
OCTON HEALTH 360

DIGITAL HOSPITAL · EVIDENCE-ENGINEERED CLINICAL AI

Executive Brief

The digital hospital clinicians can lean on.

v2026.2 · Digital Hospital

Prepared October 2026

Confidential. Prepared for the named recipient.

Clinical decision-support with a human clinician on the final word.

CHAPTER 01

Executive summary

OCTON HEALTH 360 is a digital hospital: one voice-native clinical AI that a patient or clinician can walk into, triage through, and consult across more than eighteen specialty faculties. Each faculty operates as its own clinic, with its own perception models, evidence library and care pathways, under a single, coherent system of record.

The platform compresses the interval between signal and action. It reads imaging, pathology, fundus and lab inputs; screens every emergency contact for red flags; computes individual risk with transparent Bayesian math; and routes the person to the right clinic. Every output is anchored to current clinical guidance, and a licensed clinician holds the final word.

18+ Specialty clinics	5-level ESI / MTS triage	NEWS2 Early-warning scoring
13 Specialist consult brain	FHIR R4 + SMART-on-FHIR v2	Voice Hands-free, multilingual

CHAPTER 02

The digital hospital

Eighteen faculties, one hospital. A visitor enters through the Emergency Room or walks directly into the specialty they need. No silos, no duplicated work: findings, risk and memory are shared across the whole system.

Emergency & Urgent

Emergency Room Voice-led triage, 5-level ESI / MTS acuity, NEWS2 and time-critical pathways.

Specialty Clinics

Dermatology AI skin diagnostics, dermoscopy and iPhone dermal scanning (ABCDE).

Retina & Oculomics Diabetic retinopathy, glaucoma and systemic risk read from the retina.

Cardiology ASCVD risk, prevention and heart-failure intelligence.

Neurology Stroke triage, headache phenotyping, cognition and neurodegeneration.

Pulmonology & Sleep Chest imaging, asthma, COPD and sleep-disordered breathing.

Oncology Early detection across 18 cancer types with cross-cancer correlation.

Gastroenterology IBD, IBS, reflux, fatty liver and the gut microbiome.

Nephrology Chronic kidney disease staging, protection and prevention.

Endocrine & Metabolic Diabetes, thyroid, obesity medicine and metabolic health.

Musculoskeletal Fracture detection, osteoporosis, arthritis and back pain.

Infectious Diseases Hepatitis, TB and HIV screening, pneumonia and travel medicine.

Life-Stage Care Hubs

Women's Health 360 Postpartum, PCOS, endometriosis, perimenopause and beyond.

Men's Health 360 Preventive cardio, prostate, andropause, fertility and metabolic.

Paediatric 360	Growth, nutrition, asthma, allergy, ADHD and immunisation.
Geriatric 360	Frailty, polypharmacy, falls, dementia and heart failure.
Mindcare 360	PTSD-prominent counselling, mood, anxiety and holistic care.
Holistic & Integrative	
Integrative Medicine	Lifestyle medicine, longevity and evidence-graded traditions.

CHAPTER 03

The Emergency Room, done properly

The front door is protocol-based, not improvised. OCTON screens for red flags on every turn and never offers virtual care in place of emergency services.

- **Five-level acuity.** An ESI / Manchester-style framework with standardised time targets, from immediate resuscitation to routine.
- **NEWS2 early-warning.** Respiratory rate, SpO2, temperature, systolic pressure, pulse and consciousness scored for deterioration.
- **Time-critical pathways.** Sepsis, stroke, ACS / STEMI, major trauma and anaphylaxis, each with recognition criteria, immediate actions, the clock and a guideline citation.
- **Hands-free triage.** Voice Live greets the person, screens continuously for red flags and routes to the right clinic.
- **Honest governance.** Live ED operations and simulation are partner-pilot modules, shown as roadmap, never faked as live.

CHAPTER 04

How OCTON reasons

The architecture mirrors the cortical pathway that makes a clinician good: parallel sensing, durable memory and adaptive reasoning. One AI, not thirteen disconnected apps.

Transparent math, not a black box

- **Bayesian posteriors.** Every risk score is a real posterior update, $\text{logit}(p) = \text{logit}(\text{prior}) + \text{sum of } \ln(\text{LR}^+)$, traceable factor by factor.
- **Hebbian memory.** A shared co-occurrence matrix learns how conditions actually cluster across specialties, with Oja normalisation and passive decay.
- **Longitudinal context.** Every prior scan, lab and screen is retained so subtle evolution is flagged earlier than single-read baselines.
- **Companion records.** Distinct people are kept as separate, persistent case files with strict data separation and no cross-patient bleed.

CHAPTER 05

Evidence and governance

Every risk calculator, screening schedule and reporting framework is traceable to a specific, citable source, refreshed against the bodies below.

NCCN · USPSTF · ACS · ESMO · AHA / ACC · ESC · ADA · AACE · KDIGO · GINA · GOLD · NICE · AAD · AAO · ACOG · AAP · BGS · APA · WHO

- **Human-in-the-loop.** OCTON assists; a licensed clinician decides. The product is clinical decision-support, not a medical device.
- **Traditional and complementary options are evidence-graded** and complement, never replace, a clinician's treatment.
- **Standardised reporting** across BI-RADS, LI-RADS, Lung-RADS, PI-RADS and peers for radiology-grade output.

CHAPTER 06

Security and integration

- **Authentication.** Email and password with JWT bearer sessions; role-aware access for patient, clinician and admin.
- **Interoperability.** FHIR R4 with SMART-on-FHIR v2 (dynamic client registration, JWKS rotation, RS256) for EHR integration.
- **Imaging.** Native DICOM rendering and Heidelberg HEYEX / SPECTRALIS decoding for fundus and OCT.
- **Resilience.** Progressive web app with offline support; installable on iPhone, iPad and Android.
- **Data dignity.** Companion records are isolated per person; biometric enrolment stores only mathematical vectors, never the image or audio.

CHAPTER 07

Where we are, and where we are going

OCTON HEALTH 360 is live as an end-to-end preview spanning the hospital hub, emergency room, specialty clinics, voice consultation and the walk-in scan cubicle. We are seeking clinical pilot partners to co-design the operational layer.

- **Partner roadmap (not yet live).** Live ED operations board, e-prescribing and a command centre, to be co-designed with a pilot emergency department.
- **Always honest.** Capabilities that require a real deployment are presented as roadmap, never simulated as production.

OCTON assists; a licensed clinician decides. A live product walkthrough is available on request.