



### Business challenge

Hardin Memorial Health (HMH) sought to tackle its electronic health record (EHR)-related challenges with a solution to quickly extract relevant data and bring it to a single point of focus for radiologists.

### Transformation

Patient insights are crucial in healthcare settings, where fast access to relevant patient information can lead to better outcomes. HMH wanted to drastically reduce the amount of time and effort radiologists spent sifting through patient data. Implementing the AI-based IBM® Watson® Imaging Patient Synopsis solution helped enable faster, more confident decisions.

## Results

### Helps to reduce information-gathering time

allowing for faster care decisions

### Builds on EHR investments

to augment its value with AI capabilities

### Enables deeper patient understanding

for more informed decisions and diagnoses

# Hardin Memorial Health

## AI solution informs radiologists with deep patient insights

HMH is an integrated system of providers and facilities serving approximately 400,000 residents across 35 locations in 10 Central Kentucky counties. HMH's Hardin Memorial Hospital, in Elizabethtown, is a 300-bed, not-for-profit acute care hospital with a medical staff of more than 400 and more than 30 specialties represented.

*"In healthcare, we don't have the luxury of being able to get it right seven or eight out of ten times. We have to get it right ten out of ten times."*

— Tom Carrico, Vice President and Chief Operating Officer, Hardin Memorial Health

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## The relentless pursuit of quality care

Just as transitioning from film to digital created efficiencies for those who manage medical images, the transition from paper medical records to EHRs has streamlined processes within the healthcare industry. But for radiologists, this transition brought new challenges in finding and accessing information.

Located in Kentucky, HMH is a bustling, high-volume health system that services more than 400,000 patients a year. The emergency room at Hardin Memorial Hospital—one of HMH’s main sites—sees over 70,000 patients a year. Up to two-thirds of the patients require some sort of diagnostic imaging study, which plays a critical role in treatment decisions.

In order to determine the best treatment options, radiologists need the patient story behind the images. For example, what medicines is this patient on? And what surgical procedures has this patient previously undergone? Yet this critical information is often buried or inaccessible. Up to 80 percent of the relevant information that forms the clinical narrative is contained in unstructured data such as clinical notes, according to Health Data Management (2016).

With high workloads and increasing demands, radiologists cannot afford to spend excessive amounts of time sifting through unstructured and fragmented data to find relevant patient information. “As one of the busiest emergency rooms in the country, it’s vital to have timely reads in radiology and imaging to efficiently diagnose patients,” says Dennis Johnson, President and Chief Executive Officer (CEO), HMH.

The radiologists at HMH needed a fast, easy way to get patient information in the right clinical context—including previous medical and family history, referring notes and the true reason for the exam. With these clinical insights, the radiologists can build better connections and make confident decisions in a timelier manner.

### First in the world

Having been a longtime customer, HMH was ready to partner with IBM on a solution that would not only deliver real clinical benefits for its radiologists, but also give it a key competitive edge and demonstrate its position as a healthcare leader. The organization realized that AI could help take its EHR investments to the next level. Shortly after, HMH became the first health system in the world to implement the Watson Imaging Patient Synopsis solution.

“We are so proud HMH could be the world’s first to use this next-generation technology,” says Johnson.

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***“Patient Synopsis gives radiologists the ability to render decisions much more rapidly, and time signifies life-saving in most cases.”***

—Tom Carrico, VP and Chief Operating Officer, Hardin Memorial Health

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The Patient Synopsis solution rapidly extracts relevant patient information hidden within the hospital’s EHR. “The process of getting information involves real skill. It’s frequently misleading, it’s misplaced, it’s incomplete,” says Stewart Couch, Chief Radiologist at HMH. “And that’s why artificial intelligence is the key to unlocking the information buried in the medical record.”

The solution finds patient information relevant to the current imaging study by searching both structured and unstructured EHR data—such as past procedures, diagnostic reports, history, allergies and labs. Radiologists receive a user-friendly, single-view summary organized into multiple categories, giving them the deep patient context they need.

“The reason Patient Synopsis works is because it’s trained by radiologists to look for the same information we would be mining ourselves. But it would take us a tremendously long period of time, and Patient Synopsis does it automatically,” says Couch.

Because HMH has multiple locations in central Kentucky, adopting a solution that offers interoperability was a high priority, as was the need to avoid complex maintenance. Cloud-based and vendor-neutral, the Patient Synopsis solution integrates with the hospital’s existing systems, making it accessible from virtually any picture archiving and communication system (PACS) workstation or networked device. And when it’s time to upgrade, the updates take place in the cloud, making them non-events for HMH.

### The future of AI in healthcare

The Patient Synopsis solution has delivered significant benefits for reading physicians at HMH. First and foremost, the AI-driven solution has given physicians a way to find the information they need to provide more comprehensive diagnoses to patients in just few seconds. In some cases, radiologists have found valuable patient context that they may not have had the opportunity to detect prior to using AI.

Couch explains, “Just one little piece of information can change the complexity of the entire case.” For example, one HMH radiologist found a bone lesion in an image, which could be attributable to many conditions. But the Patient Synopsis solution revealed the patient had a history of smoking, which led the radiologist to suspect the lesion could be a metastatic lesion indicating lung cancer. This made the next diagnostic step clear: a chest X-ray.

In its mission to continually improve quality of care, HMH knows the importance that information plays in evidence-based medicine. With AI to help close the gaps with its EHR investments, HMH is leading the way toward redefining a new standard of care to deliver the best possible outcomes for its patients.

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***“The future of healthcare is ever-changing. It’s important for community hospitals to partner with cutting-edge technology companies like IBM, because they’re making these radical changes as we speak.”***

—Dennis Johnson, President and CEO, Hardin Memorial Health

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“My initial thoughts on using AI were skeptical. I felt like nothing was better in our industry than working with individuals, but AI is changing our industry for the better,” says Johnson. “It’s really exciting to see how it will [help physicians] improve diagnoses and treatments of patients for years to come.”

## Solution component

- IBM® Watson® Imaging Patient Synopsis

### Take the next step

To learn more about the IBM solution featured in this story, please contact your IBM representative or IBM Business Partner.

### About Watson Health

IBM Watson Health™ is a business unit of IBM that is dedicated to the development and implementation of cognitive and data-driven technologies to advance health. Watson Health technologies are tackling a wide range of the world’s biggest health care challenges, including cancer, diabetes, drug development and more.

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