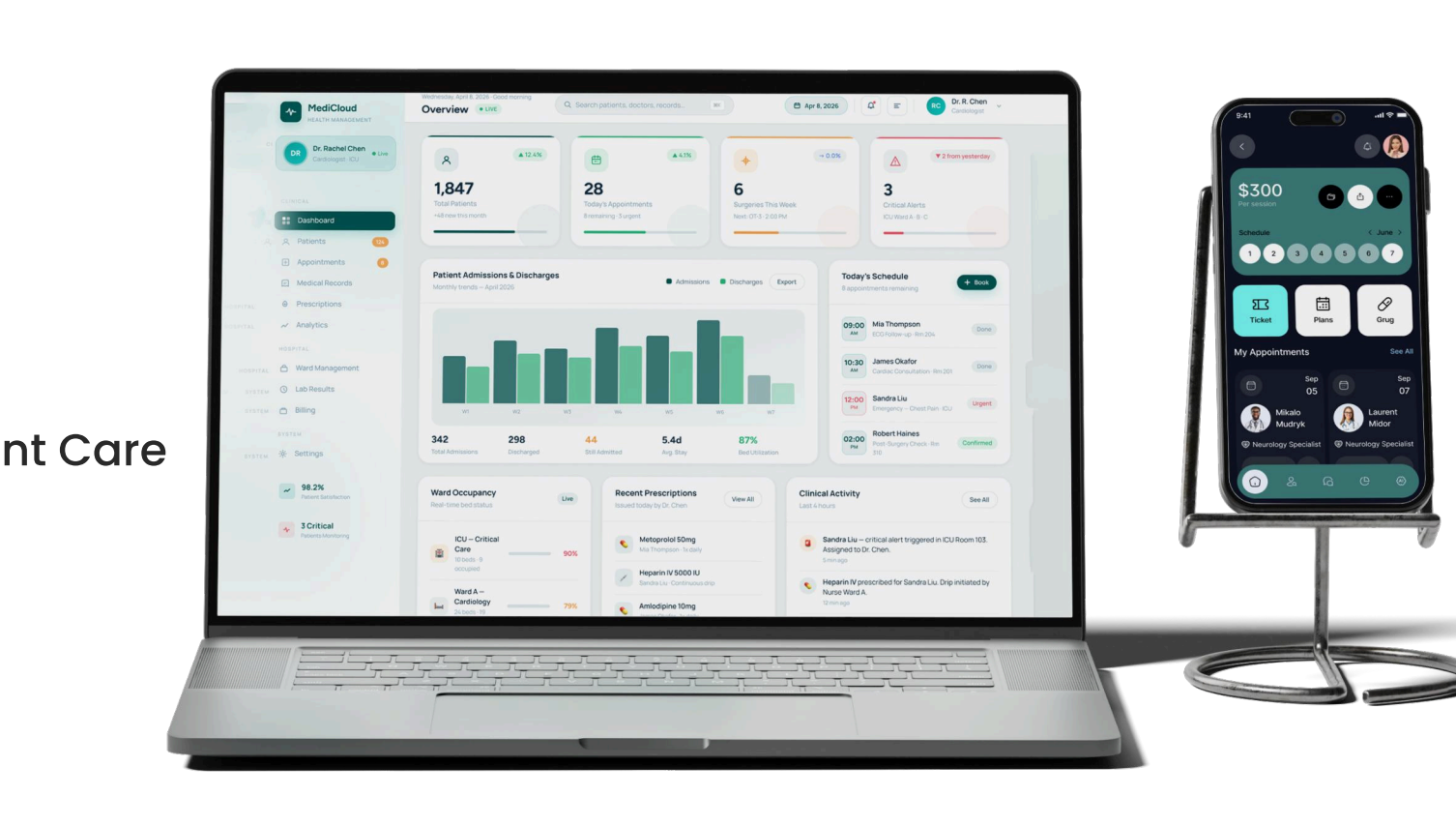
MediCloud

Centralizing Hospital Workflows & Patient Care

Full Case Study



Duration:

4 Weeks UX/UI Design & Prototyping,
6 Weeks for Full-Stack Development & Deployment

Product Overview

MediPulse is a comprehensive B2B SaaS platform specifically engineered for healthcare facilities. It seamlessly consolidates electronic health records (EHR), staff scheduling, and real-time bed management into a single, intuitive hub to boost clinical efficiency and reduce administrative burnout.

Dr. Gibran Col
$300

Responsibility

- UX/UI Design
- Web App Developer
- Testing & Launch

Tools

- Figma
- Figjam
- Node.js
- Tailwind CSS
- MongoDB
- Node.js

Problem Statement

Healthcare facilities frequently struggle with scattered workflows, relying on a fragmented ecosystem of legacy applications for patient records, staff scheduling, and billing. This constant context-switching leads to critical miscommunications, delayed triage times, and staff burnout.

Goals

Centralize core hospital operations into one unified dashboard. Reduce patient intake and triage time by at least 30%. Build a highly scalable, HIPAA-compliant web application architecture.

Development Process

The end-to-end product lifecycle for MediPulse seamlessly bridged human-centered design with robust full-stack development. We began by defining clinical pain points through targeted research, which drove the creation of an intuitive information architecture and high-fidelity Figma prototypes governed by a strict, highly accessible UI style guide. To ensure pixel-perfect execution, these designs were directly translated into a responsive React.js and Tailwind CSS frontend utilizing a token-mapped component library. Finally, we engineered a scalable, HIPAA-compliant Node.js backend with RESTful APIs and strict Role-Based Access Control (RBAC), supported by an optimized relational database that instantly links patient EHR data to bed availability to power the real-time triage analytics dashboard.

Understand

User Research
User Interview
Competitive Analysis

Define

User Personas
Empathy Map
User Journey

Ideate

User Flow
Information
Architecture

Design

Wireframe
Hi-Fi Designs
Prototype

Development

Feedbacks
Conclusion
Future Concept

Deploy

Feedbacks
Conclusion
Future Concept

Research & Discovery

To ensure MediCloud addressed real-world clinical bottlenecks, the user research phase utilized a mixed-methods approach targeting healthcare professionals. We began by deploying screeners to filter for participants who manage departments of 20+ staff members and rely on multiple software tools. From there, we surveyed over 50 professionals to measure time lost to app-switching and manual charting. This data was heavily supplemented by qualitative observations, which revealed deep-seated frustrations regarding siloed patient data, inefficient bed management, and the inability to clearly track staff capacity. These empirical insights formed the direct foundation of our user personas and empathy maps.

Observations

80%

of clinical managers struggle to access unified patient histories quickly during triage.

50%

spend excessive time manually calling departments to check bed availability.

80%

find staff shift scheduling chaotic across different

Pain Points

1. Workflow Fragmentation

Constant context-switching between specialized EHR tools and isolated scheduling software delays patient care.

2 Data Silos

Blind spots in real-time bed and critical resource availability due to decentralized tracking.

3. Blind Spots

A critical lack of automated reporting forces staff to spend off-hours compiling compliance and capacity reports.

User Research

o ensure MediPulse solved actual clinical bottlenecks rather than just administrative ones, we conducted a mixed-methods research study targeting over 50 hospital administrators, head nurses, and ER triage staff. Quantitative surveys revealed that 80% of clinical staff struggle to access unified patient histories quickly during urgent triage, and 50% spend valuable, non-clinical hours manually calling different wards to check bed availability. This data was heavily supplemented by qualitative user interviews, which highlighted deep-seated frustrations with clunky legacy EHR systems that prioritize billing features over direct patient care and workflow efficiency. Ultimately, these empirical insights formed the foundation of our user personas and empathy maps, driving our decision to focus the dashboard experience on real-time bed management, instant staff communication, and reducing cognitive load in high-stress environments.

Unique Features

- Unified Bed Management: Links real-time patient discharges directly to global bed availability statuses to optimize intake flow.
- Role-Based Health Records: Secure, HIPAA-compliant EHR access where permissions are automatically inherited from the staff member's specific medical role and ward assignment.
- Cross-Functional Triage Analytics: Cross-references patient wait times with current staff capacity to predict bottlenecks and dynamically adjust triage priorities.
- Unified Clinical Log: Tracks administrative updates, staff handovers, and critical patient treatment milestones in a single, transparent feed.

Target Audience

Chief Medical Officers
Head Nurses
ER Triage Directors
Hospital Administrators

Empathy Map

Says

"I waste critical time logging into three different systems to see a patient's history."

"We don't have real-time visibility on clean, available beds right now."

"Who has the updated shift schedule for the ICU today?"

"We need a faster way to process patient intakes during peak ER hours."

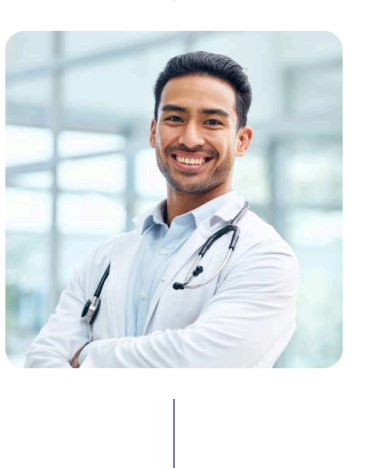
Thinks

"There must be a safer, faster way to hand over patient notes between shifts."

"I hope the new float nurses understand the triage protocol for this ward."

"I can't afford a software crash or miscommunication when lives are on the line."

"A centralized dashboard would reduce so much administrative stress for my team."



Does

Manually calls different wards to verify bed availability instead of trusting the system.

Chases down physical paper charts when the legacy software is too slow.

Constantly cross-references staff schedules and time-off requests on a physical whiteboard.

Spends overtime hours catching up on mandatory digital charting and compliance reporting.

Feels

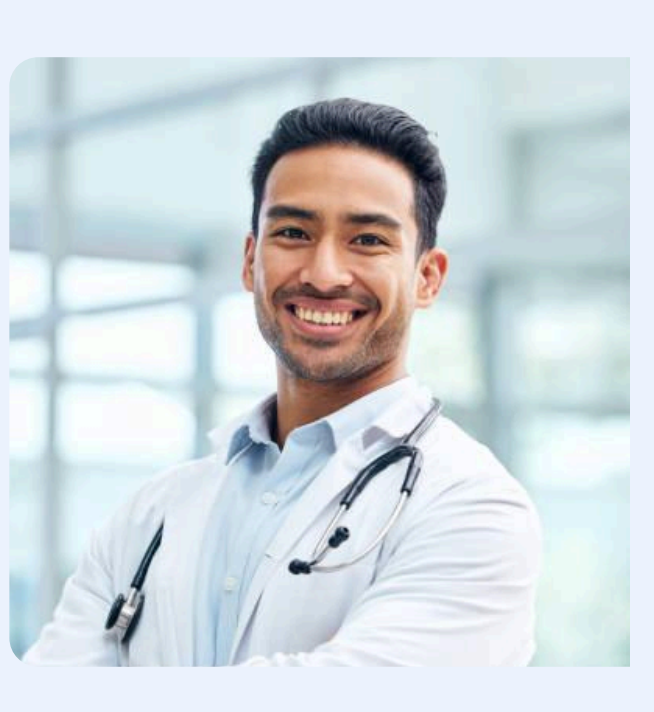
Overwhelmed by disjointed, outdated healthcare software that slows them down.

Frustrated when administrative bottlenecks delay urgent patient care.

Anxious about strict HIPAA compliance, data security, and correct chart access.

Exhausted by repetitive data entry that takes time away from actual patient interaction.

User Persona



NAME:	Dr. Marcus Vance
AGE:	42
EDUCATION:	M.D., Healthcare Administration
JOB:	Chief Medical Officer
LOCATION	Chicago, Illinois
HOBBIES:	Cycling and Shess

Bio

Marcus oversees clinical operations for a mid-sized regional hospital, acting as the primary bridge between medical staff and hospital administration. He is highly capable but feels overwhelmed jumping between outdated legacy systems to check bed availability, review overnight ER admissions, and monitor staff shifts. He urgently needs a unified, real-time view to ensure optimal patient care and operational efficiency.

Personality

- Analytical
- Decisive
- Empathetic
- Under-pressure

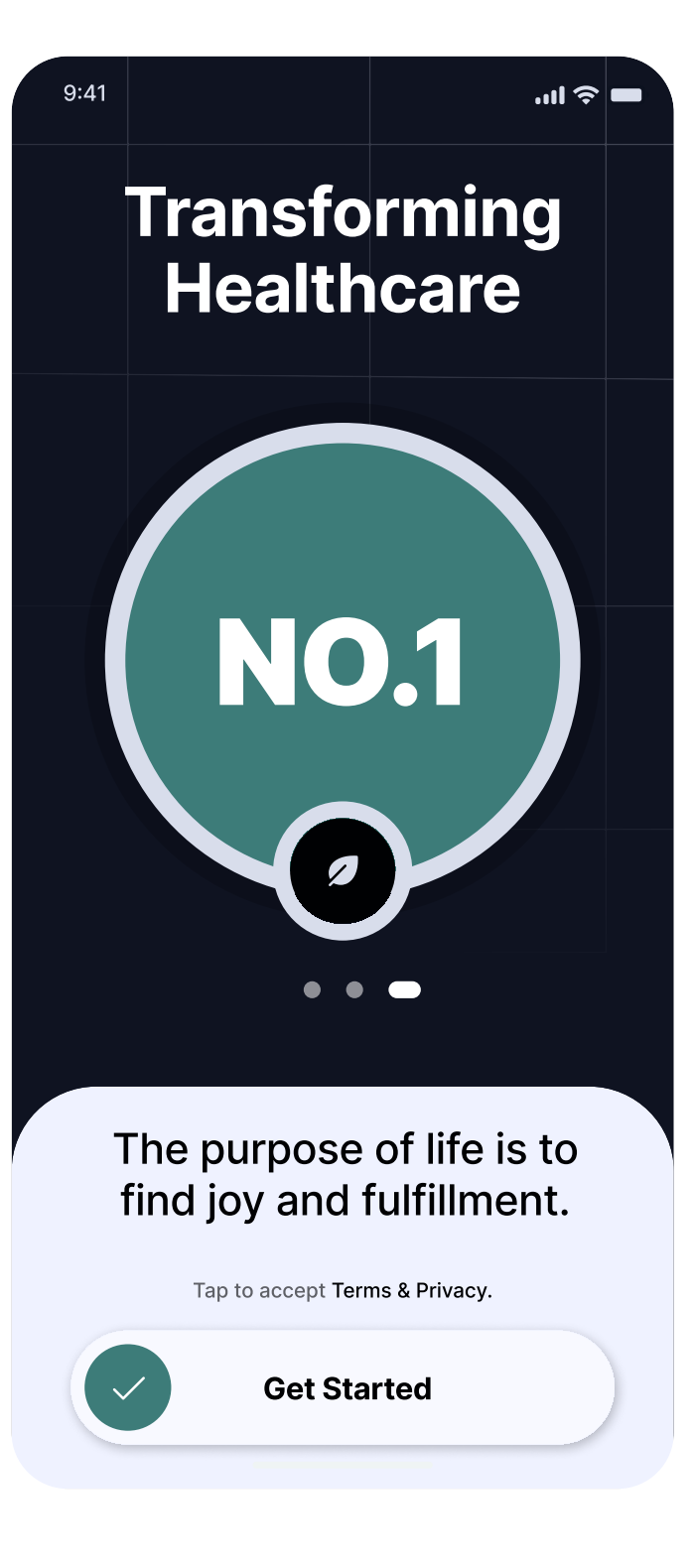
Pain points

- Wastes hours manually checking different wards for available beds and resources.
- Struggles with fragmented patient data spread across different departmental software.
- Frustrated by delayed communication regarding critical staff shortages or call-outs.

Goals

- Consolidate patient tracking, bed management, and staff scheduling into a single tool.
- Automate capacity alerts so resources are allocated before bottlenecks occur.
- Ensure secure, instant access to patient histories for authorized medical staff.

High-fidelity Design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Transforming Healthcare
NO.1
The purpose of life is to find joy and fulfillment.
Tap to accept Terms & Privacy.
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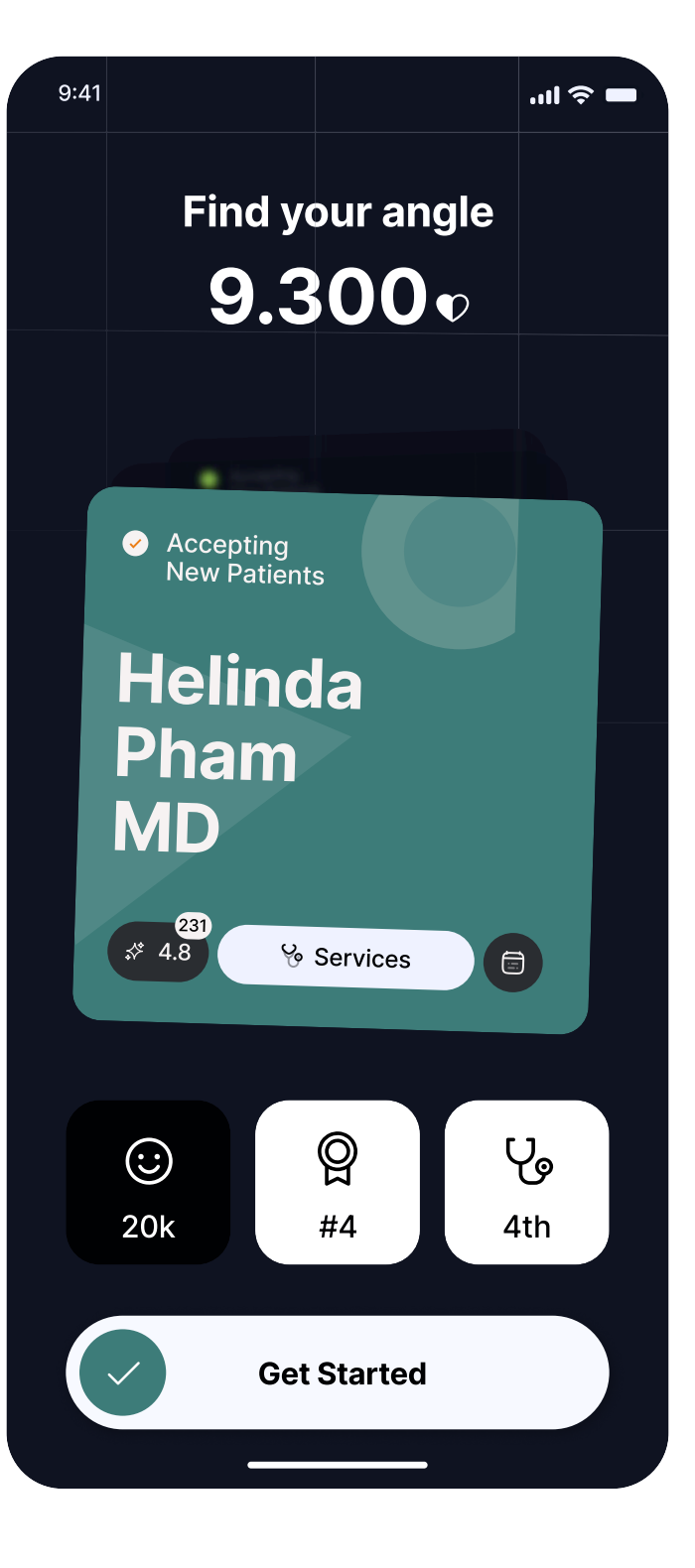
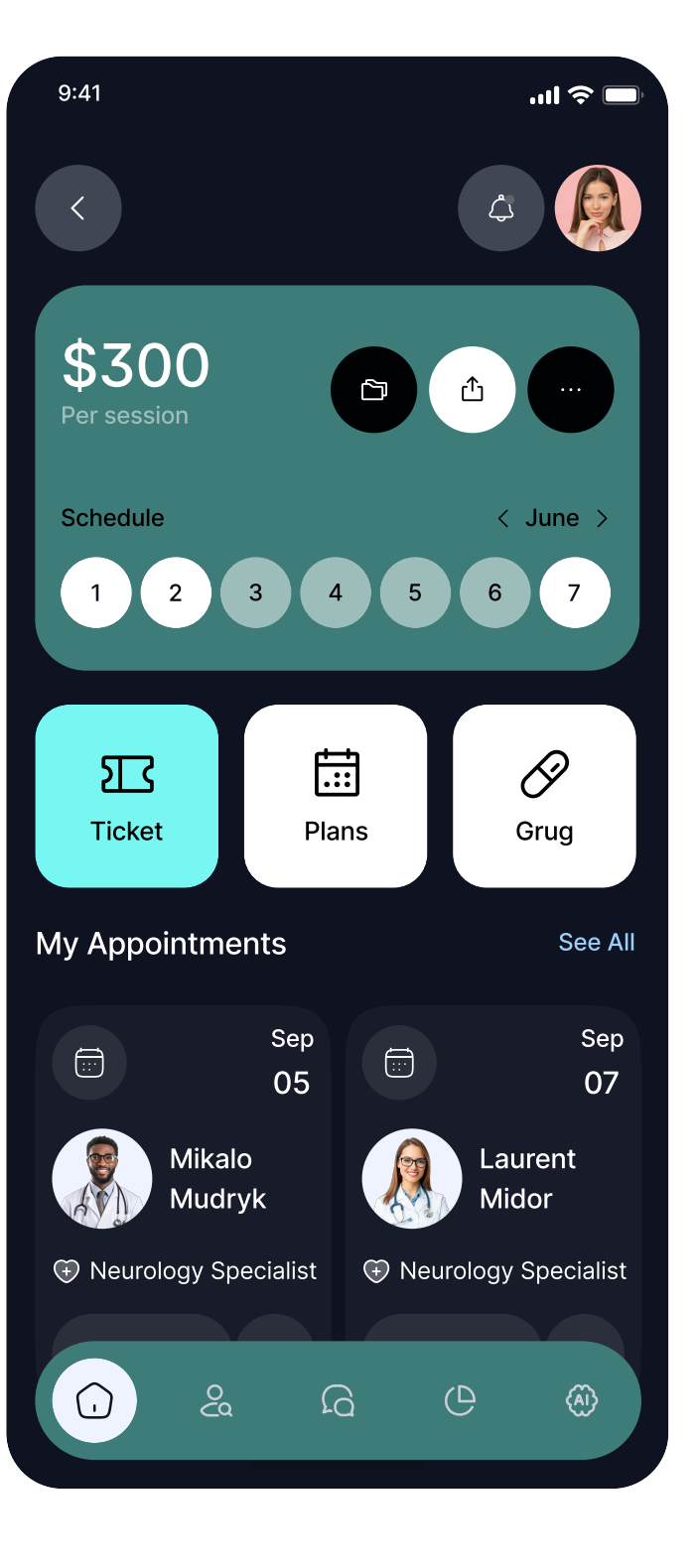
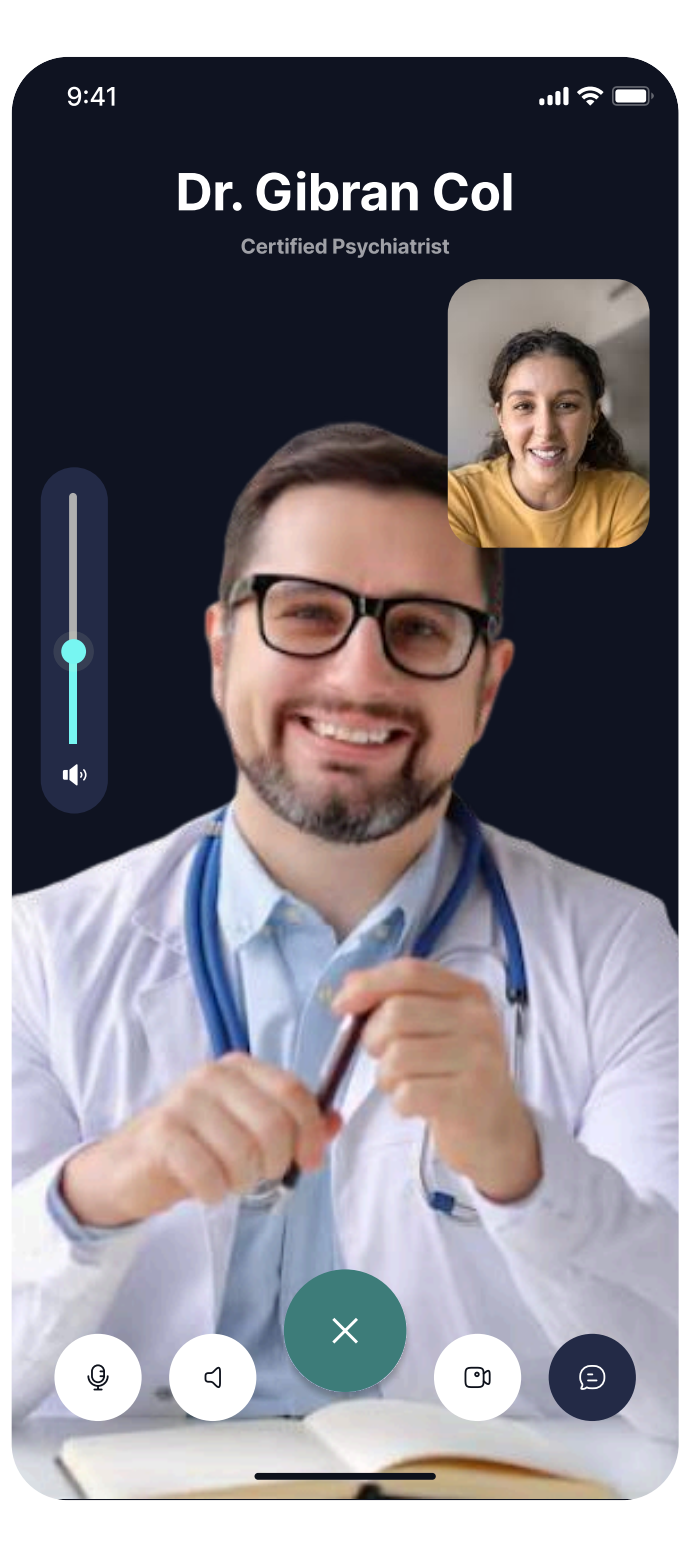
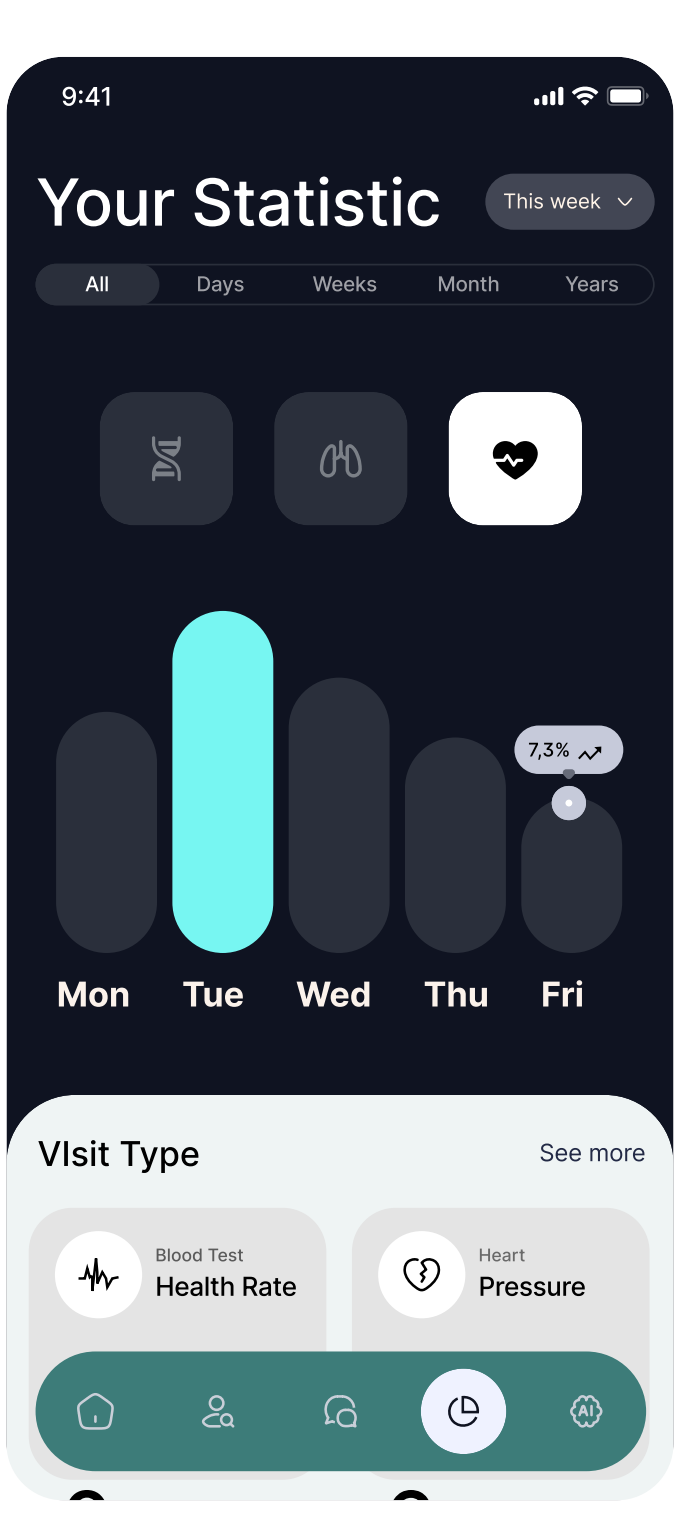
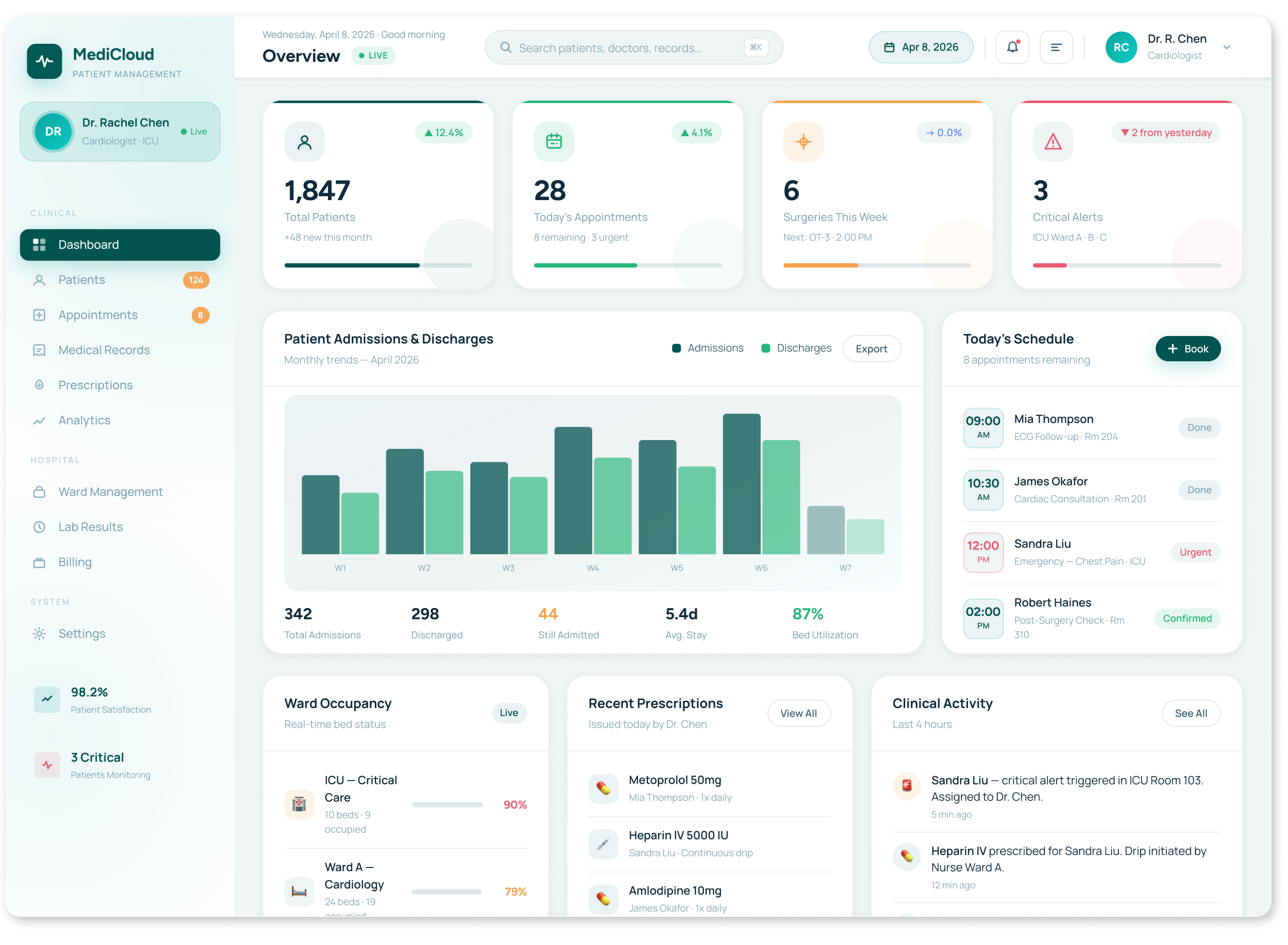










MediCloud
PATIENT MANAGEMENT

Dr. Rachel Chen — Cardiologist · ICU — Live

CLINICAL: Dashboard, Patients 124, Appointments 8, Medical Records, Prescriptions, Analytics
HOSPITAL: Ward Management, Lab Results, Billing
SYSTEM: Settings

98.2% Patient Satisfaction
3 Critical Patients Monitoring

Wednesday, April 8, 2026 · Good morning
Overview · LIVE
Search patients, doctors, records...
Apr 8, 2026
Dr. R. Chen — Cardiologist

1,847 Total Patients — ▲12.4% — +48 new this month
28 Today's Appointments — ▲4.1% — 8 remaining · 3 urgent
6 Surgeries This Week — → 0.0% — Next: OT-3 · 2:00 PM
3 Critical Alerts — ▼2 from yesterday — ICU Ward A · B · C

Patient Admissions & Discharges — Monthly trends — April 2026 — Admissions, Discharges — Export
W1 W2 W3 W4 W5 W6 W7

Total Admissions	Discharged	Still Admitted	Avg. Stay	Bed Utilization
342	298	44	5.4d	87%

Today's Schedule — 8 appointments remaining — Book

09:00 AM	Mia Thompson	ECG Follow-up · Rm 204	Done
10:30 AM	James Okafor	Cardiac Consultation · Rm 201	Done
12:00 PM	Sandra Liu	Emergency — Chest Pain · ICU	Urgent
02:00 PM	Robert Haines	Post-Surgery Check · Rm 310	Confirmed

Ward Occupancy — Real-time bed status — Live
ICU — Critical Care — 10 beds · 9 occupied — 90%
Ward A — Cardiology — 24 beds · 19 occupied — 79%

Recent Prescriptions — Issued today by Dr. Chen — View All
Metoprolol 50mg — Mia Thompson · 1x daily
Heparin IV 5000 IU — Sandra Liu · Continuous drip
Amlodipine 10mg — James Okafor · 1x daily

Clinical Activity — Last 4 hours — See All
Sandra Liu — critical alert triggered in ICU Room 103. Assigned to Dr. Chen. — 5 min ago
Heparin IV prescribed for Sandra Liu. Drip initiated by Nurse Ward A. — 12 min ago

Style Guide

Color Palette

Primary Color

#025552

Shades

Tints

Secondary Color

#0DB5AF

Shades

Tints

Typography

Aa

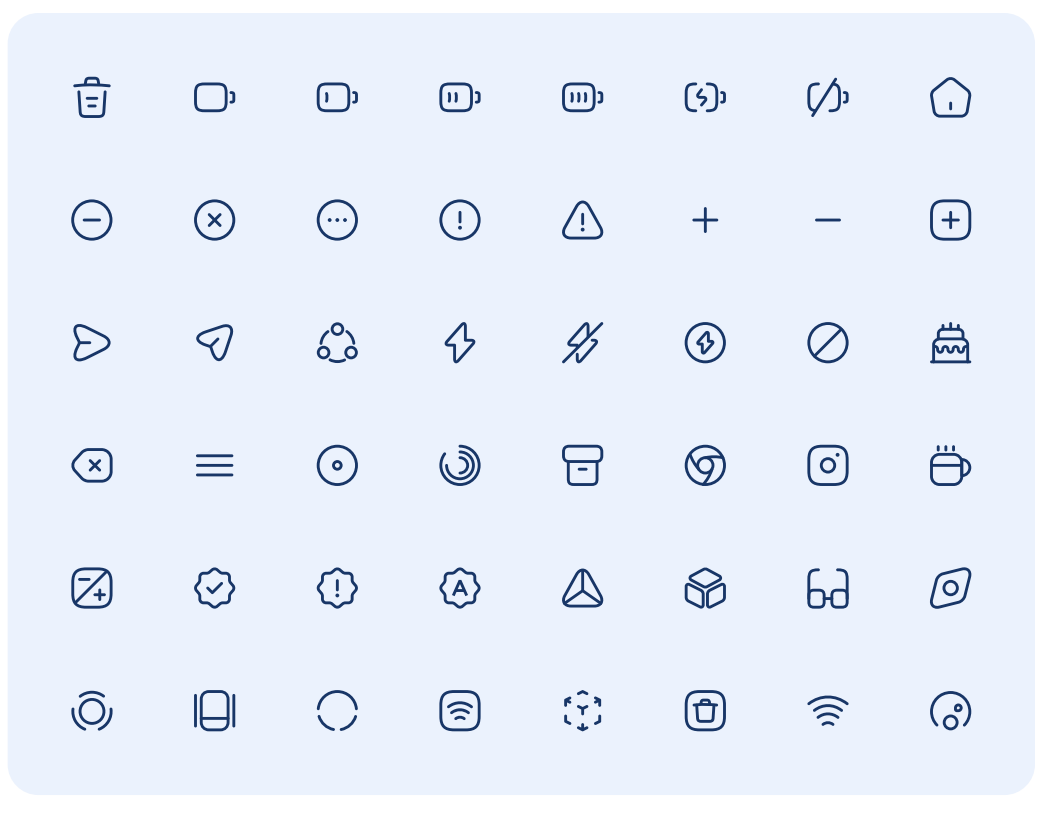
Font
Montserrat

Aa Montserrat Bold
Aa Montserrat Semibold
Aa Montserrat Medium
Aa Montserrat Regular

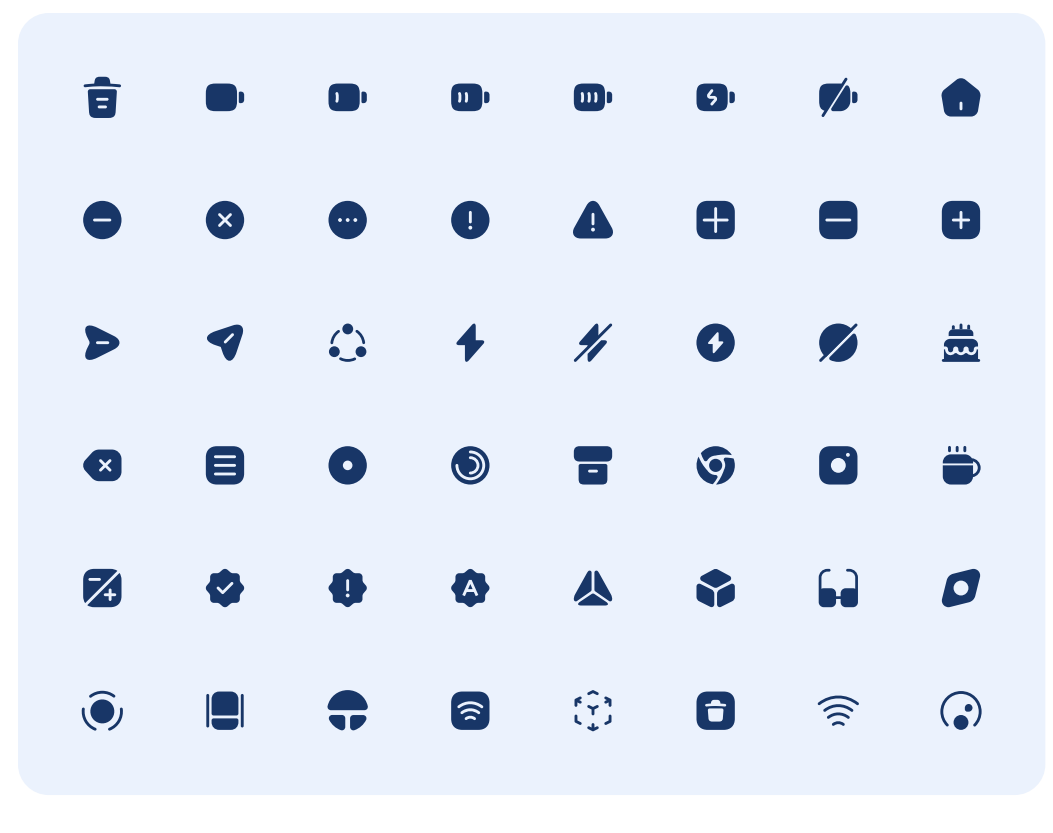
Name	Font Size	Line Height
Heading 1	24 px	36 px
Heading 2	20 px	28 px
Body - Large	18 px	24 px
Body - Regular	16 px	24 px
Body - Small	14 px	22 px
Caption	12 px	16 px
BUTTON	16 px	24 px

Iconography

Outline



Bold



Key Takeaways

Designing for healthcare requires a hyper-focus on reducing visual clutter. In a high-stakes ER environment, minimizing click fatigue and clearly surfacing critical data (like severe allergies) is just as important as strict HIPAA compliance. Establishing a strict, token-based design system in Figma dramatically accelerated the frontend React build and ensured a consistent, accessible experience across the entire platform.

Roadmap

Version 2 of TeamAxis will focus on expanding interoperability by introducing third-party API integrations (Slack, Google Workspace) and implementing automated, AI-driven productivity insights to help managers

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