

ACHIEVING BETTER HEALTH THROUGH A BALANCE OF TECHNOLOGY AND HUMAN TOUCH

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As United States healthcare shifts slowly from incentivising only the volume of care delivered to rewarding value and quality of care, hospital systems have been spurred to find innovative ways of engaging with patients to achieve health behaviour change and better clinical outcomes.

One such organisation is Dartmouth-Hitchcock - an academic medical centre and regional health system headquartered in New Hampshire. As a leader in population health management and value-driven, evidence-based care, they recognised an opportunity for new technologies to help them better serve patients, particularly across rural areas of the region.

“Imagine this... Creating a hospital that doesn’t want people to visit. Not because we don’t care - but because we do. Imagine a hospital that believes healthcare doesn’t just mean treating sickness. It means caring about our patients enough to keep them from getting sick in the first place.”

Dartmouth-Hitchcock’s vision of a sustainable health system¹





With this vision in mind, Dartmouth-Hitchcock founded ImagineCare – a start-up with the mission to create a truly proactive, human-centred service that supports people beyond the hospital walls, whenever and wherever they might need care.

ImagineCare combines mobile devices, Bluetooth-connected sensors, and a 24/7 telehealth clinic, where clinicians monitor and care for patients with the help of evidence-based care algorithms and machine learning. Through the mobile app, customers have an open line of communication to the ImagineCare clinical team via chat, video call, or phone call. A trained team of “health navigators” provides health coaching, motivational interviewing, and general customer support (they even deal with insurance issues!). On-staff registered nurses provide professional care to resolve customers’ needs over the phone, or triage to the appropriate medical facility.

When first starting out, the ImagineCare team struggled to find a technology platform on the market that met their needs. Too many solutions were:

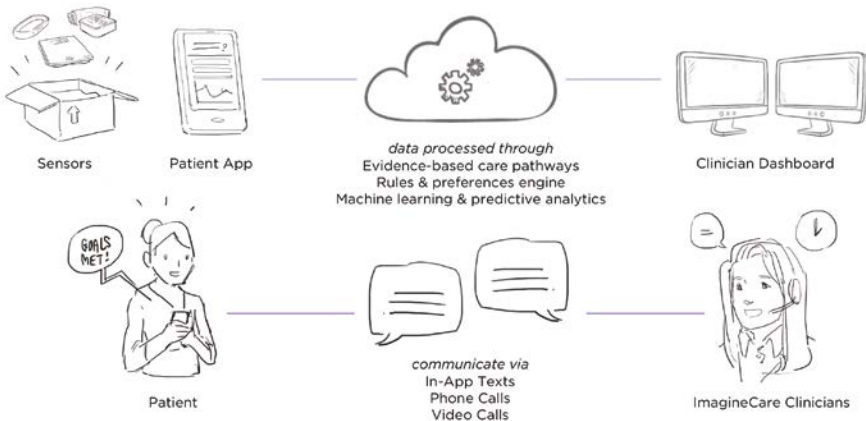
- **too focused on specific conditions, rather than seeing the whole person**
- **too focused on physical symptoms, neglecting mental health**
- **too focused on technology and automation, diminishing the personal nature of healthcare**

To address these issues, Dartmouth-Hitchcock partnered with Mad*Pow and Microsoft to build a technology platform that would solve these issues. Microsoft brought to the table their robust cloud platform and customer relationship management software. Our team at Mad*Pow provided web and mobile app development, human-centred design leadership, and deep expertise in healthcare service design.



The ImagineCare project kicked off with an abundance of passion in early 2015, and our first step was translating passion into product. The ImagineCare team had lots of great ideas and strong clinical expertise, but they needed help determining how customers and clinicians would interact via the service. After conducting stakeholder interviews, we held a design workshop with clinicians, product managers, and executive leadership to help everyone get on the same page and start visualising their ideas. Design isn't just for 'the designers' – it's something everyone takes part in.

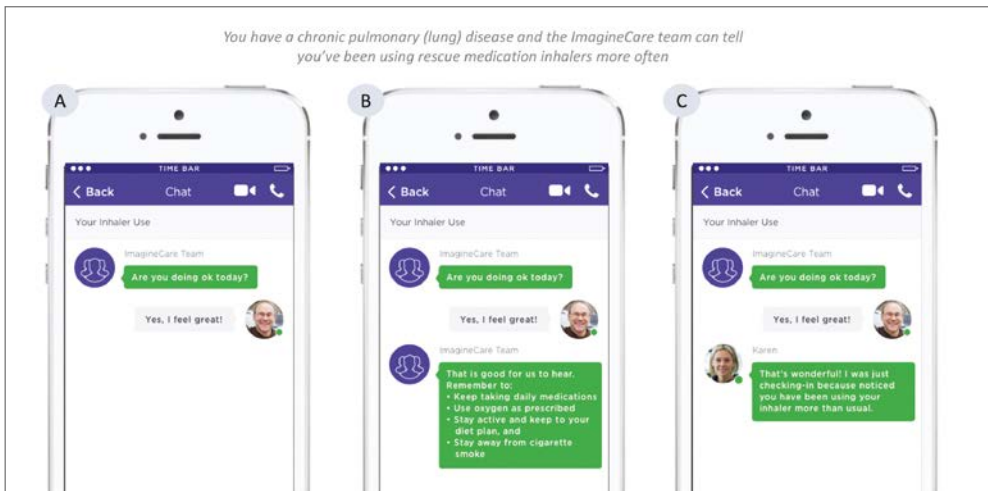
These early activities provided a firm foundation of principles that guided our work, from customer research and design exploration to narrowing in on the minimum viable product for launch.



PRINCIPLE 1: 'CUSTOMERS', NOT 'PATIENTS'

The language we use when designing a service should be deliberately crafted. Consistent terms and definitions enable clear communication within the service team, as well as between service providers and constituents. But the dialect of a service is not only about clarity and efficiency – it is also a key ingredient in the organisation's culture, with the power to reinforce the principles and values of the service.

For example, ImagineCare decided early on that the team would use the term 'customer' instead of 'patient' to refer to users of the service. The term 'customer' reminds us that their needs must always come first – a fact that often gets lost with all the financial middlemen in the US healthcare system. 'Customer' is also more inclusive of people in their day-to-day context – even people managing chronic conditions don't think of themselves as 'patients' 24/7. They're just people, living their lives.



PRINCIPLE 2: TECHNOLOGY THAT BUILDS SELF-EFFICACY, NOT JUST ENGAGEMENT

In the design of health apps, organisations often see engagement with the technology as the primary goal, when it's really a means to an end. We must stay focused on the true goal – helping people take control of their health, so they can take the best possible care of themselves and see measurable improvements.

Our design process at Mad*Pow leans heavily on self-determination theory ² to support people in changing their health-related behaviours. So, we were thrilled to hear the Dartmouth-Hitchcock team talk about the staples of this framework – supporting human autonomy and building competence in the skills required to achieve their goals.

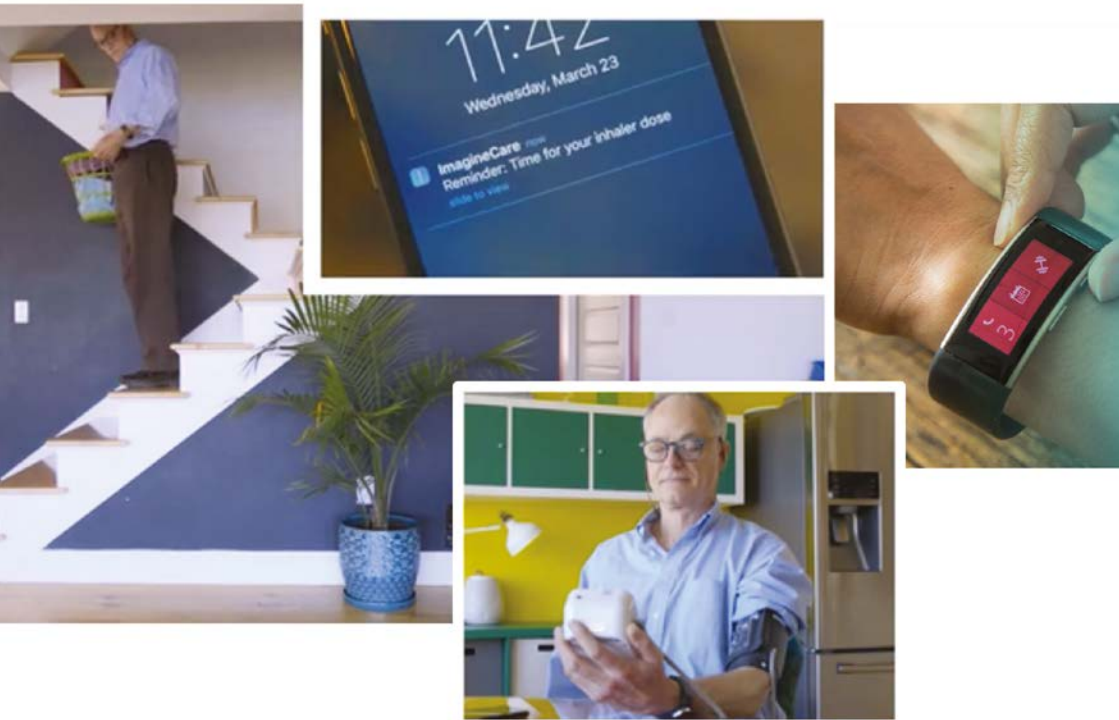
Designing for health management and behaviour change is not just about pushing notifications and spitting data at people – the tone that you use with people, and the ways communication occurs, are critical in building motivational relationships. ImagineCare never attempts to dictate or control. Both the humans and technology of ImagineCare are designed to be patient and understanding – a great listener who provides a sense of calm. They use non-pressuring, informational language that is emotionally aware and cognizant of the customer’s needs, wants, skills, knowledge, and priorities. While app messages and phone calls are used to nudge patients, these always consider the communication preferences the customer has expressed in his or her profile.

The one exception is clinically dangerous situations, for which ImagineCare’s 24/7 staff will always initiate a phone call. In early research, we wondered if users would find this ‘someone is always watching’ factor to be creepy. But we’ve found the exact opposite – in the words of an ImagineCare customer, “The real-time interaction with the ImagineCare team makes me feel like someone is looking out for my health and best interest.”

PRINCIPLE 3: A HUMAN SOLUTION, ENABLED BY TECHNOLOGY

Automation and digitisation are not panaceas; the human element will always be critical in healthcare.

When we tested potential chat messages customers might receive from ImagineCare, our research participants strongly preferred messages that were attributed to a user with a human photo and name. Based on this finding, we debated using automated messages that appeared to come from a human, to entice customers into conversation or make them feel more accountable to the service. However, the ImagineCare team had a strong desire to build trust and always be authentic with its customers, so we settled on the ‘ImagineCare Team’ bot as the purveyor of automated messages.



At the core of ImagineCare is this idea of forming authentic personal relationships – understanding the whole person – beyond their medical data to their stressors and favourite sports teams. An understanding of their everyday lives helps us suggest realistic strategies to help them take control of their health. Of course, this is a lot of data to manage, so we worked closely with the nurses of ImagineCare to co-design a dual-screen dashboard that provides a robust set of customer data with minimal clicks – all in an interface that is as warm and friendly as the ImagineCare customer app.

Even though much of this data is machine-readable in the customer's profile, building a nuanced understanding of the person and cultivating rapport and trust is something only humans can do well at this point – Siri, Alexa, and the rest just aren't there yet. For now, ImagineCare divides the labour smartly, letting machines do what machines are good at, and letting humans do what humans are good at.

PILOT IMPACT & FUTURE GROWTH

As a start-up within an academic medical centre, ImagineCare was designed to be tested and iterated on early and often. The minimum viable product focused on hypertension, congestive heart failure, COPD, and diabetes – prevalent conditions with clear treatments that struggle for efficacy in the real world. While the initial pilot targeted a specific set of conditions and sensors, ImagineCare is designed to be condition- and device-agnostic, so it can be extended to any condition by adding the appropriate clinical algorithms and sensors. Also currently supported are core health pathways of activity, sleep, and behavioural health.

More than 2,700 customers enrolled in the 2016 pilot. The ImagineCare clinician services received a 95 percent satisfaction rate from customers, and the programme engagement was four times the national average for employer health and wellness programmes (Towers-Watson 2013/2014 Staying@Work survey).

Customers with hypertension experienced a 50 percent reduction in poorly controlled blood pressure, and compared with a matched control group, the pilot population saw:

- **56 percent reduction in hospital admissions**
- **23 percent reduction in emergency room costs**
- **6 percent reduction in avoidable emergency room visits**
- **USD 255 total cost of care savings per member per month**

ImagineCare, Dartmouth-Hitchcock spun it off as a stand-alone venture. More than a dozen entities bid for ImagineCare, and in 2017 it was purchased by Swedish company LifecareX, which is continuing its development. Mad*Pow continues to support the design and development of the solution as it advances to its next pilot test in the autumn of 2017.

1 <https://www.youtube.com/watch?v=ntSFa0GztCQ>

2 <https://vimeo.com/131690121>