

# HL7 CDS Hooks: Overview and Potential Application for Prior Auth, Price Transparency, and Disease Management

Kensaku Kawamoto, MD, PhD, MHS  
Associate CMIO, University of Utah Health  
Board Member, HL7

HITAC Meeting, Washington, DC, March 20, 2019

Core CDS Hooks content from Kevin Shekleton, CDS Hooks Project Lead,  
available at <https://github.com/kpshek/cds-hooks-presentation>



# CDS Hooks

*A vendor agnostic remote decision support specification*



Originated from the  
team behind SMART



Open source via the  
Creative Commons  
Attribution 4.0 license

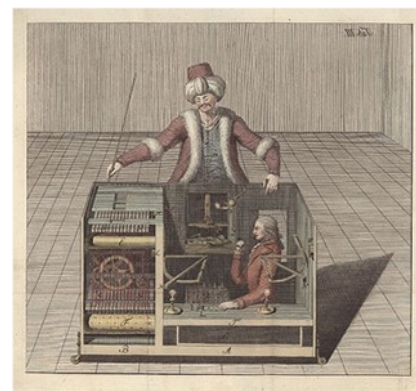
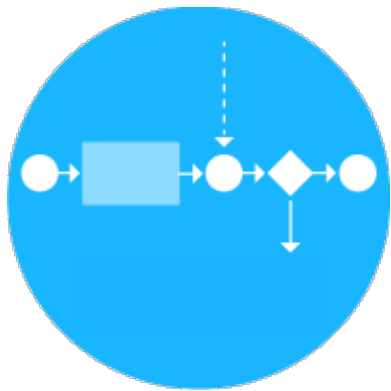


Emerging HL7 standard

# CDS Service

A service that is:

invoked by the EHR via a **hook**,  
evaluates **its own logic** using FHIR data,  
returns decision support via **cards**



# Example Hooks

## patient-view

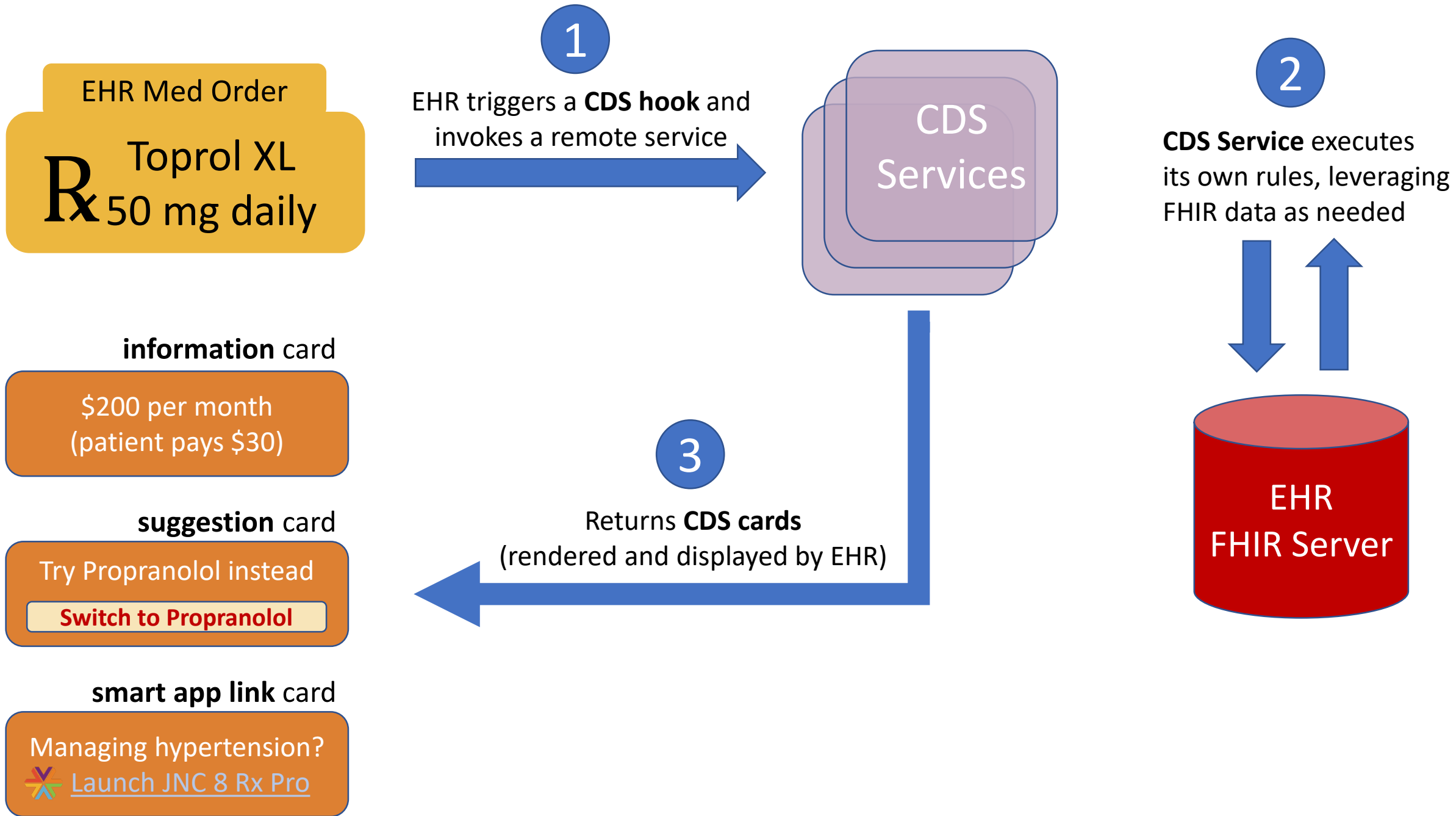
When a patient's chart is opened

## order-select

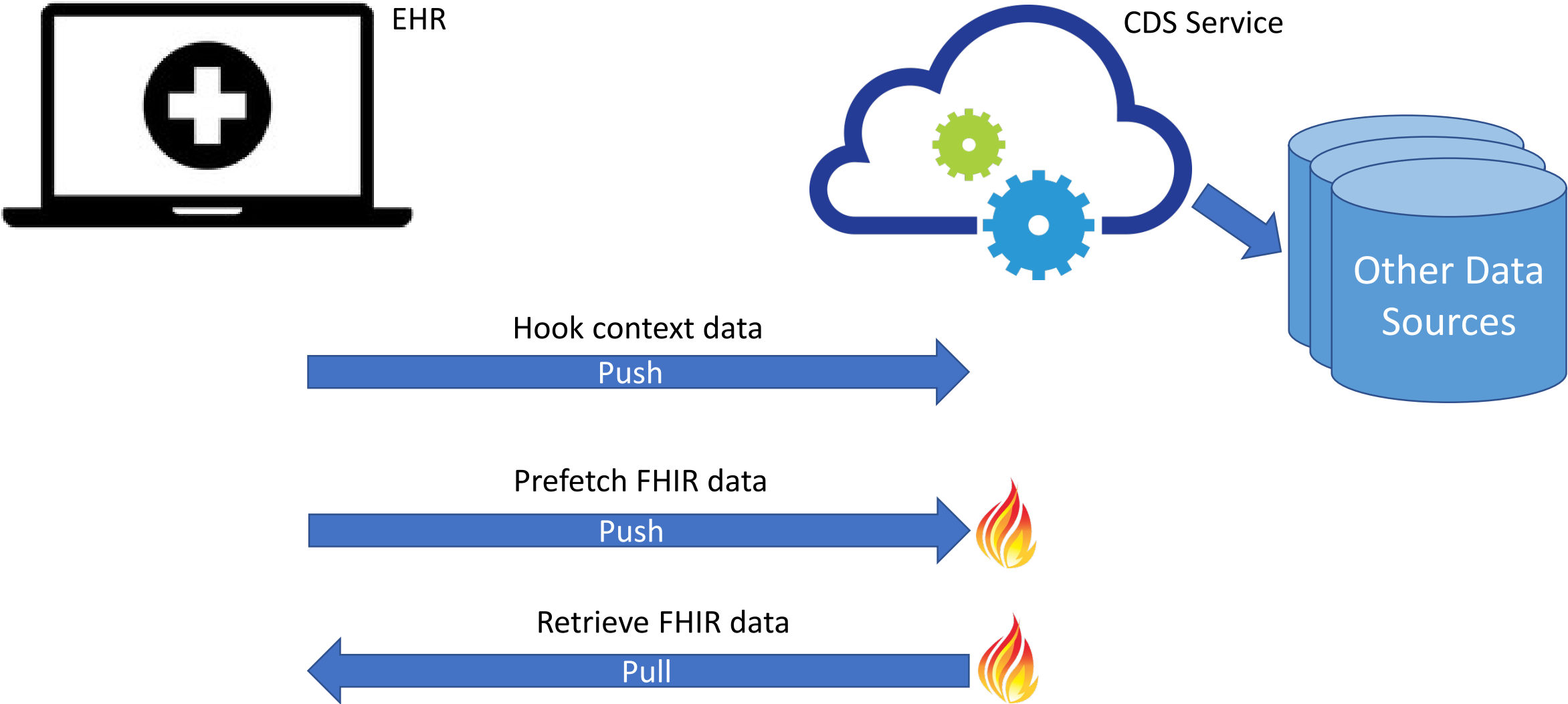
When a clinician selects one or more orders to place for a patient

## order-sign

When a clinician is ready to sign one or more orders for a patient



# Data Available to a CDS Service





covermymeds



NORTHROP GRUMMAN



McKESSON

ELSEVIER



HSPC the healthcare services platform consortium™

QVΣRA



ONN

ORION HEALTH



elimu informatics



zynxhealth

PREMIER

surescripts

visualDx.

HARMONIQ

PIONETECHS

EBSCO Health

OSEHRA arpage

Intermountain Healthcare

Cerner™

Oridashi

Epic

healthwise® for every health decision®

global strategies



Allscripts™

athenahealth

eClinicalWorks

THE SYSTEM



Lantana CONSULTING GROUP



mCG

RxREVU

Wolters Kluwer Health

perspecta

ENVISION TECHNOLOGY PARTNERS

HEALTH SAMURAI

HEALTH UNIVERSITY OF UTAH

Lush Group Inc.

firely

stanson health

PHILIPS Healthcare

MedImpact

MITRE

syapse

Cigna

accenture

mModal

Clinical Cloud Solutions

TABULARASA HEALTHCARE®

medical-objects CLINICAL APPLICATIONS, MESSAGING AND INTEGRATION

MERCK MANUALS

# 2019 Roadmap



Release a 1.0 specification with patient-view hook (now)



Launch production pilots



Wait, doesn't FHIR already define an approach for CDS?

**Level 5** Providing the ability to reason about the healthcare process

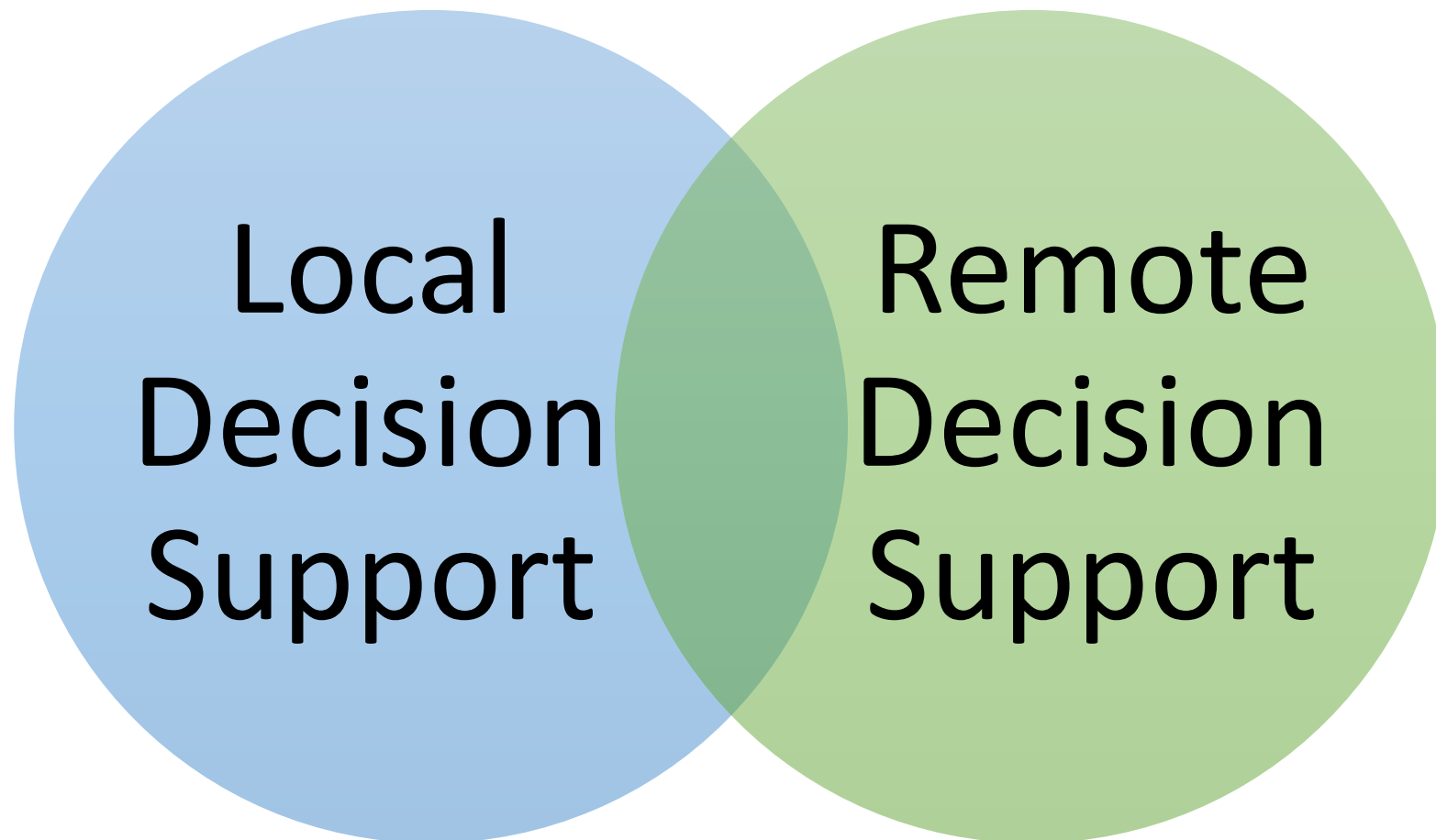


**Clinical Reasoning**

Library, ServiceDefinition & GuidanceResponse, Measure/MeasureReport, etc

 Clinical Reasoning

CDS HOOKS



# References



Specification & documentation

<http://cds-hooks.org>



Sandbox

<http://sandbox.cds-hooks.org>



Source code

<https://github.com/cds-hooks>

# Potential Prior Authorization Example

1

EHR Med Order

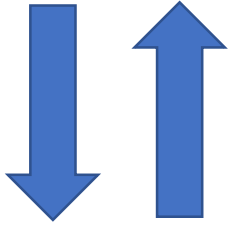
**Rx** Humira

EHR triggers **order-select hook** and invokes the remote service for the patient's insurance

Insurer  
CDS  
Service

2

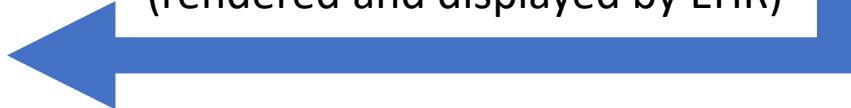
**CDS Service** executes its own rules, leveraging FHIR data as needed



EHR  
FHIR Server

3

Returns **CDS cards**  
(rendered and displayed by EHR)



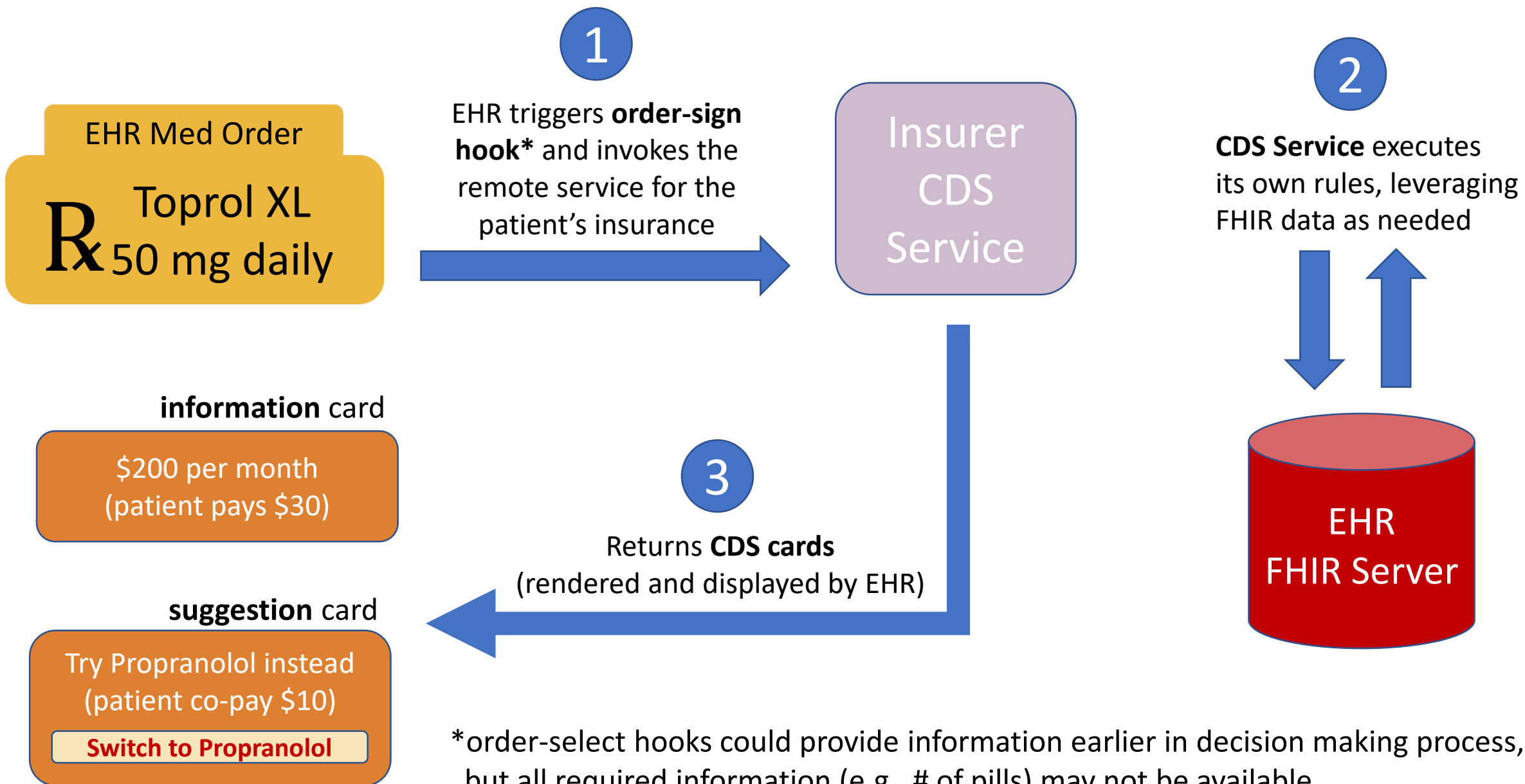
**information card**

Prior auth approved;  
Authorization #123.

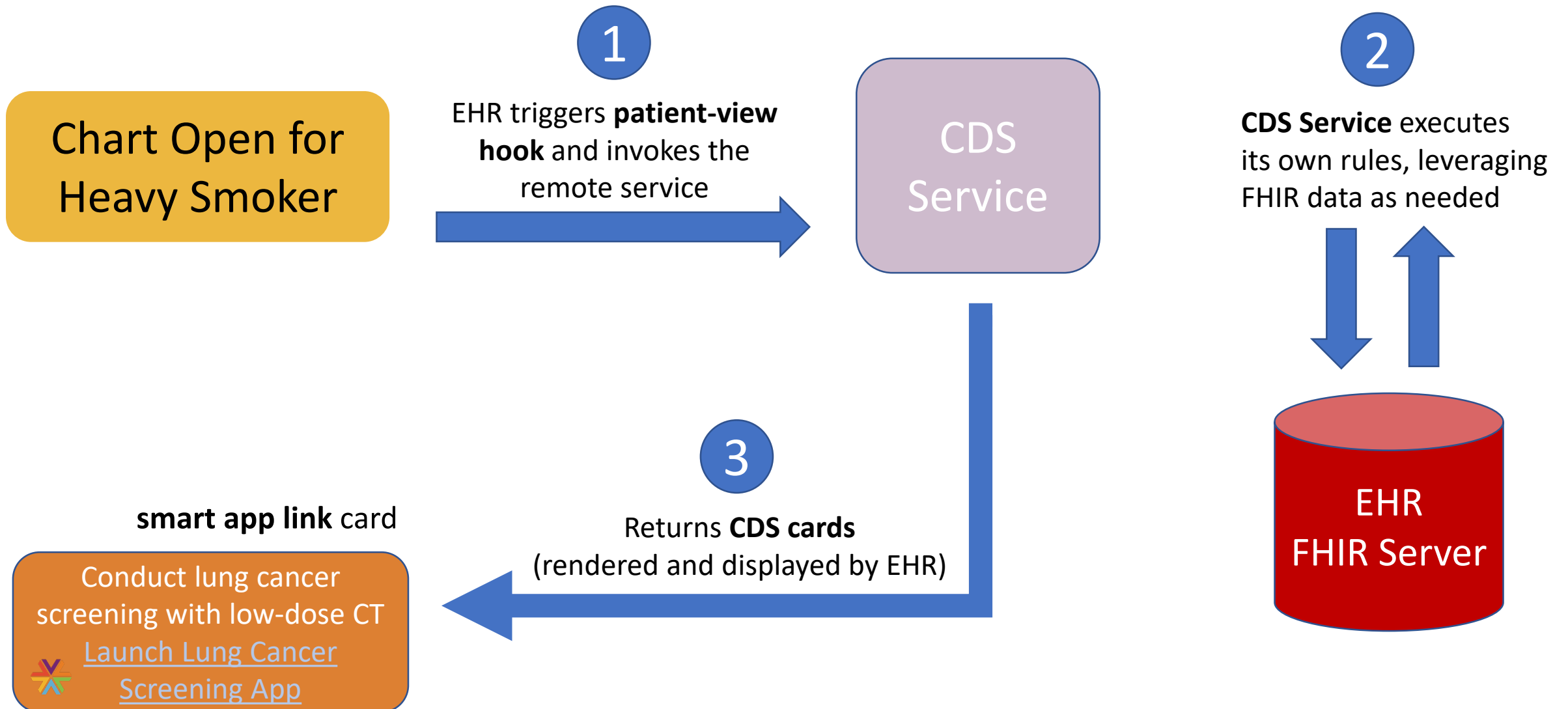
**smart app link card**

Request prior auth?  
[Launch Humira PA App](#)

# Potential Price Transparency Example



# Potential Disease Management/Prevention Example



# Key needs

Expansion of EHR FHIR support for needed data (e.g., detailed smoking history)

Expansion of specified and supported hooks (esp. for ordering)

Regulatory guidance from HIPAA perspective (also needed for FHIR and SMART)

Standard EHR trigger guard specifications

Greater support for asking users questions and enabling order placement

Application to important use cases