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EBOOK

Agentic AI in Healthcare and Life Sciences:

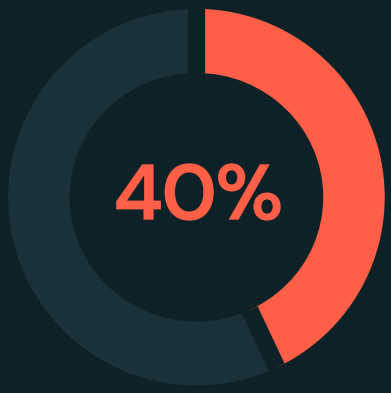
Transforming Outcomes Across Pharma, Medtech and Digital Health

The Agentic AI Shift: From Automation to Action

Healthcare and life sciences organizations today face more operational challenges than they have people or resources to address. From AI to GenAI and now AI agents, the industry has reached peak anticipation for the technology's potential.

And while the promise is real systems that don't just serve as a chatbot, but reason and act, the industry faces a gap moving from pilot to production. As organizations rush to build, they are finding pilots built on generic AI agent tools fail to meet real-world expectations.

Gartner predicts over 40% of agentic AI projects will be canceled by 2027 due to the lack of business value and inadequate guardrails.[1]



AI is entering a phase where systems can reason through tasks and take action toward defined goals. Unlike many other industries, healthcare and life sciences require agents to be incredibly precise — trusted to drive decisions, adapt to new data and guidelines from clinical evidence and coordinate complex workflows across research, operations and care delivery.

1 Gartner. (2025, June 25). Agentic AI Trends.

> In healthcare, "good enough" is not an option. A 90% accurate agent isn't a success; it can be a liability.

A hallucination in a clinical trial or supply chain triggers unacceptable risk. The high failure rate isn't due to lack of intelligence, but a lack of lineage. Simply put, if you cannot trace an agent's decision back to the specific clinical protocol or manufacturing event it referenced, you cannot deploy it in production.

The bridge from stalled pilot to production is data intelligence — grounding AI agents in your enterprise data with built-in governance, lineage and security.

When agents follow these guardrails, the potential across healthcare can be unprecedented. Faster development cycles leading to more responsive clinical studies, helping patients receive better care while easing the burden on clinical teams and improving collaboration across the patient journey. Creating value requires a foundation that supports reliable governed agents at scale.

What Agents Can Do for Healthcare and Life Sciences

AI agents give healthcare and life sciences organizations a way to act on complex data with speed and precision. Purpose-built agents can extract structured insights from unstructured sources and surface relevant findings from vast medical literature.

Others act as always-on copilots, helping teams design trials, generate evidence and engage providers more effectively. Agents also support operational intelligence by recommending next best actions to improve throughput and decision-making.

Your most valuable assets are your scientists, clinicians and researchers, not just your engineers. Databricks Agent Bricks empowers your domain experts to build agents grounded in your unique enterprise data. By removing the technical friction of deployment, you transform static data lakes into a dynamic, intelligent workforce that speaks the language of your organization — from R&D to commercial to clinical operations.

Agents built on your data

Build agents that are tuned on your enterprise data across multiple systems, so that you can deliver the highest accuracy, producing outputs that are trusted

Your choice of any AI technology

Use any model, from classical ML to GenAI, to apply the best solution to your application's needs.

Claude Gemini OpenAI

Agentic AI governance

Maintain data security with end-to-end governance for agents, with built-in access controls, auditing and monitoring

Let's explore how domain-specific agents align to key use cases and deliver measurable business value.

AI Agents in Action

AI agents will increasingly act as co-collaborators across the healthcare and life sciences value chain. The leaders will be those who align agents to strategic outcomes, not isolated experiments. Agents are becoming prevalent across three high-impact pillars:

1 Accelerating Clinical Productivity & Precision

Research data is notoriously messy and siloed. Agents act as the connective tissue, parsing complex trial protocols and unstructured Real-World Data (RWD) with scientific rigor. Instead of drowning in documentation, your teams get instant signal detection–accelerating hypothesis testing and compressing the time between "What if?" and "What's next?"

Accelerate Drug Discovery

Agents can parse, interpret and synthesize complex domain-specific data. This speeds up literature reviews, regulatory documentation and medical writing workflows.

USE CASES:

- Summarizing research findings or adverse event reports
- Classifying clinical documents or patient notes by topic

BUSINESS OUTCOMES:

- **20–30% reduction** in early drug discovery timelines.[2]
- **50% faster** trial design requiring 25% fewer protocol amendments.[3]
- Increased clinical admin productivity and reduced latency.

2 Clinical Leader (2025). Global AI In Clinical Trials: Market Trends & Current Partnerships.

3 McKinsey (2025). AI Drug Development: AI Agents Could Cut Clinical Trial Timelines 50%, McKinsey Reports.

Streamline Clinical Operations

Orchestration allows teams to replace fragmented workflows with adaptive, AI-directed task flows, optimizing both operational, research and commercial functions.

USE CASES:

- Supervising clinical trial site selection, protocol design and QA routing.
- Coordinating provider outreach, healthcare professional (HCP) engagement or sales rep next actions.
- Managing prior authorization workflows and patient service handoffs.

BUSINESS OUTCOMES:

- **$400M+ NPV gain** from 12-month clinical trial timeline reduction.[4]
- **10% increase** in sales from Next Best Action recommendations.[5]
- **30-60% reduction** in cost to collect for revenue cycle management.[6]

"With Agent Bricks, our teams were able to parse through more than 400,000 clinical trial documents and extract structured data points — without writing a single line of code. **In just under 60 minutes**, we had a working agent that can transform complex unstructured data usable for analytics."

JOSEPH ROEMER
Head of Data & AI, Commercial IT, AstraZeneca

4 McKinsey (2025). Accelerating clinical trials to improve biopharma R&D productivity.
5 Iqvia (2022). How Artificial Intelligence is Revolutionizing Decision-Making in Commercial.
6 McKinsey (2025). Agentic AI and the race to a touchless revenue cycle.

2 Building a Self-Healing Supply Chain

Connecting operational data allows agents to monitor, predict and act in real time, increasing supply chain resiliency and optimizing manufacturing. When embedded in logistics, agents proactively resolve disruptions before they impact delivery or compliance, preventing drug shortages and ensuring cold-chain integrity.

Trust is critical. Agents must be open and governed by design. Every agent action should create traceable lineage from data to model, ensuring every decision in your automated supply chain is transparent, auditable and GxP-compliant.

Operational Data and AI Apps for Supply Chain Efficiency

Embedded agents can serve as continuous monitors across manufacturing, supply chain or revenue ops. Agents don't just monitor stock; they can predict disruptions to (On-Time, In-Full) OTIF scores and autonomously re-route logistics to prevent stockouts of critical therapies. They alert teams and take actions that eliminate waste and delay.

USE CASES:

- **Create supply chain visibility end-to-end:** Forecast demand and monitor distribution to optimize inventory levels.
- **Implement smart manufacturing:** Detect anomalies and optimize equipment use through always-on data agents and act on workflow bottlenecks.

BUSINESS OUTCOMES:

- **20–30%** lower inventory levels through machine learning-based demand forecasting.[7]
- **5%** reduction in breakdown time, speed losses, and minor stoppages, reducing downtime.[8]

7 McKinsey (2025). Harnessing the power of AI in distribution operations.
8 McKinsey (2025). Gen AI: A game changer for biopharma operations.

3 Patient and Healthcare Professional (HCP) Engagement

Agents can help surface high-quality insights in real time in the workflows of your teams operate, reducing care gaps and supporting value-based outcomes.

In patient engagement, a hallucination is unacceptable. Agents built on Databricks are architected to self-assess against your specific safety guidelines before a response is ever generated. Whether drafting prior authorization appeals or explaining benefits to patients, the agent acts as a tireless, compliant partner that keeps humans in the loop only where it matters most — final decision making and eliminating administrative bottlenecks.

Deliver Next Best Action

By grounding AI and agents in clinical and internal documentation, healthcare and life sciences organizations can reduce load on care teams while improving patient and HCP experiences.

USE CASES:

- Responding to provider or patient inquiries based on internal knowledge bases.
- Powering scheduling assistants, benefit navigation tools and patient education bots.
- Supporting help desks with document-grounded answers.

BUSINESS OUTCOMES:

- **1.6% increase** in medication adherence.[9]
- **3.6% decrease** in voluntary disenrollment for members targeted for earlier primary care physician reassignments.[10]
- Improved patient satisfaction scores and reduced appointment no-show rates from improved contact center ops.

9 Databricks. Personalizing the pharmacy experience to enable better outcomes.
10 Databricks. Unlocking critical healthcare for high-needs seniors.

Generate Real World Evidence

Agents that convert messy clinical or operational data into structured outputs make it easier to detect risk and improve reimbursement to drive value-based care.

USE CASES:

- Extracting risk scores, utilization patterns or coding data from clinical records.
- Populating patient registries and research cohorts.
- Pulling provider referral trends or formulary decisions from free-text reports.

BUSINESS OUTCOMES:

- **13% to 25%** in administrative costs reducing manual processes.[11]
- Improved HEDIS and Medicare Star ratings.
- Reduced claims denial rates and more accurate coding.

Agent Bricks has been transformative for Ensemble Health Partners' accounts receivable (AR) follow-up workflows, where predicting, prioritizing and resolving payment issues drives massive value for healthcare providers. By connecting real-time payer and provider data into materialized views, AI agents can quickly analyze patterns and flag anomalies to ultimately recommend the next best action items.

"Lakebase lets an agentic team quickly self-serve the data they need for their models — whether it's historical claims or real-time transactions — and that's really powerful."

DRAGON SKY
Chief Architect, Ensemble Health Partners

11 McKinsey (2024). The AI opportunity: How payers can capture it now.

Turning Agentic AI Into Measurable Impact

Healthcare and life sciences organizations are entering a defining decade — one where intelligent systems don't just assist humans, but actively collaborate in discovering new therapies, optimizing operations and personalizing patient care at scale.

The hype cycle is peaking, but the leaders are already looking past it. They aren't just experimenting with chat; they are deploying agents that act. The transition from pilot to production requires more than just a model, it requires a **Data Intelligence Platform**.

> The difference between the 40% of AI agent projects that will fail and the leaders who succeed is rooted in the data foundation. The leaders of the next decade won't just have better data; they will have agents that know how to use it.[12]

With the **Databricks Data Intelligence Platform**, you aren't just deploying a model; you are onboarding a digital workforce that understands your science, respects your governance and improves with every interaction.

Start building governed, data-driven agents with **Agent Bricks** today.

GET STARTED

12 Gartner (2025). Agentic AI Trends.