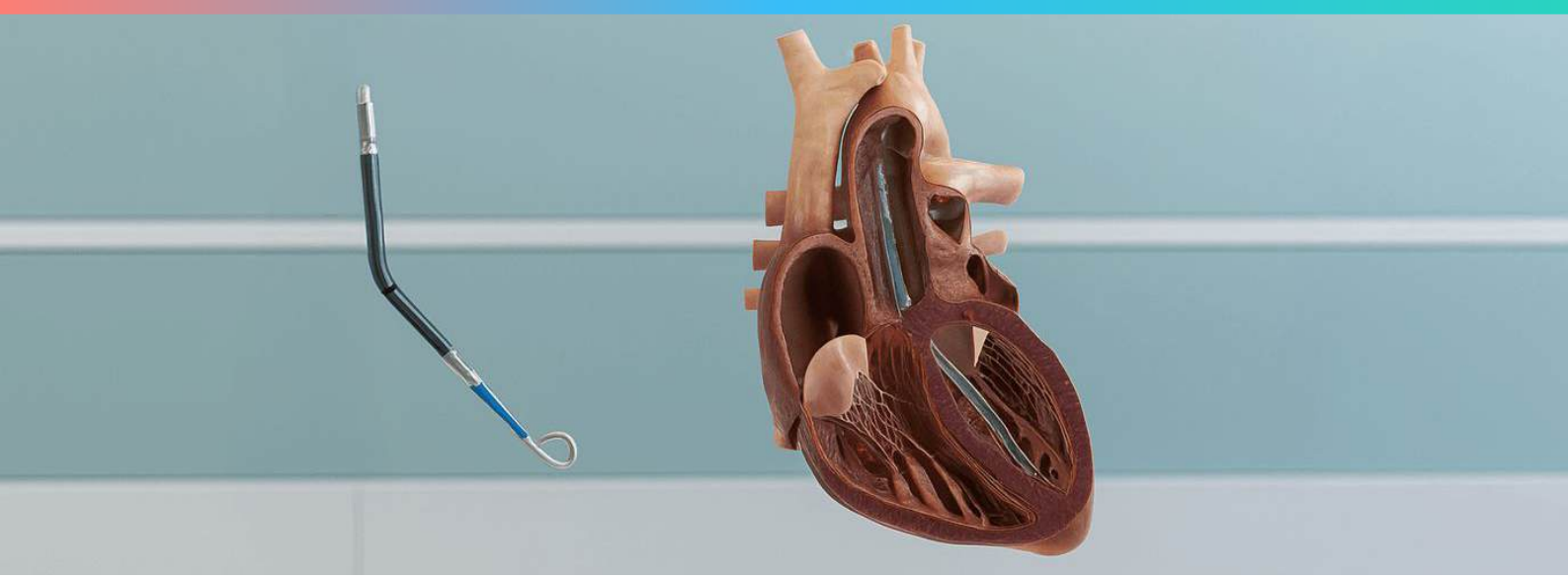


Precision in Practice: Why Multimodality Immersion is the Next Step for Mastering Intracardiac Interventions

Interventional procedures involving intracardiac imaging require operators to translate dynamic imaging data into a three-dimensional reality, all while executing minute, life-saving movements with a wire or catheter.

The complexity of imaging interpretation coupled with the nuance of wire manipulation is precisely where current training methodologies often fall short, and where high fidelity immersive technology can play a major role in training.

68.75%

of cardiologists surveyed say coronary artery interventions is where they would use immersive simulation

"Avoiding the risk on training and developing on real patients"

The Core Challenge: Realism and Refinement

Our recent small survey of cardiologists underscores the growing need to support procedural training. Among the most frequently mentioned procedural areas identified for simulation, **General catheter and wire skills was a clear leader**, with practitioners explicitly seeking help in **Improving wire handling/navigation** through immersive tools.

There is a clear need to focus on realism

However, a major hurdle to effective training is fidelity. Cardiologists cited **Limited realism/accurate reflection of patient anatomy** and the crucial **Lack of tactile touch or 'feel'** as the primary drawbacks of existing simulation tools. The advice to developers was clear and direct: **Focus on realism: Recreate physical anatomy and the exact feeling of equipment as closely as possible.**

This demand for realism must also extend to the visual-spatial component. Cardiologists seek **to use simulation to enhance practical awareness of the patient's anatomy in relation to the devices**, highlighting the critical link between correct imaging interpretation and procedural success.

"Greatest potential lies in enhancing procedural rehearsal for complex interventions"

Immersive Solutions: The Path to Mastery and Innovation

Advanced immersive solutions are now stepping up to address this fidelity gap by focusing on the crucial components of complex intracardiac procedures, offering unique value to both clinicians and the medical device industry:

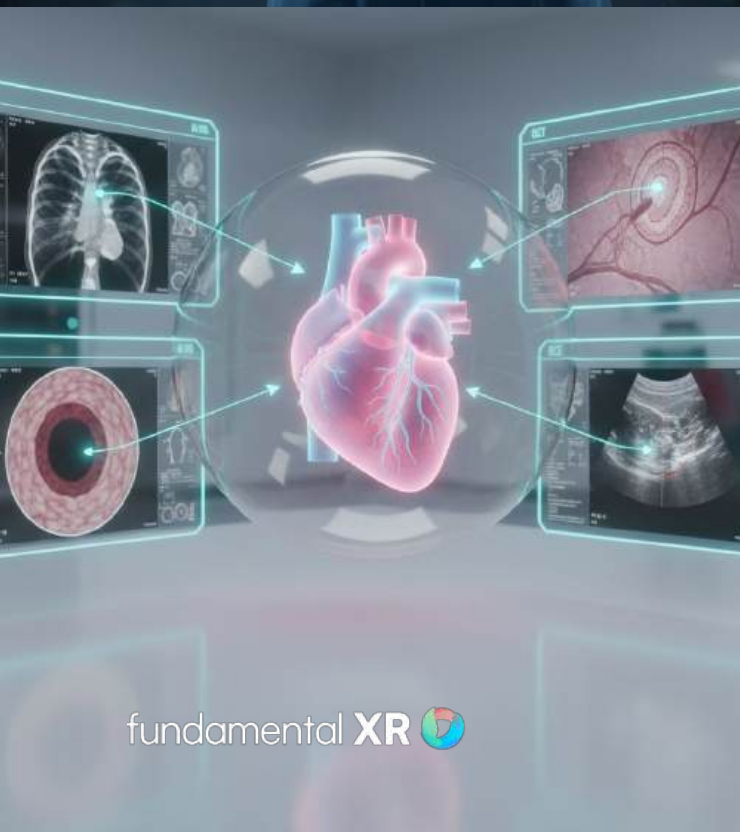
1. High-Fidelity Wire and Catheter Manipulation: Advanced haptics and responsive physics systems are essential for realistic **Catheter manipulation**. This is the key to solving **Improving wire handling/navigation,** by providing the critical tactile feedback necessary to develop the 'feel' required for delicate procedures.

"Enabling standardized, accessible training across centers."

2. Simultaneous Multimodality Imaging and Interpretation: Interventional procedures rarely rely on a single imaging modality. The most effective simulators now incorporate **Simulated, simultaneous multimodality imaging (e.g., CT, IVUS, OCT, ICE).** This allows trainees to practice fusing and interpreting multiple complex datasets, a foundational skill for minimizing error and radiation exposure, and directly supporting improved **Diagnosis and image interpretation** in challenging cases.

3. Anatomical 3D Models and Visualization: To fully grasp the patient's unique anatomy, operators need dynamic visualization. High-fidelity **3D models** coupled with features like a **Steerable View** allow the operator to overcome the problem of **Limited realism/accurate reflection of patient anatomy** and support the critical goal to **improve hand-eye coordination with cath lab equipment** (50% of participants mentioned).

Immersive simulations help to improve hand-eye coordination with cath lab equipment



Expanding Value: Beyond the Training Bay

The benefits of this advanced fidelity extend far beyond initial training, transforming the platform into a powerful tool for industry and clinical innovation:

- **Testing Technologies and Techniques:** The platform provides a crucial pre-clinical environment where users can **test technologies/techniques on virtual patients** with diverse and complex anatomies. This capability allows medical device companies to safely iterate device designs and allows clinicians to validate new procedural strategies before they ever reach the cath lab, accelerating innovation and enhancing safety.
- **The Safety and Mastery Engine:** For clinicians, the value is immediate: the opportunity for **Safely practicing skills repetitively** (1st choice for 50% of respondents) transforms the tool into an **Essential tool for mastering new techniques and reducing procedural complications.**

By providing an environment where imaging, haptics, and anatomical representation are virtually indistinguishable from reality, next-generation immersive solutions ensure that technical brilliance keeps pace with clinical innovation, **leading to safer procedures and better patient outcomes.**

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