

Design thinking in healthcare to improve patient outcomes: Part B



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Abstract

In part B of the whitepaper, Design thinking in healthcare to improve patient outcomes, we explore critical aspects of healthcare innovation and patient outcomes measurement alongside a glimpse into the future of healthcare advancements. At the same time, part A introduces the current state of healthcare and examines the design thinking approach for healthcare, featuring a case study. Part B focuses on design tools and techniques for innovation, measuring patient outcomes using key metrics and providing insights into healthcare's future. It starts with an analysis of design tools and techniques for innovation, offering insights into practical strategies for fostering innovation within healthcare systems. Subsequently, the paper addresses the pivotal topic of improving patient outcomes and to measure those outcomes. This section emphasizes enhancing patient experience through various metrics. The paper's final section discusses the future of healthcare, highlighting advancements such as surgical assistance for improved precision and safety and medical training innovations to bridge the gap between theory and practice.

This whitepaper comprehensively examines design thinking principles and their application in healthcare contexts. It is a valuable resource for healthcare leaders and practitioners seeking to drive positive change and innovation in pursuing better patient care and outcomes.

Introduction

Design thinking has become a robust methodology for problem-solving in various industries, including healthcare. By focusing on a human-centered approach, healthcare providers can gain deeper insights into patients' requirements and create innovative solutions to enhance outcomes, lower costs and improve the overall patient experience. This whitepaper explores the design tools and techniques for innovation in healthcare, highlighting its potential to transform the industry.

Design tools and techniques for innovation

This section explores leading design tools and techniques poised to shape the future of healthcare through design thinking. From wearables and augmented reality to voice-activated technology and telemedicine, we will explore each tool's potential and discuss its unique challenges in user experience (UX) design.

Wearable technology has surged in popularity with digital watches dominating the market. These devices do more than tell time. They can track heartbeats, monitor sleep patterns, count steps and even provide calorie intake information. However, creating compelling UX for wearables poses unique challenges.



Figure 6: Wearable technology to measure heart rate

The primary challenge for UX architects is to ensure that the data displayed on small devices is accurate and easily understood by users of all age groups. Given the limited real estate screen, designers must prioritize simplicity and clarity. Complex designs from mobile or web applications may not be suitable for wearables. The emphasis should be on delivering accurate and relevant information that is easy for users to grasp.

Augmented Reality (AR) and Virtual Reality (VR): Transforming healthcare experiences

VR and AR have made significant inroads in various industries, including gaming, retail and automotive. In the healthcare sector, these technologies offer exciting possibilities. VR can help distract patients during scary medical procedures, while augmented reality can enhance doctors' precision during surgeries.



Figure 7: Doctors performing surgery using VR technology

The challenge for UX architects working with AR and VR technologies is to craft immersive and trustworthy experiences. The goal is to seamlessly blend reality with digital content, ensuring patients feel entertained, safe and confident. UX designers must closely monitor user interactions, understand their intentions and accurately interpret voice commands. Additionally, addressing privacy concerns is crucial to protecting users' sensitive information.

Voice-activated technology: Empowering healthcare with conversational interfaces

Voice-activated technology has become a staple in our daily lives, with smart voice devices being used for simple tasks such as playing music or setting reminders. In the healthcare sector, it offers substantial benefits, providing 24/7 patient support and reducing the need for constant assistance from healthcare professionals.



Figure 8: Smart voice-activated technology

However, designing user experiences for voice-activated technology poses unique challenges. Voice interaction is considered the most significant UX challenge in this context. Significant UX hurdles include interpreting user commands, understanding intent and continuously refining voice recognition algorithms to deliver accurate and meaningful responses. Moreover, securely handling sensitive health-related information is essential to address privacy concerns.

Improving patient outcomes: How to measure healthcare experiences?

Enhanced patient experience

The iterative nature of design thinking allows healthcare providers to refine and improve solutions continually based on patient feedback. This process ensures outcomes are tailored to meet patient's needs, leading to a more personalized and satisfying experience.

Design thinking fosters collaboration among patients, caregivers and healthcare providers throughout the design process. By involving patients in co-creating solutions, healthcare providers can ensure their perspectives are valued and incorporated, resulting in more relevant and meaningful outcomes.

Additionally, a holistic approach to problem-solving and design thinking considers the entire patient journey from start to end. By examining the patient experience, healthcare providers can identify opportunities to enhance each touchpoint, leading to a more seamless and integrated patient experience.

Patient experience:

Patient experience encompasses all patient interactions, perceptions and responses with the healthcare system, including healthcare professionals, facilities and support staff. It covers the entire journey from the initial contact with the healthcare system to the conclusion of their treatment or care. This broad concept includes medical treatment and factors such as communication, empathy, convenience and the overall quality of the patient's encounter with the healthcare environment.

Key metrics for measuring patient experience

Patient retention rate

The patient retention rate indicates the percentage of patients who continue to use a specific healthcare provider over a particular period. This metric reflects patients' loyalty and satisfaction with the services they receive.

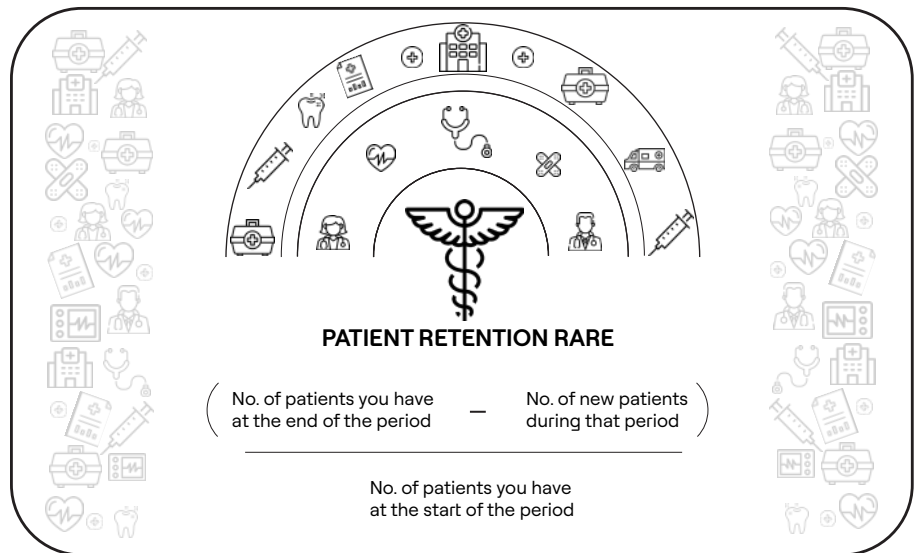


Figure 9: Formula to calculate patient retention rate

Retention rates are important indicators of how well a healthcare provider meets the needs and expectations of its patients. High retention rates suggest high levels of patient satisfaction, leading to enhanced reputation and revenue growth for the provider. Conversely, a low retention rate might signal underlying issues with service quality, communication or patient experience.

Patient satisfaction surveys

Patient satisfaction surveys typically encompass a range of questions covering different aspects of the healthcare encounter. These may include questions about the ease of scheduling appointments, wait times, clarity of communication from healthcare providers, perceived quality of medical care, cleanliness and comfort of facilities and the level of respect and empathy shown by staff. By analyzing the responses to these questions, healthcare providers can identify areas of strength and improvement in their services.

Net Promoter Score (NPS) is used to quantify patient satisfaction. It is calculated by asking customers a simple question: "On a scale from 0 to 10, how likely are you to recommend this product or company to a friend or colleague?" The aggregate NPS scores facilitate healthcare providers' enhancement of service, customer support and delivery, thereby boosting customer loyalty.

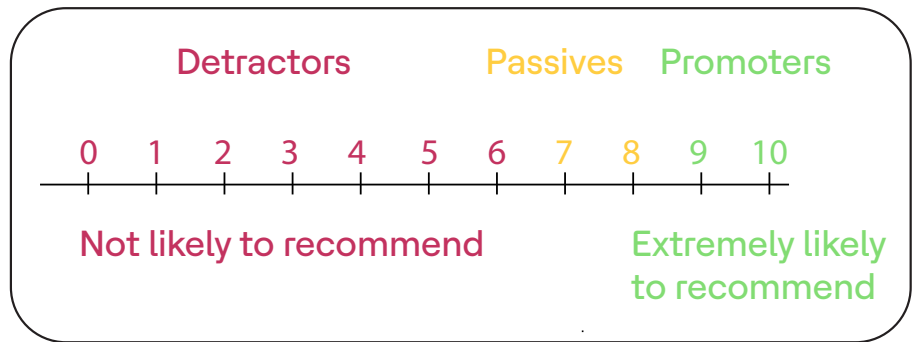


Figure 10: Visual representation of NPS Scale

It serves as a valuable tool for benchmarking and comparison. It allows healthcare organizations to compare their performance on various aspects of patient satisfaction against national or industry benchmarks and historical data. This enables them to track progress over time and identify areas where they excel or lag, ensuring continuous quality improvement efforts.

Patient Reported Outcome (PRO)

PRO utilizes a variety of questionnaires and surveys designed to evaluate different facets of patient well-being across various health conditions. These instruments typically ask about symptoms, physical functioning, emotional well-being, social interactions and overall health-related quality of life. By collecting this information directly from patients, healthcare providers obtain valuable insights into the outcomes that matter most to patients, enabling them to customize treatment plans more effectively.

Customer Effort Score (CES) is essential for quantifying patient-reported outcomes. It is derived from a customer satisfaction survey where patients rate their experience on a scale. The statement "[Name of the organization] made it easy for me to handle [name of issue]" is typically used with a scale rating of 1-5 or 1-7, where 1 indicates strong disagreement and 5 or 7 indicates strong agreement.

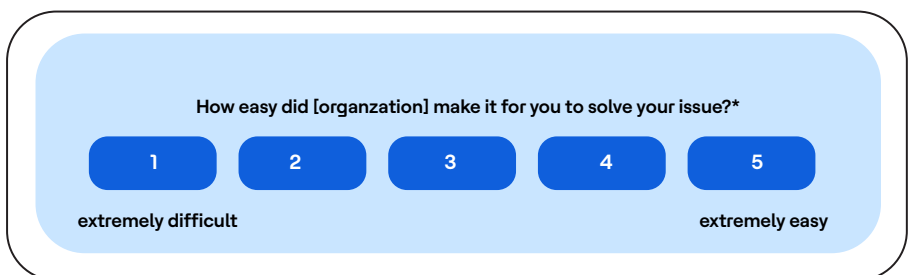


Figure 11: Visual representation of CES Scale

PROs enhance shared decision-making by enabling patients to express their treatment preferences and goals. Integrating patient-reported outcomes into clinical consultations allows healthcare providers to actively engage patients in their care, leading to more collaborative and personalized treatment plans.

Adoption rates

Measuring adoption rates provides insights into the effectiveness of healthcare interventions and the integration of new technologies or practices within healthcare systems. Adoption rates measure the proportion of patients or healthcare providers who utilize a particular treatment, medication, procedure or innovation. This metric helps assess the impact of interventions on patient health outcomes and identify barriers or facilitators to their implementation.

Furthermore, adoption rates can highlight disparities in healthcare access and utilization. By analyzing adoption rates across different patient populations, healthcare providers and policymakers can identify underserved groups or groups that face barriers to accessing healthcare services. Addressing these disparities requires targeted interventions to improve access and health literacy and overcome socio-economic or cultural barriers to adoption.

Reduced readmission rates

Reducing hospital readmission rates is crucial to patient outcomes and healthcare quality. Frequent hospital readmissions, particularly shortly after discharge, indicate poor patient outcomes, increased healthcare costs and resource strain. Therefore, monitoring and reducing readmission rates is essential for improving patient care and optimizing healthcare system efficiency.

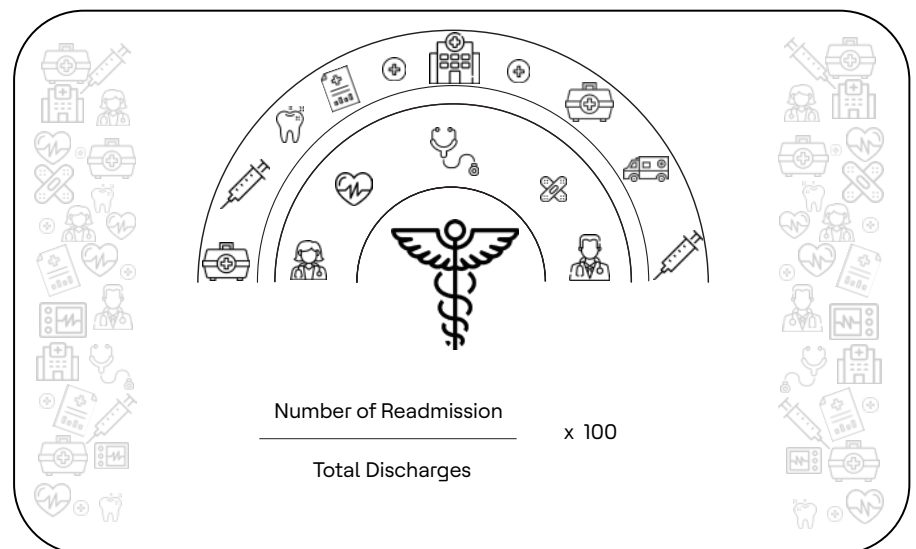


Figure 12: Formula to calculate readmission rate

Several factors contribute to hospital readmissions, including inadequate discharge planning, medication errors, lack of follow-up care, post-discharge complications and social determinants of health, such as limited access to healthcare services or support at home. By reducing readmission rates, healthcare providers can identify and address root causes to enhance the overall quality and continuity of care. Regularly collecting and analyzing metrics before and after implementing design thinking interventions can provide a holistic understanding of their impact on patient outcomes in the healthcare sector.

Future of healthcare

AR has made significant advancements in recent years. According to a report by ResearchAndMarkets, the global AR market is projected to reach \$152 billion by 2030, with the healthcare sector playing a pivotal role in this growth. The integration of AR technology in healthcare is revolutionizing how doctors, nurses and other healthcare professionals deliver care and interact with patients. A design thinking approach is crucial to harness the potential of AR and other emerging technologies fully.

By adopting a design thinking approach, healthcare organizations can ensure that AR applications are user-centric, effective and scalable. This approach involves close collaboration between healthcare professionals, technologists and patients to co-create solutions that address the most pressing challenges in healthcare. Through design thinking, AR can be integrated seamlessly into healthcare workflows, enhancing patient outcomes and transforming the future of medicine.

Surgical assistance: Enhancing precision and safety

A significant application of AR in healthcare is surgical assistance. AR enables surgeons to create 3D models of patients' anatomical structures, facilitating their visualization and planning of surgeries with unparalleled precision. Surgeons can superimpose virtual images and annotations onto the surgical field using AR-enabled headsets during procedures, offering real-time guidance and improving accuracy.



Figure 13: Surgeons using HoloLens for surgery

The advantages of AR in surgery extend beyond visualization. Surgeons can access vital patient data, such as MRI scans and X-rays, without diverting their focus from the procedure, improving situational awareness and reducing the risk of errors. Additionally, AR supports remote guidance, enabling expert surgeons to provide real-time assistance during complex surgeries, even from a different location.

Medical training: Bridging the gap between theory and practice

AR is revolutionizing medical education and training, bridging the gap between theoretical knowledge and practical application. Traditional training methods often need more hands-on experiences for medical students. However, AR simulations offer immersive and interactive learning experiences, allowing students to practice surgical procedures, explore anatomical structures and develop critical thinking skills.



Figure 14: AR-powered simulation lab for medical training

AR-based medical training also enables remote mentoring, allowing experienced practitioners to provide guidance and instructions to medical professionals and students from anywhere. This enhances collaboration and knowledge sharing, ensuring healthcare providers receive the best training and remain current with the latest field advancements.

Conclusion

Design thinking offers a novel approach to addressing healthcare challenges by focusing on empathy, innovation and patient-centricity. Despite the challenges, design thinking can lead to more usable, acceptable and effective healthcare solutions when applied properly. As healthcare evolves, design thinking will remain essential for improving patient outcomes, enhancing patient experiences and transforming healthcare systems.

Design thinking in healthcare is more than just a trend – it's a robust methodology that can reshape healthcare systems worldwide. By placing patients at the center and leveraging the power of empathy, innovation and iterative problem-solving, we can create healthcare solutions that genuinely meet the needs of those they serve.

According to a chief digital officer for a large health system: "A patient's journey is not just in the hospital. There is a "before" and an "after" (or a "not at all") and what we need to do is be able to stitch that together, making sure we are caring and understanding the context and then where we can leverage those digital tools to be there for them."

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