



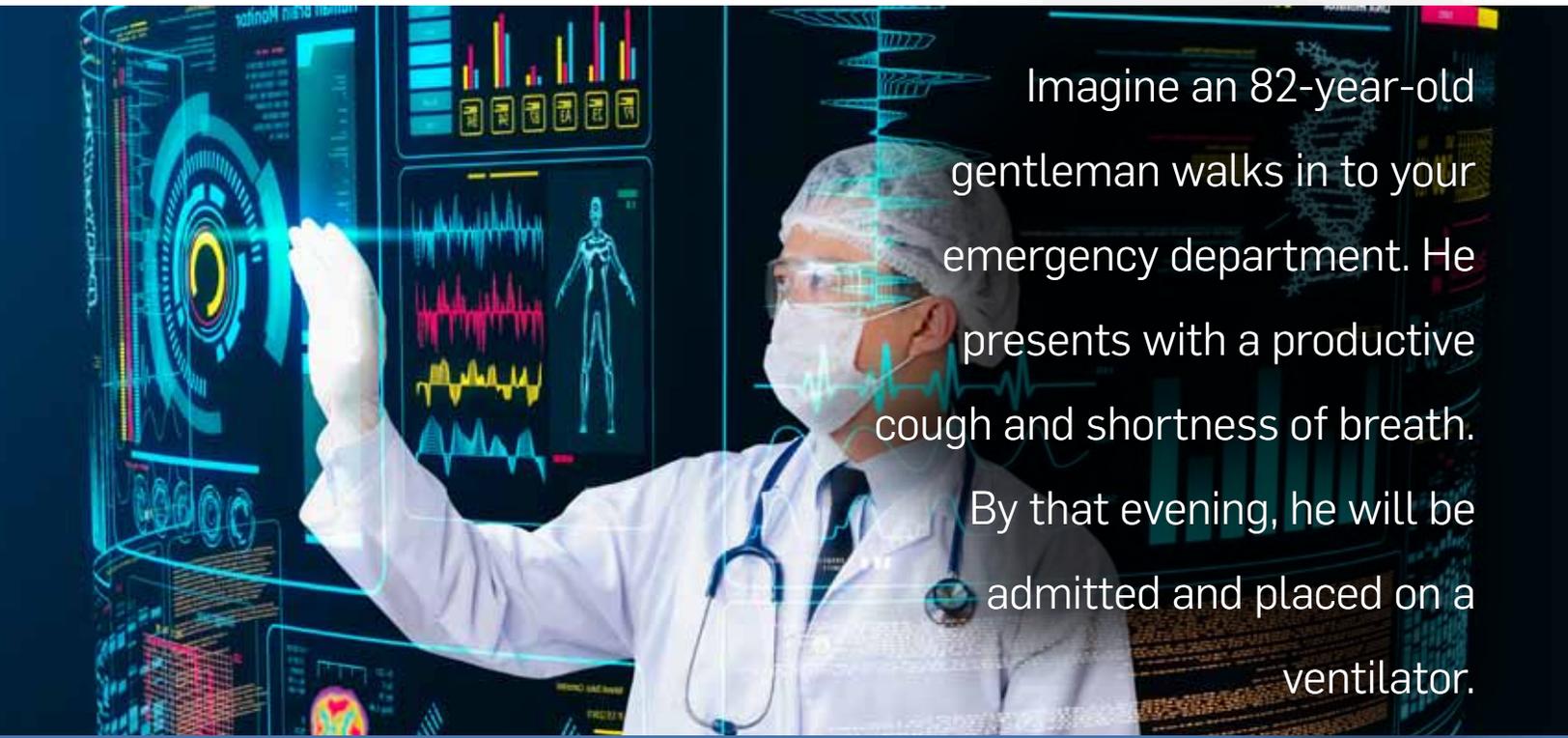
Analytics in Action

Using Data to Improve Care and Reduce Costs



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Imagine an 82-year-old gentleman walks in to your emergency department. He presents with a productive cough and shortness of breath. By that evening, he will be admitted and placed on a ventilator. During the initial interaction, the on-call physician, focused on the patient's care, documents "shortness of breath" and "pneumonia" on the chart. Which, Binu Mathew, M.D., Vice President of Medical Intelligence and Analytics at Mercy in St. Louis, MO., says presents a certain clinical picture to anyone who may be reviewing that chart later.

"If there are no additions to this pneumonia diagnosis through discharge then a coder or reviewer perhaps envisions a coughing, elderly man in a wheelchair who was expected to go home in a day or two," he says. "But just a few words can really change that picture. If you add gram-negative pneumonia, to accurately reflect the intensity of the broad spectrum antibiotic coverage provided, and then acute respiratory failure requiring a ventilator, now suddenly that clinical picture changes quite a bit. You have someone in the ICU, with a tube down his throat, who definitely will not be going home the next day or the day after that."

The terms used were not wrong, per se, stresses Mathew. They are exactly the kind of words that a physician would use as they are focused on treatment. But they are not the kinds of terms that the Centers for Medicare and Medicaid Services (CMS) or the Hospital Compare domains might be looking for as they are reviewing the case for payment and quality benchmarking.

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– Binu Mathew, M.D.

"Physicians do the hard work and provide excellent care to our patients. But they don't always document the right words to help depict what's going on. There's a big gap between the clinical world and the coding world. Providers often focus heavily on the primary problem, that main reason the patient was admitted to the hospital, and in the rush of getting that done, they may overlook certain conditions that really matter to reflect the accuracy and depth of care provided," he says. "So we needed to find a way to minimize that gap—to help make sure the right terms were documented and provide visibility to the true events of that encounter. "

So, in order to minimize that gap, the team at Mercy quickly wanted to implement an analytics system to provide their care teams with an automated secondary diagnosis report, improving not only their medical coding, but also their overall quality of care and cost savings.

Analytics in Action: A Mission of Mercy

In 1827, Catherine McAuley used an unexpected inheritance to open an educational institution in Ireland for homeless women and children. This institution, the House of Mercy, was where McAuley founded the Sisters of Mercy, the first religious order to visit the sick in their homes. Today, the House of Mercy's thriving descendant, Mercy, has grown into the seventh largest Catholic healthcare systems in the United States, with 34 hospitals and 700 outpatient locations across Missouri, Arkansas, Oklahoma and Kansas. As a progressive user of IT, McAuley's fervent mission to provide direct service and exceptional care to the sick remains. That mission, however, requires some different tools than those available in McAuley's day—new technologies that have led Mercy to pioneer a new model of care. As an early adopter of Epic's electronic health record (EHR) system, Mercy has spent a decade optimizing that system, its processes, and navigating patient data for better outcomes and cost savings. Today, Mercy is taking that information technology transformation one step further, using data analytics to optimize medical documentation workflow and improve the accuracy of medical documentation through the automated selection of patient charts for secondary review. But to do so, the Mercy analytics team had to implement a new technology infrastructure that could quickly, efficiently take key data from multiple systems to pool for analysis, creating a secondary diagnosis report that could integrate the business intelligence and clinical workflow processes they needed.



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Analytics in Action: The Right Data Fabric

There's tremendous power in your organization's data. As long as you have the ability to analyze the data and produce actionable results, that is. Paul Smith, National Practice Leader at NetApp, says that payers led the way in showing that power, using data analytics platforms to help them improve quality of care and decrease costs.

“Missing diagnoses, hospital readmissions, these things are expensive,” says Smith. “Twenty years ago, insurers worked with disease management companies to use data to manage chronic diseases, help patients, and drive costs down. Today, those programs are very refined and used to manage populations, including wellness.”

In a fee-for-service world, providers could often take or leave data. After all, they were responsible for the care, not the costs. But now, as payment models are shifting to accountable care organizations, health management platforms and value-based reimbursements, providers are seeing the value of analytics: not just in terms of dollars, but in terms of quality care.

"With this shift, and it's a big shift, there's now incentive for payers and providers to work together to get costs down," says Smith. "And there is abundant data—claims data, pharma data, EHR data, business data, all kinds of data from a variety of sources—to help them do that... if the organizations have the ability to sift through all that data and make it work for them, from both cost and care perspectives." The first step, according to Scott Lenz, the strategic alliances manager for healthcare at NetApp, is making sure you have a flexible, agile technology infrastructure that allows access to all those key data points—one that can gather the data that exists in a variety of different systems, store it with greater efficiency, and securely move it to where it can be accessed for analysis and reporting.

"Data is inherently static. It doesn't like to move. And, of course, we need it to move, and move from a lot of different silos, so we can use it in all of these analytics programs," says Lenz. "And that's what NetApp does. We help our customers implement a more agile data infrastructure so they can optimize their EHRs, break down the traditional data silos that can be so limiting, create more flexible, usable data sets, and give them the right platform so they can have the speed and the performance to power these advanced analytics systems."

Analytics in Action: Actionable Data, Better Care

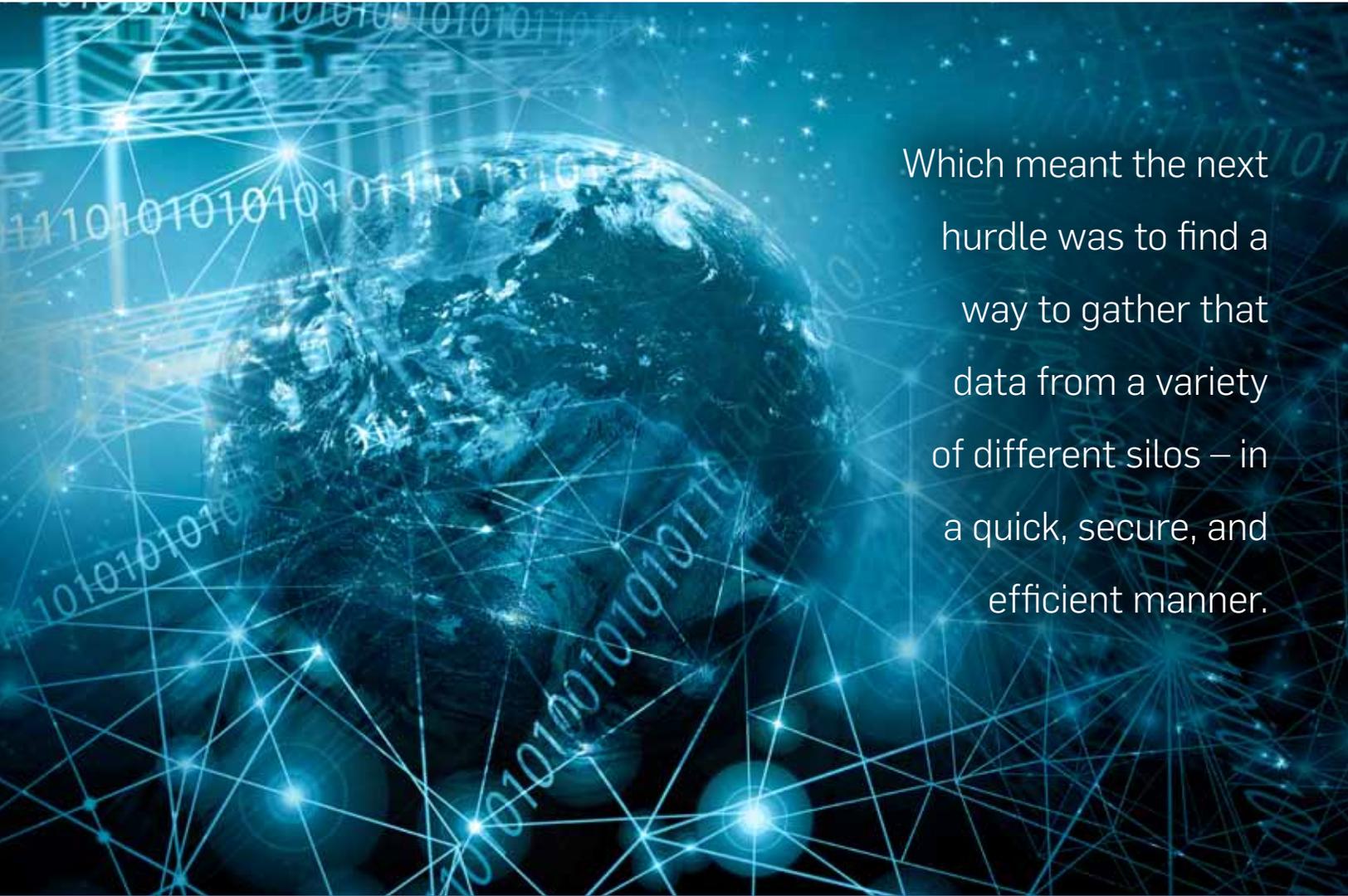
With the big shift Smith talked about, Mercy wanted to bridge the gap between the clinical and coding domains—to improve care and to better position themselves for today's and tomorrow's value-based reimbursement models. The answer seemed simple enough: have clinical documentation specialists review flagged charts to identify potential missed opportunities. But such a thing was easier said than done.

"It is a laborious process—and one with a lot of steps. We found that it took a clinical documentation specialist about 20 to 40 minutes to review a single chart," says Alda Mizaku, lead business solutions analyst at Mercy. "It was just too much time. So we wondered if there was a way to automate the process."

Mathew, Mizaku, and the medical intelligence team along with the Medical Documentation team led by Dr. Cullen Thomas and Dr. Mary Bourland, refined the necessary human network of physician advisors, optimized the workflows within the EMR system and built analytical strategies like the automated secondary diagnosis report plus tracking systems that allow for continual process improvement and a framework that encourages a constructive feedback loop.



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This new review required integrating both business intelligence and clinical workflow process information. Which meant the next hurdle was to find a way to gather that data from a variety of different silos—in a quick, secure, and efficient manner.

“We tried to leverage as much of the pre-existing technology and infrastructure in place before we set up anything new,” says Mizaku. “We ended up leveraging our Epic EHR system quite a bit, and wanted to extract the data there to our database. But we needed to structure a data mart and other infrastructure so the data could move in different directions, go through this secondary review analysis, and then get back to the Epic EHR system, closing the loop so all the information any of our clinicians need is within their primary tools.”



Once the team identified the different puzzle pieces required to make the automated review a reality, implementation occurred quite quickly.

Once the team identified the different puzzle pieces required to make the automated review a reality, implementation occurred quite quickly. "The toughest part was changing human behavior, and figuring out where all the data you need exists and then how to fit it into the correct database—and we had to have the right technological architecture in place to do that," says Mizaku. "Once that was done, the rest was pretty painless."

Analytics in Action: Flexible Infrastructure, Brighter Future

With this new automatic secondary review in place, Mercy has simplified and increased the accuracy of coding for specific inpatient health conditions. This information is now embedded within the clinical workflow, giving clinicians the actionable data they need to identify secondary diagnoses and provide the best of care, right from the patient bedside. It also increases the health system's revenue through more accurate coding and improved reimbursements.



There is power in your data. And the Mercy team agrees—believing that their new big data-friendly infrastructure will allow them to expand the automated secondary review process in the near future.

“Over the past three years, Mercy has systematically implemented a more agile data infrastructure that allows them to support the volume and complexity of data to manage these advanced analytics initiatives,” says Lenz. “Their infrastructure architects understand that the data fabric, so to speak, has to be the kind of modern storage fabric that allows them to move the information they need where it wants to be. And they are seeing the benefits.”

There is power in your data. And the Mercy team agrees—believing that their new big data-friendly infrastructure will allow them to expand the automated secondary review process in the near future. Helping patients not only like the 82-year-old man with pneumonia, but countless others moving forward.

“With this infrastructure in place, we can expand into so many different areas and use all the data we have to improve care and documentation. It’s something we talk about all the time: ‘where can we go from here?’” says Mizaku. “Already, we have new opportunities to increase the number of conditions that we automate for secondary diagnosis review. And having the right infrastructure in place makes that really easy.”

But Mathew says, “This is just the beginning. Mercy’s goal is to continuously integrate analytics into patient care workflows, enabling the insight gained to drive a smarter platform; one that raises the bar towards improved, higher impact and compassionate patient care.”

About NetApp

NetApp® storage solutions for healthcare IT and clinical applications help healthcare organizations improve patient care by enabling anywhere, anytime access to critical patient data, and powering the next generation of data-driven analytics tools.

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