CLINICAL TECHNOLOGY & ADVISORY BRIEF

The Clinician-Builder Advantage

How Direct Clinical Experience Shapes Better Software, Safer AI, and More Effective Healthtech Development

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EXECUTIVE SUMMARY

Healthcare technology is often designed at a distance from the environments where clinicians and patients actually use it. Clinical requirements pass through product teams, technical specifications, compliance reviews, and implementation cycles. Each translation introduces opportunities for important details to be simplified, misunderstood, or lost.

Benjamin Caplan, MD, works at the intersection of direct patient care, software development, and healthtech venture leadership. His approach combines the clinical judgment of a practicing physician with hands-on involvement in designing technical systems, structuring clinical information, and building workflows that address practical problems in care delivery.

His experience spans multi-state clinical operations, healthtech ventures, digital care platforms, and independently developed research and automation infrastructure. This work provides the foundation for a clinician-builder model: identify a meaningful clinical problem, establish its medical requirements, design an appropriate technical solution, and evaluate its performance against the realities of clinical practice.

This brief describes that approach, the systems and ventures that inform it, and the ways healthtech organizations can apply this combination of clinical and technical expertise.

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1. The Translation Gap: Connecting Clinical Intent to Code

Building effective clinical software requires more than translating a list of requested features into code. Developers must understand how information is collected, how clinical decisions are made, how patients behave outside idealized workflows, and where errors or friction can compromise care.

Traditional development processes often separate clinical expertise from technical implementation. Product teams gather requirements, engineers translate them into software, and clinicians evaluate the resulting product after major architectural decisions have already been made.

A clinician who participates directly in software architecture and development can reduce that separation. Medical reasoning informs the design from the outset, while technical implementation can be tested against actual clinical workflows rather than abstract assumptions.

> The clinician-builder advantage is the ability to connect clinical understanding with technical execution before costly assumptions become embedded in software.

2. Four Working Pillars of Clinician-Built Architecture

I. Clinician-Led Prototyping & Iteration

Designing focused software prototypes around clearly defined clinical problems, with direct involvement in workflow architecture, technical implementation, testing, and refinement. Prioritizing essential functionality and rapid feedback over unnecessary feature complexity.

II. Privacy-First & Local-First Architecture

Designing data workflows that minimize unnecessary exposure of sensitive clinical information. Where appropriate, local processing, restricted data access, and selective model routing can reduce the movement of patient information while preserving functionality, security controls, and clinical oversight.

III. Mechanism-Informed Medication Safety

Applying clinical pharmacology to the design of more useful medication-interaction workflows, including attention to relevant metabolic pathways, therapeutic risk, and the clinical context in which an interaction occurs. The objective is to help distinguish consequential safety questions from low-value warnings while preserving appropriate clinician review.

IV. Evidence-Grounded AI & Clinical Validation

Developing retrieval-based research and clinical information systems that connect generated responses to identifiable sources. The architecture emphasizes evidence provenance, citation checks, source-quality assessment, and explicit review gates intended to reduce unsupported conclusions and misleading outputs.

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3. Clinical Technology, Venture Leadership & Systems Built

Dr. Caplan's work spans several distinct dimensions of healthtech development: scaling clinical services, co-founding technology ventures, shaping digital care platforms, and independently architecting software and research systems. The examples below distinguish leadership responsibilities, direct technical contributions, and documented organizational outcomes.

PLATFORM / ORGANIZATION	LEADERSHIP & DIRECT CONTRIBUTION	DOCUMENTED SCALE & OUTCOMES
Canna Care Docs *Operational Infrastructure*	Clinical Executive & Operational Technology Contributor. Helped develop multi-state clinical workflows, including patient intake, scheduling, and physician documentation, supporting the operational needs of a distributed medical practice.	Contributed to operational infrastructure supporting multi-state clinical care during the organization's regional expansion and pre-acquisition growth period.
solo sciences *Authentication Venture*	Co-Founder & Chief Medical Officer. Helped develop a technology approach connecting product authentication, packaging identification, and consumer access to laboratory testing information.	Built technology addressing product verification and supply-chain traceability, within a venture subsequently acquired by Akerna in 2020.
EO Care, Inc. *Digital Care Platform*	Co-Founder & Chief Medical Officer. Shaped the clinical architecture of a digital cannabinoid-care platform, including individualized guidance, patient assessment, dosing and titration workflows, and the incorporation of clinical oversight into technology-supported care.	Developed a model for extending structured, individualized cannabinoid guidance beyond conventional one-to-one clinical encounters.
CED Command Center & Research Assistant *Information Systems*	Founder, Clinical Systems Architect & Developer. Designed and implemented interconnected infrastructure for research discovery, literature processing, clinical evidence interpretation, retrieval-based assistance, and workflow automation.	Created a coordinated research and operational environment intended to connect published evidence, structured clinical knowledge, and physician-guided analysis.

4. From Generic Drug Alerts to Clinically Contextualized Interaction Screening

Medication-interaction software can overwhelm clinicians when warnings are presented without sufficient distinction between theoretical interactions and clinically important risks.

The CED Interaction Engine is designed to bring greater clinical context to this problem, examining relevant medication-metabolism pathways, including CYP3A4, CYP2C9, and CYP2C19, and prioritizing situations in which an interaction may warrant additional attention. The intended advantage is not the elimination of interaction warnings. It is more meaningful prioritization, particularly when medications have narrow therapeutic margins or when patient-specific circumstances change the importance of a possible interaction.

Note: The engine functions as a physician-designed clinical decision-support approach. Claims regarding predictive accuracy, alert-fatigue reduction, or pharmacokinetic modeling require ongoing independent validation across defined

patient cohorts.

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5. Engaging the Clinician-Builder: Advisory & Development Capacities

Healthtech companies need medical judgment at several stages of development, from defining the clinical problem to evaluating product behavior and preparing for real-world use. Dr. Caplan works with leadership and engineering teams to bring practical clinical reasoning into product strategy, software architecture, evidence evaluation, and operational design across four complementary capacities:

1. Fractional Chief Medical Officer (CMO)

Providing ongoing clinical leadership for digital health and life-science ventures, including product strategy, medical governance, clinical risk review, evidence interpretation, and executive-level decisions about the appropriateness and safety of proposed clinical capabilities.

2. Clinical AI & CDS Systems Review

Evaluating clinical AI and decision-support systems for source fidelity, reasoning limitations, unsupported recommendations, workflow safety, and appropriate clinician oversight. Developing validation criteria, escalation pathways, and practical safeguards for higher-risk outputs.

3. De Novo Prototyping & Architecture

Translating clinical problems into working technical designs, including database structures, patient-intake flows, decision logic, interface behavior, and software prototypes. Providing direct architecture and development input to reduce ambiguity between clinical requirements and engineering implementation.

4. Real-World Evidence & Research Infrastructure

Designing structured clinical data collection, longitudinal outcome tracking, registries, and research-ready analytic workflows. Supporting the development of reproducible observational research while recognizing the methodological, ethical, privacy, and statistical safeguards required before publication.

Executive Inquiries & Advisory Engagements

Dr. Caplan works with selected healthtech founders, executive teams, investors, and clinical organizations seeking a combination of medical leadership and technical execution. Engagements may include strategic advisory, fractional clinical leadership, product architecture, evidence review, and focused development collaborations.

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