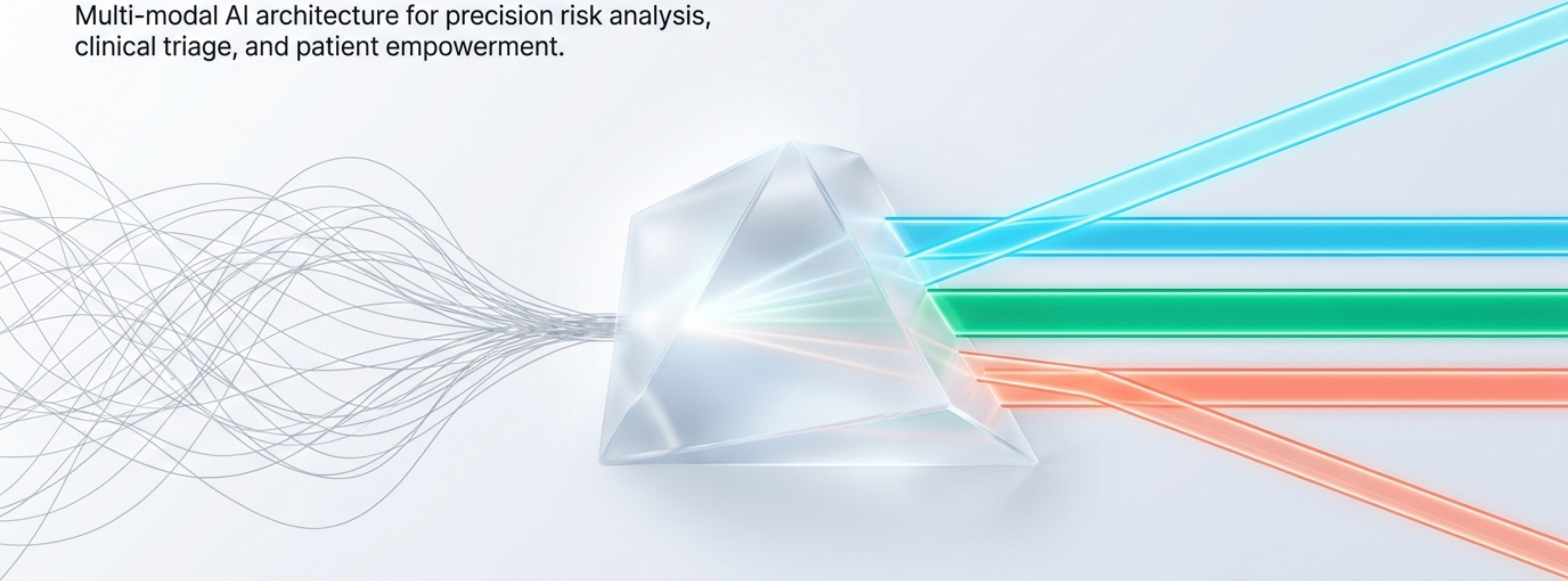


UC38: The Intelligent Health Assessment Engine

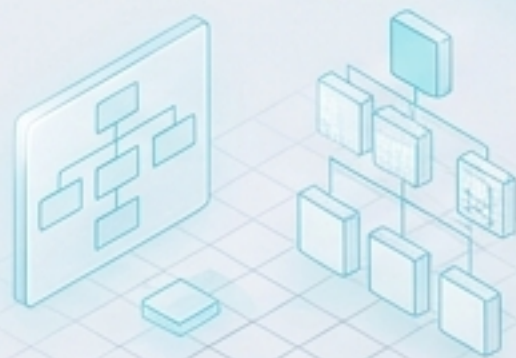
Multi-modal AI architecture for precision risk analysis, clinical triage, and patient empowerment.



One Analytical Engine, Three Perfectly Tuned Lenses

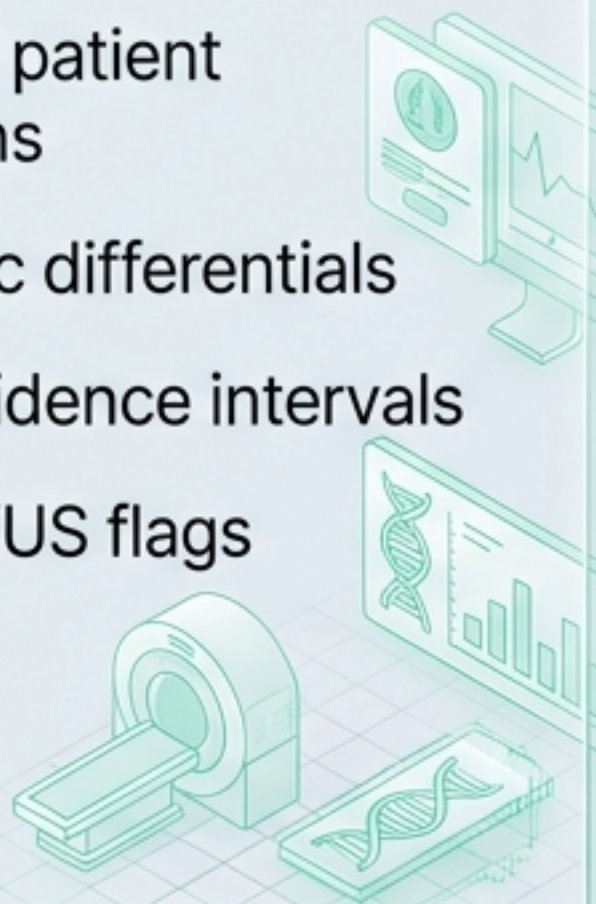
Administrator

- Cohort-level analytics
- Operational queue depth
- Resource planning



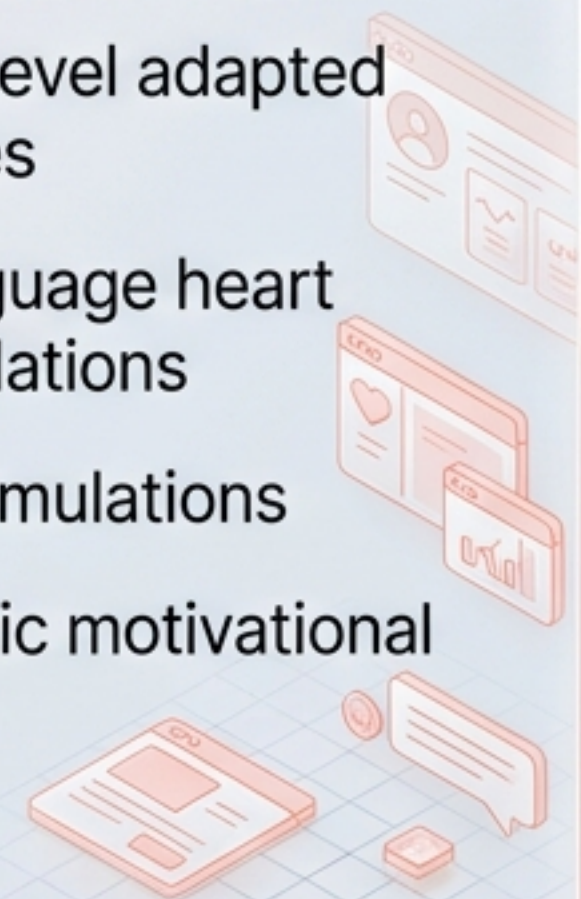
Clinician

- Individual patient drill-downs
- Diagnostic differentials
- 95% confidence intervals
- Genetic VUS flags



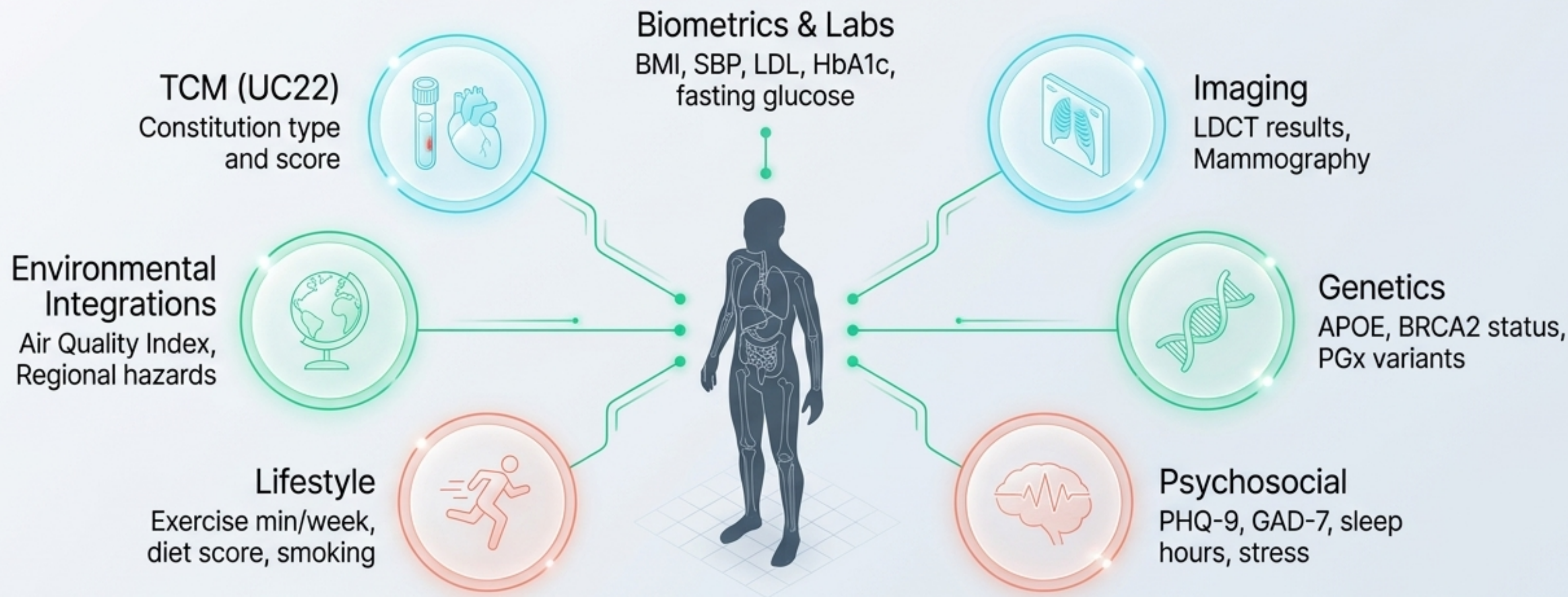
Patient

- Reading-level adapted summaries
- Plain-language heart age translations
- What-if simulations
- Empathetic motivational coaching



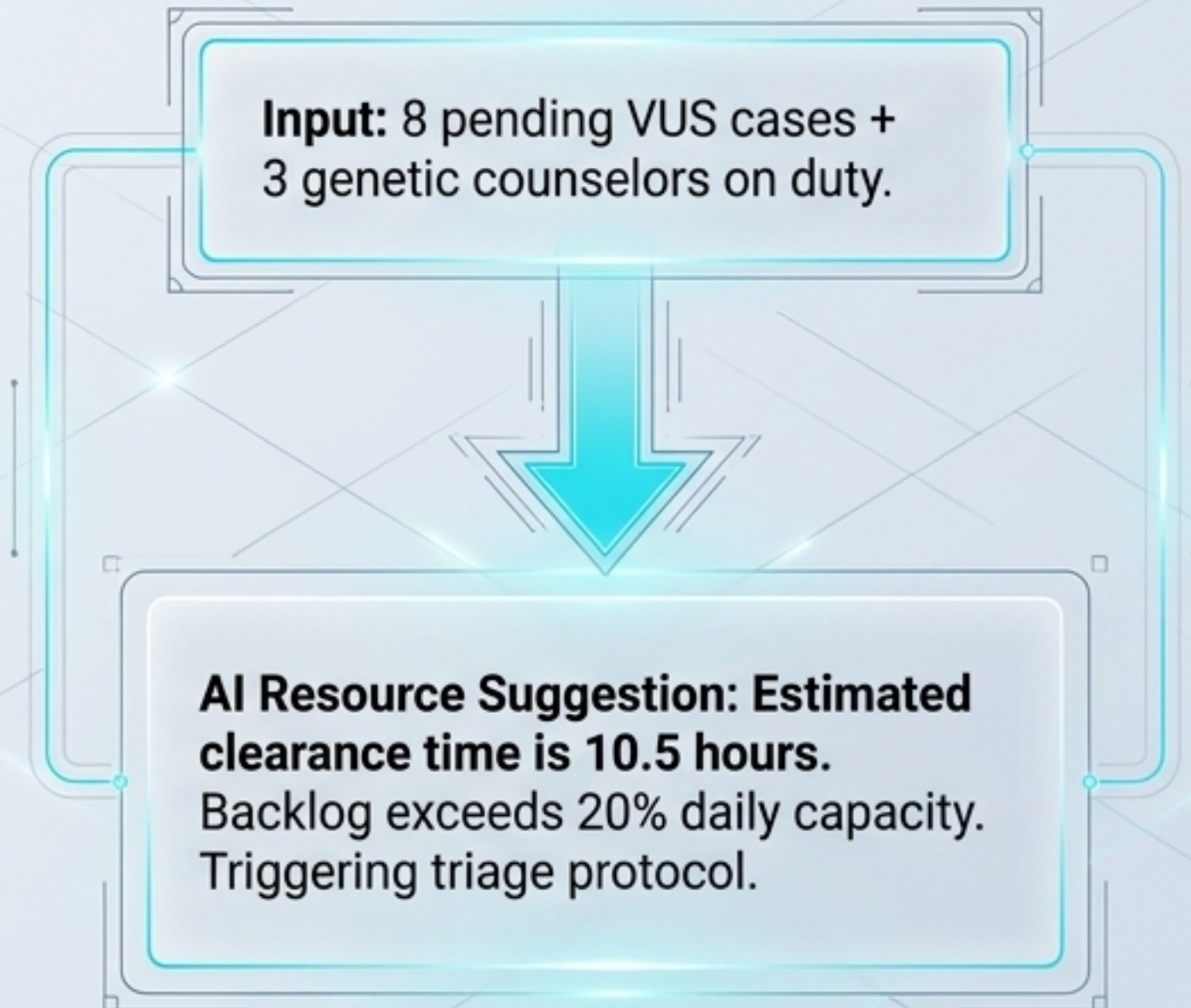
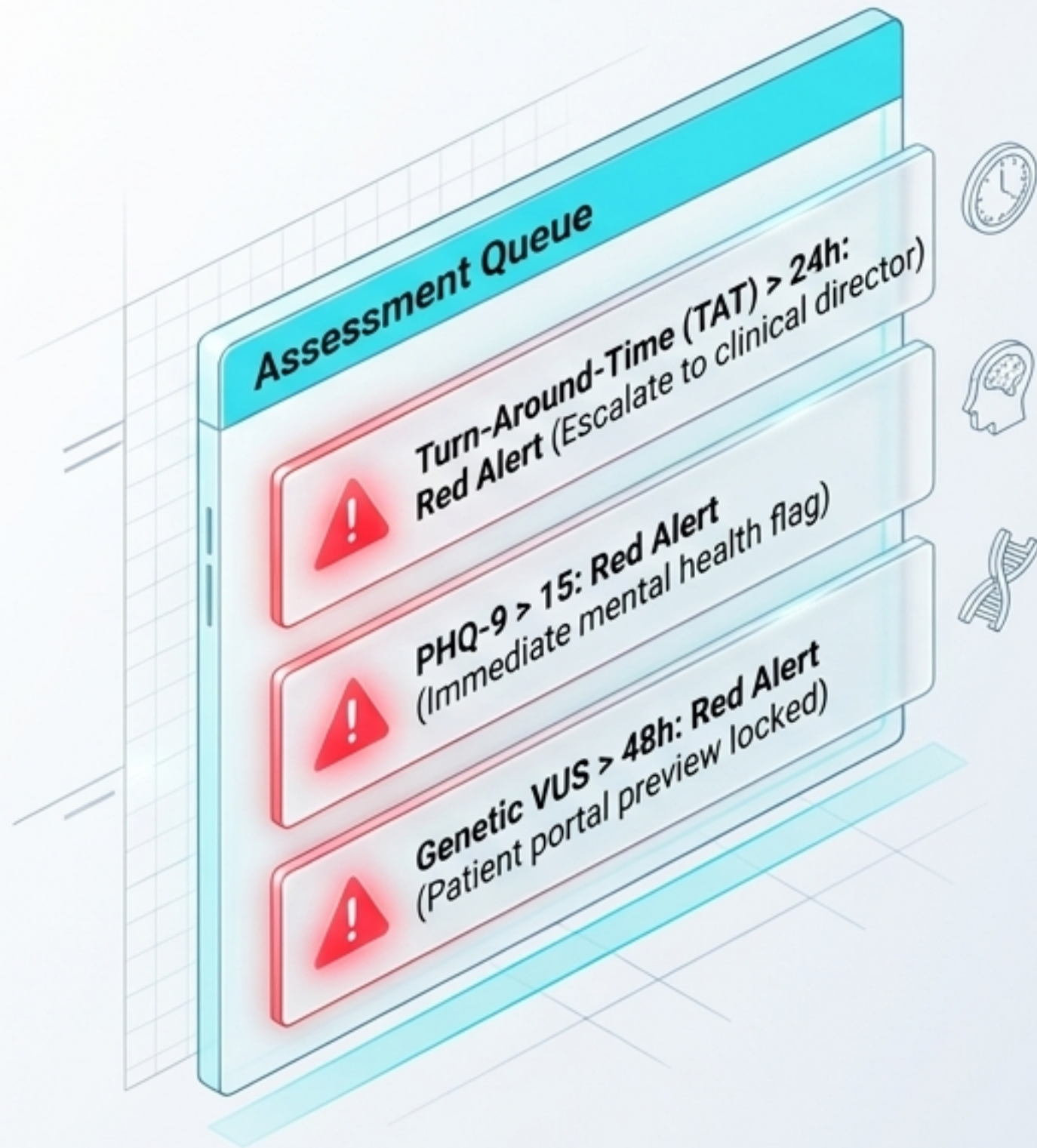
Absolute Rule: No raw data is ever exposed without contextual translation. The system never provides definitive diagnoses, only probabilistic risk assessments.

The Multimodal Data Foundation Spans Three Years of Patient History

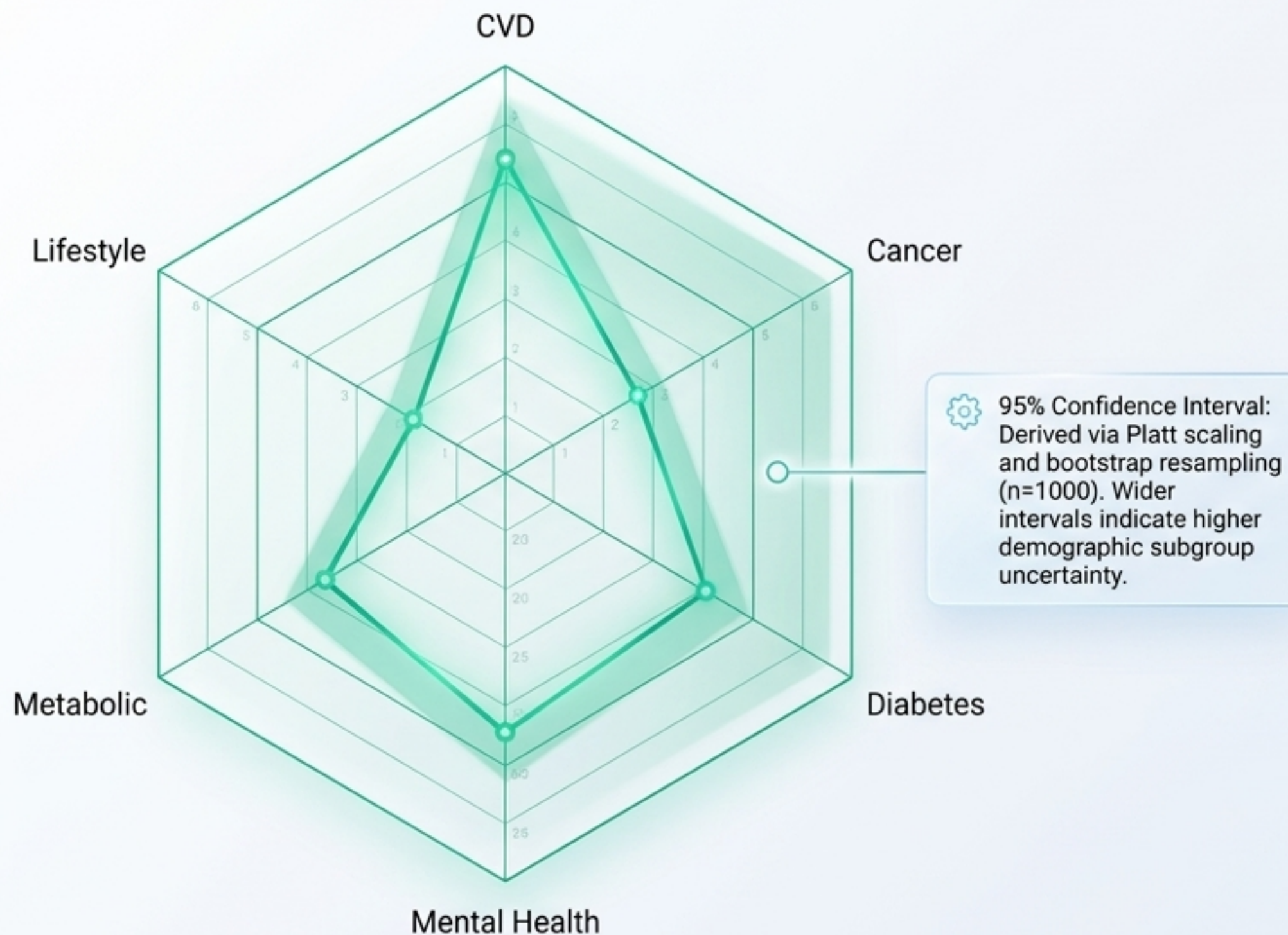


Ingests 36 months of longitudinal data to establish baseline trajectories before calculating predictive risk.

Intelligent Triage Automates Operational Prioritization



The Analytical Core: Six-Axis Probabilistic Risk Engine



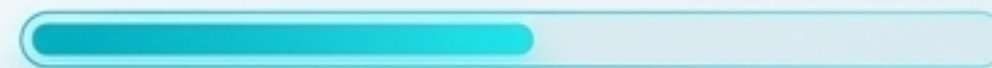
Primary Risk Drivers

CVD 10-year Risk Estimate: 0.18
(95% CI: 0.14 - 0.23)

Driver 1: BMI 31.2 (28% weight)



Driver 2: SBP 148 (22% weight)



Driver 3: Family History CVD (18% weight)



Translating Complex Risk into Actionable Patient Trajectories

Patient Translation



Heart Age Dial

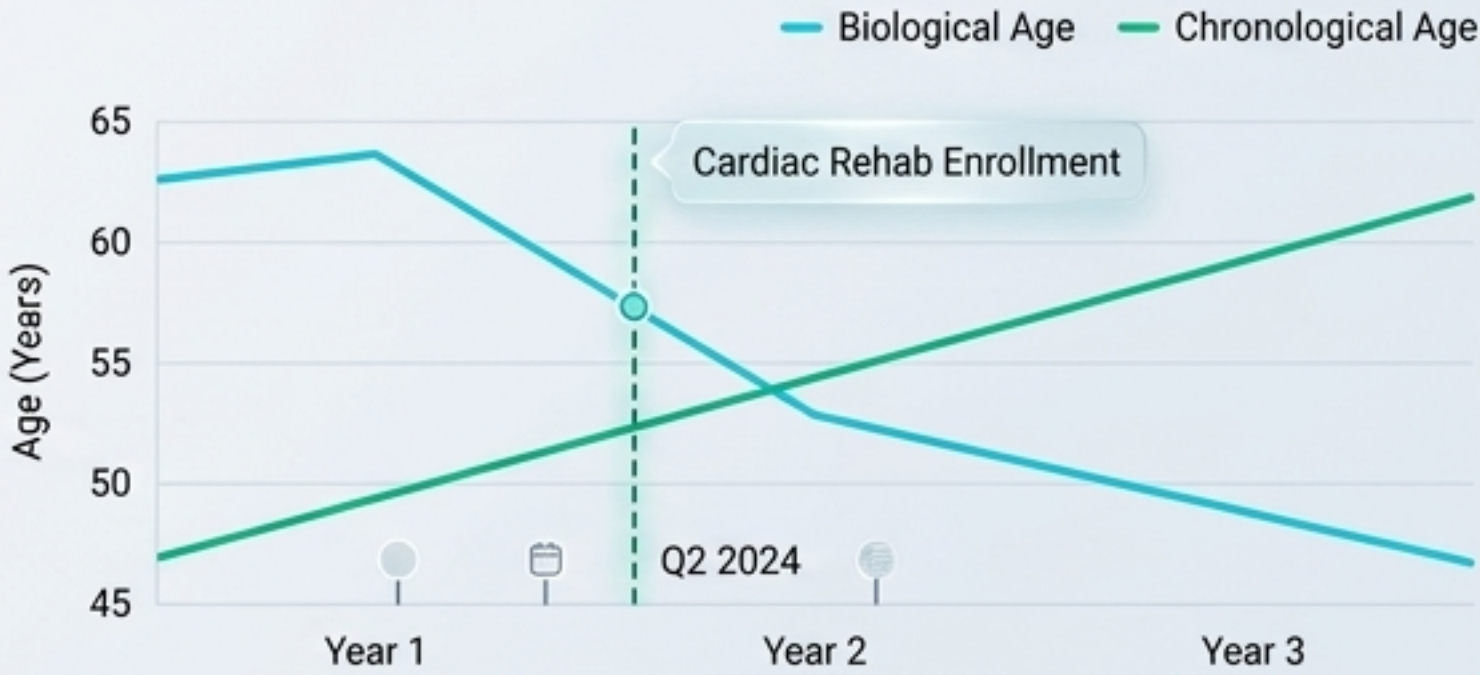
Executive Summary

Your heart age is 57 — 6 years older than your actual age.



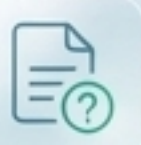
Goals auto-translated into SMART milestones at a Grade 6 to Grade 10 reading level.

Continuous Trajectory



After enrolling in cardiac rehab (Q2 2024), your LDL dropped 18 mg/dL and SBP decreased 8 mmHg.

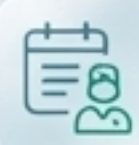
The Comprehension Validation Loop



Micro-quiz auto-triggered post-report

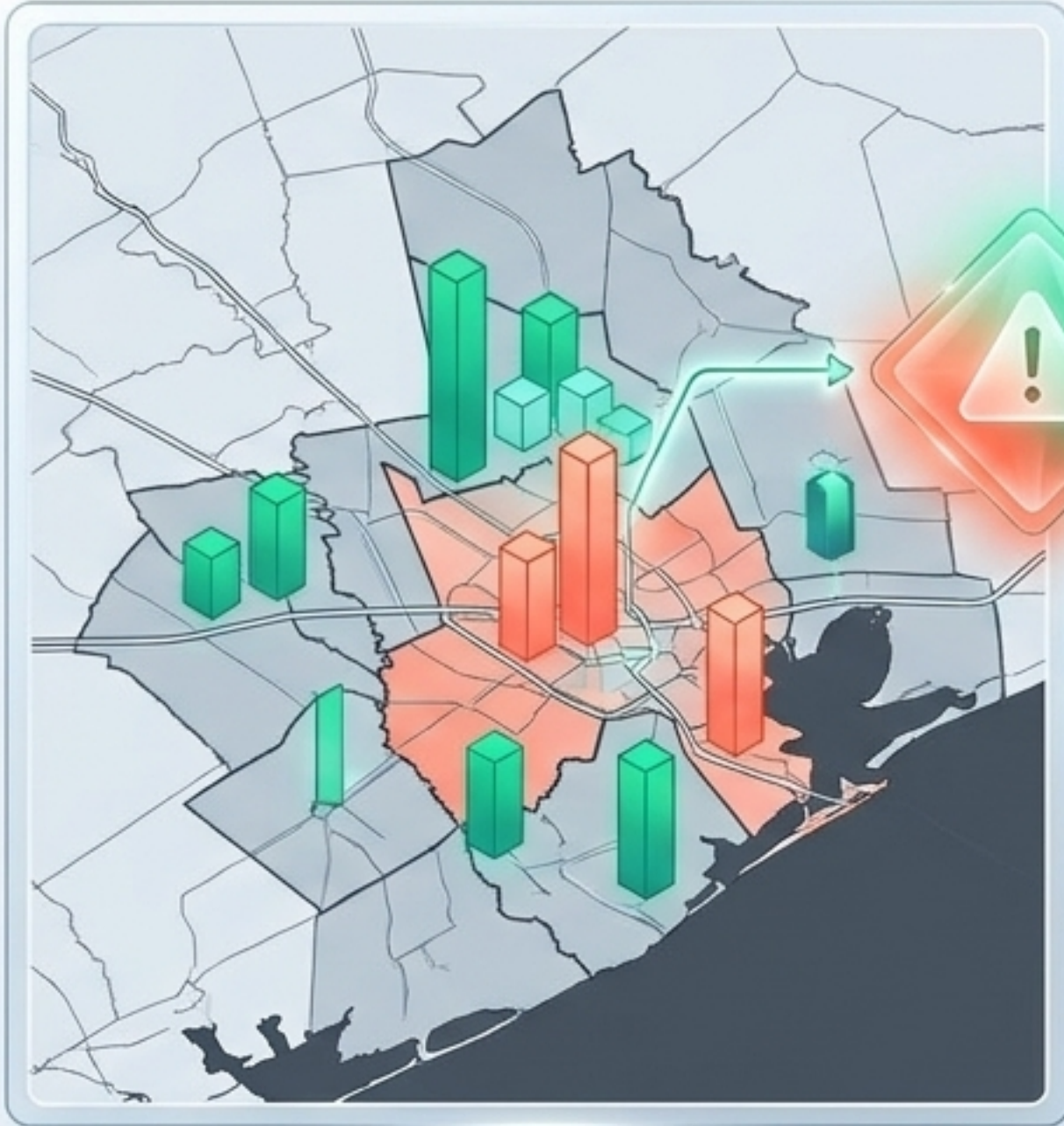


If confidence score < 6/10



Auto-generate simplified version & schedule nurse follow-up

Population Benchmarking and Health Equity Detection

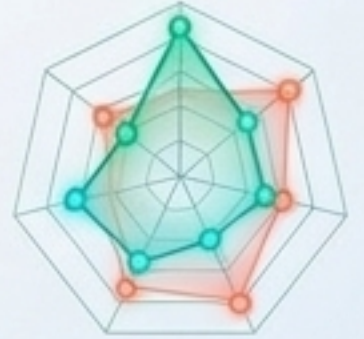


Health Equity Flag

Equity Flag: System automatically flags Social Determinants of Health (SDOH)—like housing or food security—if local regional prevalence significantly mismatches individual demographic risk.

Percentile Ranking

Ranks patient across 7 dimensions against an age/sex/ethnicity-matched cohort.

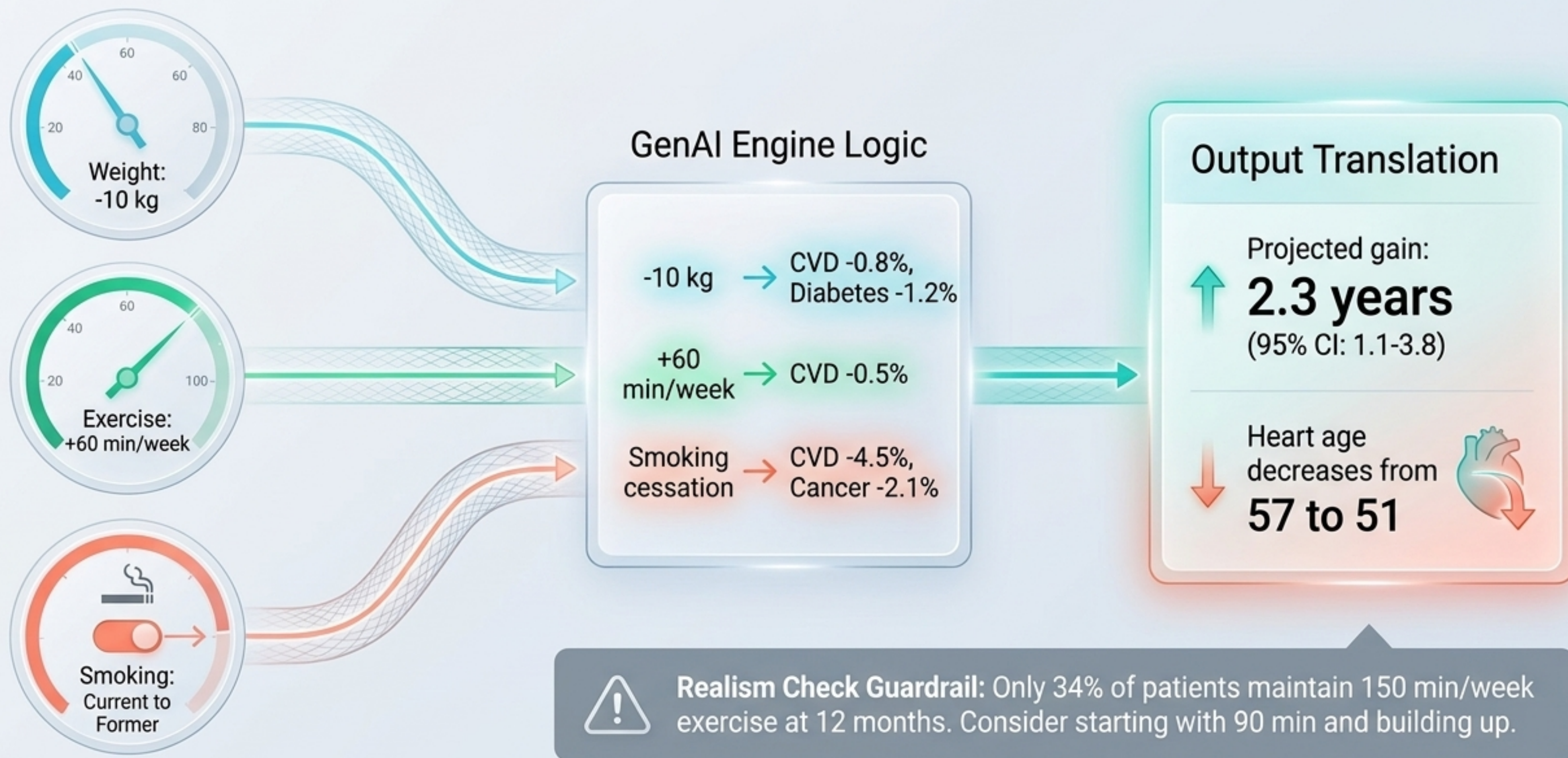


Peer Success Pathways

Patients like you (BMI 30-32, age 50-55) who achieved 10% risk reduction typically:

- ◆ Lost 6.2 kg over 12 months
- ◆ Increased exercise to 180 min/week
- ◆ Improved diet scores by 1.5 points

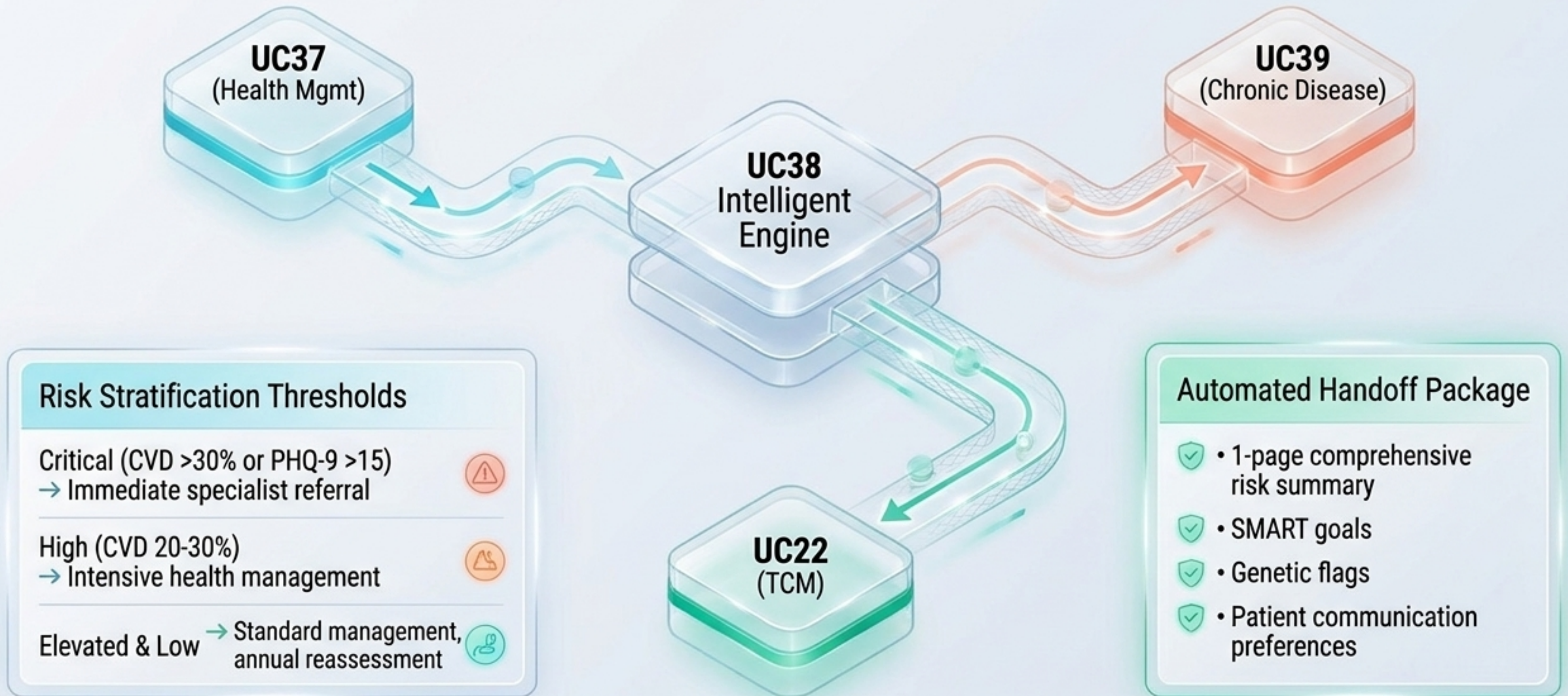
Generative Dose-Response Simulations Drive Patient Motivation



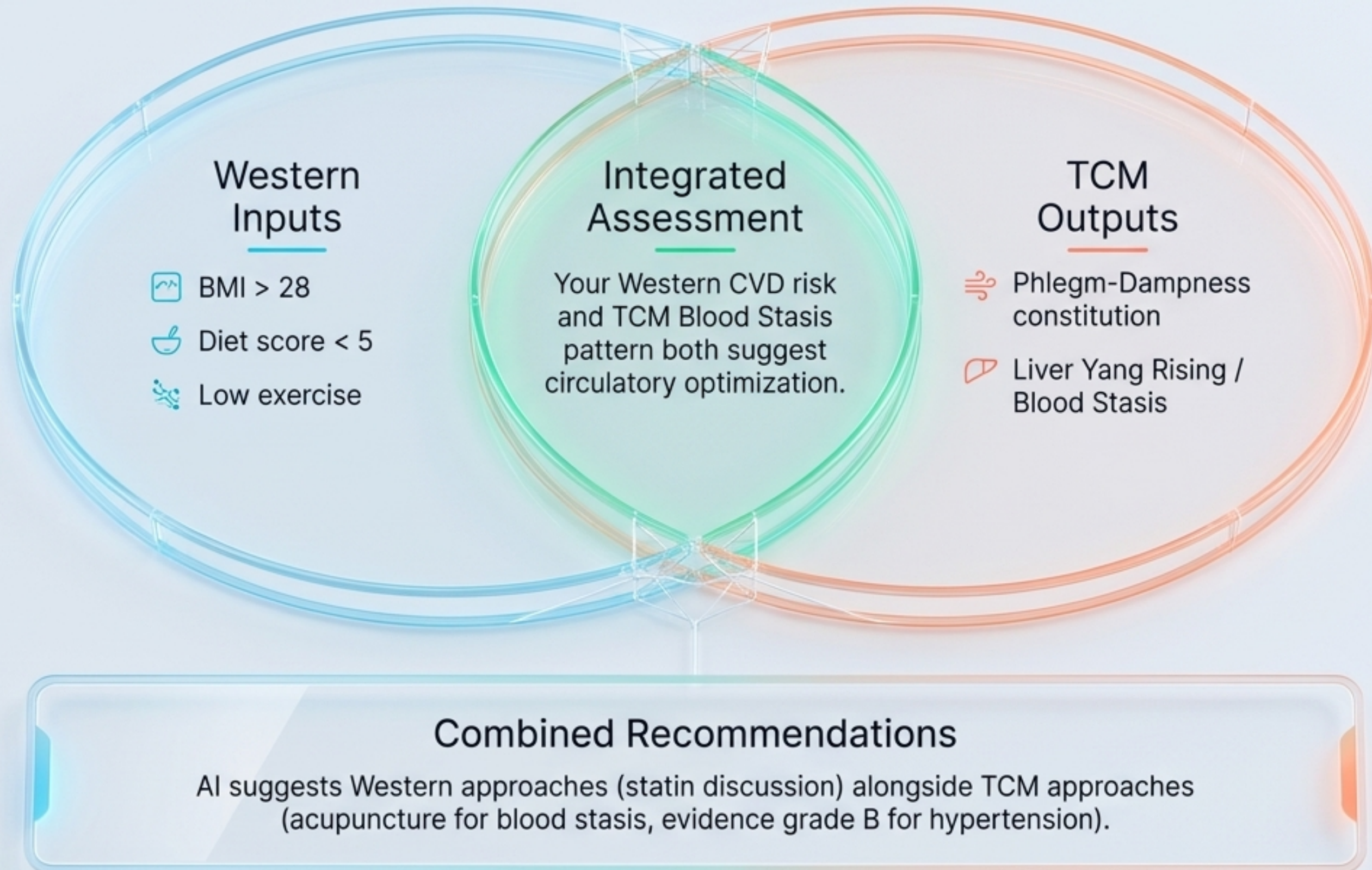
LLM Guardrails Ensure the AI Health Advisor Remains Safe and Empathetic



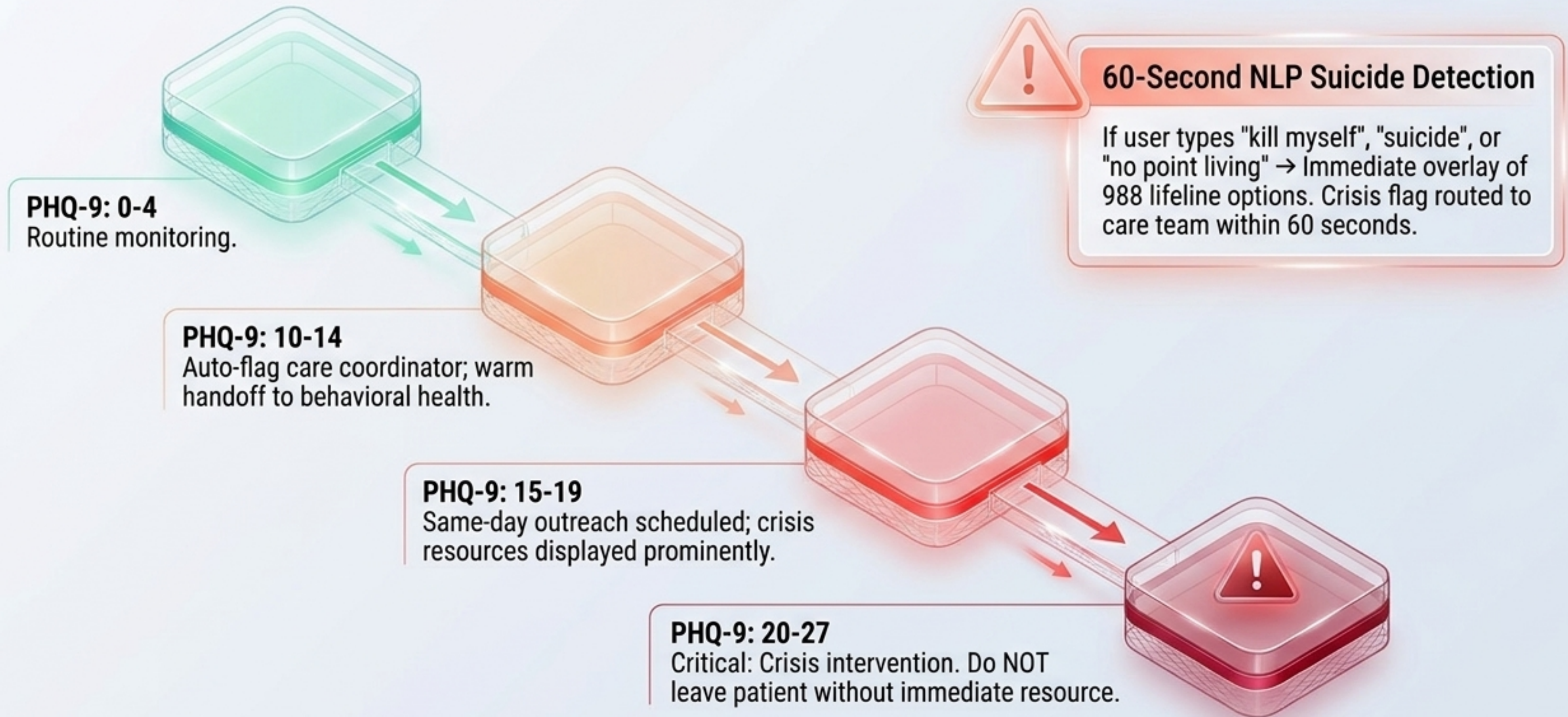
Ecosystem Integration and Automated Pathway Routing



Synthesizing East and West: The UC22 TCM Integration

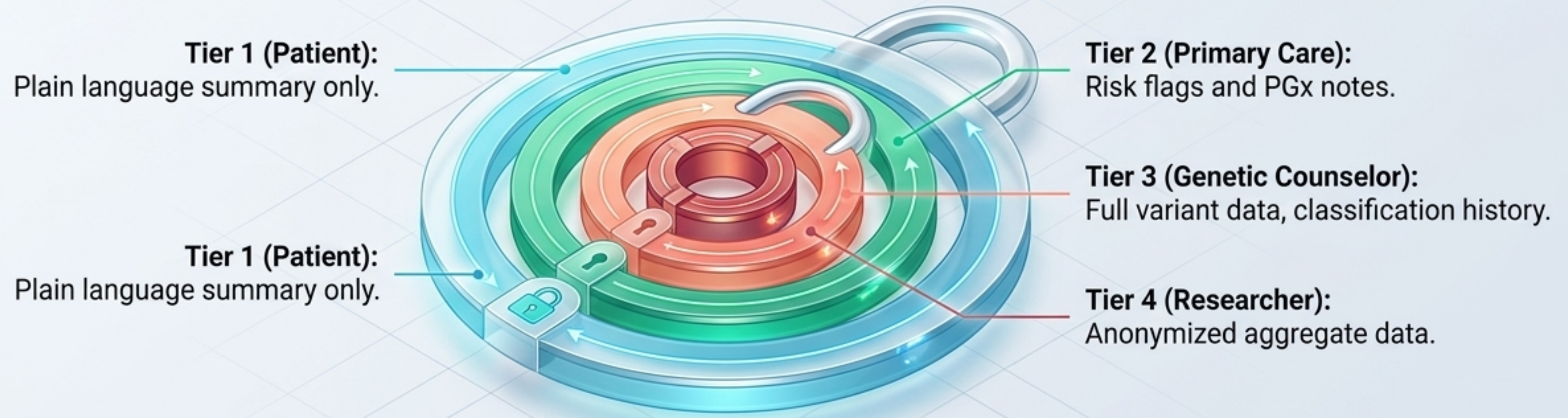


Non-Negotiable Safety: The Mental Health Escalation Protocol

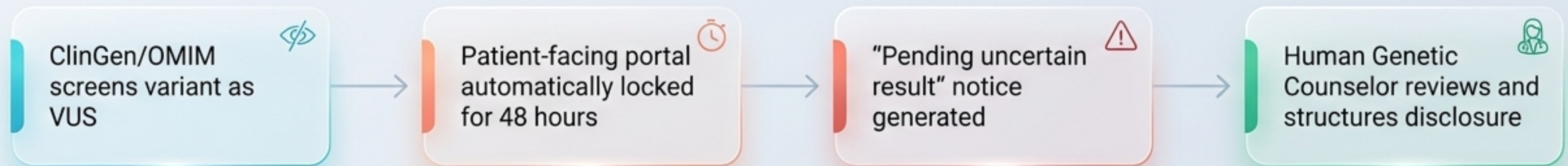


Ethics in Action: Secure Genetic Data Handling Workflow

Strict GINA Compliance Access Tiers



The VUS (Variant of Uncertain Significance) Workflow Rule

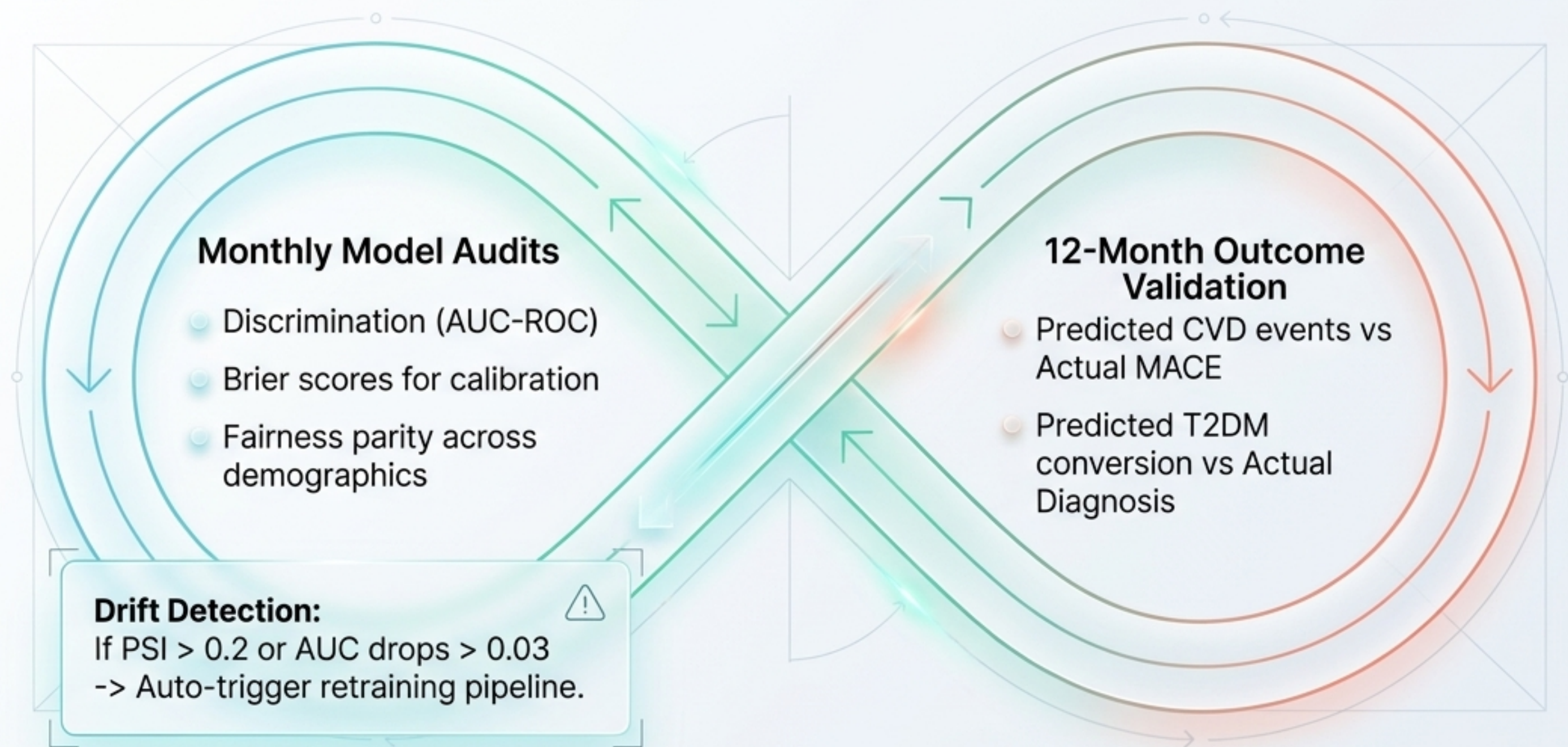


Psychological Guardrails Mitigate Over-Screening Anxiety

Standard Medical Reporting	UC38 Anxiety-Mitigated Framework
18% lifetime breast cancer risk.	Contextualize Absolute Risk 18% vs average 12%. Out of 100 women like you, 18 will develop it — but 82 will not.
Because of your elevated risk, we recommend annual mammography + MRI starting at age 45.	Pair Risk with Action Because of your elevated risk, we recommend annual mammography + MRI starting at age 45.
Your lung CT shows no nodules.	Surface Positive Findings Your lung CT shows no nodules. Your smoking cessation 2 years ago has significantly reduced your risk.

 **The Safety Net:** Post-disclosure anxiety self-rating (1–10). If >7, automatically trigger nurse callback within 24 hours.

Continuous Validation: An AI Engine That Audits Itself



The system perpetually tightens its confidence intervals and reduces clinical bias with every patient cycle.