Design Problem Statement Final

HCD-501

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Context

At the HEART Clinic, students juggle more than just patient care; they're also amateur statisticians, part-time scribes, and reluctant Excel wizards. Heart rates are tracked on Polar monitors, exertion ratings scribbled on paper, and then, hours later, manually re-entered into sprawling spreadsheets. Add in MoveMore's separate templates and intake forms, and suddenly a simple cardio session feels like an Olympic event in paperwork. This patchwork system slows students down, increases the chance for error, and risks patient safety in the one place it shouldn't.

Problem

The core issue is fragmentation. Documentation lives in too many places; paper, Excel, separate portals, and none of them "talk" to each other. The current Excel HRR calculator seems functional but clunky, requiring tedious re-entry. Worse, splitting HEART and MoveMore documentation into separate silos creates redundant work and fractured patient histories. The result? Students are stressed, supervisors are chasing consistency, and patients risk slipping through the cracks.

Proposed Intervention

The solution is a streamlined, AI-powered platform that makes documentation as smooth as a treadmill warm-up. Imagine: heart rate zones automatically syncing from Polar accounts, exertion ratings logged without juggling paper, and totals calculated instantly. The system would merge HEART and MoveMore templates into a single, tablet-friendly interface, creating individualized patient packets for intake, daily notes, and outcomes. Smart phrases, predictive text, and automated summaries would help students focus on patients, not paperwork.

What Exists Now and What Is Missing

What exists: paper forms that eat time, Excel sheets that test patience, and separate systems that multiply effort. What's missing: a centralized, human-centered tool that is fast, clean, and designed for the actual rhythms of a clinical environment. In other words, something that feels more like a supportive assistant than another hurdle.

Essential Functions

A strong design would need to:

1. Sync seamlessly with Polar heart rate monitors.
2. Automate calculations for time in zones and exertion levels.
3. Unify templates for HEART and MoveMore patients.
4. Run smoothly on iPads/tablets in-session.
5. Offer AI-driven suppor**t** (smart notes, error detection, auto-summaries).
6. Protect patient privacy with robust ethical safeguards.

Human, Social, and Ethical Considerations

This project is not only about efficiency but also about designing for real people in real clinical moments. Students need interfaces that minimize cognitive load and support recovery from inevitable mistakes (Norman, 2013). Patients deserve documentation systems that reinforce continuity of care rather than perpetuate bureaucratic silos (Sharp et al., 2019). Finally, ethically, an AI-powered system must prioritize transparency, equity, and privacy while aligning with authentic human needs (Patnaik & Becker, 1999). The guiding principle is straightforward: let humans focus on healing while technology handles the tedium.

References

- Norman, D. A. (2013). *The design of everyday things* (Rev. & expanded ed.). Basic Books.
- Patnaik, D., & Becker, R. (1999). Needfinding: The why and how of uncovering people's needs. *Design Management Journal, 10*(2), 37–43. https://doi.org/10.1111/j.1948-7169.1999.tb00262.x
- Sharp, H., Preece, J., & Rogers, Y. (2019). *Interaction design: Beyond human-computer interaction* (5th ed.). Wiley.