

XRx Healthcare Summit Summary Report:

Insights to Improving Patientcare and Health Outcomes with XR Solutions

XR ASSOCIATION

Table of Contents

1 Overview **02**

2 Clinician Workshop **03**

3 Patient Workshop **08**

4 Conclusion **15**

5 Final Summit Recommendations **16**

Overview

The healthcare industry was one of the first commercial adopters of immersive technology, and as XR has matured, healthcare ventures have been among the most enthusiastic proponents of XR. Nevertheless, the widespread adoption of XR in healthcare reflects a pattern seen across many other sectors: while there are impressive pilot programs and isolated successes, large-scale implementation has yet to meet expectations.

The healthcare industry's interest in XR goes back three decades. One of the first successful enterprise applications of VR came in the 1990s when surgical training simulators began to be used.[1] Since then, countless studies have been conducted into the effectiveness of medical and behavioral health XR applications, often referred to as medical XR (MXR).[2] Those studies have repeatedly shown the promise of MXR as a tool for clinical education, health administration and workflow, and patient-facing therapies. That includes applications to enhance clinical training, assist in surgical planning, enhance remote collaboration between clinicians and with patients, improve quality and safety in healthcare settings, help patients manage pain, and support behavioral health and rehab programs, among other things.

For immersive technology to realize its potential as an essential healthcare tool, more must be done to ensure that clinicians have the support systems necessary to use MXR at scale and that patients both experience and understand MXR's broad utility and benefits to their healthcare journey.

To address the challenges and promise of MXR, the XR Association brought together representatives from the XR industry, leading health systems, clinicians, technologists, educators, policymakers, and other stakeholders to take an honest, focused look at where XR stands and where it needs to go within the healthcare field.

The XRx Healthcare Summit was broken into two workshops, hosted by the University of Maryland's Institute of Health Computing and in association with the Center for Medical Innovations in Extended Reality (MIXR).

The first, held in the spring of 2026, focused on promising clinician-facing uses of XR and the obstacles to the broader use of XR technology in healthcare settings. The second, in the fall of 2026, focused on MXR's value to patients and patient barriers to adoption. Both workshops in the XRx Healthcare Summit series started from the premise that MXR will transform healthcare, improve patient outcomes, streamline workflows for healthcare workers, simplify healthcare administration, and positively impact public health.

This report is divided into two summary sections, one from each workshop, with a list of recommendations from both workshops at the end.

[1] https://itif.org/publications/2025/06/02/arvrs-potential-in-health-care/

[2] https://www.xrhealthalliance.org/the-growing-value-of-xr-in-healthcare

Clinician Workshop

The healthcare industry's spending on VR technologies alone was valued at $5.6 billion in 2025, with a projected growth to $66 billion by 2034.[3] An XRA survey of over 400 healthcare professionals showed that 84% believed VR and AR will have a positive impact on the industry, and 77% reported having used XR technology with patients.[4]

However, broadening the use of XR in patient care delivery, clinician training, and healthcare administration continues to face challenges, such as workflow disruptions, reimbursement uncertainty, and persistent perception gaps related to the use of artificial intelligence and other digital tools. By way of comparison, the global medical imaging market is nearly nine times as large as the VR market.[5]

The Clinician-Facing Workshop examined these trends and the factors holding clinicians and healthcare institutions back from adopting MXR more broadly as a healthcare tool. The workshop was broken into three parts: the clinical impact of XR today; XR adoption, pain points, and workflow; and scaling, integration, and enablement.

Clinical Impact Today

More than 3,000 studies have been conducted into the effectiveness of medical and behavioral health XR applications, often referred to as medical XR (MXR).[6] Those studies have repeatedly shown the promise of MXR as a tool for enhancing and advancing clinical education, health administration and workflow, and patient-facing therapies. Use cases include applications enhancing clinical training, assisting in surgical planning, enhancing remote collaboration between clinicians and with patients, improving quality and safety in healthcare settings, helping patients manage pain, and supporting behavioral health and rehab programs, among other things.

Summit participants emphasized a few specific examples of how XR is already being used by many clinicians for education, treatment and patient care:

- 3D AR overlays of a patient's anatomy during liver biopsies
- VR-based 3D surgical planning for neurosurgery and thoracic surgeries
- VR and AR simulation training for clinicians
- VR distraction therapy for pain management
- VR for patient education about diagnoses and procedures

MXR has also been used to train practitioners in soft skills, such as empathy training, and administrative procedures, as well as for use as to complement traditional diagnostic tools. Emblematic of such studies, medical professionals trained on simulators, for example, received

[3] https://www.fortunebusinessinsights.com/industry-reports/virtual-reality-vr-in-healthcare-market-101679
[4] https://xra.org/research/insights-on-the-future-of-xr-in-healthcare/
[5] https://www.fortunebusinessinsights.com/industry-reports/medical-imaging-equipment-market-100382

[6] https://www.xrhealthalliance.org/the-growing-value-of-xr-in-healthcare

better reviews for their bedside manner compared to those who were trained using traditional methods. [7]

Adoption, Pain Points, and Workflow

Although XR often leads to positive outcomes, and many clinicians are passionate advocates of MXR, clinicians rarely drive new technology adoption, in part because hospital bureaucracy can be challenging to navigate. In addition, the healthcare system overall is risk averse, as such, procedure changes and technology advances are slow to be adopted. Indeed, the challenges facing broader use of XR in hospitals and healthcare institutions are not much different than the challenges facing any emerging healthcare technology.

Disjointed Hospital Organization

Hospitals and other healthcare entities often have "disjointed" technology systems that stem in part from bureaucratic inertia and disparate factions that have competing priorities. As one participant noted, "In healthcare, it just has to work." But the definition of "work" may differ depending on who you ask.

For example, while doctors and nurses see the benefits to patients and clinicians of MXR, hospital administrators are looking not just at healthcare outcomes but also workflow impacts, the cost of technology, years-long procurement planning timelines, the cost of training, compatibility with existing technology systems, and maintenance burdens, among many other concerns.

One concern raised by clinicians is that when new technology is adopted in hospitals, "no one knows how to own it." Clinicians may want the technology, but are often not responsible for set up, training, maintenance, or software updates. As one participant noted, "If it fails once or twice, no one will use it again." That can mean that promising technological advancements gather dust, while older, less efficient healthcare methods continue to be used because they have a legacy support system.

Regarding the need for support staff who understand and can solve problems with new technology, participants emphasize how crucial it is for information technology (IT) departments to have buy-in when adopting XR. There are often multiple IT departments in a single hospital who need to be included in discussions. Unfortunately, IT departments at hospitals and healthcare institutions are often brought in late to conversations and decision-making on new technology purchases and, therefore, may be reluctant to integrate it into their workflow or may surface late concerns about cybersecurity or software and hardware compatibility. Participants noted this can be true for both private and public healthcare institutions, including the military.

Similarly, participants also emphasized the importance of having an advocate or champion in the executive suite of a healthcare institution to overcome bureaucratic hurdles and ensure all stakeholders are engaged. Multiple departments must be brought into the fold before a technology can be approved. Case in point: some new technologies may reach the final stages of

[7] https://itif.org/publications/2025/06/02/arvrs-potential-in-health-care/

procurement, only to be blocked by infection control teams because the device hardware cannot be adequately cleaned. In other cases, technologies can sometimes become obsolete by the time procurement contracts, which can take years to vet, are finally approved.

Interoperability

Meanwhile, interoperability also remains a potential barrier to XR adoption in healthcare settings. For example, a clinician using a surgical guidance app might have to exit out of the app in order to open a separate XR anatomy reference. In an operating room setting, the inability to access both programs seamlessly makes using both impractical.

Incumbent technology providers, such as imaging device vendors, often have an incentive to create proprietary displays and software, rather than create interoperable systems that can work with other software, including XR software. Interoperable hardware is not yet available from manufacturers. Participants acknowledged that regulatory burdens, market pressures, research and development sunk costs, intellectual property concerns, and other business considerations make tech companies reluctant to make their devices more interoperable.

Standardization

Additionally, participants noted that hospital contracts with large outside technology vendors are so large and sometimes ingrained in the hospital's system that they can prevent new technology from being adopted if it competes with their products and/or requires integration with their proprietary systems.

In some cases, Food and Drug Administration (FDA) authorization can incentivize tech vendors to make their products compatible with other technology. Participants also noted that the Veterans' Administration (VA) has been working on interoperability within their enterprise cloud.

Despite these efforts, clinicians observed that new technology can take years, or even decades, to reach mainstream use. They cited an average 17-year lag between the introduction of new surgical technologies and widespread adoption. For example, robotic surgery tools have been around for decades but took more than 20 years to become as ubiquitous as they are today. Urologists were at the forefront of proving the efficacy of robotic surgical tools and helped drive adoption, but the process required time, experimentation, and research. Moreover, success in one specialty does not automatically translate to others. Clinical research is needed to demonstrate efficacy for new procedures and disciplines. Clinicians may also not be aware of the breadth of research that has already been conducted on MXR technologies and uses, given those studies are often scattered across a variety of medical specialties.

To help smooth the pathway for XR technology in healthcare, participants agreed that standardization and device-agnostic approaches can help hospitals and healthcare institutions streamline procurement and implementation. The Center for Medical Innovations in Extended Reality (MIXR), for example, has been working to develop guidelines for vendors and hospitals that identify stakeholders and issues that need to be addressed for adoption. Those issues include ownership, cost, lifecycle management, and evidence standards (such as clinical outcomes, cost

savings, or cost equivalence). In general, participants agreed that standardization was needed to address risk management protocols across healthcare institution stakeholders, such as IT and infection control teams.

In discussions about standardization, the topic of risk management and addressing infection control was highlighted. Cleaning protocols for electronic devices and hardware can vary even within the same healthcare institution, leading to problems in adoption of new technologies. While some systems might accept a vendor's detailed testing reports, others might want FDA clearance for devices before they will be accepted. Participants emphasized that standardization of infection control regimes was recommended, and the VA's efforts to standardize infection control and other processes across its large system were held up as a model that could be replicated in other large hospital systems.

Scaling, AI Integration, and Enablement

Overcoming barriers to XR adoption in healthcare will necessarily need to address issues of scaling, integration with artificial intelligence (AI), and enablement.

Hardware/Software Fleet Management

Participants discussed the challenges to integration and scaling of MXR and outlined the elements that make scaling possible. For example, selecting a device/headset should not happen in isolation. Instead, it should occur within the context of a deployable, manageable, supported, and measurable XR ecosystem.

Important elements to ensure scalability include choosing the right device/headset for the specific workflow. In selecting hardware, consideration should be given to the importance of shared use, comfort, infection control, battery life and charging stations, and the quality of the immersive experience for the user. In addition, a robust plan for medical device management is needed to ensure that additional devices and related equipment can be provisioned, maintained, repaired, etc.

Choosing the right software is also important for scalability, because it not only needs to perform its dedicated function but also have the ability to support updates, governance, and data collection. Participants emphasized that vendors should offer flexible pricing to healthcare institutions, particularly in the area of education and training, because a lack of flexibility can hinder adoption on the procurement side.

Integration with Clinical Workflows

Beyond hardware and software, integration of XR into clinical workflows is critical. Pilot programs, measuring outcomes, and identifying the "owners" of the technology amongst various departments, such as IT and the executive suite, are key to ensuring smooth adoption and continued scalability.

Layering Artificial Intelligence with XR

Once an XR foundation exists, AI can be layered on to provide adaptive learning pathways, scenario personalization, debriefing support, and performance insights based on usage and outcome data. While AI will be integral to many MXR technology solutions, participants discussed the challenges AI presents. For example, concerns exist about the quality of data used to train AI, AI hallucinations, and privacy considerations around AI data collection. Beyond XR-specific applications, some in the healthcare industry have expressed concerns about AI eliminating jobs, such as in radiology and pathology, and participants noted that more clinicians fear AI than eagerly embrace it.

Data collection by both AI and XR was a focus of discussion as well. Participants discussed the tension between the need for robust data to support clinical and administrative uses and constraints of government regulations that often restrict the sharing and use of healthcare data. The collection and use of data gathered XR simulations is often simpler than attempts to use healthcare data from patients protected by privacy laws and who may need to give their explicit approval in order for healthcare institutions to use it.

To scale medical solutions implementation plans with various check points and a multidiscipline team should be put in place in advance of any technology roll out. These teams should at the start include members from IT teams, administration and infection control.

Additionally, the question of who owns data generated by XR has arisen, particularly in the heavily regulated healthcare space. Vendors and healthcare systems may need to negotiate who owns the data generated by XR programs, and both need to assess how healthcare privacy laws affect their ability to use the data in various ways.

Patient Workshop

Patients are already benefiting from MXR. It is currently being used for mental and behavioral health, medical education, diagnostics, and pain management, , among other things. From a patient-facing perspective, one of the best-known uses of XR in clinical settings is reducing or managing pain and stress responses.[8]

MXR is also being used in neuroscience and behavioral health. For example, virtual reality exposure therapy has been used to successfully treat patients with specific phobias,[9] substance use disorder, and other mental health disorders. It has also been used as an educational tool to help teach social skills and situations to neurodiverse individuals.[10]

In physical and occupational therapy, XR helps patients regain lost motor skills and simulate real-world tasks after injury. Largely through "gamification," Physical Therapy (PT) and Occupational Therapy (OT) use of XR can increase patients' willingness to complete therapy exercises and allow them to perform PT and OT exercises at home while therapists monitor their progress from afar.[11]

Despite these success stories, more needs to be done to ensure that MXR experiences are clinically meaningful, trusted by patients, operationally feasible, and economically sustainable for both patients and practitioners. As the patient-facing workshop explored, the most important goal for both the industry and healthcare professionals is providing patients with real value and better health outcomes.

Participants examined areas where XR can improve care, why patients may be reluctant or unable to use it, and what can be done to establish patient trust, demonstrate patient value, and support sustainable implementation across healthcare institutions.

The workshop was broken into four sessions: patient value and experience design; barriers to patient adoption; reimbursement, value, and incentives; and designing for trust, safety, and equity.

Designing for Patient Value

MXR is uniquely well-suited to providing patient-first experiences. Because XR technology, and MXR in particular, is customizable to individuals, it can be designed with a user-centered approach, and experiences can be tailored to a specific patient's therapeutic needs and personal preferences.

Workshop participants discussed where MXR is delivering the most patient value today and how immersive experiences can reflect patient needs and care journeys. And rather than focusing on

[8] https://pmc.ncbi.nlm.nih.gov/articles/PMC11528804/
[9] https://standards.ieee.org/wp-content/uploads/2022/02/whitepaper-ethics-in-medicine.pdf
[10] https://pmc.ncbi.nlm.nih.gov/articles/PMC11546170/
[11] https://itif.org/publications/2025/06/02/arvrs-potential-in-health-care/

technology first, participants discussed the need to identify the problems patients need to solve and approach them with empathy.

Often, there is a mismatch between what patients, clinicians, and other stakeholders view as "valuable "in a healthcare experience. Patients are more likely to place the most "value" on their own personal costs, benefits, and comfort, such as pain reduction, regaining independence after a disabling injury or illness, returning to work or daily routines, understanding their diagnoses and prognoses better, and feeling more in control of their healthcare journey.

Meanwhile, other institutional stakeholders may attribute "value" to operational factors that deliver optimal health outcomes per dollar spent.[12] Indeed, the clinician-facing workshop identified persistent barriers to MXR adoption that are driven by difficulties in integrating XR into existing workflows and slow, bureaucratic procurement regimes.

However, the patient-facing group noted that solving those institutional barriers alone will not address patient adoption, because of the unique circumstances and needs of patients. Indeed, experts highlighted the importance of patient trust to the adoption of MXR, because patients bring their own prior experiences, fears, and concerns to each new healthcare encounter.

For example, while XR has long been touted as an innovative way to provide remote telehealth care for home-bound individuals and those in rural and underserved communities, healthcare professionals can use it only if it is deployable to those patients and patients trust and understand how to use it.

Ensuring patient trust will mean addressing patients' psychological safety, ensuring the content of any experience is appropriate and clinically suitable, ensuring it is hygienic and disinfected after every use, and maintaining patient privacy.

Design Principles

There was general agreement that MXR tools should be designed to be safe, inclusive, easily usable, and appropriate for real-life patients with real-life limitations. To achieve that, participants recommended short, easy-to-start experiences and gradual acclimation. To reduce patient reluctance, consideration should be given to designing which begin in passthrough or augmented-reality mode. Other suggestions included making the experience interoperable with various hardware and software that patients may already have, such as smartphones and "smart" wearables. Participants generally agreed that attention should be given to using the minimum level of technical intrusion as possible to achieve the intended benefit.

The design of immersive healthcare experiences should also consider how a patient may need to use the hardware and software, including from a seated position or in bed. Suggestions also included allowing caregivers and/or family members to view, through screen-casting or

[12] https://www.pcori.org/sites/default/files/PCORI-Landscape-Review-Summary-Patient-Stakeholder-Perspectives-Value-Health-Health-Care-August-2022.pdf

streaming, what the patient is experiencing to help verify the appropriateness of the content and give them more insight into the technology's benefits.

Barriers to Patient Adoption

The Clinician-Facing Workshop identified a variety of barriers to MXR adoption from the clinician standpoint, including workflow disruptions, "disjointed" institutional technology systems and lack of interoperability, lack of standardization, reimbursement uncertainty, and persistent perception gaps among staff related to the use of artificial intelligence and other digital tools.

While those barriers must be addressed, the Patient-Facing workshop examined why patients may resist adopting emerging healthcare technologies, including MXR. In particular, participants discussed the often-personal nature of many patient-specific barriers to MXR adoption, including patient perceptions of technology, accessibility needs, comfort, privacy, caregiver involvement, and healthcare infrastructure.

The workshop focused on a variety of individualized factors that may make patients reluctant to engage with immersive technology, including:

- Distrust of new technology or technology companies.
- Low digital literacy.
- A lack of understanding or education on why they are being offered MXR or why MXR might help them.
- Privacy concerns related to the data MXR may gather.
- Concerns about the comfort of wearing an MXR device.
- Potential side effects (such as cybersickness) and other physical safety concerns.
- Caregiver skepticism.

Participants focused again on the need to build patient trust in MXR. Doing so necessarily involves increasing patient access, improving patient education and digital literacy, and ensuring that the underlying technological infrastructure and delivery methods are reliable.

Practitioners should also assess patient readiness, including digital literacy, physical and cognitive abilities, comfort with headsets, desired outcomes, and appropriate session length, to ensure optimal outcomes.

Participants noted that caregivers may improve a patient's comfort and understanding of MXR, and they should be educated, along with patients, about the benefits of MXR. Home and remote applications also should include clear onboarding, support, and guidance on when to seek clinical assistance.

Participants emphasized that simply obtaining a headset does not constitute "access," because other factors may affect whether a patient can use the technology, such as broadband availability, a lack of compatible devices, or insufficient setup and troubleshooting support—especially at home or in remote communities.

To address the various challenges to building patient trust and understanding of MXR, participants recommended that practitioners:

- Introduce the technology gradually and keep early sessions short.
- Provide calm, interactive orientations before asking the patient to begin an immersive experience.
- Have practitioners frame the MXR experience around expected or desired outcomes for the patient's health needs, rather than using technical jargon related to the hardware or software or gaming terminology that minimizes the evidence-based nature of the treatment.
- Allow patients to stop the experience immediately if they become uncomfortable.
- Match the modality to the patient and clinical purpose.
- Use supervision and physical-safety protocols, especially for standing or immersive activities.
- Ensure equipment can be cleaned and disinfected properly.

In general, participants agreed that practitioners should gather feedback on patient satisfaction with MXR when it is used by asking whether the patient perceived a benefit and whether they would want to continue using the technology to address their healthcare needs.

Reimbursement, Value, and Incentives

Workshop participants explored why clinically promising XR applications often struggle to secure funding and scale. Participants identified several obstacles, including limited reimbursement, fragmented evidence, uncertain regulatory classification, and difficulty proving cost-benefit and return on investment.

Participants discussed several problems that healthcare institutions face in integrating MXR into their treatment options, including the fact that IT teams are often not involved until late in the process, devices may not work with hospital networks or management systems, and guest Wi-Fi may be inadequate to support the experiences. Procurement, security reviews, storage, charging, maintenance, and staff support can also delay deployment.

Much of this discussion mirrored the challenges outlined in the Clinician-Facing workshop. For example, a key takeaway included that successful adoption of MXR depends less on the capability of the hardware and more on enterprise readiness as a whole.

Participants highlighted the need for healthcare institutions to treat XR as an institutional capability, rather than relying on one enthusiastic clinician to spearhead a project that cannot be sustained without them. That would mean setting up systems and workflows related to governance, security, IT, biomedical support, infection control, data and privacy policies, clinical workflow integration, procurement, and long-term vendor stability. In addition, building teams of experts in those areas who would work together to implement effective MXR deployments.

To ensure long-term success, executive sponsorship and early buy-in from IT, cybersecurity, networking, procurement, clinical operations, and other key institutional stakeholders must be developed.

The need for interoperability was emphasized again, with one participant noting that existing mobile-device management platforms for smartphones and tablets can sometimes be adapted to MXR hardware, but support is spotty, and XR features may not work as intended on those platforms.

Vendor reliability was also cited as an emerging concern among healthcare institutions, because they often have experience making technology purchases, only to see the hardware or software discontinued or fail to be supported in the long term. Hospitals need confidence that the expensive devices and software they invest in will remain available, supported, repairable, and manageable over time. When software applications and hardware devices become more interoperable, it will help future-proof institutional investments.

Reimbursement and Purchasing Challenges

MXR is still considered an emerging technology, therefore, providers often must incorporate it into existing procedures rather than have it reimbursed as a separate "code." This results in limited dedicated payment pathways.

Even MXR applications that receive Food and Drug Administration (FDA) or other regulatory authorizations are not guaranteed to be covered by insurance companies or other payers.

Participants noted that both payers and healthcare institutions want and need more evidence from MXR providers that their technology will deliver meaningful clinical and economic benefits.

But some cautioned that fee-for-service reimbursement may not be the best route to broad MXR adoption. For example, the workshop distinguished the FDA's regulatory role from coverage and payment decisions made by the Centers for Medicare and Medicaid Services (CMS) and other payers. A product may be authorized and clinically useful but still may not qualify for reimbursement.

Some participants recommended shifting healthcare institutions' focus away from the reimbursement debate toward the patient benefits and cost savings they may see with MXR use.

To highlight the return on investment in MXR, the industry should highlight:

- Better clinical outcomes and patient-reported experiences.
- Stronger patient adherence to treatment and rehabilitation.
- Fewer readmissions and post-op complications.
- For pain management, reductions in the use of prescribed medications
- Reduced operating-room time, radiation exposure, or other resource demands.
- Improved staff training and skill retention.
- Broader access to care through remote care and telehealth.

- Lower overall costs or more efficient service delivery.

Participants suggested that a health system may decide to invest in XR when it improves outcomes or lowers costs, even without specific reimbursement codes. The Department of Veterans Affairs was identified as a promising organization to work with because it serves as both payer and provider and has incentives to expand patient access to care while reducing requirements for travel.

Building Stronger Evidence for MXR Adoption

Participants agreed that small, disconnected pilots are often insufficient for healthcare institutions to rely on for coverage and purchasing decisions. More research, with larger study cohorts tied to specific uses and outcomes, is needed to convince large institutions to make the leap to MXR.

The group also discussed that uncertainty exists among both the industry and regulators on which MXR products should be classified in which regulatory of operation categories, for example, as medical devices, digital therapeutics, software platforms, clinical support tools, training equipment, services, or something else entirely. Because classification affects regulation, procurement, and adoption timelines, participants emphasized the need to assess intended use and risk carefully.

Designing for Trust, Safety, and Equity

Participants examined the ethical, regulatory, safety, and accessibility requirements for broader deployment of MXR. Participants emphasized that trust across all stakeholders should rest on transparency and straightforward communication, appropriate safeguards, credible clinical evidence, and inclusive design, rather than product claims alone. Participants referenced the FDA, Health Canada, and MHRA guiding principles on transparency, which treat transparency as information carried by the whole user interface, including training, physical controls, displays, packaging, labeling, and alarms, and delivered at the point a decision is being made and again when the product changes. Immersive media can deliver that information within the experience, which is an advantage over a printed insert.

Participants also reviewed the FDA's risk-based approach to software functions. Where a product lands depends on what it claims to do and what happens if it does not function as intended. A product with no medical claim is likely not a device. Some products meet the device definition but fall under low-risk policies where FDA has said it does not intend to enforce the requirements, which is where much patient-facing XR sits today. Products that diagnose or treat are typically the focus of FDA's oversight, with controls that follow the classification. FDA publishes a list of authorized AR and VR medical devices, roughly 120 as of September 2026.

Early engagement with regulators, clear definition of intended use, and incremental evidence development were encouraged. Suggestions were made that the industry should also engage in the regulatory process through public comments, regulatory-science research, and precompetitive collaboration.

While the physical safety risks of MXR (including potential falls, collisions, motion discomfort, and cybersickness) were acknowledged, serious incidents were described as uncommon relative to overall use. Still, reporting obligations already apply to authorized devices, and participants agreed that developers and healthcare institutions should also implement and maintain feedback systems to ensure that all adverse events are recorded and addressed.

In discussing accessibility, participants noted the challenges of adapting current frameworks to the demands of spatial computing and three-dimensional environments. Concerns included ensuring MXR applications could support readable, adjustable captions; accommodating combined vision and hearing limitations; addressing mobility constraints; supporting cognitive impairments; and meeting the different needs of individuals, such as children and older adults.

Participants recommended that patients and people with disabilities should help design and test MXR products, workflows, onboarding, and support, noting that co-design can reveal barriers developers might otherwise miss.

Conclusion

Healthcare is notoriously complex for patients and clinicians, requiring them to navigate sometimes fragmented care, complicated payment and insurance structures, competing priorities, and an often-bewildering array of treatment and technology choices.

The patient-facing workshop participants broadly agreed that the MXR industry, clinicians, administrators, payers, patients, and other stakeholders must address patient trust in immersive healthcare therapies holistically. They also recognized that it is critical to understand that trust is earned between patients and clinicians and not simply given without question. They called for a coordinated approach linking patient-centered design with clinical evidence, implementation requirements, regulatory clarity, and viable economic models.

Overall, the Summits consensus was that broader adoption of MXR depends on demonstrable patient value, credible clinical and cost-benefit evidence, accessible and safe design, reliable and scalable implementation, and sustainable funding. Participants agreed that in addressing the challenges to MXR adoption, organizations should start with "low-hanging fruit," such as helping to expand use in training, education, and simulation, where barriers to entry are lower.

To smooth the path to broader deployment, however, the group centered on finding ways to standardize processes that are currently impeding adoption, including looking at procurement contracts, developing checklists for implementation, and addressing data governance obstacles.

Final Summit Recommendations

1. Build a shared evidence and research infrastructure, and support multi-institution studies with common protocols and measure and encourage the International Virtual Reality Healthcare Association (IVRHA) or other related trade associations to create a repository of research and articles of medical XR cases studies, research, and implementation stories from healthcare IT teams.

2. Develop practical healthcare XR implementation guidance, including toolkits for patient assessment and onboarding; safety and hygiene protocols; IT and network engagement, integration, and device management; device and software maintenance; cybersecurity; privacy; procurement; staff training; and vendor support.

3. Develop guidance for MXR developers and manufacturers on product classification and risk, FDA resources, coding needs, and reimbursement coverage and payments.

4. Establish patient-centered design and evaluation practices.

5. Form coordinated working groups and pilot collaborations among stakeholders. Explore feasibility of developing industry standards, credentials, and/or certification frameworks that could be voluntarily adopted, and work with organizations such as the National Conference of State Legislatures, the American Bar Association, and National Institute of Standards and Technology, among others, to develop policy proposals that address interoperability, data governance and privacy for XR in healthcare.

6. Develop model contract language for XR vendors and hospitals.

7. Develop XR-specific IT/cybersecurity checklists that can replace generic hospital forms regarding network and IT risks and maintenance.

8. Engage with the Healthcare Information and Management Systems Society (HIMSS) to create an IT recognition or award for "XR Excellence in Patient Care" to reward IT professionals who champion immersive technology for healthcare.