

Argyle Conversations

by Argyle Executive ForumSM

Big Data & Healthcare: The Best Care

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Jeremy Cicurel: Can you start us off with a little bit about your background at Hartford Hospital?

Luis Taveras: I'm the CIO for Hartford HealthCare, which is a comprehensive care delivery system in Connecticut. I'm responsible for the IT organization and the biomedical engineering group throughout the system. So I have both IT and biomed responsibilities.

And can you talk about the different departments that you oversee at Hartford Hospital?

I've structured the organization along tower lines; so I have an infrastructure tower, an applications tower, a service-management tower. I have a Chief Security Officer in the security tower, a Chief Medical and Informatics tower – which houses the clinical folks that work between the clinical departments and IT – and then I have an administrative team of people. We also have site CIOs in each one of the member organizations.

Each of those towers has a leads and each major entity has a CIO. There's a CIO at Hartford Hospital, a CIO at the Hospital of Central Connecticut, a CIO in the East Region which includes Windham and Backus. We have a CIO that focuses on our visiting nurses organization, a CIO for our lab company, a CIO for our behavior health network and a CIO for our large medical group. Those are all of the CIOs that we have in the organization.

Please describe the size of your IT organization.

We're close to 400 people when you take biomed and IT all together.

We hear a lot about the mobile workforce. How is this area evolving in your industry and how are you dealing with it?

Yes. The mobile computing revolution is hitting us, and the unfortunate thing is that we have not planned well for it. Instead we've been reacting to it, so what we're trying to do is turn the tables and actually start planning much more. That's why we now have our mobile computing policy that we are executing on and publicizing in order to address this mobile device explosion. Are we going to support all the devices that are out there? No because that's not the most efficient way to do this.

So, we'll need to ask people to conform to certain devices that will be supported, and then we're going to strengthen our support structure for those devices. We've already slowed down the investments on desktops and regular laptops, because I think in three to five years the mobile devices – particularly the tablets – are going to take over that environment.

What are some highlights of the mobile computing policy that you have in place?

For one thing there are a lot of security issues that need to be addressed. If someone wants to bring their own device, they're going to have to sign an agreement which clearly states that if they lose that device, then we're going to wipe it and they may lose personal information. There is more sophisticated management software that will allow us to create partitions. This means that we will be able to be more prudent and only destroy the business side of the smart device which is much more friendly towards our end users. It's also important to emphasize to this exploring end-users community their level of responsibilities in protecting our information, particularly if it includes patient related clinical information. Today, any device that stores patient data must be encrypted. We cannot afford to have patient information floating around out there on different devices without the proper level of protection.

Is there any occasion where there will not be patient information stored?

Most of the times we don't allow people to store patient information on those mobile devices. We do have laptops that our visiting nurses use, and obviously they go into people's homes. But all of that data is encrypted on every one of those devices.

Do the doctors and physicians use mobile devices and tablets, such as iPads, to look at patient information, scanning, radiology, x-rays, etc?

We're getting to the point where there's going to be a number of clinical applications running on those devices. They will be able to view the information, but they will not be able to store patient information on those devices unless they are encrypted.

How do you prevent them from storing all that information?

Right now we're looking at mobile device management (MDM) solutions that will allow us to do all that. We're at the contracting phase for an MDM solution that will help us manage that. This solution should be implemented within the next few months. So we're almost there.

Now what about your own employees and staff, are they using tablets more than desktops now?

I see more of our folks walking around and coming to meetings with their tablets or their iPads and taking all the necessary notes and doing everything. Tablets will be the solution particularly once we're able to dock them when we return to our desk. Then this will become the single workstation that we need instead of having to supply multiple workstations to our end users. This is exactly where the iPad falls short in a business environment. I can't plug a USB device to it. I can't dock it and use it as a full workstation. This is why we're starting to have people ask for the Windows 8 tablet instead of the iPad because they can't be fully functional with these limitations.

Let's switch to the topic of big data and analytics. How is that changing the healthcare community not only in how you do your job, but helping the patient themselves?

When it comes to the provider segment of healthcare, we're going through a major transformation in many different facets, some of which are driven by regulations such as The Affordable Care Act. A lot of it is driven by the dynamics of the industry and what I mean by that is when you look at the way that we care for patients, it was previously a reactive and episodic model. You got sick, you came to one of our providers or hospital for care and then we sent you home. So we just reacted to you being sick. The model needs to actually be flipped so that we're caring for you in a way that we're going keep you well. So instead of a sick-care system it becomes a real healthcare system.

These days you cannot provide the proper level of care without information systems, and that will continue to be the case in the future. We need to be the enablers of not only individual patient care but also population care, and without analytics you can't do that. Our clinicians need to really understand what's going on with our patients in order to deliver the most effective and efficient care to them. For instance, if we're treating a patient who is diabetic we need to know the details about the current health status of that patient. That not only includes the situation with their disease condition but also their living condition, social condition, family support, etc. because all these factors will help us to put together the best plan possible for this patient. Yes, we need to know when they had they last set of lab tests done and the results. We also need to know the last time this patient had his or her feet examined and the last time they visited with an Ophthalmologist. Critical clinical information but what if this patient has not been able to make these appointments because they don't a way to get to the clinics for these visits? That's also critical information in a world where we're financial at risk for managing the health of this patient. In addition, as an organization we need to know if we have 3,000 diabetics that are being cared for by us and the fact that 20 percent of them are out of compliance with the prescribed care plan. How do we improve the compliance in order to improve the health status of these patients? That's where analytics will be key in the new model of healthcare delivery. We will not be able to truly improve the health of our patients without the proper information being available at the individual patient level and at the population level.

It's important to note that we're rapidly moving away from a fee-for-service environment to a fee-for-value environment that focuses on the patients and their wellness. In the fee-for-service world that we're leaving behind, it didn't matter what we did to care for our patients because we got paid for it. So it was almost in our economic best interests to have a patient come to the hospital every other month since we got paid for every day they were in the hospital. In this new model it doesn't work that way, which means that if a patient for whom we're responsible comes in on a frequent basis and we exceed the amount that we're being paid to keep him or her healthy, we're now actually paying for that person to come to the hospital.

Interesting, can you elaborate on that?

Well, if we get paid \$5,000 a year to keep you well and you come and spend three days in our ICU, then we just blew that \$5,000. Let's say our cost to care for you is now at \$15,000. That means we lost \$10,000 on you. We can't have too many of those case, so we have to do everything possible to keep you well. It's in your best interests to be well but it's also in our best interest because we're bearing the risk. And the more risk that we bear, the better we need to be at managing risk. That's something we have not been good at in the past but it's definitely a major imperative for survival in the near future.

Do you have some specific examples of how we are going to move toward that direction?

A few things will happen. Going back to analytics and big data, we're going to collect a lot of data on our patients, because we'll need to aggregate that data in order to evaluate the organization's total risk. If we have a patient that is being treated for congestive heart failure, and we send him home and that patient comes back to the hospital within 30 days to be re-admitted, we will get zero dollars for that second hospitalization if it occurs within 30 days of the first. So we have to make sure that after we send that patient home we can continue to monitor his health status. In the future that means we may send you home with a bracelet to wear that has enough sensors to tell us everything that's going on with you. This will allow us to continuously monitoring you. I may ask you every night before you go to bed to step on a digital scale for one minute so that we can monitor your weigh on a regular basis. This will be critical information for our care management team who are trying to keep you healthy.

This sounds as if patients will then be more proactive in their care as well.

The patient is going to be a lot more involved in their care. Today they have a passive role and they depend very heavily on our clinical teams, but we're going to have to engage much more with that patient, and we're already seeing that happen. I've been talking about consumerism in healthcare for the last 25 years, but I think it's finally here. I think we're finally going to see the patients wanting to be engaged in this, and therefore you'll see solutions like patients portals that we've had for a long time but that have been unused. The portals that we're developing now are going to be much more engaging and much more interactive with the patient. We want the patient to get up in the morning and if they feel like they have heartburn, to go onto the patient portal and provide us with that information. The system may say, "You better call your doctor based on your history," and give them available appointment times in various locations.

When the patient gets into the office we'll have a kiosk set up for check in. It will ask if the heartburn is better or worse. All of that information provided by the patient is then added to the medical record and made available to the clinicians before they even see the patient. This more complete picture of our patients will facilitate a much better interaction and much better care for that patient. So that's how we need to engage the patient, and that's how their level of engagement in their own care is changing.

To develop the strategy, is this something that you are driving at Hartford Hospital or is there a system in place that pushes you toward that direction?

We've grown in general commercial terms through affiliations, and we have a myriad of different systems. It's very difficult to do what we need to do in that heterogeneous environment, so we going to focus on the implementation of an integrated solution. What we're promising our patients is that they will experience five things with us. First, one of the most frustrating things for our patients is that every time they see somebody in our system, they are asked to repeat the same information: who are you, what are you here for, what allergies do you have, etc? People get sick of providing the same information, and it's also dangerous because we have elderly patients that are on 15 different medications. If you ask what medications they are on they give you a list, but if the next person asks then they give a different list. Not intentionally, it's just too many medications for them to remember. In this situation, we don't actually know the medications this patient is taking.

So you're going to register once, and once you've registered we will know you everywhere in the system. We'll ask the clinically relevant questions that we need to ask but it'll be in a different way. We'll say "I notice that you're allergic to penicillin" instead of "do you have any allergies." The level of trust goes up and it's a different interaction with a patient when they get a sense that we know them without having to ask all of the same questions multiple times. The second promise is that we will have one comprehensive medical record with all of his/her information and that it will be available to all clinicians prior to care being provided. It's not safe nor efficient to have all these

different little snippets of your medical record all over different systems. We don't really want to talk about records, we want to talk about your patient's story and we'll make sure that every provider who is responsible for your care has a complete story on you. If we're going to supply the best care that we can, we better know everything about you in a single record.

The third one is probably the most difficult for us to do. Another very frustrating thing for our patients is dealing with our bills and payment system.

The fourth one is that our patients will receive the same standard of care regardless of where those services are provided. Whether it's cardiac care or casting a broken bone, it will be done based on the same evidence based medicine model. The care and the results will be standard throughout the organization. So one standard of excellence, one standard of care is what we're going to provide to all patients.

And the last one is one relationship; we want to make sure that our patients understand that we're here to be their partner and take care of all their medical needs. And all of these promises build up to that one relationship. When you know that you need to go to the hospital or call a doctor, here's where you're going to go. So these are the five things that over the next three to five years we will deliver to our patients.

Basically your guiding principle is one registration, one health record, one bill, one standard of excellence and one relationship. So where do you think the industry is going in the next three to five years? Do you see other hospitals going in that same direction?

We like to think that we're leading the way in this country and certainly in this region. But I believe that a lot of other organizations are feeling the same pressure. We may be ahead of most other organizations just because of the approach that we've taken and we have been very focused on what's going to happen five years from now and making sure that we're positioning ourselves to thrive in that environment.

Privacy concerns are a major issue today, particularly with the rise of mobile technology. How do you deal with that?

There are two things that are at play there. One is the whole idea of privacy and the second one is the idea of transparency. And in the healthcare system, the market needs to be a lot more transparent. So for example, when you come and you're a patient of ours, it's your medical record. Through the patient portal that I talked about before, you're going to see your medical record and provide updates. We will increase the level of transparency because we need our consumers to know the level of quality that we provide to them. That's going to be a differentiator for us in the future.

Now the issue of privacy is a little bit different for us in healthcare. As a patient of ours, you're entrusting us with some critical information during a very vulnerable time of your life. You're trusting us to not only provide you the best care, but also to protect the information that we collect on you, and it's our duty to do that. So we have to make sure that anyone that accesses that information is only doing so because they need it to treat you. That's why we have a Chief Security Officer in place and an organization there to focus on protecting all personal health information.

How much of a challenge do you think that aspect and the regulations themselves are going to be when it comes to reaching your goal of those five guiding principles?

I actually don't see them as barriers. All the registration information on your health record will be in a protected environment, so not everybody's going to have access to that in ways that they can use it. Our staff knows that if they access your record, we're keeping track of that and can tell you who accessed it in the last two years. You have a right to ask that, and we need to be able to produce that. That auditing function is built into all of the applications that we use. So I don't see it as a barrier to getting that done.

What then do you see as the biggest challenge to move forward?

The biggest challenge is really getting the physicians' aligned in the standardization of the way we treat patients. Standardization of clinical practices needs to happen but it's going to be a major challenge to get there. We're doing everything we can to engage all physicians in being active participants in this transformation of care processes.

Through our work with other hospitals, we've observed that physicians frequently call the shots and often view IT as order-takers. Are you doing anything concrete to get physicians on board?

My key partner in this organization is the Chief Medical Officer, because he needs to be right beside me in all of these endeavors. I spend a lot of time with the medical staff and participate regularly on the medical executive committees. I also do rounds periodically with physicians in order to understand that they're facing on the patient care floors. This level of interaction allows me to have a much better appreciation and understanding of the issues and concerns that they are dealing with on a regular basis. I feel that I need to be in the trenches with them, and everything we do needs to be in that cooperative fashion so that they can tell that we're doing this with them and not to them. Because if they have any sense that we're doing this to them, their level of resistance goes up. If we just sit there talking to them and figuring out how to make this work together, then we get a much better result.

How do you challenge the 400-plus people that you have on staff? We see the challenges hospitals have dealing with medical demand management, with much of the demand coming externally and small requests that become monumental projects. How do you handle that?

First of all, imagine how many projects we have coming our way on a regular basis. So the key to that is the intake process, and we have invested in a service-management tool that is widely used by many organizations, but very few on the provider side. We have spent a lot of time over two-and-a-half years implementing BMC Remedy to use as a service-request management system. It comes through that process, and the key is the governance surrounding that. So we have clinical governance teams that will take these requests and help us prioritize what we need to be doing for the organization. But we don't take a lot of smaller things to them. The simple things we just go ahead and try to get done.

Your board may soon move to Epic Systems. When a company goes to Epic they generally need to elevate the maturity level of their organization in the sense that better change management is required; improved testing procedures are necessary; and more agile processes are in place. So typically Epic forces an organization to mature. Do you believe, as an organization, Hartford Hospital has the maturity in place to adapt to an ultimately successful Epic implementation?

About three years ago I established a vision of where we were going in the next 3 to 5 years. I described three levels of maturity that we needed to achieve as an organization. At that time when I looked at the different members of the organization, we were very reactionary. So we needed to execute on a plan to move us to the operational excellence level of maturity. In order to get there we had to get away from the silos that existed within the organization because they were limiting our ability to interact and cooperate with each other. In essence, the silos were keeping us all from feeling and acting like a single team. We also had to get away from the disparate processes that existed. There was no intake process; there was no service management discipline at all; there was no planning that went on in the organization. So we needed to mature in all those areas in order to be able to move into the operational excellence are where we are absolutely focused on improving the end-user perception of us, which wasn't very good because we were always in react mode.

We developed processes based on the ITIL model and implemented tools for our people to use. We provided leadership training to our management team to teach them how to better engage the staff. We also provided them with the right level of support they needed in order to focus on improving the quality of the services delivered. This is very much in line with something we have in our organization that is kind of unique called How Hartford HealthCare Works, or H3W. That is a Six Sigma-type process that is a bottoms-up approach to how we're going to engage the entire organization. Every member of Hartford HealthCare participates in an H3W meeting every month and these teams come up with great ideas and suggestions on how we can do things better. I wanted to make sure that we had H3W embedded into everything that we did and that we were meeting operational metrics that show our end-users that we're going to deliver in this manner.

The bottom line is that we were starting to create at this stage a knowledge management environment to really improve the operation. And now we are at a point where we need to take it to the next level, which is the creation of a high-performing organization. In this high performance environment, we need to not only meet the expectations of our clinical and administrative departments, we need to exceed those expectations on a consistent basis. This requires that we transform the role of the local CIOs to be much more strategic in nature.

At this high performance state, we will create a learning organization so that we get better and better and better. Every time a call comes in, it goes into our knowledge base. The next time that call comes in, those people know exactly how to handle it, and if we see too many of those calls then we see patterns and know that something's going on there.

That's what a learning organization is, and IT shouldn't be exempt from being a learning organization. So these are the stages of development for our organization. We've evolved from a reactionary organization to a point where we have nearly created an operational excellence environment and we're on track towards reaching the high performance goal that we have set as our vision. As I mentioned earlier, my early promise to the IT team and to the organization in general was that this would be a 5 years journey. We're nearly three years into it, and we're pretty close to the operational excellence stage. We've been focused on streamlining the processes, upgrading our tools and capabilities and fortifying our infrastructure. Our major data center will soon be more than 95 percent virtual and we will soon launch an effort to establish a sister data center in the Eastern part of Connecticut in order to provide a high reliability environment. As we move to these major systems, we can't afford to be down because if that happened in our lab system today, we would have a localized impact on operations and patient care. But in the near future we will have a single lab system supporting all facilities. In that environment an outage would impact all of our hospitals, clinics and other care settings and this would put our patients at risk of possibly not getting the best possible care. That's an unacceptable scenario because it would limit our ability deliver on those 5-ones that we discussed earlier as promised to our patients.

Finally, are there any other mission-critical priorities that are top of mind?

The biggest thing is that it is great to have all these strategies and all these plans, but it all comes down to execution. And in order to execute we have to have a team that is focused on being high performers. It's not me or any other individual in leadership, it's the team. So the big thing is making sure that we have that A-team in place and bring people along this journey of excellence by providing them with the right tools, the right processes and the right level of management supervision that will keep them fully engaged and enthusiastic about how we enable our clinicians to provide better and better care for our patients. As healthcare goes through this transformation in the next few years, our clinicians will become increasingly dependent on IT for providing personalized, coordinated care on consistent basis. Our priority is to make sure that we have a highly reliable infrastructure and applications environments along with an accountable IT organization that provides the services our end users need to make them a high performance team.

BIOS:

Jeremy Cicurel

Jeremy Cicurel is director of Kurt Salmon's CIO Advisory Practice. Jeremy supports clients across industries, including finance, retail, health care and technology. He has advised leading organizations for more than 16 years, focusing on IT transformation, IT strategy, IT organization, cost containment, operational efficiency, information security and disaster recovery. Before joining the firm, he was the CTO of Arch Insurance and an information security officer for DoubleClick (now a Google subsidiary).

Luis Taveras

Luis E. Taveras, Ph.D. is Senior Vice President and Chief Information Officer for Hartford HealthCare (HHC). Hartford HealthCare is the premiere health care network in Connecticut with 15,000 employees and \$2 billion in net revenue. HHC includes Hartford Hospital; The Hospital of Central Connecticut; MidState Medical Center; Windham Hospital; The Institute of Living psychiatric center; VNA HealthCare; Clinical Laboratory Partners with more than 80 locations statewide; Hartford Medical Group; the Doctors of Central Connecticut; MidState Medical

Group; Central Connecticut Senior Health Services, which includes five assisted-living and skilled-nursing facilities; Eastern Rehabilitation Network; and two regional behavioral health centers, Rushford and Natchaug Hospital.

Prior to moving to his Hartford HealthCare role in 2009, Dr. Taveras served as the program manager for creating an internal information technology organization for The Hospital of Central Connecticut, guiding the hospital's transition from a fully outsourced environment to an in-house model. From 2007 to 2009, Dr. Taveras was a partner with the Accenture Outsourcing Growth Platform. As a select member of the Outsourcing Multi-Tower sales team, he was responsible for leading the global pursuit of outsourcing opportunities exceeding \$500 million in contract value. From 2003 to 2007, he managed Accenture's Products North American Practice with responsibility for outsourcing delivery within the Accenture practice covering the health care, consumer and industrial business segments in North America. He was responsible for managing more than 900 North America-based employees and more than 6,000 support staff globally. He retired from Accenture in August 2009.

Before joining Accenture, Dr. Taveras was acting Chief Technology Officer and Senior Vice President for St. Vincent Catholic Medical Centers of N.Y., a \$1.5 billion integrated delivery system consisting of eight hospitals as well as nursing homes, primary care clinics and behavioral health facilities. Prior to that role, he was a senior partner and vice president responsible for Computer Sciences Corporation's East Coast health care practice and a member of KPMG Consulting's health care technology practice. Prior to that, he held a number of leadership positions with IBM's health care and higher education practices.

Dr. Taveras earned his Ph.D. at the University of Sarasota, his MBA from Rutgers University and a Bachelor of Science from Wesleyan University.

Dr. Taveras serves as Vice Chairman of the William G. Forbeck Cancer Research Foundation and is a member of the Board of Directors for the United Way of Northeastern Connecticut. He formerly served as president of the Ortle Beach Voters and Taxpayers Association.