



Cardiology Service Sees Gains in Efficiency, Core Measures with Data Aggregation

Overview

Country or Region: United States

Industry: Healthcare

Customer Profile

Washington Hospital Center, a member of MedStar Health, is the largest private academic hospital in Washington, D.C., and a leading center for cardiology, oncology, and Level 1 shock/trauma.

Business Situation

Cardiology clinicians at the hospital struggled with multiple, nonintegrated systems to retrieve and view images and other documentation required for efficient and effective patient care.

Solution

Cardiology services deployed Azyxxi software to integrate images and other vital clinical data from multiple systems and deliver it through a highly customizable role-based user interface.

Benefits

- Faster patient throughput
- 1.5 hours saved daily for practitioners
- Expedited reporting
- More timely MRSA compliance reporting
- Enhanced core-measure compliance

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Dr. Stuart Seides, Associate Director of Cardiology, Washington Heart and Vascular Institute, Washington Hospital Center

Cardiology practitioners at Washington Hospital Center struggled to make the best use of coronary angiograms, echocardiograms, CT scans, and other powerful image technologies driving advances in heart care. Typically, such images were stored in systems far from the patient unit, so physicians and nurse practitioners had to leave the patient’s bedside to see them. Similarly, siloed information on Medicare-driven core measures for cardiology made compliance challenging, especially when it came to patient-discharge instructions. In response, the cardiology service implemented the Azyxxi health intelligence solution, technology that was developed at Washington Hospital Center and acquired by Microsoft in 2006. Consequently, the service is making patient rounds more efficient and thereby increasing patient throughput, providing more effective patient interactions, and boosting core-measure compliance.

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Figure 1 – Azyxxi makes x-ray images and related detail easy to access and understand.

Situation

Washington Hospital Center was founded in 1958, and today, with more than 900 beds and a staff of more than 6,000, is the largest private hospital in Washington, D.C. The academic hospital offers extended services in primary, secondary, and tertiary care, and, in 2006, served more than 46,000 inpatients and 370,000 outpatients.

Cardiology is the largest service at Washington Hospital Center. Cardiology patient care is provided in a specialized coronary care unit (CCU) as well as in four medical cardiology nursing units throughout the hospital by a dedicated team of cardiologists, nurse practitioners, anesthesiologists, radiologists, research fellows, consultants, medical residents, and dozens of private physicians and other clinical practitioners.

Of the 120 beds that are assigned to cardiology patients, just 11 of them are in the CCU. This makes patient throughput a key component of effective patient care, the right

care in the right place, according to Dr. Julio A. Panza, MD, FACC, FAHA, Director of the Coronary Care Unit, Washington Hospital Center. “With such a limited number of beds, it is vital that we ensure no patient is kept on the unit longer than necessary, occupying a bed that can be assigned to a patient who needs it more,” he says. “This makes it essential for processes associated with patient throughput—such as patient rounds—to be accomplished efficiently.”

Inefficient to Conduct Two Patient Rounds

Until recently, conducting patient rounds efficiently was a challenge because of the difficulty in accessing up-to-date x-rays, CT scans, cardiac echoes, angiograms and other patient images from within the CCU. “Images are vital in cardiology, but to access them during rounds, physicians needed to visit radiology, in another part of the hospital, where they had to ask a file clerk to pull films from a library,” Dr. Panza explains. “In addition to having to leave the unit and one’s patients to do this, a physician couldn’t be guaranteed that a given image would be available, because another physician might have checked it out and not yet returned it.”

As a result, physicians had to conduct one set of CCU rounds in the morning, without the images, and conduct a second set of rounds in the afternoon, with them. “But there was a big problem with this approach as it relates to patient throughput,” Dr. Panza says. “An image that might help the physician determine that a patient was ready for discharge would not be part of the morning rounds. So, often, a patient who could have been discharged or moved to a less acute unit in the morning had to wait until afternoon. Not only that, but those afternoon rounds, which were done only because of the image-access problem, took an hour and a half of physician time that could have been spent more effectively elsewhere.”



“We are now making the best use of the extraordinary technology that brings us these dynamic images—and the best use of our own time and effort.”

Dr. Stuart Seides, Associate Director of Cardiology, Washington Heart and Vascular Institute, Washington Hospital Center

Figure 2 –Echocardiograms and sonograms are clearly accessible from any Azyxxi workstation.



A Struggle to Make the Best Use of Images

The necessity of having to leave a patient’s bedside in the CCU or another unit to walk to another part of the hospital to view vital patient images meant physicians weren’t always making the best use of the images, according to Dr. Stuart Seides, Associate Director of Cardiology, Washington Heart and Vascular Institute, Washington Hospital Center.

Dr. Seides points out that, over the past four decades, the best care for cardiology patients has been driven primarily by information available not in text reports but in images, especially dynamic images. “When a physician is examining a patient, being able to view that patient’s coronary angiogram, for example, might be tremendously helpful. But if it requires leaving the patient to access the image in radiology or the cath lab, then the physician may decide it makes more sense to view the image at a later time, when he or she will be near the lab anyway,” he explains. “In such a case, the physician is viewing the image at

some remove from the patient exam.”

Unnecessary Admission and Readmission Delays

On a related note, consider the example of a newly readmitted patient who had an angiogram done on his or her prior admission. “On admission, the physician would have to order the angiogram from radiology, which would involve additional time accessing it through an archive,” Dr. Seides says. “This would involve time and effort on the part of lab technicians, and additional time for determining the best course of treatment for this newly readmitted patient. If the patient’s prior admission was two or three years in the past, those records might have been archived offsite, involving even more time and several days’ delay in accessing them.”

Similar delays might occur when physicians were trying to access information on patients coming for an office visit following their hospitalization. “Because we could view only minimal information on the patient from our office systems, particularly if another specialist was the attending physician, our staff had to ensure that records were retrieved from the hospital before the patient arrived for his or her appointment, or spend additional time interviewing the patient on arrival,” Dr. Seides explains. “Even then, we might not have all we needed to perform the best follow-up.”

A Challenge to Meet Core Measures of Compliance

Yet another area in which siloed patient information caused a problem in cardiology at Washington Hospital Center involved “core measures”—a set of clinical criteria that healthcare institutions must meet in order to retain licensing and quality credentials. As noted by Janis Orlowski, MD, MACP, Senior

“Now, practitioners at these clinics can view information on the care provided to the patient while hospitalized, and work with a case manager to help the patient with his or her own compliance”

Dr. Janis Orlowski, Senior Vice President and Chief Medical Officer, Washington Hospital Center

Figure 4 – With Azyxxi, users can easily highlight problems, procedures, and medications applicable to any given patient.

Acquired by Microsoft in 2006, Azyxxi is a health intelligence solution based on Microsoft .NET Framework, Windows Server 2003 and SQL Server 2005 software.

Benefits

With Azyxxi, Washington Hospital Center is providing its cardiology practitioners a far easier way of accessing vital images and other patient data, making that data available in the CCU and nursing units that care for cardiology patients. As a result, CCU physicians have been able to conduct a single set of patient rounds, instead of two, saving time and expediting unit throughput. Cardiology physicians and other practitioners also are enjoying more efficient and effective interactions with patients, both inside and outside the hospital environment. Perhaps most important, the cardiology service has managed to boost compliance with core measures surrounding patient discharge.

Fewer Rounds, Higher Patient Throughput

For Dr. Panza, the most significant benefit of Azyxxi is the proximity of patient data to the

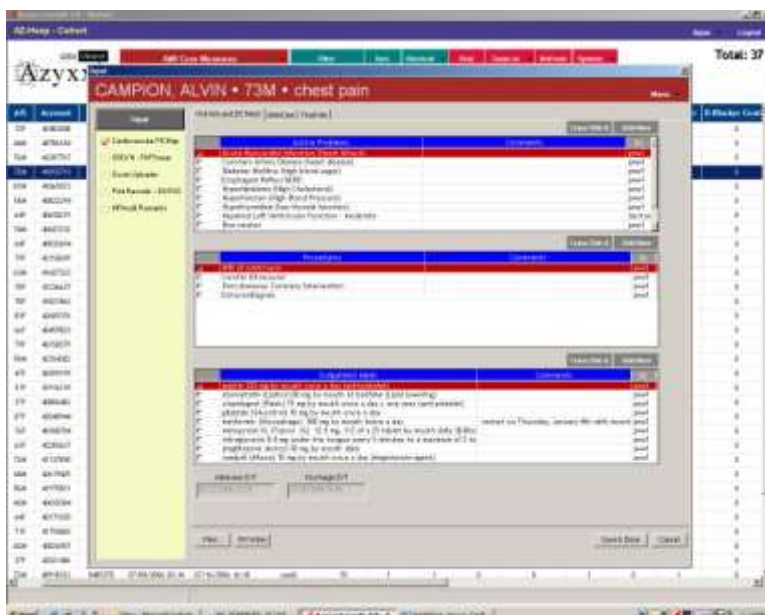
patients themselves. “Information that used to be stored down the hall, down a flight of stairs, or on the other side of the building is now easily accessible on PC screens that are just steps away from the bedside or the examining room,” he says. “This means there is no longer a need to wait until afternoon to view x-rays and other images that might determine whether a patient should be discharged. As a result, patients who are ready to be discharged in the morning can be discharged in the morning, expediting unit throughput. Not only that, but we have been able to eliminate the afternoon round, saving practitioners an hour and a half of time they can devote to other pressing patient needs.”

Another throughput advantage occurs following certain procedures, says Janeen Constantine, NP, Washington Hospital Center. “After an x-ray is performed following fluid removal from a patient’s lungs, for example, we can view that x-ray immediately to determine whether the procedure was successful. Without any delay, we can determine whether to send the patient home and open up their bed for another patient.”

Best Use of Images and Physician Time

For his part, Dr. Seides finds Azyxxi most useful in the way it enables him and his colleagues to see dynamic images alongside other patient data. “Instead of having to leave the unit to view these valuable images, we can see them on a PC right outside the patient’s room, integrated on a single screen with the rest of the patient’s data set,” he says. “We are now making the best use of the extraordinary technology that brings us these dynamic images—and the best use of our own time and effort.”

Dr. Seides reports that with Azyxxi, cardiology practitioners also are conducting more effective patient interactions. “On my way to see a patient, I can open a file or portfolio and review all current lab work, reports, and



How Core Measures Have Improved

Regulatory agencies for Medicare/Medicaid patients require hospitals to document selected conditions and their provision of the treatments that are considered key to the best medical care for those conditions. Core measures. Key indicators related to select aspects of care require documentation of the percentage of the hospital's patients who receive such care. A typical example would be documenting the percentage of patients who receive comprehensive medication instructions at or within 24 hours of discharge.

Since implementing Azyxxi as a "tickler" system to remind discharge staff of the requirements of discharge documentation as well as a way of automatically generating this documentation, Washington Hospital Center has dramatically improved its core-measure scores.

Condition/Indicator	Compliance Before Azyxxi	Compliance After Azyxxi
Acute Coronary Syndrome		
• Daily aspirin	98.4%	99.1%
• ACE inhibitors	84.3%	95.1%
• Smoking cessation	95.4%	100%
Congestive Heart Failure		
• Daily aspirin	46.0%	74.3%
• ACE inhibitors	84.8%	89.8%
• Smoking cessation	96.7%	100%

images," he says. "I am fully informed with the most up-to-date information available, right when I walk into the patient's room, and this makes our interaction that much better."

According to Dr. Seides, the quality of images accessible through Azyxxi is so high that practitioners are comfortable using the images in Azyxxi for archiving. "As a result, the cardiology service has been able to forgo additional archival storage of selected images," he explains.

Efficient Admission and Readmission Processing

That same availability of images and other patient information that is enabled by Azyxxi makes a positive difference when a cardiology patient is readmitted to Washington Hospital Center. "Consider a patient returning to the hospital who had a coronary angiogram during his or her prior admission some months earlier," Seides says. "The moment that patient enters the unit, we can access the image without having to contact one or more other units of the information we need on that patient. We can make decisions about that patient without the delay of waiting to access his or her prior records, and without incurring the risk and cost of inadvertently repeating a test that had been done but whose results were inaccessible at the time."

With Azyxxi, it is likewise easier to process patients who come to Dr. Seides' office for follow-up visits. "With access into Azyxxi over the VPN connection, my staff no longer spends time and effort hunting down a patient's records from various departments throughout the hospital or conducting an intake interview with the patient to gather information that is already documented," he says. "Instead, they can access everything they need on our office PC and print out a summary for me within minutes."

Dr. Seides himself saves time and effort as well. "I can view the patient's entire data set so that when I walk into the exam room I have the most current and comprehensive data on that patient," he says. "I don't have to leave the patient to view images, or schedule another follow-up visit or phone call. This is the most remarkable change in workflow in the 30-plus years I have been practicing medicine. It has changed our habits completely."

Physicians can use Azyxxi to access patient data from home, too, Dr. Seides points out. "This is essential when a family member calls and wants a critical piece of data," he says. "With Azyxxi, I have it right there, without asking them to wait for me to call someone at the hospital and then call them back. This makes patients' families happier and reduces the amount of off-hours work for me."

Impressive Gains in Core-Measure Compliance

Thanks to Azyxxi, the cardiology service at Washington Hospital Center has witnessed a dramatic boost in compliance with core measures surrounding patient discharge (see sidebar). According to Constantine, this improvement has come through the use of Azyxxi in two areas, one of which is the digitization PICMAP documentation. "Because discharge staff are using Azyxxi anyway, they have welcomed it as an alternative to creating their own handwritten form," she says. "Now, they have an automatically generated electronic PICMAP with a clear, comprehensive, and consistent set of core-measure-based instructions for patients leaving the hospital."

The other application of Azyxxi toward improving core measures is by making a VPN connection into the system available to a core group of public-health clinics that partner with the Washington Hospital Center to provide follow-up treatment and evaluation

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for cardiology patients who do not have their own private physician. "Now, practitioners at these clinics can view information on the care provided to the patient while hospitalized, and work with a case manager to help the patient with his or her own compliance," Dr. Orłowski says. "Similarly, if the patient is subsequently readmitted to the hospital, we can access records created by the clinic to determine the care provided by the clinic and compliance measures taken there."

A Comprehensive Change for the Better

Whether cardiology practitioners at Washington Hospital Center are accessing Azyxxi on the coronary care unit, on one of the nursing units associated with the service, in a private physician's office, or from home, they are using it to make a comprehensive change in the way they care for patients. For Constantine, this means being able to follow patients wherever they are in the hospital. "I can see echocardiograms, x-rays, and other labs, as well as prior admissions records, discharge documentation, and more, without needing to leave my unit or my patients to access those documents," she says. "I have a thorough sense of what is going on with a patient even before the physician or radiologist has written a report."

For Dr. Seides, in addition to the many functional advantages of Azyxxi, the software's intuitive user interface makes the solution ideal in an environment where professionals cannot afford even a moment of downtime. "Often, automating work processes takes a while to show efficiency

improvements, but with Azyxxi, users are working more efficiently as soon as they start using it," he says. "I can't think of another advance in the digitization of medicine where that can be said."

Software and Services

- Products
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