

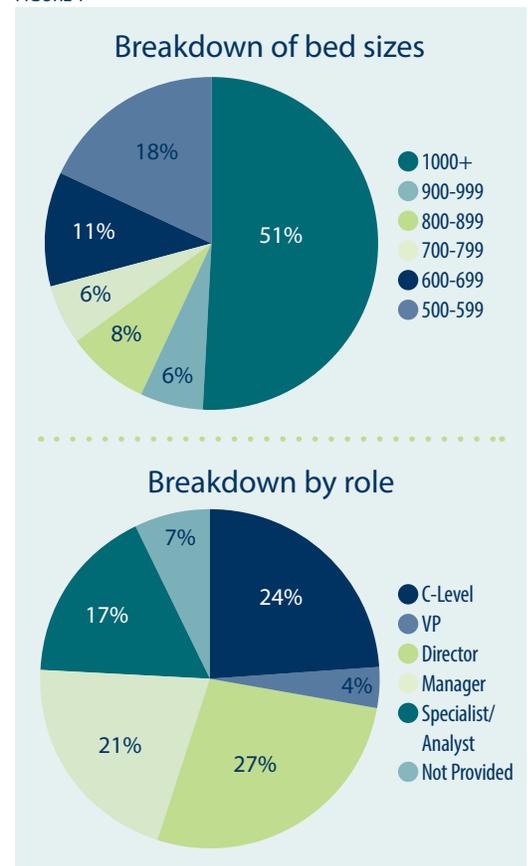
# Strategic Interoperability: The Clinical and Business Imperative for Healthcare Organizations

Featuring the results of the HIMSS Analytics Interoperability Study

**Interoperability**<sup>1</sup> – the ability of health information systems to exchange, transform and interpret shared data across multiple systems and devices, and across organizational boundaries, in order to advance the health status of, and the effective delivery of health-care for, individuals and communities – gained widespread attention in the United States when President Bush called for interoperable electronic health records (EHRs) in his 2004 State of the Union Address. This vision began to be executed in 2011 when the Centers for Medicare and Medicaid (CMS) started the EHR Incentive Program, which transitioned from setting up the basic EHR functionalities in Stage 1 to focusing on patient engagement and health information exchange (HIE) in the program’s Stage 2 meaningful use criteria. Since 2012, when Stage 2 criteria were released, hospitals and health systems have engaged in a big push to enable interoperability of health IT (HIT) systems and devices.

HIMSS Analytics conducted a survey in August 2013 to assess the progress of hospitals’ and health systems’ interoperability initiatives – the drivers for their efforts, benefits they are seeking, challenges they face and new opportunities interoperability provides. Of the 232 respondents, more than 50 percent work for health systems with 1,000-plus beds, 18 percent for 500-599 beds and 11 percent for 600-699 beds, representing both rural and urban healthcare markets across the U.S. (Figure 1). With nearly a quarter of respondents in C-level positions and another 48 percent comprising directors and managers, the survey provides a solid snapshot of the current state of interoperability in the acute-care setting. In addition to the survey, HIMSS Analytics conducted focus groups, each comprising two CMIOs, two CIOs and three project or informatics directors representing health systems with 800-plus beds, to obtain a granular view of hospitals’

FIGURE 1



and health systems’ challenges and strategies for achieving interoperability.

**ADOPTION DRIVERS: PATIENT QUALITY AND SAFETY, CARE COORDINATION**

Not surprisingly, given the current environment in the healthcare industry, the survey respondents reported a high adoption rate for interoperability. More than 53 percent said they have systems that are interoperable across multiple locations and with other organizations, and 41 percent have systems that are interoperable across multiple locations of a single organization



*“This research shows that organizations are breaking out of their four walls and actually exchanging data with other third-party organizations.”*

– Pamela Matthews, senior director of informatics for HIMSS

<sup>1</sup>A detailed definition of interoperability approved by HIMSS can be found in the following link: <http://himss.files.cms-plus.com/FileDownloads/HIMSS%20Interoperability%20Definition%20FINAL.pdf>

FIGURE 2

As defined by this study, does your organization currently have multiple systems that are interoperable?



(Figure 2). Furthermore, 60 percent of respondents described their interoperability plan as making systems interoperable across multiple locations and with other organizations (Figure 3). All focus group participants stated they are in the midst of interoperability initiatives.

Brendan FitzGerald, research director for HIMSS Analytics, pointed out that organizations of all sizes are pursuing interoperability initiatives. Just as important, according to Pamela Matthews, senior director of informatics for HIMSS, they are viewing interoperability not only within their organizations. “This research shows that organizations are breaking out of their four walls and actually exchanging data with other third-party organizations,” she noted. Both FitzGerald and Matthews expect those numbers to continue to rise.

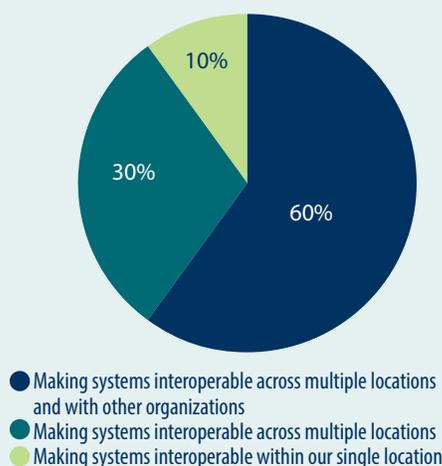
Clearly, Federal initiatives – the meaningful use of HIT and the Accountable Care Act’s healthcare delivery and payment reforms – are spurring interoperability initiatives. In discussions with health system CIOs, however, Nelson Le, MD, senior advisor for HealthShare at InterSystems Corporation, discovered that there is more to

meeting Federal mandates than receiving incentives or avoiding penalties. “Outcomes are at the top of their minds,” he said. Indeed, when survey participants were asked to identify the top three drivers of interoperability in healthcare, patient quality and safety (59 percent) rose to the top (Figure 4). The next two drivers, care coordination (44 percent) and providing clinicians with access to real-time analytics based on complete patient records (34 percent), are closely aligned in their support of the goal to deliver safe, high-quality patient care.

The reasons for pursuing interoperability varied when broken down to inside and outside the healthcare organization, although FitzGerald noted that these survey results still aligned with the trend of focusing on patient safety and improved quality of care. The top three interoperability drivers *inside* the respondents’ organization were to enhance patient safety (52 percent), improve operational efficiency (29 percent) and maintain a complete patient record (27 percent), with supporting additional interoperability standards running a close fourth (26 percent) (Figure 5). “This is where interoperability is going to have the most impact initially,” said FitzGerald. Healthcare organizations are trying to “get it right” within the four walls of their organizations first and then using interoperability as a “stepping stone” to meet or drive other initiatives, he said.

FIGURE 3

Which of the following best describes your interoperability plan?



For one focus group participant, interoperability inside his health system was driven by the inefficient workflow that forced clinicians to go in and out of HIT systems and the subsequent clinician demand for a better solution – a scenario familiar to other focus group participants. What was initially a tactical HIT initiative to improve operational efficiency soon became a strategic business initiative when the health system moved to a unified system, which then opened the door to HIE opportunities. With the data being accessed from one system, the health system was able to standardize care delivery and enhance decision support and patient safety. “Patient safety, quality, efficiency – these are the reasons you do any of this stuff,” the CMIO said.

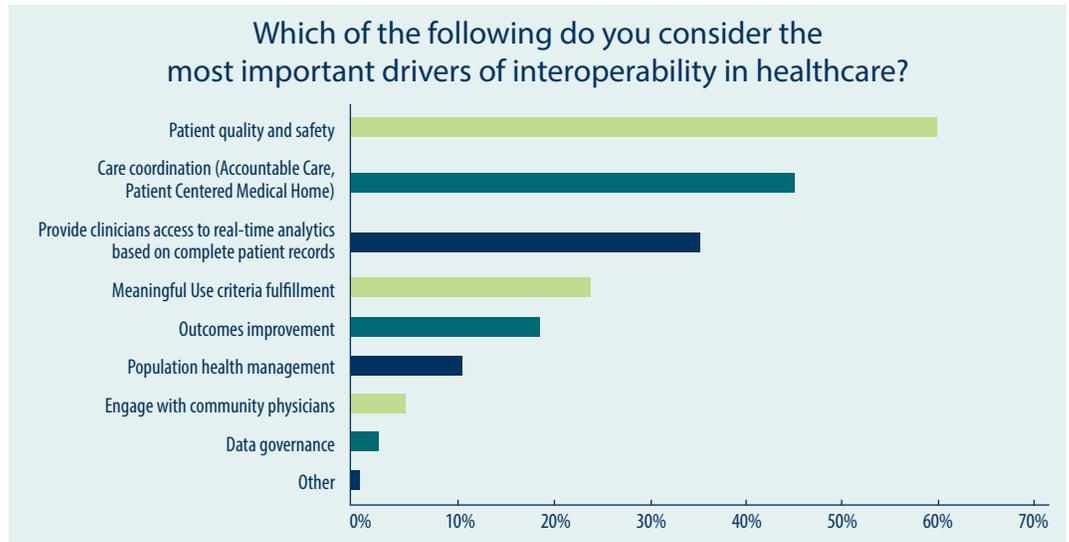
The top three interoperability drivers *outside* the respondents’ organization were to maintain a complete patient record that includes information from other providers (48 percent), improve patient safety (47 percent) and facilitate data sharing to and from outside entities to participate in accountable care or a similar model (35 percent) (Figure 6). With facilitating data sharing to and from outside entities to participate in regional or statewide HIE (32 percent) a close fourth. The focus group participants’ various projects validate the survey results. Interoperability is going to enable them to share data for reporting quality measures and public health and other important information to local and state government agencies.

One focus group participant’s health system is developing interoperable EHRs in all school nurse offices within two local inner-city school districts, with the goal of having the complete patient record follow the child wherever he or she goes. Looking ahead to a broader, more strategic vision, the CMIO pointed out that aggregating data from multiple sources could serve as the foundation of an interoperable HIE between school systems and hospitals, as well as among hospitals for better care coordination for their pediatric population.

### THE VALUE OF STRATEGIC INTEROPERABILITY

While healthcare organizations are in the midst of implementing their initiatives, many have designs on leveraging interoperability. With a vision in place, interoperability can go beyond connecting systems and devices to supporting healthcare organizations’ strategic plans. “Strategic interoperability is foundational,” said Dominick Bizzarro, InterSystems’ HealthShare global business manager. Investing in interoperability as a foundation can help large integrated delivery networks (IDNs) drive value out of the data by putting analytics into the workflow in order to improve clinical and economic outcomes. “As your community and network morph, you’re going to rely on this fabric of interoperability,” Bizzarro said. “This foundational layer can enable your strategic plan.”

FIGURE 4



*“Strategic interoperability is foundational.  
As your community and network morph,  
you’re going to rely on this fabric of interoperability.  
This foundational layer can enable your strategic plan.”*  
– Dominick Bizzarro, global business manager for HealthShare at InterSystems Corporation

Indeed, survey respondents and focus group participants alike recognize the strategic opportunities. More than 50 percent of survey respondents identified care coordination as the strategic value of interoperability to their organization, with cost reduction (20 percent), gaining insights from real-time analytics based on complete patient records (20 percent) and creating strong affiliation with community physicians (20 percent) rounding out the next three values (Figure 7). The top responses are important components for participation in an Accountable Care Organization (ACO), according to Bizzarro. “There’s a strong tie to care coordination and new payment models,” he said. “Care coordination is a process and strategic interoperability is where you’re going to use HIT as a tool with the necessary aligned financial incentives.”

One of the CMIO focus group participants stated that his healthcare organization’s strategy is to transform itself into an ACO. Interoperability, therefore, is key to achieving its goal. One of the CIO focus group participants reported that trying to get the local nursing homes, which receive approximately 90 percent of its referrals, connected to his health system “failed miserably” because no economic incentive existed for them. His health system, however, was able to connect with home care, via its EHR’s database, allowing nurses to access data in the field through enabling collaborative care. “When I think of strategic interoperability, it’s all about the ACOs,” he said.

With healthcare delivery and payment reform changing the landscape, healthcare organizations must now look at the patient encounter across the care continuum, which encompasses multiple locations and healthcare providers that

FIGURE 5

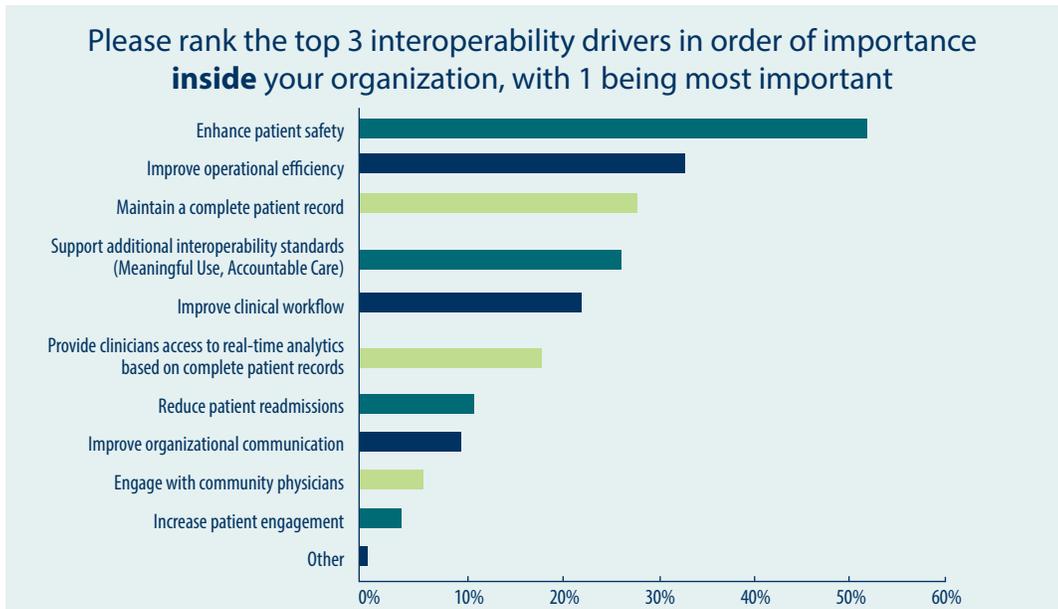
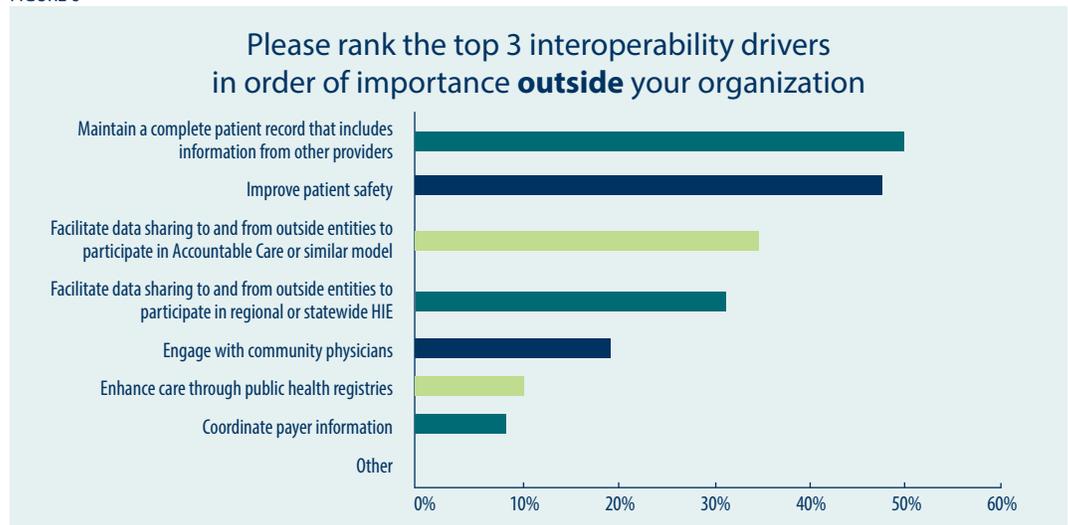


FIGURE 6



“There’s a strong tie to care coordination and new payment models. Care coordination is a process and strategic interoperability is where you’re going to use HIT as a tool with the necessary aligned financial incentives.”

– *Dominic Bizzarro*

are participating in that patient’s care. “The ability to exchange the data enables everyone participating in one care setting to understand what has transpired in other care settings to facilitate quality patient treatment,” Matthews said.

One focus group participant acknowledged how difficult it is to ensure smooth transitions of care with disparate systems within and outside of the healthcare organization. The deployment of a single system with one database will enable the CMIO’s organization to dramatically improve care by providing easier viewing of patient data as patients move along the continuum of care. “Instead of trying to transition the data and move it along like we do, all you have to worry about is the transition of the patients, and the data will be with them all the time,” he said.

With interoperability a critical component for care collaboration and continuity of care, healthcare organizations have come to incorporate it into their strategic plans, as the survey shows. Fifty-four percent of respondents said that their organization has a strategic plan to improve interoperability, although 33 percent have no strategic plan and 13 percent are unsure (Figure 8). “Years ago, you would not see interoperability as part of a strategic plan. Today you do,” said Matthews, who expects that percentage to grow, especially for large IDNs. In addition, HIEs that are local, regional or a part of a consortium must have interoperability as part of their strategic and tactical plan, according to Matthews. “That’s

a fundamental requirement of being able to participate in some of these collaboratives,” she said.

**TACTICAL INTEROPERABILITY:  
THE DEFAULT APPROACH**

Despite acknowledgment of and plans for strategic interoperability, many healthcare organizations are still focusing on simply getting their systems to “talk” to one another. “It’s hard to get their heads around interoperability on a strategic level because things are going so fast,” said Jennifer Horowitz, senior director of research for HIMSS Analytics. As one focus group participant admitted, “You do the planning for strategic, but...there’s just so much hitting everyone right now, you almost have to be largely focused on the tactical.”

Understandably, simplifying the HIT environment has become the default strategy for many healthcare organizations, and the focus group participants are validating this trend. With an “enormous laundry list for external demands” on his plate, one CIO said his organizational goal for the next one to two years is “just trying to survive” – in other words, approaching everything from a tactical perspective. One director reported that his organization is replacing its home-grown EHR with a single-vendor system with modules that enable the sharing of patient information while reducing niche systems and interfaces and the complexity of managing multiple systems.

FIGURE 7



“We’ve dealt with interoperability challenges internally – let alone externally – forever,” one CMIO said. His health system built interfaces between systems based on demand, safety issues, and its technical abilities and those of its vendors. However, the challenges of interoperability and providers having to work within multiple systems “became too much” and, after an extensive evaluation, his health system decided “it was time to pull the trigger” and replace its legacy EHR system with one that would deliver interoperability functionality.

While some healthcare organizations are still approaching interoperability from a tactical perspective and placing the burden on their EHR systems, Le pointed out that many are developing an incremental strategy – starting locally, but beginning to think globally and leveraging existing technology rather than rebuilding to become interoperable outside of the four walls of the enterprise. “Strategic interoperability is not just ensuring that your applications are synchronized with your data, but having the right delivery mechanism,” he said. Strategic interoperability builds upon the ability to connect systems and devices with the ability to provide the “five rights” – the right data type, in the right amount, to the right person, at the right time, in the right workflow. When presented in this way, the data sets up healthcare organizations for current, fu-

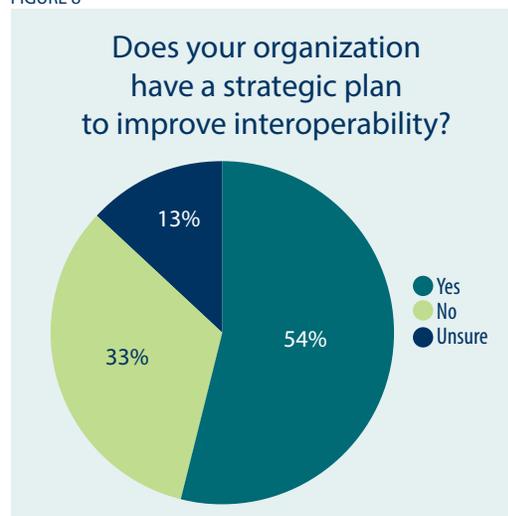
ture and unanticipated needs as strategies shift. As healthcare organizations work through tactical issues, they should start thinking through how interoperability can be leveraged to meet their overall strategic goals.

**THE RISK OF NOT IMPLEMENTING INTEROPERABILITY**

The liabilities of not implementing interoperability are not lost on healthcare organizations. Survey respondents identified adverse impact on outcomes and patient safety (30 percent), inadequate coordination of care (30 percent), inability

“The ability to exchange the data enables everyone participating in one care setting to understand what has transpired in other care settings to facilitate quality patient treatment.”  
– Pamela Matthews

FIGURE 8



Strategic interoperability builds upon the ability to connect systems and devices with the ability to provide the “five rights” – the right data type, in the right amount, to the right person, at the right time, in the right workflow.

– Nelson Le



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– Jennifer Horowitz, senior director of research for HIMSS Analytics

to provide clinicians access to real-time analytics and complete patient records (18 percent), and inability to meet evolving Federal standards (18 percent) as the biggest risks to their organizations if they fail to achieve sufficient interoperability (Figure 9).

The perceived risk ties back to healthcare organizations’ drivers for implementation and their perception of interoperability’s strategic value, Matthews pointed out. “For these organizations, interoperability is not something to achieve and you put a check mark by it,” she said. “It is being viewed as the critical aspect for conducting successful business – patient care. They see the value and benefits such as reduction of duplicative tests and costs leading to more efficient care and better outcomes, which ties back to the care coordination model!”

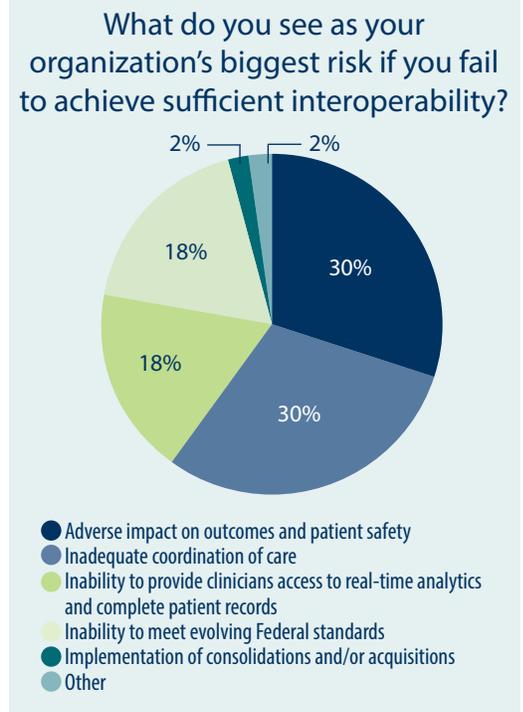
Among those who reported that improved interoperability is not a part of their organization’s strategic IT plan, 29 percent indicated that their current EHR system enables them to achieve interoperability, 29 percent admitted that they are not familiar with interoperability standard requirements, 14 percent cited cost being prohibitive and 14 percent indicated that none of their strategic initiatives depend on improving interoperability (Figure 10). FitzGerald attributes unfamiliarity with interoperability standard requirements to the overwhelming amount of work and multiple initiatives that healthcare executives face. It is understandable, therefore, that nearly a third rely on their vendors to deliver interoperability through their core EHR system, he said.

While this strategy may work in the short term, Bizzarro argues that merger and acquisition (M&A) activities and changing payment models are chal-

lenging this approach. This is especially true if the acquired or merging practices or other health systems and their affiliate relationships are all on different EHR systems. Moving all organizations to the same EHR is a huge, time-consuming exercise. “It’s ultimately a timing issue,” he pointed out. Healthcare organizations will need a solution that provides faster connectivity and includes all the current standards and a commitment to evolving standards. Just as important, they will need to develop strategic initiatives to address evolving system changes and shifts in the payment model in the next few years, according to Bizzarro.

When cost prohibition enters the discussion, Bizzarro argues that healthcare organizations

FIGURE 9



need to determine what the opportunity costs are for *not* achieving interoperability. With a strategic initiative, clinical and business opportunities abound. As hospitals and health systems continue M&A activity in this volatile healthcare environment, for example, interoperability can play heavily in their business strategy. One focus group participant has found efficiencies in doing business with healthcare organizations it can connect with via one database. "It makes a huge difference in the way you do business if you're on the same system," he noted. His healthcare organization is currently partnering with another organization, with the goal of the latter merging into the corporation within two to three years if all goes well. The strategic and economic benefits are tremendous: If merged, the two organizations can split operational costs, thereby bringing overall costs down, and having access to referrals through a revamped broad-scale referral process that is faster and more efficient.

#### THE BARRIERS TO STRATEGIC INTEROPERABILITY: LIMITED BUDGET, RESOURCES AND COMPETITION

Not unlike any other health IT investment, interoperability funding is plagued by limited bud-

gets and unknowable costs. One focus group participant noted that her health system's IT budget is at its lowest level in years, while another participant reported that his budget is down 25 percent from the previous year, forcing his department to approach interoperability from a tactical level. "No one knows what it's going to take from a financial perspective to make interoperability happen – it's probably going to cost a lot more," FitzGerald cautioned.

While more than 20 percent of survey respondents indicated that the current fiscal year budget for their organization's interoperability needs is greater than \$1 million, more than 40 percent of survey respondents were unsure of the current fiscal year budget for interoperability (Figure 11). Horowitz pointed out that this acknowledgment should not be surprising, given that interoperability is often tackled from an entire system's perspective. Interoperability may have been the driver for making an investment to rip out and replace a system, but the cost is not exclusively for interoperability. "Because they are addressing it tactically, there is no line item in the budget," she said. "It's in so many buckets because it's part of everything else that's going on."

Lack of resources is another significant barrier, particularly in the area of skillsets, according to all focus group participants. Even in markets rich in resources, the ability to recruit and retain is blunted by the specific need for experts with knowledge in medical context, workflow and technology, including informatics, business intelligence and database management.

Competition has historically been the Achilles' heel of interoperability. While it is still a barrier, which is especially acute for focus group participants, healthcare organizations are finding inroads to sharing data, while at the same time making business gains. The CMIO whose organization is spearheading a data-sharing project for the pediatric population noted that pediatrics is a less threatening specialty than, say, cardiology, an area in which healthcare organizations make their margins. "There was a need in the community to provide that level of data sharing for the at-risk population of children who are under-served and under-insured or uninsured," he said. Not only did it make sense from a quality

“Instead of saying I’m buying an integration engine for tactical projects, healthcare organization executives are saying I need a strategic interoperability platform to build on.”  
– Dominic Bizzarro

FIGURE 10

Why isn't improved interoperability a part of your strategic IT plan?

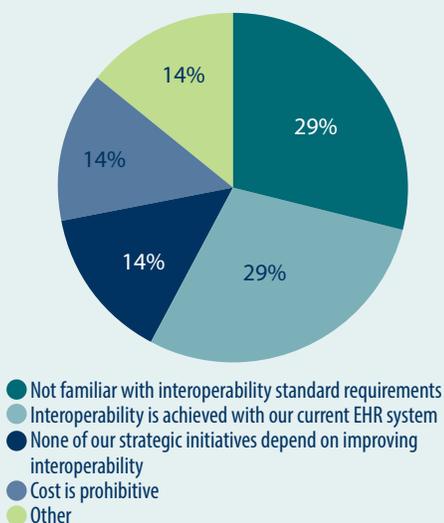
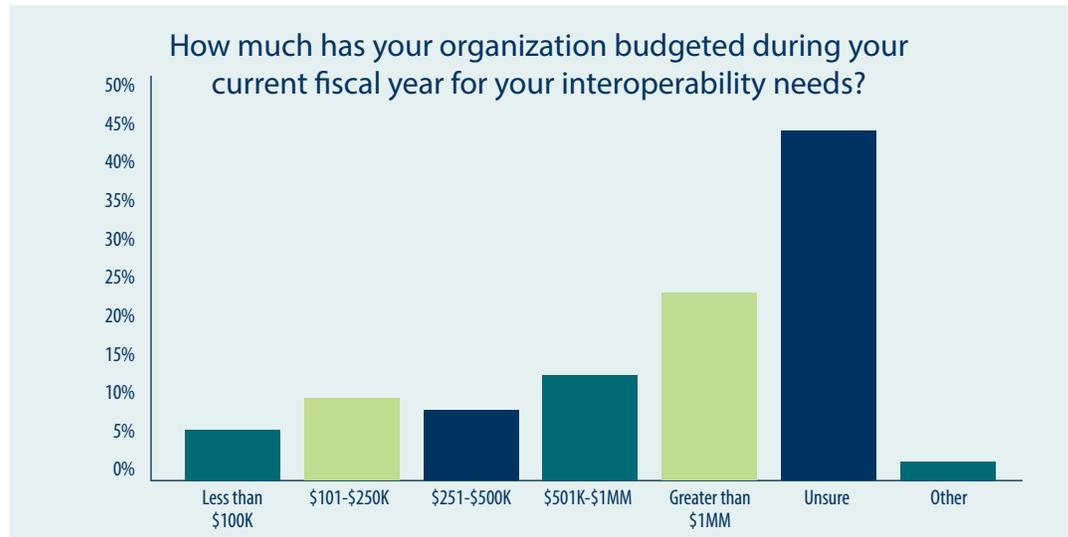


FIGURE 11



“We’re on a journey.  
We’re changing  
how we practice  
healthcare.”  
– Pamela Matthews

stance, but it also made sense from a strategic competitive stance; his healthcare organization is taking a leadership role in its local healthcare market by filling a community need.

#### EVOLVING TO STRATEGIC INTEROPERABILITY

Interoperability is not just a technology imperative. Healthcare organizations are starting to recognize its true clinical value in the form of outcomes and improved patient safety, Le emphasized. Bizarro agreed, noting that he has seen a marked shift in the mindset of healthcare organization executives from two years ago. “Instead of saying I’m buying an integration engine for tactical projects, they’re saying I need a strategic interoperability platform to build on,” he said. “The conversation is changing quite a bit as they loop in their colleagues and understand the possibilities and capabilities of strategic interoperability.”

As healthcare reform continues to work toward replacing fee-for-service with quality-based payment models, CMS and the Office of the National

Coordinator are setting the stage for long-term policy strategies to advance HIE and interoperability. “We’re on a journey. We’re changing how we practice healthcare,” Matthews said, as a reminder. “As we go forward on this journey, we will continue to exchange data, but how we do it and the tools we do it with will be ever-changing. As we progress, we’ll learn new ways to do it and we’ll develop new technology tools – and we can’t even project what that will be with the industry evolving so rapidly.”

Even as some healthcare organizations continue implementing interoperability on a tactical level, developing a roadmap for how strategic interoperability can advance their key HIT initiatives is the first important step to achieving their clinical and business missions – high-quality patient care and outcomes.