The healthcare industry has long relied on traditional, linear models of innovation – basic and applied research followed by development and commercialization. While this “lab-bench to bedside” approach has improved healthcare globally, it can take years, even decades, for an innovation to get to market, often with limited input from patients themselves. The results can be technically sound, but sub-optimal from the patient’s standpoint (as any woman who has endured a painful mammogram understands).

An alternative emerging at healthcare institutions worldwide is human-centered design and co-creation, a set of approaches that can accelerate and humanize healthcare innovation. This model isn’t just about getting greater patient feedback during the innovation process. Patients are co-designers, co-developers, and increasingly more responsible for their own and collective health outcomes.
We have closely studied three of these models: The Helix Centre at Imperial College London, the Center for Innovation at the Mayo Clinic, and the Consortium for Medical Technologies at Massachusetts General Hospital. Each locates interdisciplinary innovation labs within or near hospital environments; involves diverse stakeholders beyond clinicians (designers, engineers, business professionals, and patients) early in the innovation process; and engages end users in customizing solutions for their own needs. All have related missions, types of successes, and common challenges.

**Innovation Centers**

The Helix (Healthcare Innovation Exchange) Centre opened in 2014 to respond to increasing pressures on the UK’s National Health Service (NHS). Helix is a pop-up design studio in the courtyard of one of London’s busiest hospitals, St Mary’s, an institution with a legacy of innovation, including the discovery of penicillin. It is a joint project between the Royal College of Art and the Institute of Global Health Innovation at Imperial College London where designers and engineers can work in close contact with clinicians to identify challenges and provide solutions. This is the first time within the NHS that designers, engineers and clinicians have been brought together to co-create.

The fruits of this collaboration are seen in the Helix Centre’s focus on end of life care, where the recent launch of Amber Care Plans gives patients a simple and effective way to plan their own care and make sure their wishes are known and respected. The studio has also had success — working in close collaboration with the Resuscitation Council — in developing the new emergency care planning ReSPECT form which healthcare professionals are using across the country. New technologies, including innovative and sensitive chat bots and voice services are now in development to help support patients and caretakers in care homes or hospices. A new project around the future of hospice care, looking at the unmet psychosocial care needs of people at the end of life is an embodiment of human-centered design. Other Helix projects include tools to “activate” patients before hysterectomy, involving them in decisions about surgery and post-surgical care and recovery; stroke rehabilitation work; and a pilot in pediatric emergency drug safety.

The Mayo Clinic Center for Innovation (CFI) was established in 2008, becoming the first healthcare innovation center to employ a team of in-house designers. Under the banner of the Mayo Clinic motto, “the needs of the patient come first,” it utilises human-centered design to transform the experience and delivery of healthcare. Interdisciplinary teams of service designers, clinicians, project managers, information technology specialists, innovation coordinators, hospital staff members and patients have undertaken projects including redesigning the clinical exam room, unchanged for 100 years, and creating flagship offerings for connected care including e-consults, video visits and patient applications.

A recent successful project involved a collaboration between the Center, Mayo Ob/Gyn staff and patients to improve the prenatal care patient experience. The project involved more than a dozen experiments including in-home monitoring, patient-driven appointments, and online communities. The resulting wellness-focused “OB
“Nest” integrated care model for low-risk pregnancies, now implemented within obstetrics and gynecology at Mayo, reduces patient visits while improving satisfaction (see an HBR article on OB Nest here.)

The Consortium for Affordable Medical Technologies (CAMTech), founded in 2012 and based at the Massachusetts General Hospital’s Center for Global Health, brings together multi-disciplinary teams of healthcare and non-healthcare professionals to co-design novel solutions to US and global health challenges through hack-a-thons, awards programs, and business acceleration activities. CAMTech is an open innovation platform now involving a network of over 4,300 engineers, clinicians, entrepreneurs, and designers from over 700 organizations. To source ideas, it often runs two-day hack-a-thons on specific health care challenges.

For example, in 2015 the Consortium arranged a global Zika Innovation Hack-a-thon in which 200 innovators developed 15 proposed solutions in 48 hours to help control the virus. In 2016, another event focused on the opioid-use crisis in Massachusetts and resulted in 18 innovation proposals. One hackathon led to the development of the Augmented Infant Resuscitator, an inexpensive add-on to ubiquitous bag valve masks that dramatically improves how birth attendants provide newborn ventilation. The device has recently won a $2 million transition-to-scale grant for trial in Ghana, Uganda, and India, bringing it closer to commercialization.

**Challenges**

While the three centers have quite different structures and operations, in our research and experience we found that they share six primary challenges:

1. **Establishing strategies for new project selection:**

Centers struggle to identify and rank problems, ideas or projects that will likely translate to positive health and system outcomes. Across healthcare, two syndromes can be detrimental to project selection: “we’ve done that before” and “not invented here.” Centers lack tested criteria for project selection and may struggle with balancing the need for social impact on the one hand and good financial returns on the other.

2. **Scoping projects for success and managing ambition:**

Interdisciplinary design teams are, by nature, optimistic and ambitious. However, they can end up taking on responsibilities over and above the call of duty out of a passion for solving a problem. Leadership and teams find it hard to come together to scope and resource projects appropriately as well as put projects on the shelf (or kill them) when needed. As a result, team optimism and ambition can be wasted on activities that lack focus.

3. **Managing multi-stakeholder teams of clinicians, designers, engineers, and business managers:**

Diverse stakeholders often bring conflicting motivations, perspectives and approaches to collaborative design projects, especially in their prescribed roles. Designers often embrace quantity and speed of idea generation, with quick-and-dirty prototyping; clinicians, cautious, precise, and scientific in their approach to problem solving, can seem rigid and bureaucratic by comparison. Project collaborators often lean more towards near-term or long-term thinking - with near-termers being perceived as quality improvers; long-termers as out-of-touch with reality.
4. Navigating pressures to show immediate value

Innovation project sponsors often desire breakthrough, transformative or disruptive innovation but fail to articulate what that means or to support the longer-than-expected timeframes required to show and deliver value. Yet, sponsors often assess proposed concepts for fit and financial return early on. This can result in favoring projects promising a quick ROI over riskier projects offering bigger impact in the long-term.

5. Establishing appropriate performance metrics and assigning attribution

Innovation is inherently risky which makes bottom-line revenue and time-frame targets challenging to establish. Unrealistic or non-existent financial and non-financial targets and expectations can be demoralizing for teams. Sometimes, innovation centers at the front line of human-centered design do not have robust metrics for recognizing incremental but critical successes. Issues of attribution can also arise when projects are implemented outside the walls of innovation centers and often take time to bear fruit.

6. Identifying and supporting pathways to implementation

Outcomes of successful innovation projects, such as a product, service or research finding, often need varying types and degrees of support to transition to the next phase of development. An immediate answer to the question “who implements and how?” is not always evident.

Recommendations

Despite these challenges, collaboratives like these have already demonstrated their promise in accelerating and humanizing healthcare innovation. Organizations with existing innovation centers, and those considering developing them, should consider the following actions which can head off or, at least, reduce the drag on innovation these challenges pose:

- Identify a specific purpose that unifies efforts and engage only in activities which forward it.
- Create forums for project contributors to learn about varying approaches to problem-solving.
- Develop stakeholder co-creation methods and tools which ensure maximum engagement amidst resource constraints.
- Enlist project managers and ensure clear roles and responsibilities for all center employees.
- Set project budgets and scope design projects at the outset to align with funding size and horizons.
- Establish clear initial operational and performance metrics such as percent of innovation concepts expected to be implemented, number of clinicians and patients involved in co-creation processes, types of IP generated, and stage-gated timelines.
- Be prepared to revise metrics as the center evolves and celebrate small wins.

The above provides just a thumbnail sketch of the design principles that can help enable a collaborative innovation center. The first-movers we describe here demonstrate the potential for human-centered design and, though it’s still early days, are setting the stage for how healthcare can redesign itself from within.
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