

Lumen Chart

EHR Clinical Documentation Redesign

Project Overview

Lumen Chart is a conceptual clinician-facing EHR redesign created for the Foster Healthcare UX class. This case study is grounded in real-world research, including heuristic evaluations, personas derived from clinical workflows, and competitive analysis. All research citations are included on the project page.

Challenge

Clinicians spend **6–7 hours per day** in the EHR — more time charting than seeing patients. Existing systems suffer from alert fatigue, fragmented information, poor AI transparency, and high documentation burden, leading to burnout and safety risks.

Research supporting these findings is available in the references section at the bottom of the case study.

Goals

- Reduce documentation time while maintaining safety and accuracy
- Improve AI transparency and clinician trust through clear provenance
- Support interrupted workflows with progressive disclosure and contextual tools
- Surface SDOH factors early without adding cognitive load

Research & Insights

Conducted heuristic evaluation (Nielsen + PAIR + HAX + NIST + WCAG), research-grounded personas, and competitive analysis of Epic, Cerner, and Athenahealth. Key findings: alert fatigue, fragmented documentation, and the need for deliberate AI review gates.

Personas

- **Dr. Laura Mitchell** — Attending Physician (high skepticism of AI, alert fatigue)
- **Kevin Hartley, RN** — Charge Nurse (bedside constraints, real-time handoff needs)
- **Diane Santos** — Family Caregiver (plain-language needs, coordination across family)

Key Design Decisions

- **Contextual Progressive Disclosure:** Only the most relevant information is shown initially; additional details expand on demand

- **Amber AI Diff Highlighting:** Clear visual distinction between AI-generated and verified chart content
- **Per-Section Accept Gates + Two-Gate Signing:** Forces deliberate review before permanent signing
- **Alert Hierarchy:** Critical alerts are visually distinct and actionable from the dashboard
- **SDOH Surfacing:** Visible at queue and snapshot level with linked resources

Solution

A high-fidelity interactive HTML prototype covering the full clinician workflow: smart daily dashboard, AI patient snapshot with SDOH panel, SOAP note editor with amber diffs and transcript toggle, and pre-sign confirmation with mandatory acknowledgments.

Interactive Prototype

[Live Interactive Prototype →](#)

A short interactive tutorial (based on user feedback) is included in the Quick Actions panel on the right to help visitors learn the key features and interactivity.

Outcomes & Learnings

Heuristic evaluation identified **no catastrophic issues** but revealed several usability concerns (e.g., **missing Unaccept controls, weak error recovery paths, and pre-sign gate vulnerabilities**). These issues are documented on the project page along with targeted solutions implemented in the prototype.

A separate moderated think-aloud session confirmed **strong learnability** for core flows while surfacing distinct learnability gaps—**amber semantics, overlooked edit affordances, and first-use onboarding**—that complemented heuristic findings on reversibility and recovery.

The redesign demonstrates how progressive disclosure, provenance, and safety gates can meaningfully improve AI-assisted documentation in real clinical environments, though continued iteration is needed before production use.