HIStalk Interviews George Dealy, VP of Healthcare Solutions, Dimensional Insight

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George Dealy, MS is VP of healthcare solutions for [Dimensional Insight](#) of Burlington, MA.

Tell me about yourself and the company.
We've been building analytics technology for the last 30 years. My group uses the Dimensional Insight technology, the Diver analytical platform, to create healthcare-specific analytical applications that solve various problems within the healthcare system, primarily focused on the provider environment, but we also have payer and manufacturer customers.

I have been with Dimensional Insight for 15 years and in the healthcare IT space for 27 years. Before that, I was in the data management database area, working for companies such as Sybase in the early days of RDBMS technology. I was there for 10 years before I moved into healthcare-specific technology.

Do customers want a platform that allows them to develop their own analytics or do they prefer pre-built solutions that have been proven to work elsewhere?
We've seen a transition, over the course of the last five or six years, from folks wanting to build their own solutions to their own problems to being open to pre-packaged solutions like the ones that my group builds. Then, extending them for their own purposes.

But even beyond that, we've seen some of our larger health system customers essentially almost outsource their analytics process to us. They consume the data and they decide what problems we're going to focus on solving, but they look to us to do the actual development work. A consequence of that is that they are able to put more focus on actually using the data versus building the systems.

Do they just give you a description of their problem or do they already suspect its underlying cause?
It depends. We have a family of eight healthcare solutions. We will typically start a conversation with a customer for a particular problem. I'll use the example of a surgical service line where there's lots of information. There are challenges around things like throughput and patient flow. They're turning ORs around. We have a solution that provides common KPIs for that particular class of problem. They are able to extend that to more specific manifestations of those problems. We typically start with a pretty well-defined starting point for a particular problem. If their problem is something other than what we have a pre-packaged solution for, we still have a starting point in terms of the way that we go about developing applications.

We've created some technology that sits on top of our analytics platform and simplifies the process of defining and then calculating KPIs. One of the things that that tool has allowed us to do is to get the folks who understand the data and the problem they are trying to solve more directly involved in the process of defining and creating these analytical applications. That has also put our customers in a position to create their own applications in a similar style to the ones that we create. Among the organizations that have the wherewithal to do that, typically the larger health systems, we've seen a lot of innovation around things that we hadn't thought about for one reason or another. They are solving the issues that are important to them.

Does the challenge remain that executives commission reports that frontline managers don't use?
Two observations. One is that it starts at the top. You get good results if a CEO, COO, or C-suite executive who has operating responsibility is watching those numbers and holding the folks who report to them accountable. They have

to then do the same thing right on down the line. I have a few customers where that's the case and their execution is very good, largely as a result of having the information, but also selecting the right information to focus on.

The other thing is that my sense is that being data driven is something of a generational change or evolution. Folks who grew up with electronic media, understand information, and aren't afraid of it are more open to incorporating it into their thought process. That's not to say that folks in my generation aren't open to it, but I think there's more consistency around the younger side of the workforce because it's what they've grown up with.

Do people have eye-opening moments when analytics shows them something they didn't suspect?
All the time. There's tremendous confirmation bias all over the place. You hear the story told frequently about surgeons and physicians who have this intuitive sense that their particular approach to a procedure or a diagnosis is the only way that you would do it and that it's as effective as it can be. Then they start looking at the data from their peers in similar situations and realize that they didn't know some things. Similar lessons apply on the operational side pretty much wherever there's data.

We have that in our personal lives, too. We think that something is a certain way, but when when we start quantifying it, we realize that it's very different. You're used to going a certain route and your GPS system tells you to go a different way that you never even thought about, and it turns out to be shorter and faster.

What are examples of customers using analytics to solve a vexing problem?
I would break this down into a couple of categories. Operational efficiency is a big area where it's really not clear what is going on in complex processes. You look at patient flow through a hospital, where a patient comes in through the ED or maybe is going for elective surgery, and there are all these way stations along the way where there are potential bottlenecks that get in the way of freeing up beds for patients, getting patients discharged on time so that you can bring more patients into the hospital. Hospitals make much of their revenue on fixed-fee DRG hospitalization, so moving patients through the system as efficiently as possible is key.

Our customers use KPIs that break those work processes and flows down to where they can identify where the issues are. For example, moving certain bottlenecks out of the way to discharge patients from the hospital more quickly, or at least by a particular threshold that they've set. That would be one example of something that improves patient flow. Further back in the process, the emergency department, where a variety of bottlenecks can emerge, largely around the ancillary services, getting appropriate turnaround times on things like imaging and lab procedures.

Those are some operational areas where our clients have been able to improve using information to identify the problem, solve it, verify that there was an impact, and then monitor it to make sure that it doesn't regress back to where they started, which can often happen if you don't have ongoing visibility into the information.

On the clinical side, I'll give you one example of a academic medical center customer that we began working with fairly recently who has come up with an algorithm for assessing mental health issues, specifically suicide risk. We work with them to integrate that algorithm into information that was compiled from EHRs. The patient clinical data is combined with the algorithm to come up with a risk assessment for suicide that can be used directly by providers when they are interacting with patients or prior to interacting with them in a formal healthcare setting. Or, to identify cohorts in a population that are at high risk for suicide.

Do customers often learn from analytics how to identify and replicate their own best practices?
That's the whole premise and the opportunity for some of the advanced techniques around analytics. We have tremendous amounts of data, starting with the Meaningful Use era, where EHRs with clinical capabilities came into the healthcare environment in a way that they weren't there before. You have 10 years of data that is getting better as time goes on. There's still a data quality issue and data standardization issue, but as those issues get dealt with and interoperability becomes more standardized, you can compile a more complete picture of a profile of patients and populations.

Then you are in a position to assemble this big base of information and use it to compare to outcomes over time and determine what care processes, what approaches have been most effective for improving outcomes or attaining a particular target level of outcome and eliminating some of the adverse events and consequences that can come when things fall through the cracks where processes aren't followed. Or maybe there are suboptimal processes to begin with.

How have health system expectations for return on investment changed with the pandemic?
The big issue during and coming out of the pandemic is around staffing. The physician staffing shortage was there prior to COVID, but nursing is largely a consequence of COVID. Efficiency and productivity become that much more

important because you're dealing with limited staff resources. We have a lot of prospective clients looking at solutions to that type of problem. How do you objectively measure and improve efficiency and productivity given limited personnel resources?

I just realized that I haven't heard the term "big data" used lately. Do health systems still need external data or they they have enough information of their own to make decisions?
That's interesting, I don't think I've heard the term "big data" in a while either. I think that may have come and gone. Maybe it's just taken for granted at this point, with the likes of what we see with Google or Facebook. The amount of information that you can deal with is almost infinite from a practical standpoint. The capability is there, but the issue has shifted to, what big data? What are you going to use it for?

I was reading a research paper that came out of the MIT Healthcare Learning Lab, where they are they are experimenting with what they call multi-modal approaches to machine learning in healthcare. They are looking at not just the traditional, highly structured, tech-based information that comes out of EHR, but combining that with voice recordings, video, waveforms, and time series imaging, teasing value out of that to predict certain well-defined outcomes. This particular paper was looking at predicting length of stay in hospital, 48-hour mortality, and a few other things. They found that they could get a boost — it wasn't a huge boost, but it was still a meaningful one – by employing some of these other modes on top of what we think of as the traditional information that gets collected and structured within an EHR. That's huge data, maybe the next step up from big data.

What will be important to the company and the industry in the next few years?
Continuing to get the data house in order. There are tremendous opportunities and possibilities around these advanced analytic techniques, but it requires good data. We are focused on identifying what that data is and curating it to the extent that it's meaningful within the organization. In other words, you don't have five different ways of measuring exactly the same thing. There may be some meaningful variation,but reducing that duplication and quantitatively defining outcomes. Once you have that, you open up more opportunities for using these advanced techniques to become more efficient and productive and to improve outcomes.

Things like the standardization of vocabularies on the clinical side. SNOMED, RxNorm and LOINC have been around for a while, but they are gradually making their way into practice. As you get more standardized data, it's higher quality in terms of what you can do with it. The HL7 FHIR standards are going to help in terms of being able to compile the standardized information around a patient or a population of patients so that you have more and more high-quality data to work with.

A lot of it is somewhat routine blocking and tackling, but until that happens, the potential for the more advanced techniques is going to be limited. But healthcare in general is very much looking forward to what advanced analytics can do. As you look around other industries, it's pretty clear that it has the potential to make a huge difference, but you need to have the data in place and you need to understand what it is you're trying to do with it.