

TesseraHealth

Product Requirements Document

AI-Powered Care Coordination Patients in India

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1. Vision

For family caregivers and professional home carers managing elderly patients across Indian metropolitan cities, who must navigate fragmented, paper-based care with no shared record between them, TesseractHealth is a new AI-powered care coordination platform that provides a continuously updated, patient-owned health record accessible to every member of the care team. Unlike WhatsApp threads, physical shift registers, and disconnected EHR portals that each serve only one role in isolation, we offer real-time care continuity from the home carer's daily observation all the way to the emergency room, so that no elderly patient in India ever arrives at a point of care without their full clinical context.

India is home to 149 million people aged 60 and above (UNFPA, 2022), projected to reach 347 million by 2050. The vast majority are cared for at home by rotating teams of family members, part-time nurses, and agency-dispatched carers who share no common platform and no common record. TesseractHealth exists to fill that gap with a voice-first, AI-structured daily log that connects the carer, the family, and the physician into a single living care record.

2. Motivation

This section is carried forward from the TesseractHealth Market Requirements Document, with additions highlighted below.

2.1 Personas

Primary Persona 1: Anxious Anika, Remote Family Caregiver



Anika is a 34-year-old product manager in Bengaluru whose 71-year-old mother lives in Pune under the care of a part-time home nurse. Her mother manages hypertension, type 2 diabetes, and early-stage osteoarthritis. Anika has experienced two unplanned ER visits in 18 months, one of which she believes was avoidable because of a missed drug interaction. She coordinates care entirely through WhatsApp and periodic phone calls and has no single source of truth for her mother's condition.

Primary Persona 2: Overworked Om, Home Care Nurse



Om is a 28-year-old GNM-certified nurse in Bengaluru who manages four to six elderly patients concurrently on rotating 8-to-12-hour shifts. He documents observations in a paper bedside register and WhatsApp messages. Shift handoffs are verbal. His clinical observations are accurate and timely but invisible to anyone outside the room. Voice-first logging is non-negotiable for this persona.

Secondary Persona: Dr. Mehra, Outpatient Physician



Dr. Mehra is a 52-year-old general physician seeing 35 to 40 patients per day. He has seven minutes per appointment and no access to structured home-observation data. He would read a one-page AI-generated pre-visit brief if it arrived before the appointment. He will not install a new app to access it.

2.2 Unmet Needs

- No shared, real-time record connecting the home carer, the family caregiver, and the physician across the 30-to-90-day interval between appointments.
- Shift handoffs are verbal and ephemeral. Up to 21 shift transitions per week represent 21 opportunities for a critical observation to be lost.

- Emergency rooms have no access to a confirmed, current medication list for home-care patients. Families reconstruct dosages from memory under stress.

2.3 Existing Solutions and Their Limits

Feature	Paper / WhatsApp	EHR / ABDM	Consumer Apps	TesseraHealth
Daily carer logging	No	No	Partial	Yes, voice-first
Cross-role visibility	No	No	No	Yes, real-time
Physician pre-visit brief	No	No	No	Yes, AI-generated
ER emergency access	No	Partial, facility only	No	Yes, QR no-login
Shift handoff record	Paper only	No	No	Yes, structured

2.4 Why Now?

- Smartphone penetration at the carer level: Om already uses WhatsApp and UPI fluently. The infrastructure for daily mobile logging exists in his pocket.
- LLM capability: The AI layer that converts a 90-second voice note into a structured clinical shift record became technically and economically viable only within the last two to three years.
- Accelerating joint family breakdown: NSO 2021 data shows 20% of urban elderly now live alone. The informal care coordination the joint family historically provided is gone. Nothing has replaced it.

Why *now* is the right moment.

01

INFRASTRUCTURE

The carer already has the device

Om uses **WhatsApp** and **UPI** daily. The hardware and the habits for mobile-first logging already exist at the point of care — in his pocket. No device procurement, no onboarding hill to climb.

02

AI CAPABILITY

Voice → clinical record is now possible

The AI layer that converts a **90-second voice note into a structured shift record** became technically and economically viable only in the last 2–3 years. This product could not have been built before 2022.

03

SOCIAL SHIFT

The joint family safety net is gone

NSO 2021 data shows **20% of urban elderly now live alone**. The informal care coordination the joint family historically provided has disappeared — and nothing has replaced it. The gap is structural, not temporary.

3. Key Path Scenarios

TesseraHealth is a mobile-first React web app, accessible via any smartphone browser without installation. The product operates across three primary user flows, one per persona. The following scenarios describe how each persona interacts with the product at the interface level, including relevant server-side activity.

3.1 Key Path A: Om Logs a Shift (Carer Flow)

- Om opens TesseraHealth via a saved browser link or WhatsApp shortcut on his Android phone.
- He taps the patient card for Ramesh Kapoor and sees the Handoff View: the last three structured shift summaries logged by previous carers, rendered before he begins his own entry.
- He taps 'Start shift log' and holds the microphone button. He speaks naturally for 60 to 90 seconds covering vitals, meals, complaints, and medication administration.
- Server: Web Speech API streams audio to text in real time. On release, the raw transcript is sent via HTTPS to Azure OpenAI GPT-4o with a structured extraction prompt. The model returns a JSON object containing vitals, meals, complaints, medication status, and watch items.
- Om sees the AI-parsed structured note on screen. If a watch item is flagged, a toggle is highlighted. He reviews, adjusts if needed, and taps Submit.
- Server: Firestore writes the structured note and raw transcript to the shiftLogs subcollection. If flagged is true, a Firebase Cloud Messaging push notification is sent to all linked family accounts.
- Anika receives a push alert on her phone within seconds, including Om's observation in plain language.

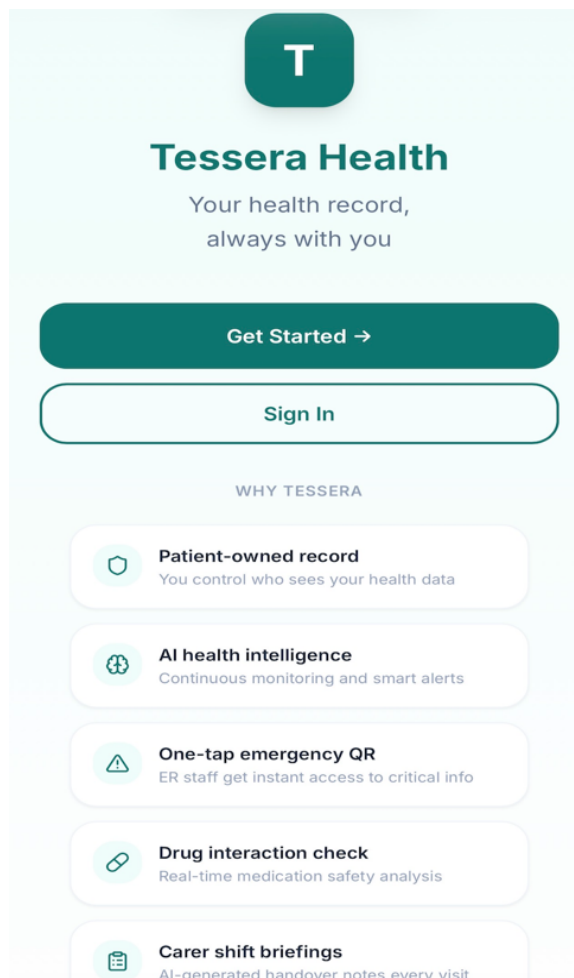
3.2 Key Path B: Anika Monitors and Prepares for a Doctor Visit (Family Flow)

- Anika opens TesseraHealth and sees her mother's dashboard: today's vitals snapshot, the last log timestamp, any unacknowledged watch item alerts, and a 30-day blood pressure trend chart.
- Two days before her mother's GP appointment, she taps 'Generate pre-visit summary.'
- Server: Log aggregator reads the last 30 days of shiftLogs from Firestore. Azure OpenAI GPT-4o generates a one-page brief covering BP trend, meal patterns, flagged complaints, medication changes, and active watch items. React-PDF renders the output as a downloadable PDF.
- Anika shares the PDF with Dr. Mehra via WhatsApp before the appointment. Dr. Mehra reviews it in seven minutes, walks into the visit knowing about the ankle swelling trend, and adjusts the medication without needing verbal reconstruction of the last month.

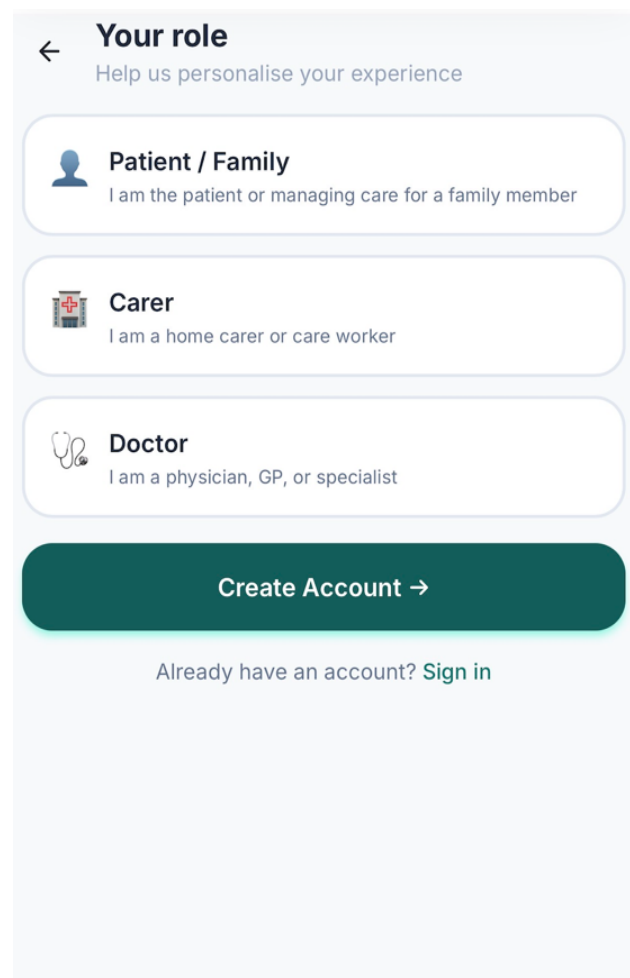
3.3 Key Path C: Emergency QR Access (Any Role)

- Anika's mother is taken to the ER. Anika opens TesseraHealth and taps the QR card icon.
- The QR card renders at a public URL (/emergency/:patientID) requiring no login. It displays the active medication list, known allergies, active conditions, and the most recent vitals from the last shift log.
- The triage nurse scans the QR code on their device. The page loads in under three seconds. The anticoagulant on the medication list is visible immediately and the physician adjusts treatment accordingly.
- Server: The QR card endpoint reads only from the patient's publicly accessible emergency subset. No full record access is granted. The record is read-only and unauthenticated.

Wireframes:



WF1_Landing



WF2_RolePicker

Step 1 of 6

Basic Info

Full name

Ramesh Kapoor

Date of birth

Apr 12, 1948

Gender

Male

Blood type

B+

NHS / Patient ID (optional)

Optional

Weight (kg) (optional)

80

Height (cm) (optional)

170

WF3_Onboarding_BasicInfo

Step 2 of 6

Conditions

Add any ongoing medical conditions.

Add a condition

Add

Hypertension

Diabetes Type 2

COPD

Dementia

Heart Disease

Arthritis

Cancer

Stroke

Parkinson's

Asthma

WF4_Onboarding_Conditions

Step 3 of 6

Medications

Add current medications. You can also scan a prescription later.

Drug name e.g. Amlodipine

Dose e.g. 5mg

Once daily

+ Add Medication

Amlodipine 5mg

Once daily

Metformin 500mg

Twice daily

WF5_Onboarding_Medications

Hi, Om

YOUR PATIENTS

RK Ramesh Kapoor

Last log: Yesterday 6 PM

1 watch item

+ Log Shift

SG Savita Gupta

Last log: Today 8 AM

+ Log Shift

OPEN WATCH ITEMS

Ramesh mild ankle swelling

noted yesterday evening

Logged by Om - 6:45 PM

WF6_Carer_Home

Ramesh Kapoor

LAST 3 SHIFTS HANDOFF

Yesterday 6 PM · Om

Watch

BP 148/92. Good dinner. Mild ankle swelling noted.

Ankle swelling flag active

Yesterday 10 AM · Om

Clear

BP 136/84. Ate well. Medications given on time.

2 days ago · Om

Clear

BP 140/88. Mild headache, rested afternoon.

Start New Shift Log

Voice Log · Ramesh

Hold to Record

Recording... 0:23

LIVE TRANSCRIPT

Ramesh had breakfast at 8am, ate well. BP was 142 over 86. Complained of knee pain after walking. Medications given on time. Ankle swelling slightly better than yesterday...

Release to stop recording

WF7_Handoff_View

WF8_Voice_Recording

Review Shift Note

AI parsed your note review before saving

VITALS

Blood pressure: 142 / 86

MEALS

Breakfast 8am ate well

COMPLAINTS

Knee pain after walking

MEDICATIONS

All given on time

WATCH ITEM FLAG

Flag ankle swelling for family

ON

Submit Shift Log

Ramesh Kapoor

Watch item ankle swelling

Logged by Om · Today 9:15 AM

Blood pressure

142 / 86

Last log: 9:15 AM

Medications

All given

Today

BP LAST 7 DAYS

M T W T F S S

Emergency QR

Pre-Visit Brief

WF9_Confirm_Parsed

WF10_Family_Dashboard

Medications

ACTIVE MEDICATIONS

Amlodipine

5mg · Once daily · Dr. Sharma

Active

Metformin

500mg · Twice daily · Dr. Sharma

Active

Ibuprofen

400mg · As needed

New

Drug Interaction Detected

Ibuprofen may reduce the effect of Amlodipine. NSAIDs can raise blood pressure. Consult Dr. Sharma.

+ Add Another Medication

WF11_Drug_Interaction

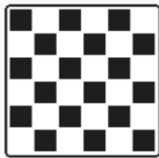
Emergency QR Card

SHOW TO ER STAFF NO LOGIN NEEDED

Ramesh Kapoor

DOB: 12 Apr 1948 · Blood type: B+

ABHA: 12-3456-7890-1234



/emergency/ramesh-k9x2

ACTIVE MEDICATIONS

Amlodipine 5mg · Once daily
Metformin 500mg · Twice daily

ALLERGIES

Penicillin severe reaction

LAST VITALS (logged today 9:15 AM)

BP: 142/86 · SpO2: 97%

WF12_Emergency_QR

Pre-Visit Brief

Ramesh Kapoor

Appointment: Today 3:00 PM

3 watch items

30-DAY BP TREND

Avg systolic: 143 · Trending elevated



OPEN WATCH ITEMS

Ankle swelling 3 incidents in 30 days

Knee pain reported after walking

MEDICATION CHANGES

Ibuprofen 400mg added 2 days ago

Interaction with Amlodipine flagged

Download PDF

Share via WA

WF12_Physician_Brief

The wireframes above map the complete happy path across all three personas. The onboarding flow is designed to get a family caregiver from landing page to a fully populated patient profile in under five minutes, with the ABHA field optional so no family is blocked by missing a digital health ID. The carer flow centers entirely on reducing logging friction: Om's home screen keeps the Log Shift action one tap away, the handoff view replaces the verbal briefing before he even starts recording, and the AI parsed note review ensures nothing is committed to the patient record without his explicit confirmation. The family dashboard and drug interaction warning give Anika the ambient awareness she described needing without requiring a phone call, surfacing watch items and medication conflicts inline rather than as buried notifications. The Emergency QR card is the one screen with no login requirement, designed to be readable by a triage nurse in under ten seconds at a point of care where every second matters. The physician brief closes the loop by delivering a 30-day structured summary to Dr. Mehra before the appointment in a format he confirmed he would read within his seven-minute consultation window.

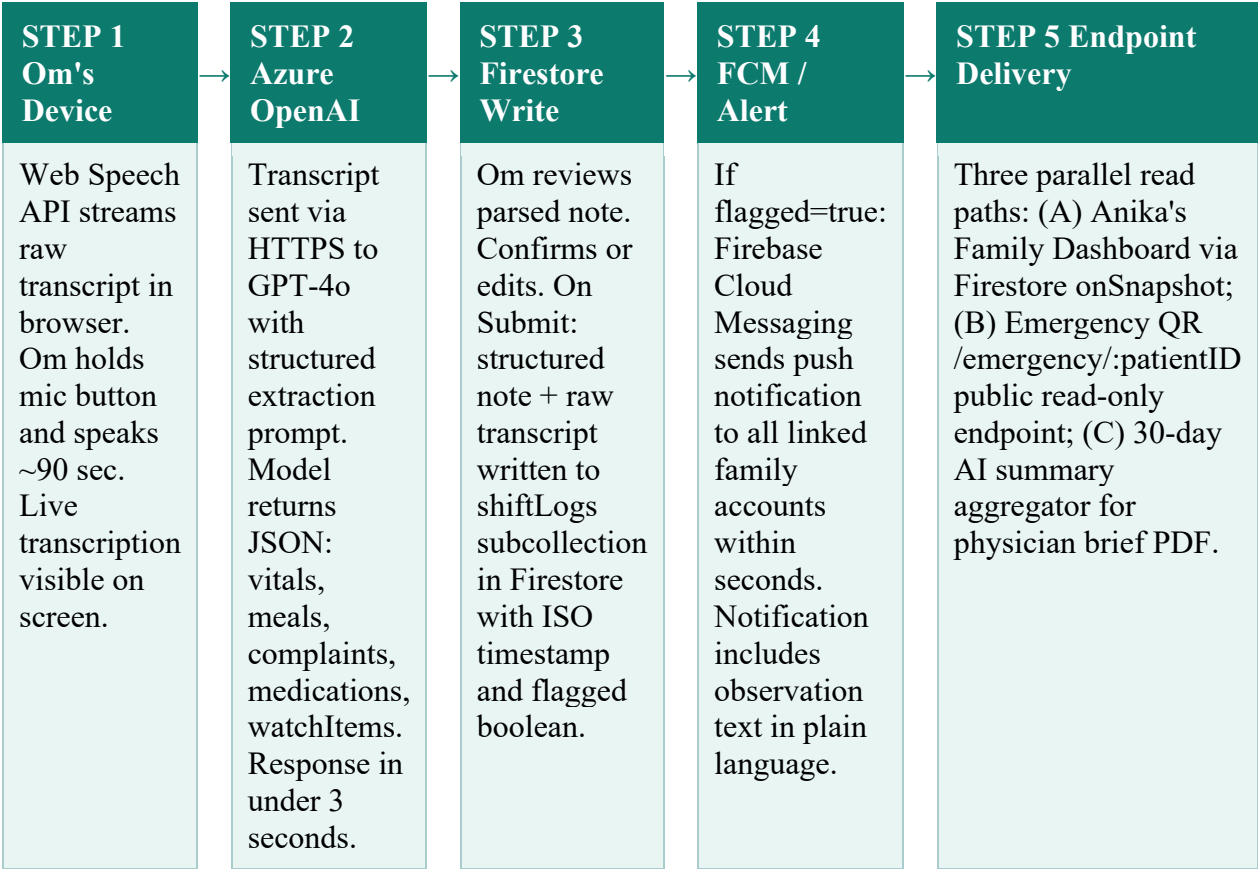
4. Detailed Design and Features

4.1 Design Principles

- Logging must be faster than the workaround it replaces. If Om's shift log takes more than two minutes, it will be abandoned. Every design decision about the logging flow is evaluated against this constraint first.
- The weakest link in the care chain determines the platform's value. A beautiful family dashboard built on no carer data is worthless. We design from Om outward, not from Anika inward.
- Continuity over completeness. A partial daily log submitted consistently is worth more than a comprehensive log submitted once a week. Design should never make the user feel they have to do it perfectly to do it at all.
- No login should stand between an ER physician and a medication list. The emergency QR card is the one place TesseraHealth removes authentication entirely. Clinical urgency overrides access control.
- AI is a structuring layer, not a clinical decision-maker. Every AI output is surfaced as a summary or a flag, not a diagnosis. The physician brief is labeled AI-generated and is a support tool for clinical review, not a clinical record.
- Admire the simplicity of WhatsApp, the trust of a hospital discharge summary, and the clarity of a well-designed banking app. TesseraHealth should feel as easy as messaging and as trustworthy as an official document.

4.2 System Architecture and Data Flow

How data moves from Om's voice note to every endpoint - a complete end-to-end trace of the core logging pipeline:



Security note: All patient data in transit is TLS-encrypted. Firestore security rules restrict full-record access to authenticated careTeam members only. The public QR endpoint exposes only a pre-defined emergency subset (active medications, allergies, conditions, most recent vitals). No write access is granted through the public URL. SOC 2 audit targeted before first enterprise agency agreement.

4.3 Suggested Information Architecture (MVC)

TesseraHealth is built on React (frontend), Firebase (auth, Firestore, Cloud Messaging), and Azure OpenAI GPT-4o (AI structuring and summarization). The table below expands the MVC architecture from the MRD to reflect PRD-level feature additions.

Model (Data)	View (UI)	Controller (Logic)
User: userID (Firebase UID), email, role (patient_family	Landing + Role Picker: three-card role selector routing to	Auth Controller: Firebase Auth sign-up and sign-in,

Model (Data)	View (UI)	Controller (Logic)
carer doctor), linkedPatients array, notificationPrefs Patient Profile: basicInfo (name, DOB, gender, blood type, ABHA ID), conditions (onset dates), medications (dose, frequency, prescriber, active status), allergies (allergen, reaction, severity), careTeam (linked userIDs with role permissions), emergencyContact.	role-specific onboarding. Feature tiles explaining core value props. 6-Step Onboarding Wizard: Basic Info, Conditions, Medications, Allergies, Care Team, Preferences. Progress bar. Each step writes to Firestore on Next tap so partial completion is recoverable.	role router reading user.role from Firestore on login, auth guard wrapping all protected routes, onboarding writer committing 6-step form to Firestore as a complete patient document on final submission. Patient Profile Controller: Firestore onSnapshot listener keeps React state in real-time sync. Medication manager with soft-delete and timestamp attribution. Care team manager with phone or email invite. Drug interaction checker calling GPT-4o on each new medication addition.
Shift Log: carerID, rawVoiceTranscript, structuredNote (vitals, meals, complaints, medications, watchItems as JSON), flagged (boolean), shiftDate (ISO timestamp), patientID.	Carer Shift Log View: tap-and-hold voice recording with live transcription preview. AI-parsed confirmation screen showing extracted fields. Watch item flag toggle. Handoff View showing last 3 structured shift summaries before starting a new entry.	Voice Logging Controller: Web Speech API streams transcript to React state. On release, raw transcript sent to Azure OpenAI GPT-4o with structured extraction prompt. On nurse confirmation, structuredNote and transcript written to shiftLogs subcollection. If flagged, FCM push sent to linked family users.
Alert: alertID, patientID, shiftLogID, observation text, acknowledged (boolean), createdAt.	Family Dashboard: status overview (last shift summary, vitals snapshot, watch item alerts, last log timestamp), 30-day BP and complaint trend charts, Emergency QR one-tap, Pre-visit Summary generation button, Medication list with drug interaction warnings.	AI Summary Controller: aggregates last 30 days of shiftLogs. Azure OpenAI generates pre-visit brief. React-PDF renders as downloadable or WhatsApp-shareable PDF. Drug interaction checker surfaces flagged pairs to family dashboard.

Model (Data)	View (UI)	Controller (Logic)
PhysicianVisitNote: visitDate, clinicalObservations, medicationChanges (added or discontinued), followUpDate, linkedPatientID.	Physician View: AI pre-visit brief (30-day trend, medication changes, watch items). Post-visit note entry. Document upload with AI plain-language summary returned to patient timeline.	QR Card Controller: reads active medications, allergies, conditions for a given patientID. Renders at public URL /emergency/:patientID with no auth required. Read-only. Refreshes on each load from Firestore.

5. Product Features

Feature	Description	Dependencies	Priority
Voice Shift Logging	Carer taps and holds microphone. Web Speech API streams live transcription. On release, raw transcript is sent to Azure OpenAI GPT-4o and returned as structured JSON (vitals, meals, complaints, medications, watchItems). Carer reviews and confirms before submission. Target: under 90 seconds end-to-end. <i><u>Rationale:</u> Directly addresses Om's core constraint identified in MRD Theme 2. All four nurses interviewed cited documentation being too slow as the reason observations go unrecorded. Sub-90-second logging removes the only behavioral barrier to consistent data capture.</i>	Web Speech API (Chrome for Android), Azure OpenAI API, Firestore shiftLogs subcollection, FCM for alert dispatch.	v1 (MVP)
Structured Handoff View	Before starting a new shift log, the carer sees the last 3 structured shift notes for that patient, rendered in reverse-chronological order with flagged watch items highlighted. Eliminates the verbal briefing. <i><u>Rationale:</u> Addresses MRD Theme 2 (Broken Handoff). All nurses confirmed incoming carers default to verbal briefing because the paper register is too slow to read. This replaces that entirely.</i>	Firestore shiftLogs read, Patient Profile, Carer authentication.	v1 (MVP)
Family Caregiver Dashboard	Real-time dashboard showing today's vitals snapshot, last log timestamp, unacknowledged watch item alerts, and 7-day BP trend chart. Provides ambient awareness without requiring a phone call.	Firestore onSnapshot listener, shiftLogs aggregation, Alert model.	v1 (MVP)

Feature	Description	Dependencies	Priority
Emergency QR Card	<i><u>Rationale:</u> Directly solves Anika's primary frustration from MRD Theme 1 (Invisible Interval). She described needing "something like a dashboard, just let me see that she is okay without having to call every night" (Interview 1, Priya Nair).</i> One-tap QR code renders a public, no-login URL showing active medications, allergies, conditions, and most recent vitals. Designed for ER triage use. Accessible offline via screenshot. <i><u>Rationale:</u> Addresses MRD Theme 3 (Emergency Room Black Box). Three of three family caregivers interviewed had experienced an ER visit where the treating team lacked a confirmed medication list. One anticoagulant was not communicated during a fall injury treatment.</i>	Patient Profile (medications, allergies, conditions), most recent shiftLog vitals, public Firestore read rule for /emergency/:patientID.	v1 (MVP)
Patient Profile and Care Team	6-step onboarding wizard for family to build patient profile. Invite carers and physicians by phone or email. Role-based access: carers can log and view, physicians can view and add post-visit notes, family can manage the full profile. <i><u>Rationale:</u> Foundational dependency for every other feature. Without a shared patient record, cross-role visibility is impossible. Anika described rebuilding context from scratch for every new nurse as her single biggest ongoing frustration.</i>	Firebase Auth, Firestore, FCM invite notifications.	v1 (MVP)
Drug Interaction Checker	When a new medication is added to the patient profile, the full	Patient Profile medications array,	v1 (MVP)

Feature	Description	Dependencies	Priority
	active medication list is sent to GPT-4o. Flagged interactions surface as a prominent warning on the family dashboard and medication list screen. <i><u>Rationale:</u> Anika's MRD persona cites one avoidable ER visit caused by a missed drug interaction between a cardiologist's dose adjustment and the GP's diabetes medication. Dr. Agarwal (Interview 3) described a near-identical case caught only at the pharmacy.</i>	Azure OpenAI GPT-4o, Family Dashboard.	
AI Pre-Visit Physician Brief	On-demand one-page PDF summarizing the last 30 days: BP trend, meal patterns, complaints, medication changes, active watch items. Generated by GPT-4o and rendered by React-PDF. Shareable via WhatsApp or email. <i><u>Rationale:</u> Directly addresses Dr. Mehra's constraint. He sees 35 to 40 patients per day with seven minutes per visit. He confirmed he would read a one-page pre-visit summary if it arrived before the appointment and required no new login. Format is capped at one page accordingly.</i>	shiftLogs aggregation (30-day window), Azure OpenAI GPT-4o, React-PDF, Patient Profile.	v1 (MVP)
Push Notifications and Alerts	FCM push notification to family accounts when a carer flags a watch item. Notification includes the observation text. Family can acknowledge within the app. Unacknowledged alerts surface prominently on the dashboard. <i><u>Rationale:</u> Bridges the gap between Om logging a watch item and Anika knowing about it in near real time. Without push, the family dashboard requires active checking, which MRD research</i>	Firebase Cloud Messaging, Alert model, Family Dashboard.	v1 (MVP)

Feature	Description	Dependencies	Priority
	showed families do inconsistently. Push converts ambient awareness from pull to push.		
Post-Visit Physician Note	After an appointment, the physician logs a brief structured note: clinical observations, medication changes, and follow-up date. This note feeds into the next AI pre-visit brief so the physician's decision is visible to the care team.	Physician View, PhysicianVisitNote model, AI Summary Controller.	vNext
Document Upload with AI Summary	Family or physician uploads a lab report, discharge summary, or prescription scan. GPT-4o returns a plain-language summary (one paragraph) added to the patient's timeline. Original document stored in Firebase Storage.	Firebase Storage, Azure OpenAI vision or document mode, Patient timeline view.	vNext
Multi-Language Voice Logging	Voice logging supports Malayalam, Hindi, Tamil, and Kannada-accented English input, with language auto-detection or manual selection per carer profile. Addresses the nurse population across Indian metros.	Azure OpenAI Whisper API (replaces Web Speech API), Carer profile language preference.	vNext
Offline Shift Log Draft	Carer can record and draft a shift log while offline (no connectivity). Draft is stored locally and syncs to Firestore automatically when connectivity is restored.	Service Worker, IndexedDB local draft storage, Firestore sync on reconnect.	vNext
Native Android App	React Native Android app with native push notifications, background audio for voice logging, camera-based prescription scanning, and offline-cached Emergency QR card accessible without network.	React Native, Firebase SDK for Android, Camera API, Offline storage.	vLongterm
Deterioration Detection Alerts	AI model trained on longitudinal shift log data flags multi-day trends (rising BP, declining oral	6+ months of shiftLog data per patient, fine-tuned classification	vLongterm

Feature	Description	Dependencies	Priority
	intake, gait changes) and proactively alerts family and physician before the pattern reaches a crisis threshold.	model, Alert model, FCM.	
Agency Management Dashboard	Agency-level view showing all patients, carer logging compliance rates, flagged watch items across the patient panel, and exportable audit trail for regulatory or quality assurance purposes.	Agency entity model, multi-patient aggregation, Compliance metric controller.	vLongterm
ABDM Integration	Patient records sync bidirectionally with the Ayushman Bharat Digital Mission health ID infrastructure so that hospital EHR systems can read TesseractHealth home observations and vice versa.	ABDM FHIR API, ABHA ID in Patient Profile, Regulatory compliance review.	vLongterm
iOS App	React Native iOS app after Android validation, targeting the family caregiver persona who skews more toward iOS in metro India.	React Native iOS, Apple Push Notification Service, App Store review.	vLongterm

6. Product Roadmap

6.1 v1: Minimum Viable Product

The MVP delivers the core care coordination loop: carer logs via voice, family sees it in real time, physician receives a structured brief before the appointment, and the ER has a QR code to scan. All eight v1 features above are required for MVP. A product without even one of these breaks the loop for at least one persona.

- Voice shift logging with AI structuring (under 90 seconds)
- Structured handoff view for incoming carers
- Family caregiver real-time dashboard with 7-day trend
- Emergency QR card (no-login public URL)
- Patient profile and care team management (6-step onboarding)
- Drug interaction checker
- AI pre-visit physician brief (PDF, WhatsApp-shareable)
- Push notifications and watch item alerts

Platform: Responsive mobile web app (React). No app store installation required. Deployable via Firebase Hosting. Target launch: Q4 2026.

6.2 vNext

- Post-visit physician note that feeds back into the next AI pre-visit brief
- Document upload with AI plain-language summary (lab reports, discharge summaries, prescription scans)
- Multi-language voice logging (Malayalam, Hindi, Tamil, Kannada-accented English via Whisper API)
- Offline shift log drafting with background sync

Target launch: Q2 2027, following MVP validation across 3 to 5 agency partnerships.

6.3 vLongterm

- Native Android app (React Native) with background audio, offline QR cache, camera scanning
- iOS app following Android validation
- Deterioration detection AI model trained on longitudinal shift log data
- Agency management dashboard with logging compliance metrics and audit trail export
- ABDM FHIR API bidirectional integration

6.4 Milestones and Timing

Milestone	Target Date	Key Activity
Internal Alpha (7 pilot families)	Complete (June 2026)	Core logging loop validated. 80% weekly retention. Sub-90-second logging confirmed.
Agency Pilot 1 (paid or structured)	August 2026	First agency agreement signed. 30 to 50 patients onboarded. Carer onboarding playbook tested.
MVP Public Launch	Q4 2026	Firebase Hosting deployment. 3 to 5 agency partners. Full feature set live.
100 active patients	Q1 2027	Key B2B revenue milestone. Monthly recurring revenue approximately Rs 3 lakh.
vNext Launch	Q2 2027	Physician note, document upload, multi-language voice, offline draft.
500 active patients	Q4 2027	18-month SOM target. Annual run rate approximately Rs 1.8 crore.
Native Android App	Q1 2028	After core habit validated on mobile web. Android-first given carer device distribution.
Deterioration Detection Beta	Q3 2028	Requires 6+ months of longitudinal data per patient cohort.

6.5 Go-to-Market: Customer Acquisition

TesseraHealth acquires customers through two distinct channels that reinforce each other.

B2B Channel: Agency-Led Deployment (Primary)

Home care agencies are the most reliable path to carer adoption. When an agency integrates TesseraHealth into its standard operating procedure, logging becomes a job expectation rather than a personal choice. This solves the weakest-link problem. Our acquisition sequence for agencies is:

- **Step 1:** Relationship-based outreach to quality assurance managers at mid-sized metro agencies. We lead with the audit trail and shift documentation value, not the AI pitch. Target 5 active conversations in parallel at all times.
- **Step 2:** Offer a free or reduced-cost structured pilot for the first 30 to 60 days. Remove procurement friction. Give the agency something to evaluate with zero financial risk.
- **Step 3:** Once the agency pilot shows logging compliance above 70% and family NPS above 7, convert to the paid tier at Rs 3,000 per patient per month. The quality assurance value justifies the price.

- **Step 4:** Agency acts as distribution. Each new patient onboarded through the agency automatically brings a family caregiver account and a carer account into the platform.

Estimated agency CAC: Rs 15,000 per agency (relationship-based sales, no paid acquisition).
Payback period: 5 to 6 months from go-live at 10 patients per agency.

B2C Channel: Family Caregiver Word of Mouth (Secondary)

The free family tier is a deliberate acquisition mechanism, not charity. Each family account costs us approximately Rs 200 to Rs 250 per month in infrastructure but creates the social proof and data richness that makes the B2B tier valuable. Family acquisition steps:

- **Step 1:** Agency referral. When an agency partner onboards, every family using that agency receives an invite link via WhatsApp.
- **Step 2:** Caregiver community word of mouth. Remote family caregivers talk to each other in WhatsApp groups, LinkedIn caregiver communities, and urban expat networks. A single high-NPS family in a social network is worth 3 to 5 referrals.
- **Step 3:** Eldercare content SEO and WhatsApp forward loops. Short-form content on topics like 'how to prepare for your parent's GP appointment' drives inbound search traffic. Content is optimized for the family caregiver persona, not a general health audience.

Estimated family CAC: Rs 500 per family (word of mouth plus agency referral channel, zero paid acquisition in Year 1).

7. Backcasting From the Future

Backcasting is a planning method that begins by defining a clear vision of a desirable future state and then works backward to identify the decisions, milestones, and conditions required to reach it. Rather than projecting forward from the present (where inertia and current constraints tend to dominate), backcasting asks: if we have already succeeded, what had to be true along the way?

7.1 The 2030 Vision State

It is the year 2030. TesseraHealth is the standard documentation layer for organized home elder care across 12 Indian metros. 50,000 elderly patients have an active TesseraHealth record. 200 home care agencies use TesseraHealth as their shift documentation system and can no longer operate without the audit trail it produces. Physicians at partner clinics open TesseraHealth pre-visit briefs before appointments the way hospital physicians open an EHR. The Indian press has written about TesseraHealth as the company that put a clinical record around home care. We have published a peer-reviewed paper on deterioration detection accuracy. A ABDM integration is live, meaning TesseraHealth home observations flow into the national health ID infrastructure. We are beginning a pilot in Indonesia.

7.2 Working Backward: What Had to Be True?

Year	Condition That Had to Be Met	Why It Was the Critical Hinge
2030	50,000 active patients across 200 agencies in 12 metros. ABDM integration live. Deterioration detection in production.	This is the destination. Every row below is a precondition.
2029	10,000 active patients. Native Android app has been live for 18 months. Deterioration detection model has been in beta for 12 months with enough longitudinal data to validate accuracy. Agency churn below 5% annually.	The deterioration model needs at least 18 months of dense longitudinal data from a large patient cohort. Without the 2028 Android app, carer logging rates are too low to build a clean dataset.
2028	2,000 active patients. Android app launched. Logging compliance across agency patients above 75%. At least one published or presented dataset on home observation patterns from TesseraHealth logs.	The Android app unlocks reliable push notifications and offline logging that mobile web cannot fully provide. 2,000 patients gives us enough data density to begin meaningful longitudinal analysis.
2027	500 active patients. 5+ agency partners. vNext features live	500 patients is the SOM target and the threshold at which unit economics become self-

	(physician note, document upload, multi-language voice). Monthly recurring revenue approximately Rs 15 lakh.	sustaining. vNext features are required to retain agencies past the pilot stage.
2026 Q4	MVP launched. 3 to 5 agency partners. 100 to 150 active patients. At least one agency paying the full Rs 3,000 per patient per month rate. 80%+ weekly carer logging retention across non-pilot nurses.	The MVP must prove that carer adoption is not limited to a pre-selected pilot group. This is the hardest thing to prove in 2026 and the one that determines everything downstream.
2026 Q3	At least one agency committed to a paid or structured pilot. At least 3 of 8 physician interviews confirming the pre-visit brief would change or support a clinical decision. Sub-90-second logging confirmed across 15+ non-pilot nurses.	These are the conditions the MRD Go/No-Go identified as required before proceeding. They are also the conditions required before any investor conversation is credible.

7.3 Implications for Near-Term Decisions

- We must sign at least one agency to a paid pilot by August 2026 or the entire downstream sequence is delayed by at least one year. Agency sales cycle length is our single highest-leverage risk.
- The Android native app must be scoped and resourced in parallel with vNext feature development in 2027, not after it. It is on the critical path to the 2028 and 2029 milestones.
- We must begin collecting consent-based research datasets from Year 1. The deterioration detection model depends on longitudinal density. Data collection that begins in 2027 will not produce a usable model until 2029 at the earliest.
- ABDM integration should be architected in v1 even if it is not activated until vLongterm. Retrofitting FHIR compliance onto a non-compliant data schema in 2029 is a multi-quarter engineering project that could delay the national expansion milestone.

8. Metrics

Metrics are organized by the persona and behavior they measure. All metrics are computed from Firestore log data unless otherwise noted. Targets are based on our pilot baseline and comparable B2B SaaS benchmarks.

8.1 Intermediate Metric Trajectory Hypotheses

The table below shows where key metrics should stand at Month 3, Month 6, and Month 12 as leading indicators before the Month 18 primary targets are reached. Missing these intermediate thresholds is an early warning signal requiring product or GTM intervention.

Metric	Month 3	Month 6	Month 12	Month 18 Target
Carer Weekly Logging Retention	≥55%	≥65%	≥70%	≥75%
Median Log Time (seconds)	≤120 sec	≤105 sec	≤95 sec	≤90 sec
Monthly Recurring Revenue (MRR)	Rs 0–30K (pilot only)	Rs 60K–90K (20–30 patients)	Rs 3–6 lakh (100–200 patients)	Rs 15 lakh (500 patients)
Family DAU / MAU	≥20%	≥28%	≥35%	≥40%
Family NPS	≥25	≥30	≥35	≥40

Rationale for trajectory shape: Logging retention is expected to be lowest in Month 3 as carers are newly onboarded and habits are not yet formed. Median log time improves sprint-over-sprint as the voice logging interface is refined. MRR steps are conservative in Months 3–6 while agency pilots are free or reduced-cost, then accelerates sharply as paid conversions close in Q1 2027.

8.2 Full Metric Definitions

Metric	Definition	Measurement Method	Target (Month 18)
Carer Weekly Logging Retention	% of active carers who submit at least one shift log in a given week	Firestore shiftLogs grouped by carerID and week	75%+
Median Log Time	Time in seconds from microphone button press to Confirm tap, logged per submission	Client-side timestamp delta, stored in shiftLogs	Under 90 seconds

Metric	Definition	Measurement Method	Target (Month 18)
Family DAU / MAU Ratio	Daily active family users divided by monthly active family users. Measures ambient engagement beyond reactive crisis checks.	Firebase Analytics session events by role	40%+
Pre-Visit Brief Generation Rate	% of scheduled physician appointments for which a pre-visit brief PDF was generated and shared at least 24 hours before the visit	Firestore AI summary logs joined with appointment dates. Appointment dates are entered manually by the family caregiver during pre-visit summary generation (a required field before the PDF is triggered). This date is stored in the AI summary log and used to compute the generation-to-appointment lead time.	60%+ of tracked appointments
Emergency QR Scans	Number of unique /emergency/:patientID page loads per month. Proxy for ER access events.	Firebase Hosting access logs	Directional (track trend, not a pass/fail threshold)
Agency Patient Churn Rate	% of B2B patients deactivated per quarter, excluding patients who died or moved to inpatient care	Firestore patient status changes, manually attributed cause	Below 5% quarterly
Drug Interaction Flags Acted On	% of drug interaction alerts for which the flagged medication was modified or removed within 7 days. Proxy for clinical impact.	Medication change timestamps in Patient Profile relative to alert createdAt	Directional (track trend)
Monthly Recurring Revenue (MRR)	Sum of Rs 3,000 per active B2B patient per month across all agency partners	Firestore active patient count per agency multiplied by price tier	Rs 15 lakh at Month 18
Net Promoter Score (Family)	Would you recommend TesseraHealth to another family caregiver? Scored 0 to 10. NPS = % promoters minus % detractors.	In-app survey triggered at 30-day mark for each family account	NPS above 40

9. Projected Costs

9.1 Engineering Costs

TesseraHealth is a solo-founded product at MVP stage. The initial build is being executed by the founder with targeted contract engineering support for specific components.

Component	Estimated Effort	Estimated Cost
MVP React frontend (all three role views, onboarding, dashboard, QR card)	8 to 10 engineer-weeks	Rs 2.4 to 3 lakh (contract at Rs 3,000 per hour)
Firebase backend (Auth, Firestore schema, FCM, Hosting)	3 to 4 engineer-weeks	Rs 90,000 to 1.2 lakh
Azure OpenAI API integration (voice logging, drug check, pre-visit brief, PDF)	3 to 4 engineer-weeks	Rs 90,000 to 1.2 lakh
QA, usability testing, and launch preparation	2 to 3 engineer-weeks	Rs 60,000 to 90,000
Total MVP build estimate	16 to 21 engineer-weeks	Rs 4.4 to 6.4 lakh

9.2 Infrastructure and AI API Costs (Monthly, at Scale)

Cost Item	Unit Cost	At 500 Patients (Month 18)
Azure OpenAI GPT-4o (voice structuring, drug check, pre-visit brief generation)	Rs 600 to Rs 800 per patient per month ¹	Rs 3.0 to 4.0 lakh per month

¹ Derivation: Each patient generates approximately 2 shift logs per day (one carer per shift, two shifts). Each voice log call = ~800 input tokens + ~300 output tokens. Drug interaction check = ~500 tokens per new medication addition (~2 per month). Pre-visit brief = ~4,000 tokens once per month. Total estimated tokens per patient per month: ~35,000 input / ~10,000 output. At GPT-4o pricing of approximately \$0.0025/1K input and \$0.01/1K output, this yields ~\$1.00 per patient per month, plus buffer for retries and prompt overhead. The Rs 600–800 estimate reflects a conservative 8–10x buffer against production variance and currency fluctuation.

Firestore Firestore reads and writes	Rs 150 per patient per month (estimated at 50 to 100 reads and writes per day per patient)	Rs 75,000 per month
Firestore Hosting and Cloud Messaging	Rs 50 per patient per month	Rs 25,000 per month
Free family tier infrastructure	Rs 200 to Rs 250 per family account per month	Rs 1.6 to 2.0 lakh per month (800 accounts)
Total infrastructure estimate at Month 18		Rs 5.0 to 6.5 lakh per month

9.3 Revenue, Gross Margin, and LTV

Revenue and Gross Margin

Metric	Value
B2B revenue per patient	Rs 3,000 per month
B2B patients at Month 18	500
Monthly recurring revenue at Month 18	Rs 15 lakh (approx. USD 18,000)
Annual run rate at Month 18	Rs 1.8 crore (approx. USD 215,000)
Gross infrastructure cost at Month 18	Rs 5.0 to 6.5 lakh per month
Gross margin at Month 18	Approximately 57 to 67%
Expected gross margin at 2,000 patients (economies of scale on AI API)	72 to 75%

LTV Calculation and Unit Economics

The table below derives customer Lifetime Value (LTV) for the B2B agency patient segment, reconciles with the gross margin figures above, and validates commercial viability of the acquisition model.

Parameter	Value and Derivation
Monthly revenue per B2B patient	Rs 3,000

Average retention per B2B patient	18 months (conservative assumption: patient ages out of home care, moves to inpatient, or caregiver churns; 5% quarterly churn rate $\approx$ 18-month average tenure)
Gross LTV per B2B patient (revenue)	Rs 3,000 $\times$ 18 = Rs 54,000
Infrastructure cost per patient over 18 months	Rs 800/month $\times$ 18 = Rs 14,400 (AI API at peak; lower at scale)
Net LTV per B2B patient (after infrastructure)	Rs 54,000 – Rs 14,400 = Rs 39,600
CAC per patient (agency CAC allocated at 10 patients/agency)	Rs 15,000 $\div$ 10 = Rs 1,500 per patient
LTV : CAC ratio	Rs 39,600 $\div$ Rs 1,500 = 26.4$\times$ — well above the 3$\times$ SaaS health threshold
CAC payback period	Rs 1,500 $\div$ Rs 3,000/month = 0.5 months. Agency-level payback: Rs 15,000 $\div$ (Rs 3,000 $\times$ 10 patients) = $\sim$ 5 to 6 months at ramp-up.

Gross margin reconciliation: At Month 18 with 500 patients, infrastructure runs Rs 5.0–6.5 lakh/month against revenue of Rs 15 lakh, yielding a 57–67% gross margin. As the patient base scales to 2,000, Azure OpenAI per-unit cost declines with volume commitments and the family tier infrastructure cost amortises across a larger B2B base, driving gross margin toward 72–75%. The LTV calculation above uses the Month 18 infrastructure cost as a conservative ceiling; actual net LTV at 2,000 patients will be materially higher.

9.4 Marketing and Acquisition Costs

Channel	Cost Basis	Year 1 Budget
Agency relationship-based sales (5 target agencies)	Rs 15,000 CAC per agency including founder time and meetings	Rs 75,000
Family caregiver acquisition (word of mouth and agency referral)	Rs 500 per family account	Rs 2.5 lakh for 500 accounts
Content production (SEO articles, WhatsApp-shareable eldercare guides)	Rs 15,000 per month for freelance content	Rs 1.8 lakh annually
Total Year 1 Marketing Budget		Rs 4.55 to 5.5 lakh

10. Operational Needs and Risks

10.1 Operational Needs

Customer Onboarding

Each agency partnership requires a structured onboarding session for carers covering voice logging, handoff view, and watch item flagging. Target: 90-minute in-person or video session per agency cohort. Onboarding playbook to be documented and testable by Month 6. Families receive an asynchronous onboarding flow (the 6-step wizard) with a WhatsApp helpline number for questions.

Customer Support

Support in Year 1 is handled by the founder via WhatsApp Business API. Expected volume: 2 to 5 support queries per week at 100 active patients. At 500 patients, a part-time support hire is required (estimated Rs 25,000 to Rs 35,000 per month). Support priorities: login issues, carer voice logging errors, family dashboard data questions. No 24/7 clinical support is offered or implied. The platform is not a medical device.

AI Output Quality Review

A monthly audit process reviews 5% of randomly sampled AI-structured shift notes against their raw voice transcripts to identify systematic parsing errors. Any error pattern is corrected in the prompt architecture within one sprint. The physician brief is clearly labeled as AI-generated and intended to support, not replace, clinical judgment.

Data Privacy and Compliance

TesseraHealth handles sensitive personal health information. Operational requirements include: end-to-end encryption for all patient data in transit and at rest, explicit data handling disclosures in onboarding, ABDM-compatible data architecture from v1, DPDP Act compliance monitoring, and SOC 2 audit targeted for completion before the first enterprise agency agreement is signed.

10.2 Risks

Risk	Description	Mitigation
Carer Non-Adoption	Om does not log consistently. Platform has no signal. Family caregivers see no value and churn. This is the single most critical risk because it sits at the base of every other value proposition.	Voice-first logging designed for under 90 seconds. Agency partnerships making logging a job expectation. Usability testing planned across 15+ non-pilot nurses before broad launch. Logging compliance dashboard visible to agency managers creates accountability.
Agency Sales Cycle Length	B2B healthcare sales can take 6 to 9 months. If the first agency takes longer than August 2026 to sign, the MVP	5 agency conversations in parallel at all times. Initial pilots offered as free or reduced-cost to eliminate procurement

Risk	Description	Mitigation
	launch and all downstream milestones slip by at least one year.	friction. Lead with audit trail and quality assurance value, not technology. Pilot agreement is a simple 2-page letter of intent, not a procurement contract.
AI Output Accuracy	If GPT-4o misparses a nurse's voice note (e.g., records the wrong blood pressure reading) and a physician acts on the error, clinical consequences could be serious and would destroy trust in the platform.	Carer review step is mandatory before submission. Nurse sees the parsed note and confirms or edits before it is written to Firestore. Physician brief is labeled AI-generated and for clinical review only, not a clinical record. 81 structured test assertions currently passing in the staging environment.
Data Privacy Breach	A breach of elderly patient health records would be catastrophic for adoption and likely fatal to the company at this stage.	End-to-end encryption. Firestore security rules restricting access to linked careTeam members only. Public QR card exposes only a pre-defined subset (medications, allergies, conditions, recent vitals). SOC 2 audit planned for Year 1. Legal counsel engaged before any agency goes live.
Regulatory Change	India's DPDP Act implementation is evolving. Changes to health data storage or sharing requirements could require engineering rework mid-development.	ABDM compatibility designed in from the start. Firestore data architecture separates personal identifiers from clinical observations, giving flexibility to comply with future data localization rules. Legal counsel on data handling engaged before go-live.
Physician Engagement	Dr. Mehra is a passive beneficiary. If the pre-visit brief does not arrive in a format that fits a 7-minute consultation, he ignores it. If he ignores it, one of the three core value props of the platform is undemonstrated.	Brief is capped at one page, bullet-point format, delivered via WhatsApp or email with no new login. 3 of 8 targeted physician interviews must confirm the format works before MVP launch. Post-visit physician note (vNext) creates a feedback loop that deepens physician engagement over time.
Competitor Entry	A well-funded healthtech company (e.g., Portea Medical, Eka Care) could decide to build a similar coordination layer on top of their existing distribution.	Our primary moat in the near term is the longitudinal dataset we accumulate. A competitor starting today has no home-observation data. Our secondary moat is the agency relationship network. A new entrant must rebuild both.

11. International Considerations

TesseraHealth's v1 and vNext are India-only. However, the information architecture is designed with internationalization in mind to avoid costly rework at the vLongterm expansion stage.

- **Language and script:** All text in the app is stored in a localization file (i18n) from v1. Hindi and Kannada string files are scaffolded even if incomplete at MVP launch. Right-to-left script support is not required for the target markets but is not architected out.
- **Currency and pricing:** All financial figures in the backend are stored in the lowest denomination unit (paise) with a currency code field. Converting to Indonesian Rupiah or Singaporean Dollar at vLongterm requires a configuration change, not a schema migration.
- **Voice logging and accents:** The vNext Whisper API integration is specifically chosen over Web Speech API because Whisper handles Indian-accented English, Malayalam, Hindi, Tamil, and Kannada reliably. This is also the foundation for Southeast Asian language support.
- **Regulatory architecture:** Patient data is stored in Firebase's asia-south1 (Mumbai) region by default. Expansion to Indonesia or Singapore would require provisioning a new regional Firestore instance. The data model is designed to be region-portable.
- **ABDM-specific logic:** The ABHA ID field in the Patient Profile model is optional and nullable. Non-Indian deployments simply leave it null. No ABDM-specific logic bleeds into core platform controllers.

12. Group Members

Ananya RajGirish - Solo project contributor. Product strategy, user research, information architecture, feature definition, financial modeling, and PRD authorship.

Appendix

Section 1: Interview Guide

We designed our interview guide to surface behavioral evidence rather than opinions. Questions are open-ended and non-leading, structured to let the respondent describe what they actually do and have experienced rather than what they think we want to hear. We conducted three interviews covering all three of our personas: a remote family caregiver in Delhi, a home care nurse in Mumbai, and an outpatient physician in Jaipur.

Interview Protocol

- Duration: 30 to 40 minutes per interview, conducted over video/voice call
- Recording: With consent, sessions were recorded for reference; otherwise detailed notes were taken
- Approach: Semi-structured; same opening questions for all respondents, followup questions tailored to their answers
- Respondent selection: Family caregivers identified through personal networks; nurse through a home care agency contact; physician through a personal referral

Opening Questions (All Respondents)

1. Can you walk me through what managing or delivering elderly care looked like for you over the past month?
2. Tell me about a time something went wrong, or almost went wrong, because the right information was not available at the right moment.
3. How does information currently get from the person physically with the patient to the person making clinical decisions about their care?

Family Caregiver-Specific Questions

4. When you are not physically with your parent, how do you know whether they are doing okay or not?
5. Walk me through the last time you had to make a decision about your parent's care from a distance. What information did you have, and what were you missing?
6. If your parent had to go to the emergency room tonight, what would the doctor know about them, and how confident are you in that?
7. What tools or systems, if any, do you currently use to stay on top of your parent's health? What made you choose those?

8. What is the most stressful part of coordinating your parent's care from where you are?

Home Care Nurse-Specific Questions

9. Walk me through how you document what happens during a shift from start to finish.
10. What happens at the end of your shift? How do you hand over to the next nurse?
11. Tell me about a time an observation you made during a shift did not make it to the family or the doctor. What happened?
12. What would need to be true about a new documentation tool for you to actually use it consistently during a shift?
13. How do families usually find out about changes in the patient's condition? What role do you play in that?

Physician-Specific Questions

14. When a home-care patient comes to see you, what information do you typically have access to before the appointment?
15. How often do you feel like you are making decisions without the full picture of what has been happening at home?
16. Tell me about a patient case where better between-visit information would have changed your clinical decision.
17. If a structured 30-day summary of a patient's home observations arrived before their appointment, how would that change how you prepare for the visit?
18. What format would that summary need to be in for you to actually read and use it in a seven-minute consultation?

Section 2: Interview Summaries

Interview 1: Priya Nair, 38, Delhi (Family Caregiver Persona)

Priya is a senior HR manager at a multinational firm in Delhi. Her 73-year-old mother lives in Thiruvananthapuram with a full-time home nurse arranged through an agency. Her mother manages Type 2 diabetes, hypertension, and moderate hearing loss. Priya visits four to five times a year.

Key Quotes

"The nurse is fantastic. She notices everything. The problem is that what she notices stays with her. It doesn't go anywhere useful."

"I found out my mother's blood pressure had been spiking for three days because she mentioned it on a Sunday phone call. Not from the nurse. Not from anyone. My mother just happened to say it."

"The last ER visit, I was on a flight. My husband was trying to reconstruct her medication list from memory and photo of a prescription from four months ago. It was terrifying."

Key Findings

- Uses a WhatsApp group with the nurse, her brother in Bengaluru, and herself as the primary coordination mechanism; describes it as a 'leaky bucket, things fall through constantly'
- Has a photographed prescription saved in her phone gallery that she considers her backup medication list, but acknowledged it is out of date
- The nurse calls her when something significant happens, but Priya has no visibility into the days between those calls
- Had one ER visit 14 months ago where the treating physician did not know about a blood thinner her mother was taking; the family caught it, but only because Priya's brother happened to remember
- Said she would pay for a tool that gave her 'something like a dashboard, just let me see that she's okay without having to call every night'
- Biggest frustration: 'Every new nurse I hire, I have to start over. There is no file. No record. Just me explaining everything again on a phone call'

Interview 2: Ravi Shankar, 31, Mumbai (Home Care Nurse Persona)

Ravi is a GNM-certified nurse working through a mid-sized home care agency in Mumbai. He currently manages five elderly patients across four households, working 10-hour day shifts Monday through Saturday. He has been in home care nursing for four years.

Key Quotes

"I write in the register every day. But I don't think anyone reads it. The next nurse who comes, she just asks me verbally when I'm leaving. That's the handoff."

"I noticed Mr. Patil's breathing had changed over two days. I told the family on WhatsApp. They said okay. Did the doctor know? I don't think so. He didn't mention it at the next visit."

"If I could just speak into my phone for one minute at the end of the shift, that would be enough. I don't want to type. I don't have time to type."

Key Findings

- Maintains a physical register at each patient's home; acknowledges incoming nurses rarely consult it, defaulting to a verbal briefing that can take 10 to 15 minutes
- Uses WhatsApp to communicate with families in real time but describes it as onedirectional: he sends, they acknowledge, nothing is structured or searchable
- Has noticed clinically relevant changes in patients (appetite patterns, breathing, gait changes) that he reported informally but that were never surfaced to the physician
- Primary resistance to new tools: typing is too slow mid-shift, app interfaces designed for clinical settings are too complex for his workflow

- Expressed genuine interest in a voice note tool that automatically structured his words into a shift summary; said 'if it can understand Malayalam-accented English, I will use it every day'
- Biggest pain point: 'When something goes wrong after my shift, people ask what happened during my shift. And I have to look in the register. Sometimes I can find it. Sometimes the writing is messy or I forgot to write. It feels unfair'

Interview 3: Dr. Sunita Agarwal, 54, Jaipur (Physician Persona)

Dr. Agarwal is a general physician at a private clinic in Jaipur with a focus on geriatric patients. She sees 30 to 35 patients per day, of whom she estimates 40% are elderly with at least one chronic condition being managed partly through home care.

Key Quotes

"A family comes in with a folder. Inside is a discharge summary from 2022, two prescriptions, and a lab report. That is the medical record. That is what I have to work with."

"I ask: how has she been at home? And the family says: fine, doctor. Fine. What does fine mean? Was her blood pressure fine? Was she eating? I don't know."

"If someone sent me a one-page summary before the appointment, I would read it. It would have to be one page. I have seven minutes. I cannot read a report."

Key Findings

- Has no structured mechanism for receiving between-visit information from home carers; all context arrives verbally from family members at the appointment
- Described multiple instances of making medication decisions she later felt were uninformed because she did not know what had changed at home since the last visit
- Had a patient case where an anticoagulant interaction was missed because a new medication added by a cardiologist was not communicated to her before she prescribed a pain reliever; caught at the pharmacy
- Open to receiving AI-generated pre-visit summaries but explicit about format requirements: single page, bullet point format, nothing that requires clinical interpretation to read
- Expressed skepticism about whether nurses would actually log consistently: 'The nurses I know are busy. They don't have time for documentation. It would have to be very simple for them to actually do it'
- Biggest opportunity she named: 'If I knew what the patient's blood pressure had been doing for three weeks at home, not just what the family tells me, I could catch things much earlier'

Section 3: Updated Personas (Post-Interview)

Our interviews confirmed the core structure of our three personas while adding important nuance to each. The updates below reflect what the interviews changed or deepened in our understanding.

Updated Persona 1: "Anxious Anika" - The Remote Family Caregiver

"The nurse is fantastic. She notices everything. The problem is that what she notices stays with her. It doesn't go anywhere useful."

What the Interviews Changed

- Before interviews, we assumed the primary frustration was the lack of a shared record. After interviews, we see the frustration is more specific: families trust the nurse's clinical competence but have no pathway to benefit from it. The observation happens. It just evaporates.
- We underestimated how improvised the backup documentation is. A photo of an old prescription saved in a phone gallery is not a medication list. It is the illusion of one.
- The ER scenario is not hypothetical for this persona. Two of the three family caregiver respondents had experienced an ER visit where medication reconstruction happened from memory under stress. This is a lived experience, not a hypothetical risk.
- Willingness to pay is real and unprompted. Priya volunteered a price range without being asked. This shifts our confidence in the B2C family tier as a revenue stream.

About

- 38-year-old HR manager at a multinational firm in Delhi; her 73-year-old mother lives in Thiruvananthapuram with a full-time home nurse arranged through an agency
- Mother manages Type 2 diabetes, hypertension, and moderate hearing loss; four to five in-person visits per year
- Primary care coordination mechanism: a WhatsApp group with the nurse and her brother, which she describes as a 'leaky bucket'
- Has a photographed prescription in her phone gallery as her backup medication list; acknowledges it is out of date

Goals/Tasks

- See that her mother is okay without having to call every evening
- Have a current, reliable medication list accessible at any moment, not reconstructed from memory under stress
- Stop losing context every time a new nurse starts a shift

Frustrations

- Clinically relevant observations the nurse makes never reach the physician; the information loop has a gap between the nurse's shift note and the doctor's appointment

- The 'medical record' she carries to appointments is a folder of outdated documents; the physician makes decisions on a three-month-old snapshot.
- Every new nurse requires a full verbal briefing from Priya; there is no persistent patient file that a new carer can simply read

Why She Is a Challenge

- Lives in a different city from both the patient and the nurse; her adoption of TesseraHealth is necessary but not sufficient, the nurse has to log for the platform to have anything useful to show her
- Already has a workaround she is emotionally invested in (the WhatsApp group); the bar for switching is higher than it would be for someone with no existing system

Updated Persona 2: "Overworked Om" - The Home Care Nurse

"If I could just speak into my phone for one minute at the end of the shift, that would be enough. I don't want to type. I don't have time to type."

What the Interviews Changed

- The physical register is less of a documentation tool and more of a ritual. Nurses write in it because they are expected to, not because it serves a function anyone depends on. This means our competition is not really the register; it is inertia.
- The handoff problem is more acute than we had framed it. The incoming nurse does not read the register. The handoff is verbal and rushed. Information loss happens at every shift change, not just occasionally.
- Ravi's quote about fairness, being held responsible for things that happened after his shift because there was no record, points to a professional accountability motivation we had underweighted. Om is not just looking for convenience. He wants a paper trail that protects him.
- Language and accent are a real product concern. Ravi explicitly raised whether the voice logging could handle Malayalam-accented English. Our AI layer needs to be tested specifically on Indian English accents.

About

- 31-year-old GNM-certified nurse working through a home care agency in Mumbai; manages five elderly patients across four households on 10-hour day shifts
- Four years of home care nursing experience; observant and clinically skilled
- Documentation method: physical register plus WhatsApp messages to family; no digital clinical logging tool
- Primary constraint: no time to type mid-shift; voice logging is the only realistic input method

Goals/Tasks

- Complete the shift handoff without spending 10 to 15 minutes verbally briefing the incoming nurse

- Have a searchable record of what he observed during each shift so he can answer questions from families and physicians accurately
- Protect himself professionally by having documented evidence that he flagged what he noticed

Frustrations

- Clinically significant observations he makes informally (on WhatsApp or verbally) have no formal status; they do not make it to the physician and cannot be retrieved later
- The incoming nurse relies on verbal briefings that are rushed and incomplete; important context gets dropped at every shift change
- When things go wrong after his shift, the absence of a clear record puts him in a difficult position professionally

Why He Is a Challenge

- Must be faster than the paper register from day one; any interface requiring typed structured entries will be abandoned within the first week
- Needs to trust that the AI is accurately representing what he said before he will rely on it; a single significant misrepresentation would destroy his confidence in the tool

Updated Persona 3: "Dr. Mehra" - The Outpatient Physician

"If someone sent me a one-page summary before the appointment, I would read it. It would have to be one page. I have seven minutes. I cannot read a report."

What the Interviews Changed

- The format constraint is non-negotiable and more specific than we had anticipated. One page, bullet points, nothing that requires clinical interpretation. This is not a preference; it is a hard constraint of the seven-minute consultation.
- The physician's trust problem cuts in two directions. Dr. Agarwal expressed skepticism not just about whether the data would be accurate, but about whether nurses would actually log consistently enough to make the summary meaningful. This means we need to address nurse adoption credibly before physician adoption becomes possible.
- The medication interaction risk she described (anticoagulant plus pain reliever) was caught at the pharmacy, not at the clinic. The near-miss happened precisely because between-visit medication changes were not visible to her. This is the clearest real-world validation of our thesis we have heard.

About

- 54-year-old general physician in Jaipur; 30 to 35 patients per day, approximately 40% elderly with at least one chronic condition being managed through home care
ABDM registered; no structured mechanism for receiving between-visit home care information
- Willing to use pre-visit summaries only if format is a single page, bullet points, and does not require clinical interpretation to read

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Goals/Tasks

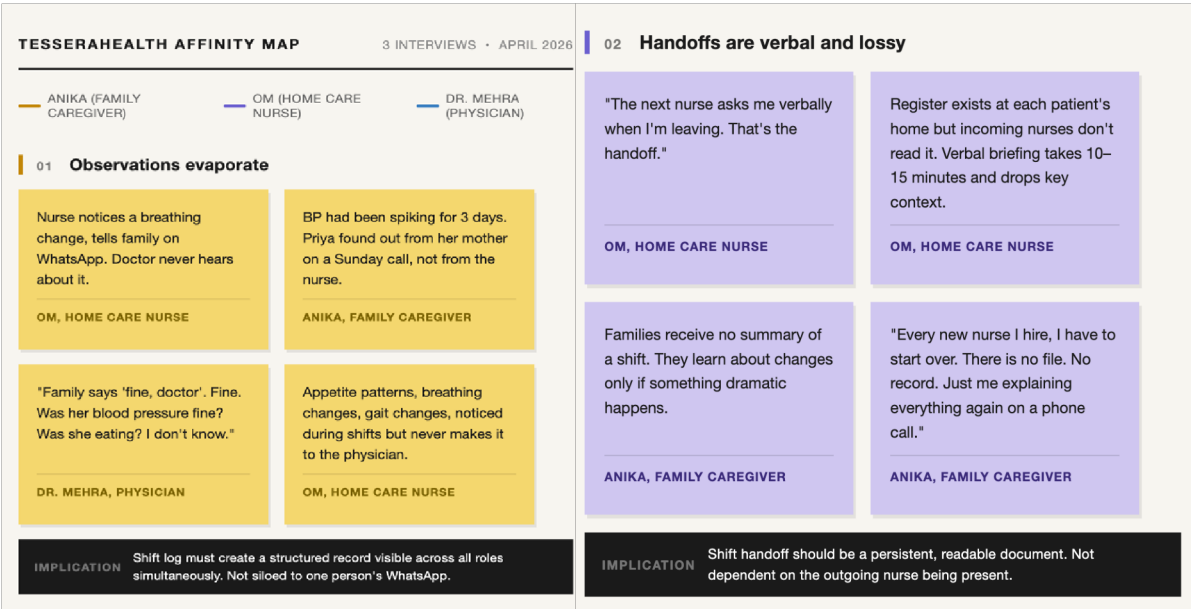
- Know what has actually been happening at home over the past 30 days before each appointment, not rely on the family's verbal account of 'fine, doctor'
- Catch medication interactions and deterioration trends before they become emergency presentations
- Maintain a manageable patient load without adding documentation burden to her already over-capacity practice

Why She Is a Challenge

- Will not install a new app or log into a new portal; the summary must arrive through a channel that requires zero behavior change from her (email, WhatsApp, or in-clinic tablet)
- Her adoption depends entirely on whether Om and Anika are already using the platform consistently; she cannot benefit from data that has not been logged

Section 4: Affinity Map

We synthesized our three interviews into the themes below by grouping all raw observations, quotes, and behavioral data points by pattern rather than by respondent.



03 ER = information crisis

Husband reconstructed medication list from memory and a photo of a prescription from 4 months ago during an ER visit. "It was terrifying."

ANIKA, FAMILY CAREGIVER

A blood thinner was unknown to the ER treating physician. Caught only because a family member happened to remember.

ANIKA, FAMILY CAREGIVER

Anticoagulant and pain reliever interaction caught at the pharmacy, not the clinic. Medication change was never passed on.

DR. MEHRA, PHYSICIAN

A photographed prescription saved in a phone gallery is not a medication list. It is the illusion of one.

ANIKA, FAMILY CAREGIVER

IMPLICATION QR Emergency Card must be a core feature, not a nice-to-have. It is the most high-stakes instance of the information gap.

04 Accountability gap

"When something goes wrong after my shift, people ask what happened. Sometimes I can't find it in the register. It feels unfair."

OM, HOME CARE NURSE

Om wants a record of what he logged. Partly to protect himself if something goes wrong after his shift.

OM, HOME CARE NURSE

Medication changes made by one specialist are unknown to the GP. Decisions happen on an incomplete picture.

DR. MEHRA, PHYSICIAN

WhatsApp messages to family are one-directional: sent, acknowledged, but not structured or searchable.

OM, HOME CARE NURSE

IMPLICATION The platform needs timestamped records that protect everyone: the nurse, the family, and the physician.

05 Format friction kills adoption

"If I could speak into my phone for one minute at the end of the shift, that would be enough. I don't want to type."

OM, HOME CARE NURSE

"If someone sent me a one-page summary before the appointment, I would read it. It would have to be one page. I have seven minutes."

DR. MEHRA, PHYSICIAN

Priya wants "something like a dashboard. Just let me see that she's okay without calling every night."

ANIKA, FAMILY CAREGIVER

"If it can understand Malayalam-accented English, I will use it every day." Voice input must work reliably in Indian English.

OM, HOME CARE NURSE

IMPLICATION Each touchpoint needs a different format: voice for nurses, a quick dashboard for caregivers, one page for physicians.

Section 5: User Stories

The 20 user stories below are written primarily for Anika (family caregiver) with supporting stories for Om (home care nurse) and Dr. Mehra (physician). All follow the format: As a [persona], I want to [action], so that [goal].

#	Persona	User Story	Acceptance Criteria
1	Anika	As a remote family caregiver, I want to see a daily summary of my mother's condition without calling the nurse, so that I stop spending every evening anxious about whether something happened that no one told me.	Dashboard shows last logged shift summary on home screen; updates within 2 hours of shift end; includes vitals, meals, and notable observations.
2	Anika	As a remote family caregiver, I want to receive an alert when the nurse logs something flagged as a watch item, so that I can decide whether to call the physician or escalate before it becomes an emergency.	Flagged observations trigger a push notification to the family caregiver within 15 minutes; notification includes the specific observation and who logged it.
3	Anika	As a remote family caregiver, I want to store and update my mother's current medication list in one place, so that I never have to reconstruct it from photos and memory in an emergency.	Medication list is editable, timestamped on last update, and accessible via the Emergency QR Card with no login required.
4	Anika	As a remote family caregiver, I want to share a QR code with an ER physician that shows my mother's full medication list and current conditions, so that the treatment team has reliable information even if I am not physically present.	QR card is accessible without login; renders on any device; includes medication name, dose, frequency, prescribing physician, allergies, and last updated date.
5	Anika	As a remote family caregiver, I want to see a timeline of my mother's observations over the past 30 days, so that I can spot patterns before they become crises rather than only learning about changes after an ER visit.	Timeline view shows all logged entries chronologically; filterable by observation type (vitals, meals, complaints, medications); exportable as PDF.
6	Anika	As a remote family caregiver, I want to onboard a new nurse to my mother's care record in under 10 minutes, so that each new carer starts with full context instead of requiring me to brief them over the phone.	New carer invited via phone number; upon accepting, immediately sees patient profile, current medications, active conditions, and the last 30 days of shift logs.

7	Anika	As a remote family caregiver, I want to add multiple family members to the care team so that my brother and I see the same information at the same time, so	Up to 5 family members can be added; all see the same real-time dashboard; notification preferences are individual.
		that we stop comparing notes from different WhatsApp conversations.	
8	Anika	As a remote family caregiver, I want to see when the nurse last logged a shift, so that I know if a day has been missed and can follow up before a gap in the record becomes a problem.	Dashboard shows last log timestamp prominently; if no log in 24 hours, a subtle reminder is sent to the carer and a flag appears on the family dashboard.
9	Anika	As a remote family caregiver, I want the platform to generate a pre-visit summary I can share with the physician before an appointment, so that we do not waste the first 3 minutes of a 7minute consultation catching the doctor up on what has happened at home.	Pre-visit summary generates as a onepage PDF; includes 30-day observation trends, medication changes, and flagged items; shareable via WhatsApp or email.
10	Anika	As a remote family caregiver, I want to add notes about my own observations when I visit in person, so that my perspective is part of the record alongside the nurse's daily logs.	Family members can add a 'Family Visit Note' entry type; visible to all care team members; distinct from nurse shift logs in the timeline view.
11	Om	As a home care nurse, I want to log my shift observations by speaking into my phone, so that I can complete documentation in under two minutes without stopping to type mid-shift.	Voice input captured and transcribed; AI structures output into shift note with vitals, meals, complaints, and medications sections; nurse reviews and confirms before submission.
12	Om	As a home care nurse, I want the incoming nurse to be able to read my shift summary before they arrive, so that the handoff is not a 15-minute verbal debrief and I can leave on time.	Shift note visible to all carers on the patient's care team immediately upon submission; incoming nurse receives a push notification.
13	Om	As a home care nurse, I want to flag a specific observation as a watch item, so that the family caregiver and physician are aware it needs monitoring without me having to individually notify each person.	Flag option available on any observation within a shift note; flagged items appear highlighted on the family dashboard and in the physician's pre-visit summary.

14	Om	As a home care nurse, I want to see the previous nurse's shift summary before I start my shift, so that I am not starting from zero and can provide continuity of care rather than discovering things midshift.	Last 3 shift summaries visible to any carer logged into the patient's care team before starting a new shift entry.
15	Om	As a home care nurse, I want a record of every observation I have logged, so that if a question arises about something that happened during my shift I can retrieve the exact entry rather than rely on memory.	All logged entries are permanently associated with the nurse who logged them, timestamped, and retrievable by date; visible to the nurse in their personal log history.
16	Om	As a home care nurse, I want the voice logging to understand Indian English accents accurately, so that the structured output reflects what I actually said and I can trust it to represent my observations correctly.	Voice transcription accuracy tested across five Indian English accent variants; nurse review step allows correction before submission; error rate target below 8% on first pass.
17	Dr. Mehra	As an outpatient physician, I want to receive a one-page pre-visit summary of a patient's home observations before their appointment, so that I can prepare for the consultation with current information rather than relying on the family's verbal account.	Summary sent 2 hours before appointment via WhatsApp or email; maximum one page; bullet point format; includes 30-day observation trends and flagged watch items.
18	Dr. Mehra	As an outpatient physician, I want the pre-visit summary to highlight medication changes since the last visit, so that I can check for interactions before the appointment rather than discovering them at the pharmacy.	Any medication added, changed, or discontinued since the last physician visit is highlighted in the summary with the date of change and who made the change.
19	Dr. Mehra	As an outpatient physician, I want to add a clinical note after an appointment that becomes part of the patient's care record, so that the nurse and family know what was discussed and what to monitor going forward.	Post-visit note entry available to physicians; visible to all care team members; appears in timeline as 'Physician Visit Note' distinct from nurse shift logs.
20	Dr. Mehra	As an outpatient physician, I want to be able to access a patient's emergency record by scanning their QR code, so that if a patient I am not familiar with presents at my clinic or an emergency department I have immediate access to their current medications and known allergies.	QR card accessible without login on any device with a camera; renders in under 3 seconds; displays medication list, allergies, current conditions, and last updated timestamp.

Section 6: Content Model

The content model below defines the key information types TesseraHealth manages, their attributes, their relationships to each other, and who creates and consumes each type. It is organized around the patient as the central entity, with all other content types connected to and through the patient record.

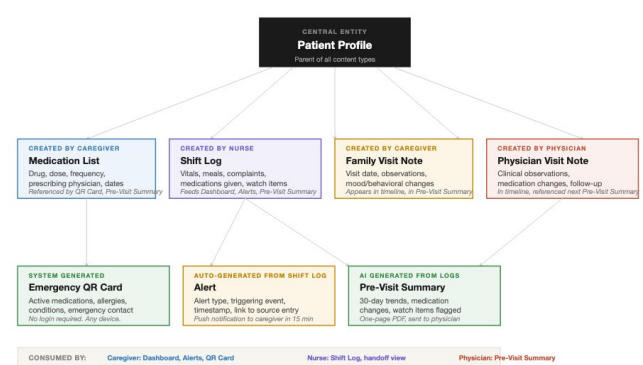
- CENTRAL ENTITY

FAMILY CAREGIVER CREATES

NURSE CREATES
- AI / SYSTEM GENERATES

PHYSICIAN CREATES

SYSTEM ALERT



CONTENT TYPE REFERENCE

CONTENT TYPE	CREATED BY	CONSUMED BY	KEY ATTRIBUTES	RELATIONSHIPS
Patient Profile	Family caregiver	All care team members	Name, DOB, conditions, allergies, emergency contact	Parent of all types
Medication List	Caregiver / physician	All team; QR Card	Drug, dose, frequency, start date, active/discontinued	Referenced by QR Card, Pre-Visit Summary
Shift Log	Home care nurse	Caregiver, physician, incoming nurse	Vitals, meals, complaints, watch items, free-text	Feeds Dashboard, Alerts, Pre-Visit Summary
Alert	System (auto)	Family caregiver (push)	Alert type, trigger, timestamp, link to source	Generated from Shift Log watch items
Pre-Visit Summary	System (AI)	Physician, optionally caregiver	30-day trends, medication changes, watch items	Aggregates Shift Logs + Medication List
Physician Visit Note	Physician	All care team	Visit date, observations, changes, follow-up date	In timeline; referenced in next Pre-Visit Summary
Emergency QR Card	System (auto)	Any physician / ER team	Medications, allergies, conditions, last updated	Pulls from Patient Profile + Medication List
Family Visit Note	Family caregiver	All care team	Visit date, behavioral observations, photos	In timeline; in Pre-Visit Summary if within 30 days