5%	2	2.2%
Independent physicians	0	0.0%	27	40.3%	27	29.3%
Pain clinics	0	0.0%	1	1.5%	1	1.1%
Insurance companies	0	0.0%	2	3.0%	2	2.2%
None/No need	4	16.0%	9	13.4%	13	14.1%
Total	25		67		92	

The rural health clinics were asked what current challenges they were having with being able to use an EHR in their rural health clinics. Again, they were asked to check all challenges that applied to their RHC, so the total number of responses is higher than the number of respondents. Table 6 provides the responses received from the RHCs.

Table 6: Challenges to Using an EHR

Current Challenges	Subset 1 (n=42) #	Subset 1 (n=42) %	Subset 2 (n=83) #	Subset 2 (n=83) %	All Respondents #	All Respondents %
Concerns about privacy issues	24	57.1%	15	18.1%	39	31.2%
Concerns about security issues	26	61.9%	16	19.3%	42	33.6%
Current workflow and processes	26	61.9%	18	21.7%	44	35.2%
Funding for hardware	28	66.7%	11	13.3%	39	31.2%
Funding for software	30	71.4%	11	13.3%	41	32.8%
Funding for continued maintenance cost of system	33	78.6%	13	15.7%	46	36.8%
Funding for implementation services	31	73.8%	10	12.0%	41	32.8%
Inadequate knowledge/training about selection of software	25	59.5%	9	10.8%	34	27.2%
Internal staffing challenges	23	54.8%	34	41.0%	57	45.6%
Internal staff attitude with effective use	23	54.8%	41	49.4%	64	51.2%
Lack of continued training on the system	30	71.4%	34	41.0%	64	51.2%
Lack of technical support	25	59.5%	9	10.8%	34	27.2%
Leadership does not see value, return on investment	2	4.8%	6	7.2%	8	6.4%
Loss of productivity during initial use	24	57.1%	47	56.6%	71	56.8%
Other	30	71.4%	25	30.1%	55	44.0%
Cloud-based connectivity not available at high enough speed	1	2.4%	0	0.0%	1	0.8%
Coordinating with other organizations	1	2.4%	6	7.2%	7	5.6%
Everything financially related	1	2.4%	0	0.0%	1	0.8%
Connecting interfaces/integrating with other systems	2	4.8%	1	1.2%	3	2.4%
Internet connections/speed/outages	2	4.8%	7	8.4%	9	7.2%
Meaningful use	3	7.1%	0	0.0%	3	2.4%
Older generation has more trouble using system than younger generation	18	42.9%	1	1.2%	19	15.2%
Patient being impatient during initial use	1	2.4%	0	0.0%	1	0.8%
Still using paper charts/Owner likes paper	1	2.4%	1	1.2%	2	1.6%
Not applicable for grant	0	0.0%	1	1.2%	1	0.8%
Manpower and money	0	0.0%	4	4.8%	4	3.2%
Lack of updates from software company	0	0.0%	1	1.2%	1	0.8%
Implementation	0	0.0%	1	1.2%	1	0.8%
Ease of system to find old records	0	0.0%	1	1.2%	1	0.8%
Computer system glitches	0	0.0%	1	1.2%	1	0.8%
Total	42		83		125	

For the rural health clinics with electronic health records, they were asked about the current challenges they face with meeting the Federal Meaningful Use criteria. The definition of meaning use is[9] "using certified electronic health record (EHR) technology to:

- Improve quality, safety, efficiency, and reduce health disparities
- Engage patients and family
- Improve care coordination, and population and public health
- Maintain privacy and security of patient health information.

Ultimately, it is hoped that the meaningful use compliance will result in:

- Better clinical outcomes
- Improved population health outcomes
- Increased transparency and efficiency
- Empowered individuals
- More robust research data on health systems."

Meaningful use sets a number of specific objectives that eligible professionals and hospital must accomplish in order to qualify for the incentive programs that have been established by the Centers for Medicare and Medicaid Services (CMS). Table 7 provides information on the challenges that the rural health clinics reported they are facing in terms of meeting the meaningful use criteria. In subset 1, 29 reported they were not having any challenges and in subset 2, 30 reported not having any challenges.

Table 7: Challenges Meeting Meaning Use Criteria

	Subset 1 (n=12)		Subset 2 (n=53)		All Respondents	
Meaningful Use Challenges	**#**	**%**	**#**	**%**	**#**	**%**
Staff resources	6	50.0%	6	11.3%	12	18.5%
Technical issues with identifying measures	7	58.3%	3	5.7%	10	15.4%
Technical issues with pulling data for measures	6	50.0%	7	13.2%	13	20.0%
Access to broadband	1	8.3%	4	7.5%	5	7.7%
HIE Connections	5	41.7%	4	7.5%	9	13.8%
Security assurance	5	41.7%	4	7.5%	9	13.8%
Financial constraints	4	33.3%	2	3.8%	6	9.2%
Other	11	91.7%	43	81.1%	43	66.2%
Requirement to be contacted by patients electronically	1	8.3%	4	7.5%	5	7.7%
Population with access to connectivity	1	8.3%	0	0.0%	1	1.5%

Meaningful Use Challenges	Subset 1 (n=12)		Subset 2 (n=53)		All Respondents	
	#	%	#	%	#	%
Aging trustful population of patients not willing to use electronic system	3	25.0%	0	0.0%	3	4.6%
Provider participation with doctors not willing to convert to new system	3	25.0%	0	0.0%	3	4.6%
Compliance	1	8.3%	1	1.9%	2	3.1%
Monthly fees	1	8.3%	0	0.0%	1	1.5%
Multiple physician practices with 10 EMRs, difficult to coordinate	1	8.3%	0	0.0%	1	1.5%
Interfacing with different software	0	0.0%	2	3.8%	2	3.1%
Getting patients to use	0	0.0%	27	50.9%	27	41.5%
On 2nd new system, so hard to keep up	0	0.0%	2	3.8%	2	3.1%
Patient care suffers because forms used need to be strictly filled out	0	0.0%	1	1.9%	1	1.5%
Use of EHRs	0	0.0%	6	11.3%	6	9.2%
Total	12		53		65	

Finally, Medicare has announced its intention to allow RHCs to begin billing for Chronic Care Management (CCM) effective January 1, 2016. CCM (CPT code 99490) is intended to reimburse rural health clinics for the work the clinic may already be providing to Medicare patients outside of a face-to-face encounter, such as outreach, telephone conversations, medication reconciliation, and coordination among caregivers. The rural health clinics were asked if they were aware of the new reimbursement code. Table 8 provides the responses received from the respondents to the survey. As these data indicate, slightly over half of all respondents either did not know about the new reimbursement opportunity or that it was not their area of expertise.

Table 8: Respondents Awareness of Ability to Bill for Chronic Care Management

New Reimbursement Code Awareness	Subset 1 (n=49)		Subset 2 (n=83)		All Respondents	
	#	%	#	%	#	%
Yes, we are already looking at how to bill for this service	8	16.3%	8	9.6%	16	12.1%
Yes, but we have not made any plans yet to begin billing for this service	4	8.2%	13	15.7%	17	12.9%
Yes, but we are not interested	1	2.0%	3	3.6%	4	3.0%
No, but we should investigate this further	6	12.2%	9	10.8%	15	11.4%
No, and this is not a good fit for our clinic	0	0.0%	7	8.4%	7	5.3%
I do not know/this is not my area of expertise	29	59.2%	39	47.0%	68	51.5%

New Reimbursement Code Awareness	Subset 1 (n=49)		Subset 2 (n=83)		All Respondents	
	#	%	#	%	#	%
Other	1	2.0%	4	4.8%	5	3.8%
Need to first get EHR	1	2.0%	0	0.0%	1	0.8%
Aware, but policies made by BJC	0	0.0%	1	1.2%	1	0.8%
Don't have capability without an HIE	0	0.0%	2	2.4%	2	1.5%
Worried about increased denials	0	0.0%	1	1.2%	1	0.8%
Total	49		83		132	

SUMMARY

This study was conducted to identify the current use of electronic health records (EHRs) among Missouri Rural Health Clinics. The goal was to gain a better understanding of what further assistance is needed for rural health clinics in Missouri to use EHRs effectively for improved quality and care coordination. A survey was conducted between January 15 and March 1, 2016 with the 382 rural health clinics in Missouri. The clinics were divided into two subsets. The first set included the 77 rural health clinics who were clients of the Missouri Health Information Technology Assistance Center and, therefore, the presence of an electronic health record (EHR) in their clinic was known. As a result, Question 2 asking if they had an EHR was dropped from their survey, but all remaining questions were identical in the two groups. The second set included the other 305 rural health clinics in which knowledge about the presence of an EHR was not known.

The overall response rate to the survey was 34.6%, with 132 of the 382 RHCs responding to the survey. The response rates between the two subsets of RHCs, however, were significantly different. Of the 77 RHCs who were clients of the MOHIT AC, 49 responded to the survey, for a response rate of 63.6%. Of the 305 RHCs for whom the adoption of an EHR was not known, only 83 responded to the survey, for a response rate of 27.2%.

The characteristics of the survey respondents in the two subsets were also different in terms of their organizational structure. Of the 49 respondents in the first subset, 36 indicated their rural health center was part of a multi-site organization (73.5%), compared to 70 of the 83 respondents in the second subset (84.3%). Of the 83 respondents in the second subset, 68 indicated that the rural health clinic currently had an electronic health record (81.9%). The other 15 (18.1%) indicated that they did not have an EHR and so were directed to skip questions regarding the use of the EHR.

APPENDIX A: SURVEYS

Missouri Health Information Technology (MO HIT) Assistance Center

http://www.EHRhelp.missouri.edu
Your Answer to All Things EHR

CE707 CS&E Bldg
One Hospital Drive,
DC006.00
Columbia, MO 65212

Phone: 573-882-8418
Fax: 573-882-6158
E-mail:
HicksL@health.missouri.edu

WAIVER OF DOCUMENTATION OF CONSENT

Investigator's Name: Lanis L. Hicks, PhD
Study Title: EHR Utilization by Behavior Health Organizations and Local Public Health Departments and Rural Health Clinics and Long-Term Care and Post-Acute Care
Project #: 208066

Dear Missouri Rural Health Clinics:

1. We would like to ask you to participate in a study that involves research.
2. Participation in the study is voluntary, and your decision not to participate will not involve any penalty or adverse outcome.
3. You can stop participating at any time. Your decision to withdraw from the study will not affect your clinic in any way.
4. The purpose of this benchmarking study is to identify the current use of health information technology (Health IT) among Missouri Rural Health Clinics. The goal is to gain a better understanding of what assistance is needed for rural health clinics to use Health IT effectively for care coordination.
5. All rural health clinics in Missouri are being asked to complete a short telephone survey about health information technology in the clinics.
6. The study is being conducted by the Missouri Health Information Technology Assistance Center. The Missouri HIT Assistance Center is part of the University of Missouri's Department of Health Management and Informatics and serves as the Office of National Coordinator's state designated Regional Extension Center (REC) for health information technology to assist health care providers with the selection, implementation, and use of electronic health record (EHR) technology.
7. The survey is short by design, so we can gather as much feedback as possible. It should take you less than 5 minutes to participate.
8. There are no costs associated with your participation in the study, other than the time involved by the participant.
9. If you agree to participate in the study, you may gain insight into the extent of health information technology available among Missouri Rural Health Clinics. If you choose to participate, all results will be reported in an aggregate manner only.
10. An alternative is not to participate in this study.
11. If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Health Sciences Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-3181.
12. If you have any questions or problems regarding the survey, you may contact the principal investigator, Dr. Lanis Hicks, PhD, at (573) 882-8418 or at HicksL@health.missouri.edu.

Cerner and the University of Missouri Health System have an independent strategic alliance to provide unique support for the Tiger Institute for Health Innovation, a collaborative venture to promote innovative health care solutions to drive down cost and dramatically increase quality of care for the state of Missouri. The Missouri Health Information Technology Assistance Center at the University of Missouri, however, is vendor neutral in its support of the adoption and implementation of EMRs by health care providers in Missouri as they move toward meaningful use.

Missouri Health Information Technology (MO HIT) Assistance Center

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December 1, 2015

Investigator's Name: Lanis L. Hicks, Ph.D.
Study Title: EHR Utilization by Behavior Health Organizations and Local Public Health Departments and Rural Health Clinics and Long-Term Care and Post-Acute Care
Project #: 208066

Dear Missouri Rural Health Clinic:

We would like to ask you to participate in a study that involves research. Participation in the study is voluntary, and your decision not to participate will not involve any penalty or adverse outcome. You can stop participating at any time. Your decision to withdraw from the study will not affect your clinic in any way. An alternative is not to participate in this study.

The purpose of this benchmarking study is to identify the current use of health information technology (Health IT) among Missouri Rural Health Clinics. The goal is to gain a better understanding of what assistance is needed for Rural Health Clinics to use Health IT effectively for care coordination. The study is being conducted by the Missouri Health Information Technology Assistance Center, which is part of the University of Missouri's Department of Health Management and Informatics, and serves as the designated Regional Extension Center (REC) for health information technology to assist health care providers with the selection and implementation of electronic health record (EHR) technology.

During the study, you will be asked to participate in a telephone survey. The survey is short by design, so we can gather as much feedback as possible. It should take you only about five minutes to participate. There are no costs associated with your participation in the study, other than the time involved by the participant.

If you agree to participate in the study, you may gain insight into the extent of health information technology available among Missouri Rural Health Clinics. If you choose to participate, your clinic will be part of the results that will be reported in an aggregate manner only.

If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Health Sciences Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-3181.

If you have any questions or problems regarding the survey, please contact the principal investigator Lanis Hicks, PhD, at (573) 882-8418 or at HicksL@health.missouri.edu.
Thank you for your participation in this important benchmarking study.

Sincerely,

Lanis L. Hicks, Ph.D.
PI and Project Director
Missouri HIT Assistance Center

Cerner and the University of Missouri Health System have an independent strategic alliance to provide unique support for the Tiger Institute for Health Innovation, a collaborative venture to promote innovative health care solutions to drive down cost and dramatically increase quality of care for the state of Missouri. The Missouri Health Information Technology Assistance Center at the University of Missouri, however, is vendor neutral in its support of the adoption and implementation of EMRs by health care providers in Missouri as they move toward meaningful use.

Dear Missouri Rural Health Clinic:

Thank you for participating in the Missouri Health Information Technology Assistance Center technology landscape benchmarking study. The Missouri Health Information Technology Assistance Center is part of the University of Missouri's Department of Health Management and Informatics, and serves as the Office of the National Coordinator's state designated Regional Extension Center (REC) for Health Information Technology.

This study is being conducted to identify the current use of electronic health records (EHRs) among Missouri Rural Health Clinics. The goal is to gain a better understanding of what further assistance is needed for rural health clinics in Missouri to use EHRs effectively for improved quality and care coordination.

The survey is short by design, so we can gather as much feedback as possible. It should take you less than 10 minutes to participate.

Your insights are very much appreciated. The information provided will assist the Assistance Center continue to provide the services needed to advance further the adoption and effective use of EHRs in Missouri.

2015 Missouri Health Technology Benchmarking Study

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

1. Is your rural health center part of a multi-site organization?
   ___Yes
   ___No

2. Does your rural health center currently have an EHR?
   ___Yes
   ___No (please go to question 5)

3. If you are part of an organization with multiple locations or sites, are they all using the same EHR?
   ___Yes
   ___No
   ___Don't know

4. What software application(s)/vendor(s) are you currently using for your EHR? Include all used.
   ___Allscripts
   ___Aprima
   ___Athenahealth
   ___Cerner
   ___CompuGroup

___eClinical Works
___EHS (now part of Greenway)
___Epic
___GE Centricity
___Greenway
___Integrity (no part of Greenway)
___Meditech
___NextGen
___Practice Partners
___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.

5. Are you currently using a health information exchange (HIE)?
___Yes
___No (please go to question 8)

6. ___If yes, for what are you using it? Check all that apply.
___Direct Message of Continuity of Care Document (**CCD**)
___Receiving or Sending Information to/from a Hospital Emergency Room
___Sharing Patient Information with Other Providers
___Public Health & Other Reporting
___Receiving Lab Results
___Care Transitions with Other Facilities
___Care Alerts with Other Facilities
___VA Blue Button
___Other _____

7. ___If yes, which HIE do you use?
___Missouri Health Connection
___LACIE (Lewis and Clark Information Exchange)
___Tiger Institute
___Other _____

8. If your rural health center does not currently use an HIE, why?
_____
_____
_____
_____

9. If your agency doesn't currently use an HIE, do you plan to use a health information exchange in the future?
___Yes
___No (please go to question 11)

10. If yes, for what would you like to use it? Check all that apply.
___Direct Message of Continuity of Care Document (**CCD**)
___Receiving or Sending Information to/from a Hospital Emergency Room
___Sharing Patient Information with Other Providers

___Public Health & Other Reporting
___Receiving Lab Results
___Care Transitions with Other Facilities
___Care Alerts with Other Facilities
___Other _____

11. With which type of health care organizations in your community would you like to coordinate care electronically? Check all that apply.
___Behavioral Health Hospitals/Clinics/Centers, including substance abuse
___Behavioral Health Professionals
___Community Health Centers
___Department of Corrections
___Department of Mental Health
___Diagnostics Centers
___Dialysis Centers
___Home Health Care Agencies
___Hospice Services
___Hospitals
___Independent Living Organizations
___Intermediate Care Facilities
___Laboratories
___Medicaid
___Other Rural Health Clinics
___Pharmacies
___Post-Acute Care Facilities
___Primary Care Providers
___Rehabilitation Hospitals
___Rehabilitation Outpatient Facilities
___Skilled Nursing Facilities
___Specialty Providers
___Other _____

12. What are your current challenges to the use of an EHR in your rural health center? 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, return on investment
___Loss of productivity during initial use
___Other _____
_____

13. What are your current challenges with meeting Meaningful Use criteria?
___Staff resources
___Technical issues with identifying measures
___Technical issues with pulling data for measures
___Access to broadband
___HIE connections
___Security assurance
___Financial constraints
___Other _____
_____
_____
_____

Medicare has announced its intention to allow RHCs to begin billing for Chronic Care Management (CCM) effective January 1, 2016. CCM (CPT code 99490) is intended to reimburse RHCs for the work the clinic may already be providing to Medicare patients outside of a face-to-face encounter, such as outreach, telephone conversations, medication reconciliation, and coordination among caregivers.

14. Are you aware of this new reimbursement code?
___Yes, we are already looking at how to bill for this service
___Yes, but we have not made any plans yet to begin billing for this service
___Yes, but we are not interested
___No, but we should investigate this further
___No, and this is not a good fit for our clinic
___I do not know/this is not my area of expertise
___Other _____

Thank you for your participation in this important survey!

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