

Executive Dialogue

Harnessing Big Data:

How to Achieve Value

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The shift to population health management will require organizations to tackle an onslaught of data, including data from personal medical devices such as FitBits and infusion pumps. This is in addition to the wealth of patient data that are currently collected and disseminated to clinicians. Hospitals and health systems will have to find ways to sift through the data to identify what's relevant to their practice and how it can be used to enhance patient care delivery.

Health Forum convened a panel of industry experts Oct. 9 in Phoenix to discuss ways organizations can use data more effectively. Health Forum would like to thank all of the participants for their open and candid discussion, as well as McKesson, AT&T, CareTech Solutions and CHIME for their support of this event and the Most Wired Survey.





MODERATOR (Matthew Weinstock, Health Forum): Data are going to be an integral part of the shift to a value-based, accountable-based health care system. Population health is dependent upon turning data into information and acting on it. How do you define Big Data within your organizations? What does it mean for you?

PAT SKARULIS (Memorial Sloan-Kettering Cancer Center): Well, I think the term Big Data is being used too broadly. We, of course, use it to refer to things in our hospital setting. It's the information we get from our monitors, for example, that allows us to do predictive analysis of

the patient. The other place I see it in health care is with genomic data and its associated components of proteomics and all the rest of it. That is definitely going to be Big Data. But, as of this point, I'm not sure that just having a lot of structured data and some clinical notes is enough to call it Big Data, but we are definitely headed there.

LINDA REED, R.N. (Atlantic Health): That's exactly right. Big Data, to me, is volume. The issue is what is important volume and what is not important volume and then how do you winnow out what is usable and what is not. Anything that's coming from a FitBit, a FuelBand or a JawBone, might be important. They might be used as physiological monitors, but they might not be. That's one place where we can collect a lot of information and then we need to decide what's important. I agree with Pat that the term is used too broadly and is a lot of hype.

PAMELA MCNUTT (Methodist Health System): We don't really use that term in our organization. We speak more specifically to what it is we are trying to accomplish, rather than just saying we are looking for a solution to manage Big Data. We are looking for a solution that can help us in our accountable care organization to look for risk in our patients. We are looking for a solution that can be a registry of patients in medical homes and ACOs. So, we speak specifically to what the need is rather than just speaking to Big Data. We get many phone calls from vendors saying they can do Big Data. It's like a solution looking for a problem to solve. We have to define the problem, because it doesn't do you any good to have a mass of data if you don't know what questions or what information you need out of that data.

STEPHEN STEWART (Henry County Health Center): The volume proposition is the scale, too. We are a small facility, but we face the same issues. It's disparate sources and more data than you



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Real opportunities exist to ensure that data are in the clinical workflow. You can really impact patient care directly if you can feed the right data into a clinical workflow and be able to act on it immediately.

Mary Beth Sirio, R.N.

are traditionally looking at, but it's pulling data together from disparate sources and then trying to turn that into information.

MARY BETH NAVARRA-SIRIO, R.N. (McKesson Technology Solutions): The goal is to move from more retrospective analysis to real-time analysis and, ultimately, predictive analysis so we can actually impact outcomes. We are still in the real-time analysis phase now and moving toward predictive analysis. It's evolving rapidly.

MODERATOR: How do you determine what data are important and get past the hype?

REED: Everybody is trying to get past the hype. The Big Data label has gotten old. We have enough problems with too little data, not just Big Data.

ALBERT ORIOL (Rady Children's Hospital): We need to know what questions to ask. But by the time we figure out what questions to ask, it's often too late to collect the right data. So, sometimes we do need to try to get as much data as we can and hope that when the questions come up, we have collected the data. Otherwise, we find ourselves asking questions for which there are no data to tap into.

MODERATOR: What gaps exist now in collecting the right data from the right sources? How are you trying to close those gaps?

MCNUTT: Our biggest challenge is trying to get data from all of the physicians in our ACO.

Our medical home program is a little easier, because it involves mostly employed physicians. But that's not the case for our ACO. Currently, there are between 20 and 30 different electronic health records out there. Some physicians don't have EHRs. We really need some of that data. We don't need all of it, but we do need some of it. We are trying to identify the data that are important for us now and, we can expand upon it in the future. What do we absolutely, positively need right now, to be able to move forward in this phase of our ACO journey? What are the 10 pieces of data that are essential to us now and we can expand upon that list in the future?

SKARULIS: We have to go to our warehouse to retrieve structured data. We've gone back for the past six years and are bringing in all of our physicians' clinic notes. It's a bit different for us since we are a specialty hospital, but we are bringing that in, even though we don't exactly know how we are going to use it. This includes all of the individual radiology and pathology reports. We are at the beginning steps of trying to understand more of what we have.

JIM VELINE (Avera Health): Well, at the risk of adding another catchphrase to our vernacular, I think what we struggle with is pursuing actionable information. We get caught up in buying information that is sold to somebody, and we buy it back, and it's our data to start with. We have shared this information with numerous parties, and then we move on to the next round of collecting information. We are dealing with this fire hose of information coming down to us and getting very little actionable information as the result. I echo Pam's approach. We start with the problem and work backward and focus on things that can and should change in our health care system as opposed to pursuing information for information's sake. We can all claim some responsibility for being a victim of that behavior for the last few years. But now that we have a wealth of information that the provider community has not historically had, we are getting excited about some of the right things. We have to focus on what are we going to do with it and what can we do with it.

NAVARRA-SIRIO: Real opportunities exist to ensure that data are in the clinical workflow. You can really impact patient care directly

if you can feed the right data into a clinical workflow and be able to act on it immediately. However, if you think about things like ventilator-associated pneumonia, we have known how to prevent that for years. Organizations didn't begin to make big strides toward prevention until they started hardwiring the metrics into the clinical workload. It's that kind

of actionable clinical data that can really make a difference.

MCNUTT: One thing that crosses my mind a great deal is the role of the health information exchange. If HIEs were really functional as they should be, we should be able to get the acute, post-acute, ambulatory, pharmacy and lab data

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all in one location. To me, that's the ultimate Big Data. I worry sometimes about how many times in a particular region, even our city, that we are reinventing the same things.

REED: That's interesting. It's a conversation we need to have with our regional HIE. We are going to move from being a data exchange to a data aggregator, right? At the end of day, our value is going to be getting that information and reporting out to our members.

JIM GIORDANO (CareTech): I look at Big Data as anything that is used for population health. One size certainly does not fit all. A neonatologist does not need the same information as a cardiologist. The challenge is that it comes from different sources. Think about the flu shot. If a patient receives a flu shot at his or her local drug store, how do you get that information?



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Jim Giordano

Another consideration is the manner in which data are collected. Unstructured data are obviously a big challenge. It's not only the quality, but the quantity of the data. Smoking cessation data should be more than a mere 'Yes' or 'No.' Physicians need to know frequency and duration. We are finally to the point where we can use this information for population health.

ORIOLO: We are definitely moving toward achieving actionable data. The key is getting it into the clinical workflow, as Mary Beth mentioned. When we talk to physicians, one of the things that they worry about is what they are going to do with all of the data. Who is going to pay for that time? Another concern is liability. Given the mass of data that is presented to them, what happens if they miss something? We are gaining ground, but we have a lot of work ahead of us.

MODERATOR: How do you get to that point, figur-

ing out what to push to physicians?

ORIOLO: Trial and error.

STEWART: Listening to them.

VELINE: Physicians are indeed sympathetic to cost, but they are much more enthusiastic about the things they can use to improve the quality of the care for their patients. We are starting to look at the quality side as the indicator, and if we want to make it actionable, we have to start emphasizing that. Physicians will respond in kind when they can see the benefit to their patients. That has as much benefit as driving down the cost. We are in the shift, but we are not far enough along yet to see the benefits of the infrastructure we have in place.

STEWART: Jim just said it very well. In my expe-

rience, physicians are interested in two things. They are concerned about their workflow and how they can deliver better care. You have to accept that and, perhaps as a leap of faith, know that if you focus on providing better care, it will have a positive impact on cost. If you have a focus on where you want to end up and believe that improved outcome, improved care, will have a positive influence on cost ultimately, then listen to what the clinicians are telling you that they need. After awhile, you will get to a point where you can coach them little bit on what they need.

It's a bit different in the rural setting because smaller organizations may not have all of the technology that you would find in larger, urban settings. The decision-making process is sometimes a bit easier because physicians don't have excessive amounts of data to sort through. We are part of an HIE and we are also working on a pilot project with the VA to exchange information. The VA is very advanced and



We are definitely moving toward achieving actionable data.

Albert Oriol

they have a lot of information, but they don't share a lot of it. Our physicians are saying that any information is better than none. Our Blue Button Project with the VA is a tiny step in the right direction. It means more information that we have to consume, but it provides more timely data. We need to stay focused on our end game and that is to provide better outcomes, and data exchange will help us get there. We may at times go off in the wrong direction but we need to keep moving and ultimately we will get to the right place.

I honestly can't fathom the shear magnitude of data encountered by my colleagues at larger facilities. Their challenges are greater than mine. But relative to the size of the resources of the organization, we are all the same. We have the same breadth of issues and the challenges are the same.

MODERATOR: Let's talk a little bit about that resource question particularly on the staffing side. We know that you are all facing a shortage of IT staff. Big Data requires significant analytics. Are you experiencing shortages? If so, what are the solutions?

REED: It's interesting, because the role needs some sort of hybrid person that has clinical knowledge and analytic knowledge. We are experiencing a drought in terms of analytic experience. We don't have enough of those people in place yet.

ORIOLO: We are experiencing that, too, so we are trying a slightly different approach. We

need very solid technical people who can understand the ins and outs of the data. Then we need people who have the capability to ask the right questions and compare them. Linda is absolutely right; finding the person with both sets of skills is hard. We are trying to cultivate those skills.

MCNUTT: We have found some solutions that we've adapted from the insurance industry and adapted them to our ACO endeavors. There are cloud-based solutions out there so we don't have to reinvent the wheel. If you are trying to analyze Medicare claims, there are companies that already do that. It's just in the cloud. The nice thing about that is it doesn't take any resources. It comes with some set utilities and tools, and they already know the kinds of things you need to be asking. How you are going to group people by diseases and find your high-risk areas or your high consumption areas, for example. A lot of these queries already have been written, so you look for a tool in the cloud with some of these basics already delivered. We then need the capability to drill down to the data we need. It saves us a lot of resources by not trying to run or develop that inhouse. We just don't have the resources to do it, and so we are finding that we can actually maintain that posture and have a reasonable selection of tools.

SKARULIS: We are expanding the numbers of analytics people throughout the institution. We have a large group in IT; but we have a number of groups at the department level. I call them superusers. We are finding it hard to find people who really understand the nuances of health care and have the analytic background. We have to train them for about six months

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Stephen Stewart





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Jim Veline

on doing very simple reports and then we can move on to more complex stuff. Finding people who understand the nuances is very hard, and I guess you only get it by being in a health care organization. We are looking for people who have skills with visualization tools and adding those to the mix. We think some of that will be extremely important to make data use easier for everybody else in the institution. Part of our mission is research, so we need this data for research purposes. We are trying to understand everything about cancer and get that in the hands of our physicians. We have developed a Web-enabled tool that is compliant with the Health Insurance Portability and Accountability Act so our physicians can go in and actually begin to extract the data they need.

ORIOLO: If we have to become the providers of data, we are always going to be the bottleneck. We need to get our clinicians, our researchers and end users the capability to access the data themselves. It's the only way to address the demand. We can't be the sole providers of the data.

REED: That goes back to: What does the IT department of the future look like, right? Do all the resources need to reside there? Or do specialty departments need to have some depth in those areas? It's an interesting question and it may change the face of IT.

SKARULIS: We have to be an enabler to the rest of the organization. We have to be there for support.

MODERATOR: Jim, are you seeing that kind of conversation occur nationally as you talk to some of the hospitals that you work with?

GIORDANO: Definitely. There is a big demand across our entire customer set for database analyzers and report writers. That, as it was mentioned earlier, is a person who understands the clinical implications of the data. Some organizations are starting to use data effectively. It depends on the specialty; some are more advanced than others.

We have been collecting data for years. Now we have to think within the context of population health. What will that yield us? Maybe it will enable us to predict a regional outbreak and target a flu vaccine for the type of flu in your region. Those are the kinds of questions that we are thinking about.

REED: We've used rapid response teams for many years. When we review the data and use some of the new monitoring tools, we may never need another rapid response, right? The data could potentially identify a situation before we have to call a rapid response team. We may be able to prevent codes.

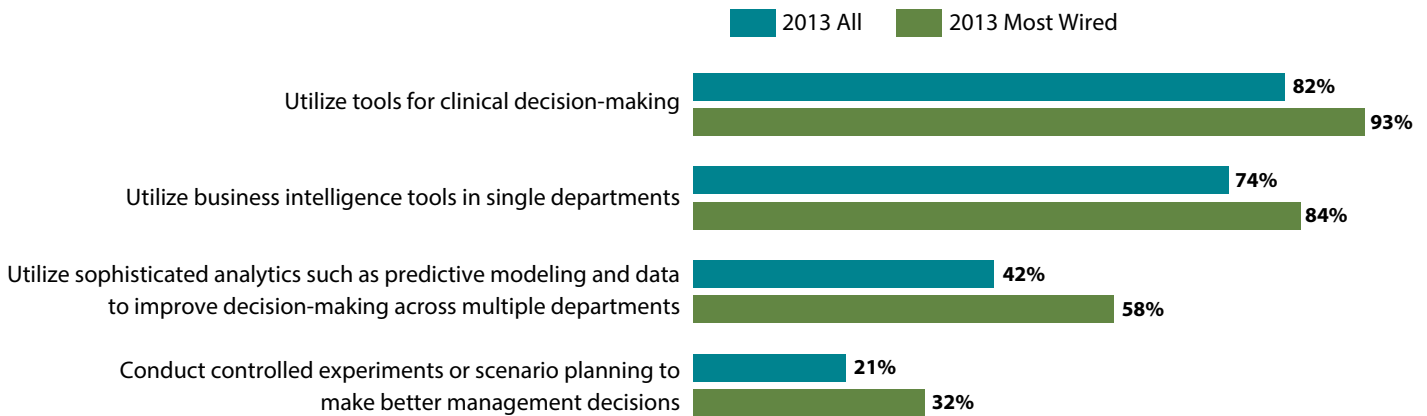
GIORDANO: On the patient care side, some of our customers are profiling patients. They are identifying patients that are at high risk for readmission and they are gathering data around that. They assign advocates to track the patient for 30 days to oversee compliance. Those data are having an impact. Readmission rates are dropping in organizations that are using data in this way.

ORIOLO: We are doing that in San Diego. Our first challenge is to capture data. We have some gaps, but we are capturing data. Now we need to extract useful information from that data. That's where we are today. We can use the data to make decisions or we can use it

Key Findings

- * Do not get bogged down in the collection of data for data's sake. It's important to establish a list of goals and then select the data that will be useful to achieve them.
- * Data need to become part of the clinical workflow to allow for real-time decision-making and predictive analysis.
- * The need for data analysts is on the rise and supply may not meet demand. Organizations may need to cross-train clinical staff to assist with data analysis.

Hospitals' use of business intelligence tools



Source: Hospitals & Health Networks' Most Wired Survey, 2013

to drive automation. To do that, we are going to need the capacity to extract the data and build it back into the system. It will become a self-feeding improvement circle. I find that very exciting, but it drives back to the resource question and prioritization.

VELINE: It takes a leap of faith, so to speak, in capturing and recording data and producing credible information. We are starting to produce data reports and getting feedback from the user community and clinicians. We are re-evaluating how the reports are written, what information is being pulled out, what kinds of conclusions are being made. It's going to take a long time to get to where we need to be.

SKARULIS: Another thing to consider is whether the data are used properly by the consumer. As we begin publishing the metadata on everything in the warehouse, we convene groups to discuss particular problems, such as a census. How do you define census? We might bring in 40 people from different groups and start talking so that we get a precise definition. We also may publish sequel code. We do this on the Web so that people will understand what you are talking about. Here is the code to pick up that will give you the correct calculations. We are trying to ensure that we have consistent use of data and definitions and we try to educate people along the way. That will be a challenge. It's great that people are becoming more independent, but we have to be sure that they are doing it correctly. It's sort of an educational role

that we are taking on.

MODERATOR: Prioritization was brought up a bit earlier. Where does this fall in terms of prioritization at your organization?

MCNUTT: We need to make it a bigger priority. Frankly, it's a balancing act for many organizations, because we don't know that ACOs and similar types of programs are going to be the answer five years from now. I believe they are the answer. But for now, we need to keep one foot in the old world and one foot in the new one. The way things are changing in the regulatory environment is very difficult for all of us. We have to rely heavily on our senior leadership to tell us where we need to be spending our time and what are our priorities and then really be willing to stick to our guns.

REED: That's right. We have dipped our toes into the new environment. The question is: When will we reach the tipping point and move further into the new world?

MCNUTT: Reimbursements are shrinking, so we have fewer resources and everyone is worried about margins. And yet, we are trying to live in two different worlds and have IT systems that can support the traditional acute care ambulatory care model and then systems that can support population health. It's not a sustainable model.

SKARULIS: As we gain greater understanding of ACOs and how health care is being consumed,



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Pat Skarulis



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Pamela McNutt

I don't think it matters as much where we will be in five years. All of these changes are for the better, enhancing care delivery and improving patient outcomes.

MCNUTT: That's true from a quality standpoint, but we can't ignore the financial situation. When and how will the reimbursement match it? We've talked for years about preventive medicine, but the financial reimbursement never worked. If hospitals and health systems

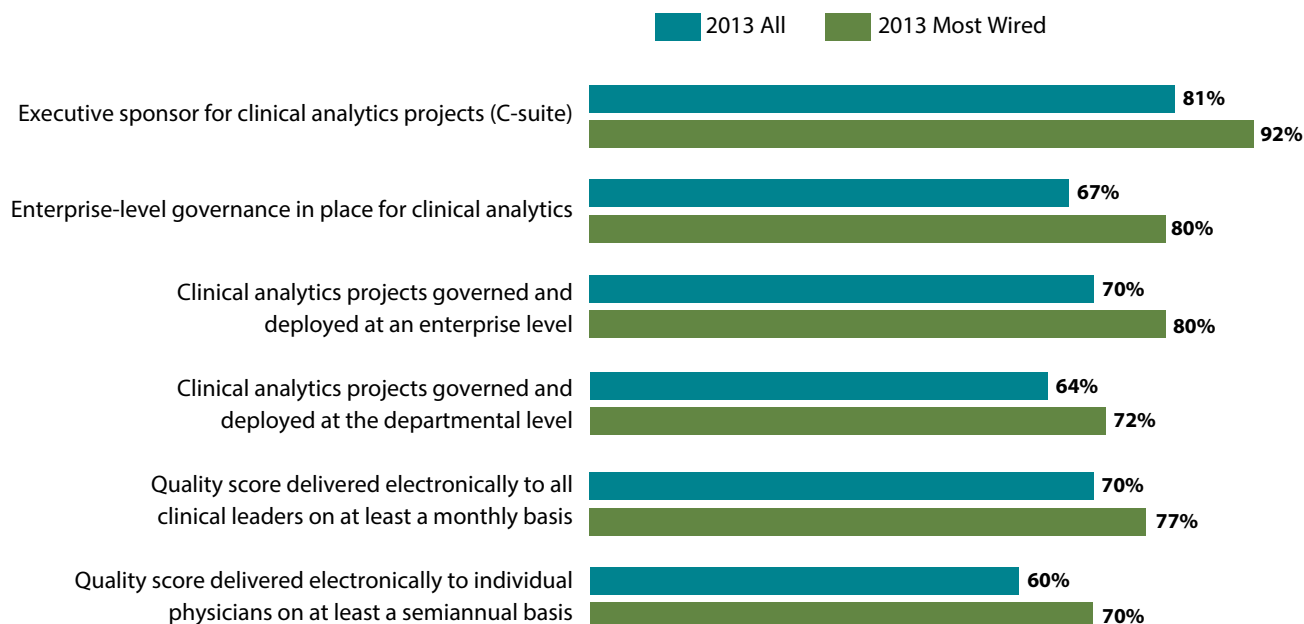
fully embraced population health and pushed care outside of the organization, they would go bankrupt. Their real question is: Where will the reimbursement model be in five years?

ORIOLO: We have these conversations fairly often; they center around what is best for the patient. What is best for the population? Once you make the decision to go there, you have to work with your payers on the back end to make it work. If we truly believe this is the way we are going to make an impact, we have to go forward and then figure out the financials on the back end.

MCNUTT: All of us are pushing for clinical quality inside each particular visit. There is no doubt that has value. The question is: How far do you go on the population health management piece? How much responsibility do you want to take for the post-acute visits? Those types of questions are the ones that are lingering. How far do we go now? Clearly, there are many analytical tools to help us get better every single day, to help us practice evidence-based medicine. And we can move forward with many of these things regardless of our long-term plans.

REED: It's funny, because we started off with how

Hospitals' use of clinical analytics



Source: Hospitals & Health Networks' Most Wired Survey, 2013

do you define Big Data and we've moved on to how we define population health management.

GIORDANO: Well, getting back to Big Data. We do see hospitals struggle with how to use Big Data to demonstrate value. It's not just the clinical experience; It's about engagement. Again, it's that big umbrella in defining population health and that means the entire experience. That's all part of the value-based reimbursement.

MODERATOR: Let's talk about patient engagement. Linda mentioned the FitBit earlier and we've discussed retail clinics and how that information can get into the patient record. How do we capture patient experience in all of this?

ORIO: We are working with several companies now to capture patient experience data for some home monitoring tools such as glucose monitors. We really believe that these tools will help us get a better sense for managing the patient. We can improve their quality of life and decrease the cost of their care by keeping them well-managed and avoiding readmissions or ED visits, things of that nature. This data can help us with predictive analytics.

REED: Patient care delivery will be very different in the future. Many of our organizations have sleep centers. A sleep study is about \$3,000. But new technology allows for in-home studies that cost about \$1,500. That's something every hospital executive needs to consider. What will the service catalog look like in five years? What are we going to stop doing? That's why we are talking to physicians and encouraging them to start looking at FitBit data. We have to start moving toward that future because it's fundamentally going to change the way we look at what we provide.

SKARULIS: Smartphones will have a major impact in terms of what people will carry around with them. We have applications for our patients to self-report their response to medications, for example. They can tell us whether they slept well or whether they experienced any nausea. By the time they come back for a follow-up appointment in two weeks they may forget so this helps us to collect the data we need. The response is pretty good. We think Smartphones are going to be one of the big tools, along with FitBits and similar technologies. *

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