



Health Care User Experience

It is time to rethink and change the user experience for everyone by designing health care that works.

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We all know the health care system is broken, and that every aspect of the patient journey needs to be overhauled, optimized, and made tolerable (enjoyable might be asking too much). Unfortunately, the journey and daily activity for physicians, nurses, administrators, technologists, and schedulers needs the same level of change. Enhancing the patient experience cannot come at the expense of the physician or vice versa. That is why it is time to rethink and change the user experience for everyone in health care.

What is User Experience

The term *user experience* (UX) was coined in 1993 by Don Norman for his group at Apple Computers, a company that has continued to be a leader of UX with innovative products (eg, the iPod and iPhone). Although the term UX is widely known today, many people do not really know what it means or how it can be used. UX refers to the fact that every human has experiences with every product, service, or business with which they interact (Box 1). The recent popularity of the term comes from companies being interested in understanding consumers' experiences with their products and trying to engineer improvements.

▶▶▶ BOX 1. Examples of Excellent User Experience

PayPal Lets Simplicity Rule

PayPal identified a need for an efficient digital payment system. After careful evaluation of user experience (UX), they radically simplified their website and the entire payment process, simultaneously acquiring a large market share. (www.paypal.com/)

Google Works With Speed and Simplicity

Fast loading is central to the optimal UX for ecommerce. Being fast and efficient helps users get what they want without waiting. Speed and efficiency make search engines pleasant to use. The process should be seamless. These attributes are common to most UX processes. (www.google.com/)

Understanding and defining what is meant by UX requires understanding user-centered design (UCD) and design thinking. UCD leverages human factors and psychology to create great experiences businesses want for users and customers. The ultimate goal of UCD is to understand the current UX of a product or service and how to better produce a product or service that benefits the users. A user is not limited to the final person that uses it but anyone that interacts with it. Design thinking is a framework that UX designers can use to find solutions to problems regardless of how small or big (Figure).

Although UX, UCD, and design thinking may sound far afield from medicine, these concepts can be leveraged in any human endeavor to find new solutions to problems. Design thinking has a formal, structured framework that can be used by anyone—from a Fortune 500 company with hundreds of individuals finding a way to improve workflow to a small medical practice improving the scheduling process for their patients and staff.

For UX in health care, it is important to take into account every aspect of care that affects the patient including but not limited to physician education, patient education, care delivery, waiting rooms both real and virtual, scheduling, safety, the online experience, and so much more. We need a plan that is not thrust upon us, but instead is carefully designed by professionals—ourselves and our colleagues—to create optimized UX. Making it look good is waste of time. Making it less painful is insufficient. We are past that point. We need true UX to solve all too common real problems in health care.

Health Care Is a Miserable Experience

The health care system has been squeezed by the ever-increasing regulatory burden forcing practices to bill more to keep up with the cost of staying open. Often this squeezes out the patient and leaves them feeling as if they were just a number or a task rather than feeling listened to and cared for by their health care team.

Long-term care is a good example that is extremely complicated and unsatisfying. Several years ago, my parents' health began to deteriorate. They both required increasing care and assistance. Even with my training in neurology and managing chronic degenerative disorders, I needed



Design Thinking Process

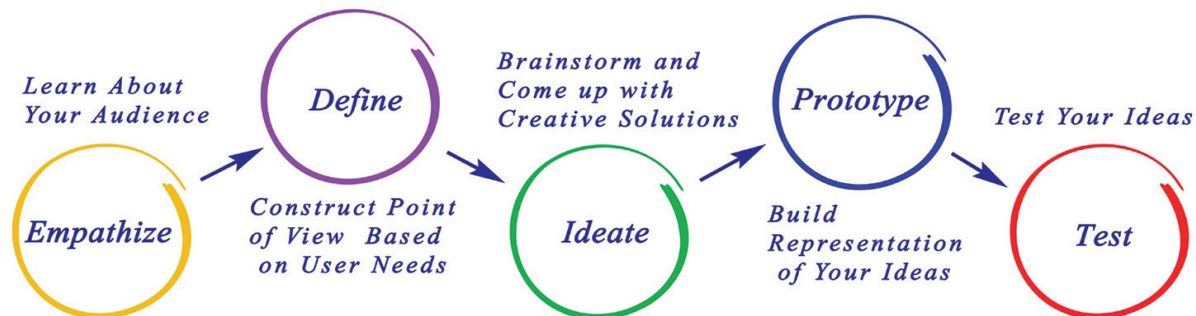


Figure. The steps involved in design thinking.

help from a variety of sources just to do an adequate job of caring for them. I did not understand the insurance considerations, the intricacies of durable medical equipment, the various services available or how to access them. Walking this journey left me empty at times and feeling as if I was enrolled in a rigorous graduate education program in geriatric health care. I often felt distant from the health care professionals providing care, which added additional stress for me as the caregiver and my parents as the patients.

Most people do not have the knowledge base, array of friends, colleagues, and support staff or other resources available to manage this well. The average patient or caregiver does not feel cared for by the current system, which makes handling their medical disorders all the more difficult. The simple and sad truth is that most patients and family barely get by.

Some EHR systems strive to enhance the physician UX. Some patient portals attempt to provide a good UX for the patient. These efforts, laudable as they are, cannot create excellent health care UX. We must create a consistent experience across the entire breadth and depth of health care. It is not an easy task; some might say it is impossible.

Medicine and the health care system have become increasingly complex and specialized. The science, medications, treatments, and protocols are evolving at an exponential rate. Simultaneously, the digital tools, including online services and applications, are becoming progressively more complex. Personal and home monitoring technologies add to the avalanche of data but do not necessarily enhance care or health. In fact, many of these are of questionable value and can increase health-related anxiety. Change has not necessarily improved outcomes. We must create a system that works for everyone involved. What we have now certainly does not accomplish this goal.

Successful health care requires more than good science and education. Physicians and other health care providers must be able to use the systems and protocols effectively. Patients and caregivers must be able to understand and follow the plan. Almost as important is the perception of the

system. In many respects, perception becomes reality.

When it comes to digital resources, many questions must be addressed to create a meaningful UX. “Does this website help me? Can I understand it? Is it easy to use? Is it pleasant to use?” These questions form the basis of user acceptance. Similar issues must be addressed in every aspect of health care if we have any hope of creating an effective and meaningful health care UX.

What is a Health Care UX?

We have begun to consider the much larger world of the comprehensive health care UX for patients, caregivers, administrators, nurses, support staff, and physicians utilizing the core UX components (technology, design, and business). The health care UX (HUX) is how a person feels when interfacing with a health care system. The system could be a website, a web application, a medical monitoring system, a medication regimen, or a hospital stay. In health care, the user may be a patient, a nurse, physician, or family member, and usually is a combination of all these individuals and many more.

In the past, designers would evaluate a process as a whole and then divide it into subsystems and subprocesses. For example, they might study scheduling protocols and processes for an on-line check-in system at a primary care office to discover whether patients find the process of scheduling an appointment from the app easy and pleasant (Box 2).

HUX designers must understand the system being optimized and the needs of all those interacting with it. To create effective, optimized, and integrated systems with a consistently excellent HUX, they must dissect the system and optimize each subsystem and its personal, physical, and digital components. As they optimize, designers must be aware of how each component fits into the larger HUX design. The HUX relies on systems that are both effective and pleasant to use.

Who Needs to be Considered in HUX?

Most systems have a primary focus toward only 1 member of the health care team. An online portal focuses on the



patient or caregiver. The degree of UCD may be excellent, but typically leaves something to be desired. Unfortunately, many members of the health care team need to interact with these portals to make them effective. Physicians should be able to interact with the portal system simply and within the flow of the busy clinical day. The physician or advanced care provider need to communicate changes in care or links to educational content. Nurses and technologists have different but no less important interactions with the system. Practice administrators need to easily access utilization and feedback from the system. The portal system must guide the user through numerous pathways efficiently, effectively, painlessly, and cheaply. Optimized HUX must address the needs of each user of a given system. Even more, truly optimized HUX could expand the scope, use, and effect of each system addressed.

What Aspects of Health Care Benefit From HUX?

All health care systems would benefit from a detailed evaluation, optimization, and design of the UX. Obviously, there will be costs and effort involved, and detailed understanding of the issues is vital. We need guidance from people within the system who understand the issues. Individuals removed from direct care are unlikely to provide the needed answers. Care metrics and protocols, such as documenting that dietary approaches to weight loss were discussed, may arise from large medical and regulatory organizations but still need input from physicians on the front line.

Complex Systems

The more complex a system is, the more complex the planning and architecture to achieve excellent UX will be. Even a small facet of care, which might not appear to need a HUX design, must be considered in the context of associated treatments and protocols.

Consider the patient-admission experience of a large multicampus hospital system. The hospital will have thousands of patients arriving every day. Visits may range from a simple yearly checkup to a complex surgery requiring a multiday hospital stay and numerous follow-up visits. It is important to consider time as part of these varied experiences. From how long it takes to check in, to how long and far a patient must go for each part of their care and when they have a follow-up appointment, every aspect and step of the patient's visit will affect their experience. Neglecting the HUX of any step risks creating simultaneous nonadherence to treatment, physician burnout, decreased satisfaction from all players, as well as increased costs.

Everyday Problems

Although design thinking has a formal set of steps (Figure), it can also be viewed as a set of techniques that can be used to help find innovative solutions to improve

▶▶▶ Box 2. Examples of Excellent Health Care User Experience

Mayo Clinic

The Mayo Clinic has been working with design thinking methodology since 2008 when they created their Center for Innovation (CFI), to act as a bridge between design thinking and medical practice. The Center is a giant incubator for nurturing new ideas, enabling them to grow, mature and evolve until they are ready for the patient. An early successful example was called "Jack & Jill Rooms," which split the space into a small physical examination area with consistent layout of all equipment needed for an examination, and a small meeting room where patients, family member, and the physician could continue the visit after the examination was complete. During the design process, multiple configurations were tested, and patients appreciated that their needs were helping shape care delivery. Physicians report that the use of a conference table makes it easier to interact with the patients and families while having access to the computer screen. Consistency of the examination space makes the examination process go more smoothly, and the exam area has energy-saving features such as automated lighting for cost savings. (<http://centerforinnovation.mayo.edu/jack-and-jill-rooms/>)

VoCall Empowers Patients and Strengthen Clinics

VoCall simplifies scheduling patients through an advanced natural language scheduling assistant that interfaces seamlessly with medical practice EHRs and office communications systems. Allowing the patient to communicate naturally when scheduling appointments enhances the patient experience and improves patient engagement. By handling the repetitive and mundane tasks, VoCall frees staff for more important care-centered duties. (<https://govocall.com/>)

UX. At its core, design thinking is a creative process to solve everyday problems by focusing on everyone affected by the problem. Using these tools does not require formal training, but rather is about asking questions and listening to all users. Once the real problem and needs are understood, the solution to improve a UX problem becomes clear.

Consider the time clinicians spend (or waste) entering the same orders into an EHR. In talking with clinicians, schedulers, administrators, and other staff, a HUX team can identify the most frequently used orders and then create a set with an interactive template, but why stop there? These systems can then be tied into other aspects of the EHR, saving time on order entry now and in the future. The minutes rapidly add up to days of monotonous work saved every year. Although this will not eliminate the burden of entering orders, it can create an evolving, powerful, and user-friendly ordering and orders management system.



Key Points About HUX

HUX must exist within a complex web of education, medical science, pharmacology, regulatory care metrics, optimized communication, technologists, industrial designers, UX designers, and engineers. UX alone is insufficient for meaningful improvement in our health care system.

A specific UX design does not work in every situation or for every user because individuals are different. An optimized HUX can create specific experiences and promote certain behaviors for most users but will not be optimized for all users. With careful development, however, the experience will be improved for virtually all users.

Benefits of Design Thinking for Health Care

Everyone in health care is already overworked and struggling to keep up with their day-to-day duties. Although it does take time to incorporate design thinking, there are many benefits including:

- Improving patient engagement
- Improving patient retention/acquisition
- Reducing burnout
- Increasing efficiency/reducing cost
- Increased productivity
- Creating ownership for the employees

Call to Action

The health care system is broken. The patients, physicians, caregivers, nurses, and support staff all know it. We cannot let so-called answers be imposed on us. We must make health care what it should be. It can be done if we do not settle for mediocre and outright detrimental programs, plans, and approaches. Design thinking is something everyone in health care should be aware of to help solve problems and improve HUX for everyone. The results of design thinking can be transformational to any health care organization that takes the time to understand their users and ask the right questions to intelligently solve problems. ■

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