Importance of Platform Consolidation in Electrophysiology: Dual-Purpose Systems

A dual-purpose platform that provides both Hemodynamic and EP recording into a single, cohesive system is groundbreaking. Designed with flexibility and efficiency in mind, dual purpose systems enhance procedural versatility, optimize room usage, and simplify technological infrastructure within healthcare facilities. Here we discuss the benefits of a dual system, emphasizing its clinical and operational advantages, cost-effectiveness, and IT integration features with an Electrophysiology Lab Leader, Hyun Joo Lee, and Industry Expert Jennifer Bayon.

Perspective From the EP Lab

Hyun Joo Lee, Associate Director of Clinical Operations, Smidt Heart Institute at Cedars-Sinai Medical Center

Hyun Joo Lee is the Associate Director of Clinical Operations, Smidt Heart Institute at Cedars-Sinai Medical Center. Ms. Lee has overseen all aspects of electrophysiology lab activities for the last 12 years. During that time, the number of physicians performing procedures has doubled and the volume of EP procedures is growing every year. She shares her perspectives on what the busy center needs in terms of system functionality to meet that demand, while also focusing on patient impact and experience.

Space Optimization and Multi-Procedure Capability

Q: What is a primary challenge you are facing when it comes to having multiple systems in your current and expanding organization?

A: Our primary challenge is maximizing room utilization and operational efficiency across various scenarios. Whether it is a cardiac catheterization (cath) case or an electrophysiology (EP) case, operational efficiency is our top priority. It is essential to have equipment with a smaller footprint to provide more flexibility and ensure seamless connectivity with diverse equipment, digital cardiac images, and mapping technologies. Advanced EP procedures necessitate a significant amount of equipment. As new technologies like pulsed field ablation (PFA) are introduced, we must consider the space required for their installation. Electrophysiology is rapidly growing, and we aim to increase case volumes to meet this demand for our patients.

Currently, we have 12 rooms and 3 are designated specifically for EP. Our staff are trained in both hemodynamics and EP. However, combining a cath procedure with an EP procedure or optimizing a single-purpose room is a significant challenge due to space constraints and the equipment requirements for combined cases. This complexity requires additional time, effort, and varying staff capabilities. When we only have EP cases, other rooms might be underutilized. Additionally, the complexity and duration of cases requiring different expertise impact lab availability for procedures. Systems capable of handling multiple procedures could enhance room utilization and reduce downtime.

Simplified Training and Workflow

Q: You mentioned increasing operational efficiency and ways to simplify workflow and training. What types of features would be helpful to achieving those objectives?

A: We have a staff of 80 across the department and are very diligent in ensuring that our teams are educated on our current and new technologies and they understand software or system updates that impact how they use the technologies. We also have a need for training between cath lab or EP staff so they are cross-trained for combined procedures which can be difficult across systems and locations.

With a combined system that allows the treating physicians and staff to use a consistent interface with simplified functionality across multiple types of procedures, this would also increase efficiencies; for example, when there is a conduction system pacing procedure following a structural heart intervention, and we want to implant a pacemaker without interruption.

From the end user standpoint, they want simplicity: they do not want multiple clicks and steps to do one thing right. We need buy-in from our teams for time spent on training, so if the workflow is streamlined and simplified across platforms, it would be easier on the staff to learn and due to increased use, they will retain that familiarity.

Artificial Intelligence (AI)

Q: It seems like AI is an emerging hot topic in the EP and cardiac cath lab. Can you tell us why a combination type product will be important?

A: The importance of having a high-quality, dual functioning system is to provide the AI algorithm with the best patient signal quality possible so that the algorithm can provide the best output/result. Here at Cedars-Sinai, we continue to evaluate many different AI solutions and have quickly realized that the success of the AI solution is highly dependent on the patient data that goes into the AI algorithm.

Cybersecurity and IT Integration

Q: Cybersecurity protocols and requirements in the healthcare space are necessary to mitigate risk and decrease vulnerabilities to security threats. How has the increase of these measures impacted the workflow within your institution?

A: Clinicians and staff have adjusted to the fact that it takes time and numerous interruptions when systems and devices may interface with the hospital networks, the electronic medical record, or imaging repositories. These also can become a cybersecurity risk, such as when we are interrogating a pacemaker or defibrillator as these devices can be subject to cybersecurity oversight, and we must go through a great deal of documentation and validation. Vendors cannot always automatically update their software or hardware, so I must oversee these requests, which takes time and can lead to decreased operational efficiency.

Because of these risks, hospitals have to keep upgrading our patient data systems. Alternatively, the cardiac recording systems may need to be updated or they cannot communicate or integrate with other key internal patient data systems. It has become a repetitive challenge that we have to address. The optimum scenario would be for security patches or updates to become more automatic and not cause connectivity downtime.

Quality and innovation in patient care is our priority, and we are grateful to industry partners who develop technology and services that help us achieve this.

Connectivity from the recording systems to the electronic medical record or imaging system is important to ensure patient data is entered and tracked correctly. By using a streamlined system, this would minimize areas of risk, reduce human error, and keep patient data more secure.

Cost-effectiveness and Justifiable Return on Investment

Q: When planning a new system or upgrade, what cost considerations go into your decision-making?

A: Cost is of primary concern due to financial constraints across the healthcare system. No matter how good a system is, it must have benefits that justify the return on investment. It is also impacted by the need to replace or upgrade existing systems versus building in new system infrastructure. If there is one system with multiple capabilities, that would be highly desirable as it would save money for the hospital. The system should be able

to integrate remotely and automatically, and have fewer complicating factors that equates with cost savings in terms of time and effort.

Impact to Patients

Q: For a world-class healthcare institution like Cedars-Sinai, the patient is at the center. How does optimized workflow efficiency impact patient care?

A: Our goal is always optimizing patient care. Reducing wait or procedure times means better patient outcomes and experience. If patients must wait or if procedures are not running efficiently, it could negatively impact the patient. If our networks are not communicating well or updated efficiently, patient data could be at risk. Quality and innovation in patient care is our priority, and we are grateful to industry partners who develop technology and services that help us achieve this.

Insights From an Industry Expert

Jennifer Bayon, Director of Global Marketing at GE HealthCare

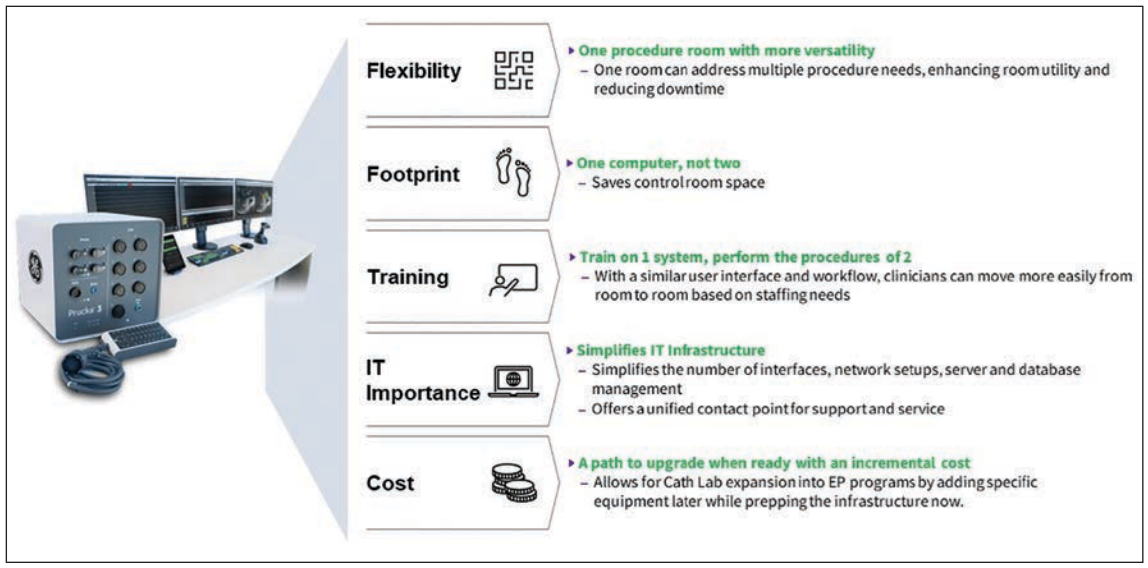
Taking into consideration the growing challenges and needs of today's cath and EP lab, as mentioned by Hyun Joo Lee, let us now hear from an industry expert, Jennifer Bayon, Director of Global Marketing at GE HealthCare, about her thoughts on why GE HealthCare has developed a product like ComboLab to address those needs.

Q: We have heard about site challenges involving how traditional procedure rooms are often designed for single purpose use, which can lead to scheduling delays or underutilization. What impact can ComboLab have on this issue?

A: The development of ComboLab is a direct response to the challenges and requirements we have identified in clinical environments. ComboLab transforms one procedure room into a versatile space capable of handling multiple types of procedures. This flexibility enhances room utility and significantly reduces downtime between procedures, allowing healthcare facilities to maximize their resources and improve patient throughput.

This is also true for the control room; by consolidating operations into a single computer system, ComboLab saves valuable control room space and keeps this constricted area more organized. Delays and underutilization are also reduced when it comes to updates for the system as ComboLab has scheduled patch updates which ensure no unexpected downtime.

Q: We know that healthcare has faced staffing constraints and the workers themselves are often inundated with multiple systems and trainings. How does this technology help the EP teams directly?



A: Training staff on multiple systems can be time-consuming and inefficient, especially when quick adaptability is required. ComboLab is designed with a similar user interface and workflow across different procedures. This consistency allows clinicians to easily transition from one room to another based on staffing needs, ensuring that they can quickly adapt and maintain high standards of patient care without the need for extensive retraining and reduce data entry errors.

Q: What are the pathways towards cost savings for institutions considering ComboLab?

A: Managing multiple interfaces, network setups, servers, and databases can be complex and costly. ComboLab simplifies IT infrastructure by reducing the number of interfaces and consolidating network setups, server, and database management. This unified approach not only lowers operational costs but also provides a single point of contact for support and service, streamlining maintenance and troubleshooting processes.

Expanding capabilities often requires significant upfront investments, which can be a barrier for many healthcare facilities. ComboLab offers a scalable solution that allows for incremental upgrades. Facilities can prepare the infrastructure for future expansion into EP programs and add specific equipment as needed. This approach provides a cost-effective path for growth, enabling institutions to enhance their capabilities without the need for substantial immediate investment.

In Summary

GE HealthCare's ComboLab system is a transformative solution for modern healthcare facilities, combining hemodynamics and EP into a single, efficient platform. Its flexibility, space-saving design, cost-effective upgrade path, simplified IT management, and robust security measures make it an ideal choice for hospitals looking to enhance their procedural capabilities and operational efficiency.

Disclaimers

The statements by Hyun Joo Lee described here are based on her own opinions based on results in her unique setting. Since there is no 'typical' hospital and many variables exist, (i.e., hospital size, case mix, etc.), there can be no guarantee that other customers will achieve the same results. ■

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