TRULY CONNECTED:
CLINICAL DATA INTEGRATION STRATEGIES IN THE MERGER AND ACQUISITIONS ERA

ELECTRONIC
HEALTHCARE

HEALTHCARE INFORMATICS
CUSTOM MEDIA

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CONTRIBUTING EXECUTIVES

Phyllis Teater
Chief Information Officer
Ohio State University Wexner Medical Center

Nael Hafez
Chief Information Officer
Pediatric Physician's Organization at Children's (PPOC)

Dr. Lawrence (Larry) Garber
Medical Director
Reliant Medical Group

Doug Dietzman
Executive Director
Great Lakes Health Connect

Jim Feen, CHCIO
Associate CIO
Southcoast Health

Martha Thorne
Senior Vice President and General Manager,
Population Health
Allscripts

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EXECUTIVE SUMMARY

In late 2015, the PricewaterhouseCoopers (PwC) Health Research Institute's annual report called 2016 the year of "merger mania" in healthcare.[i] Certainly, the shift to value-based care has rocked the field of health care to its core. And to stay viable in a changing environment, the care provider response has been to scale up through mergers, acquisitions and strategic partnerships. But while such moves have increased the size and negotiating power of healthcare organizations, this trend is not without significant challenges, particularly when it comes to data exchange and management. As healthcare organizations come together, often with different legacy information technology (IT) systems already in place, the trials of integrating data across new alliances can compromise providers' abilities to deliver on quality care, population health and analytics initiatives—limiting their ultimate financial viability in today's healthcare environment.

The purpose of this research report is to better understand the challenges that healthcare organizations face as they build new cooperative relationships through mergers, acquisitions and partnerships. This report will discuss the different trends driving merger and acquisition activity for healthcare systems, provider practices and healthcare information exchanges (HIEs). It will outline the specific challenges involved with trying to import, integrate and deliver quality clinical data across a variety of clinical systems, without negatively impacting care or analytics. It will highlight how diverse healthcare providers are forging ahead with different interoperability projects. And, finally, this report will illustrate the workflows, processes and strategies required to help healthcare organizations undergoing a merger, acquisition or new data exchange relationship reach true data integration—ultimately positioning themselves for success in a value-based world.

INTRODUCTION

What is required for healthcare organizations to survive in a value-based-care world?

It's a question that many healthcare systems, hospitals and provider practices are asking themselves. Now more than ever, organizations are investigating innovative methods and strategies to thrive as health care moves away from fee-for-service reimbursements. Many are betting on one particular strategy to help them make their way forward: consolidation.[ii] The hope is that new organizational partnerships—with their corresponding increase in market share—will help create operating efficiencies, improve the quality of care and lower costs.

"The major driver for these mergers and acquisitions is the change in reimbursement models. This is forcing organizations to look hard at how they operate today, what service lines they provide, and how to develop and deliver care pathways across settings of care that reduce variance and deliver positive outcomes," says Martha Thorne, senior vice president and general manager of population health at Allscripts.

But new alliances, innovative or no, have not always yielded the promised successes. As reported in a recent PwC research report that analyzed patient encounter data from the Centers for Medicare and Medicaid Services (CMS), bigger is not always better when it comes to quality of care. In fact, it would seem that larger health systems are having difficulty converting their bigger sizes into increased efficiencies—and greater financial savings. Healthcare organizations are quickly learning that consolidation does not lead to an automatic economy of scale.[iii]

> "The major driver for these mergers and acquisitions is the change in reimbursement models. This is forcing organizations to look hard at how they operate today, what service lines they provide, and how to develop and deliver care pathways across settings of care that reduce variance and deliver positive outcomes."– *Martha Thorne*

Yet, the trend of mergers and acquisitions continues forward. The PwC Health Research Institute named 2016 the year of "merger mania."[iv] In the first half of 2016 alone, the industry has seen a merger between Barnabas Health and Robert Wood Johnson Health systems[v], Memorial Hermann hospital purchasing Memorial Hermann Northeast[vi], and Jefferson Health, continuing a "merger blitz," adding a new partnership with Kennedy Health.[vii]

But providers are now going beyond more conventional take-overs, building new and innovative partnerships to also help them evolve to meet tomorrow's healthcare needs. Cleveland Clinic inked a deal to have its doctors conduct telehealth visits through CVS pharmacies' Minute Clinics.[viii] Duke's Lifepoint relieved Tenet Healthcare of two hospitals by putting them under their own umbrella.[ix] More hospitals and provider practices are taking part in state-led and other comprehensive HIEs. The pieces on the chessboard are moving—and often in unexpected ways.

"The changes from sick care to well care, from encounter management to population health, these things are making healthcare organizations have to really think about how they are going to deliver care, and how they are going to do it in an optimal way," says Phyllis Teater, chief information officer at the Ohio State University Wexner Medical Center. "To do a good job of it, you need scale so you can provide services in a more cost-effective way, certainly. But it's not one-size-fits-all. We're seeing even more creative partnerships that set expectations and have important data needs. Organizations are in an accountable care organization (ACO) together, they are part of a single new facility which isn't a merger, they are part of a partnership that delivers remote care. It is complicated to figure out how these partnerships are supposed to work together."

Even a single organization may be involved in a variety of different partnerships that require creative ways to share data. Doug Dietzman is executive director of Great Lakes Health Connect, an organization created through the merger of private HIEs in Michigan. But this HIE also needs to be on point when any of its member organizations merge or partner. "It's an ongoing challenge. How do you consolidate platforms and interfaces?" he says. "The coordination issues are immense."

The healthcare field should expect to see more inventive allegiances as healthcare organizations seek to determine the right specialties, referral networks and data exchanges to provide the best possible patient care—all while controlling costs.[x] And while every merger, acquisition and partnership will be unique in its own way, especially as organizations are exercising more creativity on the types of allegiances they form, they all have one critical requirement in common: the need to import, integrate and deliver quality data across a variety of IT systems in both the clinical and business realms.

THE CHALLENGES OF DATA MANAGEMENT IN THE MERGERS AND ACQUISITIONS ERA

Organizations have already started heeding the Office of the National Coordinator's (ONC) call for interoperability of systems, and for a number of good reasons. The vision shared in version 1.0 of the ONC Shared Nationwide Interoperability Roadmap, CMS has a set a goal of administering 30% of all Medicare payments to providers through alternative payment models that reward quality and value from 2015 through 2017, with interoperability being a primary focus during this initiative. This will only expand in the years following with 50% of Medicare payments being through alternative payment models by 2018 through 2020.[xi] With this vision established, interoperability and its challenges are a top priority for CIOs and their teams.

Interoperability is certainly not a new word in health care. With the widespread adoption of electronic health records (EHRs) and other ancillary systems over the past decade, even the smallest healthcare providers have struggled with how to make disparate systems successfully "talk" to one another so clinicians have all the data they need to deliver the best quality care to each patient. And it is not just a clinical issue. The business side of the organization needs important claims, diagnosis and care data to make informed enterprise-level decisions.

With the sweeping rise of ACOs, population health initiatives and precision medicine, interoperability challenges have only expanded. And the variety of healthcare mergers, acquisitions and strategic partnerships now in play only add more layers of complexity to the mix.[xii] The recent merger of Baylor Health Care System and Scott & White Healthcare in 2015 highlighted these difficulties. In an article in Becker's Health IT & CIO Review, Joseph Schneider, M.D., vice president, chief medical information officer, and medical director of clinical informatics at the North Division of the newly minted Baylor Scott & White Health, says that interoperability challenges are as much human as they are technical.[xiii] Nael Hafez, chief information officer at Pediatric Physician's Organization at Children's, a network of independent pediatric primary care practices in Boston, Massachusetts, agrees.

"Right now, we're in an environment that has **9 different electronic health records** and **14 different practice management systems** across all practices. We've tried for years to get the right level of interoperability in place. But it's a significant shift. Not just in terms of technology, but also culture." –*Nael Hafez*

"Right now, we're in an environment that has nine different electronic health records and 14 different practice management systems across all practices. We've tried for years to get the right level of interoperability in place," Hafez says. "But it's a significant shift. Not just in terms of technology, but also culture. One of the biggest challenges that our providers face in this transition is a sense of loss of control. They're really fighting to maintain their independence while at the same time recognizing they need to be part of this network to meet the requirements and regulations that they can't meet on their own. It's a big push and pull."

That "push and pull" begins at the point of care—not just with the provider, but also with the patient. Thorne says the absence of a "single source of truth" when it comes to patient data is a tremendous issue for clinicians.

"This is something that leads to gaps in care and risk during critical transitions of care, leading to less than desirable outcomes for the patients and providers," she says. "One of the largest barriers to interoperability is not having information available to view in the clinician's workflow. Even if the data is technically available, if it isn't part of the clinician's workflow, it's not usable. It isn't helping with care."

"But once hospitals merge, that expectation changes. They see the same names on the door. So when we can't access their information and pass that data back and forth, they think we're crazy. They ask, 'Wait, aren't you guys the same place? Why can't you see my information?'"

Teater says that the bars for interoperability have, traditionally, been quite low. "In the past, when a patient attended a hospital here at the medical center and then went to another hospital across town, they may have wished the data was integrated—but they didn't have that expectation. They knew they had to call for records," she says. "But once hospitals merge, that expectation changes. They see the same names on the door. So when we can't access their information and pass that data back and forth, they think we're crazy. They ask, 'Wait, aren't you guys the same place? Why can't you see my information?'" And that, she says, is becoming even more important now that patients have more choices about where they go for their healthcare needs.

Dr. Lawrence Garber, medical director of the Reliant Medical Group, likens successful interoperability platforms to a pilot switching engines on a plane mid-flight. "Health care doesn't stop. You can't stop seeing patients or tell them not to get sick because we are changing platforms

or can't get the records in one system over to another one," he says. "You have to flick the switch in a way so that the airplane doesn't lose too much altitude as you're moving from one engine to another. Similarly, you have to flick the switch in a way that the caregiver and the patient don't see any big difference when you are moving data from one system to another."

But the need to import, integrate and manage data doesn't end at the examining room, says Garber. The enterprise is also relying on having access to the right data to make important business decisions—and thrive in the age of ACOs and population health initiatives. These analytics are a critical component of population health management—but only if they have access to clean data.

"Having the right data on hand is infinitely important. The leadership of your organization is thinking about analytics. They need to know how you, as an organization, are doing in terms of controlling disease, quality cost and utilization. Without that information, you can't adapt and thrive," he says. "Data is important at the patient level when a patient shows up in my office requiring care. But it is also important at the population level, so you can measure trends and really understand how your organization is doing. It's so important to get the data right. And that's why we spend so much time focusing on the mapping and porting of that data—so we make sure we know everything about our patients individually and at the population level."

And that's where IT comes into play. Thorne says having the right technology infrastructure can make all the difference to successful data management. "Organizations who are part of these new partnerships need to spend time on developing critical care pathways and redesigning their care coordination programs around the newly formed merged entities," she says. "But without a strong technology backbone to support useful, usable data, healthcare organizations remain vulnerable to significant risk in terms of gaps in care and management."

STRATEGIES FOR SUCCESS

How are different healthcare organizations making their way towards interoperability? How are they dealing with that "push and pull" that Hafez described?

It's a complex question—with a lot of individual dependencies that will influence the answers. As the old saying goes: once you've seen one interoperability project, you've seen one interoperability project.

Standardization of data however is viewed as the starting point for many organizations pursuing interoperability through interfacing projects.

Many organizations have taken the foundational approach of incorporating a consolidated CDA framework, leveraging an XML data format.[xiv] Other standards resources have also been developed and published to bolster the CDA foundation within the Health IT (HIT) community. Given the variability though of data captured at an organizational level and a variety of CDA template types, the number of different types of data sets and structures in a merger borders on endless. Health Level Seven (HL7) has consolidated an Implementation Guide for IT teams to find, understand, and implement CDA templates for nine different document types—which ultimately ties together the efforts of the Integrating the Healthcare Enterprise Care Coordination (IHE PCC), Continuity of Care Documentation (CCD) and Health Information Technology Standards Panel (HITSP).[xv] This resource is also commonly used as a starting point for creating the standardization framework of interoperability.

The Four Layers of Interoperability

01 **Process**
02 **Semantic**
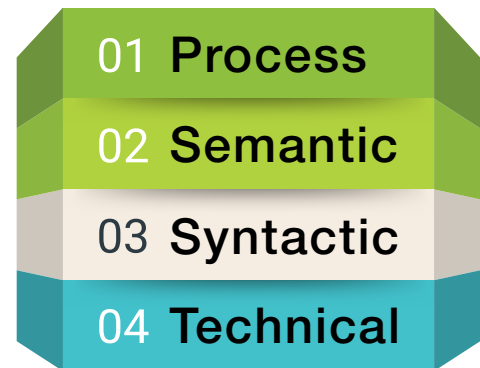03 **Syntactic**
04 **Technical**

While data set standardization can take a number of forms through different industry standard formats (e.g., HL7, LOINC, SNOMED, FHIR), having a thorough knowledge of these standards and creating a detailed strategy for mapping data sets is critical to success.

According to a May 2016 research report published by EDM Forum, preparing a strategy for interoperability begins with understanding common connection on four different layers of interoperability which are effectively defined as: process, semantic, syntactic and technical.[xvi] All of the HIT data standards ultimately support each of these components of interoperability.[xvii]

ONC also provides categorization sets for teams to further define their workflows in the Shared Nationwide Interoperability Roadmap, which sorts standards into the following categories while analyzing their adoption rates: vocabulary and code sets, format, content and structure, transport, security and services. Providers are leveraging these different resources to ultimately set a defined vision for their strategy, and to clearly standardize and harmonize disparate data sets from a merger for use internally and externally.

With the number of different resources and approaches being applied in the field, it's clear that any successful strategies are likely to be as varied as the types of strategic partnerships the industry is currently inspiring. But Jim Feen, associate chief information officer at Southcoast Health, says that the first step is strong clinical leadership.

"There's no secret sauce here. In order to set the tone, the objectives and the improvements in efficiencies that will effect care delivery, you need that strong clinical leadership in place," he says. "And that starts at the top. When that tone is set, and the message and objectives are understood, you'll find you have buy-in across the board."

Feen says having a clear understanding of what's needed to facilitate the clinical workflow takes a lot of the guesswork out of the equation—and helps manage both the human and technology aspects of any interoperability plans. At Southcoast Health, he and his team relied on an initial roadmap that defined goals and objectives from a purely clinical perspective first and foremost—and then passed that information on to interoperability specialists who understood how to "bridge the divide" between the clinical and business sides of the house.

In the process of developing a team specialized for interoperability projects, involving and assigning a clinician champion has proven especially paramount. In a survey conducted and referenced in an IDC Health Insights Research Report, 58% of ambulatory care providers were dissatisfied with their EHR, primarily due to workflow and functional use concerns—making the clinical voice the all-important critical eye when mapping data and designing workflows for specific departments.[xviii]

Ambulatory Care Providers

58%
Dissatisfied

This was especially the case in a recent project featured by *Healthcare Informatics* at Houston Methodist Hospital. Through exchange of clinical data through a number of systems, Houston Methodist allowed the measurement of patient acuity in 11 nursing units using EHR data and predictive analytics. This project, championed by a project manager, nurse educator, clinical nurse specialist and Chief Nursing Officer Katherine Walsh, RN, ultimately has reduced the mortality rate in those units by 30% and has prompted a hospital-wide rollout of the tool.[xix] This project is just one example of an organization leveraging clinical expertise to achieve an end goal, but the need to integrate new merging organizations into similar existing programs is ever-present.

Houston Methodist Hospital – Bringing Systems Data Together to Better Outcomes

Project notes:

- Measured acuity in 11 nursing units

- Leveraged EHR data and analytics tools

- Result: A 30% reduction in mortality rate within those units—rolling out program across the enterprise.

"The need for new interfaces, to migrate data across these different systems, never really goes away. So having a core interoperability group that understands data movement and data governance is key," he says. "They can work with the clinicians to shine a light on any clinical workflow variation between different groups—and then figure out how to achieve synchronicity."

Thorne agrees that while business use cases are key to determining the path forward, it all comes down to finding a way to make data flow in a "reasonably seamless" manner to and from the point of care.

"When you start to think about all the different sources of data, and the different data elements, you'll see that some of them become irrelevant in the overall context of patient care," she says. "Other data elements become very relevant. But you won't understand what's most relevant until you sit down and figure out what you want to target in order to get to the right data faster and really improve the patient's care. It takes a good bit of upfront planning."

Some organizations will tackle interoperability issues with a rip-and-replace approach—that is, sunsetting all legacy systems and moving all partners to a shared EHR and technology platform. Garber says that Reliant Medical Group decided to move all partners to a single EHR platform. The organization has experience with trying to get multiple systems to talk to one another—it has not only merged with other hospitals, but divested when the new acquisition or partnership wasn't expanding patient access to care or proving profitable. Garber says that, after careful analysis of the organization's needs for data, they understood just how complex data governance rules have to be—all while exchanging a large volume of data in real time. He says that Reliant's prior merger taught him that true interoperability goes beyond just understanding how to find, map and import data.

Reliant Medical Group
Location: Central Massachusetts

System details: Over 500 providers, 25 sites within Massachusetts

Currently transitioning all locations to the same Epic platform. Have undergone numerous Epic to Epic transitions due to different data sets, fields, and configurations.

"In the beginning, I thought it was all about where the data is, how to map it and how to bring it across," he says. "But I've learned that success really comes down to the expectations of all the organizations. Some will expect that nothing is going to change. Some will expect that everything

is going to change. It really is a lot of the cultural, 'This is how I've always done it, this is how I want to do it' kind of nitty, gritty details of workflow that are going to drive your data conversion plan. The most important place to start is to do a good, deep analysis of what your organization needs right in the beginning, formulate the plan, and then set the expectations. This is what you need to get the data right."

"In the beginning, I thought it was all about where the data is, how to map it, and how to bring it across," he says. "But I've learned that success really comes down to the expectations of all the organizations. Some will expect that nothing is going to change. Some will expect that everything is going to change. It really is a lot of the cultural." *– Larry Garber MD*

But Thorne notes rip-and-replace strategies have cost, time-to-value and disruption issues that organizations should carefully consider. A recent survey conducted by the market research firm Black Book, revealed that 87% of respondents at financially struggling hospitals reported regretting changing their EHR systems. Of respondents in that same survey, 62% of non-managerial IT staff reported a negative impact on healthcare delivery directly associated with their EHR replacement, with 90% of nurses indicated the EHR change reduced their ability to deliver hands-on care.[xx] A large, specialty care delivery system in the southwest has also recently struggled with a rip and replace approach, citing its enterprise EHR implementation as the cause of a 77% drop in adjusted income for the 10 months ended June 30, 2016.[xxi] Vice President and CIO of Unity Health System John Glynn supported this concept in a *Healthcare Infomatics* article covering their private HIE strategy, "I think in a day when capital and IT resources are thin, to spend the money to and toward a rip-and-replace strategy may not make the most sense. The HIE technologies are a great alternative strategy. We've shown that it can be done."[xxii] The costs from both a budgetary and human capital perspective can be catastrophic in some situations.
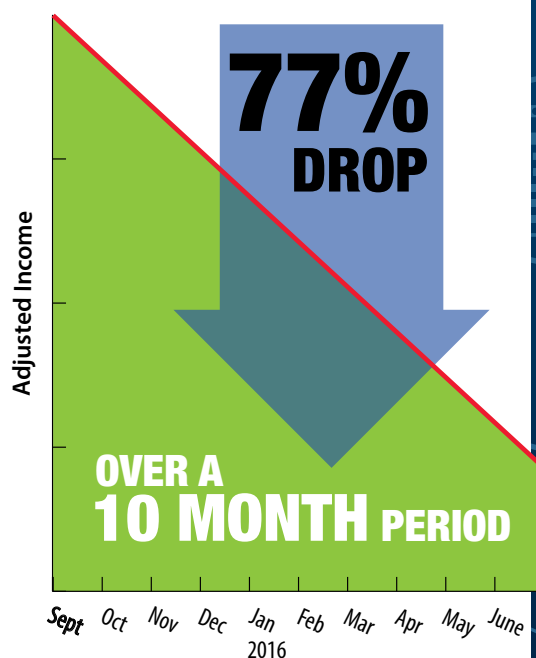
77%
DROP

OVER A 10 MONTH PERIOD

Adjusted Income

Sept Oct Nov Dec Jan Feb Mar Apr May June
2016

> "Rip-and-replace can take years, requiring intense redirection of resources and a disruption toward care. You run the risk of a cost overrun. We're seeing the impacts of those overruns as executives lose their jobs and hospitals are blaming their budget issues on the cost of their EHR." *– Martha Thorne*

Martha Thorne agrees. "Rip-and-replace can take years, requiring intense redirection of resources and a disruption toward care. You run the risk of a cost overrun. We're seeing the impacts of those overruns as executives lose their jobs and hospitals are blaming their budget issues on the cost of their EHR," she says. Instead, she argues, it's possible to leverage technology platforms that you already have in place to minimize the cost and disruption—and deliver real speed-to-value as it results to the mission and goals of a newly merged organization.

Thorne says that while there are a variety of ways that people might define "interoperability," the critical factor is being able to get data where it's most needed: at the point of care.

"We know that interoperability isn't where it needs to be, and the primary reason is that the right data is not available to physicians within their workflow. You need a reasonably seamless hand-off between the patient, their primary care physician, their specialists, the diagnostic imaging center, and so on. You want a consolidated experience," she says. "As you move towards that point, you need to not only manage the flow of that patient experience but also manage the cost and quality of that patient experience. If you are spending all of your time laying down new base infrastructure, all you are doing is replacing baseline infrastructure. You will be behind when it comes to managing the rest of the things they need to manage."

But Teater says that no healthcare organization should walk into a merger or acquisition situation with preconceived notions about the right way forward without taking the time to really map out the business goals. Organizations should consider those goals before signing any formal agreements.

"You need to be able to seek out, and then translate, the business goals before trying to make any systems decision," she says. "You need to know, particularly from the analytics perspective, what people want and need to know across the hospital. Those answers will drive the clinical data integration plan."

Every interoperability project will be different—there is no one-size-fits-all approach to finding, mapping, or transferring data. At the Ohio State University Wexner Medical Center, Teater has to oversee not only the

patient care mission but also the College of Medicine's education and research missions. She says, from her perspective, a good IT department can build any integration but that doesn't mean the end result will serve the organization's needs. She says Ohio State has made great strides in being able to exchange a "picture" of the care that was provided for a given patient between different organizations—and that's thanks to strong integration between systems using a commercial or vendor-specific health information exchange (HIE) platform. But she says it's still not seamless—and they still have work to do.

"So we are putting a big emphasis on defining common data sets. To really understanding what the caregiver needs to know to make good decisions. It's all about looking at interoperability from the lens of the clinician's use." – *Phyllis Teater*

"Some of the workflow issues we face are really aggravating for patients. Caregivers may have to ask patients for extra specifics on a medication because they can't get data in a particular format. In some cases, it's still just easier to just ask the patient again," she says. "So we are putting a big emphasis on defining common data sets. To really understanding what the caregiver needs to know to make good decisions. It's all about looking at interoperability from the lens of the clinician's use, and sometimes it can't all be done at one time."

Dietzman adds that having smart vendor partners and "old-fashioned, disciplined" project management are also key. As someone who manages an HIE platform that connects approximately 4,000 different facilities, he says that while one would like to say that all of the interfaces are standard, they simply aren't in terms of format and data content. Any change upstream can impact the systems it connects with downstream. So having careful management and coordination as they move inbound feeds over to a single platform is critical to success. He says, in his experience, without that project management aspect of their strategy, many of those downstream touch points can be overlooked—meaning they may not be included in analysis and planning.

Great Lakes Health Connect
Largest HIE in the state of Michigan
Headquarters: Grand Rapids, Michigan

- Links together 4,000 facilities across the state of Michigan

- Network of 128 hospitals

- Integrating 100 unique EMRs and health IT systems between all of their partners

- Includes DIRECT messaging, transmission of Lab, radiology images, admission, discharge and transfer notifications.

"We've got almost 1,200 offices sending immunizations to the state. And that was based on building a single transport pipe with an efficient way of connecting folks to that one pipe that allows us to scale without a lot of project activity and redoing a whole interface all over again." *– Doug Dietzman*

"You need to have a really good view of what existed and what's going to change. And then a plan in place that makes sure you don't unplug something that will have negative impacts downstream that you didn't anticipate," he says. "But with the right plan in place, with all that upfront work, you'll do it right. If you do it right, no one is going to notice a difference. Because they are getting the data they need when they need it."

He says Great Lakes Health Connect has had great success with transferring data about immunizations around the state. "We've got almost 1,200 offices sending immunizations to the state. That was based on building a single transport pipe with an efficient way of connecting folks to that one pipe that allows us to scale without a lot of project activity and redoing a whole interface all over again," he says. "So getting out there, interacting with different partners and vendors to put a process in place where we can leverage one connection along with standardized, reusable components so we don't have to rebuild everything from scratch every time someone else joins our network."

CONCLUSION

What is required for healthcare organizations to survive in a value-based care world?

It's a question that many healthcare systems, hospitals and provider practices are asking themselves as they investigate novel partnerships through merger, acquisition, and other forms of consolidation—and what's becoming clear is that no two answers will be the same. In 2016, and beyond, organizations are likely to form unprecedented new partnerships that require the ability to seamlessly, successfully port data across a variety of different systems.

But while no two interoperability projects will be identical, organizations are learning that there are some best practices that can help them better manage their efforts. First and foremost, starting early with detailed

and intricate planning prior to any partnership being formalized. Healthcare organizations can then understand the detail behind interoperability goals and data management requirements between organizations that is needed to be truly connected. That planning can help organizations find a tailored approach to ensure that the right data—clean data—can get where it needs to go. Successful interoperability projects have strong clinical leadership that can help guide providers of all stripes towards the ultimate goal: accurate, actionable data at the point of care. They use configurable, reusable tools so they don't have to reinvent the wheel with new partnerships or use cases. And they use careful project management to make sure that any interoperability efforts don't interfere with the daily healthcare mission. Taken together, healthcare organizations can ensure data moves across the enterprise in a "reasonably seamless" manner, so it is easily available at the patient bedside to help inform quality care, or in the business office to further the enterprise's population health and long-term financial goals.

It is through these enterprise level strategies and approaches that the CIO and IT team are pioneering one of the monumental tasks in health care: becoming truly connected.

EXECUTIVE RECOMMENDATIONS

- Ensure IT is clearly represented in C-Suite conversations and strategic planning for new mergers

- Conduct fact finding missions to evaluate merging organizations for technological capabilities, and data structures for mapping

- Conduct an audit of legacy systems to uncover potential applications for consolidation, and to understand contractual obligations of the merging organization

- Assemble a specialized "interoperability team" of experts involving clinicians, IT staff, and executive leadership from both sides of the merger

- Install a clinician champion as a key member of the interoperability team to leverage their expertise when creating workflows

- Identify key terminologies and data standards used in merging organizations data sets and structure (e.g. HL7, LOINC, SNOW-MED)

- Outline and create a strategic plan to standardize data sets and documentation based upon commonly used structuring

- Account for disparate systems outside of the EHR, by engaging experts from specialist partners, lab, radiology, and pharmacy departments

- Establish a detailed project management plan for any interface projects that may be necessary

- Understand, assess, and evaluate current technology solutions for interoperability that could expedite estimated time-to-value

- Engage security experts to ensure HIPAA compliance and secure transmission and exchange of data between systems

- For rip-and-replace: Consider the complexities of data exporting (predominantly XML formatted), to limit total amount of legacy data lost

- For rip-and-replace: Assemble a realistic timeline for a complete transition

- Closely manage expectations of executive leadership and key clinical stakeholders

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