

The rise of smart data at HIMSS21: 8 top themes from HIT leaders on advanced analytics

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More electrons and pixels have been posted on the arena of analytics among CIOs in healthcare than almost any other topic.

Billion-dollar buzzwords like AI, Big Data and robotic process automation are postulated as the new grail to healing healthcare. But beyond the hype, venture funding and trends lies the hard, messy, arduous and tedious work of making sense of the information — aggregating, normalizing and visualizing the data to address important use cases, like improving performance and understanding the actual costs of care.

On the week of The HIMSS Global Health Conference & Exhibition (one of the largest, longest running global conferences for health information and technology professionals), Strata met with senior leaders to continue the conversation on data analytics. What follows here are their thoughts and my perspective, informed by the almost 30 years I've spent in healthcare.

Smart data and advanced analytics will be the picks and shovels that we use to improve health system performance. But what do those words, "smart data" and "advanced analytics" mean in practice? We delved into these concepts at HIMSS21 and eight key themes emerged, which are fundamentally critical to developing smarter, more advanced analytics strategies.

1. **Don't boil the ocean with your analytics strategy**

Health systems struggle with demands to do it all, to present every data element together. (Even if we can, we must always have the wisdom to ask if we *should*.) Success in our industry means getting the right data to the right people at the right time. Eric Lee, medical director of clinical informatics at Los Angeles-based AltaMed, echoed this when talking about the difficulty of bringing data together for insights. "How do you provide the right info at the right time for the right patient?" he asks.

To create truly "smarter" analytics, our organizations need to be able to produce accurate, activity- and time-driven costing, the way every other industry can

today. We should be chasing that, determining which clinical and operational data is key to help us get there. Don't boil the ocean. Focus on the key pieces of data that tell the story.

2. Make data consumable for end users

We need to bring together cost and financial data with key (not all!) clinical and operational data. We need to link it, normalize it and make it consumable in tools that meet end users where they are. We must make it easier for the user, e.g. use advanced machine learning and visualization tools to elevate findings, such as auto filtering, anomaly detection, hot-spotting and heatmapping to help users draw informed conclusions. "You name it, we have it: Cloud, Edge, Python, visualization tools, etc." says Dr. Shafiq Rab, chief digital officer and CIO at Burlington, Mass.-based Wellforce. "That's not the big issue. It's getting all the data together."

Advanced technology paired with our human experts can make us all bionic professionals of sorts, even when we don't have as much funding as we might desire. On this topic, Scott MacLean, CIO of Columbia, Md.-based Medstar, says, "It's important and valuable — and our biggest challenge — to organize our data well and make it useful. We don't have a team of data scientists, but I advocate for investing in technology to get ahead of the curve."

Don't make end users search for insights and answers and instead use the tools and the data you have today to help them make the right decisions. Consider how you can make the data consumable for your end users.

3. Get going! Tier your data into basic, essential, advanced and value-based for better analysis

Let's take an example of analyzing surgical costs. Leaders need to consider how their organization will access and use basic, essential, advanced and value-based information.

For starters, basic and essential data includes OR data, such as charge level (basic) or actual minutes (essential), actual labor cost averages (basic) or person-level wages (essential), standard or true supply costs, anesthesia costs, PACU time and procedural coding to examine case types and basic acuity.

Advanced data, which helps stratify risk, includes things like basic biometric data (BMI), social circumstances to cohort patients and claims data or details on clinical history.

Value-based data includes linking pre- and post-procedure information from claims or registry to tie cost and longer-term outcomes. Steven Lane, MD, clinical informatics director at Sacramento, Calif.-based Sutter Health states that it is

important to know what was done to enhance clinical quality outcomes. "We need to know what has been done so that we can target our follow up appropriately." For example, he suggests taking the claims data to see who has had a bi-lateral mastectomy and use that to inform the clinical chart. "You do not need to do outreach for mammograms once this has been documented," he says.

4. **Avoid the atomic baloney slicer**

While new technologies such as cloud-based data lakes (and data marts), Python and commercial machine learning platforms have made it even more feasible, usable and more affordable to integrate retrospective and real-time data within tools, we need to avoid the atomic baloney slicer (a term I'm borrowing from an old friend). In analytics, one atomic baloney slicer is an overly complex, singular, monolithic enterprise database.

To avoid building these unnecessarily complex systems within our healthcare analytics strategies, it's important that hospitals leverage their data for end users. Think of it like oceans of data (from source systems) flowing into lakes (data lakes) that flow into ponds (data marts) for smarter data sets for end users. To get the right data to the right people, you need to understand the problem that is trying to be solved. For Ben Petro, informatics analyst at the University of Chicago Medicine, this means thinking about the end user of data and how they will use it. In his case, senior leadership, executives and management level need access to this data weekly and need to be able to drill into volumes by service line.

Focus your data efforts on that problem with the least amount of data needed. Don't let perfect get in the way of good enough. Do you really need real time data to make your projection? (Sometimes yes, but often no.) What are the tradeoffs from using more data? It's about separating the signals from the noise. More data is not always better data. Do you need an atomic baloney slicer or will a butter knife work?

5. **Build bridges between finance, IT, analytics and operations**

All this work requires cooperation between finance, IT, clinical, analytics and operations to get to the right solutions. Mitchell Fong, director of telehealth at Reno, Nev.-based Renown Health, is working to create new Telehealth programs or "Health at home" programs to help patients return to their normal lives faster after hospitalization through intermittent monitoring and interventions at home.

But the challenge is tying telehealth data to hospitals visits. "It's hard to match up survey data to encounter data," says Mr. Fong. "... And then we have to figure out how to get the telehealth visit back into the clinical record." We know our teams can make better, more informed decisions with the right data at their

disposal. That means connecting all the data points.

6. Learn from the clinical side

Normalization of data is critical to credibility. Health systems often struggle with combing through and normalizing data. Of the healthcare IT leaders we talked to at HIMSS21, all described challenges linking clinical and financial data.

Dr. Lane (Sutter Health) told us that "usually clinical data is seen of a higher value." Clinical data is ahead of financial and operational data in simplifying and normalizing. There have long been standards put into place such as procedure codes, LOINC, taxonomies, etc., already developed and in the market. Other than how we count dollars, basic accounting principles and a few standards for charts of accounts, Finance teams have had no way of normalizing their data prior to advancements made by data sharing consortiums like the StrataSphere® platform and network.

7. Use cross-industry data and standards

Organizations are looking to others across the industry to better understand and standardize data for stronger insights. Healthcare IT leaders consider not only their internal performance, but also how to understand it more deeply with alternative data (like social or claims) and to compare apples-to-apples externally. Healthcare is changing. Regulations around site of care payment differentials, what is allowed inpatient versus outpatient and the very nature of healthcare providers are also changing (e.g. the creation of venture and private equity backed groups with financial wherewithal).

Make sure your lens is not only focused on your traditional competitors in healthcare but also emerging providers and technologies. This creates a need for access to alternative kinds of data and cross-industry standards that don't exist today for finance.

8. Understand the goals and objectives of data sharing

Data is considered the "new oil" and is being aggregated in many ways across industries and within healthcare. There have been many historical efforts to do this in healthcare and there are several new ones emerging. Some have failed, causing large financial losses, some don't leverage modern technology to make it far easier (and less expensive) to share and participate and still others try to serve too many masters. One of the keys for leaders will be to understand the goals and objectives of each of those that they join and whether they appropriately solve challenges for their organizations.

B.J. Moore, executive vice president and CIO of Renton, Wash.-based Providence suggests that bringing data together requires 3 strategic pillars:

"simplify, modernize and innovate." To get the most out of your data, an organization needs to be able to consolidate to a cloud solution and centralizing systems. "Truly integrated reporting needs to be done at scale, which needs to be done in the cloud," Mr. Moore says.

StrataSphere is one such collaborative that has enabled healthcare organizations to share and leverage deep, normalized, consistent, current financial and operational data. Participants can access this data directly, from over 400 health systems representing more than half of all spending in the U.S. attributable to hospitals and health systems (over \$1 trillion).

Our discussions with healthcare IT leaders at HIMSS21 only solidified my view about what healthcare organizations need to be successful with their data strategies. To be successful, healthcare organizations need to plan for scale and scope, and to carefully consider the use cases and goals of their data before making huge "build it and they will use it bets." Focusing on how it will help end users make better, smarter decisions should be a north star and will drive improved investment priorities.

Leaders should look across our industry and at the standards and data use of others, to collaborate with other organizations and make improvements. Smart data and advanced analytics will be the backbone of healthcare analytics strategy moving forward. It's tough, messy work, but with collaboration and the right tools, we can make it happen. With these tools and networks at our fingertips, healthcare leaders can empower teams with the right data at the right time to make the right decisions and drive success.

A special thank you to the healthcare information and technology leaders who took their time to meet with Strata and our team virtually and in person during the 2021 HIMSS Global Health Conference & Exhibition in Las Vegas.

- Mitchell Fong – Director of Telehealth, Renown Health
- Steven Lane, Clinical Informatics Director, Sutter Health
- Eric Lee, Medical Director Clinical Informatics, AltaMed
- Scott MacLean, Senior Vice President, CIO, Medstar
- B.J. Moore, Executive VP and CIO, Providence
- Ben Petro, Informatics Analyst, University of Chicago
- Dr. Rab, Chief Digital Officer and CIO, Wellforce
- Steven Travers, PhD, CIO, USA Health (Mobile, Ala.)