



Are You Thinking Long Term?

Purchasing Departments Figure Standardization into Imaging Platform Decisions

Video: it's everywhere in a hospital now. From ENT to urology and gynecology, to pulmonology to general and thoracic surgery and GI, video is a standard function of these practices, and more applications for using video surface all the time. Increasingly hospitals and health systems are thinking about how their video-oriented purchases are going to fit the bill in the long term.

For all the video that is gathered by hospitals, it's not always being harnessed in a way that will optimize patient care. Physicians don't always take recordings or store images, for fear that the storage won't be

there or there may be compatibility issues and technical challenges preventing disparate systems from connecting with each other. As a result hospitals often find their videos siloed from each other – making it

difficult to share the video and still-image information with patients, payors and other healthcare providers.

That said, with a need for improved integration and the need to prepare for data-driven advancements like AI, the industry is on the cusp of change. The potential for improved patient care is great. Imagine, for example, proof-of-concept work happening now toward the development of an AI algorithm that can comb over the past 100 recorded surgeries of

each physician in a facility. The physician feedback on technique could affect real and clinically significant change. This is the kind of potential being predicted.

Connecting Disparate Systems, Saving Money, Reducing Physician Burnout

Let's just look for a moment at the hospital operating room (OR). Much can be learned from the data points gathered from a busy OR. This application of real-time data — including details of health-care workers in the room, visual insights from surgical devices, patient vital signs, a case's perioperative stage, and other second-by-second procedure insights — can mean opportunities for process improvement, and this is another area where proof of concept is in the works.

An OR can be the largest cost and profit center of a hospital, which means hospital CFOs are hyper-vigilant in accounting for each minute in the OR. In fact, research estimates that the average OR minute costs the hospital \$62¹ — and with unchecked inefficiencies present, the minutes can quickly add up.

But every OR case is different, so pinpointing opportunities for improvement requires individual situational analysis.

This is why the Olympus Customer Solutions Group created technology that is today deployed into thousands of ORs and other medical treatment locations globally. The system is used every day to make surgeons and OR staff more productive by bringing together disparate OR technology into a single workflow experience that is intuitive, collaborative, and efficient. By understanding the dynamic context of a surgical team's experience, the Olympus Customer Solutions

Group has proved that the power exists to connect these data points and provide efficiency cues in real-time, all from data points that are routinely used, including audio, video, and surgical device sources.

In an OR where speed and efficiency matter, it's necessary to process such massive amounts of data as close to the action as possible. Hospitals need to capture, analyze, and execute this data right on site or “on the edge” if they hope to take advantage of real-time efficiencies to improve OR performance and save costly OR time.

The on-premise appliance allows Olympus Customer Solutions Group to develop AI models that follow the activity in the OR from video, audio, surgical data, and system interactions.

Olympus has been able to achieve this on the edge advantage using the Azure Databox Edge with Azure Machine Learning Hardware Accelerated Models from Microsoft. The on-premise appliance allows Olympus Customer Solutions Group to develop AI models that follow the activity in the OR from video, audio, surgical data, and system interactions. Its mission goes beyond cost reduction and towards improving the clinical experience.

This “intelligent OR” can help improve productivity and patient outcomes by alerting other departments to progress within the OR and providing the surgical team with the right resources at the right

time. Today's hospitals are increasingly concerned with the Institute for Healthcare Improvement's Quadruple Aim of healthcare: including the fourth, reducing physician burnout. We predict a smoother experience for physicians through these systems integration advantages.

The Full Picture of the Patient

The platform that will grow with the hospital is one that will set the stage for connecting all video assets, while also connecting those assets to electronic

medical records. One patient's record can include 10 independent records from as many independent technologies. From the GI Lab to pathology, from surgery to diagnostics and drug therapy, records and visuals must talk to each other and ensure that duplicative care is eliminated, and that nothing is missed in terms of improving that patient's outcome.

Recognizing that open source is the future, Olympus is working toward an open platform, having made the commitment to allow hospital access to the system for their own algorithm-building activities. Useful integration requires a vendor-neutral approach, and Olympus

through its ImageStream Medical and MedPresence solutions, is making the agnostic approach a priority as well.

The approach is gaining the attention of hospitals, not just for the innovation edge it brings them, but for good dollars and cents reasons. Avoiding duplicative tests and ensuring better patient outcomes will mean more efficient use of resources toward better bottom-line results. Fully integrated and interconnected scenarios may feel overly complex now, but most facilities with a long-term view agree there is no other way to ensure continuous improvement.

In the center's first year, it's estimated 90 people will benefit from organ donations and more than 21,000 others will benefit from tissue donations.

Case Study in Transplantation

Unique situations also can be helped by standardization. A good example can be found at an innovative facility in San Antonio recently launched to address transplantation.

According to San Antonio University Hospital, managing an organ donor and surgical procedures can be a challenge to doctors and hospitals due to lack of resources.

Through the Center for Life, Texas Organ Sharing Alliance (TOSA) and University Hospital will work closely with community partners such as GenCure and the San Antonio Eye Bank, to ensure more

efficient organ matching for a wide swath of the region's population on waiting lists. Clarissa Thompson, senior communications coordinator for TOSA, said the time it takes for doctors to decide if an organ can be a match for a recipient on the waiting list can be decreased immensely with the state-of-the-art equipment.

In this 24/7 facility, Thompson said, specialty care teams can focus on patients one-on-one. The surgical suites equipped specifically for the recovery of organ and tissue donation and transplantation and also connected to standardized Olympus video systems are reducing travel for ex-

pert surgeons and preserving organs until the right match can be made. Doctors at the center plan to use the cameras to allow medical examiners and coroners to view the surgical procedures to obtain organs, which could lower the rate at which those offices disallow transplants because of ongoing death investigations.

In the center's first year, it's estimated 90 people will benefit from organ donations and more than 21,000 others will benefit from tissue donations.

The center could serve as a model for facilities looking to update their telemedicine capabilities or even to ensure

more generalized integration of imaging systems. Although every facility's needs are unique, the benefits that a standardized use of imaging can bring seem increasingly universal.

The Checklist: What to Ask So Your Platform Will Stand the Test of Time

- › Does the platform serve multiple needs across the hospital?
- › As you grow the number and types of endoscopes, energy devices, capture and storage systems and EHR integration technologies, will this platform be able to support that growth? For how long? If you're just looking out 3-4 years, you might want to look further out.
- › Is the platform vendor neutral? To truly improve patient care, it will be important to share across a wide range of facilities and technologies and to have compatibility with other platforms.
- › Will storage be accessible on your network? Is it secure?
- › Is it an open platform? Clinicians, biomed, algorithm developers — it's time to give them the power to build their own algorithms. Consider a cloud-based solution that, if it's not already there today, is at least moving in the direction of something akin to an "App Store" for clinical AI.
- › Does your standardized video platform leave room for clinical research? Is it capturing and managing data that could one day inform the future of AI in healthcare? ■

¹ <https://www.ormanagement.net/Clinical/Article/06-18/What-Is-a-Minute-Worth-in-the-OR-/48791>
<http://www.ih.org/communities/blogs/the-triple-aim-or-the-quadruple-aim-four-points-to-help-set-your-strategy>