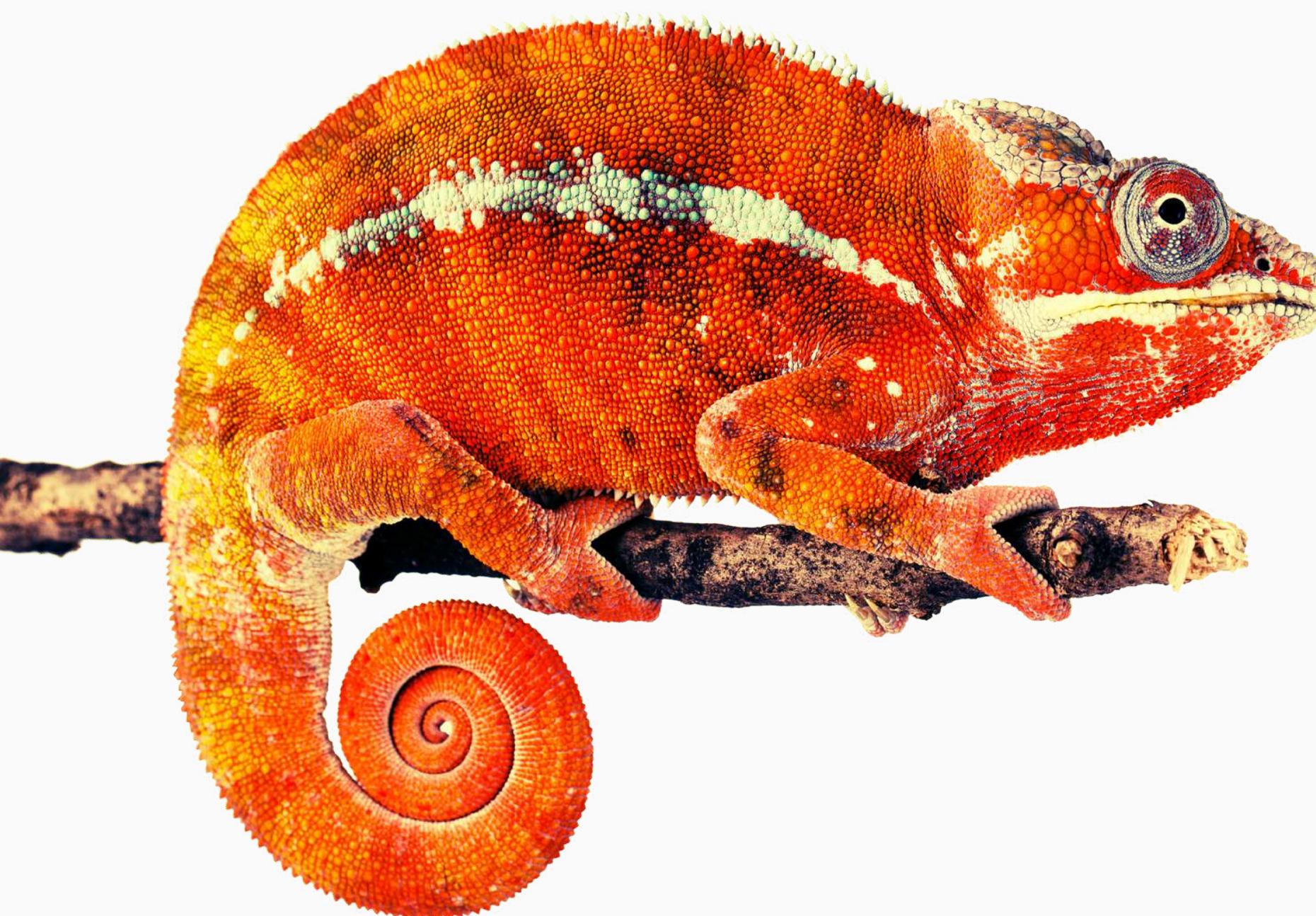


Atlas - Agentic AI In Healthcare 50 Use Cases →



A practical map of **Clinical, Operational & Administrative** Use cases

Foreword

Welcome to the 8th Edition of our Innovation Series: **Atlas - Agentic AI In Healthcare 50 Use Cases.**

As artificial intelligence enters a new phase where software cannot only classify or predict, but also act, the concept of “**agents**” has emerged as a key design pattern in modern computing. However, in healthcare, the relevance of agents cannot be understood solely through a technical lens. Their usefulness depends on the context in which they operate: workflows, incentives, regulation, risk, and the lived realities of patients, clinicians, and health systems.

This guide is written for a broad audience from **medical students, clinicians, public health practitioners, and healthcare operators** to engineers, product managers, researchers and business leaders building the next generation of AI-enabled healthcare systems. It is deliberately designed for readers who may not have advanced backgrounds in computer science or AI architecture but who seek to understand what Agentic AI means in healthcare, where agents fit, who they serve, and why they matter.

Unlike many **technology-first explanations** that focus mainly on **models, frameworks, or execution architectures**, this atlas emphasizes context before computing. It maps how autonomous software agents interact with real clinical, operational, financial, and public health environments and how value, risk, and constraints emerge from those interactions. In healthcare, agents are not simply technical artifacts; they are actors within a complex socio-technical system.

In this volume, we explore the landscape from a systems perspective: what agents can do today, where they live inside healthcare workflows, how they create value, and what business and operational implications they carry. This includes stakeholders, failure modes, maturity levels, adoption pathways, incentives, and constraints dimensions that are often missing in purely technical discussions of Agentic AI.

At HealthInnovation Toolbox, our mission is to help accelerate **responsible innovation** in healthcare. Through our products, research, and educational initiatives, we aim to strengthen digital literacy, clinical responsibility, and meaningful AI adoption. This atlas is part of a structured resource to support students, professionals, and innovators as they navigate the convergence of healthcare systems and intelligent software.

— **Team HealthInnovation Toolbox**

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AI that participates → Agents at work

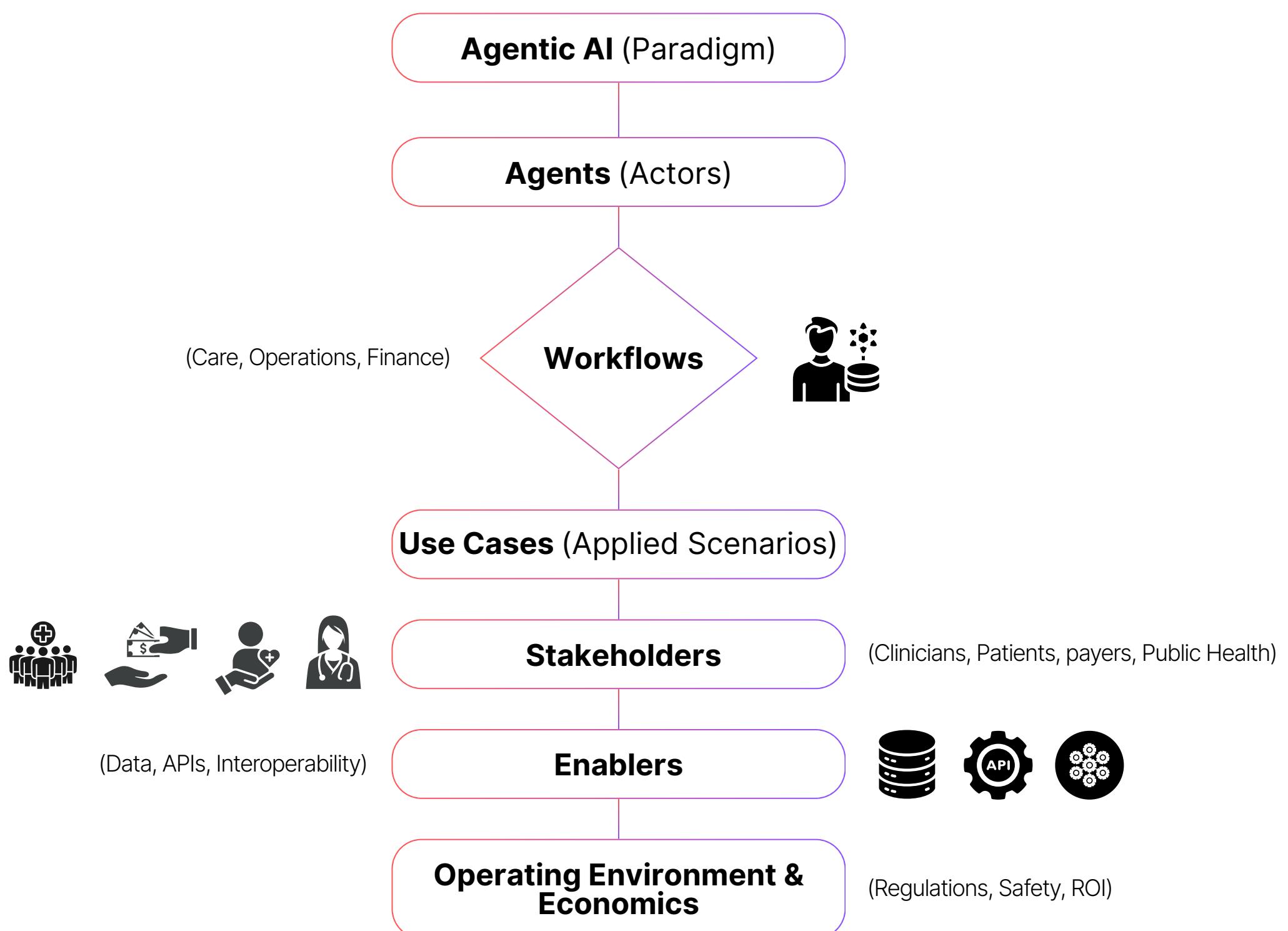
Agentic AI refers to AI systems that can **perceive, plan, and act** toward goals within real-world environments. In healthcare, these systems take the form of “software agents” that support clinical, operational, administrative, and public health workflows. Instead of merely predicting outcomes or answering questions, agents **coordinate tasks, navigate processes, and interact with multiple stakeholders across the care ecosystem**. Their impact depends not only on technical capability, but also on workflow fit, regulatory context, and system incentives. Understanding where agents operate and what roles they can safely perform is essential for meaningful and responsible adoption in healthcare.

Agentic AI & Agents

Agentic AI refers to the design paradigm in which AI systems can perceive, plan, and act toward goals within real environments. In healthcare, this paradigm manifests through software agents → autonomous actors that assist with tasks inside clinical, operational, administrative, and public health workflows.

Agents are not just chat interfaces or decision-support tools. They operate within processes, interact with multiple stakeholders, and handle sequences of actions rather than isolated predictions. Their capabilities depend on both technical enablers (data, APIs, planning models, interoperability) and system realities (regulation, incentives, liability, and workflow constraints).

Understanding agentic AI requires distinguishing between three layers: **the paradigm** (Agentic AI), **the actors** (agents), and **the contexts** (workflows & use cases). This atlas maps these layers across the healthcare ecosystem.



Mapping the Space Before We Explore It

Healthcare is a large, multi-layered system, and agentic AI can surface in very different parts of it. To make this atlas navigable, we organize the 50 use cases into six categories that reflect how healthcare actually works: **clinical care, operations, administration/payers, patient interaction, population health, & analytics/planning**. These categories are not theoretical, they are the domains where agentic systems are already emerging, where workflows can be meaningfully supported, and where maturity varies. Grouping use cases this way helps readers understand not just what agents do, but where they operate, who they serve, and how value is created or constrained. In the following sections, each category is briefly defined before we explore the individual use cases within it. The six categories in this Atlas are:

Clinical Agents

Agents that operate inside the care delivery process. They assist with triage, diagnostics, treatment, care planning, coordination, monitoring, and discharge activities. Their actions intersect directly with clinicians, patients, and clinical data.

Operational Agents

Agents that optimize the logistics of healthcare. They coordinate scheduling, staffing, beds, equipment, pharmacy, transport, supply, and throughput. They interact with time, capacity, and resource constraints more than clinical judgment.

Administrative / Payer Agents

Agents that perform financial, regulatory, and contractual tasks across billing, coding, claims, authorization, reimbursement, benefit design, and compliance. They live in the economic and regulatory layer of healthcare.

Patient-Facing Agents

Agents that assist patients and caregivers with navigation, communication, medication, adherence, instructions, recovery, and self-management. They operate at the point where healthcare intersects daily life.

Public Health / Population Agents

Agents that operate at the cohort or population level to support surveillance, outreach, reporting, risk stratification, and program management. They focus on groups rather than individual encounters.

Analytics / Planning Agents

Agents that support forecasting, scenario modeling, pathway optimization, resource planning, and insight generation. They help organizations understand “what is” and simulate “what could be.”

How to Read This Atlas?

This atlas maps **50 agentic AI use cases** across the healthcare ecosystem. Each use case is presented using a consistent format to make comparison easier and to help readers understand where an agent fits, who it serves, and how it delivers value. Unlike technical reports that focus on models, algorithms, or implementation details, this atlas **focuses on context → the workflows, stakeholders, and system conditions in which agents operate**. We believe meaningful adoption begins when the key stakeholders understand how the workflows operate in practice.

Each use case is therefore described in terms of:

- **Category** → the domain of healthcare where the agent operates
- **What It Does** → the function or role of the agent
- **Who It Serves** → the primary and secondary beneficiaries
- **Where It Fits** → the workflows, pathways, or settings it inhabits
- **Value Proposition** → what improves if the agent exists
- **Atlas Note** → framing, nuance, or system-level insight

This structure does not prescribe solutions or make clinical claims. It does not evaluate specific vendors, technologies, architectures, or commercial feasibility. Instead, it provides a language for thinking about agentic systems in healthcare and a map of where they may appear.

Readers can use this atlas to:

- *Explore how agentic systems interact with real healthcare workflows*
- *Learn where technical innovation aligns with operational needs*
- *Identify whitespace opportunities for research or product design*
- *Contextualize agents within economic and regulatory environments*
- *Understand how different stakeholders may benefit*
- *Compare maturity across domains without hype*

This is not a prediction document and not an implementation guide. It is a reference, intended to support learning, strategic thinking, and conversation across clinical, technical, research and policy communities.

Where Agentic AI Operates Across System Layers

Healthcare is not a single layer, it's a system of systems, each with its own workflows, stakeholders, and challenges. This matrix helps visualize where different types of AI agents naturally fit across the care continuum.

By mapping Clinical, Operational, Administrative, Patient-Facing, Population Health, and Analytics agents against real-world healthcare layers, from bedside care to system administration, financing, digital health, and community settings → we offer a structured view of how Agentic AI integrates into the fabric of modern healthcare. This isn't a rigid blueprint, but a conceptual map, a starting point to understand which agents solve which problems, where they add value, and how they connect across the ecosystem before exploring the 50+ use cases in depth.

System Layer	Clinical	Operational	Admin-Payer	Patient-Facing	Population Health	Analytics/Planning
Care Continuity	●	●	○	●	○	○
System Administration	○	●	○		○	●
Financing & Payer		○	●	○		●
Population & Public Health	○			○	●	●
Home & Community Care	●	○		●	●	○
Digital / Telehealth Layer (optional)	●	○	○	●	○	●

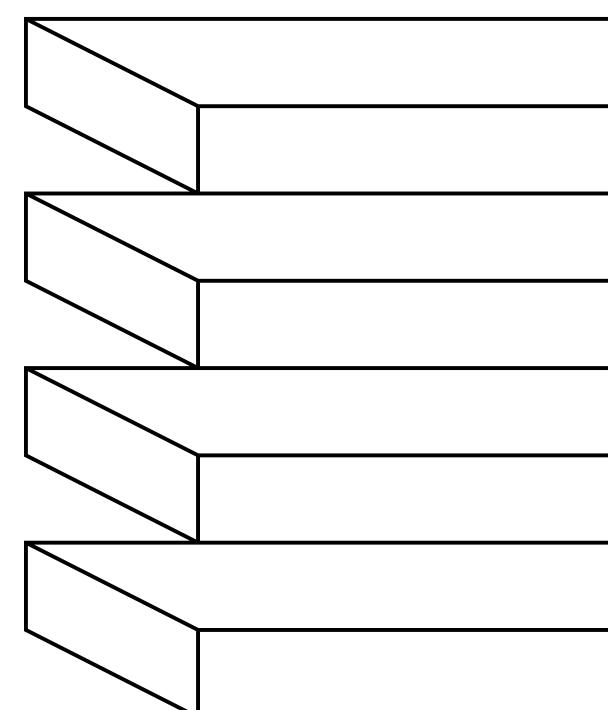
● = Primary fit | ○ = Secondary fit

Note: Categories are placed according to their primary center of gravity within the health system. Actual implementations may vary across geographies, financing models, and digital maturity. Matrix design based on healthcare system-layer analysis and functional mapping of agent roles. Intended as a conceptual guide, specific implementations may vary by region, regulation, and care model.

Clinical Agents

Supporting Clinical Decision and Care Execution → Clinical agents operate within the diagnostic and care delivery portions of the healthcare system. They support tasks such as triage, differential reasoning, treatment planning, care coordination, and clinical monitoring, often interacting with structured and unstructured clinical data. Their outputs influence care pathways and time-sensitive decisions, which means they must integrate with clinical workflows, documentation practices, safety protocols, and multidisciplinary communication. These agents do not replace clinical judgment; they assist by reducing cognitive load, aligning information, and facilitating orderly progression of care. Their deployment requires attention to accuracy, interoperability, and oversight, given their proximity to patient outcomes.

Triage • Diagnosis • Treatment



Triage & Intake Agent

01

Clinical → Front-Door Sorting



CATEGORY & WHAT IT DOES

This agent sits at the earliest moment of patient-system interaction, where healthcare must quickly determine who needs urgent attention, who can safely wait, and who can be redirected. It shapes the initial flow and workload distribution across clinical settings.

Supports the intake, basic assessment, prioritization, and routing of patients based on presenting symptoms and limited structured information. It does not replace clinical diagnosis → instead, it creates a structured starting point for clinicians and care pathways to follow.



Who It Serves?

Primarily used by triage nurses, ED coordinators, urgent care centers, telehealth services, call centers, and community screening teams.

Indirect beneficiaries include patients, caregivers, and throughput managers who rely on predictable flow patterns.



Where It Fits?

Front-door points where patients enter the care ecosystem:

- Emergency departments
- OPDs/clinics
- Telehealth platforms
- Call-center triage
- Community screening and camps
- Insurance advice lines (in some geographies)

This layer is high-volume and high-friction in most systems.



VALUE PROPOSITION

This agent creates value by improving the first layer of care navigation rather than clinical decision-making:

- **Flow:** reduces waiting room congestion & bottlenecks
- **Safety:** enables earlier escalation for serious presentations
- **Navigation:** routes non-emergent cases to more appropriate settings
- **Experience:** reduces anxiety & uncertainty at entry points
- **Efficiency:** protects clinical time and prevents avoidable overload

These value themes vary by geography but are universally relevant.



Atlas Note

Triage agents are foundational because they influence downstream load, not just patient experience. In multi-agent systems, they function as "**entry routers**" that shape how clinical, operational, and administrative resources are consumed.

Diagnostic Decision Support Agent

02

Clinical → Differential Support



CATEGORY & WHAT IT DOES

This agent supports clinicians during the early diagnostic reasoning phase by organizing symptoms, history, and basic findings into structured differentials. It does not make definitive diagnoses, instead, it helps broaden or narrow clinical possibilities and avoid missed considerations.

It aligns with how clinicians mentally generate differentials, increasing completeness under time pressure and cognitive load.



VALUE PROPOSITION

This agent creates value by supporting structured diagnostic thinking rather than replacing medical judgment:

- Completeness: reduces missed differentials
- Patterning: highlights common + atypical presentations
- Timeliness: accelerates early decision pathways
- Communication: improves case clarity for referrals
- Education: reinforces training and cognitive scaffolding

These themes matter most where case complexity and presentation variability are high.



Who It Serves?

Primarily used by physicians, residents, advanced practice providers, and virtual care clinicians across emergency, outpatient, and telehealth settings.

Indirect beneficiaries include patients, families, and system operators who depend on accurate and timely diagnostic pathways that reduce unnecessary downstream utilization.



Where It Fits?

Mid-front of the clinical workflow during diagnostic formulation:

- ED evaluation
- OPD consults
- Virtual consults
- Urgent care
- Specialist triage
- Second-opinion support

This layer is sensitive because misdiagnosis has clinical, emotional, and financial consequences.



Atlas Note

Diagnostic support agents extend clinician cognition rather than automate diagnosis. In multi-agent systems, they enhance the **"reasoning layer,"** which influences clinical accuracy, patient safety, and the efficiency of subsequent care steps.

Virtual Nurse Navigator Agent

03

Clinical → Care Navigation & Coordination



CATEGORY & WHAT IT DOES

This agent supports patients as they move through diagnostic, treatment, and follow-up steps that require coordination across multiple services. Instead of replacing nurses, it extends their navigational role by guiding patients on what to do next, what to expect, and how to prepare for appointments or interventions.

It reduces friction at transitions, where many patients get lost, delayed, or overwhelmed.



VALUE PROPOSITION

The agent creates value by improving patient preparedness and pathway adherence rather than altering clinical decisions:

- Clarity: explains next steps in plain language
- Logistics: helps manage appointments, labs, and prep
- Adherence: reduces missed or delayed steps
- Confidence: lowers anxiety during complex care
- Continuity: maintains link between visits and services

These elements strengthen both patient experience and system flow.



Who It Serves?

Primarily used by oncology, cardiology, maternity, post-surgical, and chronic care pathways where multiple visits, labs, and imaging steps must align.

Indirect beneficiaries include caregivers, clinicians, schedulers, and coordinators who rely on patients arriving prepared and on time to keep throughput stable.



Where It Fits?

Mid-pathway, between diagnosis and completion of care episodes:

- Pre-visit preparation
- Lab/imaging coordination
- Pre-surgical instructions
- Treatment cycle guidance
- Discharge follow-up
- Survivorship support

This layer carries high informational demand and is often under-resourced in most health systems.



Atlas Note

Navigator agents address the “**last mile**” of healthcare delivery, ensuring that care pathways are not only designed but successfully executed. Their true leverage is in making care journeys feel understandable, navigable, and humane.

Care Coordination Agent

04

Clinical → Multi-Service Alignment



CATEGORY & WHAT IT DOES

This agent assists in coordinating multiple clinical and ancillary services involved in a patient's care plan. It focuses on aligning tasks, appointments, and dependencies across clinicians, departments, and time windows. It does not make medical decisions, it ensures they are operationally executed without loss, delay, or duplication.

Care coordination is essential in conditions where timing and sequence influence outcomes.



Who It Serves?

Primarily used by care coordinators, nursing teams, specialty clinics, perioperative teams, and chronic disease programs.

Indirect beneficiaries include patients, caregivers, and unit managers who depend on smooth sequencing to minimize friction and uncertainty.



Where It Fits?

Mid-care pathway where multiple services must be synchronized:

- Specialty consults
- Imaging & diagnostics
- Pharmacy & infusions
- Pre-operative steps
- Therapy & rehabilitation
- Chronic disease management

This layer is vulnerable to fragmentation, especially in complex or multi-provider systems.



Atlas Note

Coordination agents strengthen the connective tissue between services. In multi-agent ecosystems, they act as **synchronizers** that keep clinical plans intact as they pass through operational reality.

Treatment Planning Support Agent

05

Clinical → Clinical Decision Pathway Support



CATEGORY & WHAT IT DOES

This agent assists clinicians in constructing treatment pathways after diagnosis has been established. It aligns disease stage, comorbidities, patient preferences, and available services into a coherent care plan. It does not replace clinical decision-making, it organizes relevant considerations and standard-of-care pathways to support it.

Treatment planning is most valuable in specialties with multiple modalities and sequencing steps.



VALUE PROPOSITION

This agent creates value by supporting structured plan formation rather than determining the plan itself:

- **Structure:** aligns with clinical guidelines and staging
- **Completeness:** ensures relevant factors are not overlooked
- **Alignment:** supports multidisciplinary consensus
- **Preparation:** creates clarity for downstream execution
- **Communication:** enables cleaner handoffs to scheduling and coordination

These benefits accumulate strongly in complex or longitudinal care.



Who It Serves?

Primarily used by specialists, multidisciplinary teams, tumor boards, perioperative teams, and chronic disease programs where treatment choices and sequencing impact outcomes.

Indirect beneficiaries include patients, caregivers, and administrative coordinators who depend on clear plans to navigate and execute the recommended course of care.



Where It Fits?

Early-to-mid clinical workflow after diagnosis and before task execution:

- Oncology treatment planning
- Cardiology intervention planning
- Surgical planning
- Chronic care pathway design
- Rehabilitation planning

This layer involves preference-sensitive decisions and coordination across departments.



Atlas Note

Treatment planning agents support the “**decision-to-plan**” transition zone, a critical point where clinical choices translate into real care pathways. Their role is scaffolding, not autonomy.

Pharmacy Coordination Agent

Clinical → Medication Preparation & Delivery Alignment



CATEGORY & WHAT IT DOES

This agent assists in synchronizing medication-related tasks that require interaction between prescribers, pharmacy teams, and clinical units. It focuses on timing, preparation, and availability rather than prescribing behavior. Its primary function is to ensure that medications, infusions, and related supplies are ready when patients and clinicians need them.

Pharmacy coordination is critical for therapies that are time-sensitive or preparation-dependent.



Who It Serves?

Primarily used by pharmacy teams, infusion units, oncology services, perioperative teams, and inpatient wards where medication preparation and delivery influence patient flow.

Indirect beneficiaries include patients, nurses, and schedulers who rely on predictable medication availability to prevent delays or cancellations.



Where It Fits?

Mid-care workflow, between treatment planning and care execution:

- Infusion therapy cycles
- Surgical medication prep
- Oncology chemotherapy sessions
- Inpatient IV medication rounds
- Discharge medication packaging
- Specialty medication fulfillment

This layer is operationally dense and often under-optimized.



Atlas Note

Pharmacy coordination agents increase reliability at the intersection of clinical and operational workflows. Their leverage comes from reducing friction where medication readiness influences treatment throughput.

Discharge & Follow-Up Agent

07

Clinical → Transition of Care Support



CATEGORY & WHAT IT DOES

This agent assists clinicians and care teams during the patient transition from inpatient care to home, rehabilitation, or outpatient follow-up. It focuses on organizing discharge instructions, ensuring follow-up appointments are scheduled, and preparing patients for next steps.

It does not make clinical discharge decisions, it enhances execution and continuity once the decision is made. Transitions are high-risk and often fragmented, making them a prime target for coordination support.



Who It Serves?

Primarily used by discharge planners, inpatient care teams, nursing staff, case managers, and outpatient coordinators who work to ensure safe and timely transitions.

Indirect beneficiaries include patients, caregivers, home care providers, and primary care teams who rely on clear instructions and scheduled follow-ups to maintain continuity of care.



Where It Fits?

End-of-care episode, bridging inpatient and outpatient environments:

- Post-surgical discharge
- Medical ward discharge
- Rehabilitation planning
- Chronic disease transitions
- Home care initiation
- Primary care re-entry

This layer is a known safety and adherence challenge across health systems.



VALUE PROPOSITION

The agent creates value by stabilizing the transition boundary rather than altering clinical treatment:

- Clarity: provides structured discharge instructions
- Scheduling: aligns follow-up appointments before exit
- Continuity: links inpatient events to outpatient care plans
- Safety: reduces readmission risk through improved preparation
- Engagement: equips patients and caregivers for home environments

These functions support both clinical outcomes and system efficiency.



Atlas Note

Discharge agents help close care loops by reducing information loss at transitions. In multi-agent ecosystems, they reinforce continuity across organizational boundaries and time horizons.

Home & Chronic Monitoring Agent

Clinical → Longitudinal Condition Monitoring



CATEGORY & WHAT IT DOES

This agent supports continuous or periodic monitoring of patients living with chronic or post-acute conditions outside of inpatient settings. It tracks relevant metrics, symptoms, and behaviors and surfaces actionable changes to care teams.

It does not diagnose or treat, it enhances visibility between visits and enables earlier interventions when trends shift. Monitoring is a key enabler of longitudinal care models.



Who It Serves?

Primarily used by chronic care programs, home health services, post-acute care, specialty clinics, and virtual care teams.

Indirect beneficiaries include patients and caregivers who gain guidance and reassurance between formal encounters.



VALUE PROPOSITION

The agent creates value by improving continuity and trend awareness rather than providing clinical decisions:

- **Visibility:** makes disease progression observable
- **Responsiveness:** enables earlier outreach when metrics deviate
- **Continuity:** links visits, treatments, and home behaviors
- **Engagement:** increases patient participation in self-care
- **Preparation:** informs clinicians before the next encounter

These elements support better outcomes without increasing visit burden.



Where It Fits?

End-to-end care journeys that extend beyond episodic visits:

- Chronic disease management (e.g., diabetes, heart failure, COPD)
- Post-surgical recovery
- Oncology follow-up
- Maternity and newborn care
- Geriatric and frailty care

This layer has high variability across geographies and care models.



Atlas Note

Monitoring agents expand the care boundary into the home, shifting part of the healthcare workload from reactive encounters to proactive observation. Their leverage grows as chronic disease burden increases globally.

Medication Reconciliation Agent

Clinical → Medication Safety & Continuity



CATEGORY & WHAT IT DOES

This agent assists clinicians and pharmacy teams in reconciling patient medication lists across care settings, encounters, and updates. It identifies discrepancies, duplications, interactions, and omissions when patients transition between inpatient, outpatient, and home care environments.

It does not prescribe, it enhances accuracy and safety in medication histories. Medication reconciliation is a major patient safety initiative globally.



Who It Serves?

Primarily used by pharmacy teams, inpatient units, primary care, specialty clinics, and discharge planners who work to maintain consistent medication records.

Indirect beneficiaries include patients, caregivers, and care coordinators who rely on accurate lists to avoid errors and confusion during transitions.



Where It Fits?

Key transition points where medication lists often diverge:

- Admission to hospital
- Inpatient ward transfers
- Discharge to home or rehabilitation
- Outpatient follow-up visits
- Specialist consults
- Home medication updates

This workflow is resource-intensive and error-prone without support.



Atlas Note

Medication reconciliation agents strengthen medication safety infrastructure by providing continuity across fragmented care environments. Their value grows as chronic disease prevalence and polypharmacy increase.

Clinical Documentation Agent

Clinical → Information Capture & Record Support



CATEGORY & WHAT IT DOES

This agent assists clinicians in capturing, structuring, and summarizing clinical encounters within the medical record. It focuses on translating spoken or written content into appropriate clinical documentation formats while maintaining clinical intent and narrative clarity.

It does not determine diagnoses or plans, it records them accurately in standardized formats. Documentation is a foundational clinical workload in every healthcare setting.



VALUE PROPOSITION

This agent creates value by reducing administrative burden and improving clarity instead of altering clinical decisions:

- **Efficiency:** reduces typing and transcription workload
- **Structure:** aligns notes with standard templates
- **Completeness:** ensures key elements are captured
- **Communication:** improves inter-team information flow
- **Continuity:** provides better handoffs across settings

These benefits address one of the most widely reported clinician pain points.



Who It Serves?

Primarily used by physicians, advanced practice providers, residents, and allied health professionals who generate clinical notes for inpatient, ED, and outpatient encounters.

Indirect beneficiaries include coders, billing teams, administrators, and other clinicians who depend on reliable records for continuity and handoffs.



Where It Fits?

Mid-to-late in the clinical workflow during and immediately after the patient encounter:

- ED visit documentation
- Inpatient progress notes
- Outpatient consult notes
- Discharge summaries
- Procedure and operative notes
- Referral summaries

This layer is time-consuming and historically manual.



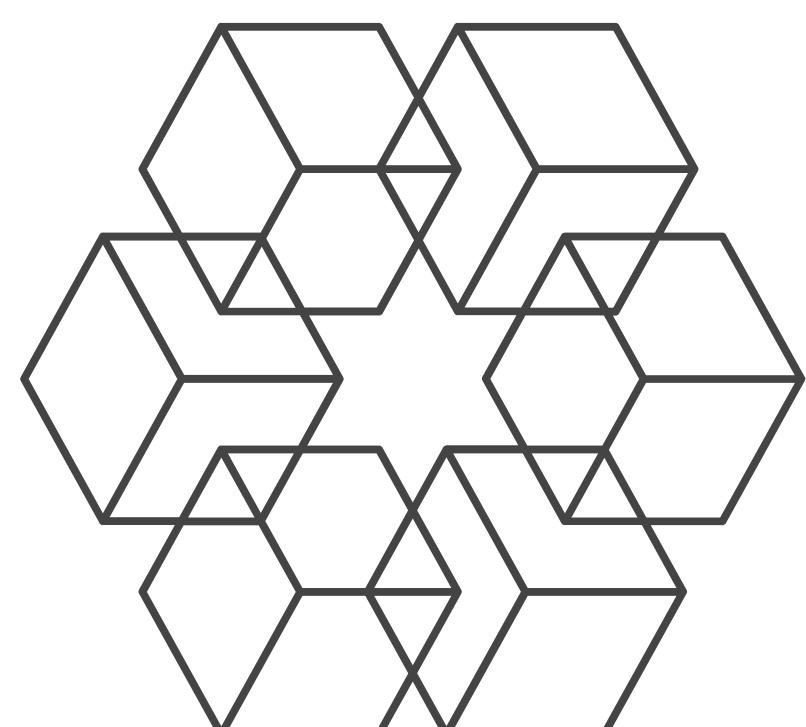
Atlas Note

Documentation agents relieve cognitive and administrative load, enabling clinicians to focus more on patient interaction. They are among the earliest clinical agents to reach scale due to clear value and low clinical liability.

Operational Agents

Operational agents support the logistical and coordination layers of healthcare delivery. Their focus is on managing time, resources, capacity, and throughput across activities such as scheduling, bed assignment, transport, pharmacy coordination, supply, and equipment availability. These functions are critical to maintaining flow, reducing delays, and optimizing scarce assets, yet they often involve fragmented information across departments and systems. Operational agents help unify that information and execute routine decisions that humans currently manage through manual workarounds, spreadsheets, or communication chains. Unlike clinical agents, their outputs primarily affect **efficiency and execution** rather than diagnosis or treatment. Deployment depends on interoperability, data timeliness, and alignment with local operating procedures. Their impact is measured through predictability, utilization, and reduced friction across the care continuum.

Schedule • Allocate • Optimize



OR Scheduling Optimization Agent

01

Operational → Surgical Resource Allocation

CATEGORY & WHAT IT DOES

This agent assists operating room teams in scheduling surgical cases by aligning surgeons, staff, equipment, and room blocks. It focuses on optimizing time, minimizing idle blocks, and improving sequencing across multiple cases.

It does not determine clinical suitability for surgery, it allocates operational resources once surgical plans exist.

Surgical throughput is a major driver of both access and financial performance in hospitals.

VALUE PROPOSITION

Creates value by improving capacity usage rather than altering clinical care:

- Utilization: reduces unused block time
- Fluidity: manages add-ons, cancellations, and emergencies
- Coordination: aligns surgeons, anesthesia, and nursing teams
- Predictability: stabilizes downstream postoperative beds
- Throughput: increases surgical access within fixed resources

These benefits improve both system efficiency and patient wait times.

Who It Serves?

Primarily used by OR coordinators, surgical services, anesthesia teams, perioperative managers, and hospital operations staff who work to balance clinical demands with constrained OR capacity.

Indirect beneficiaries include surgeons, nursing teams, postoperative units, and patients awaiting surgical slots.

Where It Fits?

Early in the operative workflow, before operative execution:

- Block scheduling
- Case sequencing
- Preoperative slot allocation
- Urgent add-on requests
- Postponement handling
- Room utilization adjustments

This layer is both high-stakes and highly resource constrained.

Atlas Note

OR scheduling agents enhance surgical throughput, a key performance lever for hospitals. Their strength lies in coordinating scarce, interdependent resources within narrow time windows.

Bed Management Agent

02

Operational → Capacity & Placement Coordination

CATEGORY & WHAT IT DOES

This agent assists hospital operations teams in managing bed capacity across inpatient units, ICUs, step-down units, maternity wards, and observation units. It focuses on matching patient placement requests with available beds while accounting for acuity, isolation needs, gender norms, and specialty requirements.

It does not determine medical admission criteria, it allocates space once admission decisions are made.

Bed capacity is a central constraint for hospital throughput globally.

VALUE PROPOSITION

Creates value by improving allocation and turnover rather than changing care delivery:

- **Visibility:** shows real-time capacity status
- **Matching:** aligns patient needs to appropriate units
- **Efficiency:** reduces ED boarding delays
- **Coordination:** synchronizes transport & staffing with bed readiness
- **Continuity:** ensures smoother intra-hospital transfers

These improvements reduce congestion across multiple departments.

Who It Serves?

Primarily used by bed managers, nursing supervisors, unit leaders, ED flow coordinators, and hospital operations teams who must manage admissions, transfers, and discharges in real time.

Indirect beneficiaries include ED clinicians (reduced boarding), inpatient clinicians (better flow), patients (reduced waiting), and schedulers handling elective admissions.

Where It Fits?

Mid-operational flow connecting clinical decisions to physical capacity:

- ED admissions
- Intra-hospital transfers
- Postoperative bed assignments
- ICU step-down coordination
- Seasonal surge planning
- Isolation bed allocation

This layer is highly sensitive during surges and staffing shortages.

Atlas Note

Bed management agents enhance situational awareness and allocation efficiency in capacity-constrained environments. Their leverage increases when demand is volatile or staffing is limited.

Imaging Slot Optimization Agent

03

Operational → Diagnostic Capacity & Scheduling Alignment

CATEGORY & WHAT IT DOES

This agent assists radiology and diagnostic imaging departments in scheduling and allocating slots for MRI, CT, ultrasound, X-ray, nuclear medicine, and mammography. It focuses on matching modality availability, scan duration, case priority, and patient preparation requirements.

It does not interpret images, it manages the operational side of imaging access.

Imaging is a major diagnostic bottleneck in almost every health system.

Who It Serves?

Primarily used by radiology schedulers, imaging coordinators, diagnostic departments, inpatient units, and emergency departments who depend on timely imaging access.

Indirect beneficiaries include referring clinicians, surgeons, hospitalists, and patients awaiting diagnosis or surgical clearance.

Where It Fits?

Located early-to-mid in the diagnostic workflow:

- Outpatient imaging appointments
- Inpatient imaging requests
- ED fast-track scanning
- Preoperative imaging
- Oncology staging
- Follow-up surveillance

This layer experiences high demand variation and modality constraints.

VALUE PROPOSITION

Creates value by improving access and throughput rather than impacting clinical interpretation:

- Prioritization: aligns urgent vs routine requests
- Sequencing: matches slot duration with study type
- Utilization: reduces idle modality time
- Coordination: synchronizes patient prep + transport
- Wait Times: reduces delays for diagnosis and treatment

These improvements accelerate care pathways and reduce hospital length of stay.

Atlas Note

Imaging scheduling agents optimize scarce diagnostic capacity, enabling faster clinical decision-making. Their leverage increases when imaging acts as the pacing function for surgical or oncology pathways.

Pharmacy Compounding Queue Agent

04

Operational → Medication Preparation Sequencing

CATEGORY & WHAT IT DOES

This agent assists pharmacy departments in sequencing and timing compounding tasks for medications that require preparation prior to administration (e.g., oncology, biologics, sterile IVs, anesthetic drugs). It focuses on optimizing compounding workload, matching preparation times with administration windows, and managing dependency on upstream schedules.

It does not decide medical treatment, it orchestrates preparation to ensure medications are ready when needed.

Compounding delays are a silent but significant operational bottleneck in hospitals.

VALUE PROPOSITION

Creates value by improving medication readiness and reducing delays:

- **Timing Alignment:** matches compounding with administration schedules
- **Sequencing:** prioritizes based on urgency and preparation duration
- **Efficiency:** reduces idle patient or chair time
- **Coordination:** synchronizes with nursing and treatment schedules
- **Predictability:** improves operational flow for downstream units

This reduces cascading delays across clinical pathways.

Who It Serves?

Primarily used by pharmacy compounding teams, oncology and infusion services, perioperative teams, and inpatient medication dispensing units.

Indirect beneficiaries include nurses, schedulers, coordinators, and patients whose treatment timelines depend on medication readiness.

Where It Fits?

Located between treatment planning and care execution:

- Chemotherapy compounding
- Anesthesia drug kits
- IV antibiotic rounds
- TPN preparation
- Pediatric specialty mixes
- Sterile preparations

This layer has strict regulatory, timing, and safety constraints.

Atlas Note

Compounding queue agents manage a workflow that is both safety-critical and time-sensitive. Their leverage increases in oncology and perioperative settings where delays can propagate across teams.

Lab Routing & Turnaround Agent

05

Operational → Diagnostic Sample Flow & Reporting Logistics

CATEGORY & WHAT IT DOES

This agent assists laboratory and clinical teams in sequencing, routing, and prioritizing diagnostic samples to optimize turnaround times (TAT) for labs such as hematology, biochemistry, microbiology, pathology, and molecular diagnostics.

It focuses on matching sample urgency, batching rules, machine capacity, and transport times to improve time-to-result across inpatient, outpatient, and emergency workloads.

It does not interpret lab results, it optimizes how they move through the system.

VALUE PROPOSITION

Creates value by improving time-to-information rather than changing clinical interpretation:

- Prioritization: routes urgent samples appropriately (e.g., STAT)
- Sequencing: batches similar assays for efficiency
- Resource Matching: distributes load across analyzers and shifts
- Transport Sync: coordinates with courier or pneumatic tube systems
- Turnaround: accelerates result availability for downstream action

Multiple clinical pathways depend on lab TAT to progress.

Who It Serves?

Primarily used by lab operations teams, ED coordinators, inpatient units, ICU teams, oncology services, and surgical services who depend on reliable TAT to inform clinical decisions.

Indirect beneficiaries include clinicians, patients, and administrative teams where decision-making, discharge, and scheduling rely on timely lab results.

Where It Fits?

Located between specimen collection and result reporting:

- ED stat labs
- Pre-op labs
- Inpatient monitoring
- Outpatient diagnostics
- Pathology workflows
- Molecular testing

This layer is often invisible to patients but highly visible to clinicians and operations.

Atlas Note

Lab routing agents manage diagnostic bottlenecks that influence clinical throughput, especially in emergency and inpatient environments. Their leverage increases when demand spikes or when molecular testing volumes grow.

Staffing & Roster Optimization Agent

06

Operational → Workforce Scheduling & Load Alignment

CATEGORY & WHAT IT DOES

This agent assists hospitals and clinics in creating staffing rosters that align workforce availability with expected patient demand and unit-specific workload.

It focuses on assigning clinicians, nurses, technicians, and ancillary staff to shifts, service lines, and units while respecting regulatory rules, staffing ratios, skill mix, leave requests, and overtime policies. It does not determine clinical scope of practice, it ensures the right mix of staff are present when care is delivered.

Workforce allocation is one of the dominant constraints in global healthcare delivery.

VALUE PROPOSITION

Creates value by matching staffing resources to operational needs rather than altering clinical care:

- **Coverage:** ensures units are staffed appropriately
- **Efficiency**
- **Flexibility:** adapts to census and seasonal patterns
- **Skill Mix:** aligns staff qualifications to required tasks
- **Stability:** decreases last-minute scheduling disruptions

These gains support safety, throughput, and financial sustainability.

Who It Serves?

Primarily used by nursing supervisors, department heads, shift coordinators, perioperative services, and hospital operations teams who must balance staffing ratios and service coverage.

Indirect beneficiaries include frontline clinicians, patients, and administrative departments that rely on properly staffed units for throughput and safety.

Where It Fits?

Early in the operational planning process before daily execution:

- Shift assignments
- Skill-based staffing
- Cross-coverage scheduling
- Leave and absence management
- Surge and seasonal adjustments
- Agency and float pool allocation

This layer is highly sensitive to both regulatory and operational constraints.

Atlas Note

Staffing agents optimize the workforce layer of healthcare operations, balancing regulatory requirements with fluctuating demand. Their leverage increases in settings with workforce shortages and high acuity variability.

Transport Dispatch Agent

07

Operational → Intra-Facility Patient & Sample Movement Coordination

CATEGORY & WHAT IT DOES

This agent assists hospitals in coordinating the intra-facility movement of patients, specimens, equipment, and consumables between departments.

It focuses on matching transport requests with available transport staff, equipment (e.g., wheelchairs, stretchers), priority levels, and time windows.

It does not determine clinical urgency, it executes movement once orders are placed. Transport is an essential dependency for imaging, procedures, admissions, and discharge.

VALUE PROPOSITION

Creates value by improving flow and reducing idle wait periods:

- Prioritization: routes urgent vs routine transport tasks
- Matching: aligns transporters with equipment and destination
- Sequencing: minimizes delays between ordered steps
- Visibility: gives units real-time status on pending requests
- Throughput: improves departmental turn-around and bed turnover

Small transport delays can cascade into multi-hour care delays.

Who It Serves?

Primarily used by transport coordinators, nursing units, radiology, perioperative services, ED, and inpatient wards that rely on timely movement to progress care.

Indirect beneficiaries include patients, clinicians, and operations teams whose workflows depend on coordinated handoffs between locations.

Where It Fits?

Operationally located between scheduling decisions and care execution:

- Imaging transport requests
- Pre-op and post-op transfers
- ED admissions to inpatient units
- Specimen delivery to labs
- Equipment movement
- Discharge to home or rehab vehicles

This layer is time-sensitive and prone to bottlenecks during surges.

Atlas Note

Transport dispatch agents optimize the physical flow layer of healthcare operations. Their leverage becomes especially visible when bottlenecks manifest as idle patients, delayed procedures, and prolonged length of stay.

Supply Chain Inventory Agent

Operational → Consumables & Supplies Availability Management

CATEGORY & WHAT IT DOES

This agent assists supply chain teams in monitoring, forecasting, and replenishing consumables, medical supplies, and non-pharmaceutical inventory across clinical units. It focuses on maintaining adequate stock levels, reducing stockouts, and minimizing expiry-driven waste.

It does not determine clinical usage, it ensures materials are available when care demands them.

Supply availability is a foundational requirement for uninterrupted clinical operations.

VALUE PROPOSITION

Creates value by stabilizing the supply interface rather than altering care:

- **Stock Availability:** reduces stock outs during high demand
- **Forecasting:** anticipates future needs based on usage patterns
- **Waste Reduction:** minimizes expiry and over-ordering
- **Visibility:** provides unit-level consumption transparency
- **Cost Control:** supports rational procurement and logistics

Availability of supplies protects both throughput and safety.

Who It Serves?

Primarily used by supply chain teams, unit managers, perioperative services, procedural suites, and clinical departments with high consumable usage.

Indirect beneficiaries include clinicians, procedural staff, patients, and safety teams who rely on predictable access to materials.

Where It Fits?

Operationally positioned upstream of clinical execution:

- Procedural kits
- Dressing materials
- PPE supplies
- Syringes and IV sets
- Sterile consumables
- Diagnostic consumables

This layer experienced acute stress globally during COVID-19.

Atlas Note

Supply chain agents reinforce the **logistical backbone** of healthcare delivery. Their leverage increases with procedural volume, demand variability, and global supply disruptions.

Equipment Availability Agent

09

Operational → Device & Instrument Readiness Assurance

CATEGORY & WHAT IT DOES

This agent assists hospitals and procedural units in ensuring that required medical equipment and instruments are available, functional, and properly assigned at the time they are needed.

It focuses on tracking equipment location, maintenance status, sterilization cycles, and booking conflicts.

It does not select clinical treatment modalities, it ensures the physical tools required for care are ready and accessible. Equipment readiness is a key determinant of procedural throughput and safety.

VALUE PROPOSITION

Creates value through predictability and readiness, not clinical selection:

- **Availability:** ensures required equipment is present and functional
- **Turnover:** accelerates sterilization and reprocessing cycles
- **Conflict Management:** prevents double-booking across units
- **Maintenance:** aligns preventive maintenance with downtime windows
- **Safety:** reduces procedure delays and cancellations

Operational equipment failures disrupt entire care pathways.

Who It Serves?

Primarily used by perioperative services, procedural suites, biomedical engineering, central sterile supply, and clinical departments that depend on equipment availability.

Indirect beneficiaries include surgeons, anesthesiologists, nurses, technicians, and patients whose procedures rely on timely access to functional instruments.

Where It Fits?

Operationally positioned between resource planning and care execution:

- Surgical instrument sets
- Imaging equipment (MRI/CT machines)
- Endoscopy towers
- Dialysis machines
- Ventilators
- ECG/monitoring devices

This layer has both sterilization and preventive maintenance constraints.

Atlas Note

Equipment agents bridge physical resource constraints with workflow continuity. Their leverage increases in high-acuity and high-volume procedural specialties where equipment bottlenecks halt throughput.

Throughput Optimization Agent

10

Operational → Cross-Workflow Flow & Bottleneck Management

CATEGORY & WHAT IT DOES

This agent assists hospital operations teams in identifying bottlenecks, predicting load, and coordinating interventions across multiple departments to improve overall system throughput.

It focuses on synchronizing clinical and logistical activities, admissions, transfers, diagnostics, procedures, and discharges, so that patients flow through the system without avoidable idle time.

It does not provide clinical decisions, it manages flow to reduce delays and congestion. Throughput is a core performance metric in hospitals, influencing access, utilization, and financial outcomes.

VALUE PROPOSITION

Creates value by improving flow and reducing systemic delays:

- Bottleneck Detection: identifies slow points in care pathways
- Load Prediction
- Coordination: aligns beds, staff, and diagnostic services
- LOS Reduction
- Capacity Unlocking

These benefits align operational efficiency with patient access.

Who It Serves?

Primarily used by hospital COOs, patient flow coordinators, capacity management teams, bed managers, perioperative services, and emergency department leadership.

Indirect beneficiaries include clinicians, nursing teams, and patients whose care plans depend on timely transitions between services.

Where It Fits?

Spans the entire operational layer as a coordinating function:

- Admission and intake
- Imaging and diagnostics
- Surgical and procedural blocks
- Inpatient care
- Step-down and ICU transitions
- Discharge execution

Throughput often acts as the “pacing function” for the hospital system.

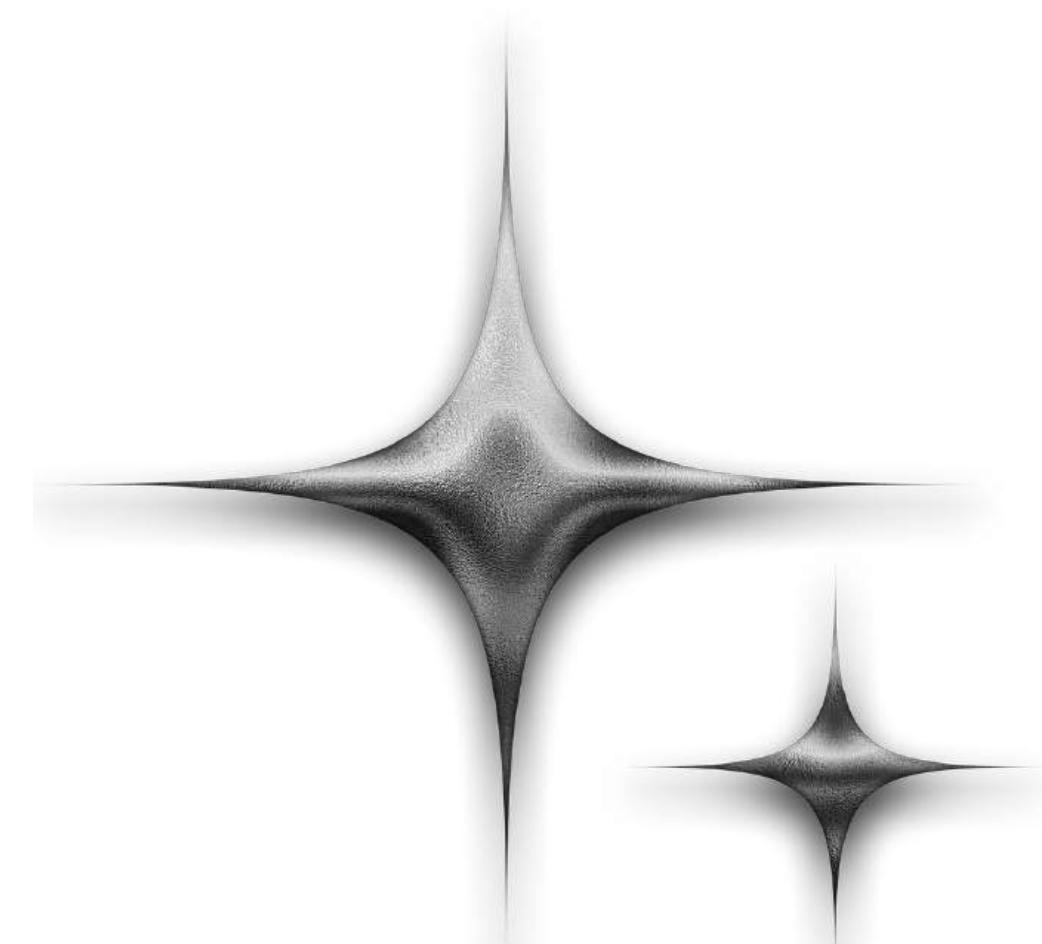
Atlas Note

Throughput agents address system-level flow constraints by coordinating interdependent operational tasks. Their leverage increases when demand volatility, staffing shortages, or inpatient congestion make local optimizations insufficient.

Administrative / System Agents

Administrative and system-level agents operate within the financial, regulatory, and documentation layers of healthcare. They support tasks such as coding, billing, claims adjudication, prior authorization, benefit validation, compliance reporting, and documentation standardization. These functions connect clinical activity to reimbursement, contracting, and regulatory accountability, and are often governed by complex rule sets rather than clinical judgment. Many of these workflows currently rely on manual review, form processing, and verification chains that are susceptible to delays, rework, and administrative waste. System agents help structure information, apply rules, and coordinate submissions across payers, providers, and accreditation bodies. Their deployment depends on policy alignment, data standardization, and integration with revenue cycle and compliance systems. Their impact is measured through accuracy, timeliness, reduced denials, and administrative efficiency.

Validate • Process • Reconcile



Eligibility & Benefits Verification Agent

01

Administrative/System → Coverage & Access Confirmation

CATEGORY & WHAT IT DOES

This agent assists administrative and billing teams in verifying a patient's insurance coverage, benefits, and network eligibility before services are rendered.

It focuses on determining what is covered, under what conditions, and what out-of-pocket responsibility applies.

It does not adjudicate claims, it ensures that care aligns with contractual and financial rules upstream. Eligibility is foundational to financial clearance and access in insured healthcare systems.

VALUE PROPOSITION

Creates value through access clarity rather than altering care delivery:

- **Coverage Confirmation:** validates eligibility for procedures/services
- **Cost Transparency:** identifies copays, deductibles, and coinsurance
- **Network Alignment:** confirms provider-payer relationships
- **Scheduling Readiness:** prevents last-minute cancellations
- **Financial Protection:** reduces patient and system financial risk

Eligibility errors are a dominant driver of downstream denials.

Who It Serves?

Primarily used by front-desk administrative staff, billing teams, prior authorization teams, and care coordinators who must confirm coverage prior to scheduling or service delivery.

Indirect beneficiaries include clinicians and patients who rely on coverage clarity to avoid unexpected financial exposure or scheduling delays.

Where It Fits?

Upstream in the administrative workflow before clinical or scheduling activities:

- New patient intake
- Pre-visit verification
- Pre-surgical financial clearance
- High-cost outpatient services
- Cross-network referrals

This layer is particularly critical for imaging, surgery, and specialty care.

Atlas Note

Eligibility agents support the administrative backbone of access by reducing uncertainty at the interface between patients, providers, and payers. Their leverage increases in multi-payer and insurance-based care environments.

Contracting & Payer Interaction Agent

02

Administrative/System → Network & Reimbursement Framework Alignment

CATEGORY & WHAT IT DOES

This agent assists health systems in managing contractual relationships with payers, employers, and network partners.

It focuses on interpreting contract terms, reimbursement rules, coverage limitations, and payment methodologies, and aligning them with operational and clinical workflows.

It does not negotiate contract strategy, it operationalizes contract constraints once they exist. Contracting determines how care is financed, reimbursed, and accessed.

VALUE PROPOSITION

Creates value by aligning delivery reality with contractual expectations:

- **Coverage Clarity:** defines what is reimbursable
- **Network Accuracy:** reduces out-of-network surprises
- **Operational Consistency:** ensures services comply with payer terms
- **Financial Integrity:** reduces denial and underpayment risk
- **Access Enablement:** supports patient navigation and scheduling

Contracting errors manifest downstream as billing disputes and coverage friction.

Who It Serves?

Primarily used by payer relations teams, contracting departments, revenue integrity, managed care operations, and system administrators responsible for aligning clinical services with reimbursement rules.

Indirect beneficiaries include scheduling teams, prior authorization teams, finance departments, clinicians ordering services, and patients navigating access.

Where It Fits?

Upstream in the administrative workflow before authorization and billing:

- Network participation configuration
- Procedure coverage mapping
- Reimbursement schedule loading
- Service line inclusion/exclusion
- Referral and tiering rules

This layer informs nearly every downstream financial process.

Atlas Note

Contracting agents translate payer rules into operational parameters that shape what care gets reimbursed, at what rates, and under what conditions. Their leverage increases in multi-payer and high-specialty markets.

Prior Authorization Agent

03

Administrative/System → Pre-Service Medical Benefit Approval

CATEGORY & WHAT IT DOES

This agent assists administrative and care teams in obtaining payer approval for procedures, medications, imaging, and specialty services before they are delivered.

It focuses on checking medical necessity criteria, matching documentation to payer rules, and submitting required forms or clinical notes.

It does not decide medical appropriateness, it navigates payer rules to enable access.
Prior authorization is one of the most resource-intensive administrative tasks in insured health systems.

VALUE PROPOSITION

Creates value through approval efficiency rather than altering clinical decisions:

- **Faster Approvals:** reduces delays in care scheduling
- **Documentation Alignment:** matches clinical notes to payer criteria
- **Denial Avoidance:** reduces post-service nonpayment
- **Load Reduction:** decreases manual fax/phone activity
- **Patient Clarity:** reduces uncertainty around financial exposure

Authorization delays are a major contributor to care access friction.

Who It Serves?

Primarily used by authorization specialists, referral coordinators, billing teams, scheduling departments, specialty clinics, and care navigators.

Indirect beneficiaries include patients, clinicians, and financial teams that rely on authorization approval to avoid cancellations or denials.

Where It Fits?

Upstream in the administrative workflow before care execution:

- Specialty consults
- Advanced imaging (MRI/CT/PET)
- Surgical procedures
- Oncology therapies
- High-cost medications
- Durable medical equipment

The authorization layer is often a pacing function for scheduling.

Atlas Note

Authorization agents mediate between medical necessity and payer benefit rules. Their leverage increases in markets where insurance-based access governs high-cost care pathways.

Scheduling Authorization Agent

04

Administrative/System → Service Clearance for Procedures

CATEGORY & WHAT IT DOES

This agent assists scheduling and administrative teams in ensuring that procedures and diagnostic studies are authorized by payers before appointments are booked.

It focuses on matching CPT/HCPCS codes, diagnosis codes, and payer rules to confirm that a requested service is schedulable without financial risk.

It does not determine clinical need, it verifies the administrative and contractual prerequisites for scheduling. Scheduling authorization is essential for services with high cost or high denial rates.

Who It Serves?

Primarily used by scheduling coordinators, imaging centers, surgical services, specialty clinics, and financial clearance teams.

Indirect beneficiaries include clinicians, patients, and hospital revenue cycle teams who depend on clearance for timely and financially protected scheduling.

Where It Fits?

Immediately before appointment or procedure booking:

- MRI / CT / PET imaging
- Cardiac diagnostics
- Endoscopy
- Surgery / procedures
- Oncology treatments
- Specialty clinic visits

Authorization friction is a dominant bottleneck in specialty care access.

VALUE PROPOSITION

Creates value by reducing scheduling delays and financial uncertainty:

- **Timing Alignment:** clears services before calendar slots are held
- **Risk Reduction:** lowers chance of write-offs and nonpayment
- **Operational Flow:** prevents last-minute cancellations
- **Access Protection:** allows patients to move through care plans
- **Staff Efficiency:** reduces back-and-forth with payers

Scheduling without clearance exposes patients and providers to avoidable financial risk.

Atlas Note

Scheduling authorization agents convert clinical intent into administratively schedulable events. Their leverage increases when reimbursement rules govern high-cost modalities and procedures.

Clinical Documentation Integrity (CDI) Agent

05

Administrative/System → Documentation Accuracy/Coding & Compliance

CATEGORY & WHAT IT DOES

This agent assists clinicians, CDI teams, and revenue cycle staff in ensuring that clinical documentation accurately reflects the care delivered, diagnoses established, and procedures performed.

It focuses on identifying documentation gaps, querying clinicians for clarifications, and aligning notes with coding and regulatory requirements.

It does not alter clinical care, it ensures the clinical record supports accurate coding, billing, and reporting. CDI is a key linkage point between clinical documentation and administrative processing.

VALUE PROPOSITION

Creates value by improving accuracy, clarity, & alignment rather than changing care:

- Completeness: captures diagnoses and comorbidities that impact coding
- Clarity: reduces ambiguity in clinical notes
- Revenue Integrity
- Compliance
- Continuity: improves communication across care teams

CDI is increasingly tied to quality metrics and population reporting.

Who It Serves?

Primarily used by CDI specialists, coding teams, utilization review, and clinical departments whose documentation drives reimbursement and regulatory reporting.

Indirect beneficiaries include clinicians, revenue cycle, payers, and patients through improved clarity and reduced administrative friction.

Where It Fits?

Located upstream of coding and downstream of clinical note creation:

- Admission documentation
- Comorbidity capture
- Procedure documentation
- Severity/risk adjustment
- Discharge summaries

This layer influences both financial and clinical representation.

Atlas Note

CDI agents connect the clinical record to the administrative system by ensuring documentation integrity. Their leverage increases when payment models, quality metrics, or risk scores depend on accurate clinical representation.

Claims Coding Agent

06

Administrative/System → Clinical Abstraction into Billing Codes

CATEGORY & WHAT IT DOES

This agent assists coding teams in translating clinical documentation into standardized billing and classification codes (e.g., ICD, CPT, HCPCS, DRG).

It focuses on interpreting diagnoses, procedures, comorbidities, and clinical complexity into code sets required for reimbursement, registry reporting, or case severity scoring.

It does not determine clinical care, it converts clinical records into administratively recognized artifacts.

Coding is the primary abstraction layer between clinical reality and financial systems.

VALUE PROPOSITION

Creates value by enabling accurate administrative representation rather than altering care pathways:

- **Accuracy:** improves clinical-to-financial translation
- **Completeness:** captures comorbidity and severity data
- **Efficiency:** reduces manual abstraction workload
- **Consistency:** standardizes across coders and departments
- **Revenue Integrity:** reduces mis-coding and under-coding risk

Coding errors propagate downstream into denials, audits, and financial leakage.

Who It Serves?

Primarily used by medical coders, revenue cycle teams, CDI specialists, and billing departments that rely on accurate code translation.

Indirect beneficiaries include clinicians, payers, finance departments, and population health teams who depend on coded data for reimbursement, reporting, and analysis.

Where It Fits?

Downstream of documentation and upstream of billing submission:

- Diagnosis abstraction
- Procedure abstraction
- DRG grouping
- Severity scoring
- Registry reporting
- Case mix indexing

Coding impacts both revenue and quality metrics.

Atlas Note

Coding agents convert narrative care into structured administrative data, enabling reimbursement, analytics, and regulatory reporting. Their leverage increases in complex, multi-payer environments with high documentation variability.

Billing Submission Agent

07

Administrative/System → Claim Packaging & Payer Submission

CATEGORY & WHAT IT DOES

This agent assists revenue cycle and billing teams in assembling, validating, and submitting claims to payers or clearinghouses for reimbursement.

It focuses on combining coded services, eligibility data, contractual rules, and required documentation into claim artifacts that conform to payer specifications.

It does not adjudicate payment, it ensures claims are generated and transmitted correctly.

Billing submission is the administrative handoff between providers and payers.

VALUE PROPOSITION

Creates value by increasing payment reliability rather than influencing care:

- **Error Reduction:** decreases rejections due to formatting or data issues
- **Clean Claims:** accelerates adjudication and payment
- **Operational Efficiency:** reduces manual correction loops
- **Revenue Timing:** shortens days in accounts receivable (AR)
- **Financial Integrity:** protects against revenue leakage

Billing inefficiencies compound into cash flow and denial burdens.

Who It Serves?

Primarily used by billing specialists, revenue cycle operations, finance departments, and clearinghouse intermediaries responsible for claim integrity.

Indirect beneficiaries include coding teams, compliance departments, clinicians whose care must be represented accurately, and patients whose cost-sharing depends on clean claims.

Where It Fits?

Downstream of coding and upstream of payer adjudication:

- Claim generation
- Validation and scrubbing
- Encounter reconciliation
- Clearinghouse submission
- Secondary billing
- Patient cost-share calculation

Clean claim submission is a major determinant of reimbursement velocity.

Atlas Note

Billing submission agents package and transmit claims into payer systems, ensuring accurate representation of clinical encounters. Their leverage increases when claim complexity and payer heterogeneity are high.

Denial Management Agent

Administrative/System → Claim Resolution & Appeal Workflow

CATEGORY & WHAT IT DOES

This agent assists revenue cycle and billing teams in identifying, classifying, and resolving denied or underpaid claims.

It focuses on analyzing denial reasons, retrieving missing documentation, matching payer rules, and initiating appeals when appropriate.

It does not change clinical care, it resolves administrative and contractual mismatches after billing submission.

Denials represent one of the largest leakage points in insured healthcare revenue systems.

Who It Serves?

Primarily used by denial specialists, revenue cycle analysts, coding departments, CDI teams, and financial clearance groups.

Indirect beneficiaries include clinicians, patients, and payers through reduced dispute cycles and improved clarity around coverage.

Where It Fits?

Downstream of billing and upstream of audit and financial reporting:

- Initial denial classification
- Root cause analysis
- Documentation matching
- Appeal submission
- Reconsideration workflows
- Underpayment review

Denial work often becomes the feedback loop for upstream administrative processes.

VALUE PROPOSITION

Creates value by recovering revenue and reducing friction rather than influencing care pathways:

- Recovery: captures overturned or underpaid claims
- Feedback: identifies recurring denial patterns
- Documentation Alignment: improves upstream requirements
- Reduced Write-Offs: prevents avoidable financial loss
- Operational Intelligence: strengthens payer contract understanding

Denial patterns frequently reveal systemic administrative bottlenecks.

Atlas Note

Denial management agents serve as the remediation layer in the reimbursement pipeline. Their leverage increases when payer complexity, service intensity, and denial rates trend upward.

Compliance & Audit Agent

09

Administrative/System → Regulatory & Contractual Alignment Assurance

CATEGORY & WHAT IT DOES

This agent assists compliance teams, revenue integrity offices, and internal auditors in reviewing clinical and administrative processes for alignment with regulatory, contractual, and documentation requirements.

It focuses on identifying discrepancies, validating coding and billing accuracy, and tracking regulatory exposure risks.

It does not alter clinical care, it ensures that administrative artifacts are defensible and compliant. Compliance and audit form the safety net for regulatory and financial integrity in healthcare systems.

VALUE PROPOSITION

Creates value by reducing regulatory and financial exposure rather than influencing clinical workflow:

- **Risk Reduction:** reduces penalties and regulatory findings
- **Defensibility:** strengthens claims during external audits
- **Accuracy:** ensures coding reflects documented care
- **Revenue Integrity:** protects against repayment obligations
- **Operational Learning:** informs upstream documentation practices

Failures in compliance manifest as repayments, penalties, or reputational damage.

Who It Serves?

Primarily used by compliance departments, internal audit teams, revenue integrity units, coding supervisors, and legal affairs within healthcare organizations.

Indirect beneficiaries include clinicians, finance teams, payers, and regulators through reduced dispute cycles and improved administrative clarity.

Where It Fits?

Downstream of billing and denial processes and upstream of reporting and corrective actions:

- Pre-claim audit
- Post-claim audit
- Regulatory sampling
- Contractual compliance checks
- External audit preparation
- Corrective action workflows

Audit processes validate administrative hygiene and financial correctness.

Atlas Note

Compliance & audit agents ensure alignment between care, documentation, coding, & contractual or regulatory expectations. Their leverage increases as payer scrutiny, regulatory complexity, and data transparency requirements expand.

Quality & Reporting Agent

10

Administrative/System → Performance, Registry & Regulatory Reporting

CATEGORY & WHAT IT DOES

This agent assists quality, population health, and reporting teams in compiling data required for regulatory reporting, clinical registries, accreditation bodies, and internal performance dashboards.

It focuses on extracting structured and unstructured data from clinical and administrative systems and transforming them into reporting formats aligned with regulatory, contractual, or quality frameworks.

It does not define clinical quality standards, it operationalizes reporting requirements. Quality reporting is a major data translation function in modern health systems.

VALUE PROPOSITION

Creates value through visibility and compliance:

- **Measure Extraction:** converts clinical activity into reportable metrics
- **Regulatory Alignment:** satisfies mandated reporting requirements
- **Benchmarking**
- **Transparency:** informs organizational and payer oversight
- **Population Insight:** contributes to public health planning

Quality data shapes strategic, operational, & reimbursement decisions.

Who It Serves?

Primarily used by quality teams, reporting departments, regulatory affairs, accreditation offices, and population health programs tasked with demonstrating compliance and performance.

Indirect beneficiaries include clinicians, hospital leadership, payers, and policy agencies through improved visibility into clinical performance.

Where It Fits?

Downstream of documentation, coding, and billing, but upstream of regulatory submission and internal benchmarking:

- Clinical quality measures
- Registry reporting (e.g., cancer, cardiac, stroke)
- Accreditation datasets
- Readmission and LOS metrics
- Patient safety indicators
- Value-based care reporting

Reporting closes the administrative information loop.

Atlas Note

Quality & reporting agents transform clinical and administrative data into standardized performance artifacts. Their leverage increases as health systems shift toward value-based care, transparency mandates, and population health models.

Patient-Facing Agents

Patient-facing agents operate at the interface between formal healthcare and everyday life. They assist with navigation, communication, medication management, treatment preparation, adherence, recovery, and caregiver coordination. These tasks are often under-supported in traditional care models, yet they materially influence outcomes, satisfaction, and continuity. Patient journeys involve instructions, scheduling, paperwork, insurance steps, and self-management decisions that patients typically manage through fragmented information and informal support. Agents in this category help translate clinical plans into actionable steps, reduce uncertainty, and coordinate information across touchpoints. Deployment depends on usability, literacy, accessibility, and cultural context, as well as integration with providers and payers. Their value is measured through adherence, activation, reduced confusion, and smoother transitions between settings.

Inform • Guide • Support



Symptom Triage Assistant

01

Patient-Facing → Early Symptom Interpretation & Care-Seeking Guidance



CATEGORY & WHAT IT DOES

This agent assists individuals in interpreting new or changing symptoms and provides contextual guidance on severity, urgency, and likely care pathways.

It focuses on helping patients make sense of bodily signals, distinguish between routine vs. concerning symptoms, and determine when escalation to professional care is warranted.

It does not diagnose, prescribe, or determine treatment, it supports early understanding and care-seeking decisions. Symptom interpretation is typically the first cognitive step in a patient's health journey.



VALUE PROPOSITION

Creates value by reducing confusion, inappropriate escalation, and decision paralysis:

- **Urgency Signaling:** helps differentiate low vs. high urgency symptoms
- **Channel Guidance:** directs patients to different care systems
- **Self-Management Clarity**
- **Utilization Efficiency:** decreases unnecessary emergency department use

Interpretation supports both confidence and appropriate care navigation.



Who It Serves?

Primarily used by individuals experiencing new symptoms, changes in chronic conditions, medication-related effects, or post-procedural discomfort.

Indirect beneficiaries include caregivers, primary care teams, telehealth providers, and emergency services through better-informed escalation.



Where It Fits?

Upstream in the patient journey before clinical contact or scheduling activities:

- New symptom onset
- Symptom progression
- Pediatric symptom interpretation
- Medication side effects
- Post-procedure discomfort
- Chronic disease flare questions

Patients often face uncertainty long before entering the health system.



Atlas Note

Symptom triage agents serve as the cognitive front door to the patient journey. Their leverage increases in fragmented health systems where primary care gatekeeping is weak and where patients must self-navigate the first phase of health decision-making.

Appointment Navigation Agent

02

Patient-Facing → Scheduling, Rescheduling & Access Coordination

CATEGORY & WHAT IT DOES

This agent assists patients in scheduling, managing, and coordinating medical appointments across different providers, facilities, and modalities.

It focuses on handling the logistics of time, availability, modality (in-person vs. virtual), and preparation requirements.

It does not determine clinical appropriateness, it executes access once a service and provider have been selected.
Appointment logistics are a major friction point in global healthcare experiences.

VALUE PROPOSITION

Creates value by simplifying access and reducing scheduling-related delays:

- **Time Matching:** aligns provider availability with patient constraints
- **Channel Selection:** supports in-person, virtual, or hybrid care
- **Preparation Alignment:** ensures pre-appointment requirements are met (e.g., fasting, labs, paperwork)
- **Continuity:** manages follow-ups and serial visits
- **Load Reduction:** reduces manual phone/fax scheduling workflows

Scheduling is the operational gateway for patient entry into the care pathway.



Who It Serves?

Primarily used by patients seeking timely access to care, especially in settings without centralized scheduling or where multiple providers are involved.

Indirect beneficiaries include clinicians, administrative staff, and caregivers who depend on reliable appointment coordination.



Where It Fits?

Downstream of provider matching and upstream of treatment or diagnostic encounters:

- New appointments
- Follow-up appointments
- Imaging or diagnostic bookings
- Specialty clinic scheduling
- Telehealth session coordination
- Rescheduling and cancellation flows

This layer bridges intent and execution in patient access.



Atlas Note

Appointment navigation agents convert patient intent into scheduled action. Their leverage increases in fragmented appointment ecosystems and in specialties with limited time slots or high wait-time sensitivity.

Benefit & Insurance Navigator

03

Patient-Facing → Coverage, Network & Administrative Clarity

CATEGORY & WHAT IT DOES

This agent assists patients in understanding their health insurance benefits, coverage limitations, network rules, and administrative requirements in simplified, non-technical language.

It focuses on reducing confusion around what is covered, where it can be accessed, and what the patient may need to do administratively before receiving care.

It does not approve services or adjudicate claims, it translates benefit design and insurance rules into understandable guidance for patients. Insurance complexity is a universal barrier to timely and financially safe care in insured systems.

VALUE PROPOSITION

Creates value by reducing administrative uncertainty & financial exposure:

- **Coverage Clarity:** explains covered vs. non-covered services
- **Network Guidance:** differentiates in-network vs. out-of-network access
- **Pre-Service Requirements:** flags need for referrals or authorizations
- **Medication Tiers**
- **Patient Preparedness**

Insurance literacy is essential for safe navigation of insured care environments.



Who It Serves?

Primarily used by patients with private, public, or employer-sponsored insurance who need clarity on coverage conditions for upcoming visits, procedures, medications, or diagnostics.

Indirect beneficiaries include scheduling teams, financial departments, and care coordinators who rely on patients being administratively prepared.



Where It Fits?

Upstream in the patient's administrative journey, often before scheduling or financial decisions:

- Coverage clarification for services
- Network vs. out-of-network checks
- Copay/coinsurance/deductible explanations
- Pre-service requirement confirmation
- Referral or authorization triggers

Understanding this layer reduces downstream denial and cost exposure.



Atlas Note

Patients face reduced administrative burden when interacting with payer and provider systems. Their leverage increases in multi-payer markets and in countries transitioning toward insurance-based financing models.

Care Cost Navigation Agent

04

Patient-Facing → Cost, Affordability & Payment Planning Support



CATEGORY & WHAT IT DOES

This agent assists patients in understanding their personal financial exposure for upcoming services, procedures, medications, or diagnostic studies, and provides guidance on affordability options.

It focuses on translating benefit design, price components, and payer rules into simple, actionable insights for patients deciding whether, where, and when to access care.

It does not adjudicate insurance claims or set prices, it increases financial transparency so patients can make informed care decisions. Affordability is a major determinant of access in both insured and cash-pay health systems.



VALUE PROPOSITION

Creates value by reducing financial uncertainty and improving care continuity:

- Cost Transparency
- Coverage Mapping
- Medication Affordability
- Payment Planning
- Utilization Stability
- Decision Confidence

Affordability influences adherence, initiation, and long-term disease management.



Who It Serves?

Primarily used by patients preparing for elective, high-cost, or multi-step care plans, as well as those managing chronic conditions with recurring cost burdens.

Indirect beneficiaries include revenue cycle teams, scheduling staff, providers, and caregivers who experience fewer cancellations, defaults, or surprise billing disputes when financial expectations are clarified in advance.



Where It Fits?

Positioned upstream of care execution at the decision boundary where financial exposure influences access:

- Elective procedures and surgeries
- Outpatient imaging & diagnostics
- Specialty consultations
- Hospitalization deposits
- Chronic therapy affordability
- Alternative or tiered medication planning

Financial clarity often determines whether patients proceed, delay, or abandon care.



Atlas Note

Addresses the affordability dimension of patient access. Its leverage increases in systems with higher OOP exposure, tiered benefits, or emerging price transparency reforms.

Treatment Prep & Instructions Agent

05

Patient-Facing → Pre-Procedure, Diagnostic & Therapy Prep Guidance



CATEGORY & WHAT IT DOES

This agent assists patients in preparing for upcoming procedures, diagnostic studies, treatments, or specialty consultations by providing clear, structured instructions on how to get ready and what to expect.

It focuses on improving preparation quality and compliance with clinical and administrative preconditions such as fasting, medication adjustments, arrival logistics, paperwork, and device-specific safety requirements.

It does not determine procedural eligibility or modify clinical plans, it operationalizes preparation tasks and reduces avoidable disruptions. Preparation errors are a common cause of cancellations, delays, and repeat procedures.



VALUE PROPOSITION

Creates value by improving readiness and reducing preventable workflow disruptions:

- **Compliance:** better adherence to prep protocols
- **Safety:** appropriate screening & medication adjustments
- **Efficiency:** fewer cancellations and repeat sessions
- **Confidence:** clearer expectations reduce anxiety

Preparation quality influences both patient experience and system throughput.



Who It Serves?

Primarily used by patients scheduled for procedures (e.g., endoscopy, surgery), imaging (e.g., MRI, CT with contrast), therapeutic sessions (e.g., chemotherapy, dialysis), and specialty evaluations requiring preparatory steps.

Indirect beneficiaries include perioperative teams, imaging centers, oncology services, care coordinators, and caregivers who depend on patient readiness for efficient workflow execution.



Where It Fits?

Downstream of scheduling & upstream of care delivery:

- Fasting & dietary protocols
- Bowel preparation for endoscopy
- Medication holds
- Contrast-related pre-checks
- Lab work or screening before therapy
- Arrival, transport, & caregiver logistics
- Paperwork & informed consent

Failures often lead to canceled slots, rescheduling, or increased risk.



Atlas Note

Improves procedural readiness and reduces cancellations. Most impactful in imaging, surgery, oncology, and specialty workflows.

Medication Guidance Agent

06

Patient-Facing → Usage, Timing, Safety & Side-Effect Interpretation

CATEGORY & WHAT IT DOES

This agent assists patients in understanding how to correctly use prescribed or over-the-counter medications, including timing, dosing context, food interactions, side-effect expectations, and escalation triggers.

It focuses on translating clinical and pharmacy instructions often communicated verbally or via technical leaflets, into practical, safe usage steps. It does not prescribe medications or modify treatment regimens; it operationalizes safe usage for patients once a medication has already been dispensed.

Medication comprehension is a core determinant of treatment effectiveness and safety.

VALUE PROPOSITION

Creates value by improving medication literacy and safe execution:

- **Instruction Clarity:** corrects timing, dosing, and context errors
- **Safety Awareness:** identifies escalation triggers for adverse events
- **Interaction Insight:** interprets food or drug interaction warnings
- **Continuity:** reduces therapy abandonment and fragmentation
- **Caregiver Enablement:** supports non-self-managing dependents

Medication literacy directly influences therapeutic outcomes.

Who It Serves?

Primarily used by patients starting new medications, adjusting chronic therapies, managing polypharmacy, or caring for dependents such as children or older adults.

Indirect beneficiaries include pharmacists, clinicians, caregivers, and care teams through reduced medication errors, fewer avoidable follow-ups, and improved adherence.

Where It Fits?

Downstream of prescribing/dispensing and upstream of adherence:

- New therapy initiation
- Dose timing and food context
- Managing expected side effects
- Identifying red-flag reactions
- Understanding drug-drug interactions
- Pediatric/geriatric dose support
- Medication storage and handling

Misunderstanding often reduces efficacy or creates avoidable safety risk.

Atlas Note

Improves medication literacy and safe usage. Most impactful for chronic disease, polypharmacy, and pediatric/geriatric care where instructional complexity is high.

Care Plan Adherence Agent

07

Patient-Facing → Chronic Regimen, Therapy Continuity & Behavior Support

CATEGORY & WHAT IT DOES

This agent assists patients in following prescribed care plans that extend beyond a single encounter, such as medication regimens, rehabilitation exercises, dietary guidelines, wound care, symptom tracking, or lifestyle modifications.

It focuses on translating long-term clinical plans into daily execution tasks, reminders, behavioral scaffolding, and progress visibility.

It does not design clinical care plans or change therapeutic targets, it supports adherence and continuity once plans are issued. Adherence is a primary driver of chronic disease outcomes and cost trajectories.

VALUE PROPOSITION

Creates value by improving continuity and reducing avoidable deterioration:

- **Execution Support:** converts plans into actionable daily tasks
- **Behavioral Scaffolding:** uses reminders, nudges, and habit design
- **Progress Visibility:** surfaces trends for patients and caregivers
- **Continuity:** decreases therapy abandonment or plan drift
- **Risk Reduction:** lowers readmission and exacerbation risk

Adherence correlates strongly with outcomes, costs, and quality of life.



Who It Serves?

Primarily used by patients with chronic conditions (e.g., diabetes, hypertension, COPD, heart failure, oncology), postoperative recovery, rehabilitation needs, and multi-step therapies.

Indirect beneficiaries include clinicians, payers, caregivers, and population health programs through improved disease control and reduced avoidable utilization.



Where It Fits?

Downstream of prescribing and upstream of outcome measurement:

- Daily medication adherence
- Rehab and physiotherapy exercises
- Wound care and dressing changes
- Diet and activity targets
- Symptom journaling and vital tracking
- Behavioral and lifestyle programs
- Scheduled follow-ups and labs

Adherence failures often contribute to relapse, readmission, and uncontrolled disease.



Atlas Note

Improves continuity and reduces exacerbations in chronic and post-acute care. Most impactful in long-duration conditions where behavior execution determines clinical outcomes.

Home Monitoring & Check-In Agent

08

Patient-Facing → Symptom, Vital & Recovery Tracking Between Encounters

CATEGORY & WHAT IT DOES

This agent assists patients in tracking symptoms, vitals, device readings, or recovery progress from home between clinical encounters.

It focuses on capturing patient-generated health data (PGHD) and transmitting structured updates or alerts for care teams, caregivers, or self-management contexts. It does not diagnose or modify treatment plans, it provides structured visibility during periods where patients would otherwise be clinically invisible.

Home monitoring has become a core component of chronic care, post-acute recovery, and aging-in-place strategies.

VALUE PROPOSITION

Creates value by extending clinical visibility into the home environment:

- **Early Detection:** identifies deterioration before acute events
- **Continuity:** bridges long intervals between appointments
- **Safety:** supports escalation criteria and callback protocols
- **Data Completeness:** enhances clinical decision-making
- **Caregiver Enablement:** supports shared monitoring responsibilities

Remote visibility influences both safety and utilization patterns.

Who It Serves?

Primarily used by patients with chronic diseases, post-surgical recovery needs, cardiac or pulmonary conditions, oncology follow-up, pregnancy monitoring, or geriatric health risks.

Indirect beneficiaries include clinicians, caregivers, and population health teams through earlier detection of deterioration and fewer preventable acute escalations.

Where It Fits?

Downstream of treatment and upstream of outcome evaluation:

- Symptom journaling
- Blood pressure, glucose, SpO₂, or weight tracking
- Respiratory or cardiac monitoring
- Device or sensor data capture
- Recovery check-ins after procedures
- Escalation triggers and callback workflows

Gaps in visibility often drive avoidable ED visits, readmissions, or delayed interventions.

Atlas Note

Extends visibility beyond the clinic and reduces preventable escalations. Most impactful in chronic, post-acute, and geriatric care where deterioration risk is high between scheduled encounters.

Caregiver Support Agent

09

Patient-Facing → Coordination, Instruction, & Communication

CATEGORY & WHAT IT DOES

This agent assists family or informal caregivers in carrying out care tasks for dependents such as children, older adults, or individuals with chronic or disabling conditions.

It focuses on translating clinical instructions into caregiver-friendly tasks, coordinating logistics, sharing updates among care participants, and flagging situations that require escalation.

It does not replace clinical decision-making or prescribe treatments, it operationalizes the day-to-day activities caregivers are responsible for. In many health systems, the caregiver is the de facto execution layer between clinicians and patients.

VALUE PROPOSITION

Supports non-clinical actors who perform essential health tasks:

- Instruction Translation
- Coordination: shares schedules & updates across family or home health
- Adherence: reduces missed tasks
- Escalation: flags deterioration or safety concerns
- Continuity: maintains care between clinical encounters

Caregiver enablement directly impacts safety and outcomes in dependent care.

Who It Serves?

Primarily used by caregivers supporting pediatric, oncology, neurodegenerative, post-operative, geriatric, or disabled dependents who cannot fully self-manage.

Indirect beneficiaries include clinicians, therapists, home health, and case management teams through improved adherence, fewer errors, and better continuity of care.

Where It Fits?

Downstream of clinical instruction and upstream of adherence and monitoring:

- Medication and dosing reminders
- Wound care and dressing changes
- Feeding and nutrition tasks
- Mobility and rehabilitation assistance
- Check-ins and symptom reporting
- Appointment and transport coordination
- Home equipment setup and use

Caregiver execution often determines the quality and stability of home care.

Atlas Note

Supports dependent care execution & reduces caregiver burden. Most impactful in pediatrics, oncology, neurodegeneration, and aging populations where informal care capacity shapes outcomes.

Multi-Provider Coordination Agent

10

Patient-Facing → Managing Care Across Multiple Clinicians & Services

CATEGORY & WHAT IT DOES

This agent assists patients in managing care that involves multiple clinicians, specialties, facilities, and services.

It focuses on scheduling order, report sharing, follow-up sequencing, and reconciling instructions across different care participants.

It does not determine clinical plans or modify treatment decisions, it operationalizes the logistical and communication tasks patients are typically left to perform.

Multi-provider coordination becomes essential as care pathways grow more complex and distributed.

VALUE PROPOSITION

Creates value by reducing fragmentation and improving care continuity:

- **Sequencing:** aligns the correct order of appointments and tasks
- **Documentation Flow:** ensures reports reach all relevant providers
- **Communication:** reduces contradictory or incomplete instructions
- **Efficiency:** prevents unnecessary delays and repeat diagnostics
- **Safety:** reduces gaps & missed handoffs in shared decision pathways

Coordination strongly influences time-to-treatment and patient burden.

Who It Serves?

Primarily used by patients navigating oncology, chronic disease, post-surgical recovery, rehabilitation, neurodegenerative conditions, or aging-related care involving multiple clinicians.

Indirect beneficiaries include clinicians, caregivers, and case management teams who depend on accurate information transfer and timeline alignment.

Where It Fits?

Occurs downstream of diagnosis and upstream of adherence and monitoring:

- Ordering diagnostic tests before specialty consults
- Sharing labs or imaging across providers
- Scheduling clearances or pre-op evaluations
- Resolving conflicting instructions across specialties
- Aligning rehab, home care, or therapy services
- Coordinating transport and caregiver support

Atlas Note

Improves continuity in multi-specialty and chronic pathways. Most impactful in oncology, cardiometabolic disease, post-acute care, and aging populations where clinical plans span multiple providers and settings.

Payer / Insurance Agents

Payer and insurance agents operate within the benefit design, reimbursement, and coverage determination layers of healthcare. They support tasks such as **eligibility verification, benefit interpretation, prior authorization, claims adjudication, cost estimation, and risk adjustment**. These workflows translate clinical events into financial transactions and coverage decisions, often governed by contractual rules, policy frameworks, and actuarial models rather than clinical discretion. Much of this work is currently handled through manual review, document exchange, correspondence, and appeals processes that introduce delays and administrative burden for both providers and members. Agents in this category help structure requirements, apply policy logic, and facilitate two-way coordination between payers, providers, and patients. Deployment depends on regulatory compliance, interoperability, and alignment with payment models. Their impact is measured through accuracy, timeliness, reduced friction, and clearer financial pathways.

Verify • Decide • Reimburse



Claims Adjudication Agent

01

Payer/Insurance → Processing Claims, Benefits & Fee Schedules

CATEGORY & WHAT IT DOES

This agent assists payer organizations in evaluating incoming claims submitted by providers & determining appropriate payment amounts based on coverage rules, contract terms, fee schedules, and benefit structures.

It validates claim completeness, aligns billed services with covered benefits, checks coding accuracy, & calculates financial responsibility for both payer and member.

It does not set prices, negotiate contracts, or approve medical necessity, it executes payment logic after services are delivered. Adjudication functions as the core financial transaction layer between payers and providers.

VALUE PROPOSITION

Creates value by increasing accuracy, reducing disputes, and improving transaction efficiency:

- Accuracy: reduces mispayments and recalculations
- Speed: shortens claims cycle times
- Consistency: standardizes application of benefit rules
- Transparency: clarifies financial responsibility
- Cost Control: reduces leakage and overpayment

Adjudication shapes financial integrity across insured health systems.

Who It Serves?

Primarily used by health plans, third-party administrators (TPAs), and revenue cycle intermediaries responsible for managing the flow of claims and payments.

Indirect beneficiaries include providers, employers, and members through reduced disputes, faster payment cycles, and clearer financial responsibility.

Where It Fits?

Downstream of service delivery, coding, and billing, and upstream of member billing or provider payment:

- Coverage and eligibility matching
- Benefit application
- Coding and modifier validation
- Contract-rate application
- Liability split (payer vs. member)
- Explanation of benefits (EOB) generation

Adjudication determines what gets paid, what gets denied, and what becomes member responsibility.

Atlas Note

Improves claim accuracy and reduces friction in payment transactions. Most impactful in multi-payer markets with complex benefit structures and contracted reimbursement models.

Coverage & Benefits Agent

02

Payer/Insurance → Applying Coverage Logic, Eligibility & Benefit Design

CATEGORY & WHAT IT DOES

This agent assists payer organizations in determining whether billed services fall within a member's coverage, benefit structure, and eligibility criteria. It applies plan rules, coverage exclusions, utilization limits, and network constraints to determine which services are payable and under what terms.

It does not authorize medical necessity or set pricing, it executes benefit logic once services have been coded and billed.

Benefit determination is the administrative precursor to calculating who pays and how much.

VALUE PROPOSITION

Creates value by standardizing benefit application and reducing friction:

- Consistency: applies rules uniformly across claims
- Accuracy: reduces dispute and appeal cycles
- Transparency: clarifies covered vs. non-covered items
- Efficiency: lowers manual review workload
- Member Experience: reduces surprise billing

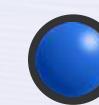
Coverage clarity influences both payer economics and patient access.



Who It Serves?

Primarily used by health plans, TPAs, and benefit administrators responsible for interpreting plan documents, coverage rules, and benefit entitlements.

Indirect beneficiaries include providers and members through reduced coverage-related disputes, fewer billing reversals, and clearer cost responsibilities.



Where It Fits?

Downstream of billing and eligibility checks and upstream of payment adjudication:

- Benefit eligibility application
- Covered vs. non-covered distinction
- Network vs. out-of-network
- Utilization maximums & benefit caps
- Tiering for medications or services
- Exclusions, limitations, and waiting periods

Coverage logic shapes downstream payer liability and patient financial exposure.



Atlas Note

Executes coverage rules and benefit design. Most impactful in multi-plan & multi-network environments where coverage variation drives administrative complexity.

Fraud, Waste & Abuse (FWA) Detection Agent

03

Payer/Insurance → Identifying Improper Claims, Utilization & Billing Patterns

CATEGORY & WHAT IT DOES

This agent assists payer organizations in identifying claims or billing patterns indicative of fraud (intentional deception), waste (inefficient or unnecessary resource use), or abuse (misuse of benefit structures).

It analyzes claims history, provider behavior, coding patterns, utilization trends, and member activity to surface anomalies for review.

It does not adjudicate or apply penalties, it prioritizes cases and signals where further investigation is warranted. FWA detection protects plan sustainability and reduces leakage in insured health systems.

VALUE PROPOSITION

Creates value by reducing financial leakage and improving plan integrity:

- Leakage Reduction: prevents overpayments, abuse-driven spending
- Prioritization: flags the highest-risk cases for human review
- Efficiency: reduces manual screening workload
- Deterrence: shifts provider behavior over time
- Protects Solvency

Integrity safeguards improve both financial and trust outcomes in insured systems.

Who It Serves?

Primarily used by payer special investigations units (SIUs), compliance teams, and financial integrity teams responsible for protecting against improper payments.

Indirect beneficiaries include employers, government payers, providers, and members through reduced premiums, improved plan solvency, and more equitable resource allocation.

Where It Fits?

Downstream of claims submission and upstream of recovery or corrective actions:

- Duplicate billing detection
- Upcoding and unbundling patterns
- Excessive utilization patterns
- Eligibility or identity anomalies
- Provider behavior outliers
- Pharmacy and DME irregularities

Improper payment detection occurs after claims are billed but before funds are irreversibly settled.

Atlas Note

Reduces improper payments and protects plan sustainability. Most impactful in large, multi-provider networks where billing complexity creates opportunity for leakage.

Risk Adjustment Coding Agent

04

Payer/Insurance → Capturing Actuarial Risk & Payment Models

CATEGORY & WHAT IT DOES

This agent assists payer organizations in ensuring that member diagnoses and clinical conditions are accurately captured and mapped to risk adjustment models used for payment, resource allocation, and planning.

It extracts relevant conditions from clinical documentation, validates coding completeness, and identifies missed chronic conditions that influence risk scores.

It does not price insurance products or set actuarial coefficients, it operationalizes condition capture within existing models. Risk adjustment aligns payment with population disease burden rather than raw utilization.

VALUE PROPOSITION

Creates value by aligning payment with disease burden:

- Accuracy: reduces under- or over-scoring errors
- Completeness: captures chronic and persistent conditions
- Fairness: ensures funding matches member complexity
- Planning: improves forecasting and resource allocation
- Integrity: reduces audit exposure and compliance risk

Risk alignment stabilizes financial models in chronic disease-heavy populations.

Who It Serves?

Primarily used by health plans, value-based care organizations, and TPAs participating in risk-adjusted payment models (e.g., Medicare Advantage, ACOs, capitated contracts, or emerging chronic care bundles).

Indirect beneficiaries include providers, employers, and policymakers through more accurate alignment between disease burden and resource funding.

Where It Fits?

Downstream of clinical documentation and upstream of actuarial and payment processes:

- Condition extraction from clinical notes
- Chronic disease capture and recapture
- Mapping to risk model categories
- Addressable documentation gaps
- Coding validation and reconciliation
- Submission and reporting workflows

Accurate condition capture influences both payment fairness and population planning.

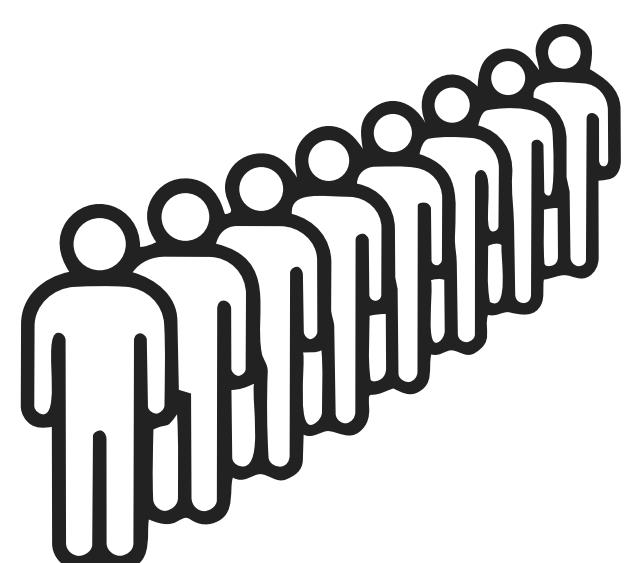
Atlas Note

Aligns payment with disease burden in risk-bearing arrangements. Most impactful in aging & chronic populations where actuarial variance is high.

Population/ Public Health Agents

Population and public health agents operate at the cohort and community level rather than the individual encounter level. They support functions such as **surveillance, outreach, screening, risk stratification, cohort management, and reporting for public health programs**. These workflows require coordination across providers, government agencies, payers, and community organizations, and often depend on incomplete, delayed, or heterogeneous data sources. Agents in this category help translate population signals into actionable tasks, close care gaps, and facilitate targeted interventions at scale. Their impact depends on data sharing, interoperability, governance, and trust across institutions, as well as the ability to reach populations beyond formal care settings. Value is measured through coverage, timeliness, responsiveness, and equitable access to preventive and chronic care services.

Monitor • Stratify • Intervene



Outbreak & Surveillance Monitoring Agent

01

Population / Public Health → Disease Signals & Epidemiological Patterns



CATEGORY & WHAT IT DOES

This agent assists public health authorities, health systems, and surveillance programs in detecting emerging disease signals, monitoring epidemiological patterns, and tracking spatial or temporal clusters.

It ingests case reports, syndromic data, lab results, environmental signals, or mobility patterns and surfaces trends that may indicate outbreaks or community-level transmission.

It does not declare emergencies or impose interventions, it supplies structured situational awareness for public health decision-making. Surveillance agents operate upstream of containment and response actions.



Who It Serves?

Primarily used by ministries of health, public health agencies, disease surveillance networks, and health system command centers.

Indirect beneficiaries include clinicians, municipalities, employers, schools, and the general population through earlier detection and coordinated response.



Where It Fits?

Upstream of public health response and downstream of data collection:

- Syndromic surveillance feeds
- Lab-confirmed case signals
- Spatial and temporal clustering
- Rate-of-change analysis
- Early warning thresholds
- Lineage or variant tracking (infectious disease)

Surveillance creates visibility before the healthcare system becomes overwhelmed.



VALUE PROPOSITION

Creates value by improving early detection and response capability:

- Early Warning: surfaces disease spread sooner
- Situational Awareness: informs containment and mitigation
- Resource Planning: anticipates capacity and supply needs
- Coordination: aligns multi-stakeholder responses
- Public Communication: supports timely information channels

Surveillance shortens the time between detection and intervention.



Atlas Note

Enables early detection and situational awareness. Most impactful when coupled with response and mitigation capacity at the population level.

Population Risk Stratification Agent

02

Population / Public Health → Segmenting Groups by Clinical, Social & Environmental Risk

CATEGORY & WHAT IT DOES

This agent assists public health entities, payers, and population health programs in segmenting populations according to clinical risk, social vulnerability, and environmental exposure.

It analyzes multi-dimensional data to identify high-risk groups for targeted interventions, surveillance, or preventive programs.

It does not deliver interventions itself, it informs where they are likely to be most effective. Risk stratification enables population-level resource prioritization rather than uniform distribution.

VALUE PROPOSITION

Creates value by aligning resources with need rather than averages:

- Targeting: directs interventions to high-need groups
- Efficiency: reduces blanket program inefficiency
- Equity: addresses disparities and social determinants
- Cost Impact: prioritizes drivers of avoidable utilization
- Planning: informs preventive program design

Population health impact increases when risk drives allocation.

Who It Serves?

Primarily used by ministries of health, public health agencies, payers, and integrated health systems responsible for chronic disease programs, preventive care, and population management.

Indirect beneficiaries include communities, municipalities, & provider networks.

Where It Fits?

Upstream of preventive action and downstream of surveillance and data aggregation:

- Chronic disease risk scoring
- Social vulnerability indexing
- Environmental exposure modeling
- Comorbidity clustering
- Utilization and cost risk
- Eligibility for targeted programs

Stratification informs who to focus on, not just what to do.

Atlas Note

Aligns preventive and chronic programs with actual population risk. Most impactful in systems shifting from reactive treatment to proactive population management.

Immunization & Preventive Program Agent

03

Population / Public Health → Scheduling, Eligibility & Uptake for Preventive Interventions



CATEGORY & WHAT IT DOES

This agent assists public health programs and health systems in managing immunization and preventive screening programs across defined populations.

It helps determine eligibility, schedule appointments, issue reminders, track completion, and surface gaps in coverage for vaccines and preventive services.

It does not set vaccine policy or clinical guidelines, it operationalizes preventive workflows across populations. Preventive coverage is a core lever for reducing avoidable disease burden.



VALUE PROPOSITION

Creates value by increasing preventive uptake and reducing downstream disease burden:

- Coverage: increases vaccination and screening completion
- Equity: closes gaps in vulnerable subgroups
- Efficiency: reduces manual recall and follow-up
- Planning: informs supply and staffing needs
- Burden Reduction

Preventive impact compounds over time at the population level.



Who It Serves?

Primarily used by ministries of health, public health departments, integrated health systems, and school-based programs responsible for immunization or screening initiatives.

Indirect beneficiaries include clinicians, payers, and communities through reduced disease incidence and improved preventive compliance.



Where It Fits?

Upstream of disease incidence and downstream of eligibility determination:

- Eligibility and schedule matching
- Appointment, outreach reminders
- Tracking coverage & completion rates
- Gap identification for under-immunized groups
- School and workplace program
- Population-level reporting

Preventive programs depend on both eligibility logic and execution logistics.



Atlas Note

Improves uptake and tracking of preventive services. Most impactful where population-scale coordination drives disease burden reduction (e.g., vaccination, cancer screening).

Resource & Capacity Agent

04

Population / Public Health → Matching Capacity, Resources & Demand at Scale



CATEGORY & WHAT IT DOES

This agent assists public health authorities and health systems in planning and allocating limited resources such as workforce, equipment, facilities, and supplies in response to population-level needs.

It models demand scenarios, anticipates bottlenecks, and supports decisions on where to deploy capacity for maximal impact.

It does not determine policy goals or command operational execution, it informs planning and prioritization. Capacity planning is foundational for system resilience.



VALUE PROPOSITION

Creates value by improving system resilience and reducing mismatch between demand and capacity:

- Preparedness: anticipates surges and constraints
- Efficiency: optimizes allocation of limited resources
- Equity: improves distribution across underserved areas
- Continuity: reduces service disruption during peaks
- Impact: increases effectiveness of interventions

Planning effectiveness shapes population outcomes during routine and crisis conditions.



Who It Serves?

Primarily used by ministries of health, disaster response units, integrated delivery networks, and system-level operations teams responsible for scaling services and preparing for surges or chronic demand.

Indirect beneficiaries include providers, emergency services, and communities.



Where It Fits?

Upstream of resource deployment and downstream of surveillance, forecasting, and risk stratification:

- Bed, ICU, and ventilator capacity models
- Workforce and staffing allocation
- Supply chain and stockpile distribution
- Geographic placement of services
- Surge planning and contingency response
- Cross-sector coordination (public/private/NGO)

Planning determines whether demand exceeds supply and where.



Atlas Note

Improves allocation of workforce, equipment, and infrastructure. Most impactful in surge scenarios, chronic shortages, and geographically uneven access environments.

Analytics / Insight / Planning Agents

Analytics, insight, and planning agents support medium-to long-horizon decision making across clinical, operational, and financial domains. They assist with **forecasting, scenario modeling, capacity planning, pathway optimization, and other forms of structured analysis that inform policy, strategy, and resource allocation.** Unlike agents tied to real-time transactions or point-of-care workflows, these systems help organizations understand patterns, evaluate trade-offs, and anticipate future states. Their inputs may include historical utilization, epidemiological trends, demographic projections, operational constraints, and financial drivers. Deployment depends on data completeness, model transparency, and alignment with planning cycles. Their impact is measured through preparedness, resource efficiency, reduced uncertainty, and improved strategic decision quality.

Forecast • Model • Plan



Clinical Pathway Optimization Agent

01

Analytics / Planning → Improving Diagnostic & Treatment Pathways



CATEGORY & WHAT IT DOES

This agent assists health systems in analyzing diagnostic and treatment pathways to reduce delays, duplication, and unnecessary variation.

It examines how patients actually move through care across diagnostics, consults, therapies, and follow-ups and identifies divergence from evidence-based or best-practice pathways. It does not dictate clinical decisions or set guidelines, it informs pathway redesign and operational optimization to improve outcomes and shorten time-to-treatment.



VALUE PROPOSITION

Creates value by improving care delivery performance:

- Variation Reduction: reduces unnecessary pathway divergence
- Time Efficiency: shortens diagnostic and treatment timelines
- Quality: increases alignment with evidence-based practice
- Resource Efficiency: reduces duplication of tests and visits
- Cost Impact: lowers unnecessary utilization and delays

Improved pathways influence clinical outcomes and system sustainability.



Who It Serves?

Primarily used by health systems, academic medical centers, integrated delivery networks, and value-based care entities seeking to improve care delivery performance across diseases and service lines.

Indirect beneficiaries include clinicians, administrators, payers, and patients through more predictable, efficient, and evidence-aligned care journeys.



Where It Fits?

Upstream of implementation and downstream of data aggregation and analytics:

- Mapping current-state care pathways
- Identifying bottlenecks and variation points
- Comparing against clinical guidelines or benchmarks
- Modeling redesigned pathways
- Evaluating impact on time, cost, and quality

Optimization requires both evidence and operational feasibility.



Atlas Note

Improves care pathway performance across conditions and service lines. Most impactful in oncology, cardiovascular, orthopedic, and chronic disease programs where delays and variation drive outcome differences.

Forecasting & Scenario Planning Agent

02

Analytics / Planning → Modeling Demand, Utilization & Future States



CATEGORY & WHAT IT DOES

This agent assists health systems & public health programs in forecasting demand, utilization, and resource needs under different future scenarios.

It models how clinical, operational, demographic, or epidemiological variables may evolve and how those shifts impact capacity, workforce, & supply. It does not set policy or execute operations, it provides visibility into potential futures to inform planning and decision-making. Scenario planning strengthens system resilience and strategic readiness.



VALUE PROPOSITION

Creates value by strengthening preparedness and reducing mismatch between supply and demand:

- Readiness: anticipates future demand conditions
- Resilience: supports contingency and surge plans
- Efficiency: informs balanced resource deployment
- Strategic Insight: guides investment and planning decisions
- Impact: mitigates avoidable disruptions during peaks

Visibility into potential futures improves decision confidence.



Who It Serves?

Primarily used by health system strategy teams, public health authorities, payers, and command centers engaged in surge planning, chronic demand forecasting, and long-range service planning.

Indirect beneficiaries include providers, municipalities, and patients through improved alignment between anticipated demand and available capacity.



Where It Fits?

Upstream of resource allocation and downstream of data aggregation and surveillance:

- Demand and utilization forecasting
- Surge and contingency modeling
- Disease progression scenarios
- Workforce and staffing projections
- Supply chain and inventory planning
- Financial and actuarial modeling

Forecasting influences how systems prepare before demand materializes.



Atlas Note

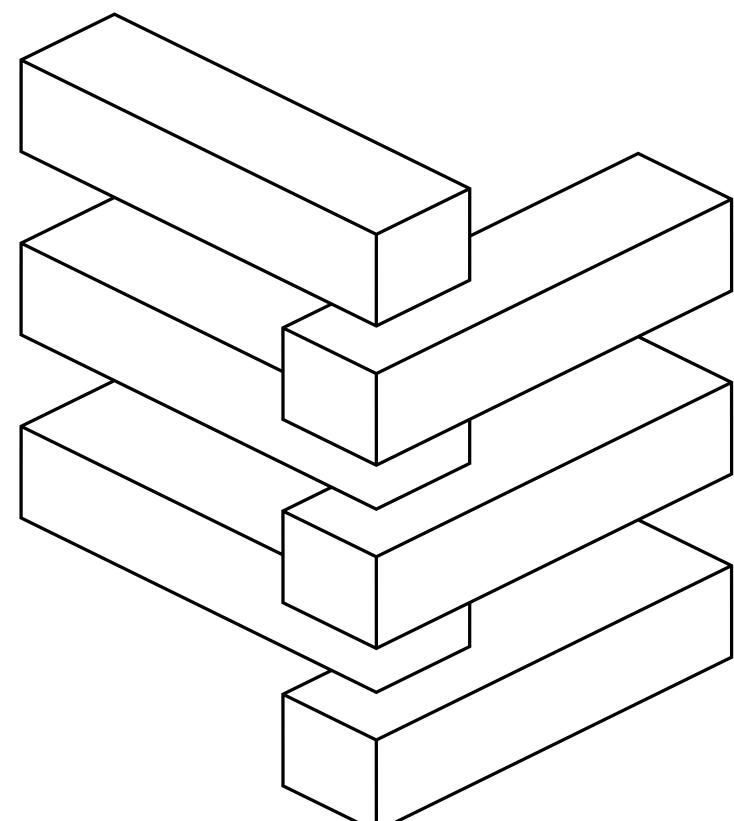
Strengthens preparedness by modeling demand and future conditions. Most impactful in surge scenarios, demographic transitions, and long-range capacity planning.

Closing Reflections

This atlas does not attempt to predict the future of **Agentic AI** in healthcare, nor to prescribe how these systems should be built or deployed. Its purpose is more foundational: to establish a shared language and structure for understanding where software agents can operate, what roles they assume, and how they interact with the workflows, decisions, and stakeholders that define healthcare delivery.

By organizing 50 use cases across clinical, operational, administrative, payer, patient-facing, and population domains, this volume maps the functional surface area of agentic systems without overextending into **architecture, regulation, or commercial viability**. The intent is to support clearer reasoning, reduce conceptual ambiguity, and enable practitioners from different backgrounds to engage in more informed conversations about **design, feasibility, and value**.

Future volumes will expand beyond functional mapping into implementation considerations, enabling technologies, maturity horizons, and system barriers. For now, this reference serves as a starting point for navigating a rapidly evolving space with precision, context, and respect for the complexity of healthcare systems.



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About

Healthinnovation Toolbox is a **Product Engineering Company**. With deep expertise in product engineering, we guide our partners through every phase of their digital journey - from assessing core processes, validating ideas, and engineering products to streamlining development, scaling solutions, and expediting market delivery. We help health systems design scalable AI operations, governance, and impact frameworks.

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The examples, use cases, and conceptual agent frameworks throughout this document are illustrative in nature. Descriptions of agent behavior, value propositions, maturity levels, stakeholders, and system interactions are not prescriptions for real-world implementation and may require significant adaptation, validation, governance, and human oversight before use in any clinical or operational environment.

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