Opportunities for Priority Action to Improve CDS Interoperability and Usability to Reduce Clinician Burden

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Washington Hilton
Washington, D.C.

Perspectives on Informatics
JAMIA

White Paper

A Roadmap for National Action on Clinical Decision Support

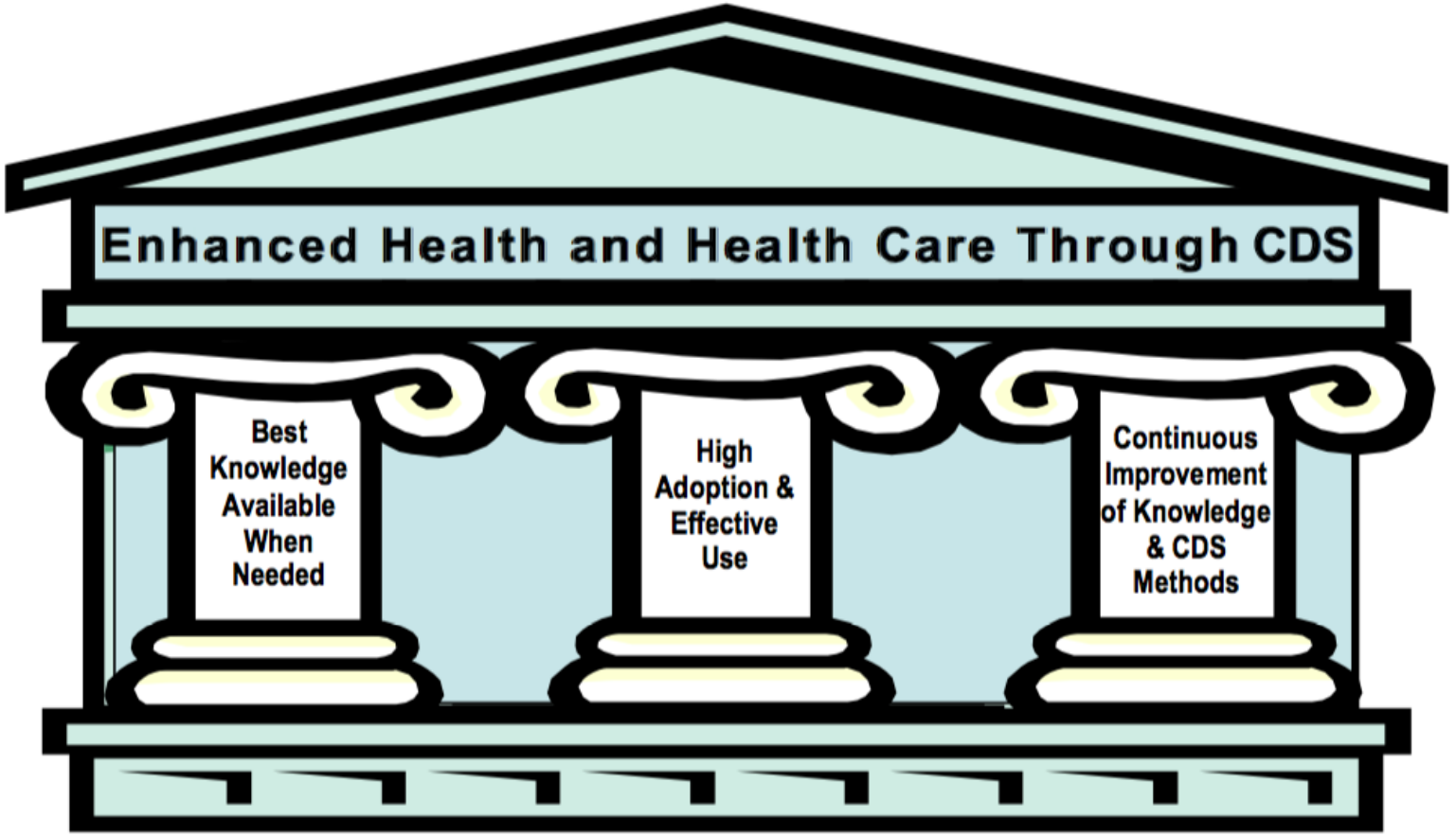


Figure 1. The three pillars for realizing the promise of CDS.

Available online at www.sciencedirect.com
ScienceDirect
Journal of Biomedical Informatics 41 (2008) 387–392
Journal of Biomedical Informatics
www.elsevier.com/locate/yjbin

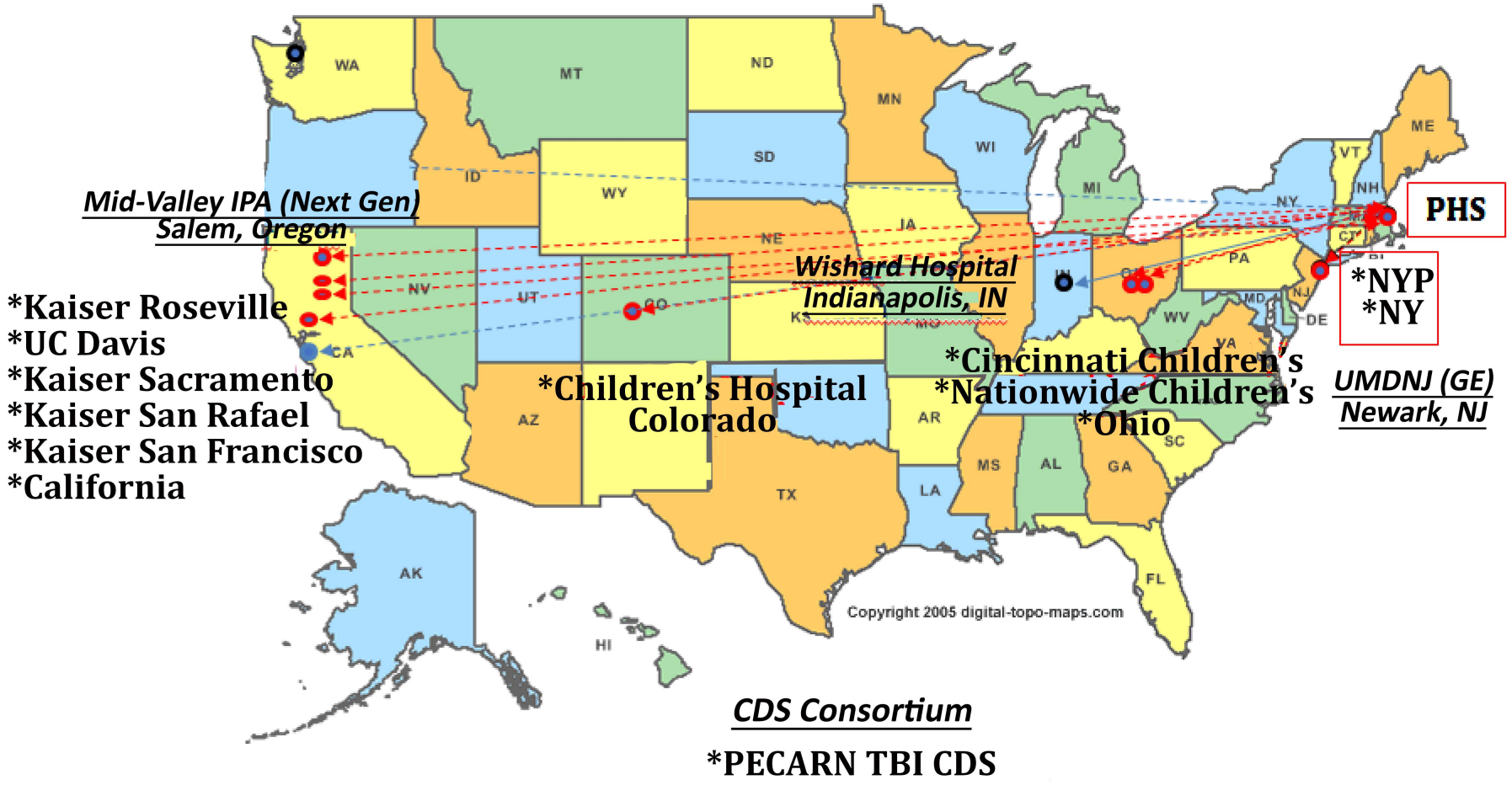
Grand challenges in clinical decision support

Table 1
Summary of the grand challenges of clinical decision support along with their mean rank and the standard deviation of that ranking ($n = 9$)

Grand challenge description	Mean ranking	Standard deviation
Improve the human–computer interface	2.89	2.71
Disseminate best practices in CDS design, development, and implementation	3.33	1.87
Summarize patient-level information	3.67	2.06
Prioritize and filter recommendations to the user	4.56	2.96
Create an architecture for sharing executable CDS modules and services	5.44	2.30
Combine recommendations for patients with co-morbidities	5.89	2.20
Prioritize CDS content development and implementation	6.00	2.96
Create internet-accessible clinical decision support repositories	6.89	1.69
Use freetext information to drive clinical decision support	7.89	1.27
Mine large clinical databases to create new CDS	8.44	3.00

CDS Consortium Demonstrations: 2008-13

Toward a National Knowledge Sharing Service



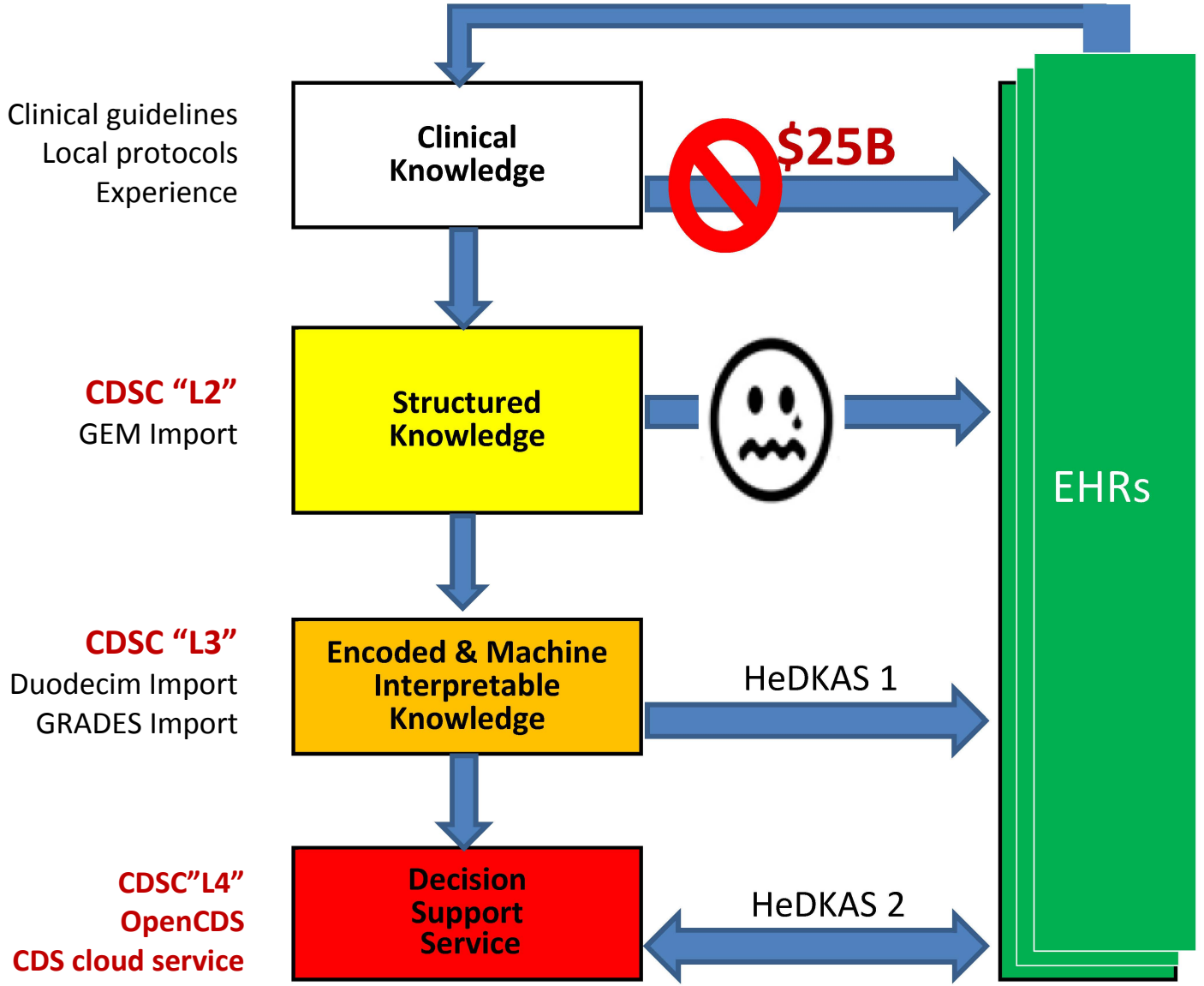
Clinical Decision Support Consortium

Middleton B, PI: 2008-13, AHRQ –funded: HHSA290200810010

Major accomplishments:

- Knowledge artifacts published: 11 clinical rules, 50+ classification rules and 375 immunization schedule rules
- 8 clinical sites implemented using 5 different EHRs
- More than 240 users utilize CDS services
- Established legal framework for collaboration
- Since 2010 more than 1.7M CCD transactions were processed
- 31 entities (companies and academics) in a pre-competitive environment
- Contributed to ONC-sponsored Health-e-Decisions efforts: KAS 1 and KAS 2

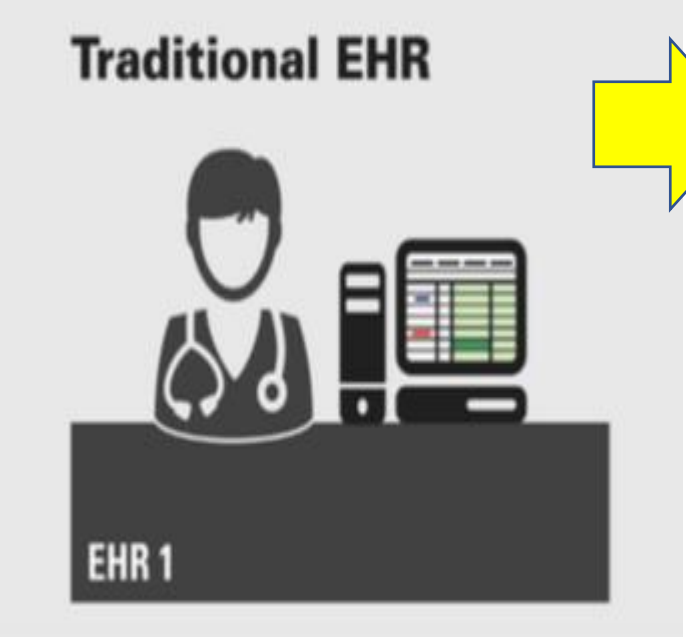
CDS
“Unified Approach”

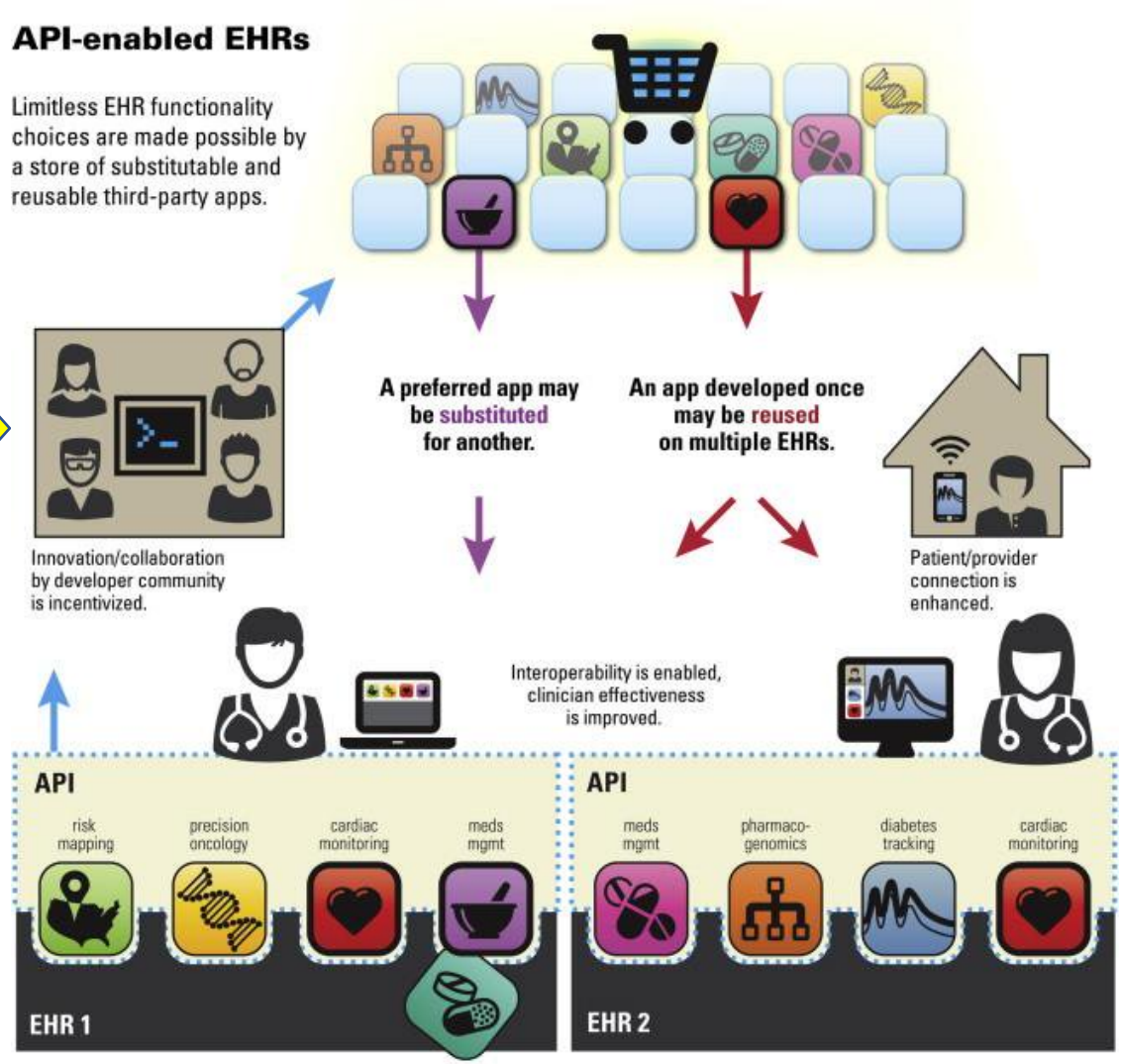


*Kawamoto K, Middleton B, Reider J, Rosendale D, Schiffman R. From **Guidelines to Clinical Decision Support: a Unified Approach to Translating and Implementing Knowledge** AMIA Panel Presentation, Chicago, IL 2012*

“CDSC” = CDS Consortium

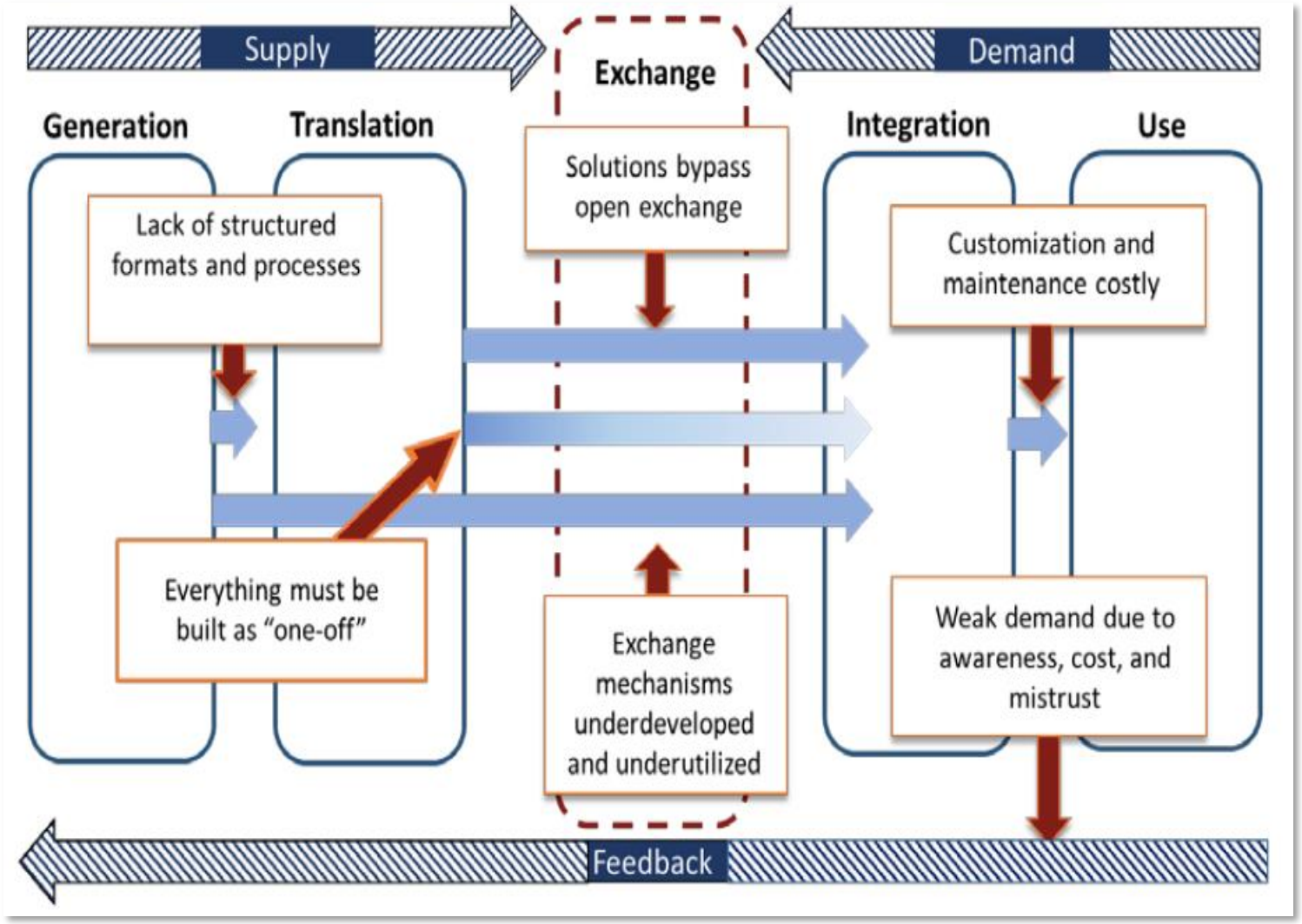
EHR - API Ecosystem





K.D. Mandl, J.C. Mandel, I.S. Kohane, Driving Innovation in Health Systems through an Apps-Based Information Economy, Cell Syst. 1 (2015) 8–13.

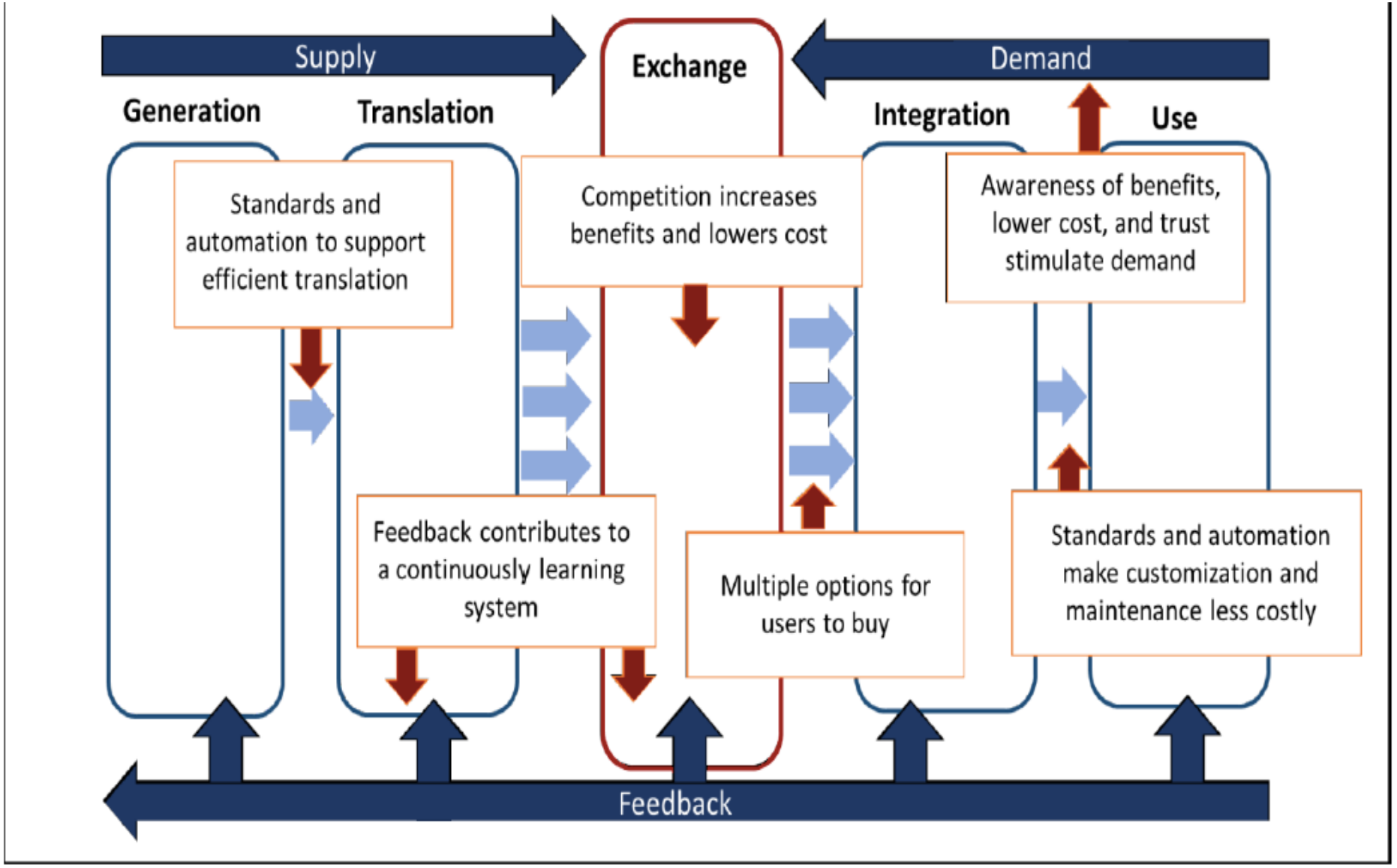
CDS Marketplace Current State



CDS Resource Sharing and Use

Discern Health
Recommendations to Office Clinical Quality and Safety, ONC, 2015

CDS Market Preferred State

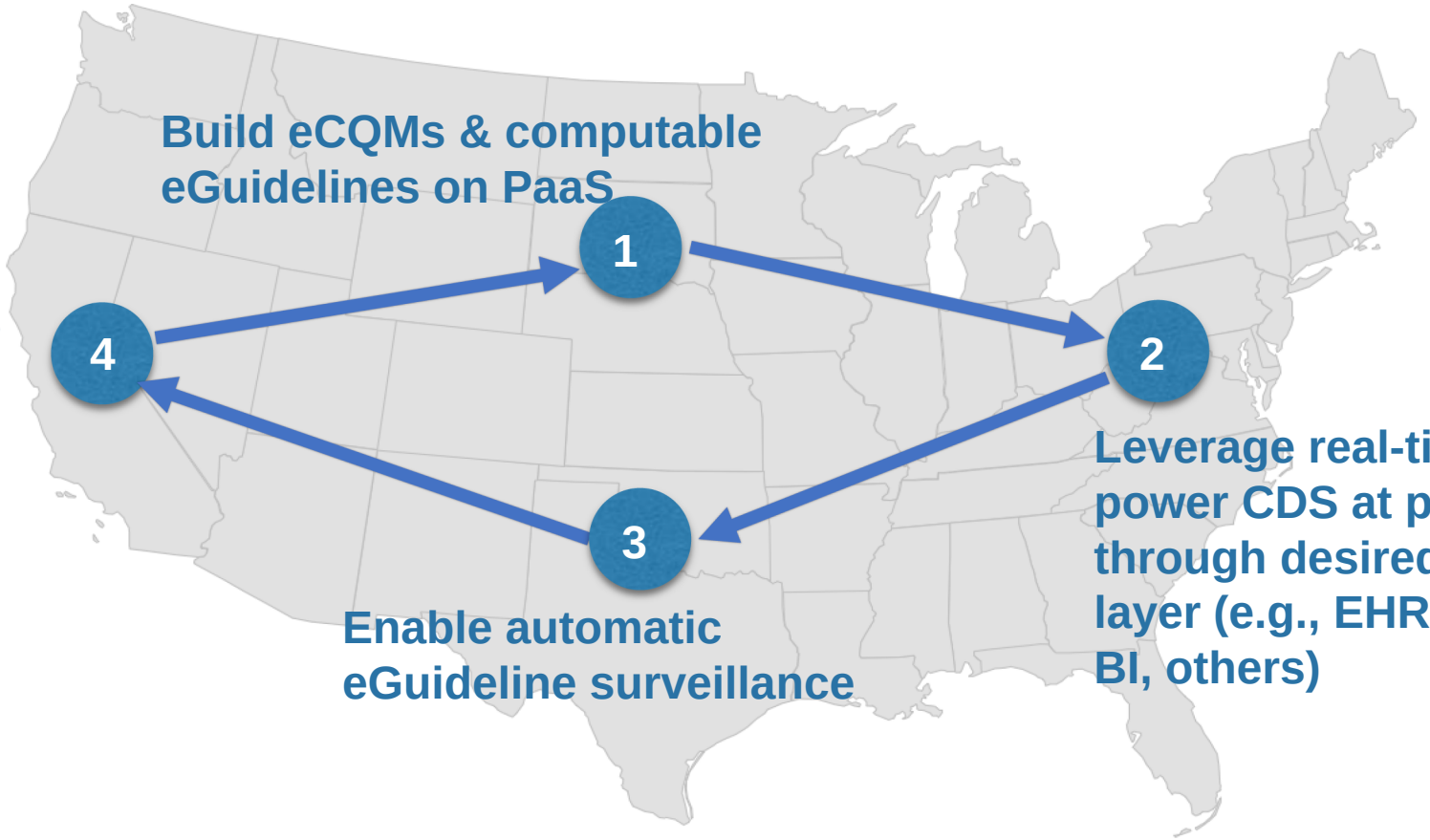


Clinical Decision Support Resource Sharing and Use: AN ASSESSMENT OF THE CURRENT STATE AND RECOMMENDATIONS TO OCQS FOR NEAR-TERM NEXT STEPS, 2015

DISCERN HEALTH

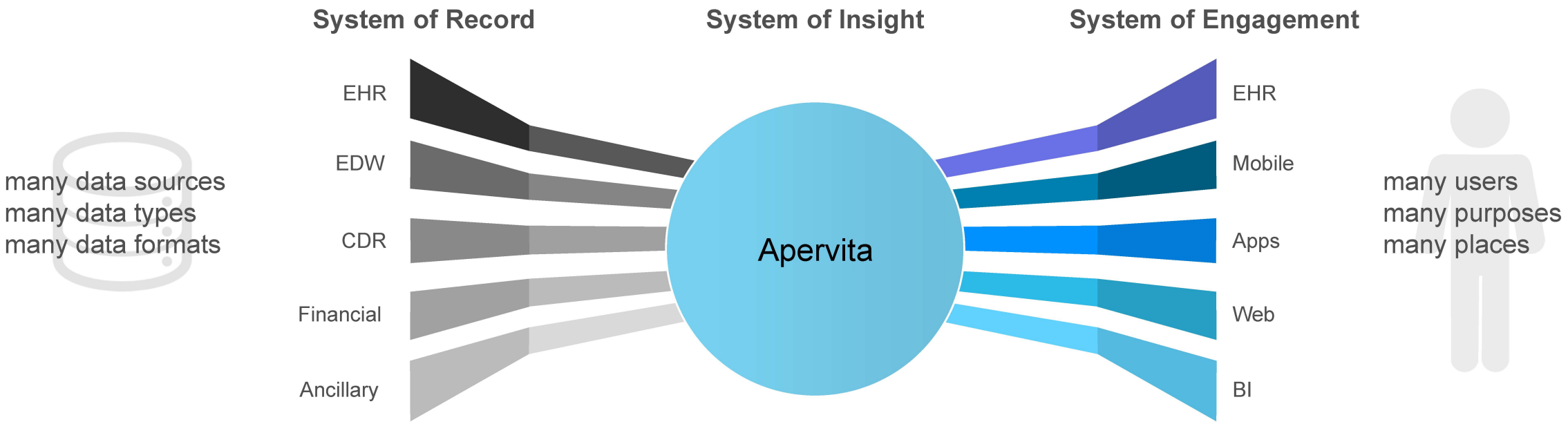
The Vision: CDS for ‘best care everywhere’

We need a a new approach and capabilities to distribute and operationalize computable clinical guidelines as CDS and monitor its effectiveness



A System of Insight

The platform to implement a next generation architecture



Apervita is positioned to support HCOs and business networks at scale: supporting and providing leadership in the vision, design, and deployment of advanced applications and analytics across the healthcare industry

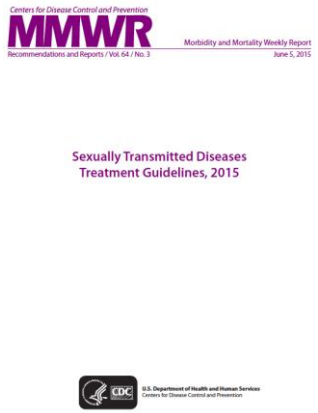
Methodology and Application Overview

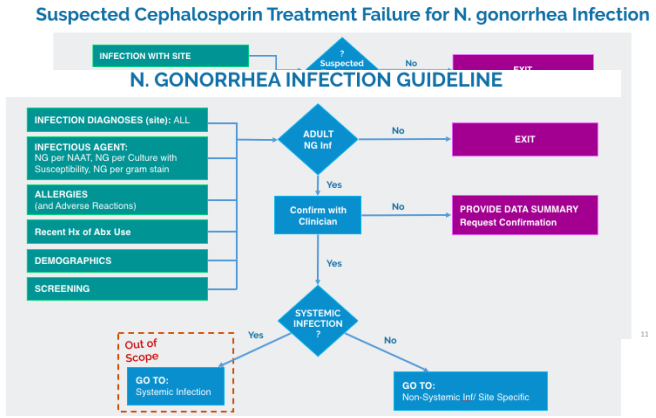
L1 Started with paper CDS STI Guideline

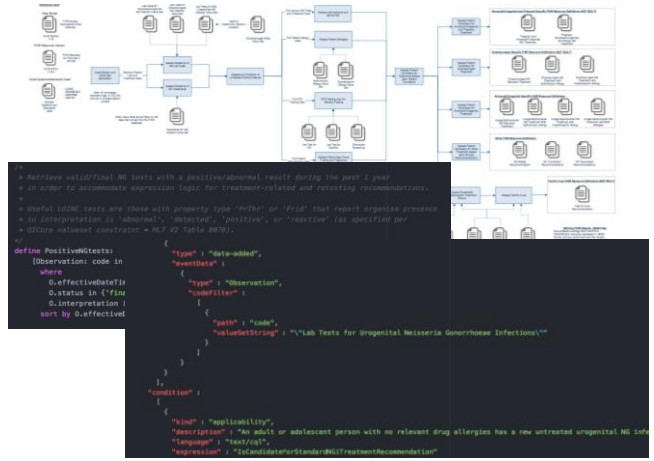
L2 Converted Guideline to a logic flow diagram

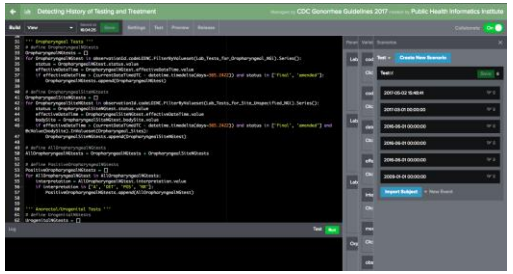
L3 Built standards-compliant CQL and FHIR Resources

L4 Implemented real-time CDS on Apervita









Boxwala AA, Rocha BH, Maviglia S, et al. A multi-layered framework for disseminating knowledge for computer-based decision support. Journal of the American Medical Informatics Association : JAMIA. 2011;18 Suppl 1:i132-i139.

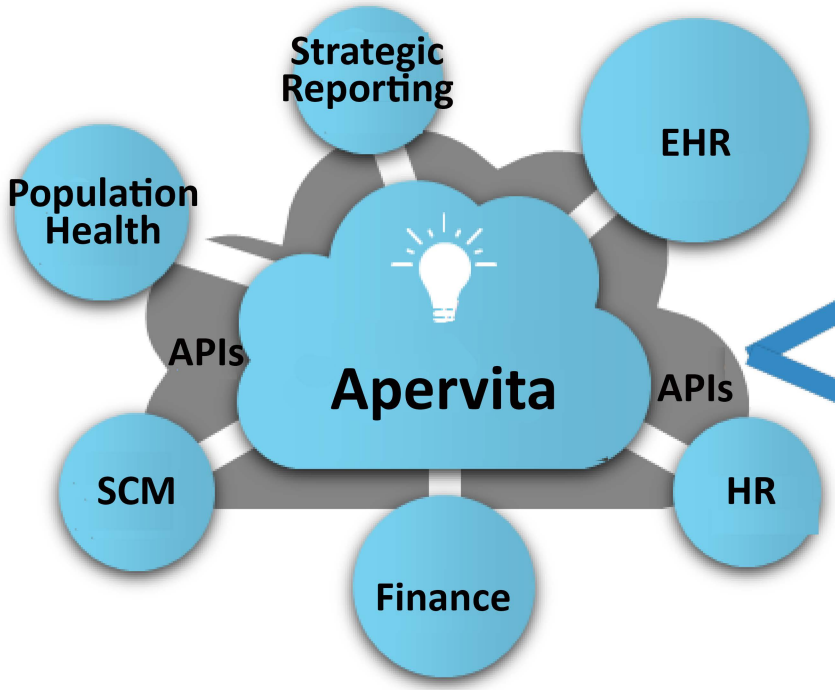
Implementation and Application Overview

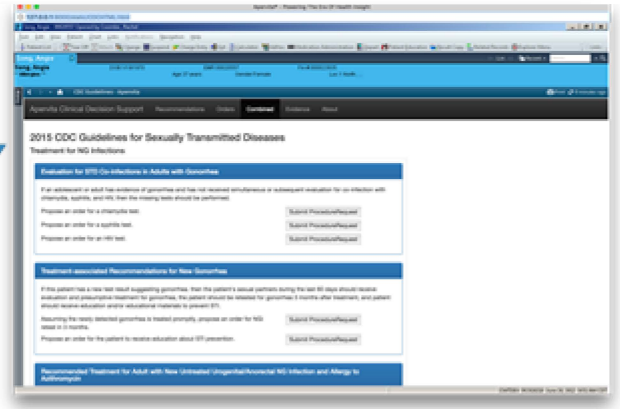
Analytics Engine

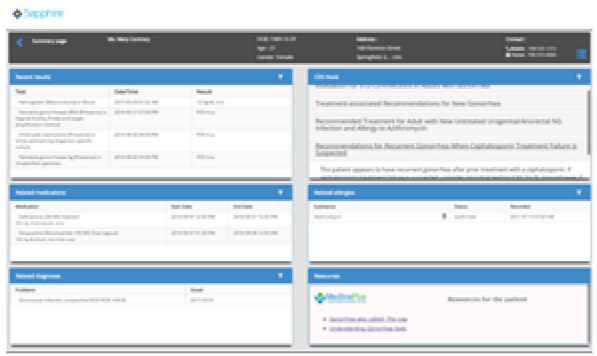
apervita

EHRs

SMART on FHIR Apps

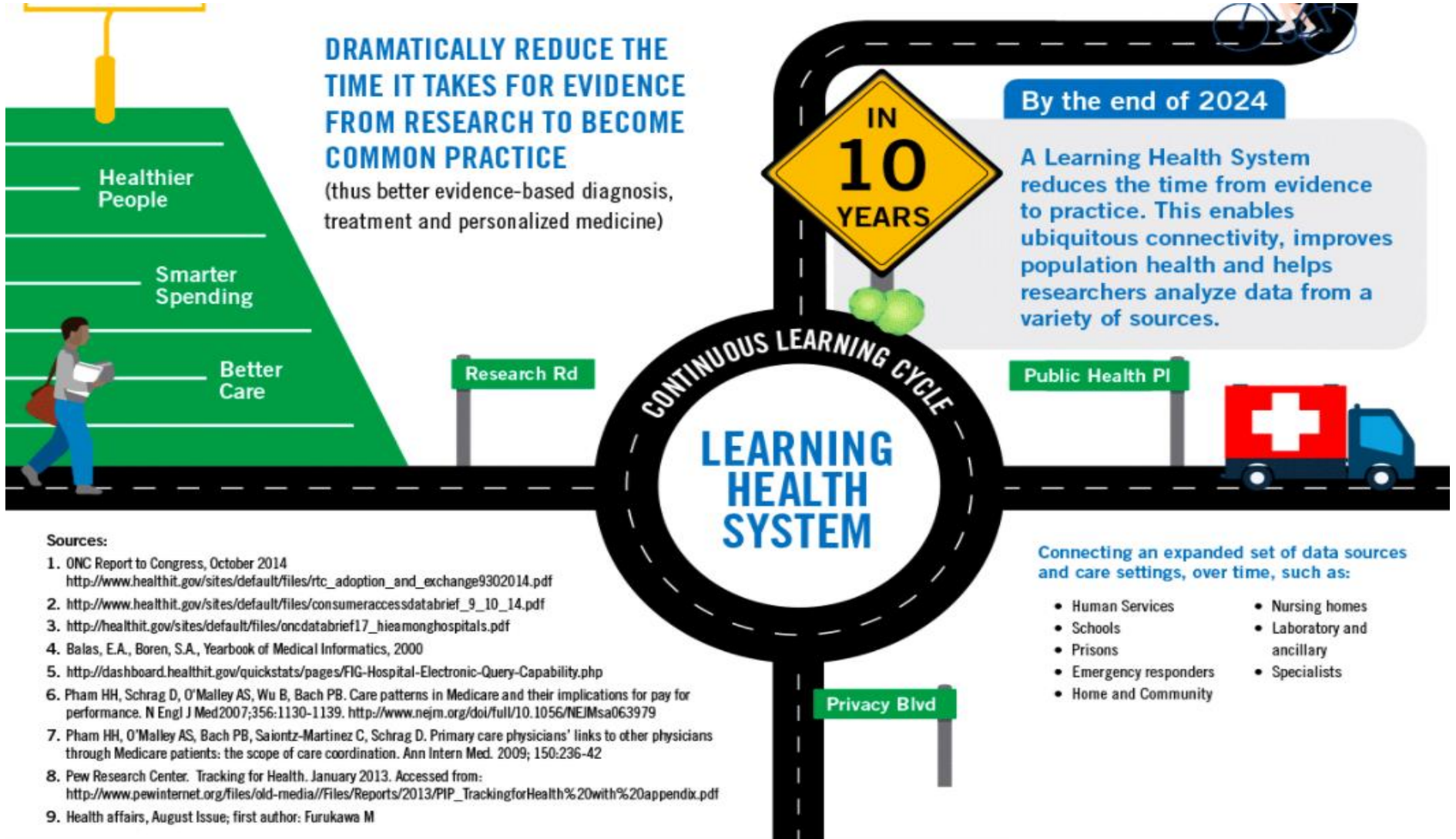






SMART on FHIR
Elimu Sapphire

Shared Nationwide Interoperability Roadmap: The Journey to Better Health and Care



http://bit.ly/2hYDJSJ

Thank You!

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