STRATEGIC PARTNERSHIP OPPORTUNITY

AI Agents in Acute Care

AI

Autonomous Therapy. Continuous Learning.

25 years of investment. 1.3 million patients harmed annually.
The architecture to solve this exists today.

Daniel C. Pettus | danielpettus.com | June 2026

THE PROBLEM

Decades of Investment. The Problem Persists.

1.3M

Americans

harmed by medication errors every year

200K+

Deaths

annually from preventable medical errors

25+

Years

of investment. The number has not declined.

Sources: WHO 2024 | AHRQ 2024 | Mayo Clinic Proceedings 2018

THE INFLECTION POINT

AI Changes the Calculation

THE OLD MODEL

- Each system works in isolation
- Closed loop only if you buy the whole vendor stack
- Reactive: responds to errors that have already occurred
- HL7 and FHIR standards exist. Integrations remain hard.
- Nurse manually programs the pump

WITH AI MEDAGENT

- Vendor-agnostic open architecture
- AI connects every existing system regardless of manufacturer
- Proactive: optimizes therapy before harm occurs
- IHE PCD standards, FHIR R4, HL7 built in from day one
- Infusion pump auto-programmed, nurse notified on handheld

THE CLINICAL EXAMPLE

Post-CABG Patient, ICU Day 1

Six high-risk IV medications require continuous titration | Vasoactive drips | Sedation | Insulin | Vital signs every 30seconds | Lab results every 1-2 hours

Patient Monitor

MAP, BP, HR, RR continuous

AI Agent

Detects MAP < 65 declining trend

Pharmacy

Notified and approves instantly

Infusion Pump

Auto-programmed via IHE PCD-03

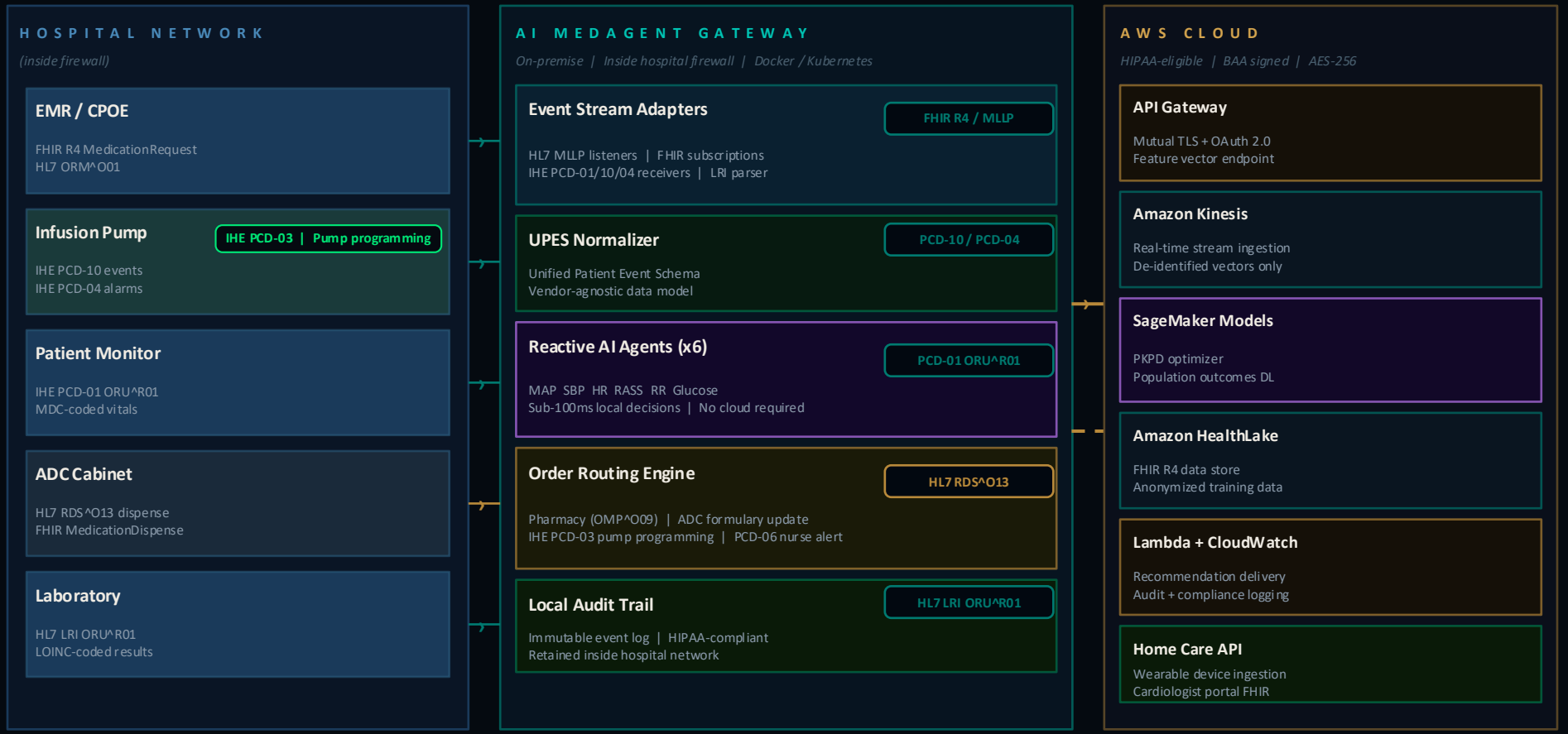
Nurse

Handheld alert not at bedside

Result: MAP recovers. Nurse observes remotely. No manual pump programming. Time from detection to action: under 3 seconds.

TECHNICAL ARCHITECTURE

AI MedAgent Platform: Component Architecture



PHYSICIAN ENTERS ORDERS · AI STARTS WORKING IMMEDIATELY

CPOE Entry → AI Recommendation → Physician Review → Dispensed

01

Order Entered

CPOE / EHR

Post-CABG order set entered by attending physician.

ICD-10 I25.110
CPT 02110Z9
Wt 82 kg · CrCl 68

Orders transmitted to pharmacy and AI gateway simultaneously.

02

Agents Fired

Cloud AI Engine

De-identified feature vector sent to cloud.

4 agents query:

- CMS Hospital Compare
- AHRQ PSI-90
- NIH ClinicalTrials.gov
- FDA MAUDE

03

Recommendation

Outcomes Analysis

3,214 comparable post-CABG cases analyzed.

Finding: Propofol → Dexmedetomidine

23% lower PRIS risk
Shorter ventilator time
Confidence: 88%

04

Physician Reviews

1-Click in CPOE

Recommendation surfaced before any drug is dispensed.

Physician: Confirm or Override

Every decision trains the model.

Lane keeping → full self-driving.

THE PLATFORM

Four Connected Layers

1

Hospital Systems

CPOE | EMR | ADC

Infusion Pumps (IHE PCD-10)

Monitors (IHE PCD-01)

Lab (HL7 LRI)

Ventilators

2

On-Premise Gateway

Inside hospital firewall

6 Reactive AI Agents

Real-time titration

Sub-100ms decisions

IHE PCD-03 pump orders

3

AWS Cloud Engine

De-identified data only

Deep learning optimizer

Population outcomes model

Therapy recommendations

4-hour optimization cycle

4

Connected Home

Post-discharge monitoring

Apple Watch | Oura Ring

AI continues at home

Cardiologist linked

Prevent readmission

WHERE WE ARE

Concept to Production Needs One Thing

WHAT EXISTS TODAY

- ✓ Platform architecture specified
- ✓ Hybrid edge-cloud deployment model
- ✓ IHE PCD transaction reference
- ✓ Incremental adoption model (6 stages)
- ✓ End-to-end SDK with sample code
- ✓ Live interactive proof of concept
- ✓ Peer-reviewed article in submission

WHAT A PARTNER BRINGS

Engineering capacity

Gateway and AWS infrastructure build

Hospital relationships

Beta site access and clinical champions

Investment capital

Regulatory engagement and validation

Sales network

Health system and pharmacy procurement

The intellectual property, architecture, and domain expertise remain with the founder. A partner brings resources, not ownership of the vision.

40 Years: Devices, Data, and Patient Safety

1986 · Journal of Clinical Monitoring

EEG Processing Algorithm

Springer. Real-time wave-by-wave EEG characterization. Neurometrics, San Diego.

1988 · Anesthesia Informatics

ARKIVE

First-to-market anesthesia information system. Voice recognition, touchscreen, real-time device connectivity.

1999 · Co-Founder

iMetrikus / MetrikLink Hub

Co-founded one of the first cloud-based personal health platforms. Predecessor to today's connected device gateway.

2011 · AAMI BI&T

Where IT Meets IV

With Tim Vanderveen. Convergence of biomedical engineering and IT in smart pump connectivity.

2013 · AAMI BI&T ★ Best Article 2014

Worth the Effort?

Closed-loop infusion pump integration with the EMR. PubMed indexed. Cited by Johns Hopkins and ISMP.

2014–2017 · AAMI / BI&T

Blurred Lines + Scalable Integration

AAMI Blog on IT/biomedical convergence. Follow-on BI&T paper with Canfield and Schad.

IHE PCD Standards

Active contributor. PCD-01, PCD-03, and PIV profiles.

Two US Patents

Medical device connectivity and infusion pump integration architecture.

BD / CareFusion / Alaris

VP IT and Connectivity. Market share 25% to 60%. One million pumps connected to EMR.

THE QUESTION

What's Next?

The concepts are defined. The architecture is documented. The proof of concept is live.
What remains is the will to build it.

Technology Partner

Medication management incumbent with hospital relationships

Health System

Innovation program ready for beta deployment

Investment Partner

Healthcare AI with clinical validation capability

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