

INTAKE · IDP · HITL · EHR SOR

AI-Powered Healthcare Operations & Clinical Documentation Platform

Dockerized AIHC platform for multi-channel intake/STT, IDP/RAG, MCP agents with clinical escalation, scheduling/comms, HITL drafts, no-show (reminders only), eval, EHR/prior-auth sandbox, and ops dashboard — for clinics that need governed ops AI, not a diagnosis chatbot.

M0–M10
MILESTONES CLOSED

PASS
PHASE 1 / MVP / 3

2.1.0
API VERSION

PASSED
SMOKE_M10 + MVP

Built by **Abdul Basit** · AI Automation Engineer

BUSINESS IMPACT

Less admin lag · safer AI · audit-ready clinical ops
Intake→HITL→EHR SoR · unauthorized 0 · PHI overexposure 0 · Phase gates Met

OVERVIEW

Channels feed FastAPI intake and IDP into Postgres, MinIO, and Qdrant. Agents use MCP allowlists; clinical text escalates. Drafts require HITL finalize. Integrations expose FHIR/HL7 and EHR sandboxes. Dashboard /ops-ui plus n8n thin HTTP wraps. Live Epic/Cerner cutover is formally waived for sandbox acceptance.

TYPE

Healthcare ops + clinical documentation platform (not a single n8n flow)

ROLE

AI Automation Engineer / Platform Engineer

DELIVERY

API 2.1.0 · Milestone M10 · Closeout 2026-09-12 · Milestones doc v2.1

STACK

FastAPI · n8n · Postgres · Redis · Qdrant · MinIO · Caddy · FHIR/HL7/EHR sandbox

BUYERS

Clinics / MSOs needing HITL ops automation with clinical non-goals

THE PROBLEM

- Admin lag — intake / scheduling
- Chart burden — unstructured notes
- Ungoverned AI — invented Dx
- PHI risk — free-form SMS
- Care denial — no-show cancel
- No closeout — hard to prove gates

THE SOLUTION

- FastAPI AIHC — agents, HITL, audit
- Thin n8n — intake / docs wraps
- IDP + RAG — cited answers
- HITL gates — draft finalize
- EHR SoR — sandbox adapters
- Safety — noshow / PA rules

WHO IT SERVES

- Ops leaders needing governed clinic AI
- Clinicians needing draft HITL
- Sandbox demos without live EHR
- Lead demo: intake → HITL → closeout
- Secondary: noshow · prior-auth admin

CAPABILITY SURFACES

SURFACE	FOCUS	SURFACE	FOCUS
Intake / STT	Multi-channel · confidence	IDP / RAG	OCR · extract · citations
Agents / HITL	MCP · escalate · finalize	Ops UI	Exceptions · cost · analytics
P1 / P2	Noshow · eval · EHR · PA	Security	PHI templates · kill switch

Demo lead: ops-ui → \$6.1/\$6.2 → HITL finalize → kill-switch → closeout snapshot. **Secondary:** noshow deny forbidden · PA necessity null. **Closeout:** smoke_m10.py + MVP passed.

Architecture rule: FastAPI owns AI / AuthZ / HITL / clinical gates · n8n stays thin · EHR remains SoR · no diagnose/treat by AI · env-only secrets.

ARCHITECTURE & CAPABILITIES

Architecture, journeys, clinical safety

Principle: FastAPI owns intake, IDP, agents, HITL, and audit; **n8n owns thin side effects** — EHR/PMS remain systems of record.

Channels (web / voice / upload / portal)
→ n8n intake + docs + error path → PostgreSQL + MinIO + Qdrant
→ FastAPI: IDP · RAG · agents/MCP · HITL · scheduling/comms
→ FHIR/HL7/EHR sandbox · Dashboard · eval/closeout · Redis

COMPONENT	ROLE
Caddy + ops-ui	Proxy; static dashboard with API-key RBAC
FastAPI	Auth (X-API-Key + X-RoLe), clinical gates, audit
MCP / kill switch	Per-agent allowlists; blocks write/notify tools
HITL	Approve before clinical draft finalize
Phase 3	Noshow/eval, EHR/PA/K8s/learning, docs/KT

INTELLIGENCE

- IDP extract + specialty parsers
- Cited KB answers / no-answer
- MCP tool allowlists
- Clinical escalate (\$6.2)
- Eval scorecards + cost soft stop

INTEGRATIONS

FHIR P0/P1	Demoed
HL7 bridge	ADT/SIU
EHR sandboxes	Epic/Cerner
K8s guide	Docs
Live EHR	Waived

SAFETY & OPS

- No diagnose / treat by AI
- HITL before finalize
- Noshow never denies care
- PA necessity always null
- PHI templates + audit export

LEAD DEMO PATH

- Ops-ui KPIs + exceptions
- \$6.1 admin + \$6.2 escalate
- Draft pending → HITL finalize
- Kill switch blocks write/notify
- POST /closeout/snapshot

SECURITY PROOF POINTS

No API key → **401** · MCP overreach denied · finalize without approval blocked · unauthorized / PHI overexposure: **0**.

Demo arc: intake→HITL→EHR SoR primary · noshow/PA secondary · cite `OpenAI` 2.1.0 · `OpenAI` + MVP passed.

Reliability, M0–M10, Phase gates, closeout

RELIABILITY AND CLINICAL SAFETY

AREA	WHAT SHIPPED
Auth	X-API-Key + X-Role
MCP	Per-agent allowlists · audited denies
HITL	Approve before draft finalize
Noshow	Reminders only · deny forbidden
Prior-auth	Admin missing docs · necessity null
Audit	Export + closeout snapshot

PHASE GATES + CLOSEOUT

- Phase 1 (M4) — intake/IDP/RAG; MCP; escalate; injection → 0 - MVP (M7) — §6.1/§6.2; HITL; unauthorized → 0; PHI → 0 - Phase 3 (M10) — P1/P2; docs+KT; sandbox Met	
smoke_m10.py	ok / MVP passed
API version	2.1.0
Closeout date	2026-09-12
Evidence chain	docs/m4 → m7 → m8 → m9 → m10

MILESTONES M0–M10 (ALL COMPLETE)

ID	THEME	WHAT UNLOCKED
M0	Kickoff & architecture	Stack, principles, clinical non-goals
M1–M2	Skeleton → intake	Compose, RBAC, STT confidence
M3–M4	IDP → Phase 1	RAG citations, MCP agents, Phase 1 Met
M5–M6	Schedule → HITL	Comms/referrals, draft finalize gated
M7	Dashboard / MVP	Ops UI, /mvp/evaluate Met
M8–M9	P1 → P2 polish	Noshow/eval, EHR/PA, learning, K8s
M10	Docs / UAT / KT	Closeout pack, Phase 3 Met, API 2.1.0

INTAKE / IDP

Multi-channel → confidence route → OCR/classify/extract with fail-closed review.

AGENTS + HITL

- MCP tool allowlists
- Clinical escalate
- Draft finalize gated

OPS + RECOVERY

- Dashboard + exceptions
- pg_dump backup smoke
- Cutover checklist + KT

Concrete reliability: no-key → 401 · MCP overreach denied · finalize requires HITL · noshow deny forbidden · unauthorized / PHI at UAT: 0.

Delivery truth: M0–M10 complete · Phase 1/MVP/3 Met · smoke_m10 + MVP passed · API 2.1.0 · cite live /health in demos.

OUTCOMES · TECH · DEPTH

Stack, UAT, journeys, n8n, residual risks

TECH STACK + REPRODUCE

FastAPI · n8n · Postgres · Redis · Qdrant · MinIO · FHIR/HL7/EHR sandbox · Caddy · Compose AIHC

`docker compose up -d --build · in-container smoke_m10.py`

Surfaces: /ops-ui · /health · /docs · n8n :5678 · Auth: X-API-Key + X-Role

SCOPE HONESTY

- Portfolio case study — no fake logos or reviews
- Sandbox-first EHR without live credentials
- Waivers: live cutover (W-01), live EHR (W-03)
- Not a diagnosis engine — full AIHC M0–M10

M10 CLOSEOUT EVIDENCE INDEX

DOC	PURPOSE
UAT.md / ACCEPTANCE.md	Golden paths Met · PRD Complete/Waived · MVP passed
CUTOVER.md / RUNBOOK.md / KT.md	Deploy checklist · day-2 ops · KT notes
ARCHITECTURE_v1.md	Baseline topology
smoke_m10.py	Kill-switch · audit · snapshot · PHI · MVP

DASHBOARD

Exceptions	By type / aging
Cost	Soft budgets
Analytics	P1 charts

P1 / P2

Noshow / eval	M8
Portal / FHIR	M8
EHR / PA	M9
K8s guide	Docs

N8N CATALOG

- intake / document / appt
- referral / documentation
- noshow / priorauth
- global error / DLQ

N8N (THIN CALLERS)

Intake · IDP · appointments · referrals · docs · noshow · prior-auth · global error — env API key only

RESIDUAL RISKS (HONEST)

Live EHR/SMS sandboxes · prod TLS/secret rotation · STT/OCR quality · wet-ink acceptance — tracked as M10 waivers; **none reopen Phase gates.**

SAMPLE JOURNEYS + GATES

\$6.1 MVP evaluate	\$6.2 Clinical escalate	HITL Draft finalize	Noshow Deny forbidden
Prior-auth Necessity null	Portal PHI template	Closeout Snapshot	401 No key

PORTFOLIO ONE-LINER

AIHC — Dockerized FastAPI + n8n healthcare ops platform: intake/STT, IDP/RAG, MCP agents with clinical escalation, HITL drafts, scheduling/comms, no-show (reminders only), eval, EHR/prior-auth sandbox — M0–M10 complete at API 2.1.0.

SYSTEM VISUALS

Architecture & before / after

