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Medical Design Program · UVA School of Medicine

HEALTH DESIGN SPRINT

A Flexible Teaching and Training Methodology for Building AI-Powered Healthcare Tools

Rapid healthcare tool development leveraging design and AI. Large language models have democratized software development. If you can articulate the digital tool you want to create, AI can help you build it — quickly, cheaply, and customized to your vision. The gap is no longer between idea and code — it's between domain expertise and the structured, detailed inputs that AI coding platforms need to produce workable prototypes.

OLD ERA

The hard part was
building the app.



NEW ERA

The hard part is
knowing what to build.

The **Health Design Sprint (HDS)** bridges that gap. Developed over ten years of teaching design thinking to medical students through the **UVA Medical Design Program** — nine cohorts, over 200 students — the HDS is a flexible teaching and training methodology built on custom facilitation approaches and purpose-built teaching tools. Learners leave the HDS with the knowledge, skills, and mindsets to use three critical tools together: their domain expertise, design thinking, and generative AI. Plus, a flexible, iterative workflow that keeps the focus on strategic thinking rather than the technical aspects of building.

< THE THREE TOOLS

DOMAIN EXPERTISE

Clinical knowledge is the scarce resource. Physicians, nurses, techs, and patients understand what defines quality healthcare. AI can't generate human-centered insights.

DESIGN THINKING

Facilitated sessions draw out insights from the assembled learning group using human-centered design exercises — getting expertise spoken, drawn, and written down as data for new solutions.

GENERATIVE AI

Turn domain expertise and design-led vision into reality through AI-powered code assistance — from specification to working prototype.

> THE SIGNAL-TO-PROTOTYPE LOOP

At the core of the HDS is an iterative signal-to-prototype loop. Each cycle adds a new design lens — personas, journey maps, accessibility, ethics — producing progressively richer specifications and progressively richer applications.

Design Challenge PRE-WORK — Participants arrive with a clinical problem, workflow gap, or opportunity ready to explore

- 1 Design Facilitation** — Structured exercises generate raw signal: empathy maps, pain points, persona development, journey mapping
- 2 Artifact Collection** — Everything captured: transcripts, video, screenshots, Slack threads, whiteboard photos, voice memos
- 3 AI Synthesis** — Raw artifacts fed to AI, structured and analyzed into insights, patterns, and design requirements
- 4 Generate PRD** — The essential handoff: vision, goals, and user insights become the detailed spec a coding agent needs to build
- 5 Prototype Build** — PRD delivered to AI coding platform which generates a functional application
- 6 Design Critique** — Group reviews the prototype through the cycle's design lens, generating new signal for the next iteration

← Each cycle adds a new design dimension. By end of sprint: 5+ versions, each reflecting deeper thinking →

HDS GUIDING PRINCIPLE

Stay in the design mindset. The HDS keeps learners focused on strategic thinking — deep exploration of the problem, understanding user needs, refining domain-informed specifications. Technical implementation flows naturally from rigorous design work.

Explore the full methodology and see what students built: healthdesignsprint.com

Matthew Trowbridge, MD, MPH · Director, Medical Design Program · UVA School of Medicine



EVIDENCE & IMPACT

Launch Sprint: UVA School of Medicine, February 2026

8 FOURTH-YEAR MEDICAL STUDENTS · 10 DAYS · NO PRIOR CODING EXPERIENCE

They designed, built, and deployed a suite of clinical learning tools — including FCM Companion, which helps first-year students prepare for clinical skills sessions with AI-generated feedback, differential diagnosis practice, and study resources. It's live and being evaluated for adoption by course faculty.

4.5 / 5
CAREER RELEVANCE

~2x
SKILL CONFIDENCE
(2.0 → 4.1 across 8 areas)

3 / 8
STILL BUILDING
POST-COURSE

"I didn't realize how much agency I had until I began this course. I am now more excited by challenges than discouraged. This introduced a new way of thinking that I'm excited to carry into my practice."

— M4, Radiation Oncology

"The moment we went from our first PRD to our V1 of the app was mind blowing for me. When I realized I could go out and do all the steps on my own — journey mapping to PRD to app — is when it all changed."

— M4, Emergency Medicine

◇ ADAPTABLE FORMAT

The HDS methodology has been tested across formats and audiences — from the intensive 10-day sprint with medical students to 90-minute workshops with undergraduates who had no prior technical experience. In every setting, the core finding holds: when you give domain experts a structured design process and AI building tools, they produce working solutions remarkably quickly. We're actively building evidence across cohorts, formats, and learner populations to document what works, for whom, and why.

> OPPORTUNITIES TO EXPLORE

ENTERPRISE TRAINING

HDS workshops for health system innovation teams — clinician readiness training delivered alongside AI platform deployments.

EXECUTIVE EDUCATION / CME

Accredited cohort courses for clinical leaders — the HDS methodology gives participants strategic AI fluency and hands-on building experience.

CURRICULUM INTEGRATION

HDS embedded into medical school, residency, and undergraduate AI curricula — building a pipeline of AI-fluent professionals.

RESEARCH PARTNERSHIP

What makes domain experts effective AI specifiers? Publishable, fundable, with direct implications for AI platform design.

Interested in bringing the Health Design Sprint to your organization?

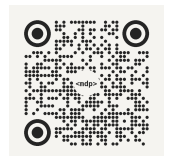
I'd welcome the chance to discuss how the HDS methodology can work with your learners and context — whether that's a pilot workshop, a curriculum integration, or an executive education program. [Let's talk →](#)

Matthew Trowbridge, MD, MPH

Associate Professor · UVA School of Medicine · Director, Medical Design Program

A physician, design thinking educator, and technologist, Matt has spent ten years developing methods for teaching clinicians to build digital healthcare tools — designing the custom facilitation approaches, iterative design cycles, and AI-powered teaching tools that became the Health Design Sprint.

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