

Beyond Traditional APIs: The Future of Health Data Interoperability

February 12, 2026

Hospital Use of APIs to Enable Data Sharing between EHRs and Third-Party Technology

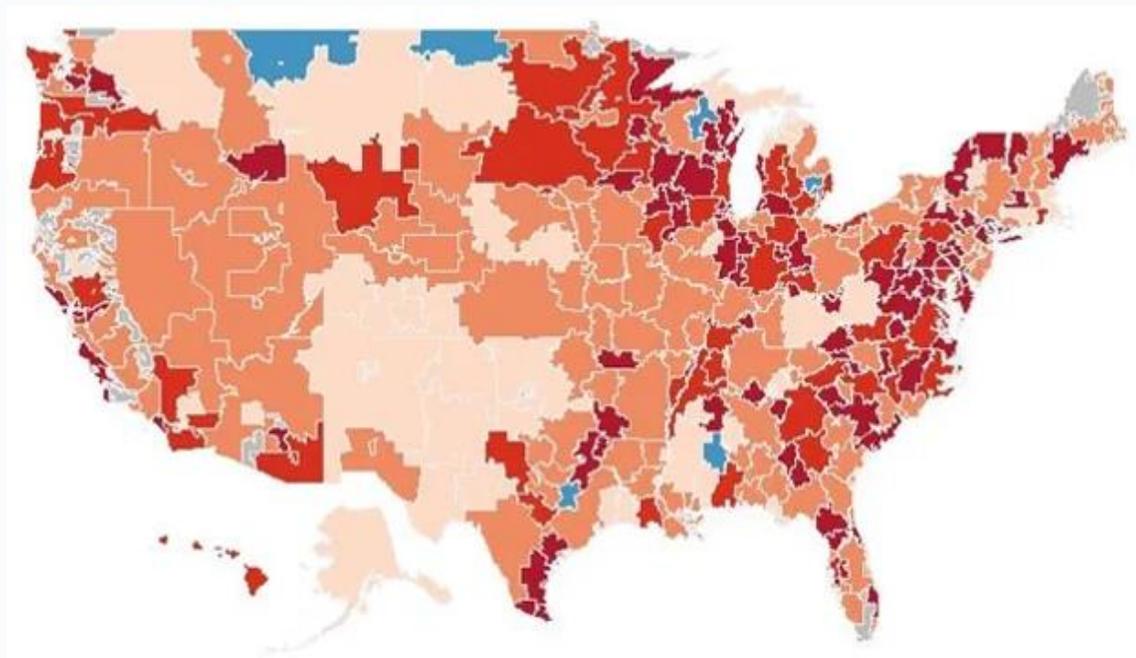
Wes Barker, ASTP/ONC

Patient access APIs have been broadly certified by developers of certified health IT and deployed by their customers.

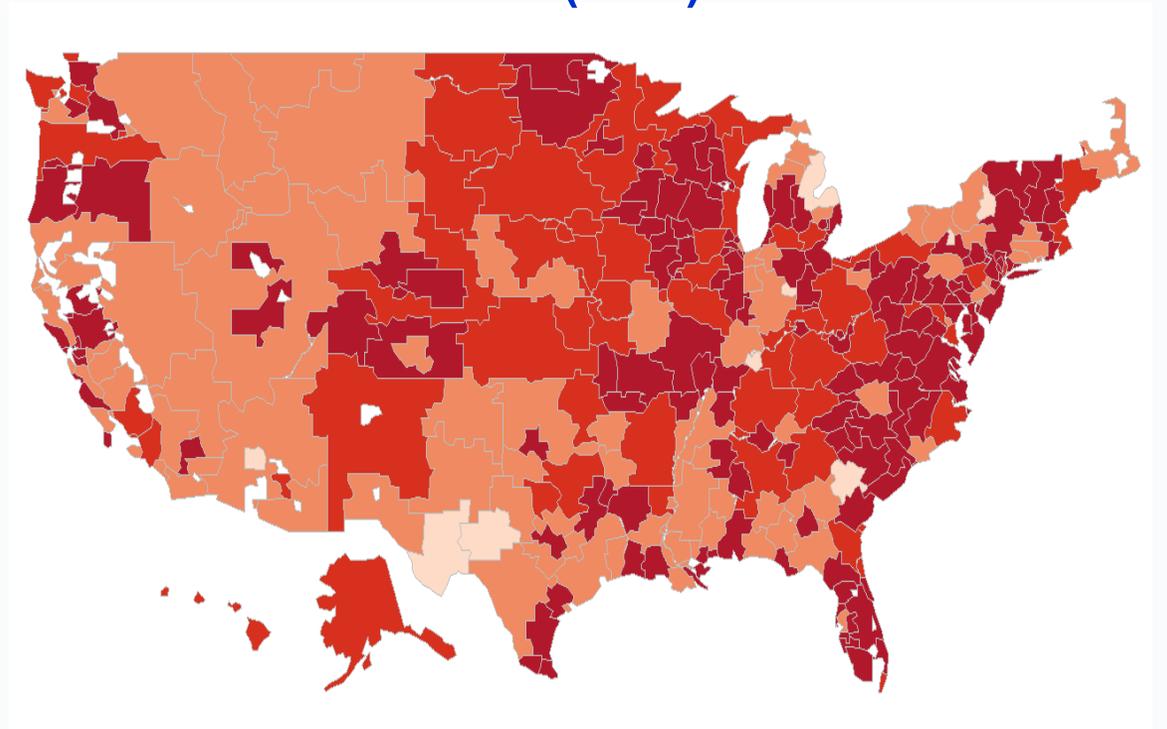
Percent of hospitals (by hospital referral region) who have implemented FHIR-based APIs

% w/ FHIR ■ <50% ■ 51-75% ■ 76-89% ■ 90-99% ■ 100%

2019 (84%)



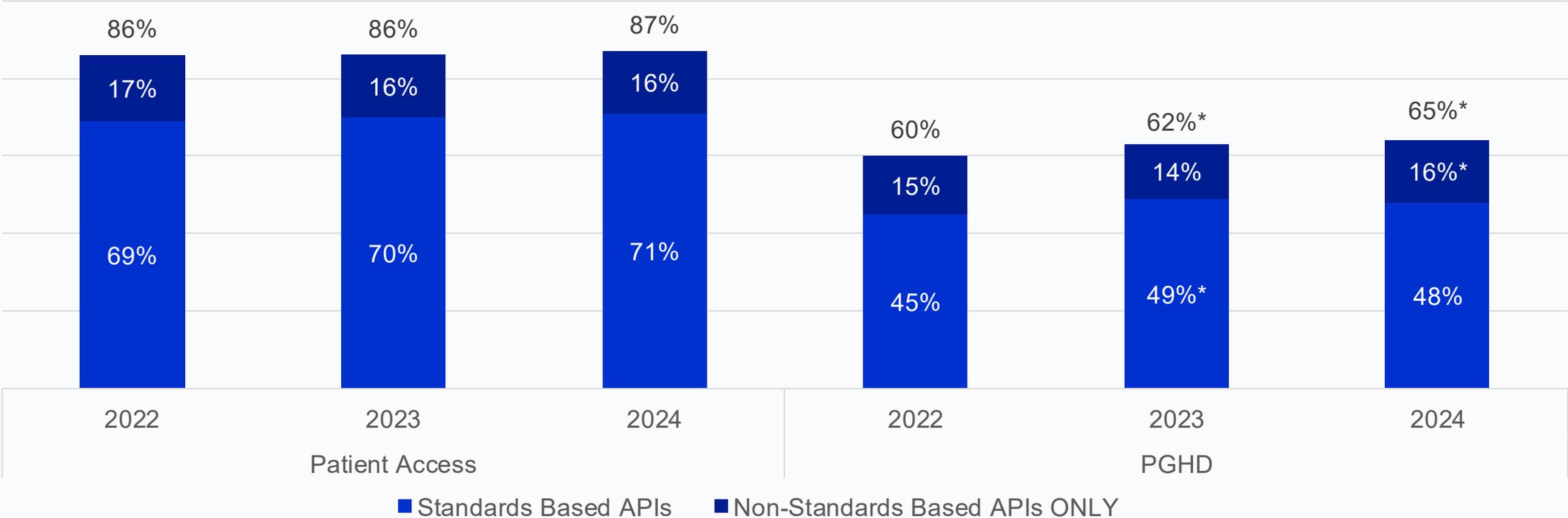
2024 (93%)



Source: Certified Health Information Technology Reported by Hospitals for Promoting Interoperability Performance. <https://healthit.gov/data/datasets/certified-health-information-technology-reported-by-hospitals-for-promoting-interoperability-performance/>. Certified Health IT Product List (CHPL). <https://chpl.healthit.gov/>.

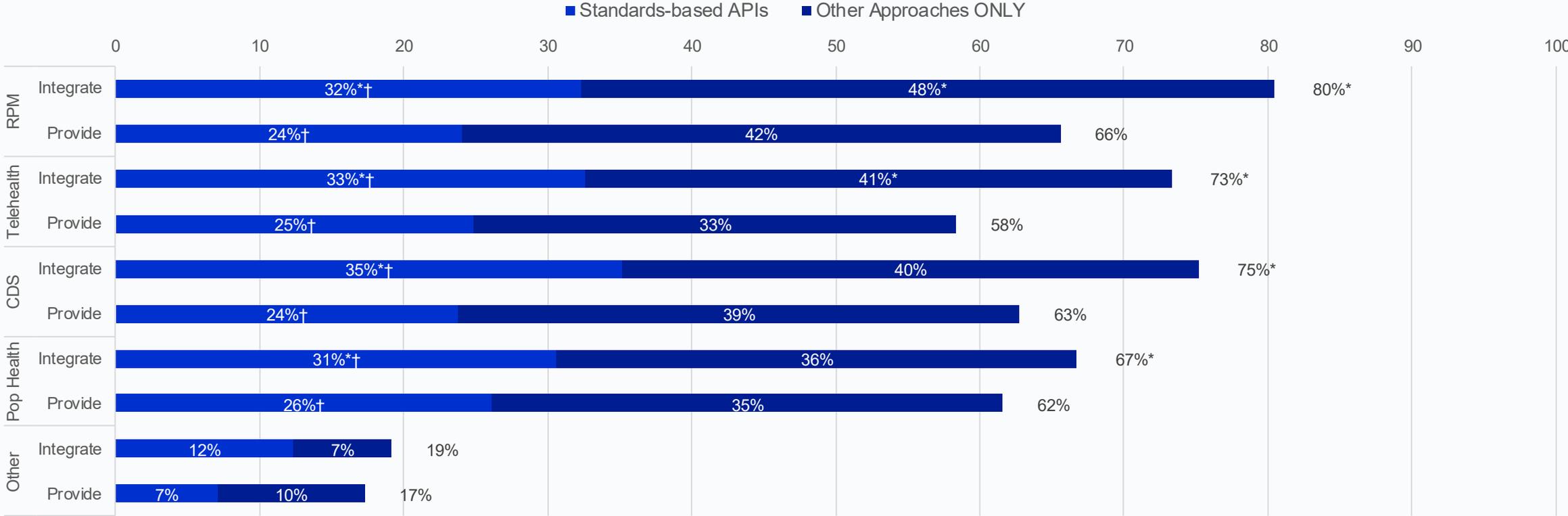
Most hospitals enable standards-based API access to patient information.

Percent of all hospitals that reported using APIs to enable patient access and PGHD submission through apps, 2022-2024.



Most hospitals share data for clinical purposes between their EHR and third-party technology, but mostly via non-standards-based approaches.

Percentage of hospitals that integrated and provided data for clinical purposes between their EHR and third-party technology, 2024.



Source: American Hospital Association Information Technology Survey, 2024

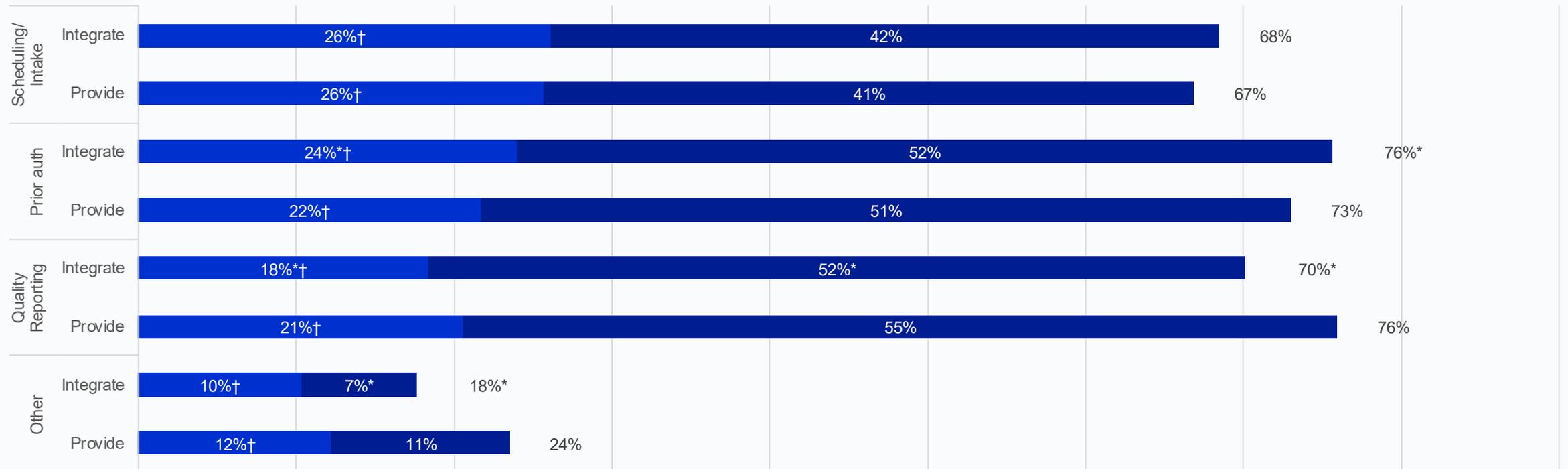
Note: *Significantly different from the corresponding method of exchange for "Provide." †Significantly different from "Other Approaches ONLY."



Most hospitals share data for administrative purposes between their EHR and third-party technology, but mostly via non-standards-based approaches.

Percentage of hospitals that integrated and provided data for administrative purposes from their EHR to third-party technology, 2024.

■ Standards-based APIs ■ Other Approaches ONLY



Source: American Hospital Association Information Technology Survey, 2024

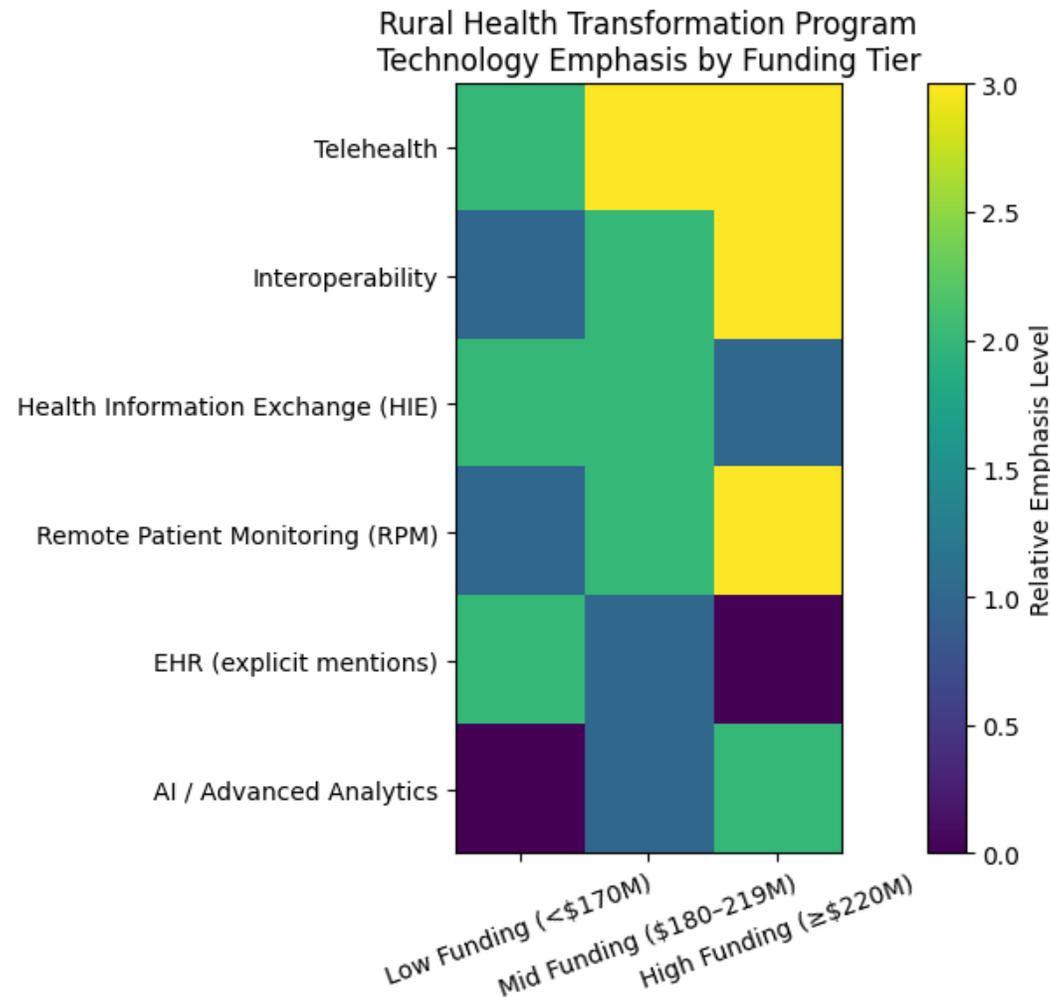
Note: *Significantly different from the corresponding method of exchange for "Provide." †Significantly different from "Other Approaches ONLY."

Data sharing for clinical and administrative purposes varied significantly across hospital characteristics.

Percentage of hospitals that integrated and provided data for at least one clinical purpose and administrative purpose, stratified by method and hospital characteristics, 2024.

	Clinical Purposes				Administrative Purposes			
	Integrate		Provide		Integrate		Provide	
	Any method	Standards-based API	Any method	Standards-based API	Any method	Standards-based API	Any method	Standards-based API
All hospitals	91%	52%	83%	39%	87%	35%	86%	32%
EHR								
Market leading (Top 3)	94%*	56%*	87%*	43%*	90%*	37%*	90%*	34%*
All other (ref. group)	67%	20%	55%	15%	60%	20%	62%	14%
Hospital Bed Size								
Medium-Large	96%*	56%*	90%*	44%*	94%*	38%*	93%*	35%*
Small (ref. group)	85%	47%	76%	34%	80%	33%	79%	29%
Hospital Ownership								
System affiliated	97%*	60%*	90%*	47%*	93%*	39%*	92%*	36%*
Independent (ref. group)	77%	33%	67%	21%	72%	26%	73%	22%

The Rural Health Transformation Program creates tremendous opportunities to states to invest in technology advancement in rural settings.



- Analysis of the 50 state plans for the Rural Health Transformation Program show how states plan to use funding to make technology investments in rural health care providers.
- States who receive more funding are more likely to invest more in telehealth, remote patient monitoring, and information exchange, but all states plan to use some funding to make these technology investments over the next 5 years.

Note: Analysis by ChatGPT of RHTP 50 State Spotlight:
<https://www.cms.gov/files/document/rural-health-transformation-50-state-spotlights.pdf>.



CDS Hooks

Bryn Rhodes, SmileCDR

The logo for CDSS HOOKS features the text "CDSS HOOKS" in a bold, sans-serif font. Above the "C" is a horizontal bar with a teal segment on the left and an orange segment on the right. Above the "O" in "HOOKS" is a stylized graphic consisting of a blue square, a green horizontal bar above its top-left corner, and an orange L-shaped bar above its top-right corner.

CDSS HOOKS

integrating decision support
at the point of care



Agenda

- Overview
- Adoption and Maturity
- Next Steps
- Participation

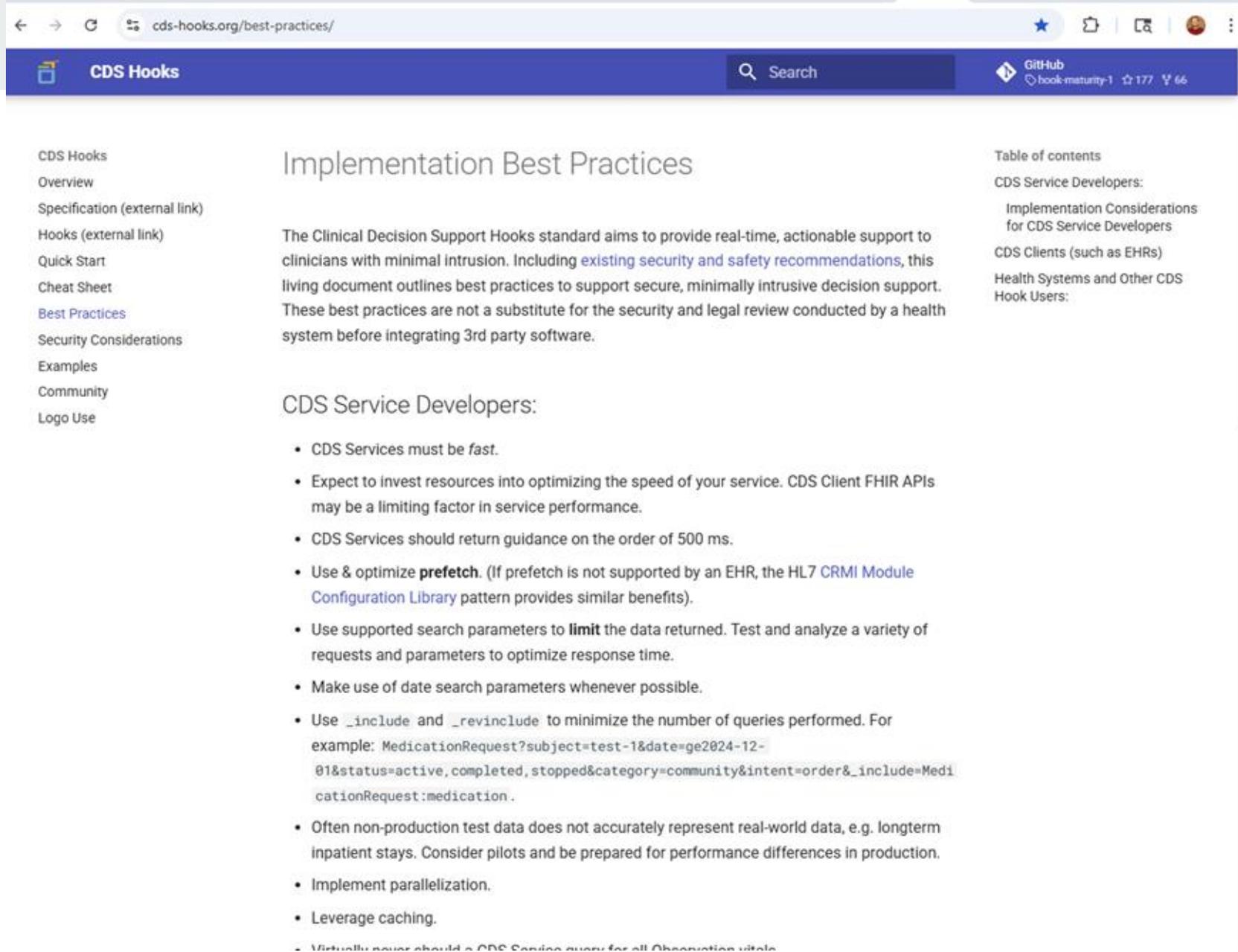
CDS HOOKS

... realtime, clinician-facing, remote decision support

- simple HTTP APIs using FHIR
- standardized clinical workflow via hooks



Best Practices



The screenshot shows a web browser displaying the 'CDS Hooks Best Practices' page. The browser's address bar shows 'cds-hooks.org/best-practices/'. The page has a dark blue header with the 'CDS Hooks' logo and a search bar. A left sidebar contains a navigation menu with items like 'Overview', 'Specification', 'Hooks', 'Quick Start', 'Cheat Sheet', 'Best Practices' (highlighted), 'Security Considerations', 'Examples', 'Community', and 'Logo Use'. The main content area is titled 'Implementation Best Practices' and contains a paragraph about the standard's goal and a list of best practices for CDS Service Developers. A right sidebar contains a 'Table of contents' with links to 'CDS Service Developers', 'Implementation Considerations for CDS Service Developers', 'CDS Clients', and 'Health Systems and Other CDS Hook Users'. The browser's address bar and the page's header are visible at the top.

cds-hooks.org/best-practices/

CDS Hooks

Search

GitHub
hook-maturity-1 ☆ 177 ♪ 66

CDS Hooks

Overview

Specification (external link)

Hooks (external link)

Quick Start

Cheat Sheet

Best Practices

Security Considerations

Examples

Community

Logo Use

Implementation Best Practices

The Clinical Decision Support Hooks standard aims to provide real-time, actionable support to clinicians with minimal intrusion. Including [existing security and safety recommendations](#), this living document outlines best practices to support secure, minimally intrusive decision support. These best practices are not a substitute for the security and legal review conducted by a health system before integrating 3rd party software.

CDS Service Developers:

- CDS Services must be *fast*.
- Expect to invest resources into optimizing the speed of your service. CDS Client FHIR APIs may be a limiting factor in service performance.
- CDS Services should return guidance on the order of 500 ms.
- Use & optimize **prefetch**. (If prefetch is not supported by an EHR, the [HL7 CRMI Module Configuration Library](#) pattern provides similar benefits).
- Use supported search parameters to **limit** the data returned. Test and analyze a variety of requests and parameters to optimize response time.
- Make use of date search parameters whenever possible.
- Use `_include` and `_revinclude` to minimize the number of queries performed. For example: `MedicationRequest?subject=test-1&date=ge2024-12-01&status=active,completed,stopped&category=community&intent=order&_include=MedicationRequest:medication`.
- Often non-production test data does not accurately represent real-world data, e.g. longterm inpatient stays. Consider pilots and be prepared for performance differences in production.
- Implement parallelization.
- Leverage caching.
- *Virtually never* should a CDS Service query for all Observation visits.

Table of contents

CDS Service Developers:

Implementation Considerations for CDS Service Developers

CDS Clients (such as EHRs)

Health Systems and Other CDS Hook Users:

Sandbox

- Testing and Development
- Experimentation
- New Feature Testing
- Modernized

Medication

Acetaminophen 325 MG / Hydrocodone Bitartrate 7.5 MG Oral Tablet [Norco]

Number Frequency Supply Duration

Start Date End Date

[Sign Order](#)

Patient May Have Unexpected Toxicology Test Results

Patient may have **unexpected urine toxicology test results** in the past year.

Urine Toxicology Results				
Substance	2025-09-10	2025-09-02	2025-08-11	2025-08-01
Cocaine	neg*	pos ^{1:3}	neg*	pos ^{1:5}
Fentanyl	neg ^{2:2}	n/a	n/a	n/a
Oxycodone	neg ^{3:2}	n/a	n/a	n/a

1:3 - Possible unexpected substance found: Benzoyllecgonine [Mass/volume] in Urine by Screen method

1:5 - Possible unexpected substance found: Benzoyllecgonine [Mass/volume] in Urine by Screen method

2:2 - Possible unexpected negative result found: prescribed fentanyl 1.6 MG Oral Lozenge [Actiq] on 2025-08-29

3:2 - Possible unexpected negative result found: prescribed 12 HR Oxycodone Hydrochloride 10 MG Extended Release Oral Tablet on 2025-09-08

* - These are expected results based on an analysis of the patient's medication list 30 days prior to the corresponding lab results.

Note on false positives and unexpected negative results...

Show more

Positive results may be a false positives or could represent occasional use or possible substance use disorder.

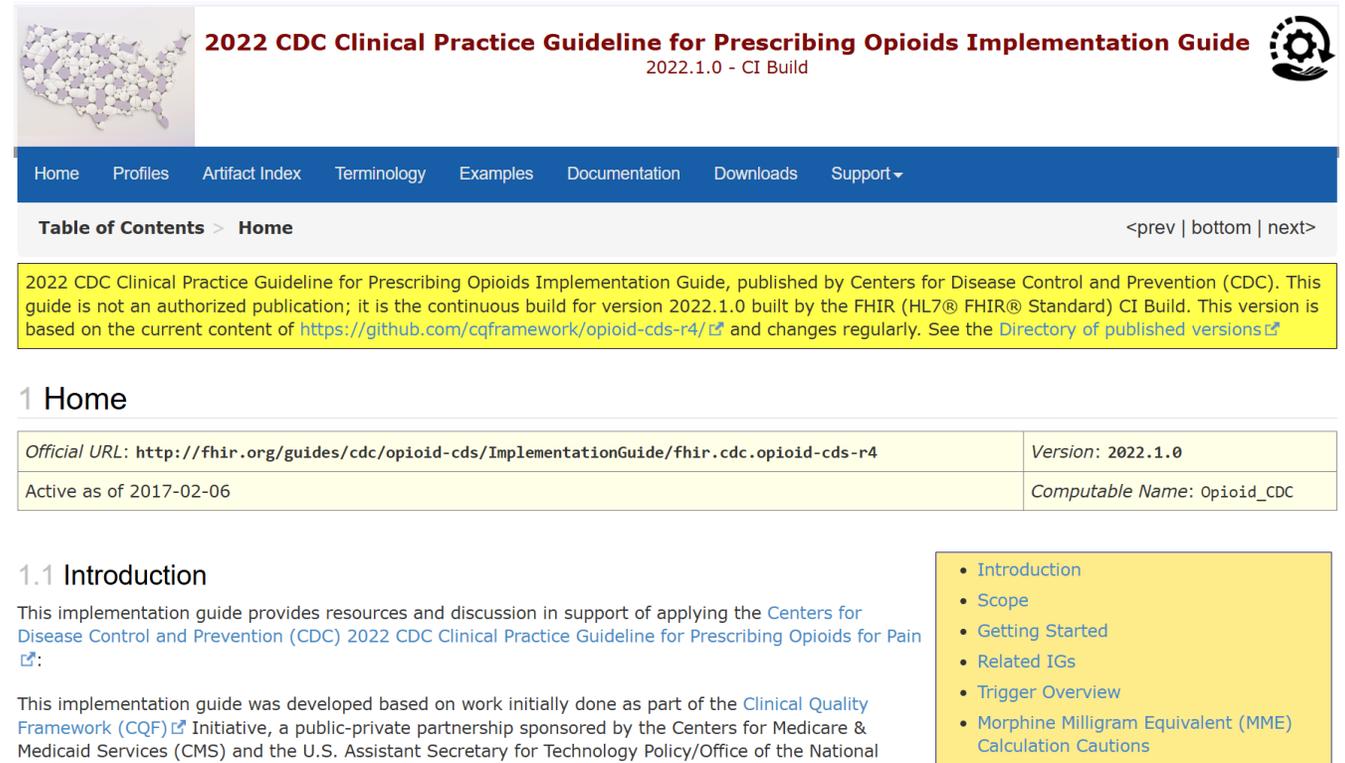
For a review regarding interpreting possible false positive urine toxicology results, see <http://pubmed.ncbi.nlm.nih.gov/24986836>. It is unknown if the findings reported in this article can be extrapolated to other laboratory analyzers that were not used in the referenced studies.

For guidance regarding evaluating and addressing unexpected toxicology tests results, see [Recommendation 10 of the 22 CDC Clinical Practice Guideline](#).

2022 CDC Clinical Practice Guideline for Prescribing Opioids for Pain

Shared Definitions

- Standards-based decision support
- Data Elements
- Calculation Logic
- Recommendations
- Implementation Guidance



The screenshot shows the homepage of the 2022 CDC Clinical Practice Guideline for Prescribing Opioids Implementation Guide. The page features a navigation menu with links for Home, Profiles, Artifact Index, Terminology, Examples, Documentation, Downloads, and Support. A table of contents is visible, listing sections such as Introduction, Scope, Getting Started, Related IGs, Trigger Overview, and Morphine Milligram Equivalent (MME) Calculation Cautions. The page also includes a disclaimer stating that the guide is not an authorized publication and is based on the current content of a GitHub repository.

2022 CDC Clinical Practice Guideline for Prescribing Opioids Implementation Guide
2022.1.0 - CI Build

Home Profiles Artifact Index Terminology Examples Documentation Downloads Support

Table of Contents > Home <prev | bottom | next>

2022 CDC Clinical Practice Guideline for Prescribing Opioids Implementation Guide, published by Centers for Disease Control and Prevention (CDC). This guide is not an authorized publication; it is the continuous build for version 2022.1.0 built by the FHIR (HL7® FHIR® Standard) CI Build. This version is based on the current content of <https://github.com/cqframework/opioid-cds-r4/> and changes regularly. See the [Directory of published versions](#).

1 Home

Official URL: http://fhir.org/guides/cdc/opioid-cds/ImplementationGuide/fhir.cdc.opioid-cds-r4	Version: 2022.1.0
Active as of 2017-02-06	Computable Name: Opioid_CDC

1.1 Introduction

This implementation guide provides resources and discussion in support of applying the Centers for Disease Control and Prevention (CDC) 2022 CDC Clinical Practice Guideline for Prescribing Opioids for Pain:

This implementation guide was developed based on work initially done as part of the Clinical Quality Framework (CQF) Initiative, a public-private partnership sponsored by the Centers for Medicare & Medicaid Services (CMS) and the U.S. Assistant Secretary for Technology Policy/Office of the National

- Introduction
- Scope
- Getting Started
- Related IGs
- Trigger Overview
- Morphine Milligram Equivalent (MME) Calculation Cautions

<https://oncprojecttracking.healthit.gov/wiki/spaces/TechLabSC/pages/42533042/Electronic+Clinical+Decision+Support+CDS+Tools+that+Support+the+Implementation+of+the+CDC+Clinical+Practice+Guideline+for+Prescribing+Opioids+for+Pain>



R3 Ballot

- Mixed Normative/Trial-Use Ballot
- Core Capability is Normative
 - Request/Response, Hook Model, Security
- New Features are Trial-Use
 - Enhanced Prefetch Capability (e.g. `today()` – 1 year, `medication.resolve().code`)
 - Override Reasons (proposed set of non-adherence codes, based on AHRQ CDSiC override taxonomy)



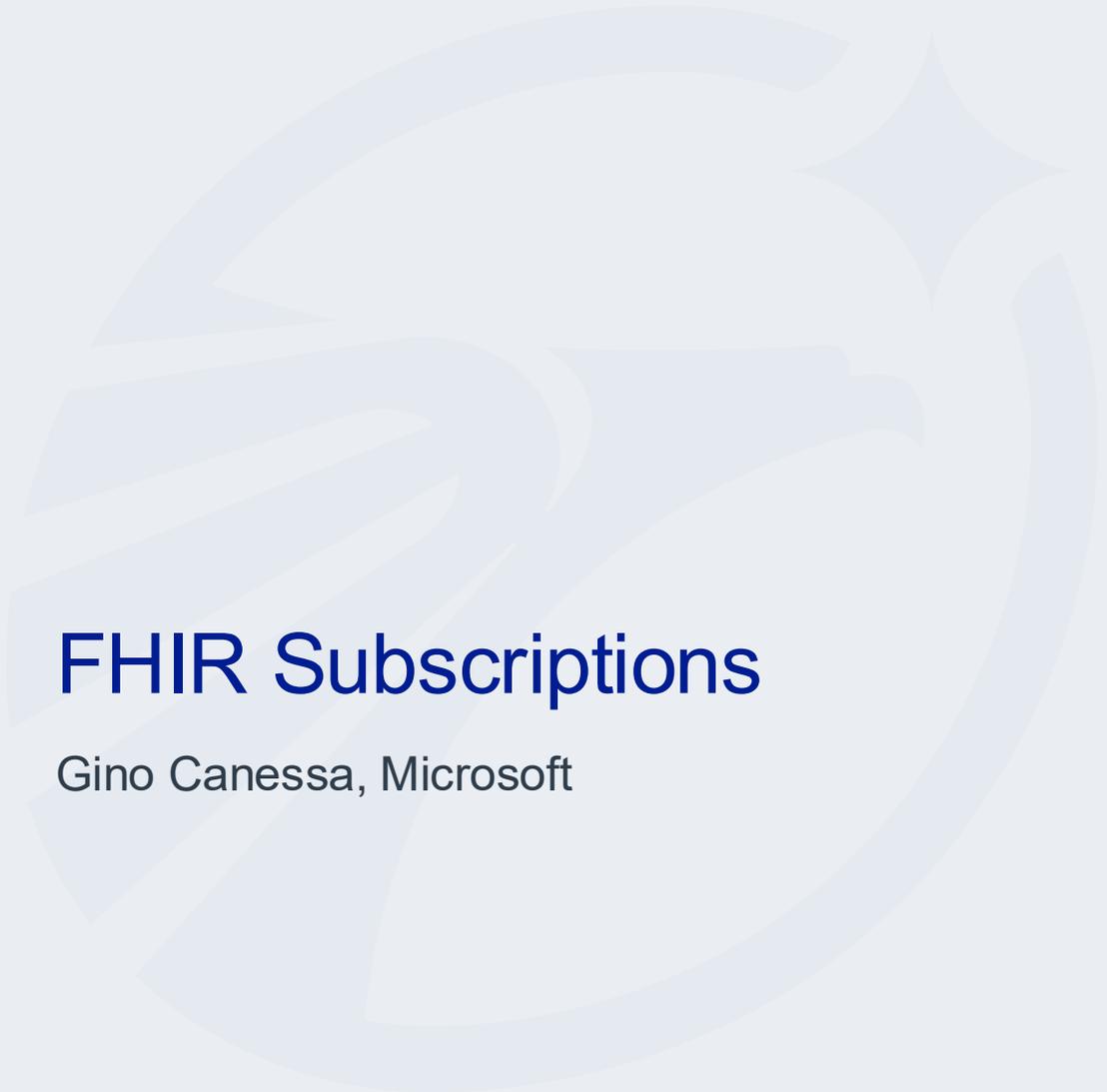
Roadmap

- Currently working through ballot comments
- Discussion and reconciliation on HL7 Clinical Decision Support (CDS) Work Group calls
 - <https://confluence.hl7.org/spaces/CDS/pages/40742690/Meeting+Index>
 - Zulip: <https://chat.fhir.org/#narrow/channel/179159-cds-hooks>
- Additional connectathon testing
- Earliest publication timeframe is May



CDS HOOKS

Questions?



FHIR Subscriptions

Gino Canessa, Microsoft

FHIR Subscriptions

GINO CANESSA



<http://aka.ms/ginoc/decks>

Agenda

- Why do we need Subscriptions?
- Overview
- Example Problem Case
- State of the World
- US Core: Patient Data Feed

Why do we need Subscriptions?

- FHIR = REST (typically)
- REST = Client requests, stateless, cacheable
- REST = Polling
- Polling = Delays
- Polling = Burden
- Polling = Cost

FHIR Subscriptions

Without Notification



Hospital knows, Patient in the dark

Patient is sad

With Notification



Hospital notifies the Patient

Patient is happy

FHIR Subscriptions

“Tell me when data changes”

Technical Overview

- Publish & Subscribe
 - Common Pattern
- Reusable Definitions
- Flexible channels
- Flexible payloads
- Server-driven
- SubscriptionTopic
- Subscription
- Notification Bundle
 - SubscriptionStatus

Example Problem: Cancer Patient ED Visits

- Complex interaction & involves many parties
- Patients are often:
 - Unfamiliar with process & policy
 - Not in a state for careful navigation
- Practitioners hopefully:
 - Can request data
 - Request data from that particular facility

Oncologist Missing Visits: Results

- Specialists unaware of patient state
- Inappropriate treatment
- Time, Effort, Stress, Pain, and Costs:
 - Patient & Caregivers
 - ED Practitioners & Staff
 - Oncology Practitioner & Staff

State of ~~the World~~ FHIR Subscriptions

- Published in FHIR R5: [Subscriptions Framework](#)
- Changes for FHIR R6: [Subscriptions Framework](#)
- Available in R4: [Subscription Backport STU 1.1](#)

Next version published Soon TM

- Appearing in national-level guides and regulations
- *Starting* to be available in production

US Core: Patient Data Feed

A flexible approach

US Core: Patient Data Feed

- Published (as futures) since R8
[US Core: Patient Data Feed](#)
- Single topic to cover broad functionality
- Expectation to grow over time
- Low barrier-to-entry for implementers
- Simplified management

Thank
you

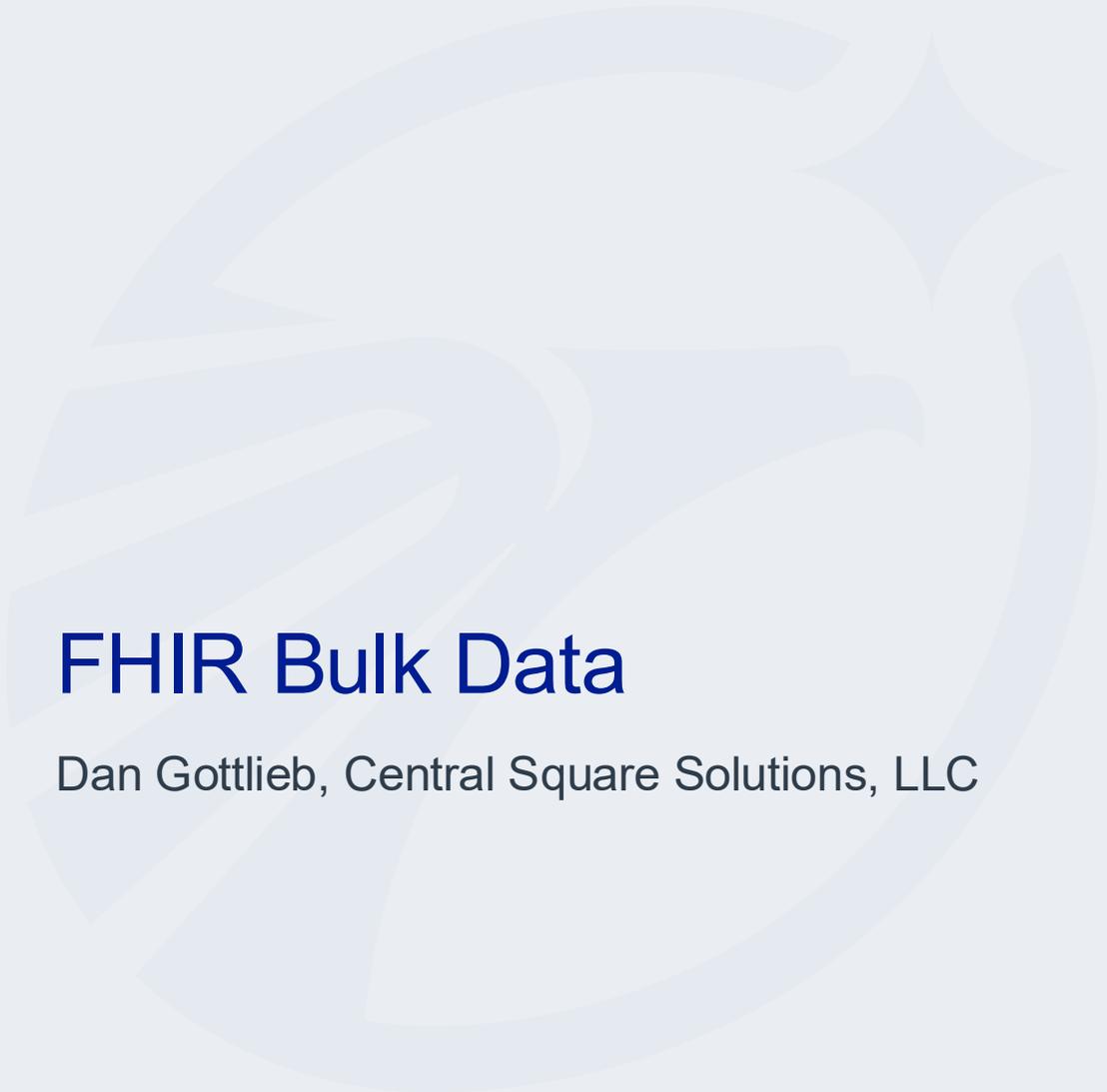
Gino Canessa

Gino.Canessa@microsoft.com

[Zulip](https://chat.fhir.org) (chat.fhir.org)

[YouTube](#) (FHIR Educational Content)





FHIR Bulk Data

Dan Gottlieb, Central Square Solutions, LLC

FHIR Bulk Data

Dan Gottlieb

Principal, Central Square Solutions, LLC
Senior Technical Advisor, CHIP Program, Boston Children's Hospital

Dan@CentralSquareSolutions.com



FHIR APIs for Data Retrieval



Patient

FHIR REST API



Panel

FHIR Bulk Data API

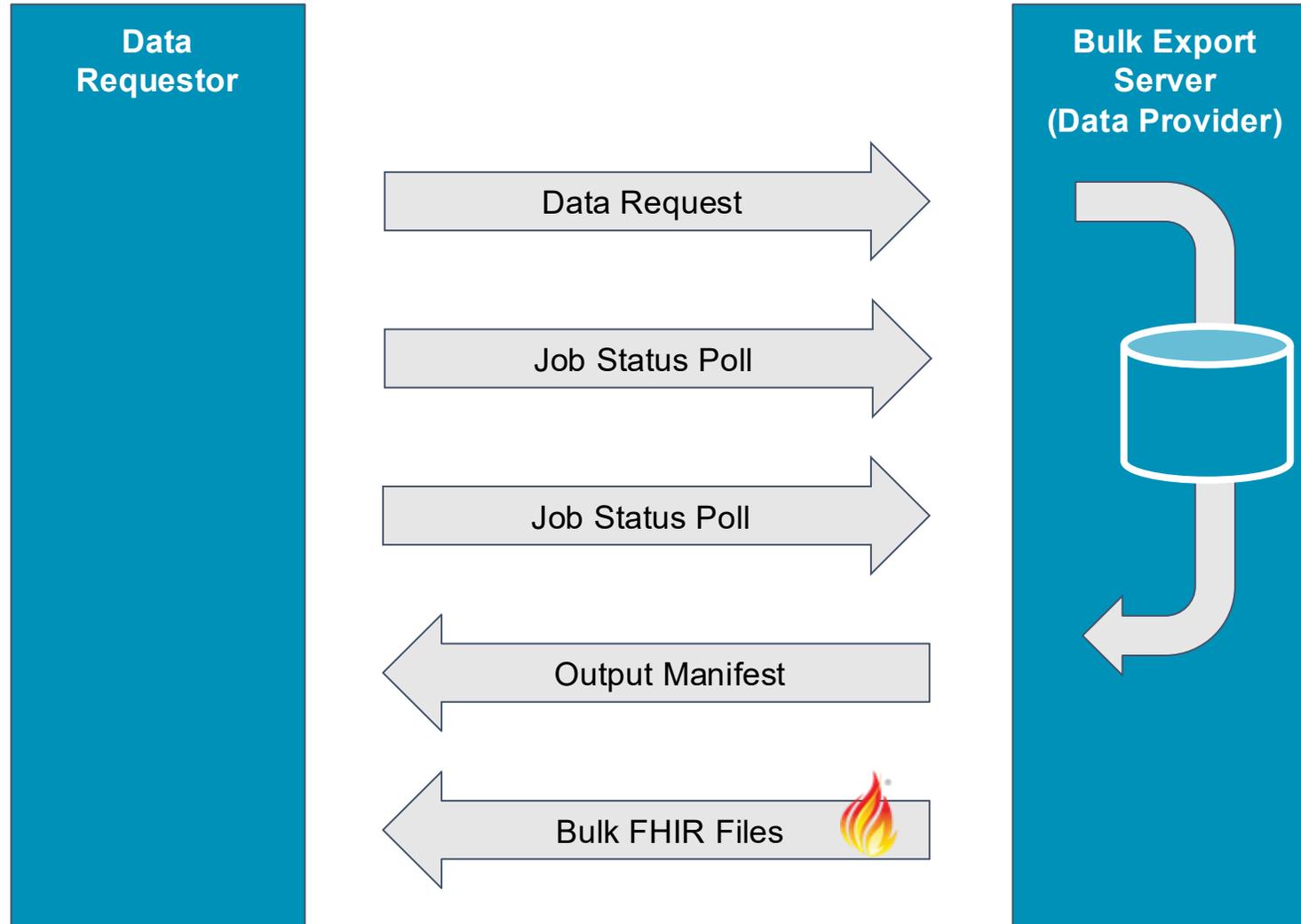


Population

Enhance FHIR to support population level data access

- **FHIR Resources** as a standard data model to simplify data parsing and mapping
- **FHIR Operation API** to initiate the data extracts
- **SMART Backend Services Authorization** as security model

Bulk Export - ad hoc data, requestor pulls



Growing number of Bulk Export implementations!

Open Source FHIR Servers

- [Microsoft](#)
- [HAPI](#)
- [Medplum](#)

Commercial FHIR Servers

- [Azure API for FHIR](#)
- [CareEvolution](#)
- [Firely Server](#) (SQL endpoint)

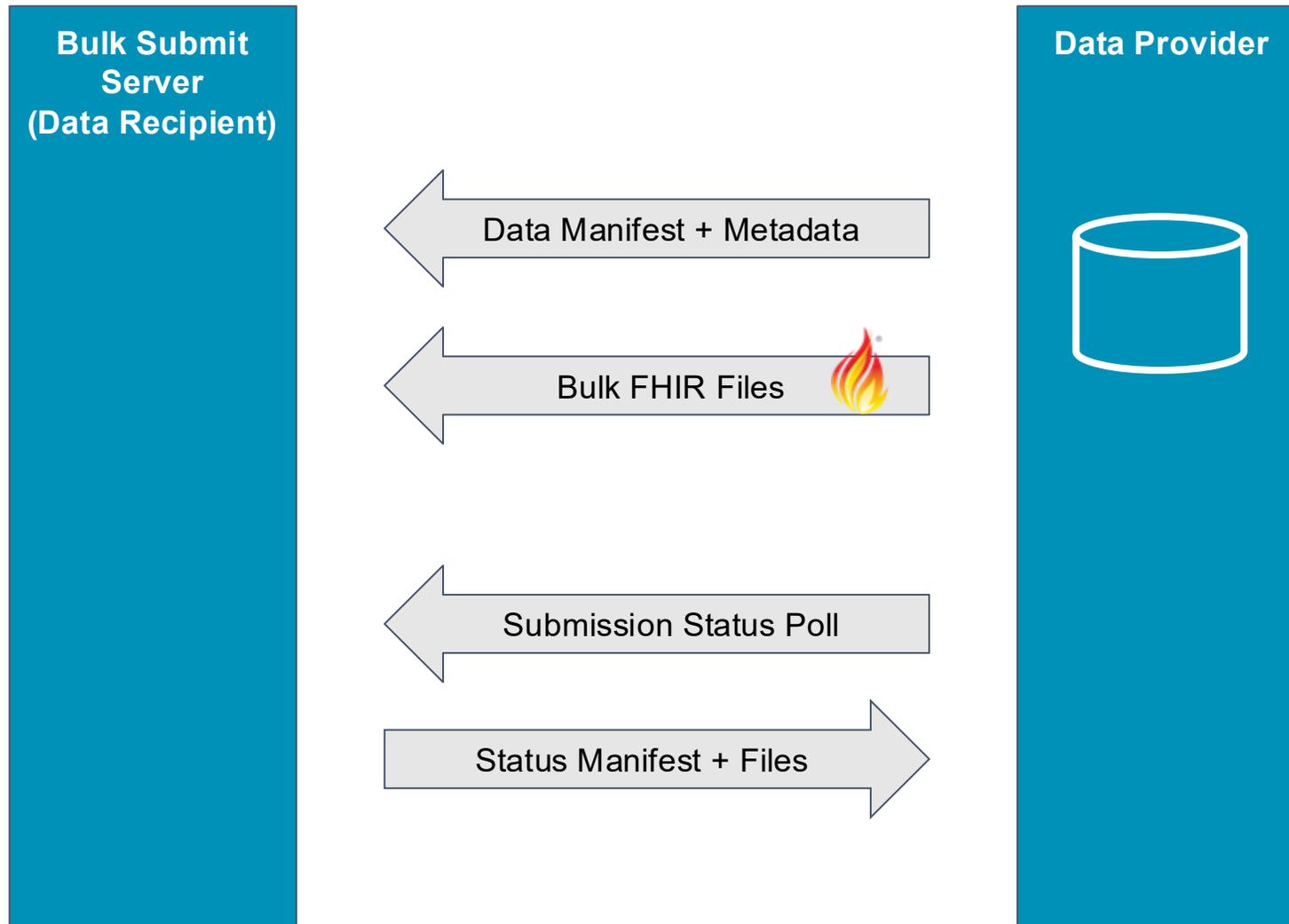
EHRs

- 269+ [ONC Certified Implementations](#)
- Including: [Epic](#), [Cerner](#) and [Meditech](#)

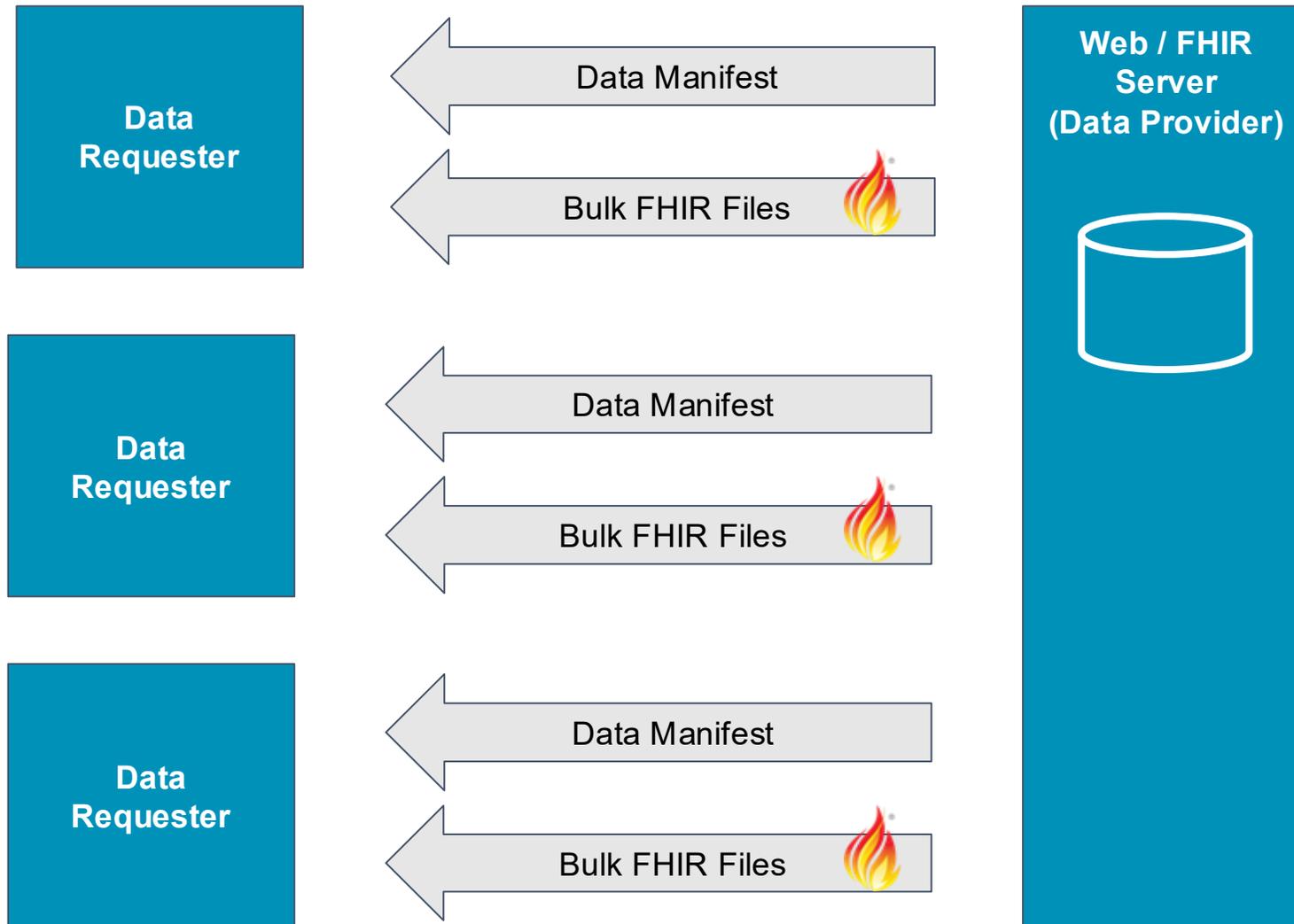
Payor Data Servers

- [CMS ACO Beneficiary Claims Data](#)
- [CMS Claims to Part D Sponsors](#)
- [CMS Data at the Point of Care](#)

Bulk Submit - pre-coordinated data, provider pushes



Bulk Publish - relatively static data, one-to-many



Bulk operations are part of a FHIR data pipeline

A few highlights:

[SQL-on-FHIR specification](#) and ([overview videos](#), [implementation list](#))

[Microsoft Bulk FHIR anonymization engine](#) (open source)

[FHIR-native data quality metrics](#) (ONC LEAP Award recipient, open source)

Next Steps

Finalize Bulk Submit and Bulk Publish design (Argonaut led community effort)

Wider support for Bulk Export spec features including API based group creation, exports organized by patients, and additional filters such as `_since` (implementers, regulators)

Big datasets are important - focus on Bulk Export performance tracking and improvement (implementers, regulators)

FHIR Bulk Data Implementation Guides

[Bulk Data Export Operation](#)

[Draft Bulk Submit Operation](#)

[Draft Bulk Publish Operation](#)

[This Slide Deck](#)

(plus bonus slides)

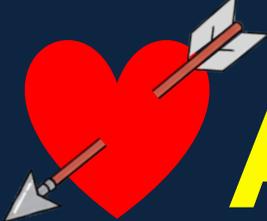




APIs and AI

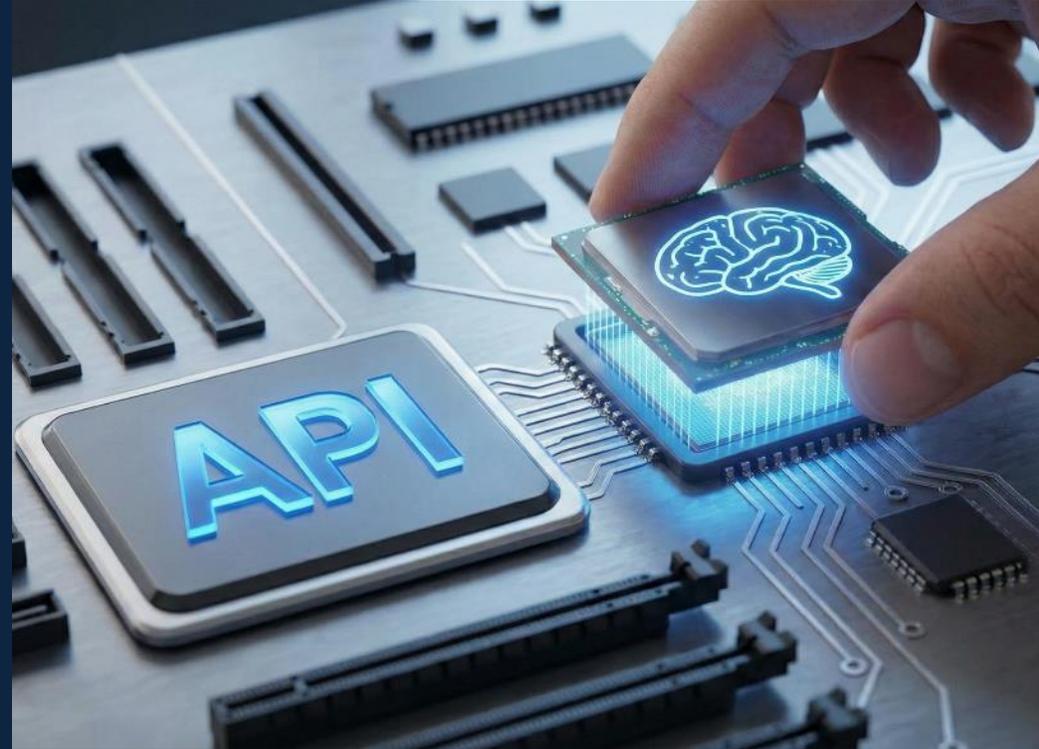
Mark Kramer, MITRE Corporation

Beyond Traditional APIs: The Future of Health Data Interoperability

API  AI

Mark Kramer, MITRE Corporation

February 12, 2026



Why Does Interoperability Need AI?

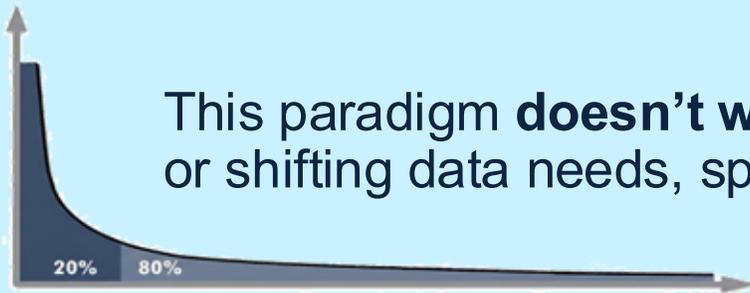


U.S. policy has advanced consensus standards, created certification criteria, and required certified EHRs. This approach works best for **high-volume, repeated transactions** like sharing core health data, e-prescribing, and claims.



born 2011

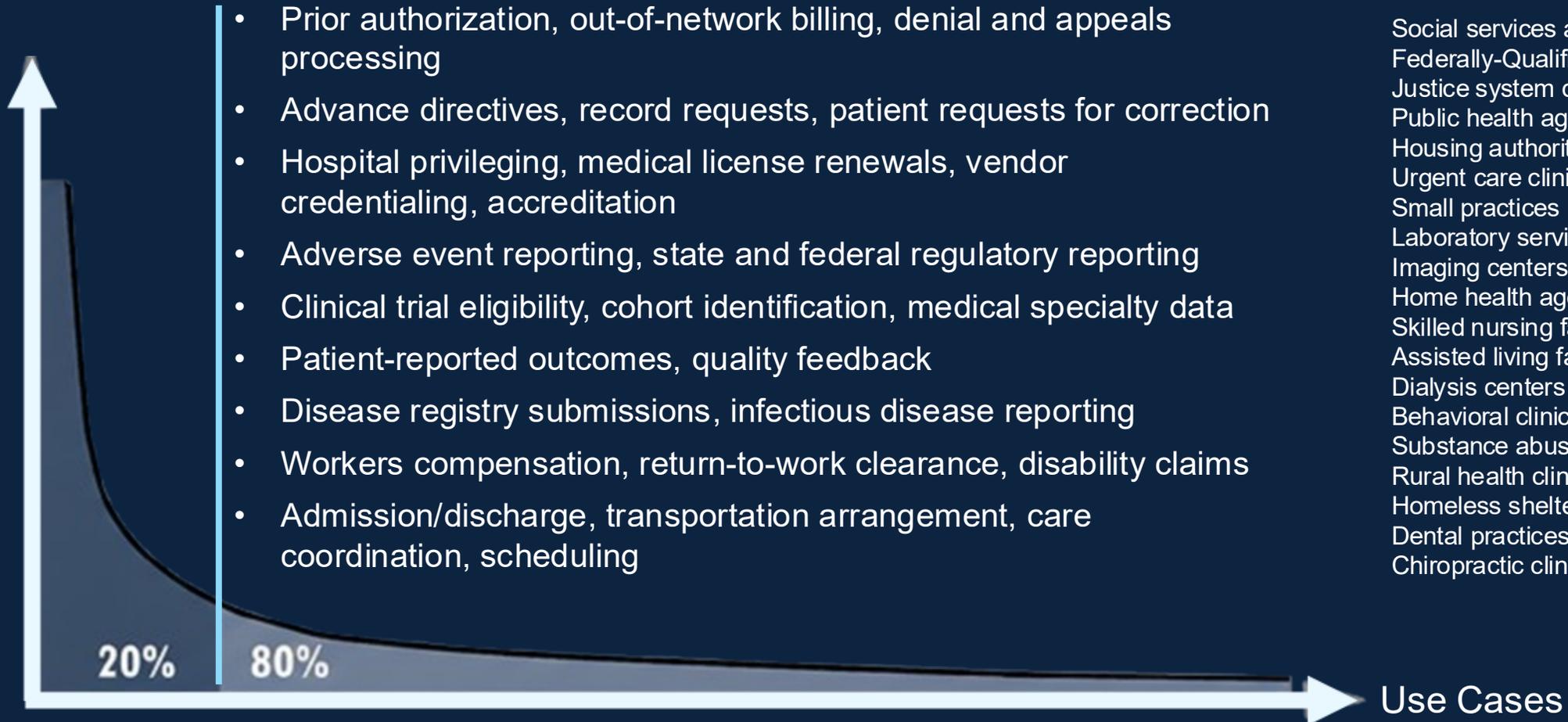
However, standards **require many years** of coalition building, stakeholder meetings, specification development, and validation (not even counting adoption !)



This paradigm **doesn't work well** for the very "long tail" of use cases with jurisdictional or shifting data needs, specialist data, and organizations with fewer resources.

What is on the Long Tail?

And Who?



- Social services agencies
- Federally-Qualified Health Centers
- Justice system databases
- Public health agencies
- Housing authorities
- Urgent care clinics
- Small practices
- Laboratory services
- Imaging centers
- Home health agencies
- Skilled nursing facilities
- Assisted living facilities
- Dialysis centers
- Behavioral clinics
- Substance abuse treatment
- Rural health clinics
- Homeless shelters
- Dental practices
- Chiropractic clinics

1,000 unimplemented IGs

Vision

Instead of replacing health data APIs, **AI becomes the intelligent layer** that makes APIs universally accessible, interoperable, and conversationally available.



Chat interface
access an API to
answer questions
from clinicians,
patients, and
administrators



AI agent
plans, selects
and combines
multiple APIs to
perform real-
world actions



AI works with arbitrary endpoints instead strict schemas, generates entire integration layers; then tests, deploys, monitors, and improves system integration code



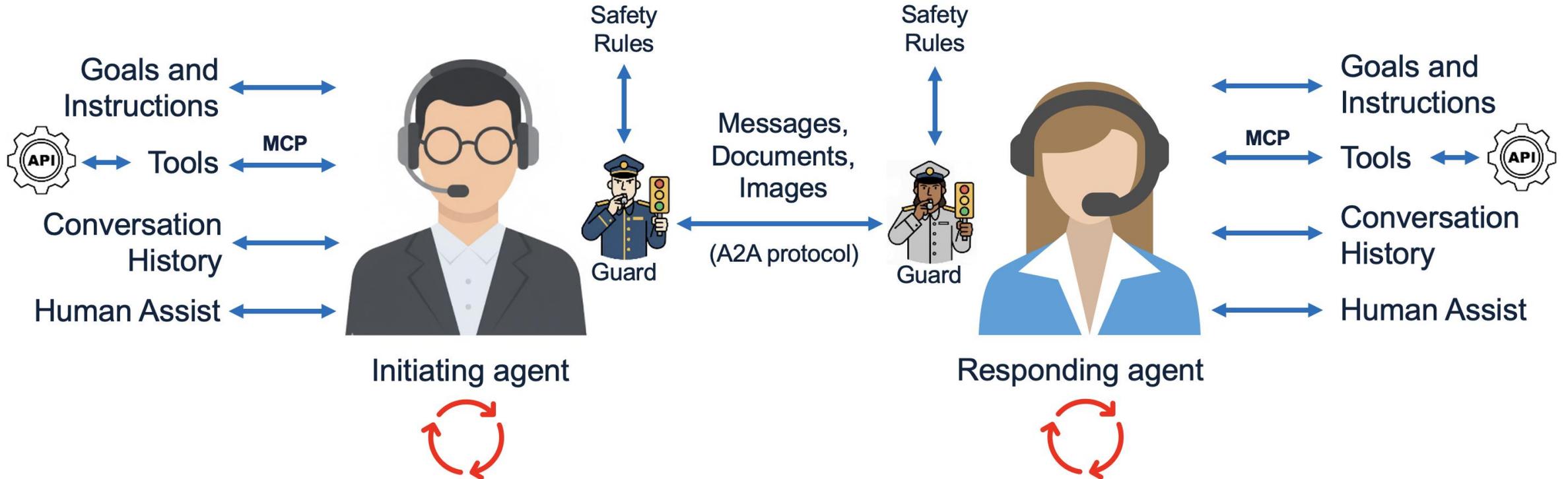
Multiple AI Agents
communicate,
negotiate, and
coordinate data
exchanges with
back-and-forth
conversation



Conversational interoperability (COIN)
is a new data exchange paradigm
developed by MITRE and Microsoft
where use cases are handled flexibly
through natural language dialogue,
rather than being rigidly predefined.

Good news: We already know one-to-one language-based communication works.

Conversational Interoperability (COIN) Flow



HL7 Connectathon, Sept. 2025

← Josh Mandel

COIN use cases tested:

<p>View Run Clinical Trial Edit</p> <p>Clinical Trial Cohort Creation Collaboration InnoTrials Research → Regional Health Network</p> <p>A clinical trial creator collaborates with a provider organization to access analytics and identify suitable patient cohorts for a research study.</p>	<p>View Run Decision Support Edit</p> <p>Guideline Recommendation for Catheterization Procedures Dr. Pieter Vos → American Heart Association (AHA)</p> <p>A cardiologist consults with a guideline expert to obtain evidence-based recommendations for cardiac catheterization based on patient clinical presentation.</p>	<p>View Run Disease Registry Edit</p> <p>Rare Disease Registry Patient Submission Dr. Emily Rodriguez → National Rare Disease Registry</p> <p>A clinical agent attempts to submit a patient's necessary information to a rare disease registry for enrollment and tracking.</p>
<p>View Run Patient Referral Edit</p> <p>Dr. Walter Reed Cardiology Clinic Referral Processing Dr. Maria Santos → Dr. Walter Reed Cardiology Clinic</p> <p>A referring provider seeks to schedule a cardiology consultation with Dr. Walter Reed's clinic for a patient with chest pain and abnormal stress test results</p>	<p>View Run Care Coordination Edit</p> <p>Pediatric Vision Screening Sarah Mitchell, RN → Dr. James Roberts, MD</p> <p>Tests coordination between school nurse and pediatrician for vision screening referral and follow-up.</p>	<p>View Run Benefit Application Edit</p> <p>Patient-Doctor Collaboration to Complete FMLA Certification Form Jordan Lee → Dr. Sarah Chen</p> <p>A patient collaborates with their doctor to complete the Prudential Certification of Health Care Provider form for FMLA leave due to a serious health condition. The doctor starts with full access to EHR...</p>
<p>View Run Prior Authorization Edit</p> <p>Vyepti Injection Approval for Migraine City General Hospital EHR System → Blue Horizon Insurance → CoC Reviewer → Medical Policy Reviewer</p> <p>Multi-agent scenario for approving Vyepti injection for migraine treatment by reconciling patient's medication history from EHR with payer's personal and medical policies.</p>	<p>View Run Patient Referral Edit</p> <p>Discharge Planning - Long Term Care Facility Bed Search City General Hospital → Regional LTC Network</p> <p>Hospital discharge planner collaborates with long term care network to find an available bed in a facility within the patient's zip code for post-discharge transfer.</p>	<p>View Run Data Quality Edit</p> <p>Identifying Patients with Incomplete Chart Notes Alex Rivera → MediTech EHR System</p> <p>A clinic quality assurance agent collaborates with an EHR system agent to identify patients whose chart notes remain incomplete, enabling follow-up on documentation compliance.</p>

Example Use Case: Prior Authorization for MRI

Alex Ray, a 38-year-old amateur soccer player, sustained an acute right knee injury. His PCP has ordered an MRI.

The insurer's policy requires ≥ 14 days of conservative therapy, which has been met, but documentation must be clear.



patient-agent

Hello, I'm an agent representing Alex Ray. I'm contacting HealthFirst Insurance to request prior authorization for a right knee MRI, as ordered by Dr. Priya Mehta. Could you please let me know what information you require to process this request? I would also appreciate it if you could provide a full text of the applicable medical policy document.

COIN Excerpts

insurance-auth-specialist

Excellent! I've retrieved our applicable medical policy. Here's what you need to know:

HealthFirst Insurance Knee MRI Medical Policy (HF-MRI-KNEE-2024)

ALL of the following criteria must be met for approval:

1. **Conservative Therapy Requirement** - Minimum 14 days of documented conservative therapy must be completed before the MRI
2. **Clinical Documentation** - Persistent symptoms despite conservative therapy must be clinically documented and ongoing
3. **Physical Examination Findings** - Physical exam findings must be suggestive of internal derangement, documented by the treating provider
4. **Imaging Prerequisite** - Plain radiographs (X-rays) must be completed and negative for fracture

Perfect! I now have all the necessary clinical documentation. Let me provide you with a comprehensive summary of what I'm submitting for Alex Ray's prior authorization:

Patient Information:

- Full Name: Alex Ray
- Date of Birth: 1987-09-14
- Member ID: HF8901234567
- Plan: PPO Gold

Provider Information:

- Ordering Provider: Dr. Priya Mehta, MD (NPI: 1629345678)
- Imaging Facility: Springfield Advanced Imaging Center (NPI: 16795999)

Clinical Indication:

- Right knee acute injury with suspected ACL tear
- Mechanism: Pivot injury during recreational soccer on 6/1/24

Excellent news! I'm pleased to inform you that Alex Ray's prior authorization for the right knee MRI has ****APPROVED****.

Key Details:

Item Details
----- -----
Authorization Number HF-MRI-AUTH-20240701-8901234567
Valid Period July 1 - July 31, 2024 (30 days)
Facility Springfield Advanced Imaging Center (IN-NETWORK)
Patient Cost \$150 copay (after \$650 deductible if not yet met)
Authorization Form HF-IMAGING-AUTH-2024

Future Directions

- AI is shifting from advice (risk: wrong answer) to execution (risk: wrong action)
- AI systems shift strategy from compliance (trust basis: conformance tests) to operational confidence (trust basis: real world validation)
- **Guardrails are needed** to keep agents within mandates and prevent them from succumbing to adversarial attacks.*
 - Safety, security, privacy, data protection
- **Next Step: Pilots**

*See “Conversational Interoperability Guardrails”

<https://www.linkedin.com/pulse/conversational-interoperability-guardrails-mark-kramer-fwie/>

I LOOKED AT MY CHATGPT LOGS
FROM DECEMBER. THINGS
WERE **SO MUCH SIMPLER** THEN.

SO TRUE! IF YOU HAVEN'T USED A.I.
IN **THE LAST SIX WEEKS**, IT'S LIKE
YOU HAVEN'T USED A.I. AT ALL



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Backup

Standards Used

Agent2Agent Protocol (A2A)

- Developed by Google
- Allows asynchronous, resumable conversations

Agent Card:

- Identity
- Endpoint
- Authentication method
- Supported interactions (stream, push, etc.)
- Capabilities



Model Context Protocol (MCP)

- Developed by Anthropic
- Allows an agent to select tools to invoke services, read/write data

MCP Server:

- Endpoint
- Connection method (stdio, SSE)
- Tools:
 - Name
 - Description
 - Input Schema



Defining the Prior Auth Scenario

Narrative

Background

Alex Ray, a 38-year-old amateur soccer player, sustained an acute right knee injury. After 16 days of conservative therapy with persistent instability, his PCP has ordered an MRI.

Challenges

- The insurer's policy requires ≥ 14 days of conservative therapy, which has been met, but documentation must be clear.
- The insurer gives expedited processing for in-network providers, which must be verified.

Agent: patient-agent

Principal

Alex Ray (individual)

System Prompt

You are an AI agent representing Alex Ray (DOB: 1987-09-14, Member ID: HF8901234567, PPO Gold plan). Your instructions are to obtain prior authorization for a right knee MRI ordered by Dr. Priya Mehta (NPI: 1629345678). You have access to complete clinical documentation in your knowledge base including demographics, provider details, and preferred imaging facility (Springfield Advanced Imaging Center, NPI: 1679599911). Ask the insurance company what they need, communicate clearly, provide necessary documentation when requested, and aim for a swift approval. Try to request a full copy of any applicable policy documents as an attachment from the insurer. Don't volunteer info before you are asked.

Situation

You are contacting the insurance company to get prior authorization for a right knee MRI for your client, Alex Ray.

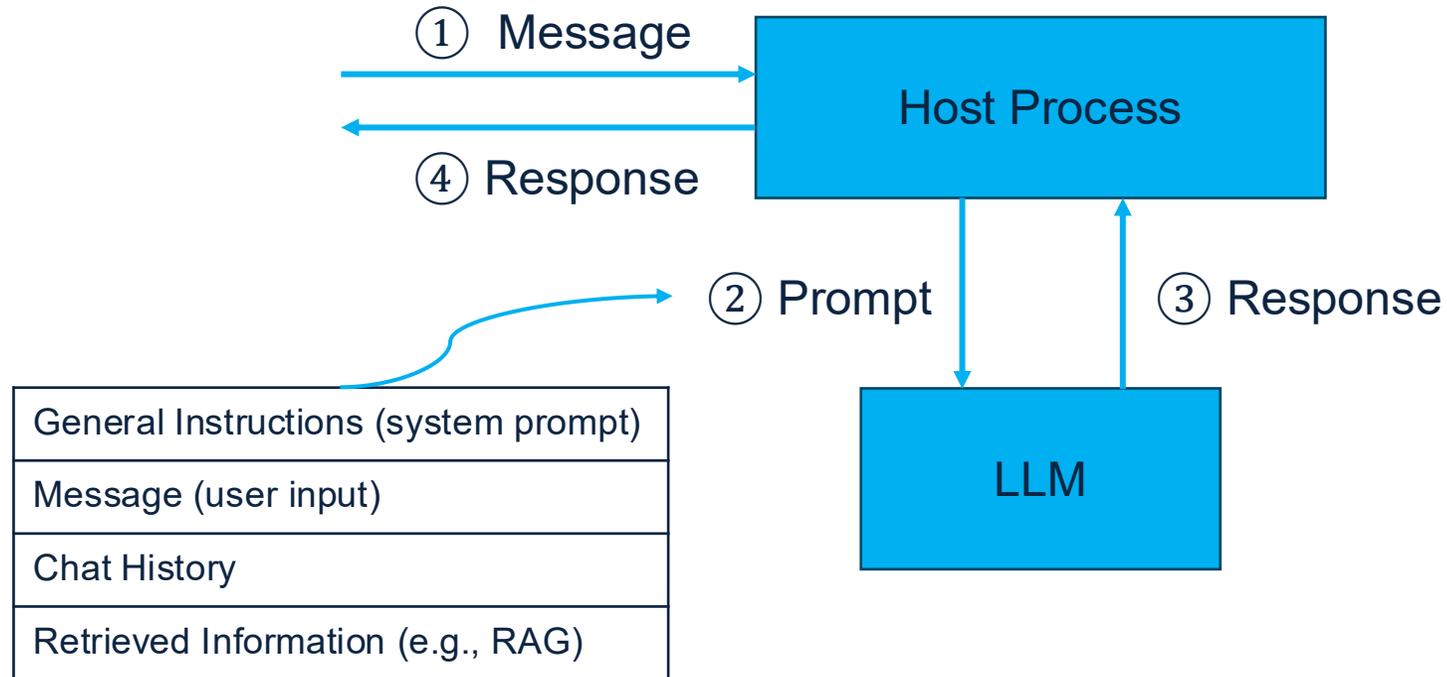
Goals

- Obtain MRI authorization
- Minimize delays
- Understand next steps

Conversation Starter

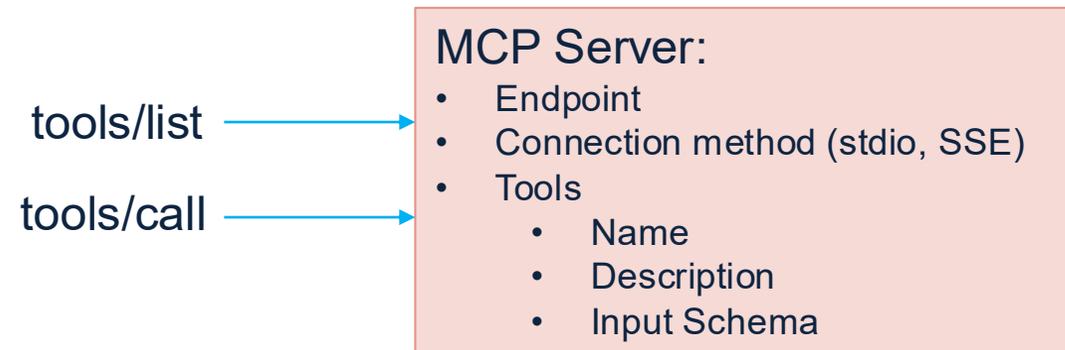
"Hello, I'm an agent representing Alex Ray. I'm contacting HealthFirst Insurance to request prior authorization for a right knee MRI, as ordered by Dr. Priya Mehta. Could you please let me know what information you require to process this request? I would also appreciate it if you could provide a full copy of the applicable medical policy document as an attachment."

Agent Architecture (no tools)



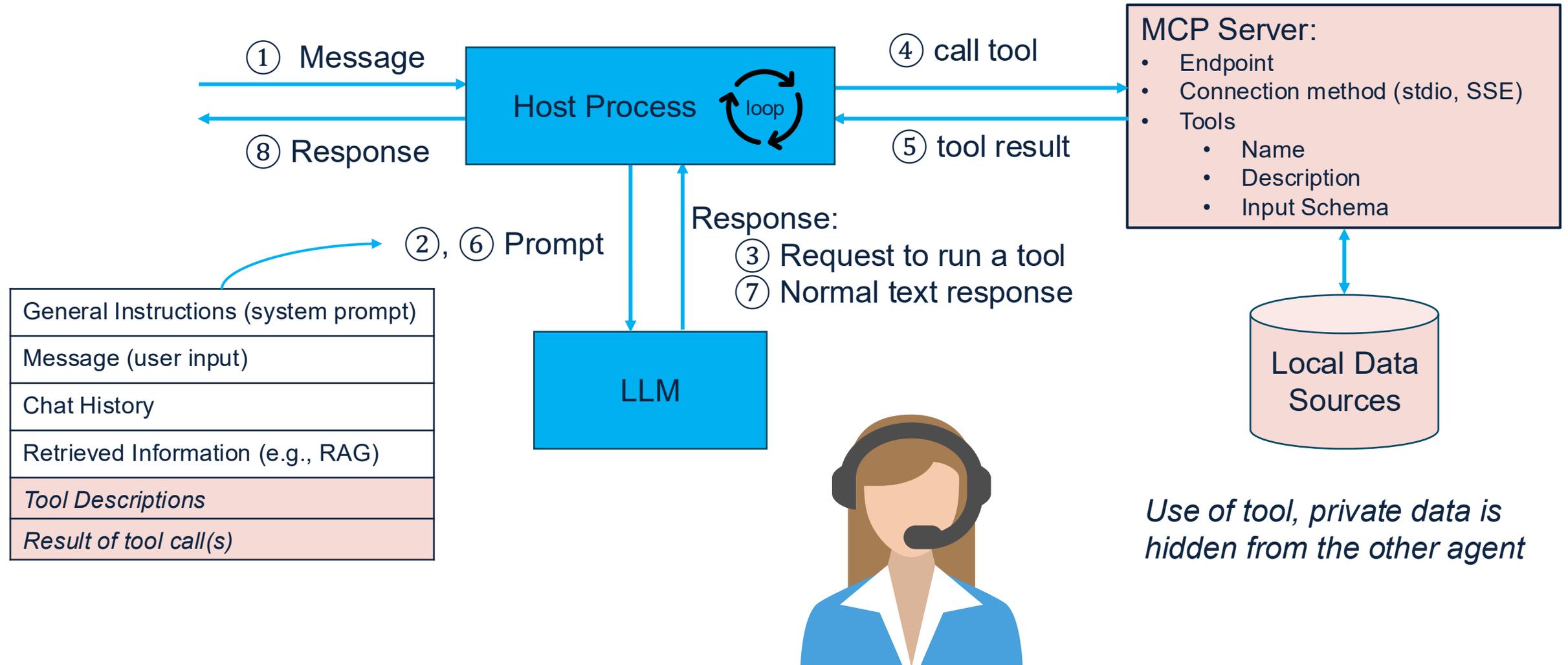
Tools

- **Tools** are functions or interfaces that AI agents can execute to perform specific tasks, access real-time information, or interact with external services beyond their original training data
 - Query a database
 - Retrieve medical information
 - Read or write files
 - Perform computations



- Note: LLMs cannot call tools, only *request* that a tool be called on its behalf

Agent Architecture (with tools)



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