



Making AI Work in Healthcare: From Hype to High Impact

Health Catalyst Speakers



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Agenda

- The AI Reality Check
- Start with Impact, Not Technology
- A Foundation for AI Impact:
Data Quality and Infrastructure
- Managing Success
- The Human Element:
Stakeholders and Change Management
- Q&A

The AI Reality Check

The Promise vs. The Reality

HEADLINES

- | “AI will revolutionize healthcare
- | “Reduce physician burnout by 50%
- | “Save billions in healthcare costs

VS REALITY

- 77% of health systems cite immature AI tools as primary barrier
- Only 53% report high success with AI clinical documentation
- Some studies suggest AI scribes reduce documentation time by less than 1 minute*



Adoption of artificial intelligence in healthcare: survey of health system priorities, successes, and challenges

**Poon, et al. (2025)*

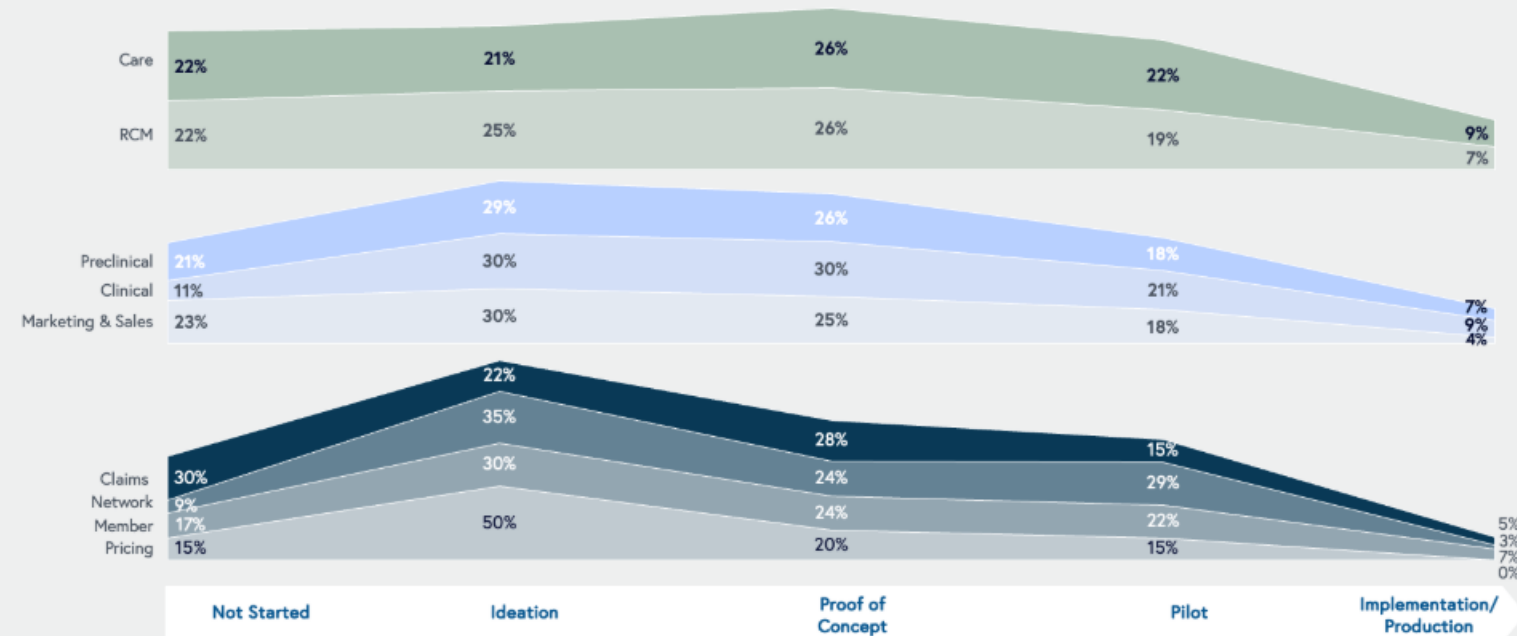
“We found that **nearly half (45%)** of the use cases across these jobs are still in the ideation or POC phase, with far fewer actually in production...

Many organizations are running dozens of GenAI POC projects at once, **but only 30% of completed POCs have made it into production**”

(Bessemer Venture Partners)

Most of the use cases are in experimentation phase, with Providers further ahead with more projects in POC stage vs. ideation

USE CASE TYPE



Source: Bain GenAI Survey (N=408)



Start with Impact, Not Technology

*In early 2025, AI sits at a point along the potential–reality continuum. Investments are growing, ambitions are rising—but so is a sense of the work that lies ahead. **Keeping the technology on track requires disciplined execution, a clear focus on value, and a workforce ready to adapt.***

(Boston Consulting Group)

The Headline Success Stories

Ambient Clinical Notes

- 100% of surveyed health systems have adoption activities
- 53% report high degree of success
- Reduced cognitive load and burnout (not just time savings)

Imaging & Radiology

- 90% partial deployment
- Success varies significantly by implementation approach

Clinical Risk Stratification

- Many deployments for sepsis detection
- Only 38% report high success



The Wrong Question: How can we use AI?

Versus

The Right Question: What problem(s) are we trying to solve? >>>

It feels like we're only hitting the tip of the iceberg...

1. **Narrow Focus** → Start specific, scale later
2. **Clear Value** → Measurable cost, time, or outcome improvement
3. **Willing Users/Partners** → Find your early adopters, subject matter experts & champions
4. **Existing Workflow** → Integrate, don't disrupt
5. **Refine & Learn** → based on feedback and results → **Return to Focus** with lessons learned
6. **Scale** successful patterns to broader use cases

An Example: Chart Abstraction

1.

Narrow Focus – Leverage GenAI to automate abstraction, built out for a single registry to start (STS Adult Cardiac) prior to expanding to others

2.

Clear Value – Reduce abstraction time, improve reporting quality, enabling time for higher value work (e.g., quality improvement)

3.

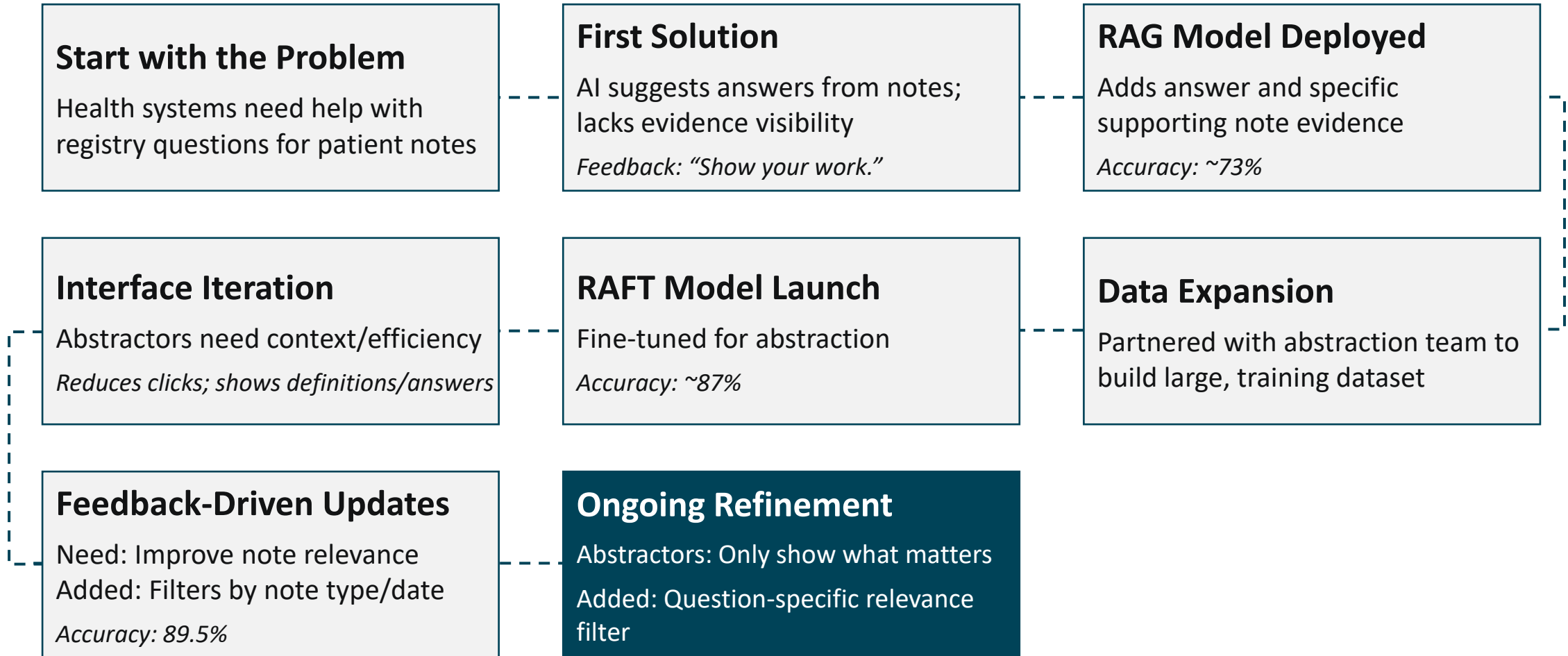
Willing Users/Partners – Partnered/worked closely with abstractors across the organization

4.

Existing Workflow – Integrated directly into the registry software application. Ensured AI outputs capture the information abstractors need/want to trust the solution and make decision

The screenshot shows the HybridOutcomes data entry interface for patient Sally Smith (987654). The interface includes a sidebar with 'Patient Forms' and a main area for data entry. The 'Adult Cardiac Episodes' form is active, showing fields for 'Robot Use Time Frame', 'CAB', 'Aorta Procedure Performed', 'Valve', 'Valve Prosthesis Explant', 'VS-Aortic Valve', 'AV-Aorta Procedure Performed', 'VS-Mitral Valve', 'VS-Tricuspid Valve', 'VS-Pulmonic Valve', 'Surgeon Input for Valve Surgery Data Abstraction', 'Mechanical Assist Device / Ventricular Assist Device', 'Other Cardiac Procedure, except Afib', and 'Atrial Fibrillation Procedure Performed'. The right sidebar displays 'Definitions & Suggestions' and 'Validation' tabs, with a 'Suggested Answer' of 'Yes, planned' and 'Relevant Notes' for the patient's history.

Abstraction: An AI Solution Improvement Journey



Measuring Accuracy and Impact

Key Measurement Challenges



- **Ground Truth Complexity** - What constitutes "correct" in healthcare is often nuanced
- **Delayed Outcomes** - True financial/clinical impact may not be visible for months or years
- **Subjective Quality** - Judgment involves factors beyond measurable data, it also requires context

Practical Measurement Framework



- **Technical Accuracy** – Model performance against validated datasets
- **Relevance** – Expert review of AI outputs for appropriateness
- **Outcome Tracking** – cost savings, revenue generation, outcomes, quality measures, safety indicators
- **User Experience** – User satisfaction, adoption rates, perceived value

The Measurement Paradox

When "wrong" looks "right" - AI systems can appear accurate while missing critical nuances

A Note on Generative AI Use Cases



Many high-impact GenAI applications are non-conversational

- Information extraction
- Planning
- Terminology normalization
- Summarization
- Etc.

AI Agents Today, Agentic Systems Tomorrow

- There are compelling use cases for AI agents (we'll briefly talk about one later)
- Our view: Most fully dynamic agentic systems aren't yet ready for most healthcare use cases



Laying the Foundations for Enabling Impactful AI: Data Quality and Infrastructure

After risk, the most common roadblocks are "insufficient capability, data and tech infrastructure, and proof of value,"

(McKinsey & Company)

Solid Foundations: Data Infrastructure

The Hard Truth



- AI amplifies what you already have
- Accurate/reliable data + AI = Better insights
- Inaccurate/unreliable data + AI = Expensive bad insights

Pre-AI Checklist



- Data completeness and accuracy
- Data availability (if applicable in real-time)
- Integration capabilities
- Data quality
- Robust data architecture
- Governance structures in place

A Platform for Building AI Solutions



- From an AI perspective the Ignite platform is foundational for value enablement – allowing our customers and us to build and deliver scalable, high-impact solutions faster and reliably
- If you want to go fast, go alone. If you want to go far, go together.

The Healthcare Data Reality

Healthcare data is inherently messy

Don't wait for 'Perfect'



- **Perfection paralysis** kills AI initiatives before they start
- Healthcare data will rarely (if ever) be 100% clean or complete
- **Progress over perfection** drives real-world results

Start Building/Using to Start Learning

Building/Using AI solutions reveals data insights you can't see from planning alone



- **Discover** data quality issues and gaps
- **Understand** real workflow integration challenges
- **Identify** which data elements drive value
- **Uncover** unexpected patterns and relationships
- **Gain comfort/familiarity** with solutions/tools

Follow the Process — Even with Imperfect Data

Start with:
What problem(s) are
we trying to solve?

Then,
apply the iterative
process >>>

1. **Narrow Focus** → Pick problems where data quality is "good enough"
2. **Clear Value** → Define success metrics that account for data limitations
3. **Willing Partners** → Find champions who understand the data realities
4. **Existing Workflow** → Work within current data collection processes
5. **Refine & Learn** → Use insights to improve both AI and data quality

Just Start...



"... one leader broke down a structured progression from individual adoption to system-wide transformation that can ultimately rearchitect entire healthcare processes.

The first level of change happens with an individual who recognizes the power of AI and gets more comfortable with integrating AI into their daily workflow. This individual's experience ultimately expands to their larger working group. Then, once multiple working groups collaborate with each other, we're not just implementing AI in healthcare — we're rebuilding entire value chains."

(Define VC – 2025 AI Summit)

Understanding that...

The future of AI in health care will favor organizations that treat infrastructure, governance, and validation as core competencies and not afterthoughts. ... Without foundational infrastructure, AI tools risk becoming unmanageable. Poorly integrated algorithms can introduce bias, erode clinician trust, and create operational inefficiencies rather than solving them.

(UPMC Enterprises)



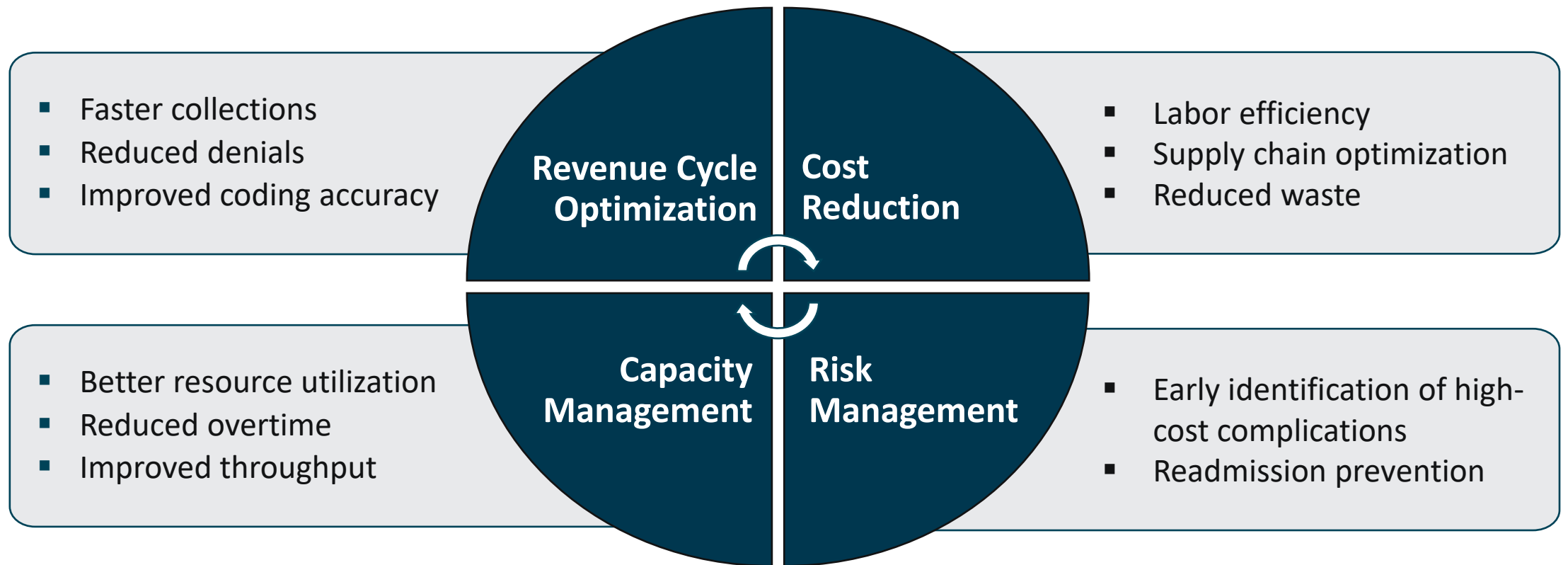


Measuring Impact & Success

"If you can't measure it, you can't manage it"
Jeff Bezos

What We're Hearing: The Healthcare AI Priorities

Financial Impact (Cost reduction, revenue optimization) | **Operational Efficiency** (Workflow improvement, resource utilization) | **Clinical Outcomes** (Quality measures, patient safety)



Metrics That Matter

Focus: Line of sight to value



REVENUE IMPACT

- Payer contract optimization
- Charge capture improvement
- Clean claims rate improvement via AI-powered coding assistance

COST AVOIDANCE

- Supply overutilization, waste, brand
- Avoidable ED visits
- Preventable readmissions

PRODUCTIVITY GAIN

- Documentation automation; abstraction, ambient, etc.
- Patient throughput improvement in high-margin services

Example: Activity Based Costing



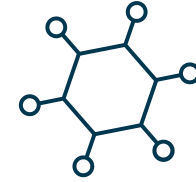
- Hundreds of thousands of combinations of providers, procedures, supplies, etc.
- Our goal is to identify cost and reimbursement variations/irregularities
- Deliver insights as understandable, actionable and measurable financial efficiencies

EXAMPLE:

Looking at the utilization data for CPT code 52356 (ureteroscopy with lithotripsy)

Problem Statement:

Provider 10281 shows variable utilization rates of disposable ureteroscopes (ureteroscope disp aptra and ureteroscope disp aptra revers) ranging from 9.2% to 20% across different diagnosis codes, while other providers (6938, 11750, 55129) show either no usage or minimal usage (1.75%) of these expensive disposable devices. This represents a potential cost savings opportunity given the significant price difference between disposable and reusable ureteroscopes.



OUTPUT IS COMPLETELY AI-GENERATED

- Statistical/machine learning models with detailed additional content
- Quality Improvement (QI) Agent (LLM)

**Full output on next slide*

Example: Complete Generated Output

Quality Improvement Agent: Utilizes Seven Step Improvement Framework

Problem Statement:

Provider 10281 shows variable utilization rates of disposable ureteroscopes (ureteroscope disp aptra and ureteroscope disp aptra revers) ranging from 9.2% to 20% across different diagnosis codes, while other providers (6938, 11750, 55129) show either no usage or minimal usage (1.75%) of these expensive disposable devices. This represents a potential cost savings opportunity given the significant price difference between disposable and reusable ureteroscopes.

Key Findings:

- Provider 10281 uses disposable ureteroscopes in 13.1-20% of N20.0 cases, 9.2-18.4% of N20.1 cases, 13.5% of N20.2 cases, 20% of N21.0 cases, 14.3% of N40.1 cases, and 20% of R31.0 cases
- Provider 6938 uses disposable ureteroscopes in 9.2% of N20.0 cases, 4.3% of N20.1 cases, and 5.7% of N20.2 cases
- Providers 11750 and 55129 show minimal to no disposable ureteroscope usage

SMART Outcome Goal:

Reduce Provider 10281's disposable ureteroscope utilization rate to align with system benchmark (<5% by Q2 2025), potentially saving \$150K-\$300K annually based on cost differentials (\$1,500-\$3,000 per disposable scope vs. reusable alternatives).

Proposed Interventions:

1. Equipment audit: Assess reusable ureteroscope availability and condition
2. Clinical review: Analyze case complexity justifying disposable use
3. Cost transparency: Implement real-time cost feedback at point of care
4. Standardization: Develop clinical criteria for disposable vs. reusable selection
5. Training program: Enhance provider proficiency with reusable equipment

Implementation Plan:

- Week 1-2: Conduct provider interview and case review
- Week 3-4: Equipment assessment and inventory optimization
- Week 5-8: Implement cost feedback system and clinical guidelines
- Month 3-6: Monitor utilization rates weekly and adjust interventions

Key Metrics:

- Disposable ureteroscope utilization rate by diagnosis code
- Total supply costs per procedure
- Clinical outcomes (complications, success rates)
- Provider satisfaction scores

Success Indicators:

- Utilization rate reduction to <5%
- Maintained or improved clinical outcomes
- Cost savings of \$12,500-\$25,000 per month
- Provider acceptance of new protocols

Immediate Next steps

1. Urgent: Schedule meeting with Provider 10281 to understand clinical rationale
2. This week: Pull detailed case data for the past 6 months
3. Within 2 weeks: Benchmark against national standards and peer institutions
4. Month 1: Implement pilot intervention focusing on most common diagnosis codes

Estimated Impact: If successful in reducing utilization to 5%, this could save approximately \$200,000 annually while maintaining quality outcomes, representing a significant opportunity for value-based care improvement.

The Utilization Reality Check

Usage Patterns from Real Deployments:

- Financial success comes from focusing resources on high-impact, high-adoption use cases.
- Many AI solutions in healthcare will require continual change management support
- Most use cases still require a human-in-the-loop

Financial Implication

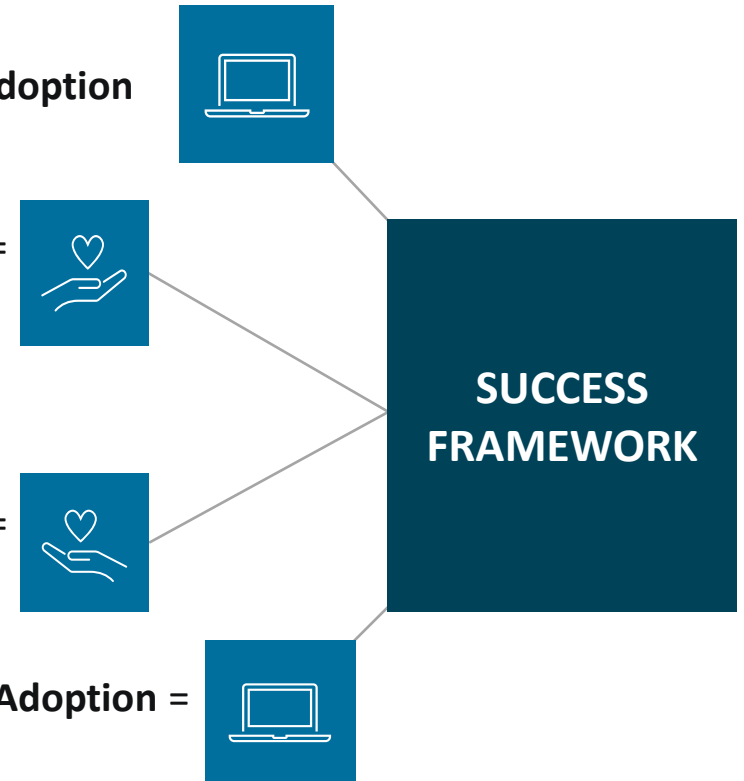
ROI calculations must account for variable adoption rates

High Financial Impact + High Adoption
= Clear winners (scale rapidly)

High Financial Impact + Low Adoption =
Change management focus

Low Financial Impact + High Adoption =
Nice-to-have (deprioritize)

Low Financial Impact + Low Adoption =
Discontinue





The Human Element: Stakeholders and Change Management

*"Many health care AI use cases will be slow to scale and drive value, leading to increased pressure on IT and change management teams. **Winning health care companies will experiment with new approaches to drive adoption. By fostering a culture of experimentation, collaborating with frontline staff, and prioritizing user-friendly AI solutions, these organizations can enhance adoption rates and realize AI's full potential.** Health care companies that thrive will be those that treat adoption as a critical aspect of AI implementation, leveraging iterative learning and adaptive frameworks to drive sustainable value "*

(Boston Consulting Group)

The (Last Mile) Adoption Problem



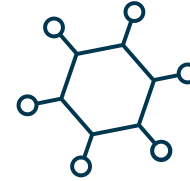
TRAINING

Goes beyond button-clicking



ESCALATION

Clear escalation paths for AI failures



INTEGRATION

Integration with existing clinical workflows



EXPECTATIONS

Realistic expectation setting



Working together to deliver quality AI in healthcare. Quality came up in our interviews time and again, especially issues around the poor choice of use cases, AI design and ease of use, the quality and performance of algorithms, and the robustness and completeness of underlying data. ***The lack of multidisciplinary development and early involvement of healthcare staff, and limited iteration by joint AI and healthcare teams*** were cited as major barriers to addressing quality issues early on and adopting solutions at scale. The survey revealed this is driven by both sides: ***only 14 percent of startup executives felt that the input of healthcare professionals was critical in the early design phase***; while the healthcare professionals saw the private sector's role in areas such as aggregating or analyzing data, providing a secure space for data lakes, or helping upskill healthcare staff as minimal or nonexistent.

(McKinsey & Co)

Stakeholders in the Loop



Key Stakeholder/Collaborator Groups

- **Clinical/Administrative** - End users who need to see clear value
- **IT** - Infrastructure and security
- **Leadership** - ROI and strategic alignment
- **Patients** - Ultimate beneficiaries

Developer Partners

- Data science, ML/AI Engineer
- Data Engineer
- UI/UX/Frontend Engineer
- Product Manager

Engagement Strategy

- Early involvement in use case selection
- Transparent communication about capabilities and limitations
- Regular feedback collection and iteration

Addressing the Top Barriers

77% OF ORGS



Immature AI Tools

- Solution: Rigorous pilot/POC process and vendor evaluation alongside SME
- Understand performance measures before deployment



47% of Orgs

Financial Concerns

- Solution: Focus on solutions with a clean line-of-sight to value
- Understand the entire value-chain: e.g., burnout reduction and quality improvement

40% of Orgs

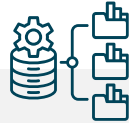


Regulatory (40%)

- Solution: Work with legal/compliance teams early
- Stay informed on evolving guidelines (FDA, CMS, etc.)

Building Sustainable AI Programs

The Three-Pillar Approach



- **Technology Excellence** - Robust, reliable, secure solutions and infrastructures
- **Integration** - Seamless workflow incorporation
- **Organizational Readiness** - Culture, training, and change management

Success Factors



- **Executive sponsorship** with realistic expectations
- **Cross-functional teams** with clinical leadership
- **Iterative deployment** with continuous feedback
- **Clear governance** and escalation procedures

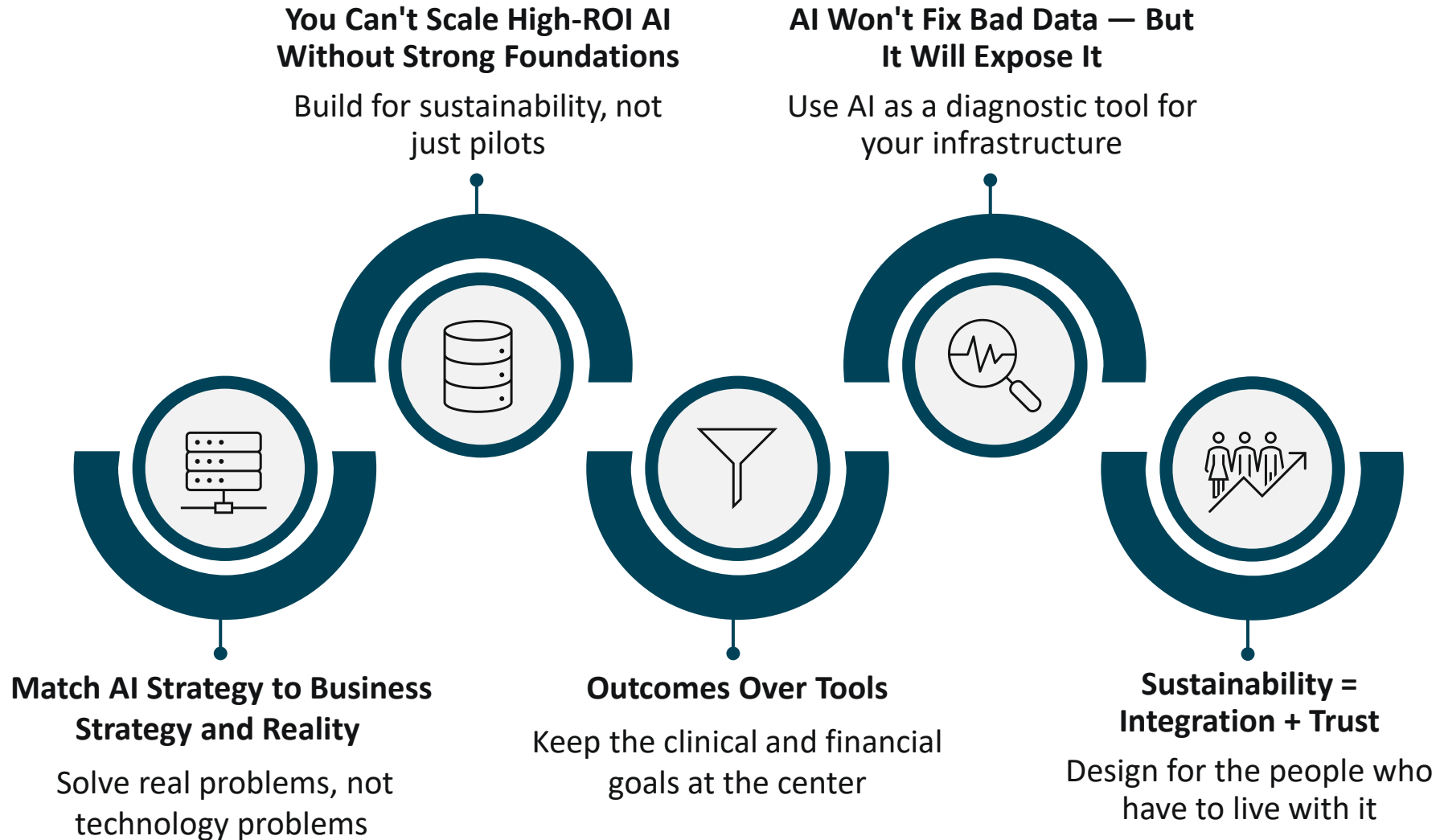


From Hype to High Impact: The Health Catalyst Way

“The minute you get away from fundamentals—whether it’s proper technique, work ethic or mental preparation—the bottom can fall out of your game, your schoolwork, your job, whatever you’re doing”

Michael Jordan

Takeaways Framework



The Health Catalyst Differentiation

Many AI Companies start with a technology, find healthcare applications second

Health Catalyst started with delivering measurable improvements in healthcare, scaled and enhanced with AI second



Our Competitive Advantage

- Thousands of successful improvement initiatives as our foundation
- Deep understanding of healthcare operational realities
- Proven methodologies ready for AI-powered scaling
- Track record of measurable, sustainable outcomes

The Questions You Should Be Asking

Instead of asking...

"What AI should we buy?"



Ask...

"What problems are causing the most pain for our clinicians and patients?"

"How fast can we deploy?"



"How do we ensure sustainable adoption?"

"What's our ROI in year one?"



"How do we measure success in ways that matter to our stakeholders?"



Questions?

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