

Empower Mobility

Case Study

Research, methodology, and execution of UX and UI design for mobile-first clinical documentation application

Christophe Alise | Cadence Brand Development



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Introduction —

Empower Systems is an ONC-Certified Electronic health Record developed by clinically practicing physicians, nurses, and department leaders.

Users voiced interest in a mobile application to complement the desktop version.

Perspective —

The Empower Mobility application was developed to meet this need to secure customer satisfaction and encourage brand loyalty.

Goal

Deliver a mobile application that replicates the speed and user-friendliness of the desktop application with continued iteration based on client feedback to improve functionality and personalization options.

Project Scope

iOS and Android App, Responsive Website

Timeline

9 months

Tools

Adobe Creative Suite
Figma
InVision
Sketch
Visio

Target Audience

Users of all ages and current health conditions that will benefit from convenient, on-demand preventative healthcare.

Role

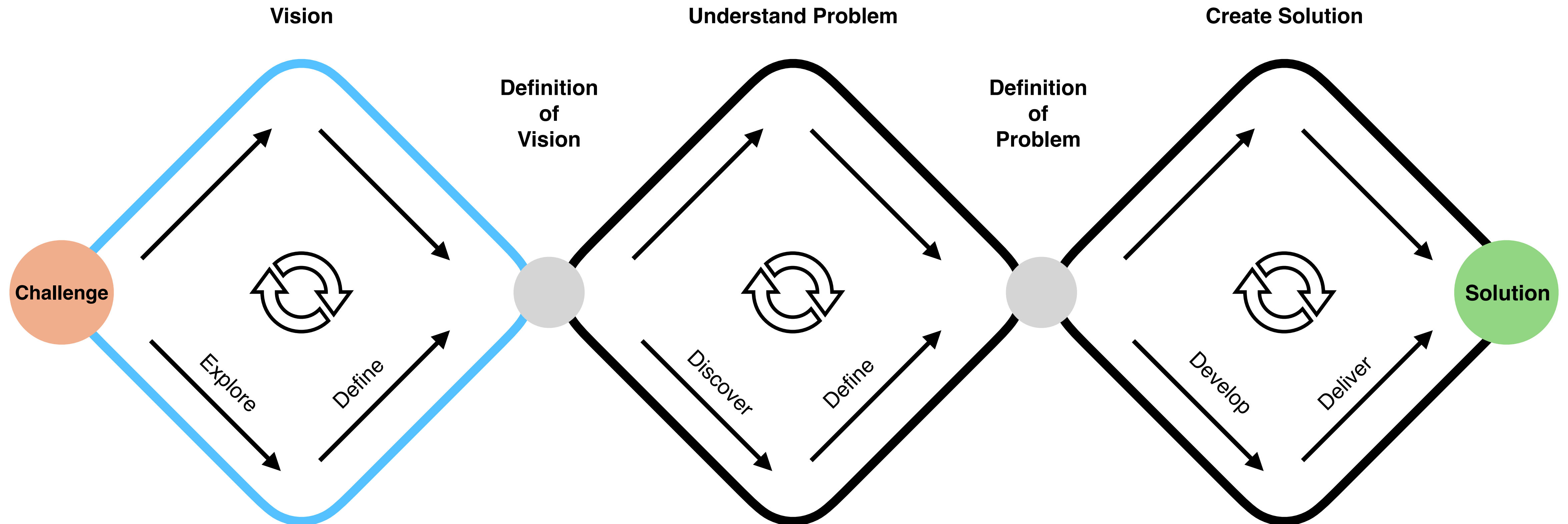
UX/UI Product Design Lead

Responsibilities

Strategy	Competitive Analysis
User Interviews	User Surveys
Personas	Journey Mapping
Affinity Mapping	Empathy Mapping
User Flows	Card Sorting
Wireframes	Information Architecture
Visual Design	Usability Testing

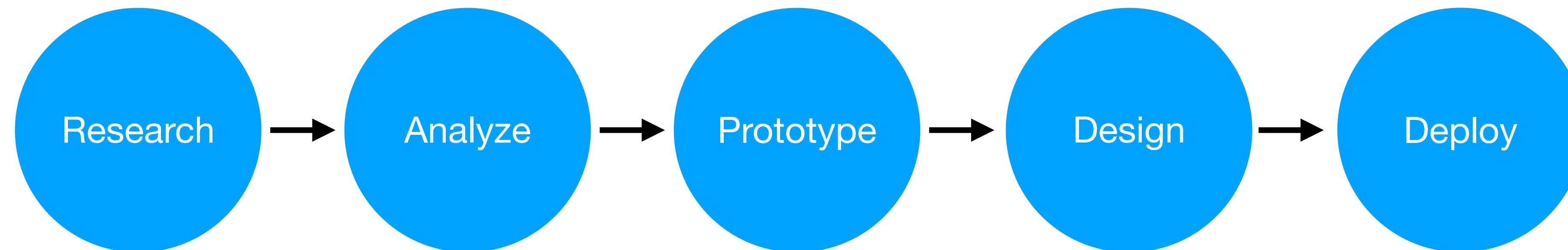
UX Design Process

We embraced the expanded diamond process in order to take into account Vision at the outset of the project. This variation on the traditional model yielded valuable alignment across departments and ensured the product vision was unified and supported from the outset.



UX Design Process

We launched the process focusing on an empathic user-centered perspective. Throughout development, I continued to assess the holistic user experience, while progressing through appropriate research techniques. Resulting data was incorporated into the app design iterations and supported by real-time, live hospital environment user testing.



- User Interviews
- Stakeholder Workshops
- Expert Interviews
- Empathy Maps
- Contextual Inquiries
- Competitive Analysis
- Data Analysis

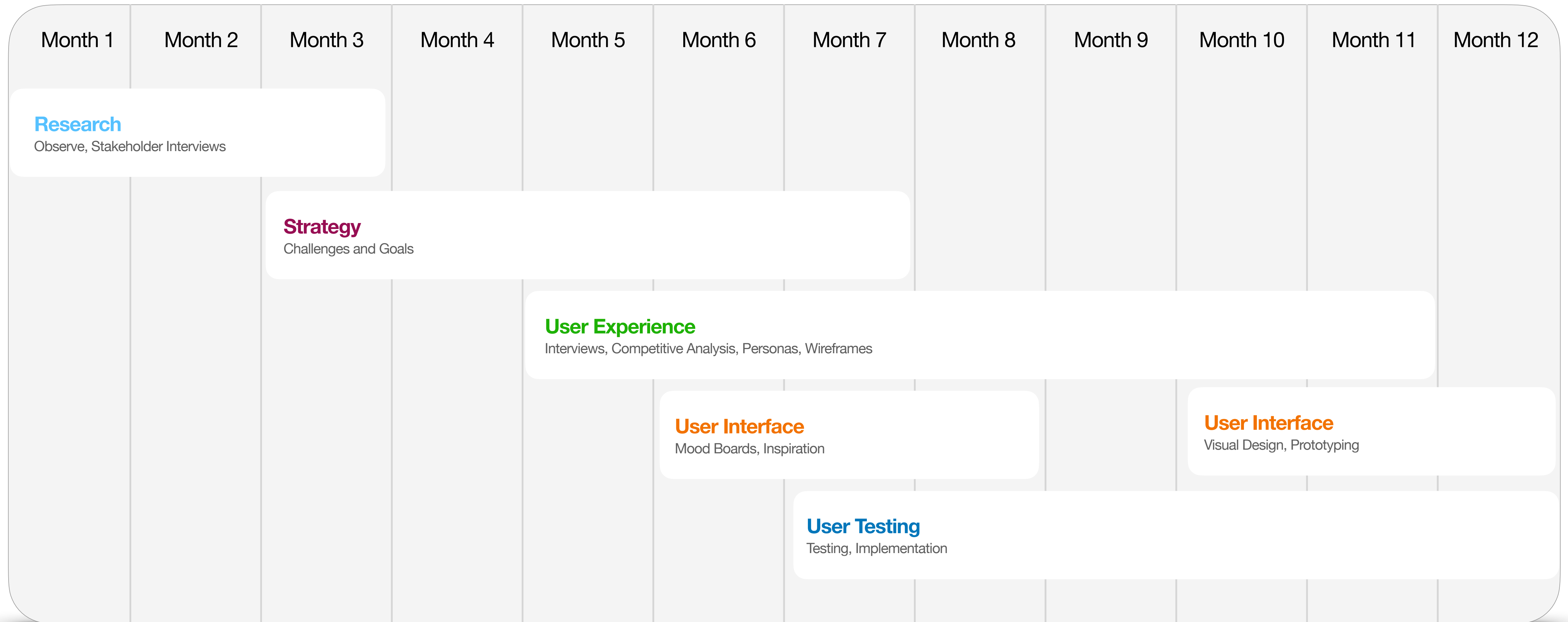
- User Personas
- User Journeys
- User Stories
- Task Flows
- Low-Fi Wireframes
- Screen Flows
- Information Architecture

- Ideation
- Concept Sketches
- Mid-Fidelity Mockups
- Interactive Prototypes
- User Testing
- Concept Validation

- High Fidelity Design
- Interactive Prototypes
- Style Guide
- Annotated Wireframes

- Developer Handoff
- Design Reviews
- User Testing
- Iterations
- Measure and Refine

Project Timeline



Design Strategy

Guided by target audience metrics, design process was executed. Ongoing interaction with end users informed workflows, visual identity, and features offered.

Business Strategy Alignment

Ensured strategic outcomes for clinical end users were clear and unified in order to inform the UX process.

Validated User Research

Detailed user research and real-time testing in live hospital departments (ED, Inpatient, Outpatient) leveraged to guide UX decisions at every phase to uphold usability.

Cross-Device Integration

Native OS development with web-based responsiveness necessary to deliver unified, quality experience to all users on all devices with bidirectional data integration to Windows desktop OS.

Value Innovation

Rationale for app development based on providing existing clinical users with an extended, mobile version of the comprehensive EHR software functionality.

Empathic UX

User-centered design methodologies customized to advanced clinical users informed the entire process where functionality, speed, and accuracy are non-negotiable requirements.

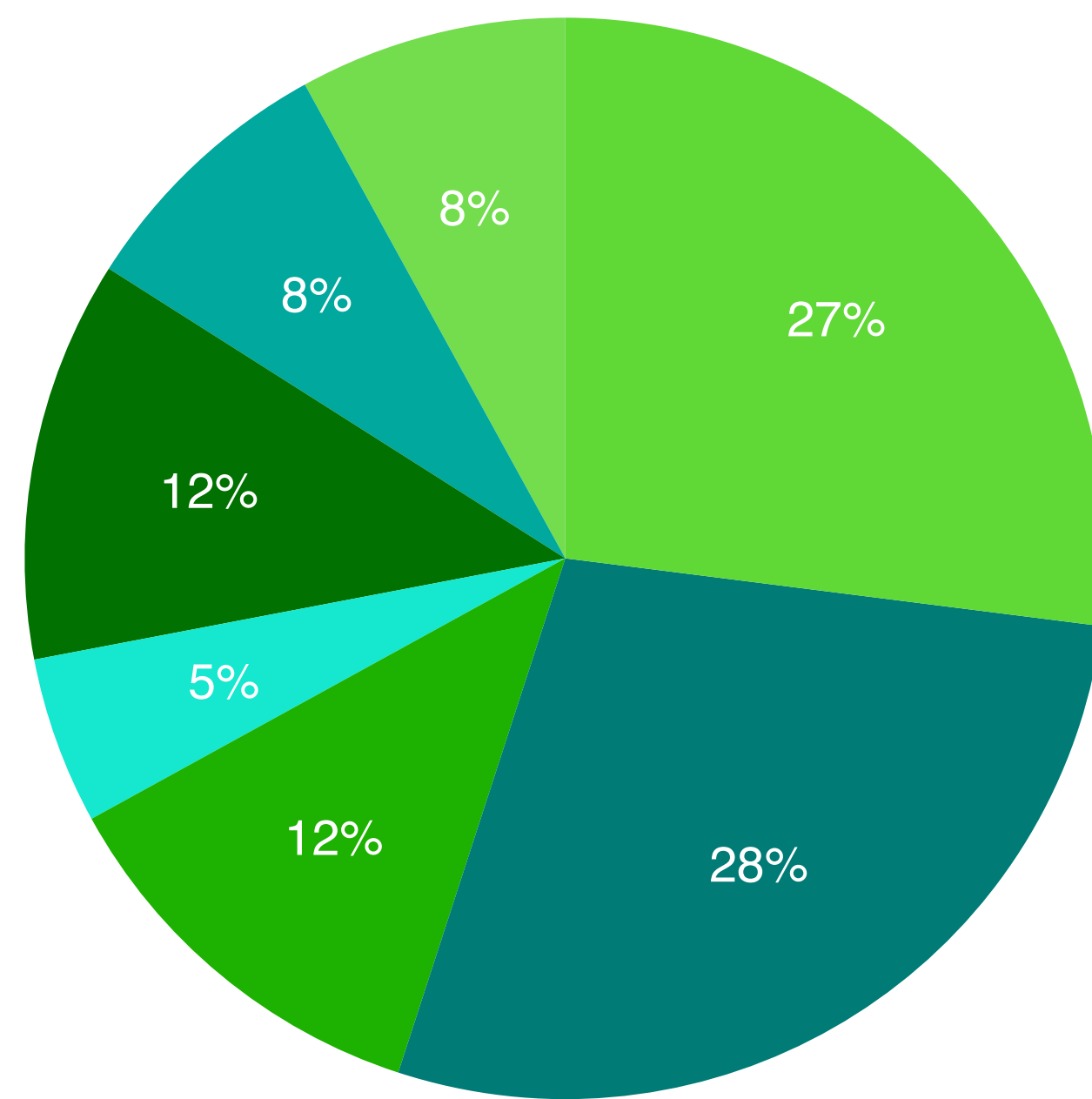
Intuitive UI

User flow and presentation of information achieved in a fluid, reductive manner to encourage interaction with app and reduce decision fatigue which is common with competing products.

User Research

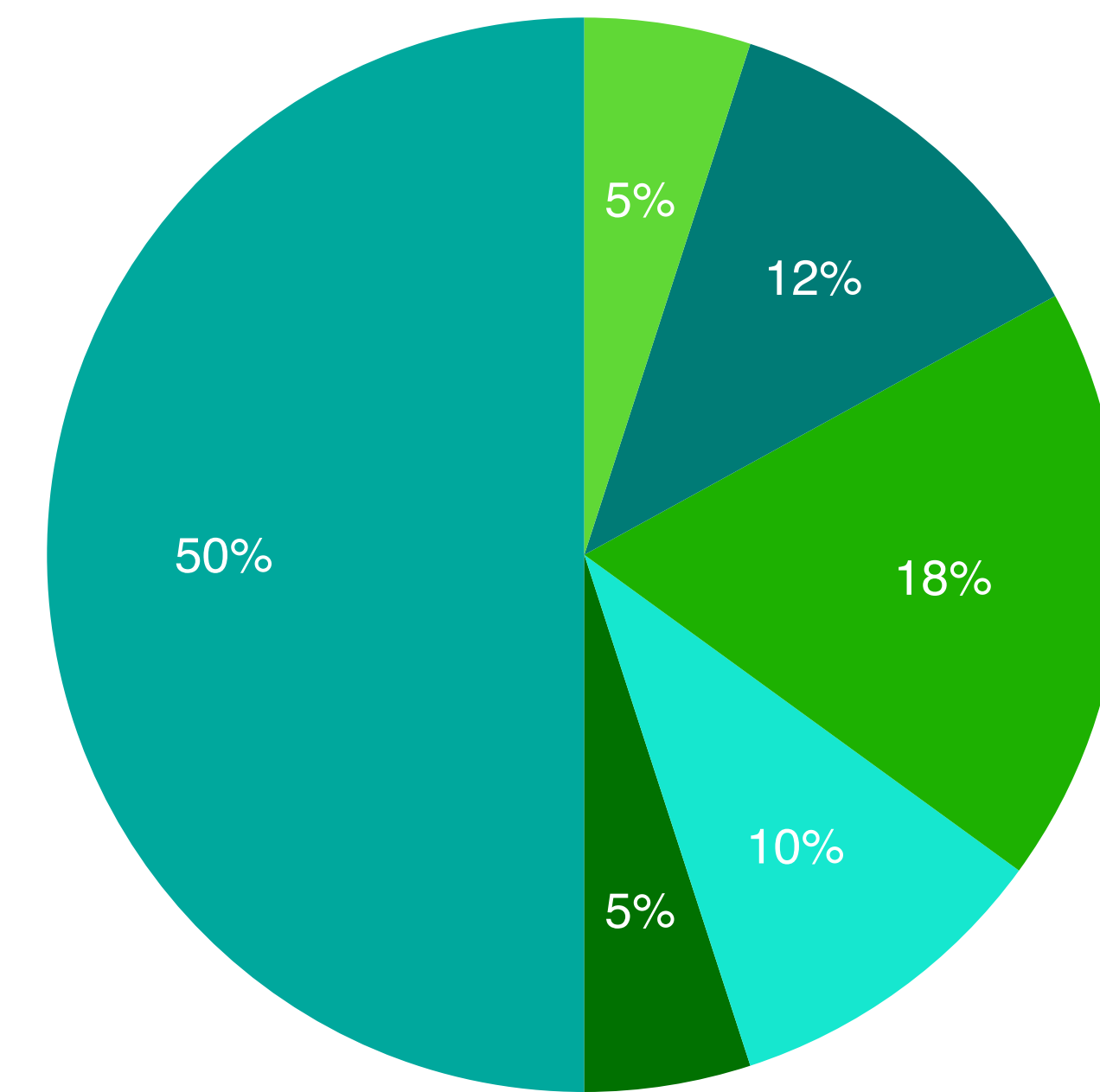
Designed detailed study of target users and requirements by framing engagement with realistic contexts and insights to design processes. Multiple methods were employed to identify problems and seek associated design opportunities.

User Type (MD, RN, Ancillary)



● MD ● RN ● Ancillary ● Admin ● Medical Records ● Coding ● Billing

Annual Patient Volume

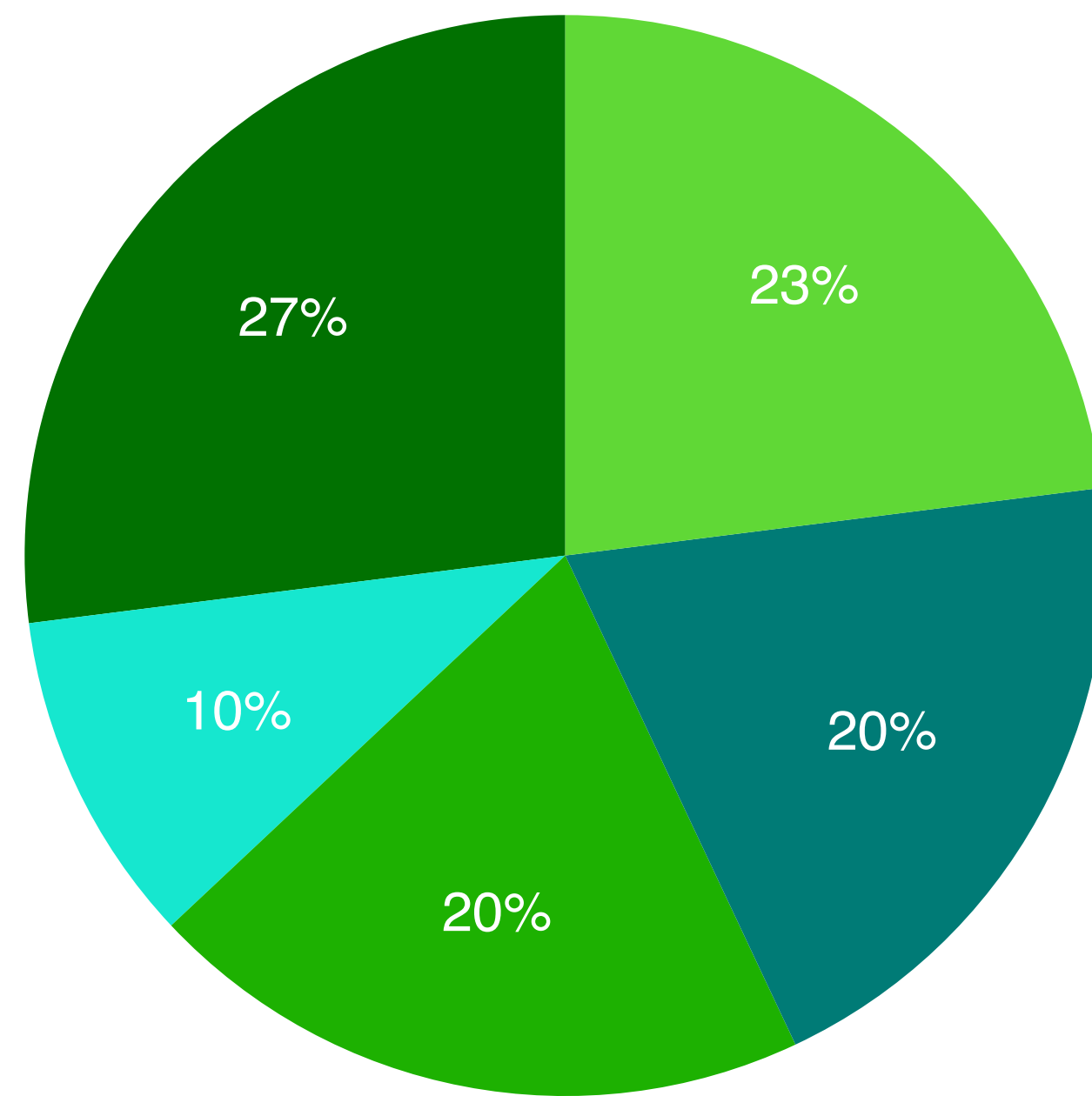


● 5-20K ● 20-40K ● 40-60K ● 60-80K ● 80-100K ● 100K+

User Research

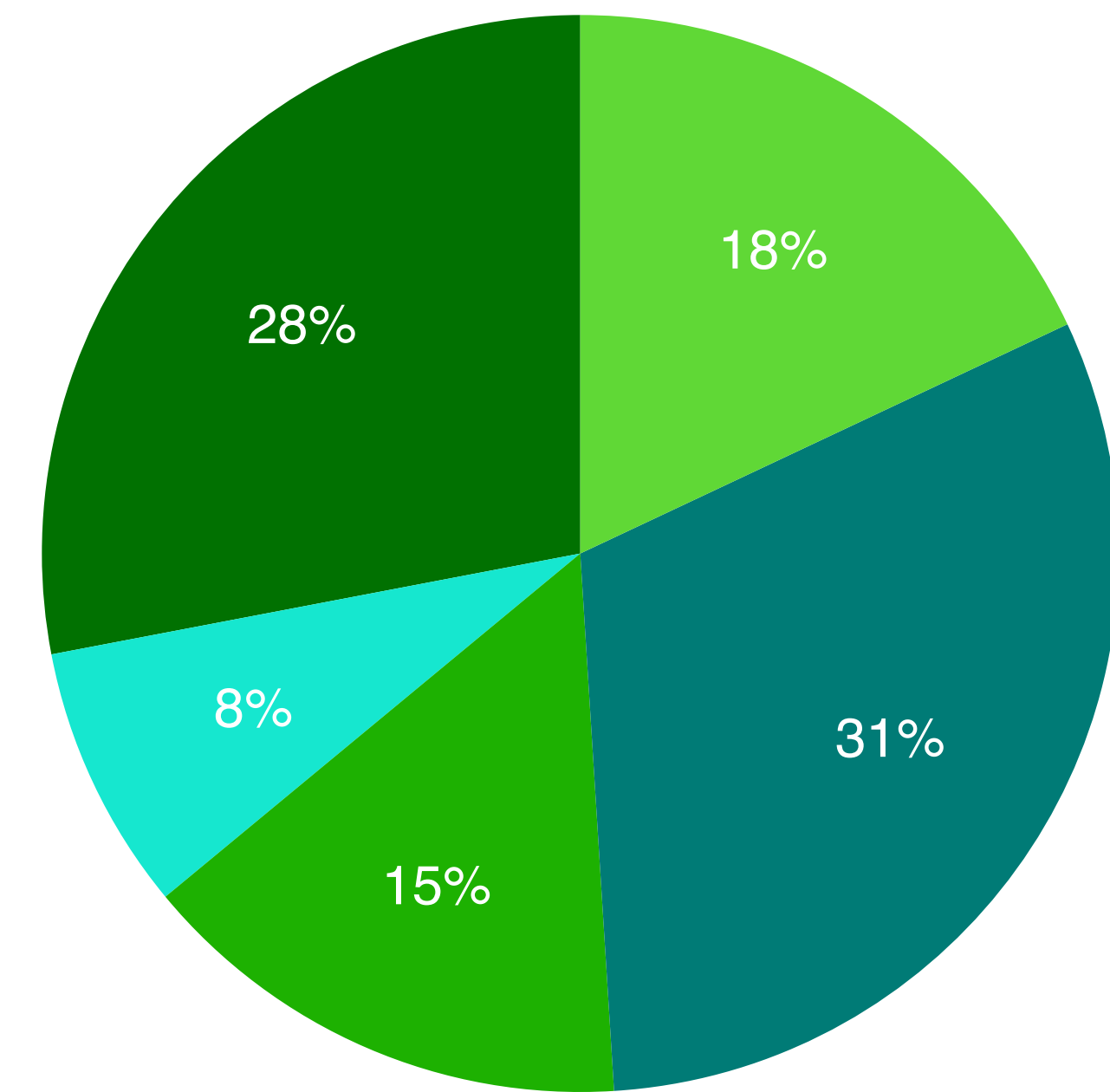
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Feature Requirements for MDs



User Friendly Fast/Responsive Comprehensive Familiar Short Training Time

Feature Requirements for RNs/Ancillary Users

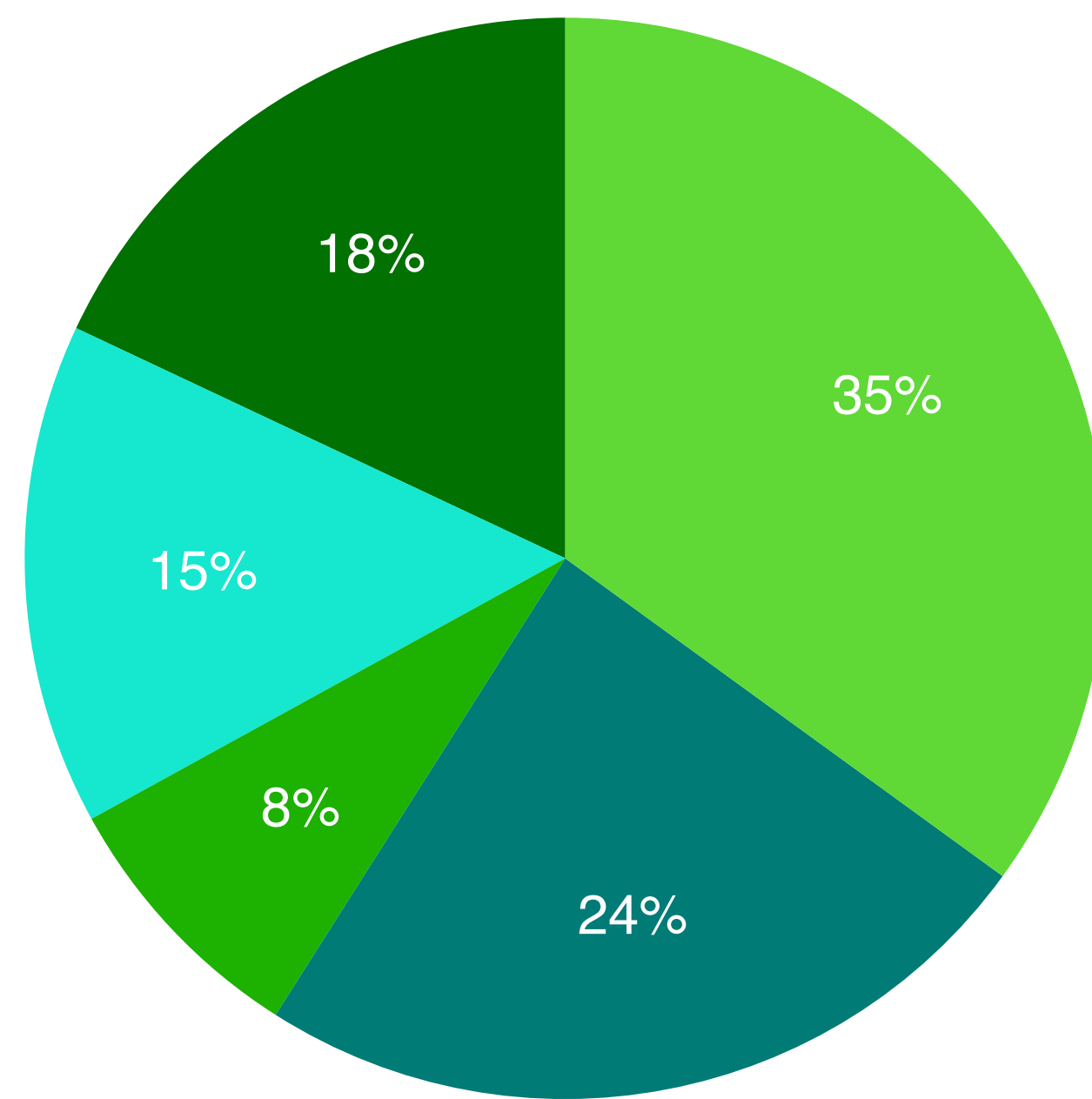


User Friendly Fast/Responsive Comprehensive Familiar Short Training Time

User Research

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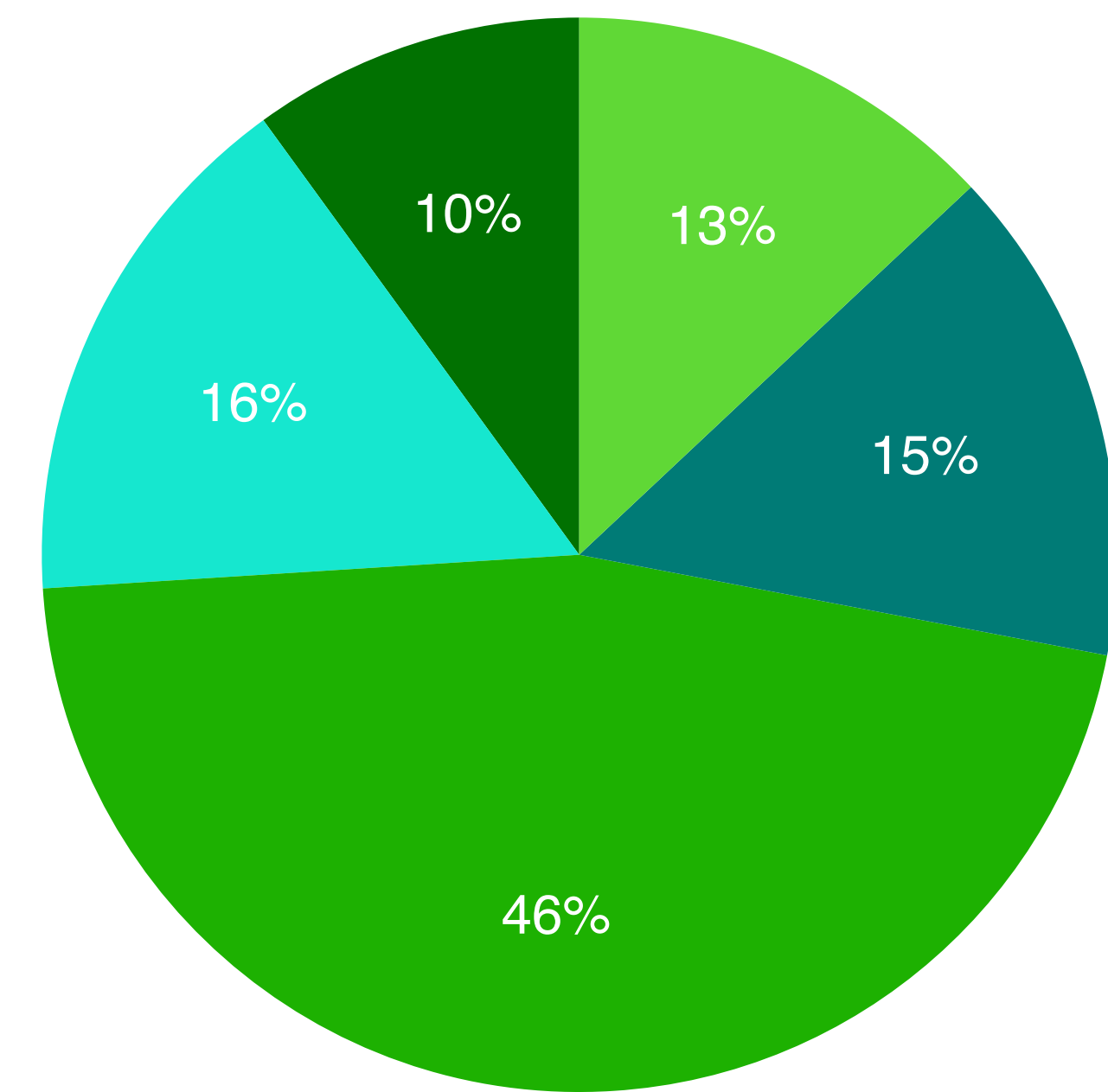
Current Impediments to Fast, Quality Care Delivery



● User Friendly ● Fast/Responsive ● Comprehensive ● Reporting ● Onboarding

Satisfaction Level of Competing Products

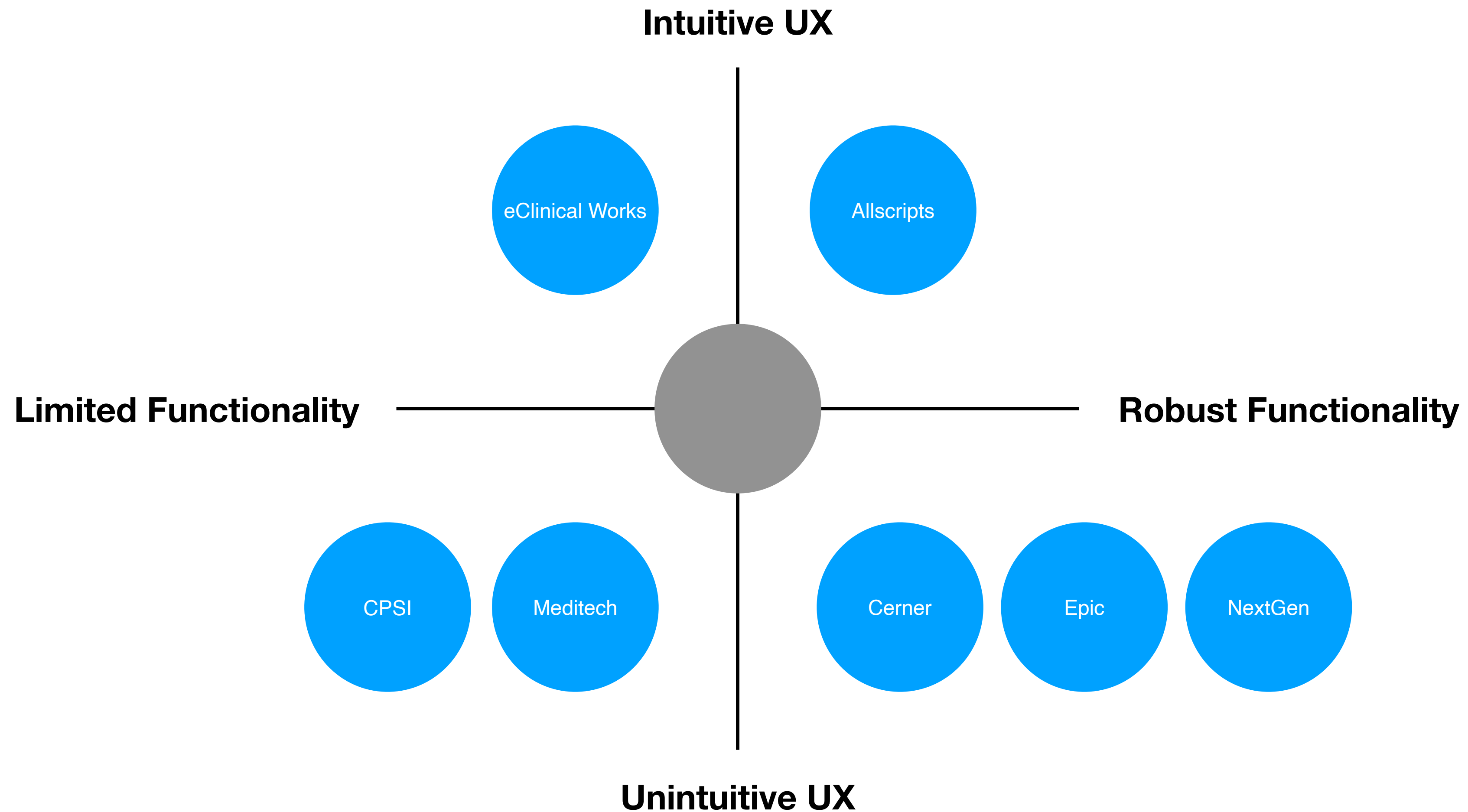
Scale of 1 to 5



● 1 ● 2 ● 3 ● 4 ● 5

Competitive Analysis

Reviewed current market leaders and notable startups offering Telehealth applications from the perspective of multiple user personas. Sought to identify impact of UX design and key functionality alongside standard navigation, scheduling, and messaging (phone/text/video) capabilities.



Competitive Analysis

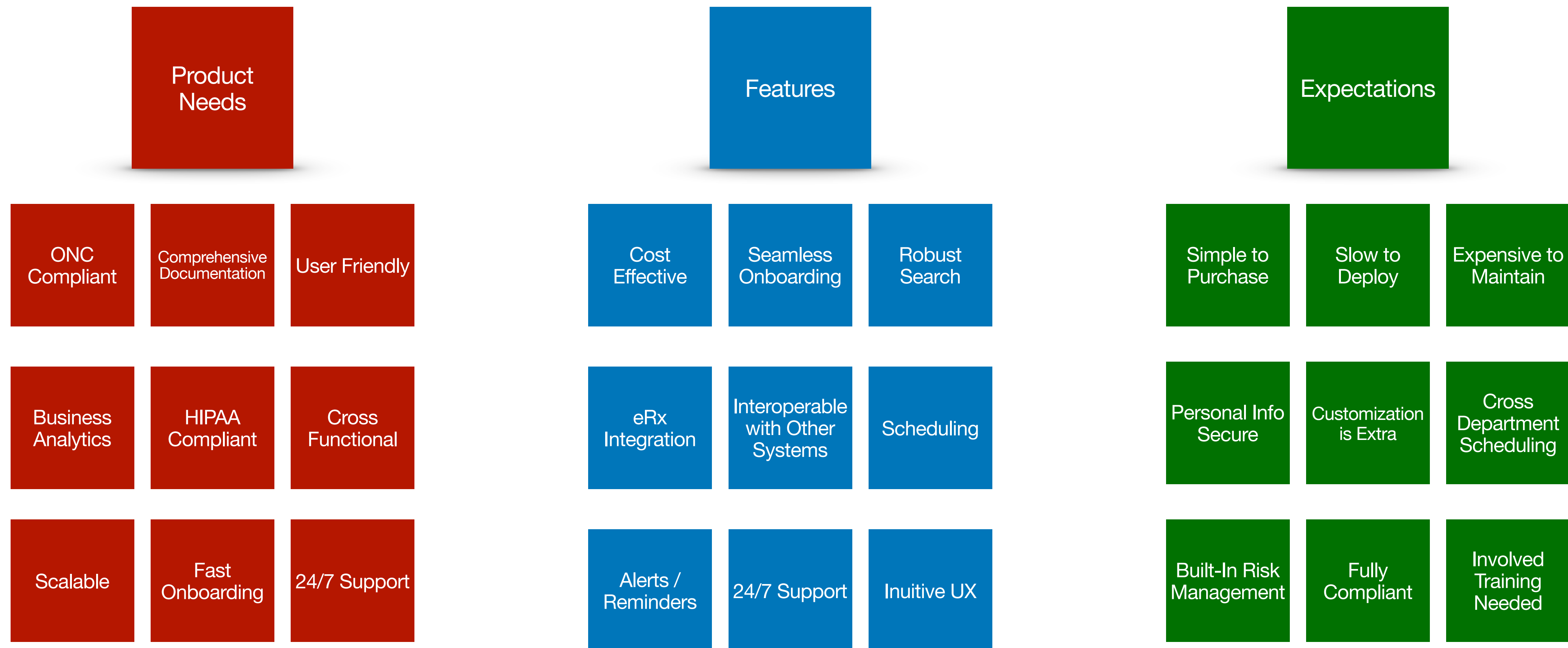
	Allscripts	Cerner	CPSI	eClinical Works	Epic	Meditech	NextGen
iOS + Android Native	✓	✓	✓	✓	✓	✓	✓
Responsive Site	✓	✓	✓	✓	✓	✓	✓
Comprehensive Documentation	✓	✓	✓	✓	✓	✓	✓
ONC Certified	✓	✓	✓	✓	✓	✓	✓
Interoperable	✓	✓	✓	✓	✓	✓	✓
User Friendly	✗	✗	✗	✗	✗	✗	✗
Customizable	✓	✓	✗	✗	✓	✓	✓
Analytics	✓	✓	✓	✓	✓	✓	✓
ePrescribing	✓	✓	✗	✗	✓	✓	✓
Clinical-First / Dev Second	✗	✗	✗	✗	✗	✗	✗

Market Insights

- ✓ Rapidly Growing, Maturing Market
- ✓ Insured vs. Self-Pay Users Fragmented
- ✓ Broad Range of UX Design Quality
- ✓ Ongoing Product Innovation
- ✓ Difficult to Scale Effectively
- ✓ Challenges Onboarding 60+ Year Old Users
- ✓ Technology-based User Acceptance Challenges
- ✓ Few Large Players, Multiple Startups

Affinity Mapping

Utilized Affinity Diagram to stratify user experiences, opinions, and pain points. Established groupings based upon relationships supporting logical connection.



08

User Persona

Name: Ms. Johnson, RN

Role: Nurse Manager

Primary Devices



Quote:

I need the EHR to match our clinical workflow and be as fast, or faster, than documenting on paper or via dictation. For a mobile application, I need key information in a concise format and allow enough functionality that I can place orders and monitor results while moving around the department.

Needs

- Comprehensive documentation functionality
- Ease of use
- Meet workflow compliance thresholds
- Simplify my documentation tasks
- Save time so I'm not catching up at end of shift

Frustrations

- When EHR does not match clinical workflow
- Too many drop-downs and nested menus
- Unable to generate frequent reports
- Unable to track staff productivity and compliance

Goals

- Have a product that is embraced by my team
- Increase efficiency, but manage risk
- Ongoing updates and customizations at no extra charge
- Be able to manage new users and remove old users

Environment

- High volume, high acuity Emergency Department
- 12 hour shift staff of 10-25 RNs and PAs per shift
- Laptop carts in key locations, but constantly moving for patient care
- ED physicians managing patient care and inpatient admits

08

User Persona

Name: Dr. Jacobson
Role: Primary Care Physician

Primary Devices



Quote:

Most EHRs and their mobile apps are not user-friendly or not fully comprehensive. This means wasted time catching up on documentation rather more time with patients.

Needs

- Efficient way to see more patients needing basic consults
- Ability to deliver care regardless of my location (hospital, office, home)
- Offer new ways to document clinical care.

Goals

- Technology to improve productivity and time with patients.
- No lost charges due to incomplete documentation.
- Build in risk management to catch oversights before they are even an issue.

Frustrations

- Wasted time documenting after my shift and when the patient encounter is not as fresh in my mind.
- Having to build workarounds to make the product fit my needs.
- Software feels like was built by programmers with limited clinical input.

Environment

- Hospital, physician offices, home office, travel
- All locations offer access via laptop, tablet, or phone
- Accesses patient information from all locations to manage care.

Empathy Mapping

Utilized Empathy Mapping tools to understand users' needs and prioritize accordingly. These insights are invaluable and necessary early in the process to avoid false starts with product development.

Says

I need a user friendly EHR

I need a compliant EHR

I'm open to new technology

A mobile version would be great

Does

Reviews products online

Attends trade shows

Speaks with colleagues

Contacts vendors



Are there any user friendly EHRs?

Are most EHRs compliant?

I'm open to new tech if it works

Mobile would be ideal

Thinks

Overwhelmed

Stressed

Motivated

Hopeful

Feels

Customer Journey Mapping



Persona: 30-45 years old. Advanced RN skill level with administrative responsibilities.

Objective: Utilize a comprehensive, certified EHR product on mobile device to improve productivity.

Stage	Awareness	Consideration	Decision	Service	Loyalty
Customer Action	Receive marketing email, receive sales call, view ad on social media	Review similar products, compare relative benefits and costs	Recommend product to management	Product approved, uses product, trains others to use product	Responds to surveys, provides testimonials, recommends to colleagues and trade orgs
Touchpoints	Marketing email, sales team, social media, trade show	Marketing email, sales team, social media, trade show	Website, phone, tablet	Website, phone, tablet	Word of mouth, online reviews
Customer Experience	Interested, frustrated	Curious, optimistic	Optimistic	Satisfied, motivated	Enthusiastic
KPIs	Number installs at multiple facilities	Respond to sales call or email. Schedule a product demo	Conversion rates, total installs	Customer feedback, reviews, referrals	Retention rate, return users, testimonials, referrals
Business Goals	Increase awareness, acquire users	Increase productivity, maintain cost within budget	Increase productivity, maintain cost within budget, successful deployment of product	Establish customer trust, organic and inorganic referrals	Increase patient ROI and offset of product cost
Team(s) Involved	Marketing, sales	Marketing, sales	Sales, technical support	Sales, technical support	Marketing, technical support

Customer Journey Mapping



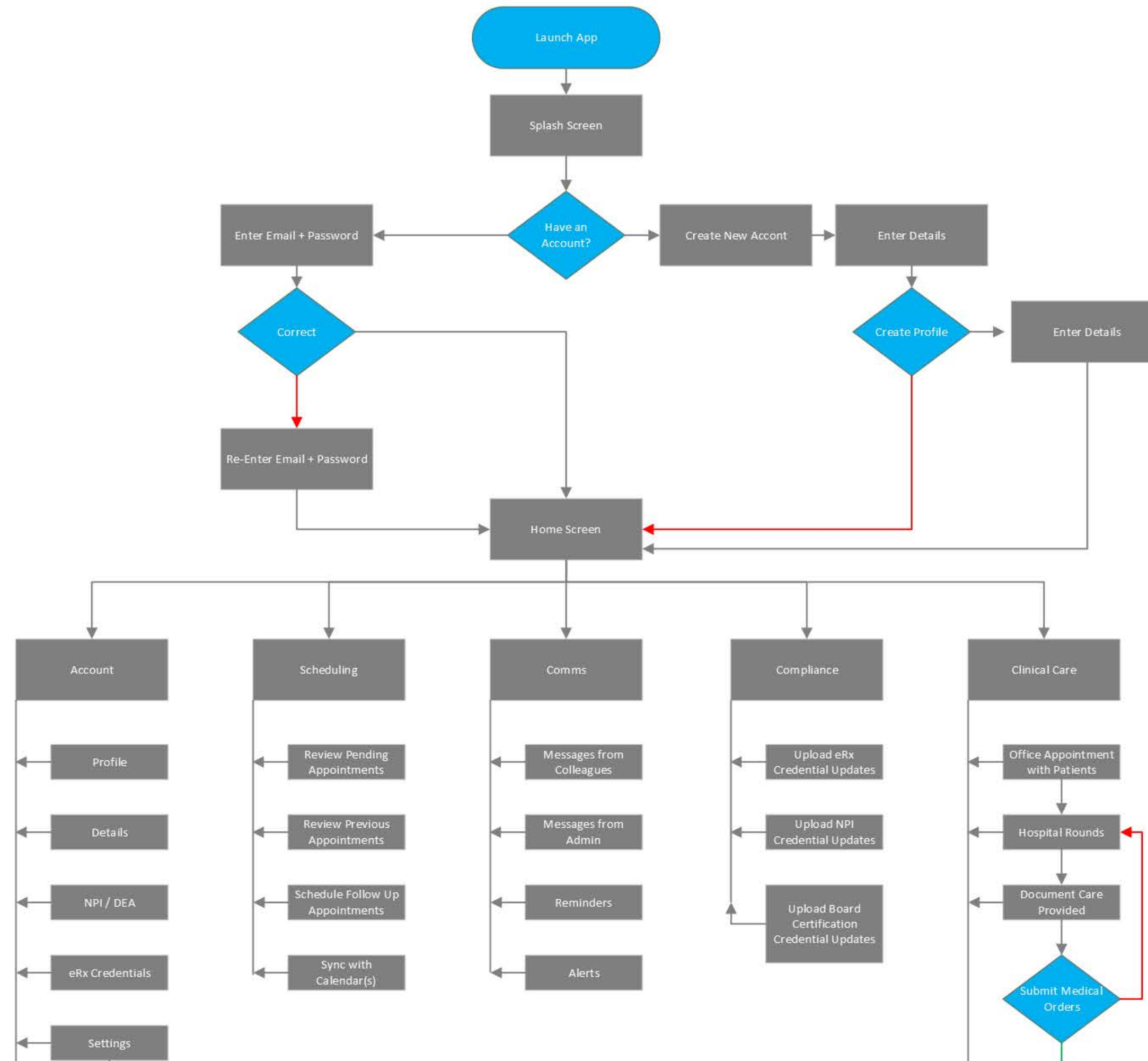
Persona: Primary Care Physician

Objective: Benefit from a more user-friendly yet comprehensive EHR product that offers mobile-first functionality in addition to desktop application.

Stage	Awareness	Consideration	Decision	Service	Loyalty
Customer Action	Receive marketing email, receive sales call, view ad on social media	Review similar products, compare relative benefits and costs	Recommend product to management	Product approved, uses product, trains others to use product	Responds to surveys, provides testimonials, recommends to colleagues and trade orgs
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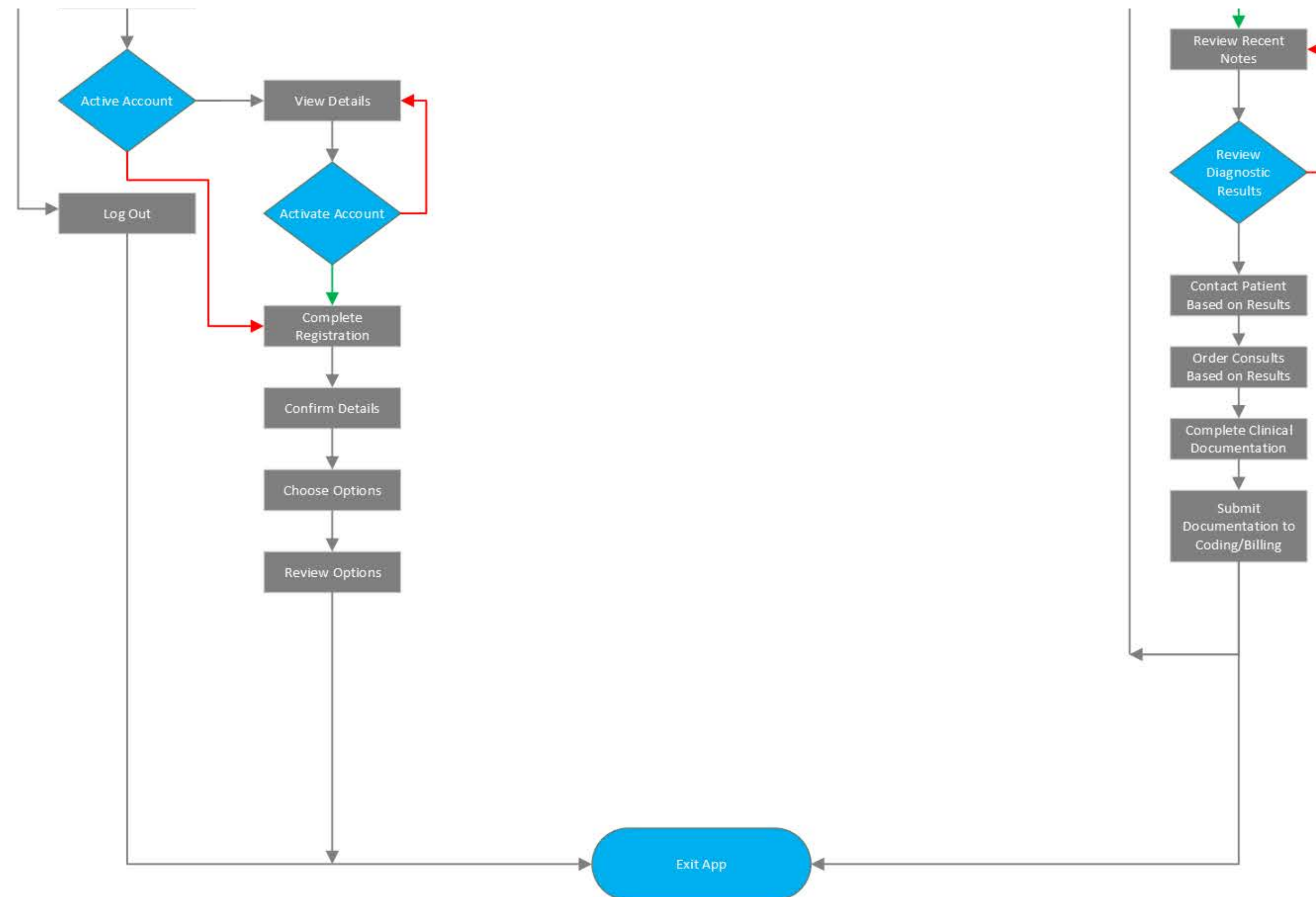
Task Flow & User Flow

Established broad variables to guide users through app in the most seamless manner possible. Based on feedback to testing, flows were adjusted and presented for further review, and iteration prior to high fidelity prototyping.



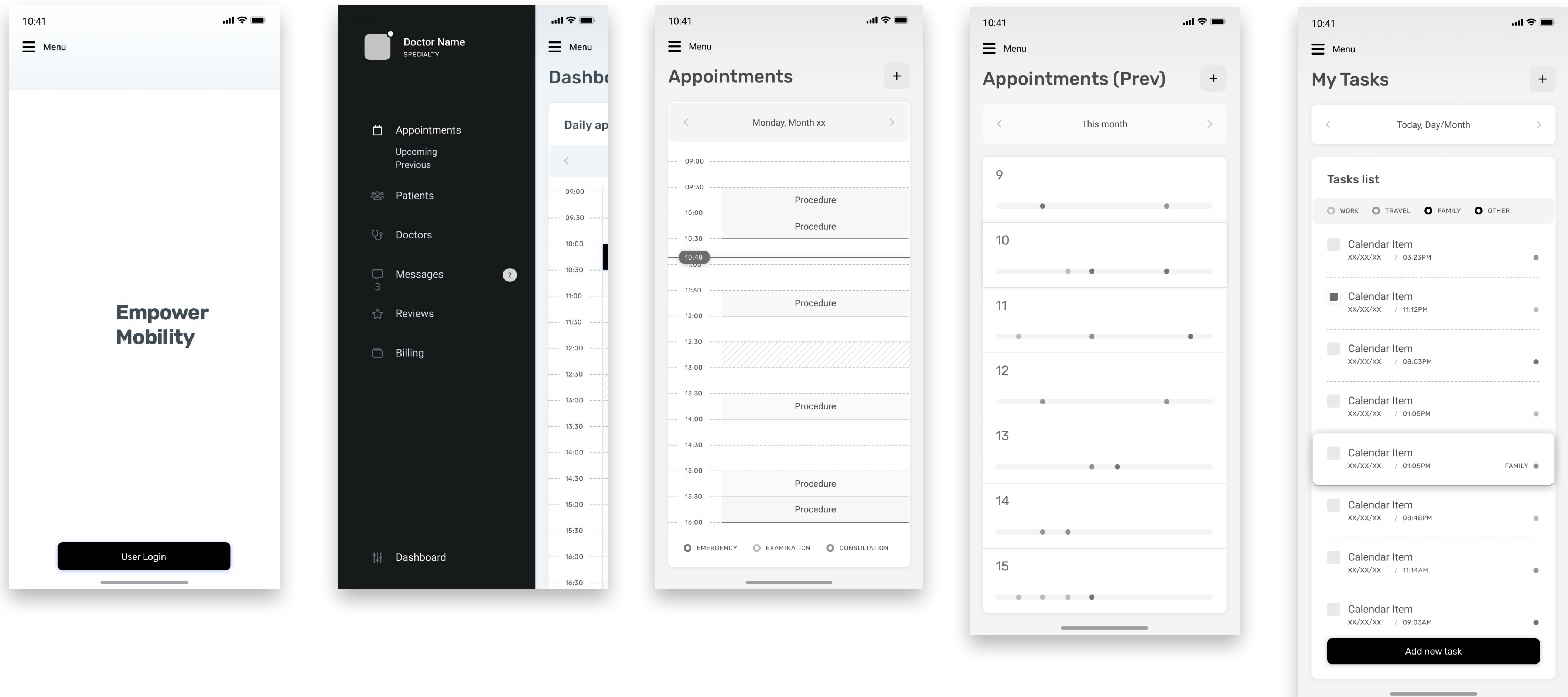
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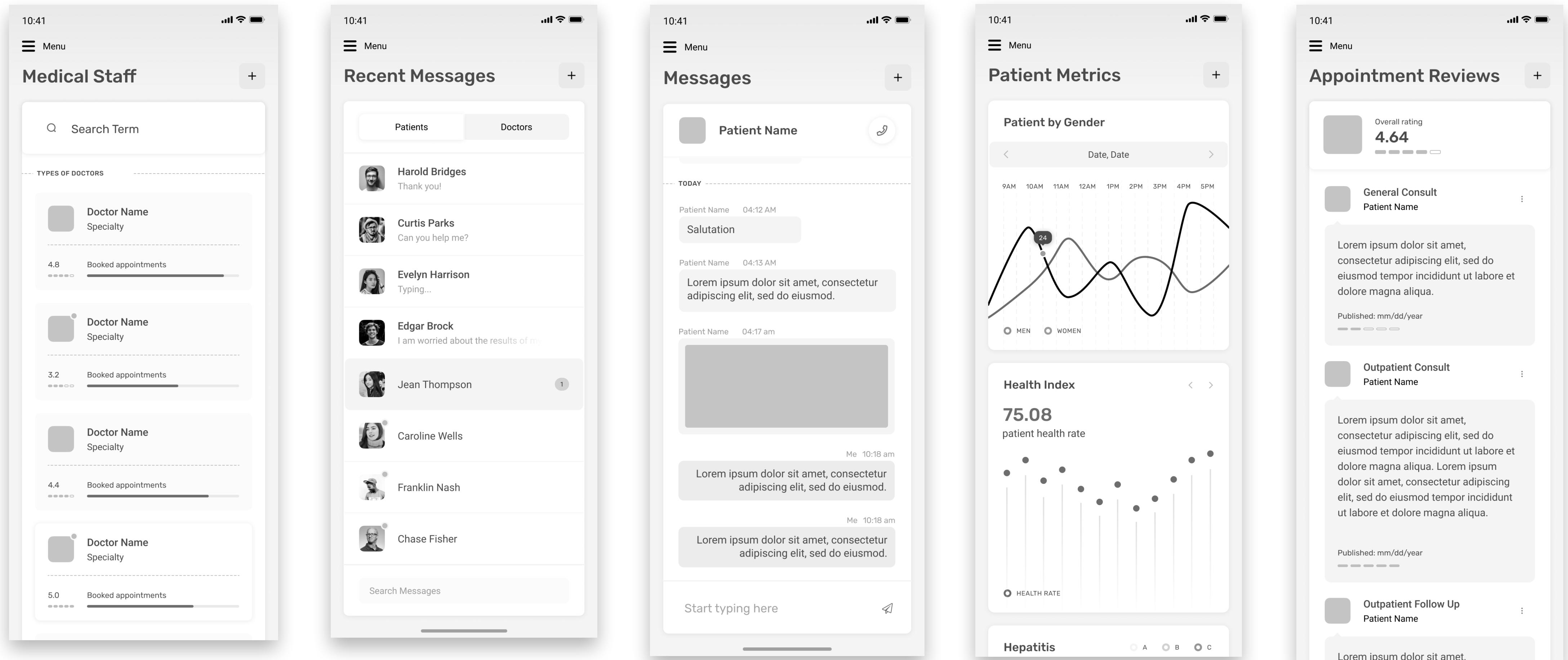
Wireframes

To validate design strategy and reinforce workflow patterns, wireframe prototypes serve as a valuable visual communication tool between UX and development teams throughout the design process.



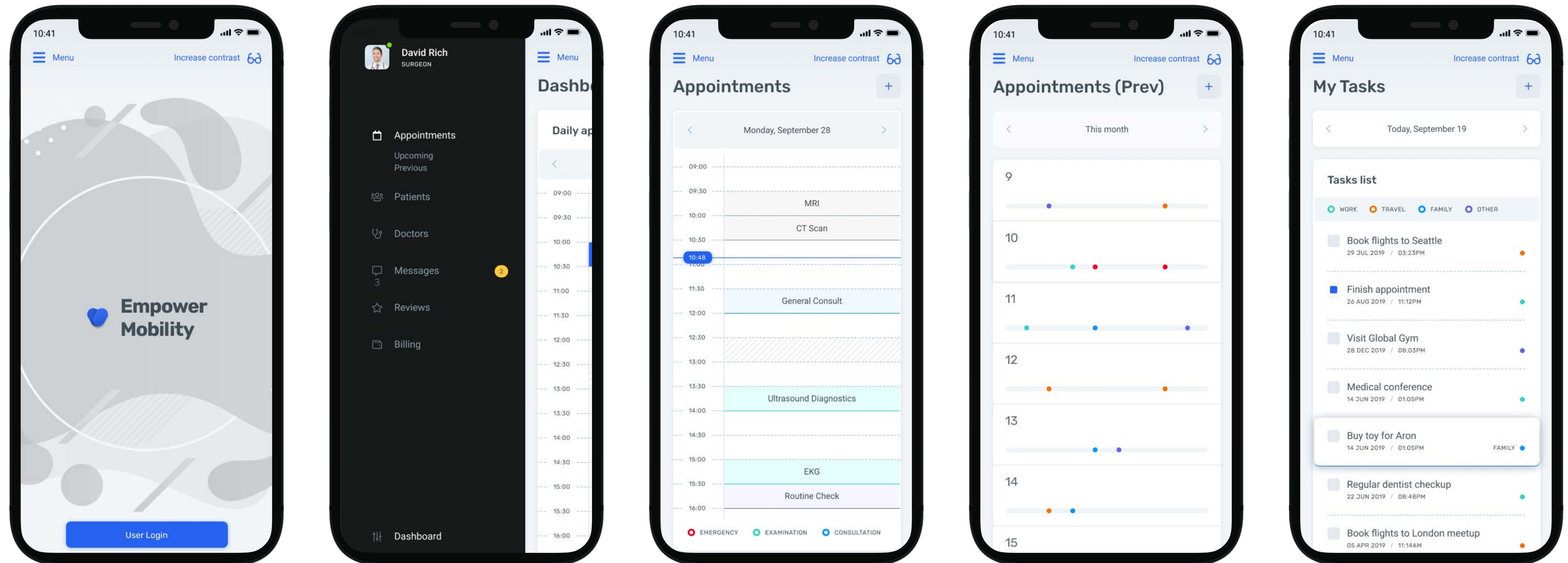
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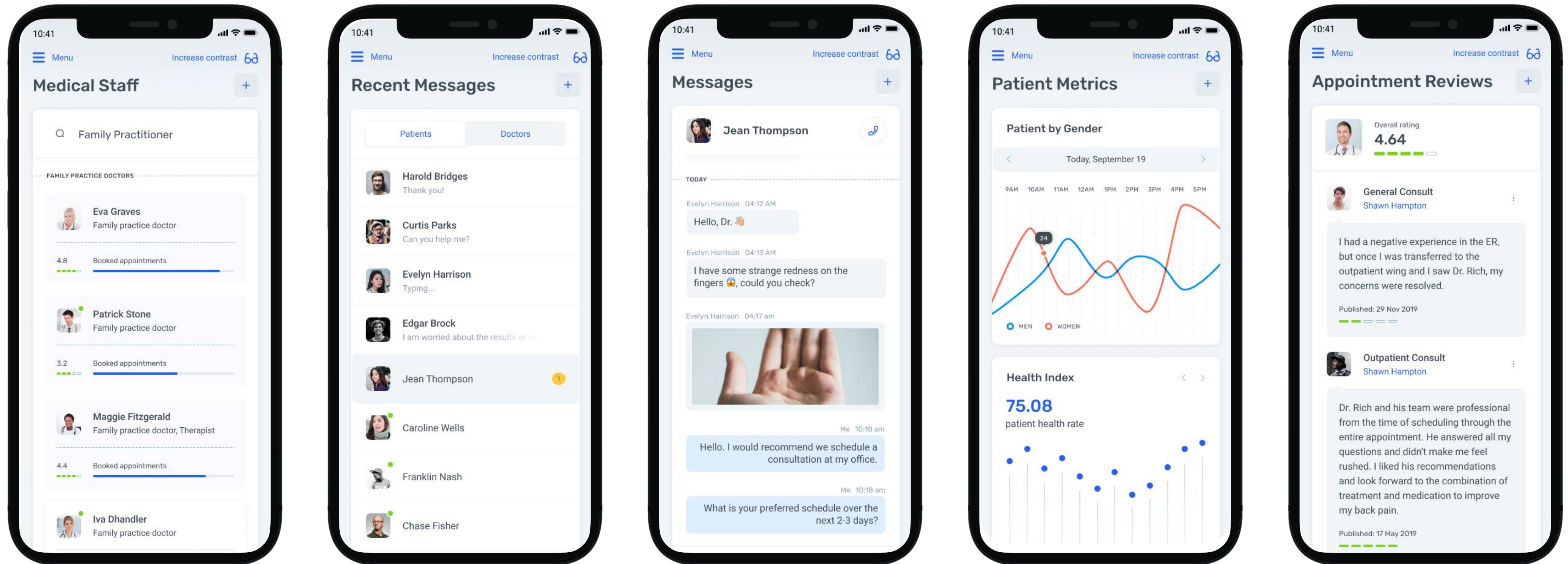
Prototyping

Engaging UI design is supported by intuitive UX methodology, resulting in a user experience that is engaging and motivational. By removing as many technological and psychology impediments to consistent fitness routines, the resulting design achieves its primary objective.



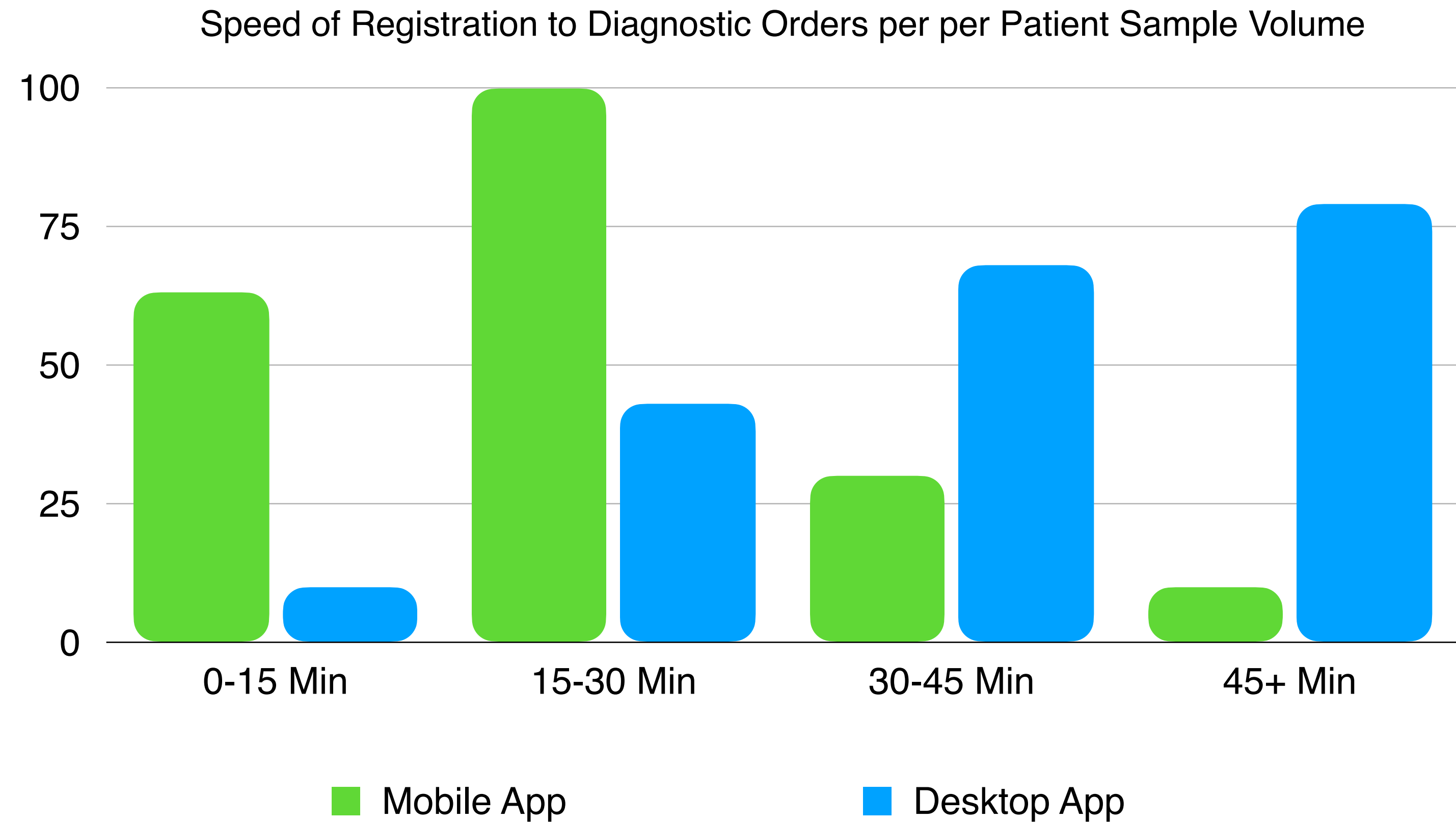
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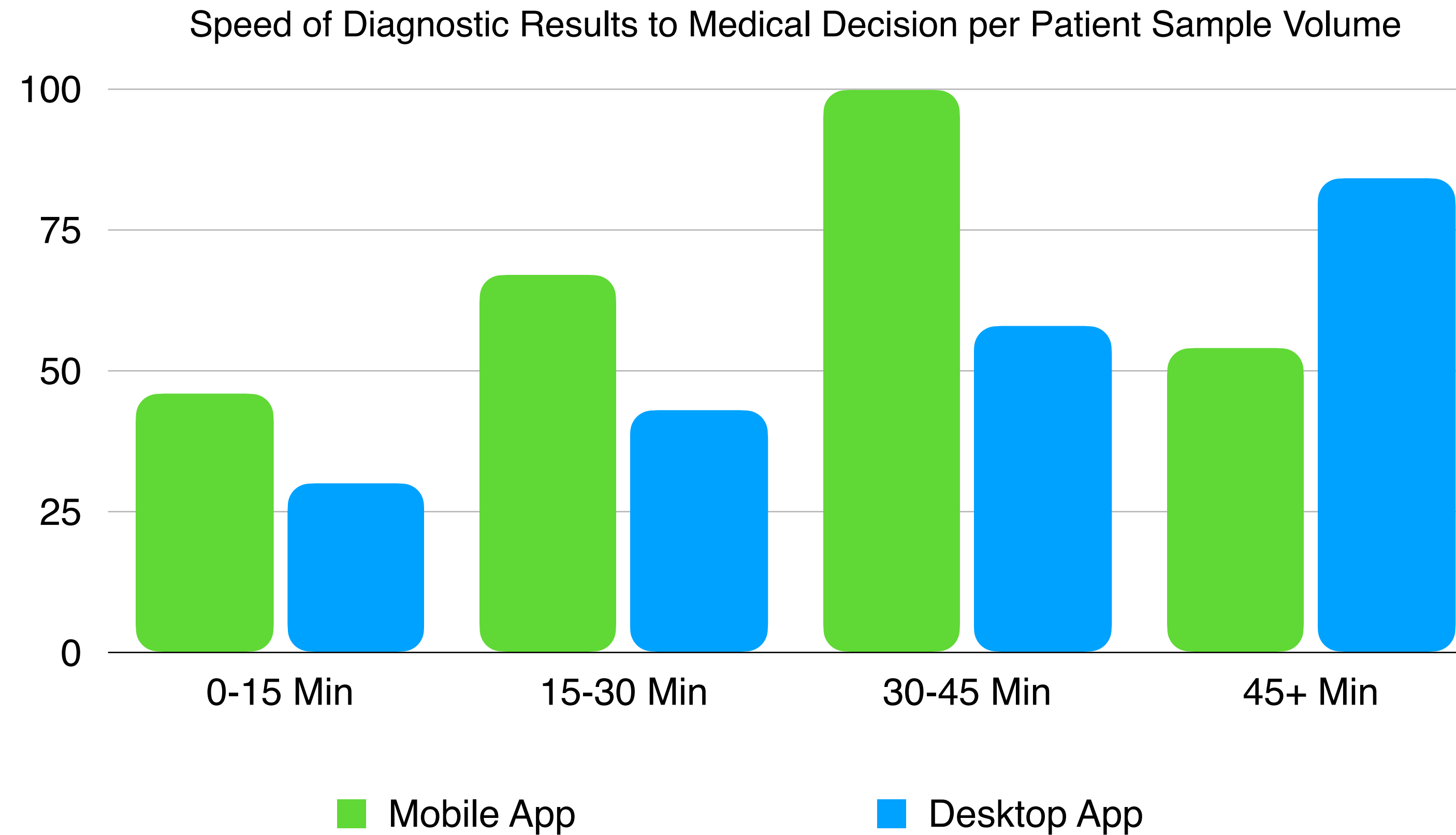
Measuring Outcomes

Saw 35% increased efficiency in Time from ED Patient Registration to Submission of Diagnostic Orders



Measuring Outcomes

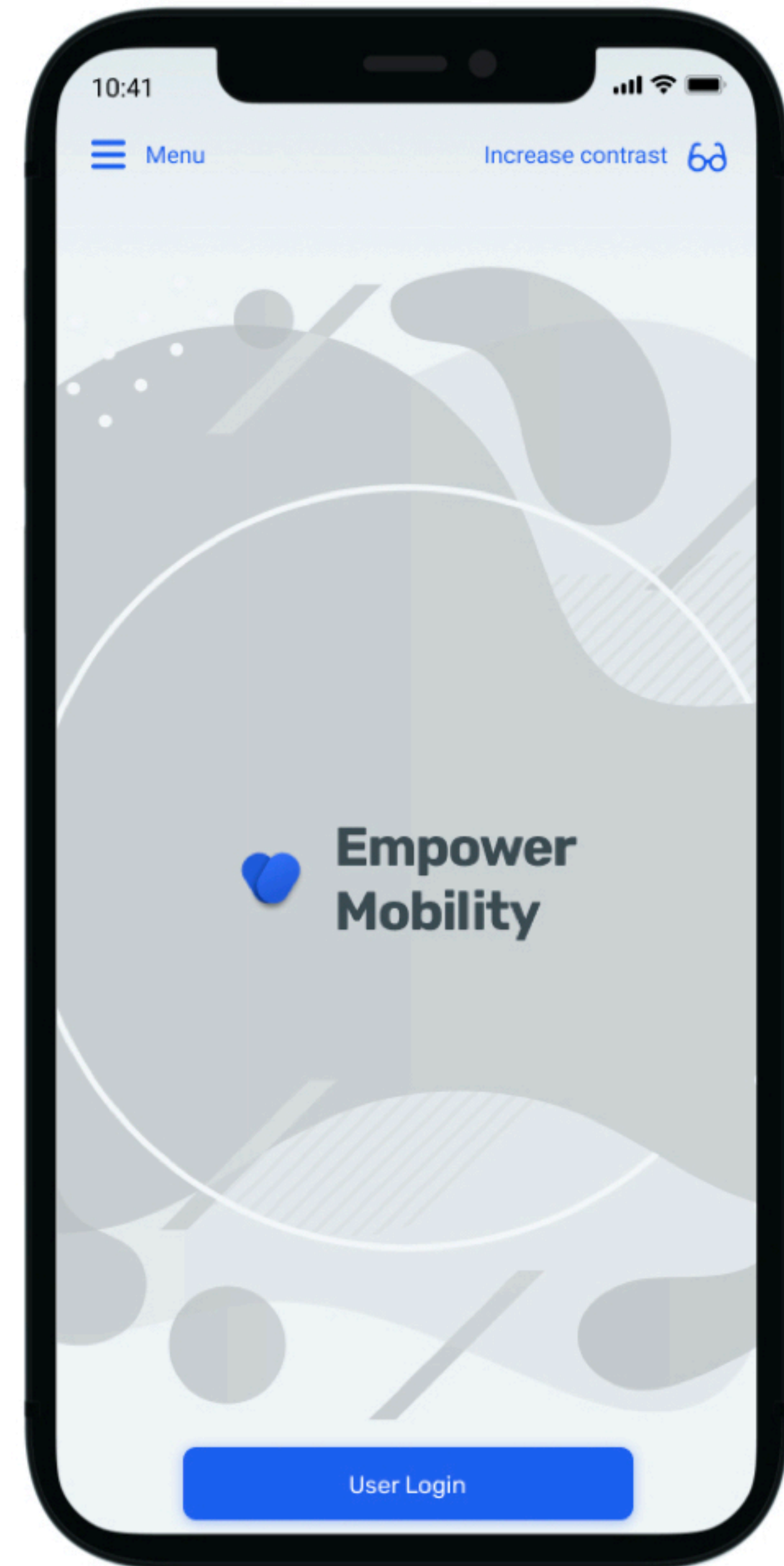
Saw 40% increased efficiency in Inpatient Units' Time from Receipt of Diagnostic Results to Medical Decision (Admit/Discharge)



EMPOWER MOBILITY

Launch Figma Demo

Visit Website

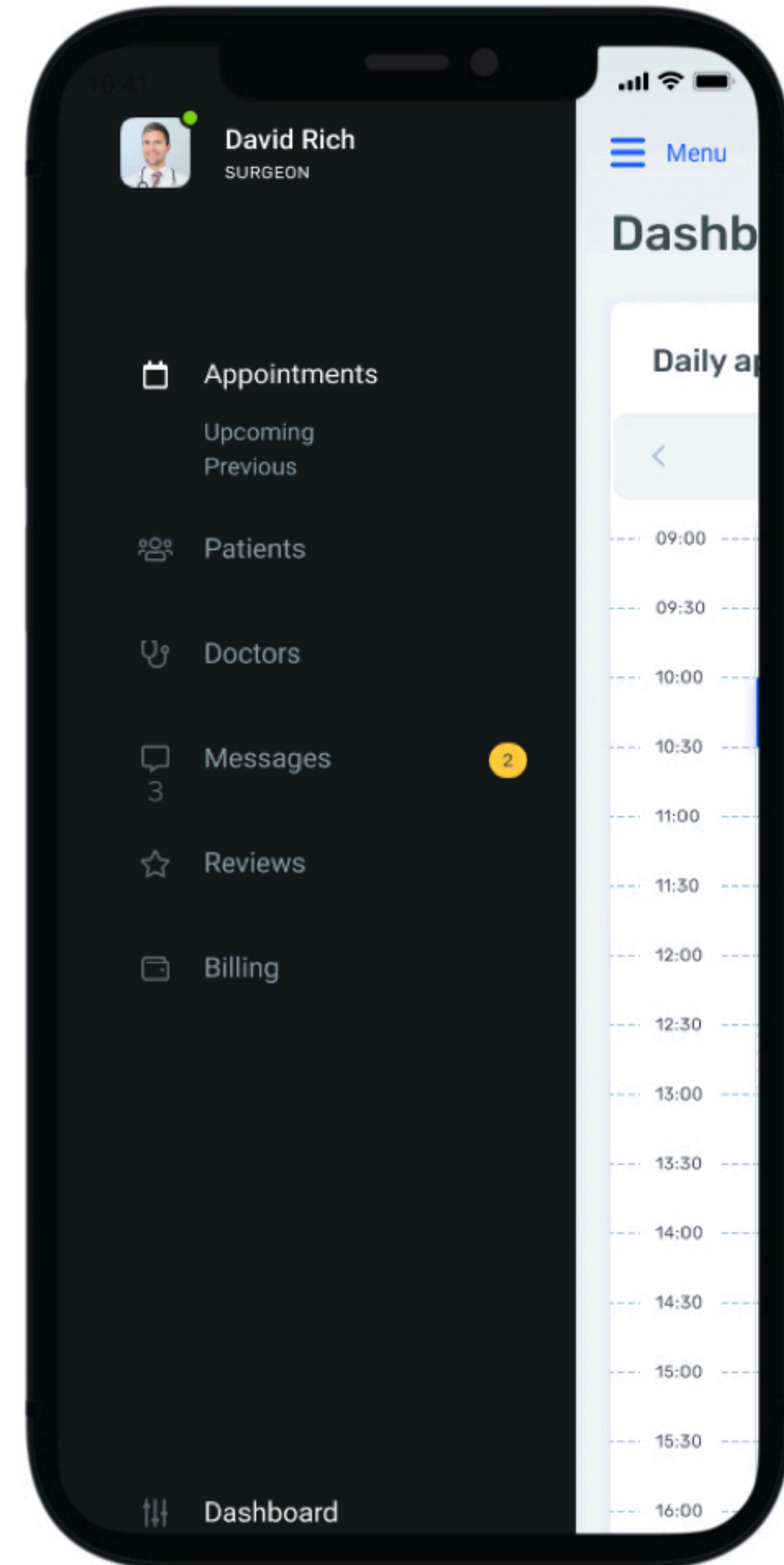


05

Empower Mobility

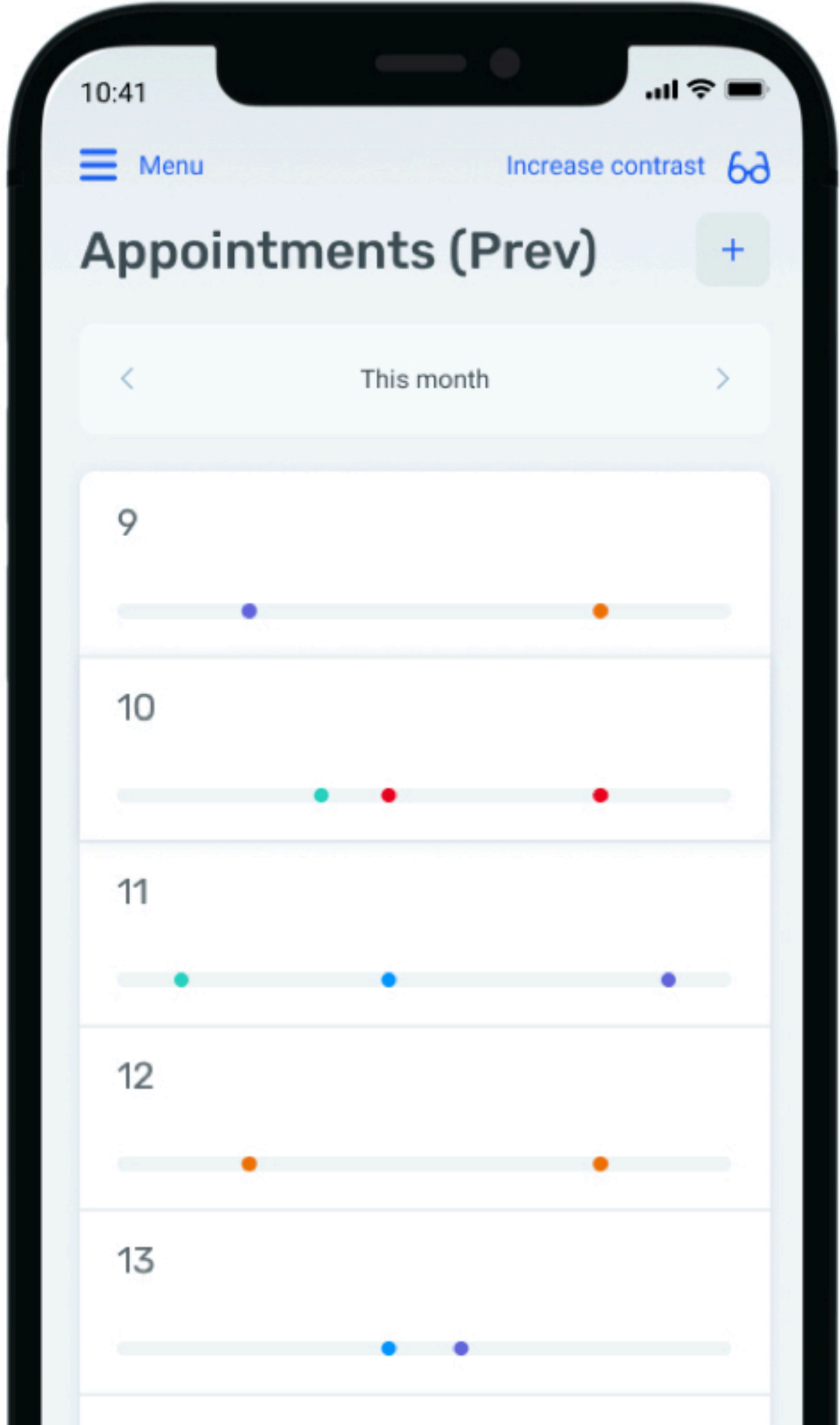
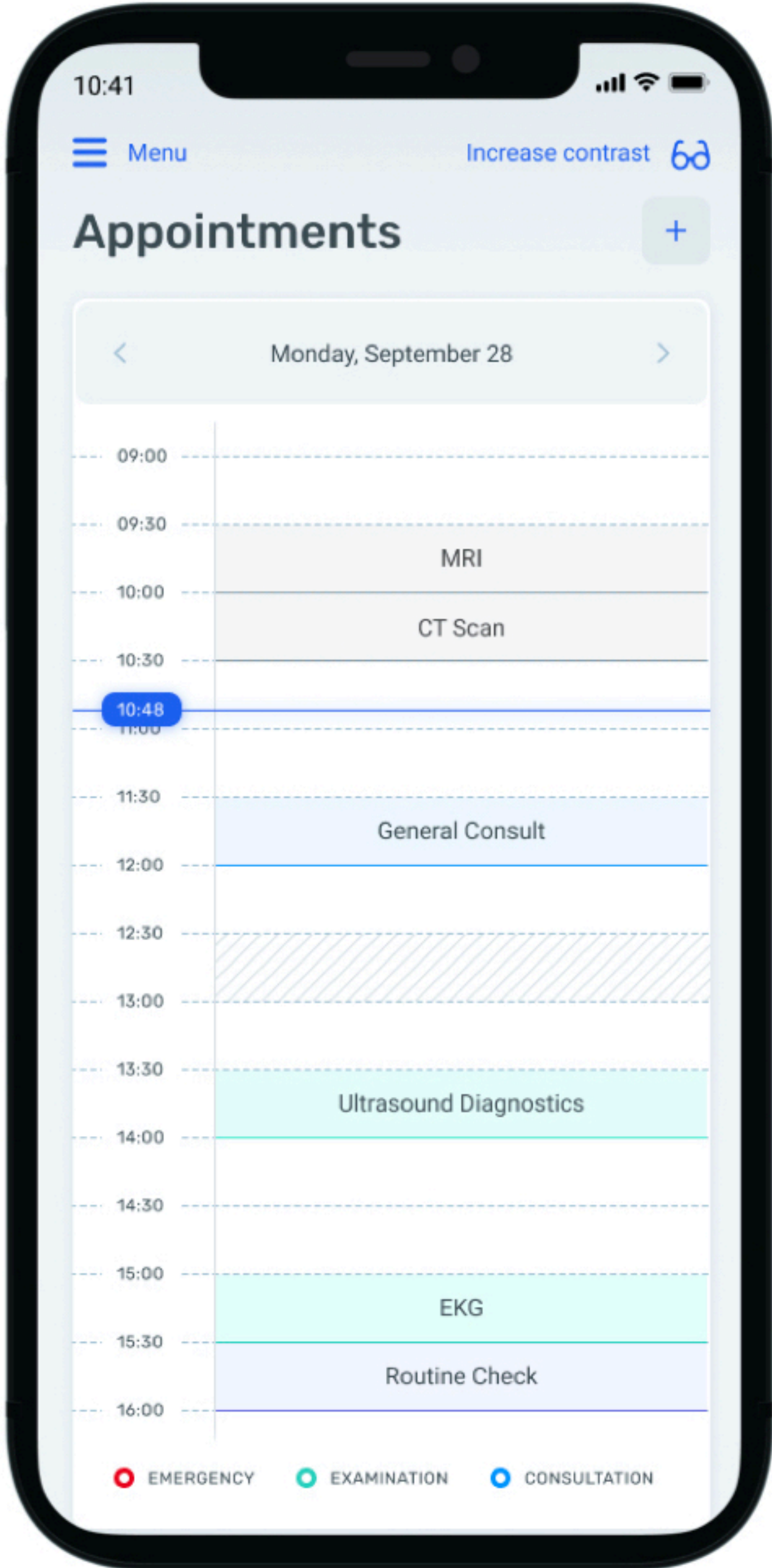
Empower Mobility

Empower Mobility provides a clinical documentation application that supports its existing EHR platform to enable users to monitor and execute complex clinical care from any location.



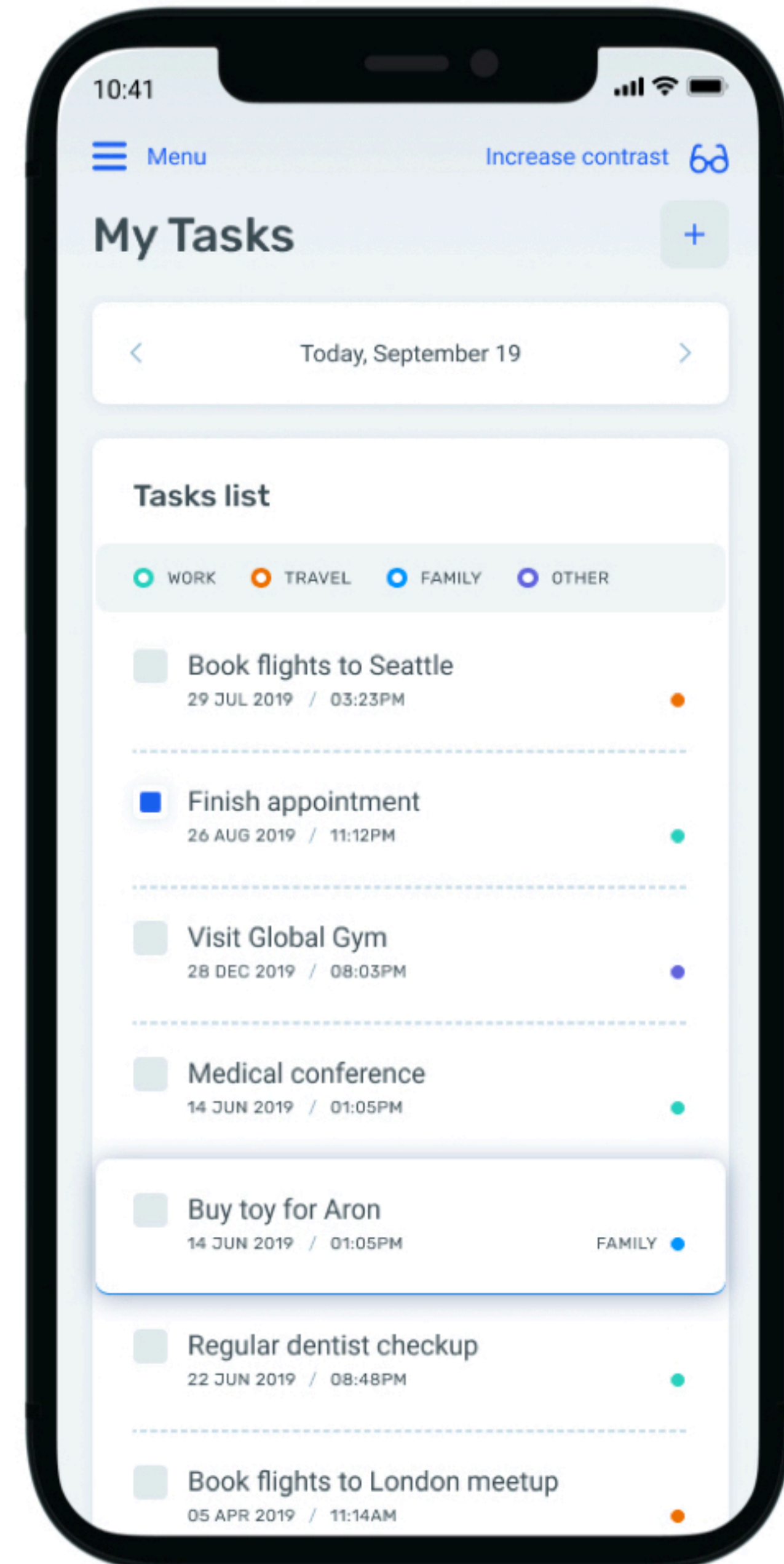
Scheduling Tools

Empower Mobility enables users to manage the complex task of clinical appointments and follow up action with the convenience of their handheld device.



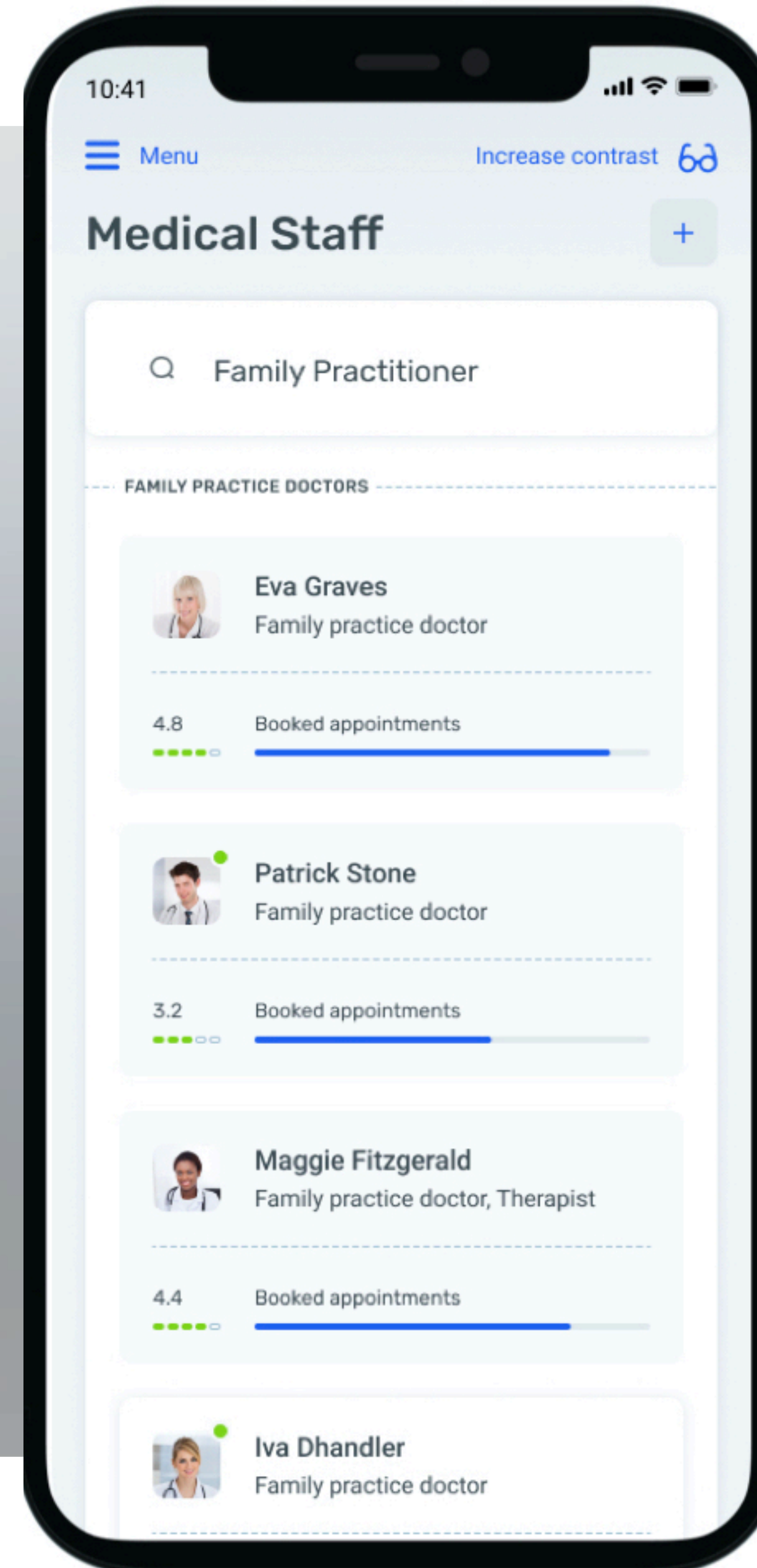
Task Management

Empower Mobility enables clinical users to manage professional tasks in personal appointments in a centralized location, cross referenced with their clinical shift and office schedules.



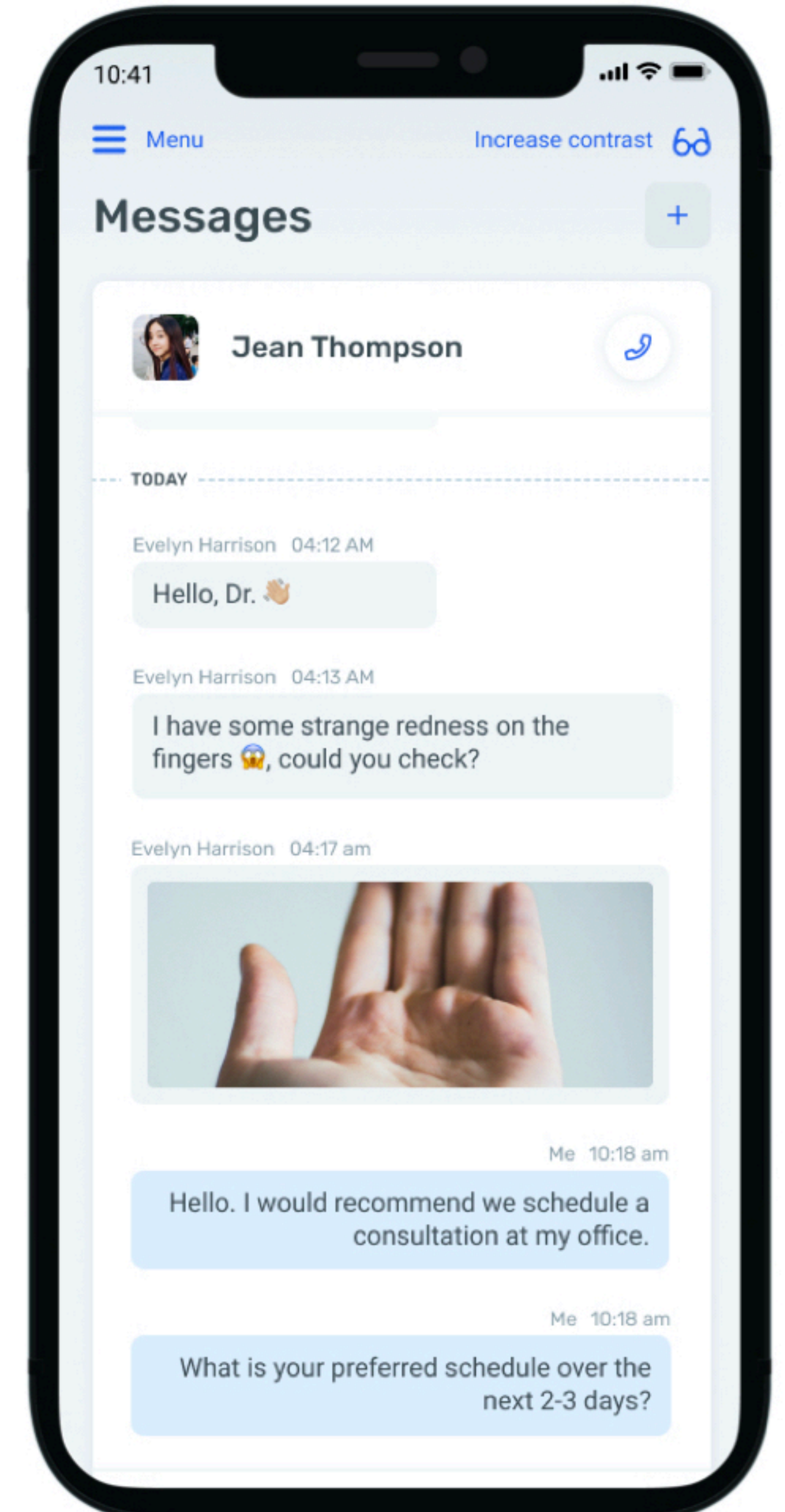
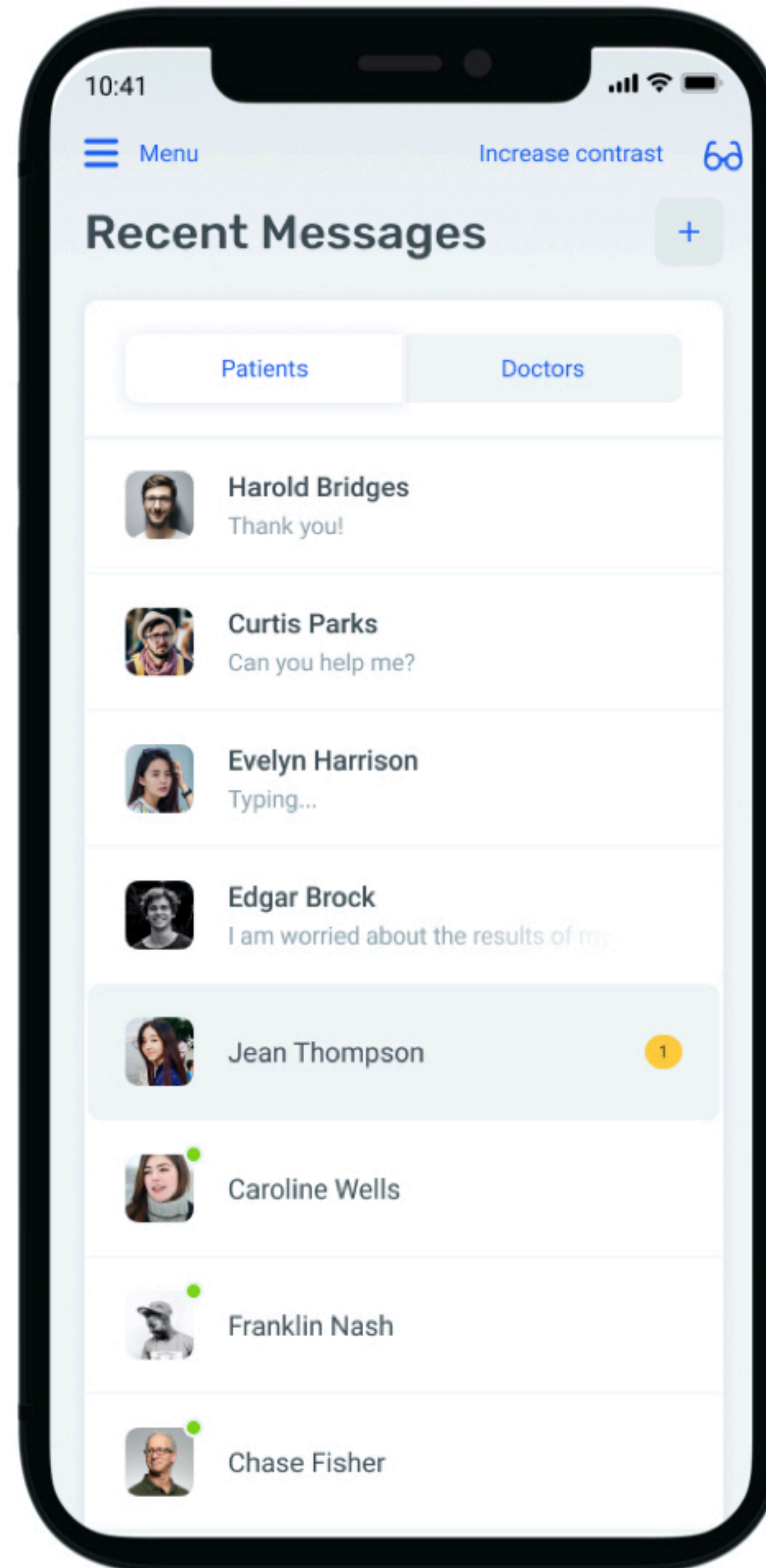
Staff Communication

Internal communication options enable physicians to search for colleague's contact information, availability, and relevant specialties.



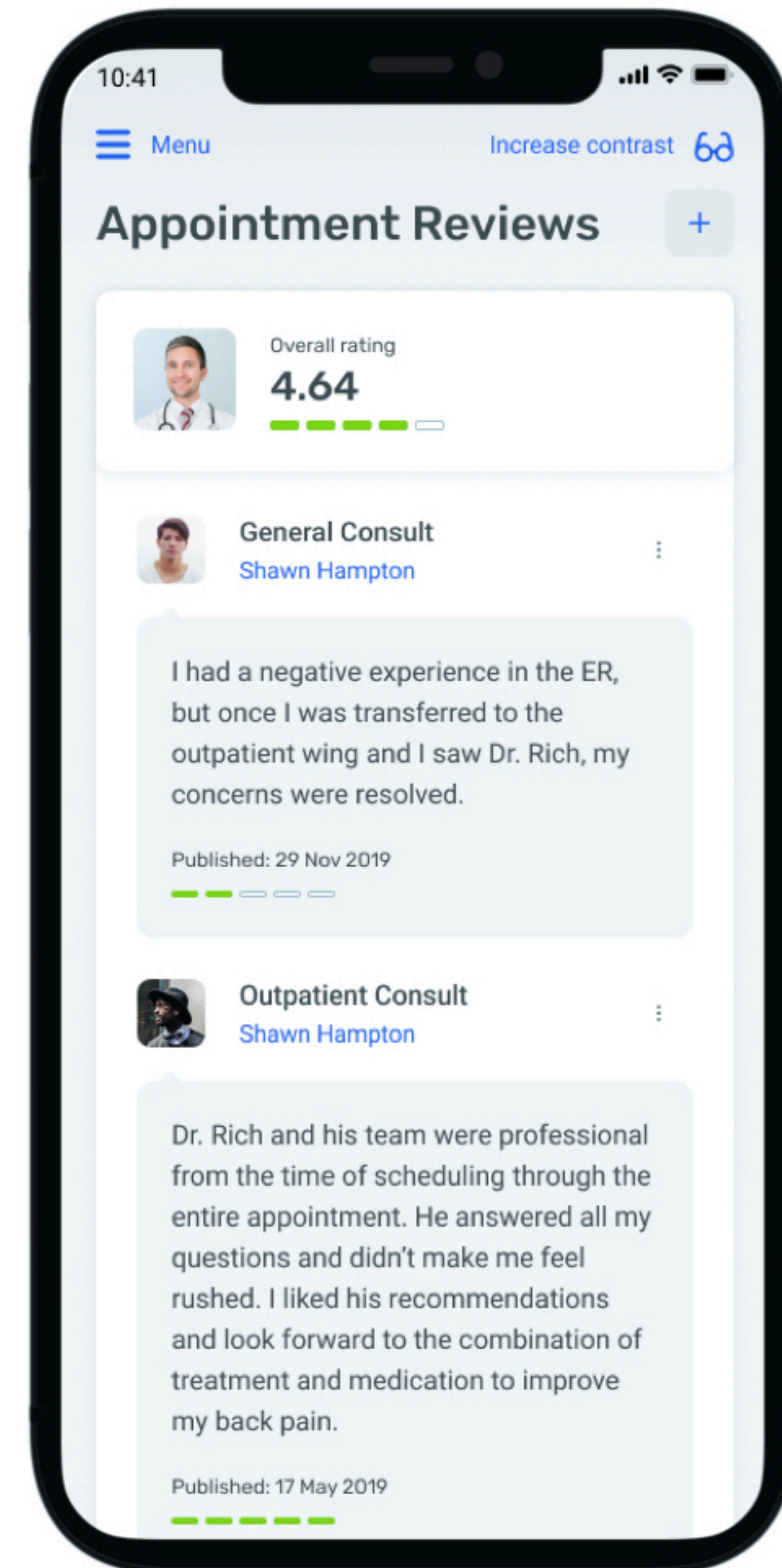
Patient Engagement

Empower Mobility enables physicians to securely communicate with past/present patients to discuss ongoing care, pending appointments, and general questions as they arise.



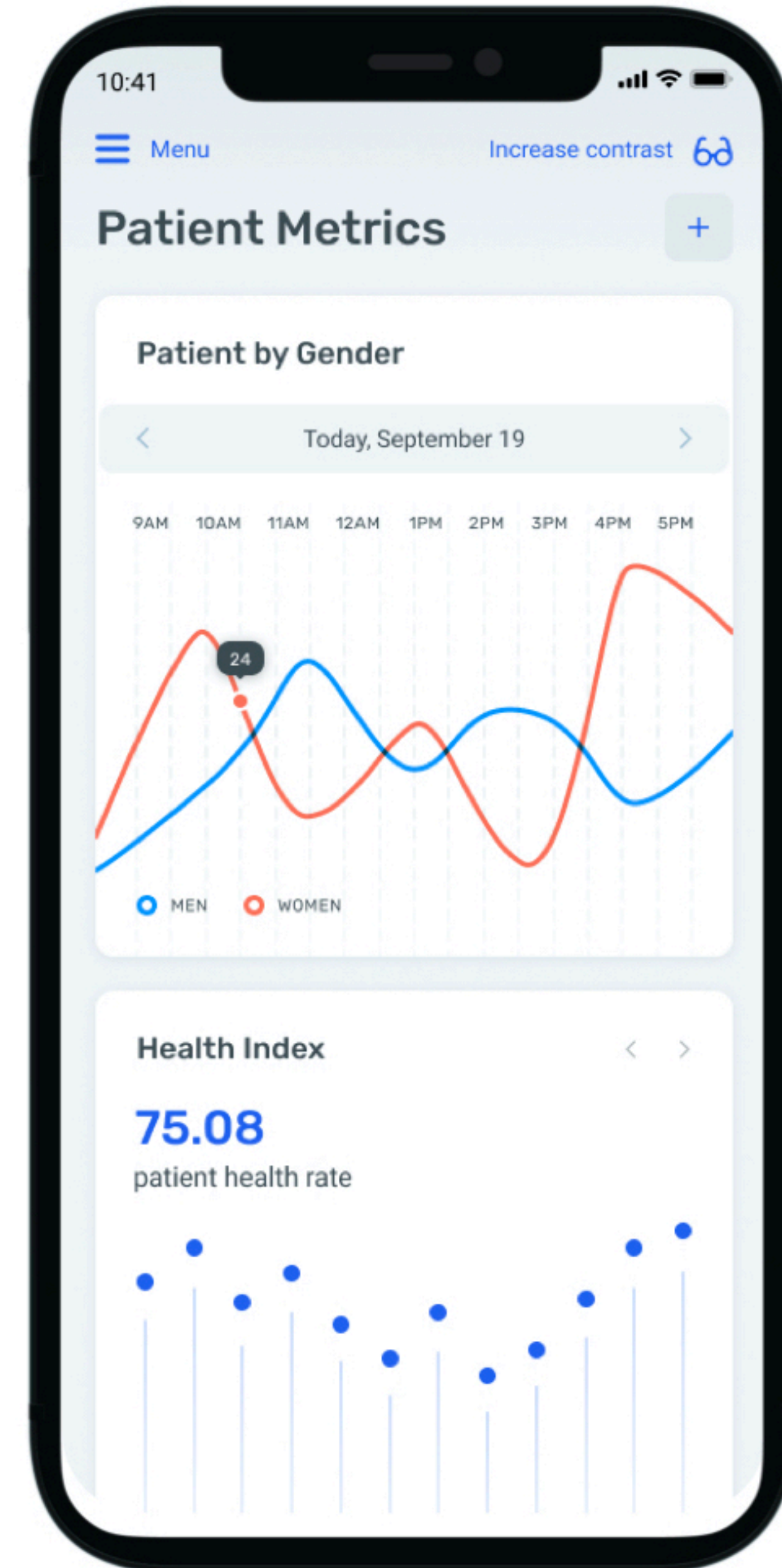
Patient Satisfaction

Empower Mobility integrates new patient satisfaction goals to increase communication and identify areas of improvement needed at the individual, departmental, and facility level.



Analytics

Robust data mining to enables physicians, nurses, and administrators to assess department and individual productivity metrics as well as compliance thresholds.



Brand Guidelines

✓ Visceral Identity of the Brand

✓ Differentiation from Competitors

✓ Color Profile

✓ Typography

✓ Editorial Voice

✓ Consistent Across Channels

✓ Evolve in Sync with UX Updates

✓ Respond to User Interaction

Brand Personality

Clinical

Specialized

Experienced

Agile

Focused

Progressive

Empower Mobility provides a clinical documentation application that supports its existing EHR platform to enable users to monitor and execute complex clinical care from any location.

Logo

The logotype concept is based on a unique typeface intended to convey modernity, attention to detail, and embracing of technology elements.

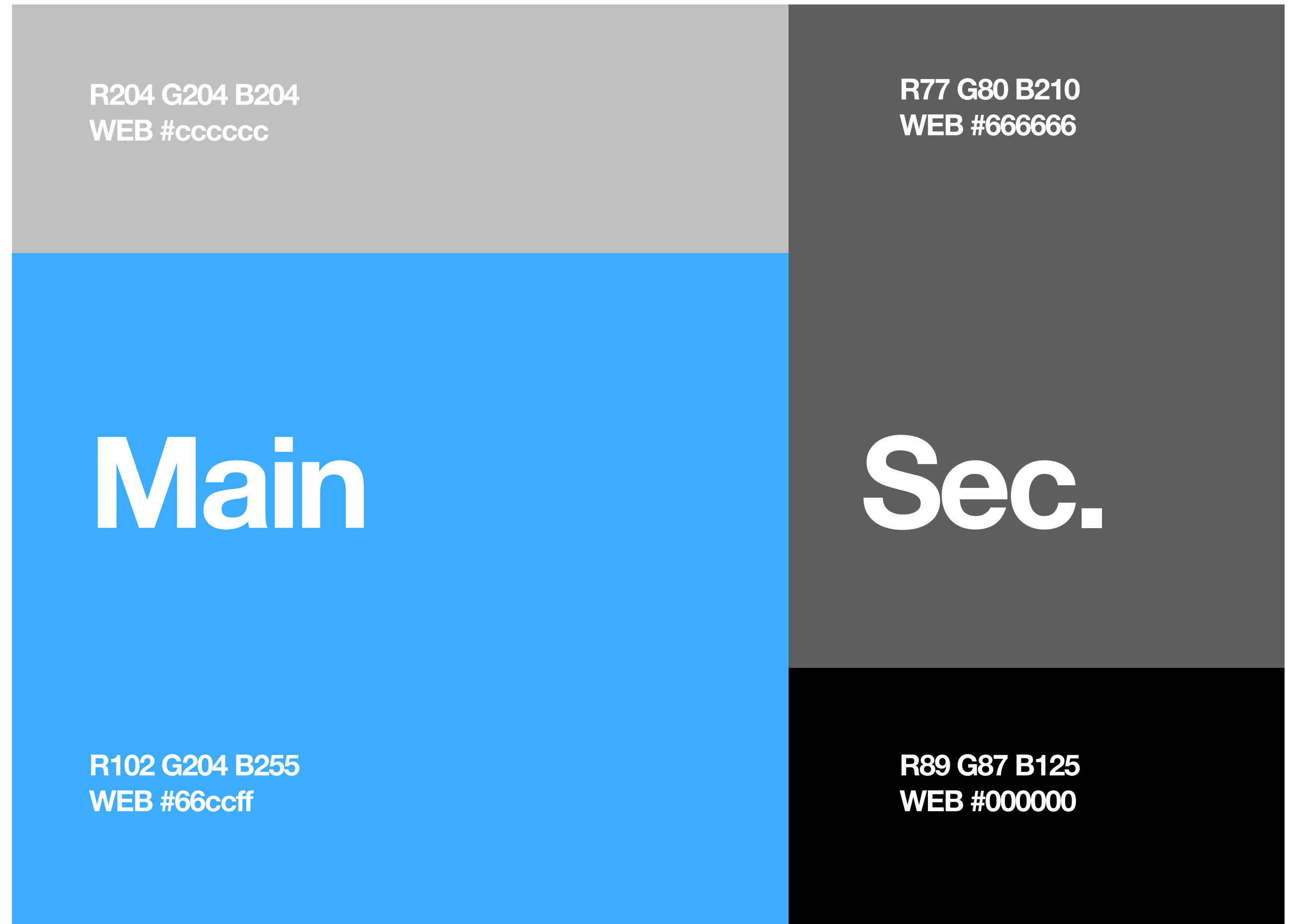
empowerMobility™

empowerMobility™

empowerMobility™

Color Guide

The color identity is designed to focus on the energetic blue in contact to varying depths of grey scale. While many healthcare firms prefer standard colors, Empower was open to a more proactive approach.



Typography

Sansation serves as an elegant primary heading typeface, used in traditional capitalization. The flexibility of Open Sans serves as an ideal supporting typeface to communicate the majority of information in both web and print collateral applications.

AaBc

Sansation

Variable

A B C D E F G H I J K L M N O P Q R S T U V
W X Y Z a b c d e f g h i j k l m n o p q r s t u v
w x y z 0 1 2 3 4 5 6 7 8 9

AaBc

Open Sans

Variable

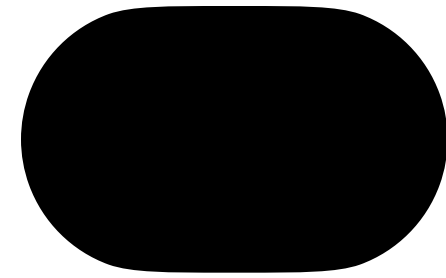
A B C D E F G H I J K L M N O P Q R S T U V
W X Y Z a b c d e f g h i j k l m n o p q r s t u v
w x y z 0 1 2 3 4 5 6 7 8 9

Today

Empower Mobility possesses a loyal client base with an eye to the future.

Tomorrow

Empower Mobility seeks to deliver next generation tools to anticipate client needs.



Christophe Alise
Principal

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