Advancing Cardiac Care Through Innovative Remote Support Technologies: A New Era at the Peshawar Institute of Cardiology

Heart disease stands as the leading cause of mortality in Pakistan, with a concerning increase in its prevalence [1]. This alarming trend not only poses a significant public health threat but also places considerable strain on the healthcare infrastructure. The COVID-19 pandemic has further intensified these challenges, disrupting healthcare delivery across a geographically dispersed population. Given these circumstances, an urgent need for innovative strategies to enhance training and collaboration among healthcare professionals has arisen.

Challenges

Historically, medical training in Pakistan has relied heavily on traditional methods that necessitated significant travel across the country. This approach, while effective in certain contexts, often proved to be both time-consuming and resource intensive. Doctor Raza, an interventional cardiology consultant frequently traveled 1,500 kilometers—equivalent to an 8-hour drive or a 3-hour flight—between centers in Pakistan to train fellow interventional cardiologists. The limitations imposed by such travel not only restricted Dr. Raza's capacity to mentor but also curtailed the overall number of healthcare professionals who could benefit from his expertise.

Moreover, the conventional setup during catheterization procedures posed another restriction to learning. In an operating room, the operator's perspective was often obscured from other practitioners, which significantly limited opportunities for collaborative learning and engagement. This lack of visibility hindered less experienced healthcare professionals from observing the details of the procedure, understanding the decision-making process in real-time, and gaining insights that could enhance their own skills. "Without the ability to share perspectives and discuss techniques openly during the procedure, the potential for mentorship and knowledge transfer is greatly diminished," noted Dr. Raza.

Deployed Solutions

The recent integration of ExpertLink services, particularly using smart glasses, marks a pivotal enhancement in medical training at the PIC-MTI, specifically within the realm of interventional cardiology. Dr. Ali Raza, passionate about technology, has emerged as a frontrunner in utilizing these advanced remote solutions on multiple occasions over the past year.

His experiences highlight a range of benefits associated with this innovative tool, underscoring its potential to transform how practitioners engage with complex medical procedures.

Real-Time Visual Sharing

One of the standout features of smart glasses is their ability to facilitate real-time visual sharing. This capability allows colleagues and educators to witness precisely what the user is observing, enabling a concentrated focus on patient care and enhancing collaborative efforts during procedures.

Hands-Free Operation

The hands-free functionality of the smart glasses ensures that users can remain engaged in their tasks without the distraction of adjusting cameras or equipment. The device intuitively follows the wearer's line of sight, providing a fluid and uninterrupted workflow.

User-Friendly Interface

Smart glasses are designed for user-friendliness, minimizing the need for complex setups or interruptions, especially during live cases.

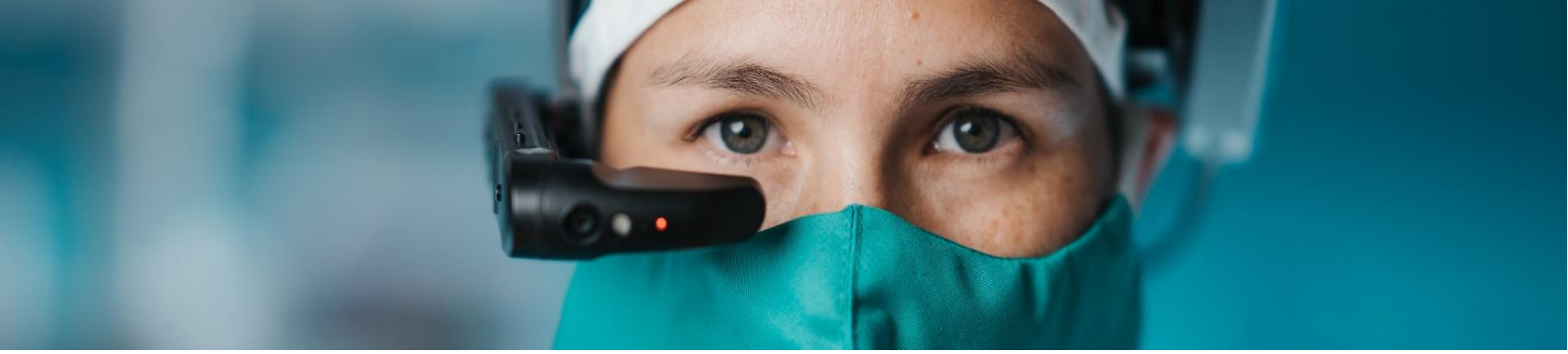
Enhanced Learning Opportunities

By integrating smart glasses into the medical training curriculum, students and trainees can receive immediate feedback and insights from seasoned practitioners. This real-time exchange of knowledge creates a dynamic educationalatmosphere, fostering a deeper understanding of complex procedures and enhancing the overall training experience.

TRAINING EFFICIENCY
-60%
Time Spent
Less travelling

TRAINING REACH
+50%
Trainees onboarded

TIME SAVINGS for trainer
10 days
Travelling



Impactful Outcomes

Training efficiency

Utilizing remote technologies during real-time procedures imposes no restrictions on the number of attendees, allowing for the training of more individuals. In contrast, as Dr. Raza highlights, the number of trainees in a cath lab is often limited due to infection control policies and temperature management considerations.

For example, during a recent advanced training session attended by thirty interventional cardiologists, primarily from Turkey, Dr. Raza conducted his first IVUS-guided ROTA live case using smart glasses from his hospital in Pakistan, demonstrating the launch of RotaPRO therapy. Participants in this session, along with attendees from three additional training sessions, reported high levels of engagement and satisfaction, appreciating the benefits of observing live cases in a realistic context. Many noted that this approach was more efficient than traditional online teaching methods, leading to a 60% reduction in the time spent on the practical components of the training.

Cost efficiency

In this success story, Dr. Raza illustrates how the implementation of remote technologies in training and procedural oversight significantly enhances cost efficiency in two key areas. Firstly, his calculations reveal a remarkable reduction in travel expenses and time for Boston Scientific trainings, totaling approximately eight thousand kilometers and around ten working days over the past year.

Additionally, by eliminating the logistical challenges associated with convening in a cath lab, these technologies not only reduce costs but also optimize resource allocation, ultimately strengthening the financial sustainability of healthcare organizations. Remarkably, Dr. Raza has trained fifty percent more interventional cardiologists in just one year, highlighting the transformative impact of these innovative solutions.

Enhanced procedural outcomes

Dr. Raza envisions a future for his practice where remote technologies extend beyond training opportunities. He sees the potential to provide essential support during urgent procedures without being physically present, particularly in critical situations like stroke interventions, where timely expert guidance can save lives. Dr. Raza is eager to increasingly leverage this technology to enhance procedural outcomes and advance medical techniques.

[1] World Health Organization. (2024). Global health estimates: Leading causes of death. World Health Organization. https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death.

Disclaimer: Results are based on an actual survey conducted for this case study on five trainings in 2024.Results from case studies are not necessarily predictive of results in other cases. Results in other cases may vary.

About the Hospital

Spanning over 33 kanals with a built area of 372,000 square feet, PIC-MTI is equipped with modern amenities and a robust administrative structure in line with the Medical Teaching Institutions Act of 2015. The facility boasts 310 beds, accommodating various cardiac specialties including emergency care, surgery, and intensive care for both adult and pediatric patients. Its commitment to providing cutting-edge cardiac care and training positions it as the premier institution for cardiac health in the region, catering to individuals from remote areas of Kashmir and Balochistan who seek specialized care.

Dr. Ali Raza

Interventional Cardiology Consultant

"The efficiency of real-time training has revolutionized our approach, enabling us to deliver timely guidance and follow-up like never before. ExpertLink services promise a bright future for improving patient outcomes."

ExpertLink

Suite of services enabled by remote technologies, to connect healthcare professionals to clinical and technical support.

- Enhancing the physician experience
- Embedding digital innovation
- Championing efficiency and sustainability

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