Open@Epic CONFERENCE 2025

Developing and Deploying AI in Healthcare

Presenters

Sean McGunigal

Cognitive Computing Developer

Agenda

01 Why is AI in healthcare challenging?

02 What can you do to be successful?

03 How the landscape of AI is changing.

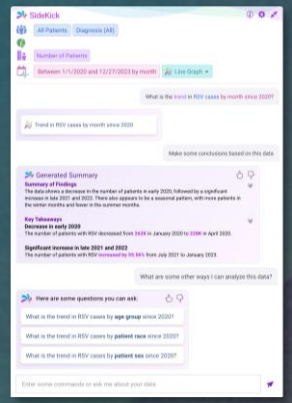
Setting the Stage

November 2022
ChatGPT released

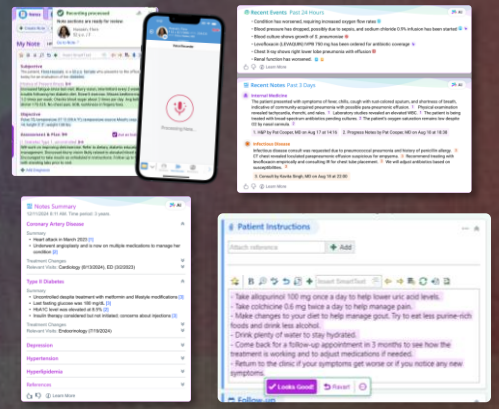
April
First customers live
with In Basket Art

HIMSS23
Epic integrates generative AI into EHRs

August
SideKick agent live on Cosmos



Summer
IP Insights, AI Text Assistant, Sidekick, Discharge Summary, Ambient Flowsheets, End of Shift, PB Coding Assistant live



Winter
Cogito Cloud live
AI Data Foundation

Today
415 Epic customers
using generative AI

Summer
150+ use cases
live & in development

Jan 2023

March
Epic integrates LLMs

May
Epic supports GPT-4

Jan 2024

Epic customers publishing generative AI studies

Spring
Analytics dashboard insights & AI-extracted radiology follow-ups live

1st international customers live in Dutch

August
Live demo of MyChart Patient Experience Agent
at Epic Users Group Meeting

Jan 2025

Spring
Launchpad adoption program

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Why is AI in healthcare challenging?

For Model Developers

Healthcare data is disparate and challenging to model on

Data can vary widely between organizations

PHI/PII makes it hard to do real-time data capture for error analysis

Test and re-test (even small changes can have large implications)

Why is AI in healthcare challenging?

For Model Developers

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Test and re-test (even small changes can have large implications)

For Healthcare Organizations

AI requires iteration, speed, and agility; not all organizations are suited for that.

Successful groups are thoughtful about *post-release*. Who's monitoring? How?

Workflows can vary between hospitals; differentiate between on-label vs off-label.

Why is AI in healthcare challenging?

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Workflows can vary between hospitals; differentiate between on-label vs off-label.

What counts as a medical device?

You need to be aware of the regulations (which continue to change)

The more the AI tool does on its own, the more likely it will be a medical device

Risk primarily comes from the use-case, not necessarily the type of model

Agenda

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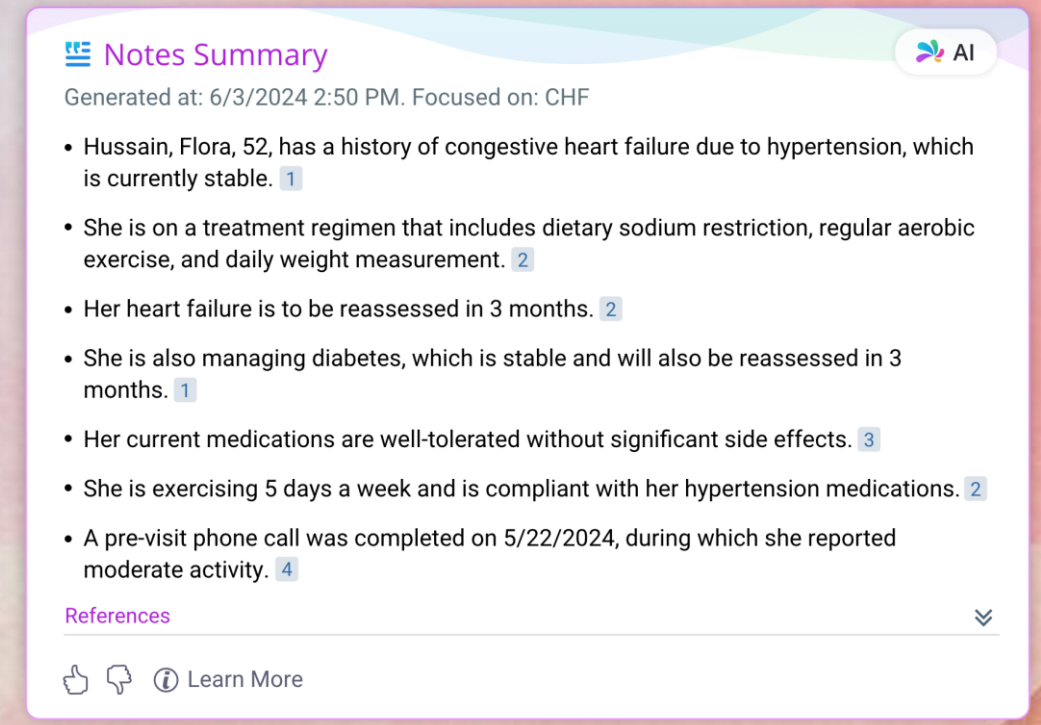
Understand the *Full* User-Story

- **Focus on the workflow**
  - What data is available?
  - When is the user “ready” for the information?
  - What should be shown?
- **Supporting information helps build trust**
- **Trust leads to adoption**



Start Small, Build Out

Don’t boil the ocean;

a small solution can have a big impact on users.

Small use-cases lead to clear requirements and goals.

This makes it easier to iterate.

Pilot users → broad rollout

- Specialty, focus area
- User role
- Super users

Build, Measure, Iterate

Don't focus on perfection out-of-the-gate, but do evaluate at every stage.

How will you measure your tool and what are your "success" criteria?

How will you work with your customers & data partners (who has the data/validation) on an ongoing basis to validate?

Tight develop-test loops will help you move faster.

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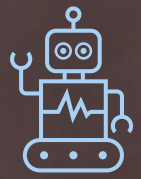
The Evolution *of* AI

Rule-Based Logic

Expert-defined and explicitly coded

Predictive Analytics

Statistically derived to predict a pre-defined event



Generative AI
(Large Language Models)

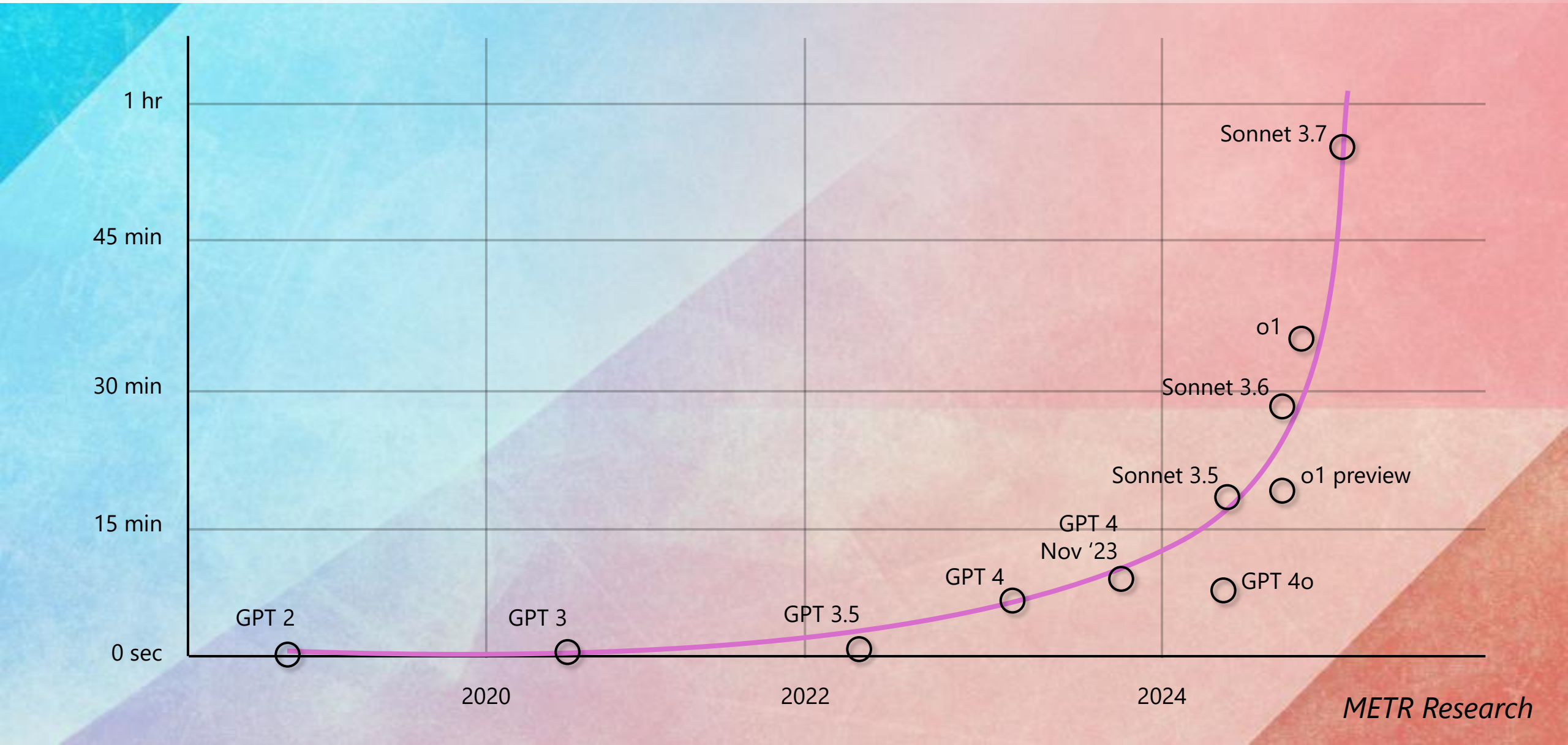
Generally-trained to generate novel content

Deterministic
Targeted

Probabilistic
More generalized

The Evolution *of* Generative AI

The length of tasks AI can do is **doubling every 7 months.**



METR Research

Why Language Models Hallucinate

Adam Tauman Kalai* OpenAI
Ofir Nachum OpenAI
Santosh S. Vempala† Georgia Tech
Edwin Zhang OpenAI

September 4, 2025

Abstract

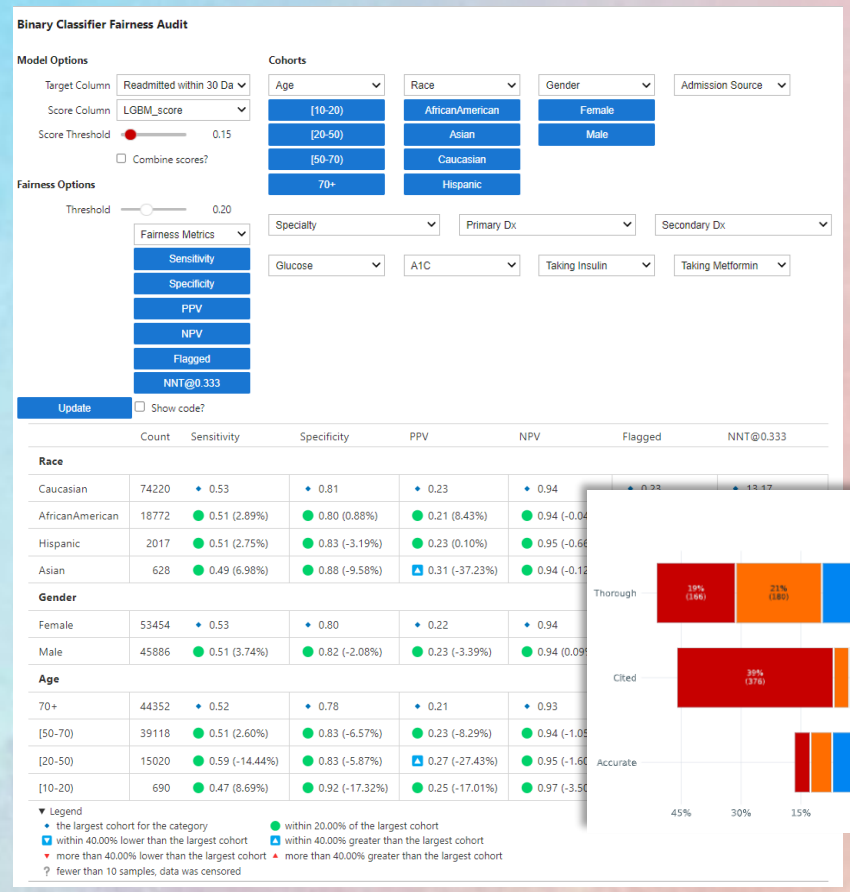
Like students facing hard exam questions, large language models sometimes guess when uncertain, producing plausible yet incorrect statements instead of admitting uncertainty. Such "hallucinations" persist even in state-of-the-art systems and undermine trust. We argue that language models hallucinate because the training and evaluation procedures reward guessing over acknowledging uncertainty, and we analyze the statistical causes of hallucinations in the modern training pipeline. Hallucinations need not be mysterious—they originate simply as errors in binary classification. If incorrect statements cannot be distinguished from facts, then hallucinations in pretrained language models will arise through natural statistical pressures. We then argue that hallucinations persist due to the way most evaluations are graded—language models are optimized to be good test-takers, and guessing when uncertain improves test performance. This "epidemic" of penalizing uncertain responses can only be addressed through a socio-technical mitigation: modifying the scoring of existing benchmarks that are misaligned but dominate leaderboards, rather than introducing additional hallucination evaluations. This change may steer the field toward more trustworthy AI systems.

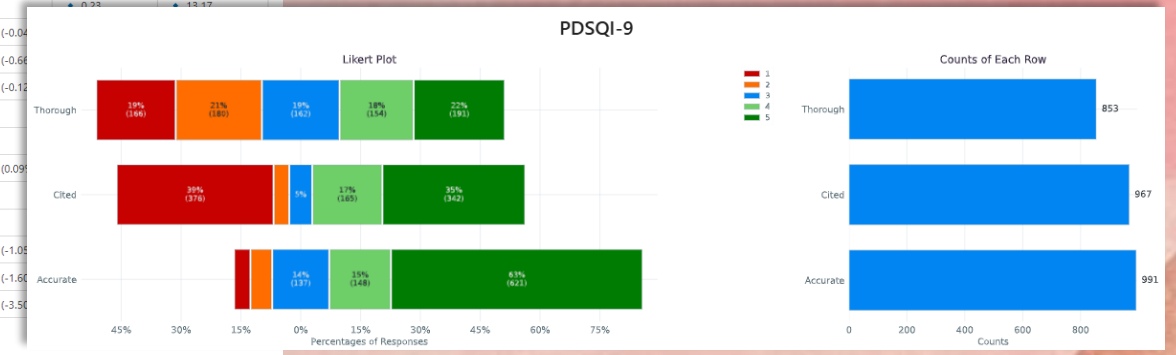
Epic AI Trust and Assurance Suite

Open-source template and schema

Performance on **local patient mix**

Real-time, **ongoing monitoring**





Check it out

Thank you to the following customers for contributing!

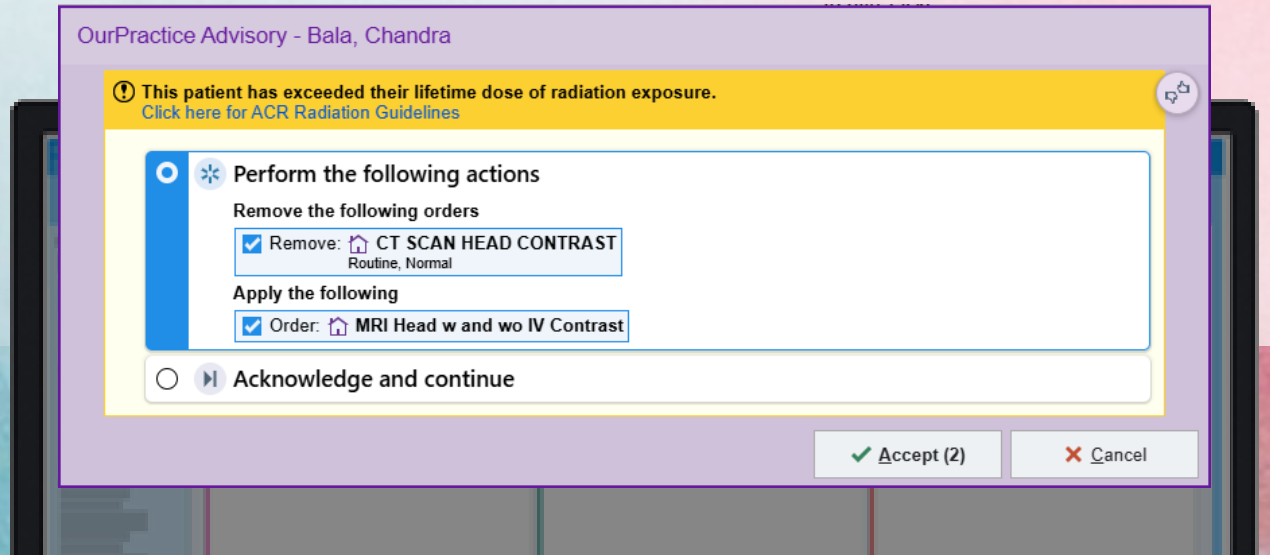
DukeHealth · Michigan Medicine University of Michigan · UCSF · NYU Langone Health · UW Health · Kaiser Permanente · uchealth · Saint Luke's · Stanford Medicine Health Care · UC San Diego Health

CDS HOOKS™

AVAILABLE NOW

Epic

Clinical Decision Support (CDS) Service



Generalize *to* Benefit More *with* Industry Standards

CDS Hooks

https://cds-hooks.hl7.org/

HL7 International

CDS Hooks
2.0.1 - STU 2 Release 2

HL7 FHIR

CDS Hooks | Hook Library | Change Log | Downloads

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This page is part of the CDS Hooks Specification (v2.0.1: STU2) based on FHIR (HL7® FHIR® Standard) R4. This is the current published version. For a full list of available versions, see the Directory of published versions

1 Home

Official URL: `http://cds-hooks.hl7.org/ImplementationGuide/hl7.fhir.uv.cds-hooks`	*Version*: `2.0.1`
IG Standards status: Trial-use	*Computable Name*: `CDSHooks`

1.1 Intellectual Property Statements

The HL7 CDS Hooks Implementation Guide is the copyright of HL7 International and Boston Children's Hospital. The specification is licensed under a Creative Commons Attribution 4.0 International License.

1.2 Overview

This HL7 CDS Hooks Implementation Guide is published at the level of Standard for Trial Use. It describes a "hook"-based pattern for invoking decision support from within a clinician's workflow. The API supports:

- Synchronous, workflow-triggered CDS calls returning information and suggestions
- Launching a user-facing SMART app when CDS requires additional interaction

The companion HL7 CDS Hooks Library contains specifications of industry standardized clinical workflow steps used by systems conforming to this guide. While changes to this guide become infrequent and tightly constrained, new hooks will continue to be specified and matured in the Library.

See https://cds-hooks.org/ for additional information, resources and ways to get involved.

1.3 Conformance Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this specification are to be interpreted as described in RFC2119. Further, the key word "CONDITIONAL" indicates that a particular item is either REQUIRED or

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  - Response
  - HTTP Status Codes
  - Discovery Example
- Calling a CDS Service
  - HTTP Request
    - hookInstance
  - Example
- Providing FHIR Resources to a CDS Service
  - Prefetch Template
    - Prefetch tokens

cogito ergo sum Clarity

Kit

Run analytics and extracts on Caboodle

Wrap Up

- Understand the full user-story and have a plan for all stages of the lifecycle (dev, test, release, post-live, …)
- Start small, build out. Don’t boil the ocean.
- Build, measure, iterate. Create tight develop-test loops with clear success criteria.

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