Ambulatory and Enterprise EMR Interoperability 2023

Are Deep Adopters Close to the Ideal?

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Executive Insights

Ambulatory and Enterprise EMR Interoperability 2023

Are Deep Adopters Close to the Ideal?

Interoperability is a continued area of critical focus for the healthcare industry. There is no question that progress is being made, but there is still significant room for improvement. For this report, KLAS talked to vendor-identified deep adopters to take a holistic look at the current state of interoperability in ambulatory and enterprise EMRs and measure how close we are to an ideal state. The results reveal each vendor's strengths and weaknesses within various areas of interoperability.

The question set used for this report was developed by healthcare leaders at the KLAS 2022 Interoperability Summit as a means for assessing EMR vendors' progress toward enabling interoperability (read the summit white paper here). The findings showcase what is possible today in real care settings but may not reflect customer bases as a whole.

Framework for Interoperability Vendor Measurement

Connectivity
for Health Information Sharing

Is the vendor efficiently supporting connections that allow data liquidity among third-party applications and EMRs?

Utility
for Healthcare Stakeholders/Partners

Is the vendor displaying shared data in a way that empowers healthcare organizations to effectively use it?

Interoperability-Enabled
Use Cases

Is the vendor's interoperability support positively impacting important use cases for the care settings?

Interoperability-Enabled
Outcomes

Is the vendor's interoperability support helping healthcare organizations be more efficient and effective?

Breadth of
Adoption

Is the vendor able to provide 30+ advanced interoperability customers, indicating that the vendor's technology is real and available to all customers?

Market Overview: Moving Forward Will Require Cooperation between All Stakeholders

In most cases with interoperability, health systems and clinics report significant progress over what they previously had, especially in terms of the ability to connect to data exchanges and receive data. Today, connections can be made more easily, data can flow more readily, and PAMI data has been better codified and is more useful. Even so, to reach an ideal state of interoperability, both vendors and provider organizations have a lot of room to improve and can make exchanged data consistently useful. End users at provider organizations are often slow to adopt what is available, and vendors reportedly still work in silos that don't always allow for broad, consistent data exchange. The provider organizations seeing the most success have to invest additional time and resources into making things work. At this point with interoperability, moving past the current interoperability challenges will require collaboration between EMR vendors and wider spread adoption from provider organizations.

Overview of Vendor Interoperability
Vendors ordered by overall grade

Ambulatory care EMR vendors

	Overall grade	Connectivity	Utility	Use cases	Outcomes	Breadth of adoption
NextGen Healthcare (n=12)	B	B	B	A-	B+	✓
athenahealth (n=13)	B-	B	B-	B-	B	✓
Greenway Health (n=10)	F	F	D-	F	F	✓
*Limited data						
eClinicalWorks (n=6)	D*	C-*	C-*	F*	D+*	†

† eClinicalWorks didn't provide a list of deep adopters for this report.

Enterprise EMR vendors

	Overall grade	Connectivity	Utility	Use cases	Outcomes	Breadth of adoption
Epic (n=23)	B-	A	C+	C+	B	✓
Oracle Health (Cerner) (n=16)	C+	B+	C-	C-	B	✓
MEDITECH (n=14)	C-	B	C-	D	C	✓
*Limited data						
Altera Digital Health (Allscripts) (n=6)	D*	C+*	D-*	F*	D*	‡

‡ Altera Digital Health provided a list of only 9 deep adopters.

A note about the grades: For each question in the survey, respondents were asked to rate their agreement or satisfaction on a Likert scale, with each option on the Likert scale receiving a point value. The grades are based on the percentage of possible points earned.

A 92%+	B+ 84.0%–87.9%	C+ 72.0%–75.9%	D+ 60.0%–63.9%	F <52%
A- 88.0%–91.9%	B 80.0%–83.9%	C 68.0%–71.9%	D 56.0%–59.9%	
	B- 76.0%–79.9%	C- 64.0%–67.9%	D- 52.0%–55.9%	

A note about breadth of adoption: Vendors that meet both of the following two criteria receive a check mark in this area: (1) the vendor had to provide a list of at least 30 unique customer organizations identified by the vendor as deep adopters, and (2) KLAS had to be able to conduct interviews with at least 10 of these organizations. Altera Digital Health and eClinicalWorks did not meet the criteria and are therefore designated as limited data.

Note: In this report, the term "enterprise" refers to vendors that offer EMR solutions for both ambulatory and acute care environments.

Connectivity: Epic and Oracle Health (Cerner) Customers Lead in FHIR API Adoption to Support Third-Party Connectivity

Most EMR vendors have made significant progress in connecting to national patient record exchanges and HIEs. Among respondents, the advanced **Epic** users report the most connections. Many of these connections are more nuanced, such as connections with national payers. Epic also outpaces other EMR vendors with connections to in-home patient monitoring technology, partly due to their work with APIs. **Oracle Health (Cerner)** customers report they are leveraging FHIR APIs and also discuss the progress they have made in connecting to national patient record exchanges. **athenahealth** and **MEDITECH** customers are also starting to mention leveraging FHIR APIs more often. **Altera Digital Health (Allscripts)**, **eClinicalWorks**, and **Greenway Health** customers report less proactivity from their vendors in getting customers connected to national patient record exchanges.

Legend:
- Strength (B and above)
- Average (C- to B-)
- Weakness (D+ and below)

Connectivity
Vendors ordered by connectivity grade

Ambulatory care EMR vendors

Vendor	Connectivity grade	n	Appropriate cost	FHIR APIs	HIEs	In-home patient monitoring	National patient record exchange	Patient record access	Payers	Public health systems	Regulatory compliance	Timely support
athenahealth	B	n=13	Strength	Average	Strength	Weakness	Strength	Strength	Average	Strength	Strength	Strength
NextGen Healthcare	B	n=12	Strength	Weakness	Strength	Strength	Strength	Strength	Average	Strength	Strength	Strength
Greenway Health	F	n=10	Average	Weakness	Weakness	Weakness	Weakness	Average	Average	Weakness	Weakness	Average
*Limited data												
eClinicalWorks	C-*	n=6	Weakness	Weakness	Weakness	Average	Average	Weakness	Strength	Average	Strength	Weakness

Enterprise EMR vendors

Vendor	Connectivity grade	n	Appropriate cost	FHIR APIs	HIEs	In-home patient monitoring	National patient record exchange	Patient record access	Payers	Public health systems	Regulatory compliance	Timely support
Epic	A	n=23	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength	Strength
Oracle Health (Cerner)	B+	n=16	Strength	Strength	Strength	Weakness	Strength	Strength	Weakness	Strength	Strength	Strength
MEDITECH	B	n=14	Strength	Average	Strength	Weakness	Strength	Strength	Average	Strength	Strength	Strength
*Limited data												
Altera Digital Health (Allscripts)	C+*	n=6	Average	Weakness	Strength	Weakness	Average	Strength	Weakness	Strength	Average	Average

Note: To see the full details from the responses of advanced customers of each vendor, see the vendor scorecards in the back end.

Utility: Duplicate Data a Major Issue; NextGen Healthcare Has Made Notable Progress

Overall, vendors have progressed with making regulated data (e.g., PAMI and lab data) available in the clinician workflow, but utility remains one of the lower-scoring pillars overall. Unlike standards for PAMI data, standards for other data are interpreted by vendors individually, which allows them to meet requirements but limits the usability of the exchanged data. The individual interpretation at the vendor and provider level leads to manual efforts to find needed patient information and relevant progress notes in C-CDAs. Even with these challenges, NextGen Healthcare and athenahealth are leading out among ambulatory EMR vendors at enabling data to be accessed at the point of care. **NextGen Healthcare** customers consistently report functionality that removes duplicate information from incoming data before it is integrated into the clinician workflow. Some **athenahealth** customers note functionality that easily brings key external data (i.e., PAMI and lab data) into their workflow. The interoperability needs in an enterprise setting tend to be more complex, so customers of enterprise vendors are often more critical of their EMR's ability to readily present relevant information versus making them search for what they need.

Legend: ● Strength (B and above) ● Average (C- to B-) ○ Weakness (D+ and below)

Utility
Vendors ordered by utility grade

Ambulatory care EMR vendors	Utility grade		Direct message receipt confirmation	External labs	PAMI data	Presents relevant data	Progress notes	Reduction of duplicate data
NextGen Healthcare	B	(n=12)	Average	Strength	Strength	Strength	Average	Strength
athenahealth	B-	(n=13)	Average	Strength	Strength	Average	Average	Weakness
Greenway Health	D-	(n=10)	Weakness	Average	Weakness	Weakness	Weakness	Average
*Limited data								
eClinicalWorks	C-*	(n=6)	Weakness	Average	Average	Weakness	Average	Average

Enterprise EMR vendors	Utility grade		Direct message receipt confirmation	External labs	PAMI data	Presents relevant data	Progress notes	Reduction of duplicate data
Epic	C+	(n=23)	Strength	Strength	Strength	Weakness	Average	Weakness
Oracle Health (Cerner)	C-	(n=16)	Average	Average	Strength	Weakness	Weakness	Weakness
MEDITECH	C-	(n=14)	Strength	Weakness	Strength	Weakness	Weakness	Weakness
*Limited data								
Altera Digital Health (Allscripts)	D-*	(n=6)	Weakness	Average	Weakness	Strength	Weakness	Weakness

Note: To see the full details from the responses of advanced customers of each vendor, see the vendor scorecards in the back end.

Use Cases: NextGen Healthcare Leading in Making External Data Actionable; Altera Digital Health (Allscripts), eClinicalWorks, and Greenway Health Falling Behind

Vendors have made the most traction in getting clinical data to clinicians; use of external data for transitions of care and analytics is still quite rare. While deep adopters of **MEDITECH**, **Altera Digital Health (Allscripts)**, **eClinicalWorks**, and **Greenway Health** are getting data, many have struggled to make the data more usable and accessible for different types of end users. Because of this, they have fewer customers reporting that they use external data to make care decisions. **NextGen Healthcare** and **athenahealth** have made more progress with CCDs and Direct messaging and provided their customers with better access to the specific types of data needed at the point of care. NextGen Healthcare is the only vendor to show strengths in all four measured areas, as seen in the chart below. For several NextGen Healthcare customers, better access has led to more usable data during transitions of care and to quality improvement tools. NextGen Healthcare and athenahealth respondents consistently have clinicians leveraging external data thanks to the tools physicians can access and the referral tools for care coordinators. **Epic** and **Oracle Health (Cerner)** customers have noted some improvements; however, the volume of Direct messaging and CCDs in enterprise EMRs is much larger, so they need more workflow efficiency tools than ambulatory EMRs. At least half of Epic and Oracle Health respondents are not consistently leveraging external data; customers are primarily focused on the clinical use cases rather than operational use cases.

Use Cases
Vendors ordered by use cases grade

Legend: ● Strength (B and above)   ● Average (C- to B-)   ○ Weakness (D+ and below)

Ambulatory care EMR vendors	Use cases grade	Access during transitions of care	Care coordinator access	Clinician access at point of care	Quality improvement analytics
NextGen Healthcare	A- (n=12)	●	●	●	●
athenahealth	B- (n=13)	●	●	●	●
Greenway Health	F (n=10)	○	○	○	○
*Limited data					
eClinicalWorks	F* (n=6)	○	○	○	○

Enterprise EMR vendors	Use cases grade	Access during transitions of care	Care coordinator access	Clinician access at point of care	Quality improvement analytics
Epic	C+ (n=23)	●	●	●	●
Oracle Health (Cerner)	C- (n=16)	○	●	●	●
MEDITECH	D (n=14)	○	●	○	○
*Limited data					
Altera Digital Health (Allscripts)	F* (n=6)	○	○	○	○

Note: To see the full details from the responses of advanced customers of each vendor, see the vendor scorecards in the back end.

Outcomes: Organizations Starting to See Real Outcomes as Interoperability Advances

The majority of outcomes being achieved today is related to data access for patient care decisions, but some customer bases report better access than others. Fewer than 25% of **Greenway Health** customers mention having access to external data that could impact their care decisions. On the other hand, at least 40% of **NextGen Healthcare**, **athenahealth**, **Epic**, and **Oracle Health (Cerner)** customers are able to reduce duplicate testing because of better integration of discrete external data at the point of care. This is notable, as reducing unnecessary medical costs is the only hard ROI measured and is a much-looked-for outcome of interoperability efforts. Epic, Oracle Health, and MEDITECH customers also point to the outcome of increasing patient access to the EMR through various apps thanks to multiple connections being built over the last few years. A focus on standardization has allowed the customers of NextGen Healthcare, athenahealth, Epic, and MEDITECH to improve their transitions of care. For NextGen Healthcare and Epic customers, this has translated into improved relationships with exchange partners.

Legend:
- Strength (B and above)
- Average (C- to B-)
- Weakness (D+ and below)

Outcomes
Vendors ordered by outcomes grade

Ambulatory care EMR vendors

Vendor	Outcomes grade	Closed care gaps	Improved exchange partner relationships	Improved operational efficiency	Patient access to EMR on app of choice	Reduction of duplicative tests	Reduction of IT burden	Transitions-of-care safety	Use of external data in care decisions
NextGen Healthcare	B+ (n=12)	Strength	Strength	Strength	Weakness	Strength	Strength	Strength	Strength
athenahealth	B (n=13)	Strength	Average	Strength	Average	Average	Strength	Strength	Strength
Greenway Health	F (n=10)	Weakness	Weakness	Weakness	Weakness	Weakness	Weakness	Weakness	Weakness

*Limited data

Vendor	Outcomes grade	Closed care gaps	Improved exchange partner relationships	Improved operational efficiency	Patient access to EMR on app of choice	Reduction of duplicative tests	Reduction of IT burden	Transitions-of-care safety	Use of external data in care decisions
eClinicalWorks	D+* (n=6)	Strength	Weakness	Average	Weakness	Weakness	Weakness	Average	Strength

Enterprise EMR vendors

Vendor	Outcomes grade	Closed care gaps	Improved exchange partner relationships	Improved operational efficiency	Patient access to EMR on app of choice	Reduction of duplicative tests	Reduction of IT burden	Transitions-of-care safety	Use of external data in care decisions
Epic	B (n=23)	Average	Strength	Strength	Strength	Average	Strength	Strength	Strength
Oracle Health (Cerner)	B (n=16)	Strength	Average	Strength	Strength	Average	Strength	Average	Strength
MEDITECH	C (n=14)	Average	Average	Weakness	Strength	Weakness	Average	Strength	Average

*Limited data

Vendor	Outcomes grade	Closed care gaps	Improved exchange partner relationships	Improved operational efficiency	Patient access to EMR on app of choice	Reduction of duplicative tests	Reduction of IT burden	Transitions-of-care safety	Use of external data in care decisions
Altera Digital Health (Allscripts)	D* (n=6)	Weakness	Weakness	Weakness	Weakness	Average	Average	Weakness	Average

Note: To see the full details from the responses of advanced customers of each vendor, see the vendor scorecards in the back end.

Interoperability Advancements in the Last 12 Months

Ideally, EMRs would be able to send and ingest data discretely and automatically. This is not yet the reality, and progress toward this goal varies from vendor to vendor. The table below shows customer perceptions of what improvements have occurred recently.
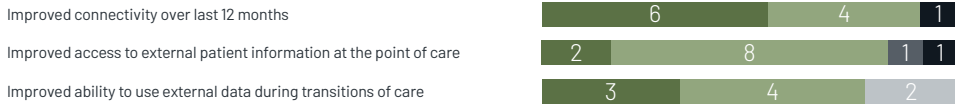
Customer Perceptions of Vendor Improvements
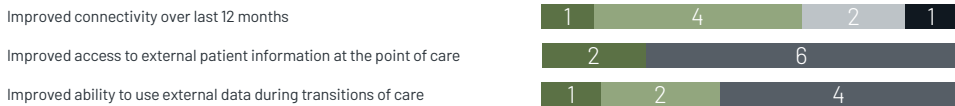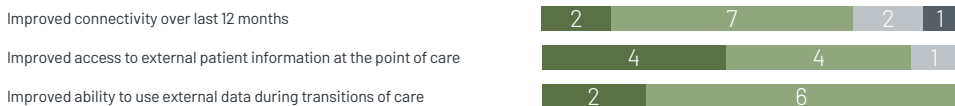Vendors ordered alphabetically

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree

Ambulatory care EMR vendors

athenahealth
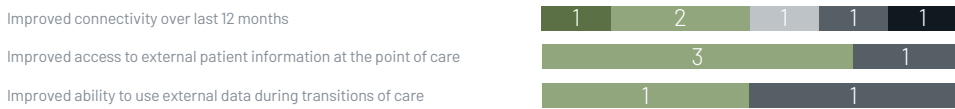
Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months	6	4			1
Improved access to external patient information at the point of care	2	8		1	1
Improved ability to use external data during transitions of care	3	4	2		
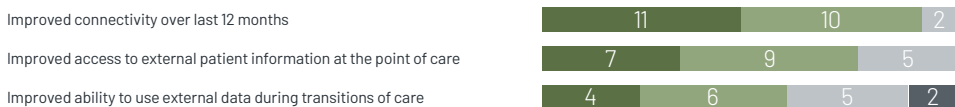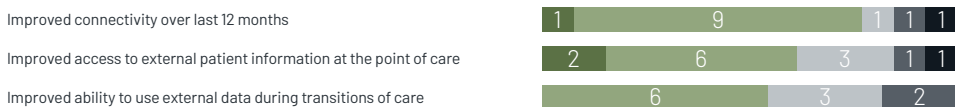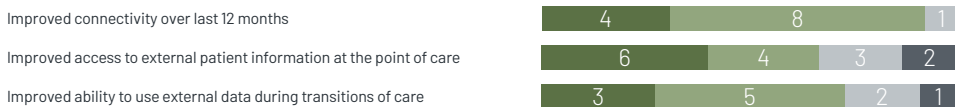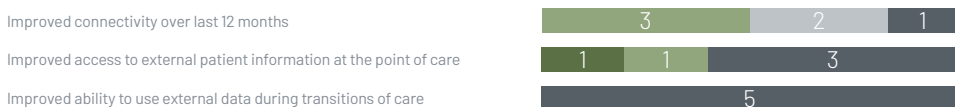
Bottom line

Customers report that athenahealth has made significant efforts to provide a single module where data can be reconciled and then ingested by clinicians at the point of care. athenahealth also offers easy ways to mark records to be sent and ingested during care transitions. Usability for operational users and clinicians is an area where the vendor needs to grow.

Greenway Health

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months	1	4	2		1
Improved access to external patient information at the point of care		2		6	
Improved ability to use external data during transitions of care	1	2		4	

Greenway Health has reportedly been more responsive in building customer-requested interfaces. Greenway Health users aren't typically connecting to national patient record exchanges, as they face heavy manual intervention to ingest data.

NextGen Healthcare

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months	2	7	2	1	
Improved access to external patient information at the point of care	4	4	1		
Improved ability to use external data during transitions of care	2	6			

Customers feel that NextGen Healthcare consistently works to connect organizations, to facilitate broad interfacing capabilities, and to allow for more data ingestion to close care gaps. Customers feel there is more room to grow in regard to automatic processes to connect to public health exchanges, HIEs, and third parties with FHIR APIs.

Limited data ....

eClinicalWorks

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months	1	2	1	1	1
Improved access to external patient information at the point of care		3		1	
Improved ability to use external data during transitions of care		1		1	

eClinicalWorks has national connections but requires manual effort and an additional cost for customers to utilize those connections. As a result, enhanced accessibility of external data for clinicians has been limited. Customers report the vendor is starting to build more FHIR APIs. eClinicalWorks did not submit a list of advanced customers for this report.

Enterprise EMR vendors

Epic

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months	11	10	2		
Improved access to external patient information at the point of care	7	9	5		
Improved ability to use external data during transitions of care	4	6	5	2	

Epic provides broad resources to enable customers to ingest clinical data from many data exchanges and from other vendors' systems. Customers note that Happy Together is a successful tool for streamlining data ingestion and improving accessibility to relevant data. Epic customers appreciate new transitions of care functionality, but many customers have yet to benefit from it.

MEDITECH

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months	1	9	1	1	1
Improved access to external patient information at the point of care	2	6	3	1	1
Improved ability to use external data during transitions of care		6	3	2	

MEDITECH has connected to national patient record exchanges, but many customers have not yet opted to utilize those connections. They note the vendor's significant efforts to better facilitate interfaces and create open APIs for external data integration. Many customers need vendor guidance to benefit from these developments. Customers also want better ingestion tools that would make data more useful to different end users once it is received.

Oracle Health (Cerner)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months	4	8	1		
Improved access to external patient information at the point of care	6	4	3	2	
Improved ability to use external data during transitions of care	3	5	2	1	

Customers note enhancements from the vendor over the last two years to improve connectivity to CommonWell and provide proactive notifications to clinicians when external data is available. Customers are excited about Seamless Exchange and its ability to ingest external data into the patient record.

Limited data ....

Altera Digital Health (Allscripts)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Improved connectivity over last 12 months		3	2	1	
Improved access to external patient information at the point of care	1	1		3	
Improved ability to use external data during transitions of care				5	

Customers report that Altera Digital Health has lagged in their efforts to facilitate connections to national patient record exchanges. External data is typically accessed through the dbMotion portal. As a result, the ability to ingest that data into the EMR workflow is limited, and only in rare cases can data be used at the point of care to make decisions.

Report Information

About This Report

The question set used for this report was developed by healthcare leaders at the KLAS 2022 Interoperability Summit as a means for assessing EMR vendors' progress toward enabling interoperability (read the summit white paper here). For this report, KLAS conducted deep interviews with leaders from organizations who were identified by the vendors as deep adopters (the exception being eClinicalWorks, who did not provide a list). The findings showcase what is possible today in real care settings but may not reflect customer bases as a whole.

	# of unique organizations	# of unique advanced customers shared with KLAS
Altera Digital Health (Allscripts)	6	9
athenahealth	13	30
eClinicalWorks	6	†
Epic	23	30
Greenway Health	10	30
MEDITECH	14	30
NextGen Healthcare	12	30
Oracle Health (Cerner)	16	30

† eClinicalWorks didn't provide a list of deep adopters for this report.

Respondents were asked questions about four aspects of interoperability: (1) connectivity, (2) utility, (3) use cases, and (4) outcomes. For each question in the survey, respondents were asked to rate their agreement or satisfaction on a Likert scale, with the options being Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree, and N/A. Each option on the Likert scale received a point value: Strongly Agree/Agree=1, Neutral=0, Disagree/Strongly Disagree=-1. N/A responses were removed from the denominator for the questions. Based on the percentage of possible points earned, vendors received a grade in each area as well as an overall grade that represents an average of the four areas.

A	92%+	B+	84.0%–87.9%	C+	72.0%–75.9%	D+	60.0%–63.9%	F	<52%
A-	88.0%–91.9%	B	80.0%–83.9%	C	68.0%–71.9%	D	56.0%–59.9%		
		B-	76.0%–79.9%	C-	64.0%–67.9%	D-	52.0%–55.9%		

A note about breadth of adoption: Vendors that meet both of the following two criteria receive a check mark in this area: (1) the vendor had to provide a list of at least 30 unique customer organizations identified by the vendor as deep adopters, and (2) KLAS had to be able to conduct interviews with at least 10 of these organizations. Altera Digital Health and eClinicalWorks did not meet the criteria and are therefore designated as limited data.

Reader Responsibility

KLAS data and reports are a compilation of research gathered from websites, healthcare industry reports, interviews with healthcare, payer, and employer organization executives and managers, and interviews with vendor and consultant organizations. Data gathered from these sources includes strong opinions (which should not be interpreted as actual facts) reflecting the emotion of exceptional success and, at times, failure. The information is intended solely as a catalyst for a more meaningful and effective investigation on your organization's part and is not intended, nor should it be used, to replace your organization's due diligence.

KLAS data and reports represent the combined candid opinions of actual people from healthcare, payer, and employer organizations regarding how their vendors, products, and/or services perform against their organization's objectives and expectations. The findings presented are not meant to be conclusive data for an entire client base. Significant variables—including a respondent's role within their organization as well as the organization's type (rural, teaching, specialty, etc.), size, objectives, depth/breadth of software use, software version, and system infrastructure/network—impact opinions and preclude an exact apples-to-apples comparison or a finely tuned statistical analysis.

KLAS makes significant effort to identify all organizations within a vendor's customer base so that KLAS scores are based on a representative random sample. However, since not all vendors share complete customer lists and some customers decline to participate, KLAS cannot claim a random representative sample for each solution. Therefore, while KLAS scores should be interpreted as KLAS' best effort to quantify the customer experience for each solution measured, they may contain both quantifiable and unidentifiable variation.

We encourage our clients, friends, and partners using KLAS research data to take into account these variables as they include KLAS data with their own due diligence. For frequently asked questions about KLAS methodology, please refer to klasresearch.com/faq.

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Note

Performance scores may change significantly when additional organizations are interviewed, especially when the existing sample size is limited, as in an emerging market with a small number of live clients.

LEAD AUTHOR
Paul Warburton
paul.warburton@KLASresearch.com

CO-AUTHOR
Coray Tate
coray.tate@KLASresearch.com
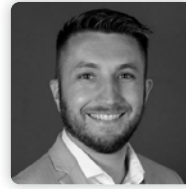
CO-AUTHOR
Tyson Blauer
tyson.blauer@KLASresearch.com

WRITER
Carlisa Cramer

DESIGNER
Bronson Allgood

PROJECT MANAGER
Andrew Wright

KLAS
RESEARCH

Our Mission
Improving the world's healthcare through collaboration, insights, and transparency.

365 S. Garden Grove Lane, Suite 300
Pleasant Grove, UT 84062

Ph: (800) 920-4109

For more information about
KLAS, please visit our website:
www.KLASresearch.com

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Expanded
Insights

Altera Digital Health (Allscripts) Overall grade: D

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity — Connectivity grade: C+

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team		4		1		1
EMR enables connections with local HIEs that are important to my organization	1	3	2			
EMR enables connections with payers that are important to my organization		1	1	1		3
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization		5				1
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort		2	1	2		1
EMR supports our interoperability needs at a reasonable/appropriate cost		3	2			1
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements		5				1
Vendor responds to and addresses connectivity challenges in a timely manner	1	3	1		1	
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	1	3	1	1		
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)		1	1			4

Utility — Utility grade: D-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately		2	2	1		
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data		3	1	1		
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes		1		2		2
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented	1	1		2		1
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow		3		2		
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)			2	2		1

Use Cases — Use cases grade: F

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care		1	1	3		
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care		1		4		
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings		1		3		
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	1	1		2	1	

Outcomes — Outcomes grade: D

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications	1	3	1	1		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests		3		1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions		3		1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice		2	1	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care		2	1	2		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps		2	1	1	1	
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care		3		2		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations		1	2	2		

Vendor-Provided Information

The following is Altera Digital Health's response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"

We are fully committed to ensuring that our clients achieve the highest levels of interoperability, workflow efficiency, stakeholder collaboration, and patient outcomes. To achieve this, we are continually evolving our interoperability strategy by implementing bidirectional FHIR APIs and leveraging connections to national patient record exchanges and HIEs. Our goal is to provide secure, efficient, and seamless exchange of information between healthcare systems and applications. In 2023, we plan to introduce further enhancements that will improve both clinical and operational workflows. Specifically, our interoperability platform will be enhanced to provide custom search capabilities. This will allow providers to quickly access documents from named organizations across the nation. Moreover, we remain committed to enhancing our EHR's connections to clearinghouses and payers for eligibility and authorization. Our efforts will ensure that providers have the necessary tools to optimize their workflows, thereby enabling better collaboration among stakeholders and ultimately improving patient outcomes.

	>400 beds	151–400 beds	1–150 beds

Interviewed Customer Bed Size	5	1

athenahealth Overall grade: B-

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity
Connectivity grade: B

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team	7	3				1
EMR enables connections with local HIEs that are important to my organization	3	5		1		2
EMR enables connections with payers that are important to my organization	5	3	1	1	1	
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization	4	5	2			
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort	3	2	3			3
EMR supports our interoperability needs at a reasonable/appropriate cost	7	2	1		1	
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements	8	2				
Vendor responds to and addresses connectivity challenges in a timely manner	4	5		1	1	
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	7	2	1		1	
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)	2	2	1	2		4

Utility
Utility grade: B-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately	4	7	1			
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data	5	7				
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes	4	3	3	2		
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented	2	3	2	4		1
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow	1	6	3	2		
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)	3	5		3		

Use Cases
Use cases grade: B-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care	4	7	1			
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care	4	4	1			3
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings	2	3	3	1		3
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	1	7	1	1	1	1

Outcomes
Outcomes grade: B

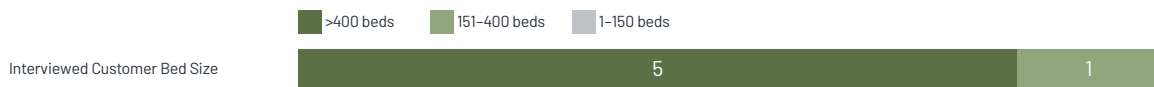| Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications	3	7			1	
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests	2	6	2	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions	2	7	3			
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice	5	3	2	2		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care	2	6	2			2
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps	3	6	1	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care	1	7	3			1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations	1	6	3	2		

Vendor-Provided Information

The following is athenahealth's response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"
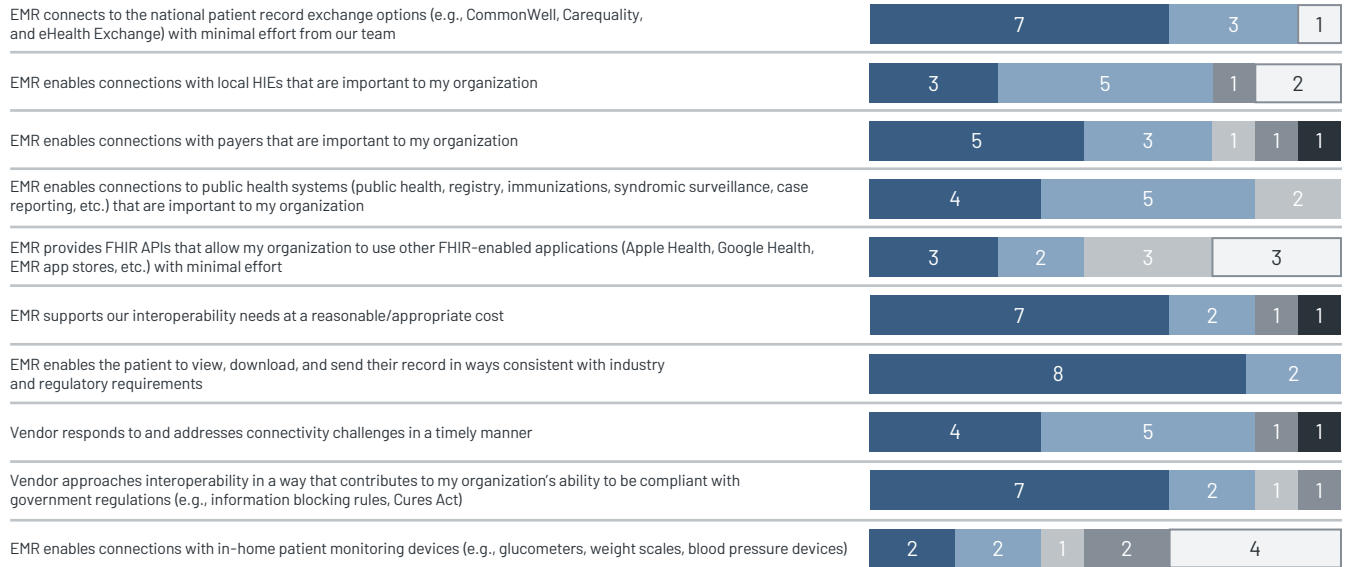
We are making major investments to improve the user experience with exchanged data. Over the next 12 months, we are broadening our network data access to bring in even more longitudinal patient data and will completely revamp our data reconciliation workflows. We will de-duplicate data across external sources and surface discrete data elements directly in the clinical workflow alongside related internal data. Clinicians can easily access and reconcile the data using one-click actions enabling more efficient and accurate reconciliation of external data to support clinical decision making. Our connectivity to acute EHRs will continue to deepen to bring an increasingly seamless experience to clinicians who work across ambulatory and acute settings. And we will continue to grow out partnerships with payers, labs, app developers, and other third parties to embed their solutions and insights within athenaOne workflows.

	>75 physicians	11–75 physicians	2–10 physicians
Interviewed Customer Physician Size	6	5	2
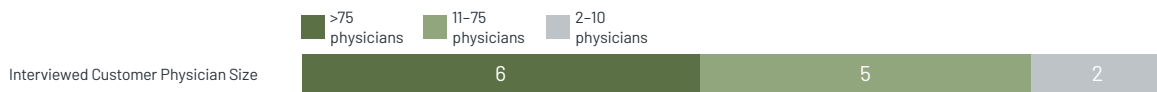
eClinicalWorks Overall grade: D

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity
Connectivity grade: C-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team	2	1				3
EMR enables connections with local HIEs that are important to my organization		3		2		1
EMR enables connections with payers that are important to my organization	1	4		1		
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization		4		2		
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort	1	1	2		1	1
EMR supports our interoperability needs at a reasonable/appropriate cost		3		1	1	1
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements	1	2	1	2		
Vendor responds to and addresses connectivity challenges in a timely manner		1	1	4		
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	1	4				1
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)	1	2	1	1		1

Utility
Utility grade: C-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately		4		1		1
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data	2	2	1	1		
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes		4		1		1
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented		3	1	1		1
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow		3		2		1
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)	2	2			1	

Use Cases
Use cases grade: F

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care	2	2		1		1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care	2		1	2		
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings	2		2			2
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	1		2			3

Outcomes
Outcomes grade: D+

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications		2	2	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests		3		2		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions		4		1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice	1	1		4		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care		4		1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps		4		1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care		3	1	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations		2	2	2		

Vendor-Provided Information

The following is eClinicalWorks' response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"

Data sharing has been available for several years through nationwide interoperability networks, but the ability to quickly parse the volume of that data needed improvement. We are improving the usability of shared data through the PRIMSA Search Engine, which over 6,800 eCW customers currently use to access an average of 3 million records daily. PRISMA enables improved usability and enhanced medical decision-making through keyword searches, including medical abbreviations and common acronyms, to quickly pull the appropriate information directly within the eClinicalWorks system.

In eClinicalWorks v.12, we are consuming USCDI FHIR R4 API data, which is available in PRISMA searches alongside the C-CDAs.

Our new developer portals for patient and provider-facing applications allow developers to easily build apps on the eClinicalWorks EMR using FHIR APIs consistent with the Cures Act requirements.

And finally, we are launching support for 360x closed-loop referral technology using industry standards that will help reduce referral management burdens.
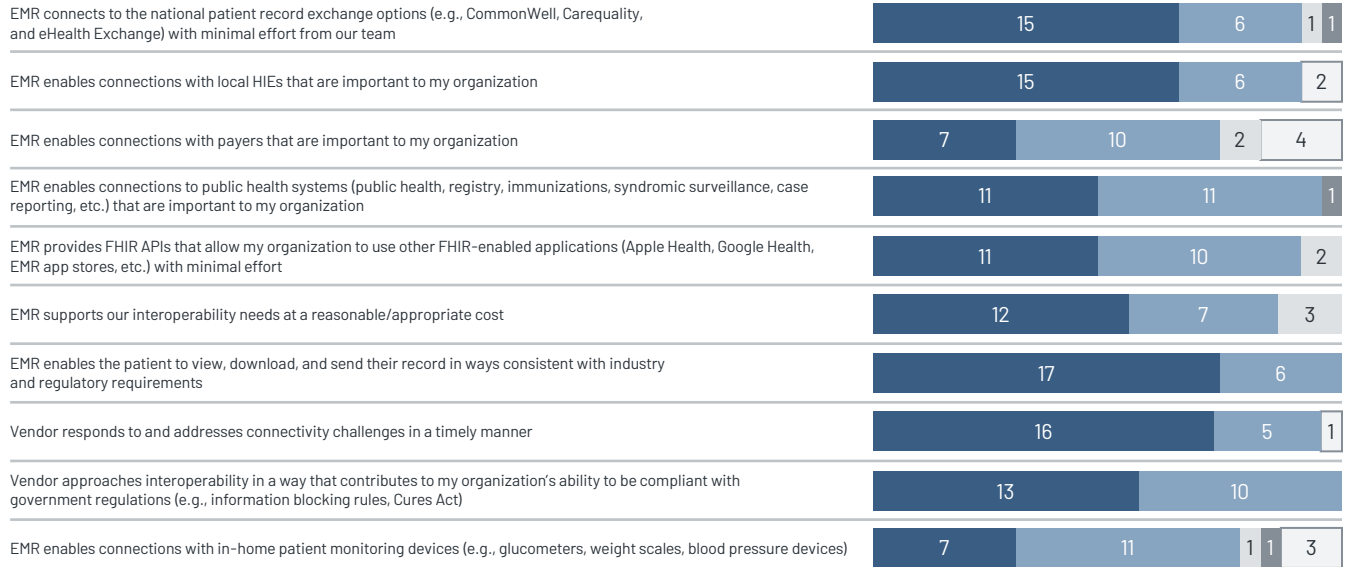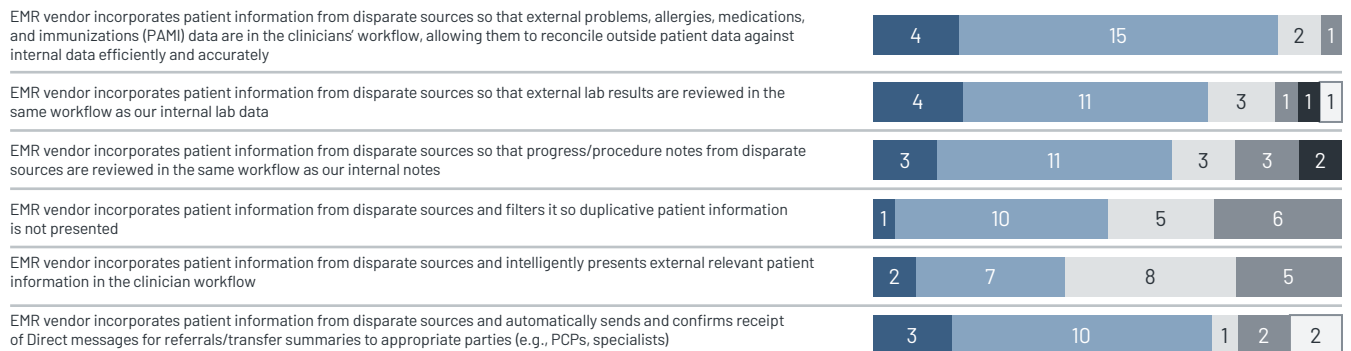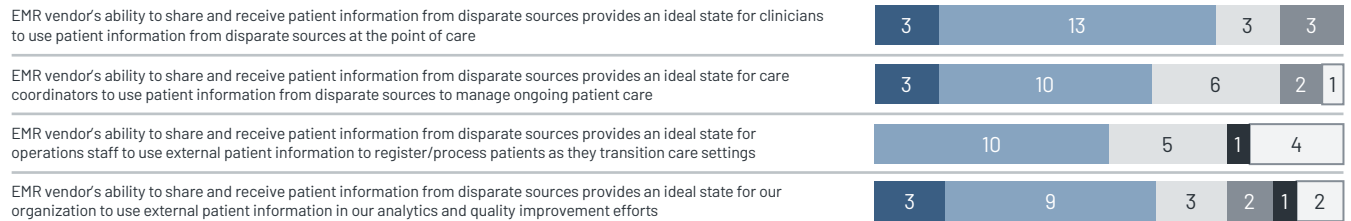
	>75 physicians	11–75 physicians	2–10 physicians
Interviewed Customer Physician Size	2	3	1

Epic Overall grade: B-

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity — Connectivity grade: A

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team	15	6		1		1
EMR enables connections with local HIEs that are important to my organization	15	6	2			
EMR enables connections with payers that are important to my organization	7	10	2			4
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization	11	11				1
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort	11	10	2			
EMR supports our interoperability needs at a reasonable/appropriate cost	12	7	3			
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements	17	6				
Vendor responds to and addresses connectivity challenges in a timely manner	16	5	1			
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	13	10				
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)	7	11	1	1		3

Utility — Utility grade: C+

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately	4	15	2	1		
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data	4	11	3	1	1	1
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes	3	11	3	3	2	
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented	1	10	5	6		
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow	2	7	8	5		
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)	3	10	1	2		2

Use Cases — Use cases grade: C+

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care	3	13	3	3		
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care	3	10	6	2		1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings		10	5		1	4
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	3	9	3	2	1	2

Outcomes — Outcomes grade: B

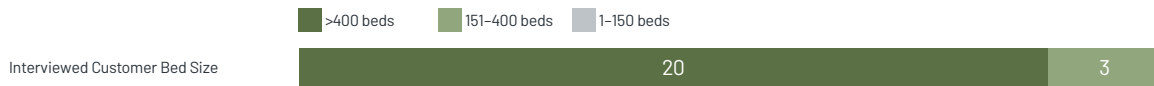| Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications	7	10	3	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests	5	8	5	1	1	1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions	6	12	4			
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice	6	11	3	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care	5	11	3	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps	5	9	5	3		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care	4	9	4	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations	4	11	2	2		1

Vendor-Provided Information

The following is Epic's response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"

Since introducing Care Everywhere in 2008, we have advocated for cross-vendor interoperability by supporting networks such as the eHealth Exchange, Carequality, and TEFCA. We lead in the interoperability space by introducing features that deepen the value and utility of data exchange. These features follow international standards, making them available to other standards-compliant EHRs.

*Our **Happy Together** initiative presents relevant external data alongside native data. External labs, imaging results, and notes can be automatically reconciled into the chart for use cases such as care gap closure, clinical decision support, quality improvement, analytics, and predictive models.*
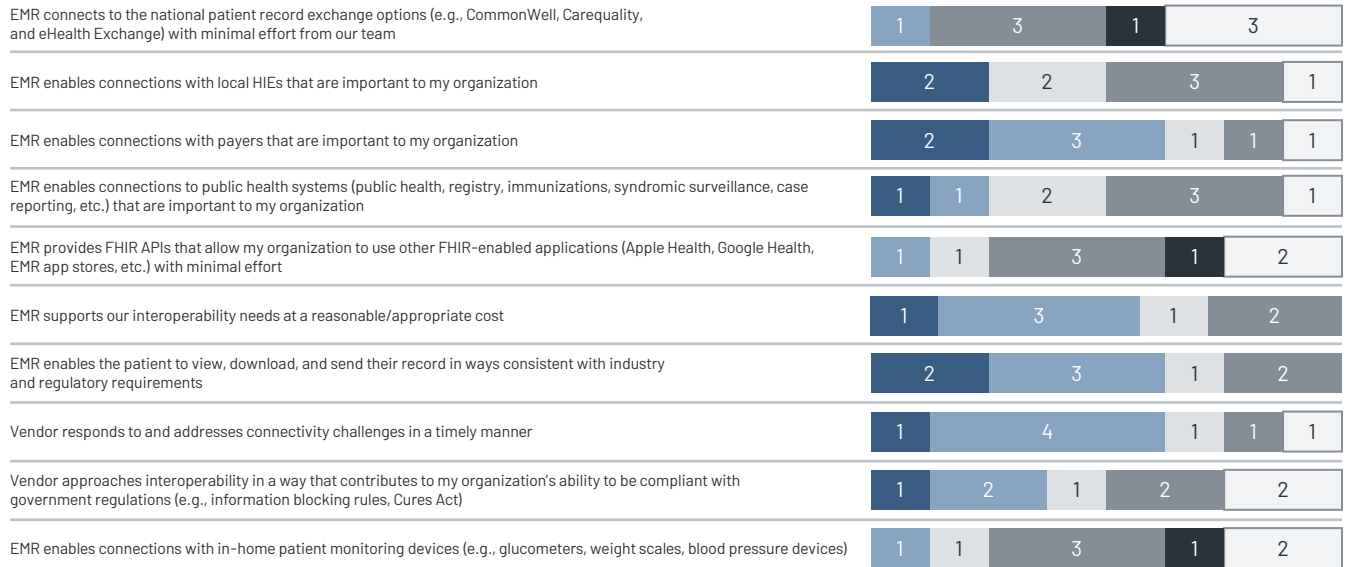
***Working Together** empowers clinicians to use external data at the point of care. Outside imaging can trigger decision support to prevent duplicate imaging, unnecessary cost, and radiation exposure. Notes such as H&Ps completed at one organization can accompany admission at another. With support for the 360x and Direct standards, organizations can manage referrals across all trading partners.*
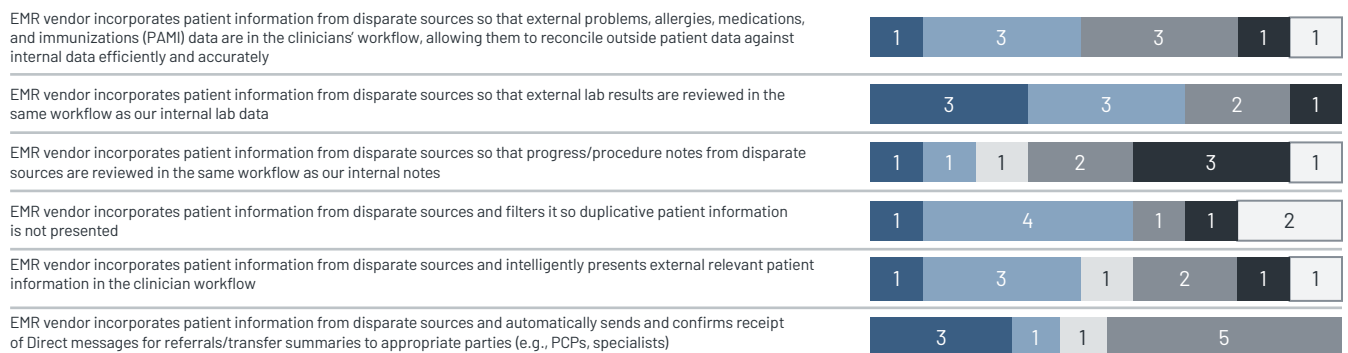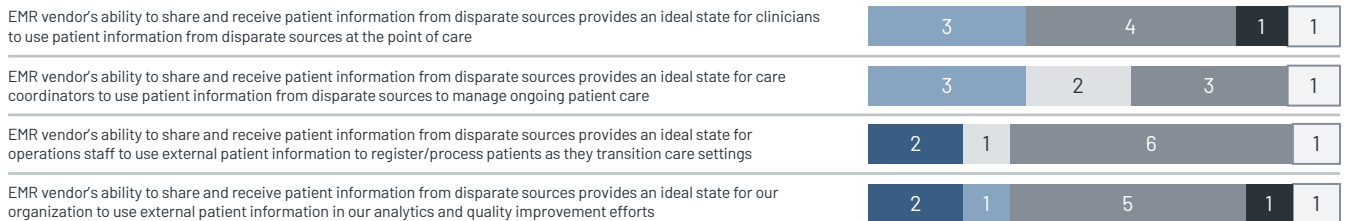
	>400 beds	151–400 beds	1–150 beds

Interviewed Customer Bed Size	20	3

Greenway Health Overall grade: F

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity — Connectivity grade: F

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team		1		3	1	3
EMR enables connections with local HIEs that are important to my organization	2		2	3		1
EMR enables connections with payers that are important to my organization	2	3	1	1		1
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization	1	1	2	3		1
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort		1	1	3	1	2
EMR supports our interoperability needs at a reasonable/appropriate cost	1	3	1	2		
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements	2	3	1	2		
Vendor responds to and addresses connectivity challenges in a timely manner	1	4		1	1	1
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	1	2	1	2		2
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)		1	1	3	1	2

Utility — Utility grade: D-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately	1	3		3	1	1
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data	3	3		2	1	
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes	1	1	1	2	3	1
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented	1	4		1	1	2
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow	1	3	1	2	1	1
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)	3		1	1		5

Use Cases — Use cases grade: F

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care		3		4	1	1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care		3	2	3		1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings	2	1		6		1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	2	1		5	1	1

Outcomes — Outcomes grade: F

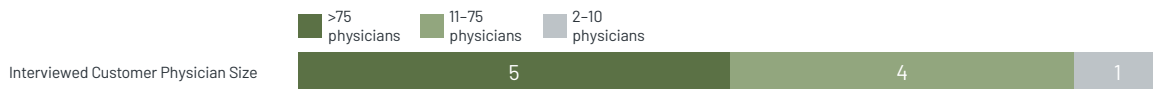| Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications		3		3	1	1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests	1	1		5		2
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions	1	2	1	4		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice	1	2	1	4		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care	1	3	1	3		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps	1	3		3	1	1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care	2	2	1	3	1	1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations	2	1	2	2	2	1

Vendor-Provided Information

The following is Greenway Health's response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"

Interoperability is a key part of our strategic direction. As a founding member of the CommonWell Alliance, we are focused on guiding the direction of interoperability. Our solutions allow clients to share clinical records through CommonWell/Carequality within their regional healthcare ecosystem with regional health information exchanges, and with public health agencies. Our clients' focus on more immediate changes in the healthcare landscape have impacted the adoption rate of these solutions over the past few years. We have also seen slower adoption due to policies requiring an active client opt-in to the solutions.

As we move forward, we are reemphasizing the importance and availability of our interoperability solutions. We will continue to consult and recommend full client participation in information sharing within their regional healthcare ecosystem. As that is done, we will look for ways to streamline the adoption of these solutions to remove any adoption hurdles for new and existing clients.

	>75 physicians	11–75 physicians	2–10 physicians
Interviewed Customer Physician Size	5	4	1

MEDITECH Overall grade: C-

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity (Connectivity grade: B)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team	3	7	2			2
EMR enables connections with local HIEs that are important to my organization	5	6	2			1
EMR enables connections with payers that are important to my organization	3	4	1	2		4
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization	5	9				
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort	3	7	1	3		
EMR supports our interoperability needs at a reasonable/appropriate cost	4	6	4			
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements	3	10	1			
Vendor responds to and addresses connectivity challenges in a timely manner	3	6	4			1
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	6	7	1			
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)		3		1		10

Utility (Utility grade: C-)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately	2	8	1	1		1
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data	3	1	6	1		2
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes	2	3	2	3		3
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented	1	4		3		3
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow	2	2	4	2	1	2
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)	4	4	3			1

Use Cases (Use cases grade: D)

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care	2	2	5	3		1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care	1	4	3	1		4
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings	2	1	3	2		4
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	1	2	3	2		4

Outcomes (Outcomes grade: C)

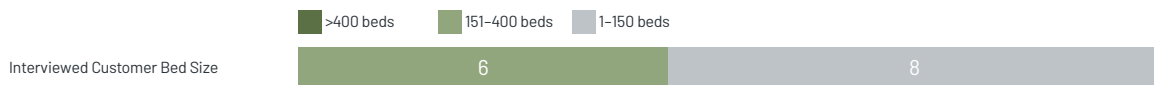| Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications	2	3	8	1		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests	1	4	5	2		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions	1	6	4	2		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice	2	8	2	1		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care	2	6	5			
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps	1	6	4	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care	1	3	4	3		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations	2	3	4			3

Vendor-Provided Information

The following is MEDITECH's response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"

Our proactive approach to interoperability includes specific solutions and access to patient data through CommonWell adoption as well as an interorganizational interoperability tool set to give customers access to data use cases and educational resources. We are also collaborating with customers and vendors to enable SMART on FHIR applications, which will help improve outcomes as well as support provider and payer use cases with APIs.

We believe that using large documents for data exchange places undue burdens on clinicians. Advanced tools like Google Search and Summarization alleviate this by presenting pertinent data as needed, without the need for sifting through long paragraphs of text. We also champion the use of lightweight, visit-level documents as an alternative to larger CCDs. Ultimately, FHIR API resources will facilitate more targeted data exchange over the long haul, so we have joined the Argonaut, FAST, and Da Vinci Accelerators to help drive this standard forward.

	>400 beds	151–400 beds	1–150 beds
Interviewed Customer Bed Size		6	8

NextGen Healthcare Overall grade: B

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity — Connectivity grade: B

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team	4	6				2
EMR enables connections with local HIEs that are important to my organization	4	5				3
EMR enables connections with payers that are important to my organization	2	5	1			4
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization	5	4				3
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort		3	1	3		4
EMR supports our interoperability needs at a reasonable/appropriate cost	2	7		1	1	
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements	2	7	1			2
Vendor responds to and addresses connectivity challenges in a timely manner	3	7	2			
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	4	7	1			
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)	1	2	1			7

Utility — Utility grade: B

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately	4	3		1		1
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data	5	3				1
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes	4	1	1	2		
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented	2	5		1		1
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow	3	4	2			
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)	2	4	1	1		1

Use Cases — Use cases grade: A-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care	3	6				
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care	2	7				
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings	1	6		1		1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	1	4	2			1

Outcomes — Outcomes grade: B+

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications	6	3	2	1		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests	4	1	1			2
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions	2	6				
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice	2	4				2
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care	2	5	1			
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps	3	4	1			
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care	4	4			1	
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations	3	5	1			

Vendor-Provided Information

The following is NextGen Healthcare's response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"

Over the next year, NextGen Healthcare's interoperability development will focus on the following:
- *Expanded FHIR route capabilities*
- *Enhanced NextGen API Marketplace with improved client API management tools*
- *Closed-loop referral support with 360x enhanced referral management*
- *Carequality expansion to support the exchange of additional document types*
- *Enhanced CDA viewer with faster load times, improved clinical reconciliation, new support for clinical sections, and more options for notes and comments*
- *Introduction of new exchange partners in the NextGen eChart Exchange program, including the Social Security Administration*
- *Enhanced data share module that incorporated numerous exchange modalities in one seamless clinical workflow*

	>75 physicians	11–75 physicians	2–10 physicians
Interviewed Customer Physician Size	8	3	1

Oracle Health (Cerner) Overall grade: C+

Legend: Strongly agree | Agree | Neutral | Disagree | Strongly disagree | N/A

Connectivity
Connectivity grade: B+

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR connects to the national patient record exchange options (e.g., CommonWell, Carequality, and eHealth Exchange) with minimal effort from our team	7	6				1
EMR enables connections with local HIEs that are important to my organization	4	6	1			3
EMR enables connections with payers that are important to my organization	1	2	2			9
EMR enables connections to public health systems (public health, registry, immunizations, syndromic surveillance, case reporting, etc.) that are important to my organization	10	2		1		1
EMR provides FHIR APIs that allow my organization to use other FHIR-enabled applications (Apple Health, Google Health, EMR app stores, etc.) with minimal effort	6	4			1	3
EMR supports our interoperability needs at a reasonable/appropriate cost	3	9			2	
EMR enables the patient to view, download, and send their record in ways consistent with industry and regulatory requirements	8	4		1		1
Vendor responds to and addresses connectivity challenges in a timely manner	4	10				
Vendor approaches interoperability in a way that contributes to my organization's ability to be compliant with government regulations (e.g., information blocking rules, Cures Act)	8	5		1		
EMR enables connections with in-home patient monitoring devices (e.g., glucometers, weight scales, blood pressure devices)	1	3		1		8

Utility
Utility grade: C-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor incorporates patient information from disparate sources so that external problems, allergies, medications, and immunizations (PAMI) data are in the clinicians' workflow, allowing them to reconcile outside patient data against internal data efficiently and accurately	3	7	3	1		1
EMR vendor incorporates patient information from disparate sources so that external lab results are reviewed in the same workflow as our internal lab data	3	6	2	2		2
EMR vendor incorporates patient information from disparate sources so that progress/procedure notes from disparate sources are reviewed in the same workflow as our internal notes	3	4	3	5		
EMR vendor incorporates patient information from disparate sources and filters it so duplicative patient information is not presented	2	3	4	3	1	2
EMR vendor incorporates patient information from disparate sources and intelligently presents external relevant patient information in the clinician workflow	3	4	4	2		2
EMR vendor incorporates patient information from disparate sources and automatically sends and confirms receipt of Direct messages for referrals/transfer summaries to appropriate parties (e.g., PCPs, specialists)	4	5	1	1		3

Use Cases
Use cases grade: C-

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for clinicians to use patient information from disparate sources at the point of care	4	4	4	2		1
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for care coordinators to use patient information from disparate sources to manage ongoing patient care	3	4	4	2		2
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for operations staff to use external patient information to register/process patients as they transition care settings	2	2	2	1		7
EMR vendor's ability to share and receive patient information from disparate sources provides an ideal state for our organization to use external patient information in our analytics and quality improvement efforts	1	5	2	2		4

Outcomes
Outcomes grade: B

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to decreasing the IT department's burden in making and maintaining connections with external healthcare organizations and needed applications	6	4	2	1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization using external patient information to reduce unneeded duplicative tests	2	7	5			1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to the care team using external patient information in patient care decisions	6	7		1		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to patients having access to their health information using the application of their choice	6	5	1	1	1	1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved patient safety at transitions of care	3	5	5	2		
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to my organization's ability to use patient information from disparate sources to close additional care gaps	6	5		2		1
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved operational efficiency at transitions of care	3	8		1		2
EMR vendor's ability to share and receive patient information from disparate sources significantly contributes to improved relationship and communication with referring organizations	3	6	2	1		2

Vendor-Provided Information

The following is Oracle Health's response to the question, "What does your organization have planned over the next 12 months that will impact the usability of shared data?"

We are uniting all patient data using open standards to make it usable for clinicians within workflows. Our latest interoperability product, Seamless Exchange, aggregates outside health data from multiple sources (national/local exchanges, immunization registries, etc.) and de-duplicates redundant information to create a cleansed, comprehensive patient history. Organizations can elect to automatically write data from trusted sources into the local record, further reducing provider burden.

Seamless Exchange became generally available in February 2023 and supports 8,000+ users among beta customers. It addresses many of the interoperability challenges that were discussed in this KLAS report, and we look forward to helping our clients reap the benefits more broadly.

The benefits of interoperability can only be realized if all health IT vendors embrace open standards, cross-vendor connectivity, and consistently raise the bar to improve care. We remain committed to being on the leading edge of interoperability to advance health with better information.

	>400 beds	151–400 beds	1–150 beds

Interviewed Customer Bed Size	14	2