SAMPLE PROPOSAL FOR HIMSS27

Proposal Title

Artificial Intelligence in Action: Clinical Process Maps Get Modern

Proposal Abstract

Provide a concise overview of the proposal rationale, methods, results, and conclusion. If your proposal is accepted, this abstract will appear in marketing materials, the website, etc. Do not list speaker names or organization names in this abstract (200-word max).

Clinical process maps (CPMs) are essential for standardizing care and improving outcomes, yet they are traditionally created through slow, manual processes and often remain static artifacts that are difficult to maintain and rarely embedded into clinical workflows. This creates barriers to clinician adoption, limits adherence to evidence-based guidelines, and reduces the impact of CPMs on quality and cost.

This case study describes an AI-enabled approach to modernizing CPM development and deployment. Generative AI was used to ingest and codify clinical guidelines into structured, machine-readable logic, supported by human-in-the-loop clinical governance. Codified CPMs were operationalized through interoperable standards to deliver real-time decision support, patient-level worklists, and provider nudges directly within clinical workflows, while enabling system-wide analysis of care variation and adherence.

Results demonstrate the technical feasibility of converting CPMs into executable logic, querying real-world patient populations, generating actionable worklists, and integrating clinical decision support at the point of care. Retrospective adherence analysis identified meaningful opportunities to improve guideline compliance and reduce medical expense across multiple therapeutic areas.

The findings show that AI-enabled CPMs can accelerate care standardization, improve adherence to evidence-based practice, and provide a scalable foundation for continuous clinical and financial improvement.

Session Level

Intermediate

Select the top three professional roles for which your presentation is targeted:

Chief Quality Officer and Chief Clinical Transformation Officer, CIO/CTO/CTIO/Senior IT, Data Scientist

Learning Objective 1

Describe the role of artificial intelligence in streamlining the development and deployment of Clinical Process

Learning Objective 2

Identify the key technical components and implementation steps required to integrate AI-generated CPMs into clinical workflows

Learning Objective 3

Assess the clinical and financial outcomes associated with AI-enabled CPM implementation in a large healthcare system

Session Format

30-Minute Case Study: 2 speaker limit

Organization

Intermountain Health is the largest nonprofit health system in the Mountain West, serving patients and communities primarily in Colorado, Utah, Montana, Nevada, Idaho, and Wyoming. Intermountain Health includes 34 hospitals, 400+ clinics, a medical group, affiliate networks, homecare, telehealth, health insurance plans, and other services - along with wholly owned subsidiaries including Select Health, Castell, Tellica Imaging, and Classic Air Medical.

Arcadia helps providers, payers, and government organizations transform healthcare data into predictive insights that drive better outcomes, increase revenue, and reduce costs. Our industry-leading platform amasses data from across the healthcare ecosystem and converts it into actionable analytics, AI-driven intelligence, and performance benchmarks, enabling smarter decisions and accelerating impact across the enterprise. National and regional health systems and payers, along with governmental organizations – including Aetna, Cigna, Highmark Blue Cross Blue Shield, Intermountain Health, Ochsner Health, and the State of California – trust Arcadia to operationalize their data and lead the way in data-driven healthcare.

In the context of this proposal, Intermountain Health is the health system site and co-innovation partner, and Arcadia is the technical and data platform partner that enables innovation.

Background (500-word max)

Clinical process maps (CPMs) are foundational tools for designing, standardizing, and improving care delivery. Traditionally, CPMs are created manually through time-intensive sessions with clinical and operational stakeholders, often captured using whiteboards, sticky notes, or basic diagramming software. These maps can then be converted—often painstakingly—into EHR configurations such as order sets, documentation templates, and clinical decision support logic. However, CPMs are frequently relegated to static documents or printouts that are expensive to maintain and rarely used by physicians due to a lack of embedded, in-workflow guidance. Additionally, many organizations fail to design

CPMs that account for patient-specific variability or use technology to measure clinician adherence, missing opportunities to improve quality scores and patient outcomes.

Even creating a care process map for a simple condition is moderately complex. Clinical, technical, operational, and other stakeholders must collaborate to align on a standardized workflow that defines:

• Start and end points: Where the clinical process begins (e.g., referral) and ends (e.g., treatment completion).

• Process steps: Each action or decision in sequence (e.g., intake, testing, diagnosis, treatment).

• Roles and responsibilities: Who is accountable for each step (e.g., nurse, physician, technician).

• Inputs and outputs: What is required to complete each step and what is produced (e.g., results, prescriptions).

• Decision points: Where clinical judgment or branching occurs (e.g., "Is the test result positive?").

This initial design phase alone can take weeks. Because physicians work in workflows rather than documents, a second and equally critical step—implementation and operationalization—is required. This is typically accomplished through EHR systems, though not all organizations have the maturity to support it. For those that do, full integration usually requires two to six months of complex effort, including:

• Translating CPM steps into EHR artifacts (order sets, documentation templates, clinical decision support)

• Alerts and reminders

• Build, staging, and testing

• User training

• Incremental deployment

Even after implementation, rigid logic and hard-coded workflows can limit adaptability when new clinical guidance requires updates. Nonetheless, when CPMs are thoughtfully designed, effectively deployed, and consistently adopted, they provide a strong foundation for care standardization. By clearly defining task sequences, decision points, and roles, CPMs reduce unwarranted variation, promote adherence to evidence-based guidelines, and ensure clinical workflows are executed as intended. This consistency leads to measurable improvements in quality and patient outcomes, reduces inefficiencies such as redundant documentation and unnecessary testing, and lowers cognitive and operational burden for clinicians.

Peer-reviewed research supports these benefits. Adherence to clinical pathways has been associated with shorter hospital stays, fewer complications, and reduced costs and charges (Cochrane Database of Systematic Reviews, 2025).

Methods (500-word max)

Intermountain Health explored how artificial intelligence could modernize the historically manual approach to clinical process map (CPM) creation. The goal was to develop an AI-enabled co-pilot capable of converting and maintaining existing CPMs, authoring new ones, and deploying them at scale across the health system. Ultimately, Intermountain Health sought to meaningfully improve provider adherence to CPMs, recognizing a substantial opportunity to reduce medical expenses and improve outcomes.

In this case study, Intermountain Health and Arcadia demonstrated the feasibility of ingesting, codifying, and operationalizing CPMs to improve patient care through actionable intelligence and real-time clinical prompting. The work was conceived in Q4 2024, developed in Q1 2025, and achieved proof of concept in Q2 2025. A point-of-care pilot is planned for the second half of 2025.

Phase 1 – Conversion:
Automate the translation of complex clinical guidelines into machine-readable formats. Generative AI (GenAI), combined with lower-cost development centers, was used to convert dense clinical content into structured SQL and CDS Hooks artifacts. CDS Hooks, an HL7 standard, enable real-time clinical decision support by integrating external services into EHR workflows. A human-in-the-loop GenAI process was employed, including:

- Parsing long documents into algorithmically segmented sections
- Extracting workflows from text and images into Unified Modeling Language (UML) representations
- Iteratively elaborating workflows using multi-pass AI agents
- Human review and correction of UML in a visual editor
- Extracting and validating value sets
- Converting workflows and value sets into SQL and CDS definitions
- Human review and correction of SQL/CDS outputs
- Deconstructing logic into care variance metrics where required

Phase 2 – Activation:
Deploy codified guidelines into patient- and population-centric workflows while analyzing care variation at scale. Using SMART-on-FHIR and CDS Hooks, low-friction nudges were embedded directly into EHR workflows. Capabilities included:

- Provider variance analysis (e.g., identifying providers who did not titrate ACE inhibitors within 30 days of uncontrolled blood pressure)

- Enterprise opportunity analysis to quantify savings potential (e.g., improving COPD prescribing adherence)
- "Next best action" worklists highlighting patients whose care plans diverged from CPMs
- Point-of-care prompts alerting providers when actions fall outside CPM guidance and recommending compliant alternatives

Phase 3 – Expansion:
Scale CPM development through an AI-enabled authoring co-pilot. High-quality, portable, and codified CPMs could be created from the outset with less effort than traditional document management, while automatically generating clinician-friendly, human-readable outputs.

Challenges (500-word max)

Implementing an AI-enabled framework for Clinical Process Maps (CPMs) required addressing several challenges related to governance, technology constraints, change management, and the evolving nature of clinical evidence.

1. Human-in-the-Loop Governance

A central challenge in applying AI to clinical workflow optimization is determining where human oversight is essential. Intermountain Health addressed this by intentionally embedding human-in-the-loop (HITL) governance at defined checkpoints. While AI automated the extraction, structuring, and codification of clinical guidelines, clinical and informatics experts reviewed, validated, and refined outputs before advancing to subsequent stages—especially prior to any deployment in live clinical environments. This governance model balanced efficiency with patient safety, accountability, and clinician trust, ensuring AI augmented rather than replaced clinical judgment.

2. Limitations of EHR Rule Engines

Technology constraints within EHR systems also posed challenges. Many EHR rule engines rely on relatively simple, binary logic that cannot easily represent the complexity of modern, branching clinical guidelines. Intermountain Health benefited from a more advanced clinical decision support (CDS) engine capable of supporting complex logic, multivariable rules, and conditional workflows. This capability enabled the development of institution-specific CPMs that preserved clinical nuance while aligning with organizational standards and technical realities.

3. Static Nature of Clinical Guidelines

Traditional CPMs are often static artifacts, despite the rapid pace of change in clinical evidence and best practices. Manually updating CPMs is time-consuming and resource-intensive, leading to delays that reduce clinician adherence and limit the value of evidence-based care. Intermountain addressed this challenge by leveraging AI to accelerate guideline updates, making near-real-time CPM revision feasible. This approach

enabled new evidence to be incorporated into care workflows more quickly, reducing lag between guideline changes and execution at the point of care.

Results and Findings (500-word max)

This case study demonstrates key outcomes, including successful achievement of the following:

- Converted CPMs into structured logic (SQL/CDS)
- Queried patient populations from real-world data
- Generated actionable patient worklists
- Created CDS prompts for EHR integration

These results demonstrate the feasibility of the CPM AI-enabled co-pilot. In a retrospective review evaluating provider adherence to CPMs for prescribing COPD, diabetes, AFib, and high blood pressure medications, Intermountain Health identified the opportunity to create medical expense savings through improved CPM medication prescribing adherence.

Conclusions (500-word max)

Intermountain Health concluded that it can successfully deploy an AI-enabled CPM co-pilot to bring clinical process map development into the modern era. The health system is now evaluating broader applications of this capability, including scaled deployment of an AI-enabled CPM authoring and maintenance platform. Potential use cases include accelerating the development of hundreds of care process models through AI-assisted CPM coding agents and leveraging the enterprise healthcare data platform to deploy these models consistently across the system. Any realized cost savings could be reinvested to expand CPM coverage into additional high-impact areas, such as diabetes and hypertension.

By using AI to create CPMs and deploying them at scale through in-workflow clinical tools, the health system would gain improved visibility into provider adherence to CPM guidance. Program managers could analyze performance data to identify care variation, educate clinicians on the rationale behind evidence-based workflows, and coach providers on how to improve adherence using available tools. This feedback loop enables targeted education, continuous improvement, and stronger alignment between clinical intent and execution.

A key insight from this work was the lack of CPMs supporting newer therapeutic classes, including GLP-1 receptor agonists and SGLT-2 inhibitors. One practicing physician engaged during the project noted that these medications were not available during medical training for many clinicians currently in practice. As a result, awareness of their benefits and appropriate use—particularly for patients with diabetes and comorbid conditions—varies widely. CPMs offer a mechanism to standardize guidance around when and how to use these therapies, injecting timely, evidence-based recommendations directly into point-of-care workflows to support more informed clinical decisions.

While CPM content may be proprietary or tailored to individual organizations, the AI-powered framework for CPM creation and deployment is broadly applicable across healthcare systems. The framework provides a repeatable process architecture to:

- Ingest and codify clinical guidelines using GenAI and structured data models
- Translate workflows into interoperable artifacts such as SMART-on-FHIR applications and CDS Hooks
- Deliver real-time provider nudges and patient-level worklists
- Measure adherence and performance variability at scale
- Continuously refine workflows based on real-world evidence

By decoupling technical infrastructure from clinical content, this model can be adopted regardless of specialty focus, patient population, or EHR vendor. It enables faster iteration and versioning of CPMs as evidence evolves, while reducing the time, labor, and cost traditionally required to maintain standardized care workflows. Ultimately, this approach provides a blueprint for achieving improved care standardization, reduced variation, and measurable cost savings through stronger adherence to evidence-based practice.

Next Steps/Follow Up (500-word max)

While prescribing behavior is a high-impact savings opportunity focused on in the case study, the same approach can be taken for lab orders, procedures, care plans, and more.

Future applications of AI-enabled CPM creation technology include:

• Novel insurance product design: the ability for a payer to waive prior authorization with evidence that the care plan complies with the CPM

(and that the CPM incorporates the payer's parameters).

• Tailored patient navigation enabled by AI to help manage their condition and adhere to care plan.

• More targeted and relevant provider engagement: the ability to leverage CPM adherence insights and provide transparent evaluations that move beyond HEDIS.

• Integration of additional AI agents to automate care activities, like appointment scheduling, referrals, and prescribing.

Personalization is another element of the evolution of the solution. More specifically, the ability to leverage real-world data to develop more precise and targeted CPMs based on a specific individual. By using real-world data to train models on billions of decision points, an AI model for personalized care branching can be created. This could generate novel IP that could be deployed at the national level to drive more precise and equitable care.

Page: Speaker(s) Information

Please enter all speaker information. Do not list speakers as TBD.

Speaker:

Logan Masta

Title:

Director, Special Projects

Company:

Arcadia

Location:

Boston, MA, United States

Biography (300-word max)

Logan Masta leads strategic innovation and research initiatives focused on expanding Arcadia's product capabilities through applied AI and advanced analytics. His work spans generative AI, natural language processing, and data architecture, helping healthcare organizations better access, interpret, and act on complex data. Logan drives the development of Arcadia's next-generation product concepts, including AI-powered conversational analytics, automated document processing for clinical and risk data, and intelligent platforms that support value-based care contracting. His efforts accelerate Arcadia's ability to deliver real-time insights and scalable infrastructure for health plans and providers.

Prior to joining Arcadia, Logan held leadership roles at CareMax, where he led enterprise product strategy, technology integration, and M&A execution. He previously served as a management consultant at Booz Allen Hamilton, advising federal healthcare clients on telehealth enablement and system transformation. Logan earned a BS in Industrial and Systems Engineering from the University of Florida and is Lean Six Sigma Black Belt certified by Dartmouth College. He lives in southern Florida and enjoys fishing when not working on innovative healthcare solutions.

Speaking Experience:

"Delivering precision medicine at scale using AI and data," Arcadia (Exhibitor) Byte-Sized Booth Talk, Healthcare Information and Management Systems Society Global Conference and Exhibition, 2025

LinkedIn:

https://www.linkedin.com/in/loganmasta/