



Perspective/Opinion

Designing a Mobile Clinic through a Collaborative, Human-Centered Approach

By **Ilya Avdeev, PhD**

Challenging assumptions about academic collaboration, the adaptability of medical curriculum, and the creative confidence of stakeholders inspires learning and discovery...

Imagine bringing together more than 100 stakeholders of a future mobile health clinic to participate in designing it from the start. Who would rise to the challenge? How could community leaders, patients, clinical and operational staff from Froedtert and the Medical College of Wisconsin, providers, and students make meaningful contributions to the creative design process? We recently put some of these questions to the test.

An 18-inch rule

Resembling an unfinished tiny house at the framing stage, everything in the 8-foot-tall, 24-foot mobile clinic model displayed for two months in the MCW lobby was designed to be moved around, including mockups of mammography equipment and other OB-GYN elements constructed of foam core boards. A tool for learning and discovery, the mockup model supported creative process and facilitated full-scale exploration of design possibilities.



Interestingly, the mockup model was also considered a fire hazard because it was built within 18 inches of the ceiling. We used this unexpected hazard, reported by the fire department, as a metaphor for pushing boundaries and testing the limits of what is traditionally accepted. This project represents an experiment in collaborative, community-driven design, where we work *with* the community, not simply design *for* them.

Mobile clinic development project - a platform for experimentation

We saw tremendous potential for creative exploration and discovery when Dr. Mark Lodes and the Population Health Team proposed last summer that the Human-Centered Design Lab participate in developing the mobile clinic. This project clearly would challenge our ideas and assumptions about academic collaboration, the adaptability of medical curriculum, and the creative confidence of stakeholders involved, including Milwaukee community members and organizations, and an intricate network of MCW/Froedtert Health individuals.

For the past six months, the following questions have guided and driven our work forward:

- How can we involve a wide range of diverse stakeholders in our design process and empower their creativity and sense of control?
- What would a collaboration between University of Wisconsin-Milwaukee (UWM) and MCW students look like?
- How can we balance the dynamic nature of a real-world project with a structured curriculum to benefit learners?
- How can we bring value to the Froedtert team developing the clinic through innovative design-based activities?
- What can we learn about incorporating healthcare design projects into medical education?

Expanding design team

Designing *with* the community, *not* just for them, is the cornerstone of our approach. Developing a mobile clinic is like putting together a puzzle where the pieces are not yet clear and the final picture is uncertain. Creativity and innovation are required to overcome the ambiguity.

We took a unique approach by expanding our design team beyond the Population Health and Human-Centered Design Lab teams. We included anyone from the stakeholder map interested in contributing their expertise and ideas to the problem space (issues such as access to healthcare, managing chronic conditions, insurance coverage gaps, staffing, scheduling, safety, and business models) and the solution space (clinic layout, workflow, atmosphere, technology, services offered, etc.).

This approach is similar to citizen science or distributed scientific inquiry projects, where the collective intelligence of many individuals is more impactful than the brilliance of a few. By engaging stakeholders early on, we also cultivate buy-in and support for the pilot implementation and future iterations.

Design sprints - exploring problem and solution spaces through play

To engage a broad range of stakeholders and tap into their collective imagination, we arranged a series of 90-minute design sprints. Over the course of multiple sprints, 100+ designers were invited to collaborate in teams of four to tackle 10 different scenarios centered around a person in need of medical and social care at a mobile clinic.

To guide the design process, each team was provided with a framework prompting them to consider the needs and wants of the patient, necessary actions and workflow, clinic layout and ambiance, and technology elements involved. Using low-resolution prototyping techniques, such as brainstorming and building mockups with LEGO blocks and foam core, participant teams rapidly designed the clinic for each scenario. At the end of each sprint, each team presented their ideas and "walked" us through their clinic prototypes, providing valuable insight and inspiration for the design process.



This activity allowed us to equally engage experts, novices, providers, and patients in creative play. By randomly assigning teams and encouraging diverse participation, we were able to cultivate an environment of imaginative play, where experts, novices, patients, and providers alike could contribute. These design sprints not only highlighted the complexity of the design challenge but also demonstrated the passion and commitment of the community toward making this mobile clinic a reality.

Collaboration with students and curriculum

This project also provided a valuable opportunity to bring together students from different disciplines and backgrounds. Engineering and design students from UWM worked together to design and construct clinic models as part of their coursework in the ME-405/ART-405 Product Realization course, taught by Drs. Avdeev and Francis. UWM and medical students from the Health Systems Management and Policy Pathway participated in joint design workshops, and graduate nursing students from the UWM College of Nursing played a critical role in piloting the design sprints at UWM before the clinic model was moved to MCW. Medical students also facilitated and participated in the design sprints at MCW, making this a truly interdisciplinary and collaborative effort.



Including students in the design team proved to be highly enriching and fulfilling. However, we also encountered challenges in aligning this dynamic project with the structured medical curriculum. This highlights the need for reimagining and streamlining integration of such projects into the curriculum in the future.

What's next?

With a talented and diverse design team made up of both community and internal stakeholders, we have been gifted with a wealth of ideas and perspectives. Our challenge now is to carefully put these pieces together to support the mobile clinic development project. Our goal is to produce a result that will not only inform and inspire the development team, but also have a tangible and meaningful impact on the communities it serves.

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