



Putting People at the Center of Work: The Next Revolution in Productivity and Innovation

Collaboration in Healthcare: Improving Healthcare Productivity and Treatment of Critical Patient Conditions

University of Wisconsin Hospitals and Clinics & McKesson

Executive Summary

How UWHealth plans to improve critical communication, radiologist productivity, patient care, and regulatory compliance.

The University of Wisconsin Hospital and Clinics (UWHealth) is the academic medical center and health system for the University of Wisconsin. As part of its strategy to improve patient care, the hospital invests heavily in technologies for presenting, distributing, storing, and retrieving digital diagnostic images. Although this significantly simplifies the image-sharing process among members of the patient's healthcare team, UWHealth found that communication between radiologists and referring physicians was not as efficient.

“We can enhance radiology throughput by streamlining the workflow and eliminating communication inefficiencies.”

Dr. Gary Wendt, Vice Chair Informatics, Associate Professor of Radiology

Radiologists and physicians had to physically locate each other in person or by telephone, which took valuable time away from patient care and often interrupted important patient consultations. In addition, there were no acknowledgements from referring physicians that they understood the critical results communicated by radiologists. It is becoming increasingly important for healthcare providers to maintain auditable records of these communications so that they can comply with emerging regulatory requirements. A communication breakdown could create a “sentinel event,” an unanticipated event that results in serious injury or death of a patient. According to The Joint Commission, communication breakdown is the leading cause of sentinel events. Dr. Gary Wendt, vice-chair of informatics and associate professor of radiology at UWHealth, estimates that approximately 75 percent of radiology lawsuits are related to a communication breakdown.

UWHealth is working with Cisco and McKesson to deploy a collaboration solution that will greatly improve communication workflows. When the solution is fully implemented, it will enable radiologists to choose the most efficient collaboration method available, depending on the physician’s availability.

The new collaboration solution is expected to save each radiologist 30–60 minutes per day, increasing the number of studies per day that they can review by five to ten percent. The solution is also expected to improve patient service delivery and support the hospital’s compliance with emerging regulatory requirements for clinician communication.

Challenges Faced by UWHealth Radiology Team

Inefficient Use of Skilled Resources

Radiologists have had to rely on manual processes to locate referring physicians when radiology tests revealed unexpected or critical results. Locating referring physicians and speaking to them in person can often require two to four phone calls. Missed phone calls can occur three to five times a day and waste almost an hour per day, per radiologist. The need for radiology professionals far outpaces supply, and as a result, radiology is one of the highest-paid medical professions. According to the Association of American Medical Colleges, average annual salaries range from US\$325,438 to \$474,500. Wasted time translates into \$7000–34,000¹ of valuable radiologist resources spent per year on activity that does not add any value to patient care.

Summary Facts

Company Name

University of Wisconsin Hospital and Clinics

Industry

Healthcare

Collaboration Process Transformed

Imaging workflows in Radiology Department

Business Problems Faced

- Valuable radiologist time spent locating referring physicians
- Consultation interruptions distracted physicians and patients
- No ability to document communications increases risk exposure
- Emerging regulations require tracking healthcare communications

Cisco Technologies Used

- Cisco Unified Presence Server
- Cisco Unified MeetingPlace Express
- Cisco Unified Application Environment
- Cisco Unified Communications Manager

Expected Results

- 30-60 minutes saved per radiologist per day
- 5-10% increase in radiologist productivity
- Improved patient service levels
- Reduced risk of radiology lawsuits with auditable communications

“Today, radiologists waste a lot of time playing phone tag before they can reach the right clinician to communicate results.”

Dr Gary Wendt, Enterprise Director of Medical Imaging and Vice-Chair of Informatics, UWHealth



¹ Assuming 58 work hours per week and average radiologist salaries from the Association of American Medical College

Distracting Interruptions

Phone calls also interrupt time spent with patients and are distracting to both patients and physicians. Because there is no way for a radiologist to determine when a physician is available to consult, physicians are paged, which can occur 15–20 times per day. Patients often wait while their physicians discuss other patients' results with a radiologist, delaying their consultations and reducing their satisfaction. Return calls from physicians to radiologists also interrupt radiologists, detracting from their focus and increasing the risk of missing details in complex patient studies.

Increased Risk and Compliance

Simplifying communication and capturing an auditable record of these communications are critical challenges that healthcare providers must overcome. Successful auditable communications are important to radiologists, because approximately 75 percent of radiology lawsuits are related to communication breakdowns. In 2006, The Joint Commission, the United State's predominant standards setting and accrediting organization, reported that communication issues were the main cause of sentinel events.

Emerging regulatory requirements make the ability to track communication even more crucial. The Joint Commission's National Patient Safety Goals and American College of Radiology guidelines require healthcare providers to meet more stringent regulatory and audit requirements, as well as maintain communication records related to critical or unexpected results.



“There is typically no record of the two-way interactions between radiologists and referring physicians, and no record that the referring physician has acknowledged the findings.”

UWHealth Radiologist

New Ways of Working

UWHealth realized that effective collaboration between physicians and radiologists is vital to optimizing patient care and simplifying internal operations. To transform its collaboration capabilities, the hospital teamed with Cisco and McKesson's Medical Imaging Group to implement an integrated Horizon Medical Imaging (HMI) Collaboration solution. This solution helps radiologists and physicians quickly determine each other's availability and simplify collaboration.

Changing Healthcare Collaboration

The HMI Collaboration solution will eliminate the need for radiologists to make multiple calls. Instead, they will be able to contact a physician using one of several efficient methods.

A single sign-on feature enables radiologists to view physicians' availability using their computers. If a physician is available, the radiologist can “click to call” and immediately collaborate. This feature eliminates the need to dial multiple phone numbers or search through directories, and it makes it easier to locate a physician. Radiologists can also determine the best physician to contact, based on study urgency and physician availability.

Integration with the PACS system user interface enables clinicians to share images in real time and identify specific areas of interest, which is expected to accelerate diagnosis and resolution. For example, radiologist can use existing PACS tools to make annotations on images, which physicians can see in real time. Physicians can also use the PACS annotation tools to explain a question or to clarify an item without requiring special tools or software on their PCs.

“I like the ability to control what the referring physician is looking at because I know they are focusing on what I would like them to see.”

UWHealth radiologist

If a physician is not immediately available, the radiologist can use voicemail or instant messaging to leave data for the physician to view later. The radiologist can also choose to speak to a different physician on the patient’s healthcare team.

Business Results Achieved

UWHealth expects a transformed collaboration process to increase productivity, further improve patient service, mitigate risk, and support its compliance efforts.

Increased Productivity

Fewer missed calls and enhanced collaboration with image sharing are expected to save radiologists 30–60 minutes a day and enable them to read two to three additional studies per day. UWHealth projects that the HMI Collaboration solution will increase radiologist productivity by 5 to 10 percent.

Enhanced Patient Service

Simplified workflow can result in increased diagnostic accuracy. Collaborating while viewing images together will make it easier for radiologists to help ensure that physicians are correctly viewing and understanding important image details. In addition, radiologists will be able to easily to contact other healthcare professionals to request second opinions or additional expertise.

Fewer interruptions will enable physicians to spend focused time with each patient, helping to increase patient satisfaction. The hospital also hopes that fewer distractions will help ensure that the patient’s health concerns will be satisfactorily addressed and that all important issues are covered.

Reduced Risk and Better Compliance Support

Prior communication systems have not delivered the detailed communication documentation and tracking capabilities that are needed to meet emerging regulatory requirements. The HMI Collaboration solution will be able to capture data from communications pertaining to unexpected diagnostic results and provide receipts and time stamps for each communication. Radiologists and physicians can feel comfortable that communications can be audited, significantly reducing their risk in the event of a disagreement.

“This capability will become increasingly important for healthcare providers in order to comply with more stringent regulatory requirements,” says Dr. Gary Wendt, enterprise director of medical imaging and vice-chair of informatics for UWHealth.

Unlocking Collaboration Potential


Maximizing the HMI Collaboration solution’s potential will demand effective technology enablement and change management. Neither will be sufficient by themselves.

Technology Enablement

The University of Wisconsin Radiology department, McKesson’s Medical Imaging Group, and Cisco are working closely together to implement the HMI Collaboration solution. The Cisco® Unified

Target value generated from solution

- ↓ **30-60** Minutes saved by radiologists, per day
- ↑ **5-10%** Radiologist throughput
- ↑ **Enhanced** Effectiveness with patients (decreased interruptions)
- ↑ **Improved** Patient safety (reduced chances of missing areas of concern)
- ↑ **Increased** Compliance with regulatory requirements



Communications suite is being integrated with McKesson's Horizon Medical Imaging™ PACS using open Cisco Unified Communications application programming interfaces and the Cisco Unified Application Environment. The Horizon Medical Imaging user interface delivers the capabilities to radiologists and clinicians using McKesson's Collaboration add-on module.

The system has three primary elements:

- Presence capability: users can see other clinicians' real-time availability and their preferred methods of communicating.
- Live image sharing: helps radiologists and physicians discuss issues and accelerate accurate, timely diagnoses.
- Recording of results notification and acknowledgments:² helps the hospital meet regulatory requirements.

The solution uses the following Cisco technologies:

- Cisco Unified Presence Server
- Cisco Unified MeetingPlace® Express
- Cisco Unified Personal Communicator
- Cisco IP Phones
- Cisco Unified Application Environment
- Cisco Unified Collaboration Application
- Cisco Unified Communications Manager

Integration with existing investments:

- McKesson Horizon Medical Imaging v11



² This capability is in development and has not yet been deployed at UW Health

Change Management

Encourage Early Adopters

The hospital's solution deployment team has developed strong relationships with solution "evangelists" on the UWHealth radiology team. These evangelists are committed to transforming the way that they work, and they have been instrumental in the implementation process, from initial discussions to solution customization.

Train Within the Pilot

Because patient studies are confidential, the project team is conducting a small pilot with illustrative data instead of real patient studies. The pilot project will build radiologists' confidence with the technology and its ability to improve workflows without compromising patient safety.

Changing Policies

As the team redefines workflows, it realizes that other employees will also have to adapt the way they work in order to capture the full benefits of increased collaboration. For example, paging policies will need to be updated to match the new solution. Rather than paging physicians, a department secretary or nurse will screen incoming pages, depending on the physician's availability and issue criticality.

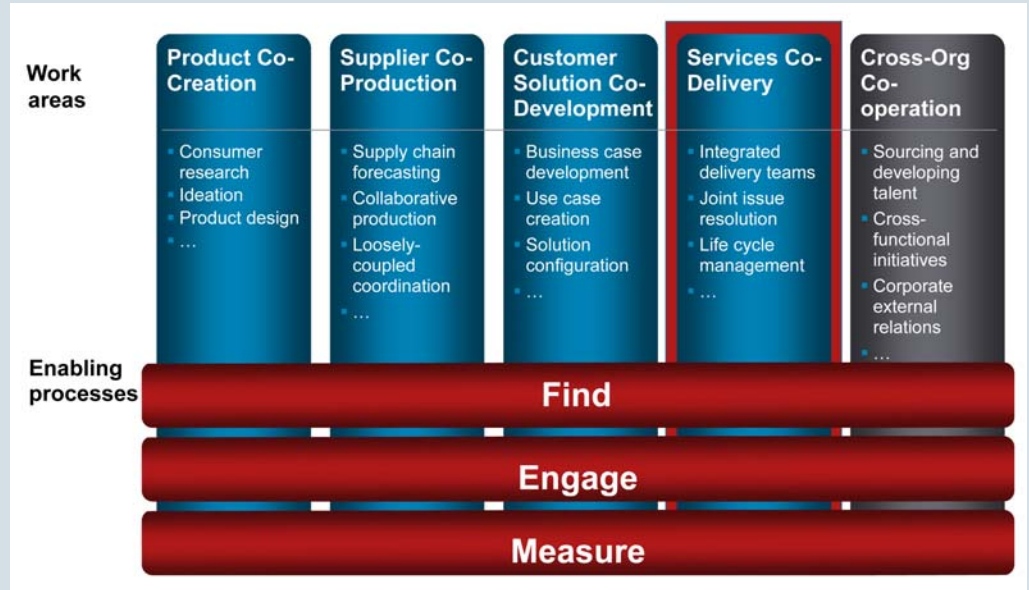
Next Steps

The HMI Collaboration solution described in this case study helps enable healthcare organizations to improve patient care and maximize the time that clinicians spend with patients. By using technology to improve collaboration and expedite diagnoses, Cisco, McKesson, and UWHealth are creating an environment where radiologists and physicians can be more effective and less frustrated.

UWHealth is working with Cisco and McKesson to refine the solution's technical and integration features, and to measure its business and clinical value. The pilot at UWHealth Radiology will serve as the foundation for a broader production implementation. When the McKesson HMI Collaboration solution is fully implemented, UWHealth expects it to help transform imaging workflow, improve clinician productivity, enhance patient safety and quality of care, and support regulatory compliance. Cisco and McKesson also plan to expand the solution to other groups of users, such as referring physicians from other organizations, and to support mobile collaboration.

This case study highlights the potential that can be realized by unleashing better collaboration within delivery & on-going issue resolution (see exhibit).

Figure 1. Five critical business areas for enterprise collaboration



Other industries and processes where this use case is applicable

Collaboration in other healthcare organizations where collaboration drives diagnosis and where the ability to ensure auditable records of communication is critical for quality patient care and reduced risk



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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