



HIMSS¹⁹ CHAMPIONS OF HEALTH UNITE

Global Conference & Exhibition
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State of the Healthcare API Economy

An Innovation Forum Session

Session 217, February 14, 2019

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Santosh Mohan, Member, HIMSS Innovation Committee

Grahame Grieve, FHIR Product Director, HL7 International

Today's Speakers



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 HL7 International

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 Member
 HIMSS Innovation Committee

Twitter: @santoshSmohan

Conflict of Interest

Grahame Grieve

Has no real or apparent conflicts of interest to report.

Rasu B. Shrestha, MD, MBA

Has no real or apparent conflicts of interest to report.

Santosh Mohan, MMCI, CPHIMS, FHIMSS

Has no real or apparent conflicts of interest to report.



Learning Objectives

- Discuss the value of open APIs and networks and review the opportunities and challenges represented by them
- Explore need to build future API touch-points that can allow tighter workflow integration and a more open ecosystem of applications
- Identify sustainable approaches and examine a maturity model with essential, nice to have, and future need capabilities to nurture and scale API-led innovation
- Describe critical issues facing health innovation developers and identify ways to foster a thriving ecosystem of partners



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Cleveland, OH

Epic Systems

Verona, WI

Health Level Seven International

Ann Arbor, MI

Jefferson Health

Philadelphia, PA

Redox

Madison, WI

Rush University Medical Center

Chicago, IL

The Health Care Blog

San Rafael, CA

Matthew Holt

Founder & Publisher

Trinity Health

Livonia, MI

VCU Health

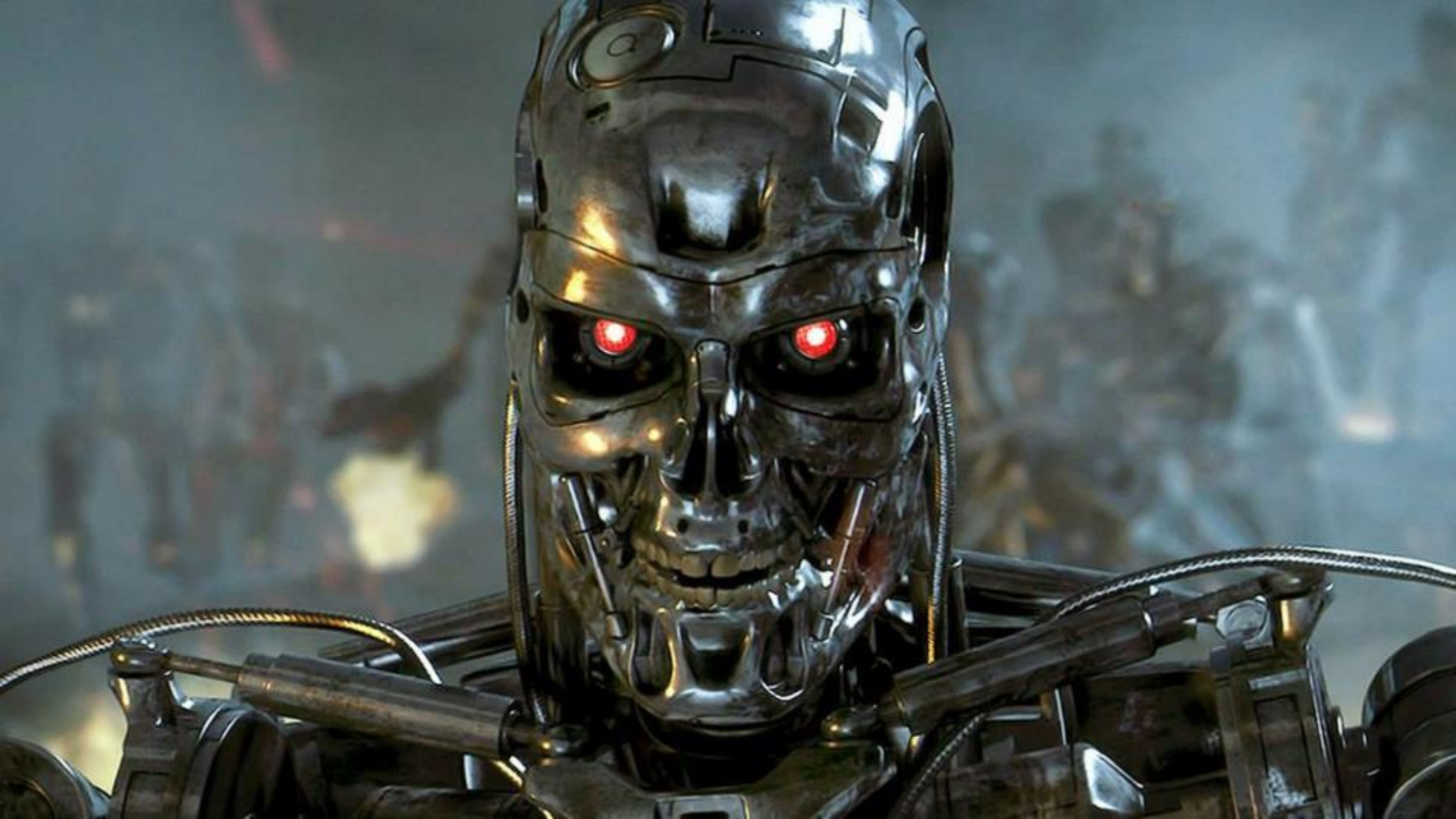
Richmond, VA

Xealth

Seattle, WA



**APIs are the future
of healthcare.**



Forbes

34,973 views | Jan 29, 2017, 09:37pm

2017 Is Quickly Becoming The Year Of The API Economy



Louis Columbus Contributor ⓘ



#HIMSS19

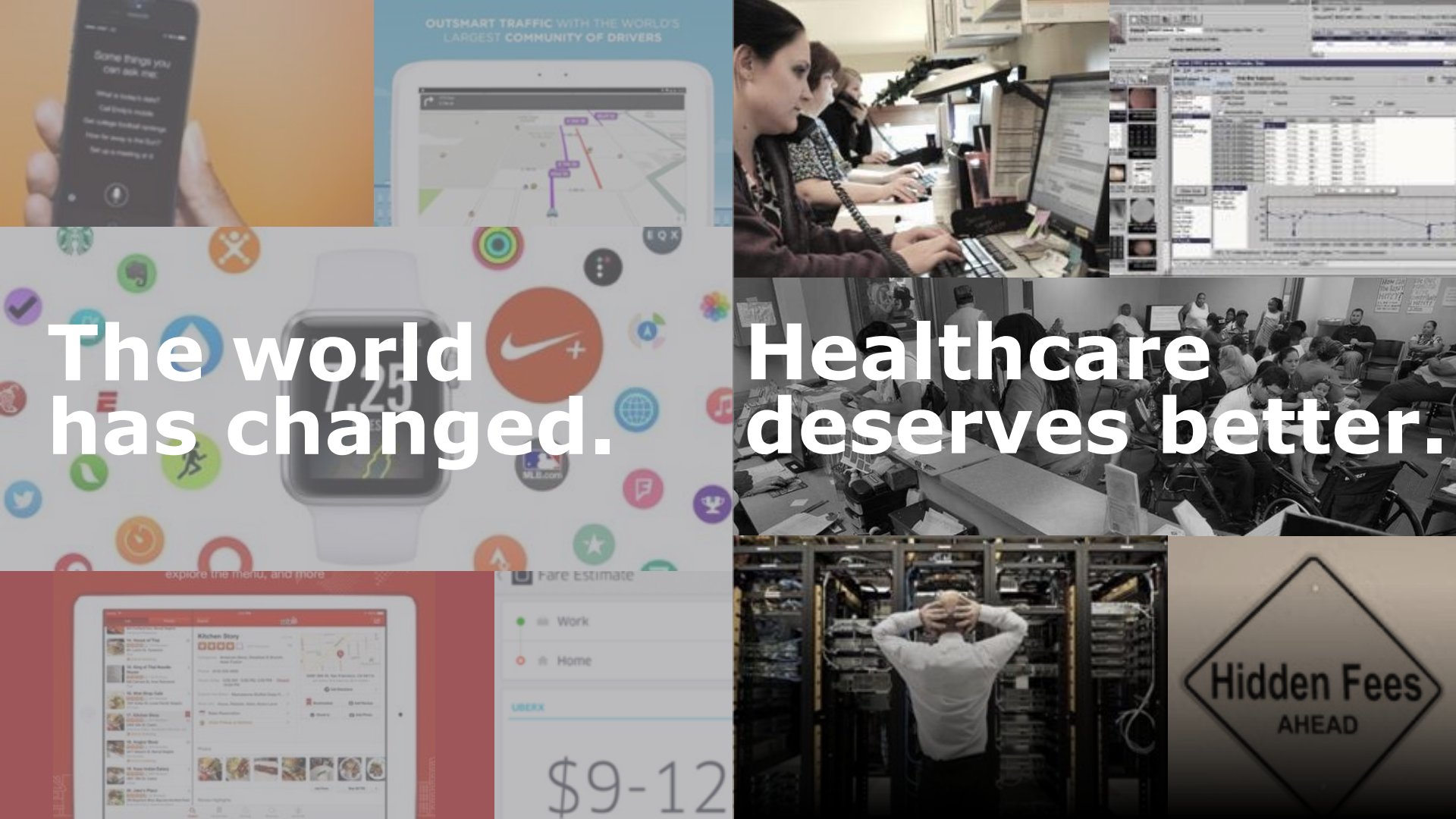
Application Programming Interface



business models
+
business channels
+
secure access
x
exchange of data
=
API Economy







The world
has changed.

Healthcare
deserves better.



WELCOME

APIs are the latest in a long road to healthcare interoperability

HL7 v1 (1987) and HL7 v2 (1988)

- Messaging formats containing patient information and designed for machine processing
- Flexible and varies by use case, e.g. SIU (scheduling), ADT (Admit/Discharge/Transfer)

Messaging: specific
interfaces for closed
functionality

HL7 CDA (2005)

- Document standard for HL7 v3 designed to output patient encounter data in a “user-readable” format (has both XML and HTML components)
- Flexibility spawned many sub standards (e.g. the C32 constraint for Meaningful Use Stage 1)

Documents: general
purpose format for
everything

HL7 FHIR (2011+)

- Defines “resources” (e.g. allergy info) and APIs to access them
- Resources can be bundled into documents/messages
- Logically compatible with HL7 v2 and C-CDAs
- Enables app integration using SMART on FHIR standard

API Standards: robust information
exchange for many purposes

Build on Web technology,
security, communities

1980

1990

2000

2010

2020

1987: First meeting of HL7

2004: Office of the National
Coordinator (ONC) created

2009: HITECH Act passed
2010: MU Stage 1

2012: MU Stage 2

2018: MU Stage 3
mandatory for all providers

APIs drive costs down



Stable / robust information handling techniques

Wide availability of developers, Libraries

Deep debugging / testing frameworks

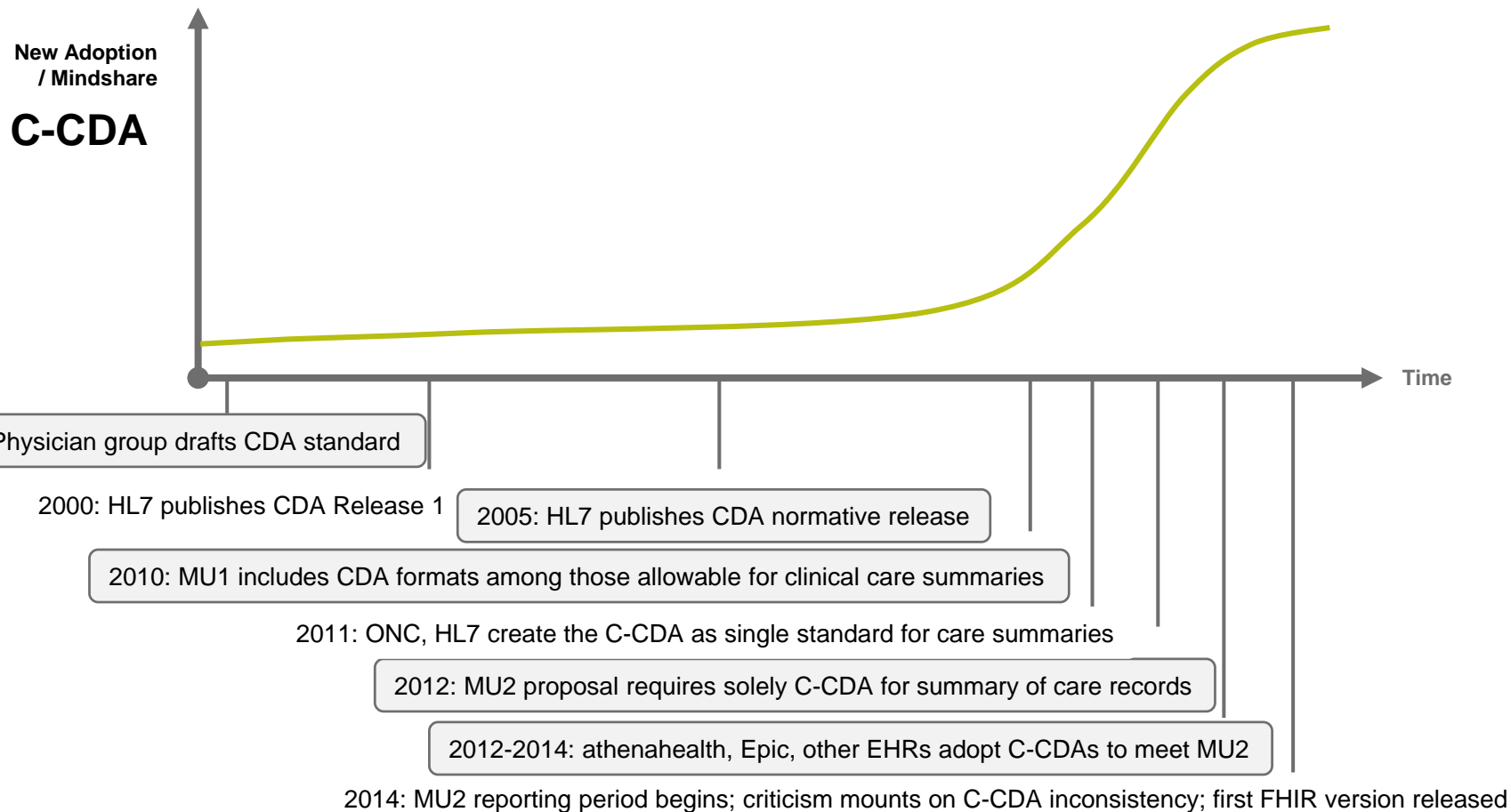
Re-use existing security approaches and arrangements

Proven solid methods of developing communities

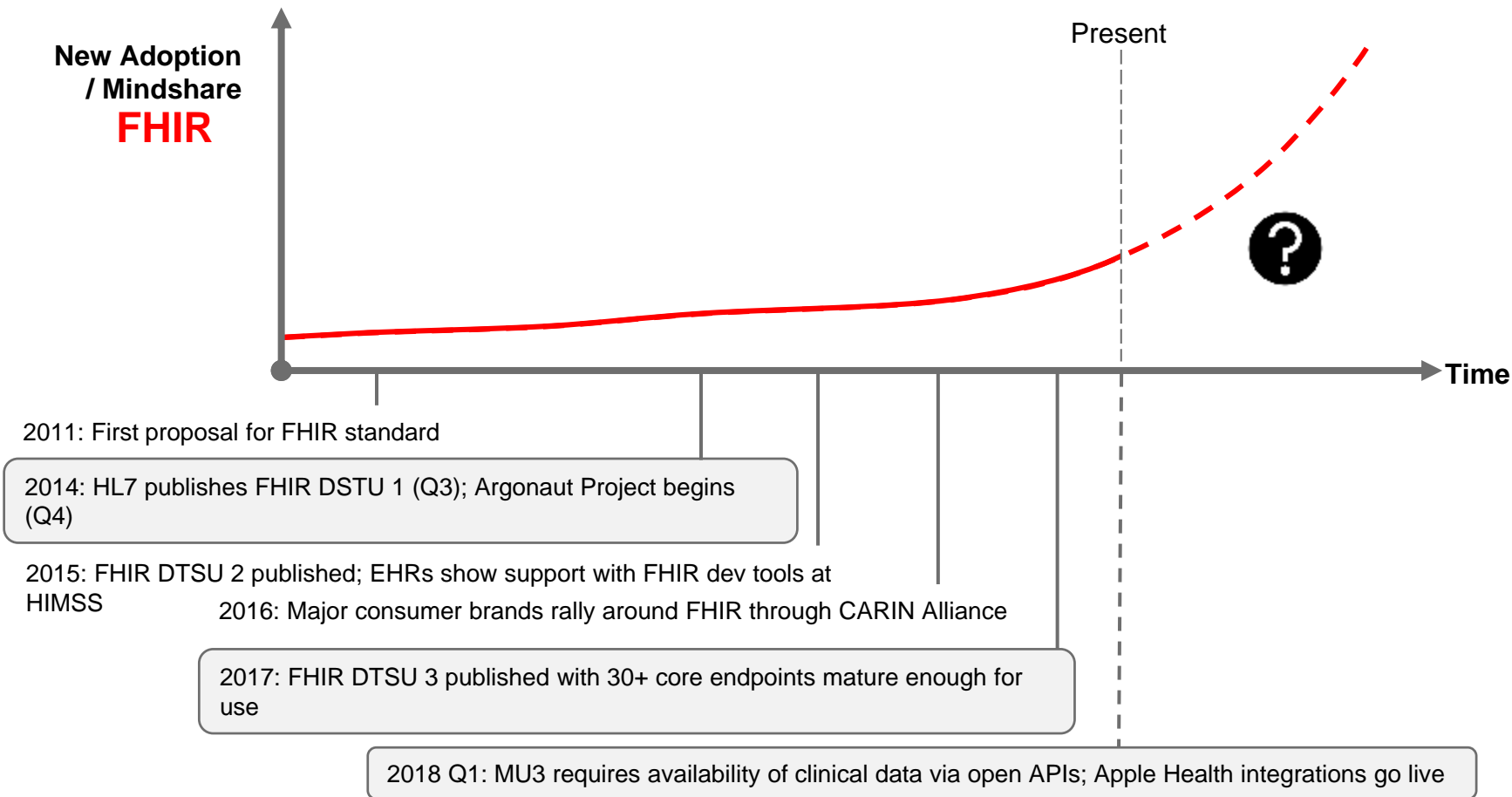
But... Health is still hard!



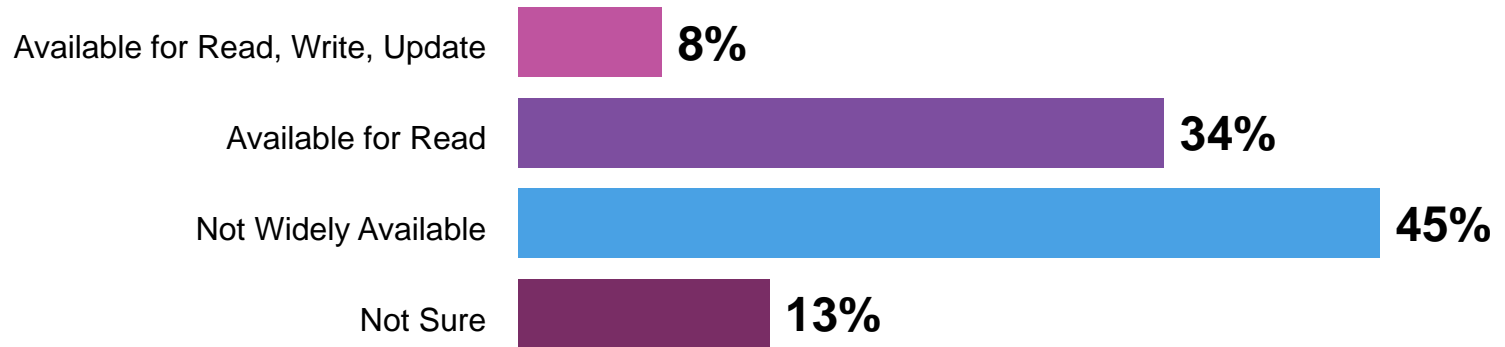
Entrenchment has historically required time, critical mass, and gov't involvement



Entrenchment has historically required time, critical mass, and gov't involvement



How available would you say the FHIR standard is these days?



Total Responses: 54



FHIR Goals were always economic

- Interoperability is about **economics** (cost shifting)
- Develop a general purpose healthcare API standard
- Use PHR as an exemplar for economic impact
 - TCO for Personal Health Repository: \$150k is not a sustainable cost
 - Develop PHR specification (Argonaut)
 - Goal: **90%** reduction in TCO - probably achieved



Applications of open APIs and FHIR



Personal Health Managers

- Apps that pull in clinical data from EHRs, health apps, and medical devices/wearables (e.g. Apple Health)



Application Extensibility

- Patient- or provider-facing apps that access clinical data to/from an EHRs & provide new services



Health Care Process Improvements

- Integration of new workflows between provider and payor
- Seamless transitions of care on an ongoing basis



Data Analytics & Reporting

- Granular access to clinical data across EHRs (e.g. for pop. health, payers)
- Easily building Clinical Data Repositories



FHIR Based Applications

- Build entire applications from scratch using FHIR as internal API

FHIR has all the characteristics of a next-generation standard

Positives

- Access to relevant, granular data vs. large, redundant flat files
- Mobile-friendly
- Standard access to data elements across EHRs
- Uses familiar web standards (XML, JSON, HTTP, SSL, OAuth 2.0)
- Internal standardization for multiple products/workflows
- Backwards compatible (e.g. FHIR resources can be compiled into C-CDAs)
- Open source libraries (e.g. HAPI-FHIR, SMART on FHIR)

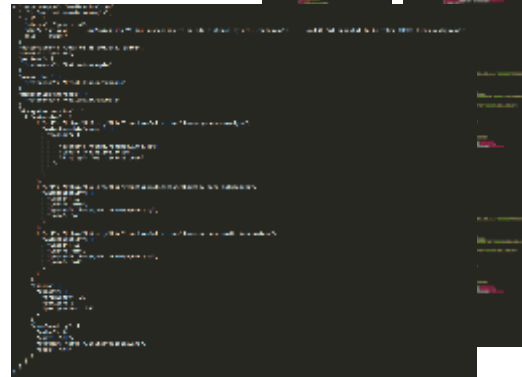
Negatives

- Standardization is not yet complete
- FHIR adoption still low and standard not fully mature

Sample C-CDA: Summary of Care
931 lines



**Sample FHIR Resource:
Medication Order**
63 lines



Limits of FHIR

- HL7 standardizes exchanges
 - ~1000 vendors understand how standards work
 - Highly configurable systems - limit what can be standardized
- The dream: fully standardized content
 - Requires consistent configuration, work practices
 - ~100,000k care providers, no(?) interest in standards

CDS Hooks aims to give external services a way to plug into the EHR

The screenshot displays the CDS Hooks Demo web application. The interface is divided into two main sections: a patient information and medication management area on the left, and a JSON representation of the medication order on the right.

Left Panel (Rx View):

- Patient:** Daniel X. Adams ID: 1288992
- Treating:** Osteoarthritis
- Medication:** Search for a drug...
- Take:** 1 pill by mouth daily
- Start date:** 2016-11-25
- End date:** 2016-12-25
- Status:** No cards

Right Panel (JSON Representation):

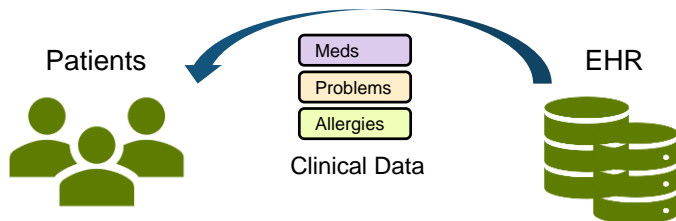
```
{
  "resourceType": "MedicationOrder",
  "dateWritten": "2016-11-25",
  "status": "draft",
  "patient": {
    "reference": "Patient/1288992"
  },
  "reasonCodeableConcept": {
    "coding": [
      {
        "system": "http://snomed.info/sct",
        "code": "396275006",
        "display": "Osteoarthritis"
      }
    ],
    "text": "Osteoarthritis"
  }
}
```

Footer: SMART Health IT — About CDS Hooks — Rx Demo source code

Consumer-driven exchange may expedite adoption of a shared standard

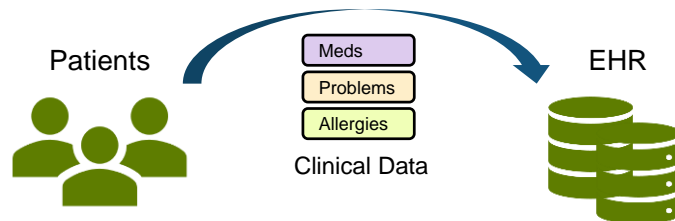
Consumer Access

Mobile health apps that send data to EHRs/clinical research, such as **Apple Health** and **Sync for Science**



- **Apple Health** uses FHIR to import clinical data from EHRs of select providers
- **iBlueButton** uses Direct on FHIR to access health data through government payers
- **WebMD Health Manager** (and related apps) access a patient's clinical data through an employer in C-CDA format

Consumer Initiated Exchange



Consumers also drive interoperability through:

- **Consumer-directed exchange** (CDEx) of clinical data between EHRs at a patient's request
- **Personal health records** (PHRs) like Apple Health, Microsoft HealthVault, and Google Fit aggregate data from fitness, diet, and disease management apps (and now vying for EHR data as well)

“We share the common quest to unlock the potential in healthcare data, to deliver better outcomes at lower costs. **Open standards, open specifications, and open source tools are essential to facilitate frictionless data exchange.** This requires a variety of technical strategies and ongoing collaboration for the industry to converge and **embrace emerging standards for healthcare data interoperability, such as HL7 FHIR and the Argonaut Project.**”



Large consumer brands are becoming a driving force behind FHIR

Brand	Initiatives
Apple	<ul style="list-style-type: none">· FHIR implementation in Apple Health as part of iOS 11.3· Member of Argonaut Project and CARIN Alliance
Google	<ul style="list-style-type: none">· Google Cloud for Healthcare includes Cloud Healthcare API for developers; supports FHIR· Provides API layers for health system data via Apigee; supports FHIR· Partnered with HL7 FHIR Foundation and member of CARIN Alliance
Microsoft	<ul style="list-style-type: none">· Published HL7 FHIR on Azure guide for implementation of FHIR-based servers· Ongoing project creating a FHIR library for Microsoft HealthVault mobile app
23andMe	<ul style="list-style-type: none">· Subject of proof of concept using FHIR for reading/writing genomics data to/from EHRs· Member of CARIN Alliance
Verizon	<ul style="list-style-type: none">· Member of CARIN Alliance advocating secure PHI transfer using FHIR and OAUTH 2.0
IBM	<ul style="list-style-type: none">· IBM Watson Platform for Health supports access and analysis of data via FHIR endpoints· Member of HL7 Partners in Interoperability & HL7 FHIR Applications Roundtable

So where are we now?

CMS EHR Incentive Program: Meaningful Use Stage 3 (MU3)

“Any application chosen by a patient would enable the patient to gain access to their individual health information provided that the application is configured to meet the technical specifications of the API.

Providers may not prohibit patients from using any application, including third-party applications, which meet the technical specifications of the API, including the security requirements of the API.”

– Center for Medicare & Medicaid Services, “Medicaid EHR Incentive Program Stage 3 - Patient Electronic Access to Health Information”

Note: For 2019 and beyond, “MU3 – Patient Electronic Access to Health Information” becomes “Promoting Interoperability Programs – Provider to Patient Exchange”

21st Century Cures Act: Trusted Exchange Framework (TEFCA)

- Proposes **nationwide HIE** to be managed by a single Recognized Coordinating Entity (RCE)
 - Participation is voluntary
 - RCE to be chosen via competitive bidding, must have history of “multi-stakeholder collaborations and implementing governing principles”
 - **RCE will add provisions and technical requirements** (with ONC approval) to cover unaddressed policies
- TEFCA requires qualified entities (i.e. EHRs) to:
 - ...use a **MPI, record locator, and query** service
 - ...be participant neutral (not withhold data)
 - ...meet standard core data classes
- Recommends use of ISA standards: C-CDA, HL7 v2 messaging, FHIR
- **Data Blocking** – New rules Proposed this week!

Medical Record

Your Personal

Name

Date of birth

Day

Month

Year

01

January

2018

Gender

Male

Nationality

Unit No.

Street No.

Street

Town/City/Suburb

State

Post Code

Country

DEPLOYMENT

1 Communicate purpose, vision and values to employees

☐ Yes

☐ No

2 Communicate purpose, vision and values to customers, supplier/partners and other external parties

☐ Yes

☐ No

Seeing the EHR as a platform.

Leading EHRs have all enabled some API integration (including FHIR)...



Allscripts®

- 15+ FHIR resources (DTSU2); proprietary APIs for other use cases
 - App integrations available through Allscripts Developer Program, including SMART on FHIR
 - API docs and sandbox publicly available through Allscripts Developer Program: developer.allscripts.com
-



athenahealth

- 20+ FHIR resources (DTSU2); proprietary APIs for other use cases including pop. health
 - App integrations available through MDP, including SMART on FHIR
 - Member of the HL7 Argonaut Project; FHIR integration with Apple Health
 - API docs and sandbox publicly available on athenahealth Developer Portal: developer.athenahealth.com
-



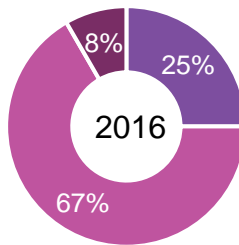
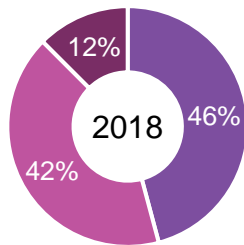
Cerner™

- 25+ FHIR resources; proprietary APIs for other use cases including pop. health
 - All new app integrations through SMART on FHIR (legacy apps may still use proprietary APIs)
 - Member of the HL7 Argonaut Project; FHIR integration with Apple Health
 - API docs and sandbox publicly available on Cerner | CODE: code.cerner.com
-

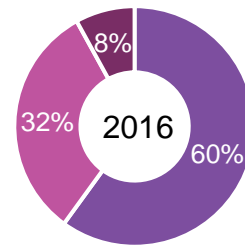
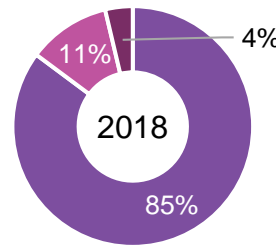
Ep^{ic}

- 20+ FHIR resources (DTSU2); proprietary APIs for other use cases
 - App integrations available through App Orchard, including SMART on FHIR
 - Member of the HL7 Argonaut Project; FHIR integration with Apple Health
 - API docs and sandbox publicly available on open.epic: open.epic.com
-

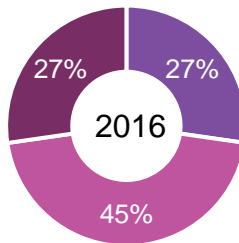
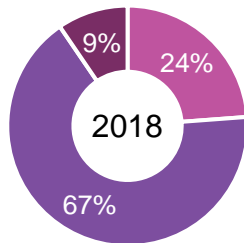
In general, the big 4's APIs are getting better



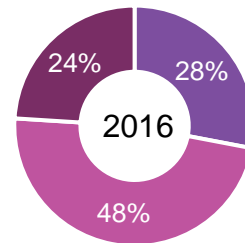
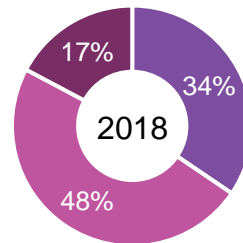
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 Epic

■ High technical quality, relatively easy to work with ■ Not great, but workable ■ Poorly designed APIs



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Source: Holt, M., Dunn, O. And Krueger, K. (2018). *EMRs, APIs, App Stores & All That: More data | THCB*. [Online] thehealthcareblog.Com. Available at: <http://thehealthcareblog.Com/blog/2018/11/28/emrs-apis-app-stores-all-that-more-data/> [accessed 8 feb. 2019].

**YES WE'RE
OPEN**

HY-60 PRODUCTS CO., NORTHFIELD, OHIO 44067-1400 Made in the U.S.A.

SP-110

Rise of the app stores of the EHRs



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Developer
Program



athenahealth
marketplace



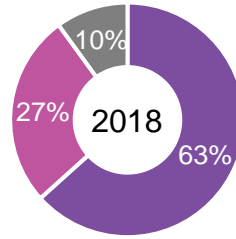
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code

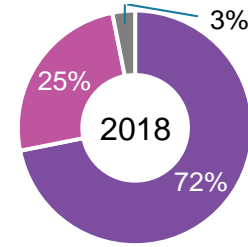


Epic
App
Orchard

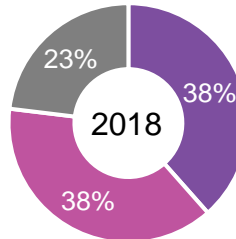
Big 4 becoming much better partners



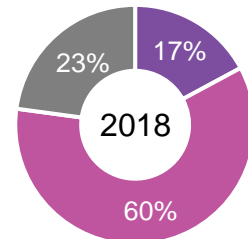
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■ Program exists; easy to understand ■ Program exists; enrolling somewhat complicated ■ Non-existent programs; difficult to enroll



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Source: Holt, M., Dunn, O. And Krueger, K. (2018). *EMRs, APIs, App Stores & All That: More data | THCB*. [Online] thehealthcareblog.Com. Available at: <http://thehealthcareblog.Com/blog/2018/11/28/emrs-apis-app-stores-all-that-more-data/> [accessed 8 feb. 2019].

App stores enable a nascent ecosystem for apps using these APIs



110 apps



225 apps



28 apps



117 apps

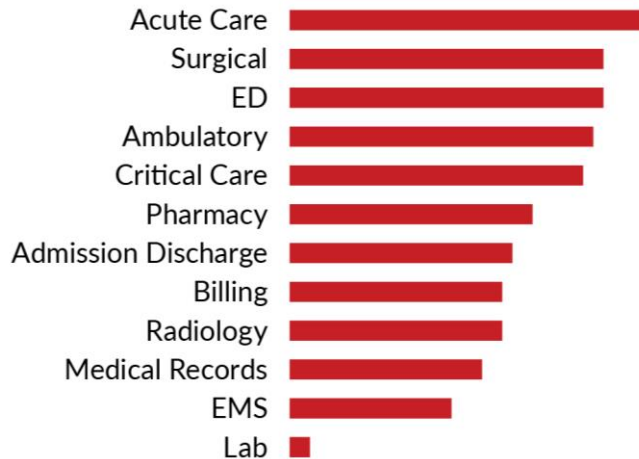


Relative availability of apps by use case




































Across care venues, hospitals and physician offices have the most app representation

Relative Availability of Apps in Hospital Venues



Relative Availability of Apps in Community Venues













<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	<p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>
 <p>12. Pokémon Shuffle Mobile</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>13. Subway Surfers</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>14. Catch the Mask</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>15. The Walking Dead: Road to...</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>16. Block it</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>17. Angry Birds 2</p> <p>Games</p> <p>+ Download ▾</p> <p>In-App Purchases</p>	 <p>18. Fishy Bits</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>19. 8 Ball Pool™</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>20. Fit the Fat</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>21. Buddyman: Independence...</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>
 <p>22. Galaxy Alliance</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>									
 <p>23. Clash of Clans</p> <p>Games</p> <p>+ Download ▾</p> <p>In-App Purchases</p>	 <p>24. Candy Crush Soda Saga</p> <p>Games</p> <p>+ Download ▾</p> <p>In-App Purchases</p>	 <p>25. Crossover Road - Endless Arca...</p> <p>Games</p> <p>+ Download ▾</p> <p>In-App Purchases</p>	 <p>26. Candy Crush Saga</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>27. DoubleDown Casino - Free...</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>28. Need A Hero</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>29. MORTAL KOMBAT X</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>30. WordBrain</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>31. Solitaire</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>32. Cooking Fever</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>
 <p>33. World Craft - Dream Island</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>									
 <p>34. Real Racing 3</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>35. The Sims™ FreePlay</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>36. Despicable Me: Minion Rush</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>37. Jenga</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>38. Aerox</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>39. Spinnycircle</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>40. 1010!</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>41. Covet Fashion - The...</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>42. Criminal Case</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>	 <p>43. Fallout Shelter</p> <p>Games</p> <p>+ Download ▾</p> <p>In-App Purchases</p>
 <p>44. Game of War - Fire Age</p> <p>Games</p> <p>+ Get ▾</p> <p>In-App Purchases</p>									

Search apps...











Categories

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- > Administrative ☐
- > Billing ☐
- > Care Management ☐
- > Efficiency Tools ☐
- > Medical Records ☐
- > Provider Tools ☐











New Arrivals

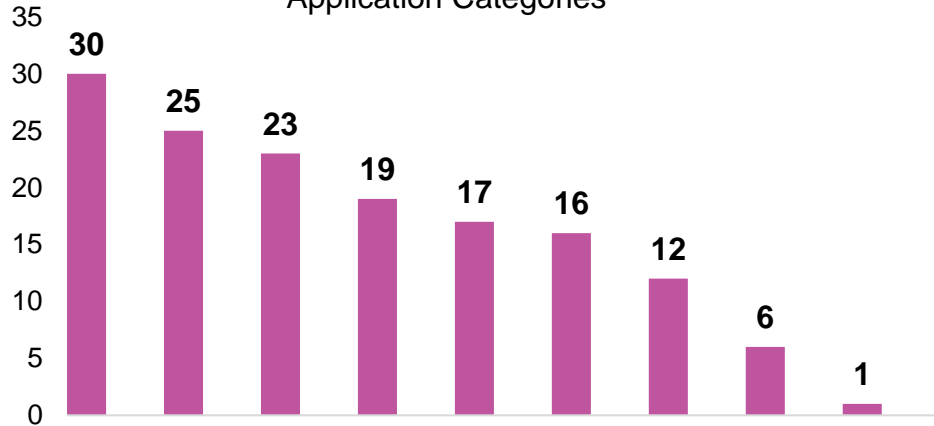
									
Suki AI Virtual Assistant	SimpleVisit Telehealth	Healthy Roster Care Coordination	KairoScheduler™ Scheduling	Coding and AR Support Collections	Redivus Health Clinical Decision Support	FriendHealth Chronic Care Management	Sopris Health Virtual Assistant	iScribe Transcription	OTTO Health Telehealth
No Ratings	★★★★★ (3)	No Ratings	No Ratings	No Ratings	No Ratings	No Ratings	No Ratings	★★★★★ (4)	No Ratings

Top Rated

									
TSI - Profit Recovery Collections	Epion Check-in™ Digital Check-in	Dulcian Health's CCM Chronic Care Management	Phreesia Digital Check-in	ConnectOnCall Telephone Triage	CallMyDoc from Sph Telephone Triage	Yosi Digital Check-in	Mobius Clinic - The R Speech-to-Text	NextPatient Scheduling	DASH by Radix Scheduling
★★★★★ (67)	★★★★★ (74)	★★★★★ (29)	★★★★★ (27)	★★★★★ (19)	★★★★★ (13)	★★★★★ (13)	★★★★★ (11)	★★★★★ (11)	★★★★★ (9)

Most Popular

									
TSI - Profit Recovery Collections	Zocdoc Scheduling	PatientPop Marketing and Communication	Epion Check-in™ Digital Check-in	Phreesia Digital Check-in	Patient Collector by In Front Office Scanning	Entrada Transcription	HealthGrid Patient En Digital Check-in	ChartCapture Paper S Paper Chart Conversion	Press Ganey Patient E Patient Surveys
★★★★★ (67)	★★★★☆ (6)	★★★★★ (5)	★★★★★ (74)	★★★★★ (27)	★★★★★ (8)	★★★★☆ (3)	No Ratings	★★★★☆ (1)	★★★★★ (1)



Benefits of app stores



Eliminate RFP process



Agile pilots – try before you buy



Cut down integration costs and implementation time



Lower investment and risk



Filter signal from noise – glean from peer reviews and best practices



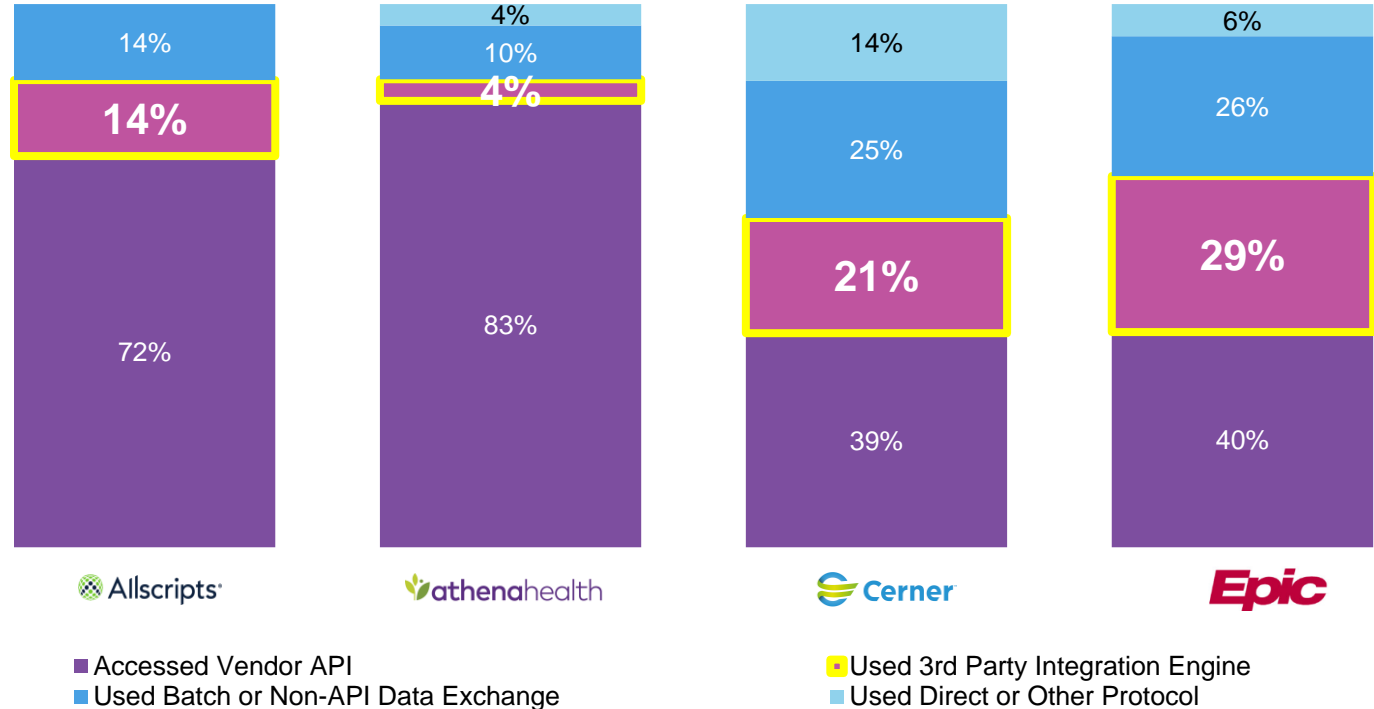
Shopping experience – choice of similar functionality within category

Hurdles on the track to substitutable apps

- Thousands of software developers need more confidence to invest in this technology
- Physicians need to “remember” to launch an app at the right point during a workflow
- Apps are more focused on read than write
- There is variation in business rules for connecting apps
- **There is variation in API implementations**

Use of 3rd party integrators growing

Data access method, the big 4 compared in 2018



Rise of the "API Connectors"



Providers and the API economy



Atrium Health



**OUR ROOTS DATE
BACK TO A HUMBLE
BEGINNING.**

In 1940, we opened
our doors as Charlotte
Memorial Hospital.

Over the years,
our mission to care **for all**
has remained the same.

But our reach, our scope
and even our name
have changed.

Atrium Health

- Headquartered in **Charlotte, North Carolina**
- **50+** hospitals in **North Carolina, South Carolina and Georgia**
- **8 Nationally Ranked** Clinical Programs
- **3,000+** physicians
- **16,000+** nurses
- **65,000+** teammates
- **7th largest** Medical Group in the U.S.
- **12 million** patient interactions each year
- **\$2.03 billion** each year in uncompensated care and other community benefits



Atrium Health



#HIMSS19



Atrium Health

A•TRI•UM•

A PLACE FILLED WITH LIGHT.
WHERE EACH AND EVERY HEARTBEAT BEGINS.
WHERE CONNECTIONS ARE MADE –
BRINGING HEALTH, HOPE AND HEALING FOR ALL.

HIMSS19

HEALTH
HOPE
HEALING FOR ALL



#HIMSS19

innovation
done
right
*makes
technology
invisible*



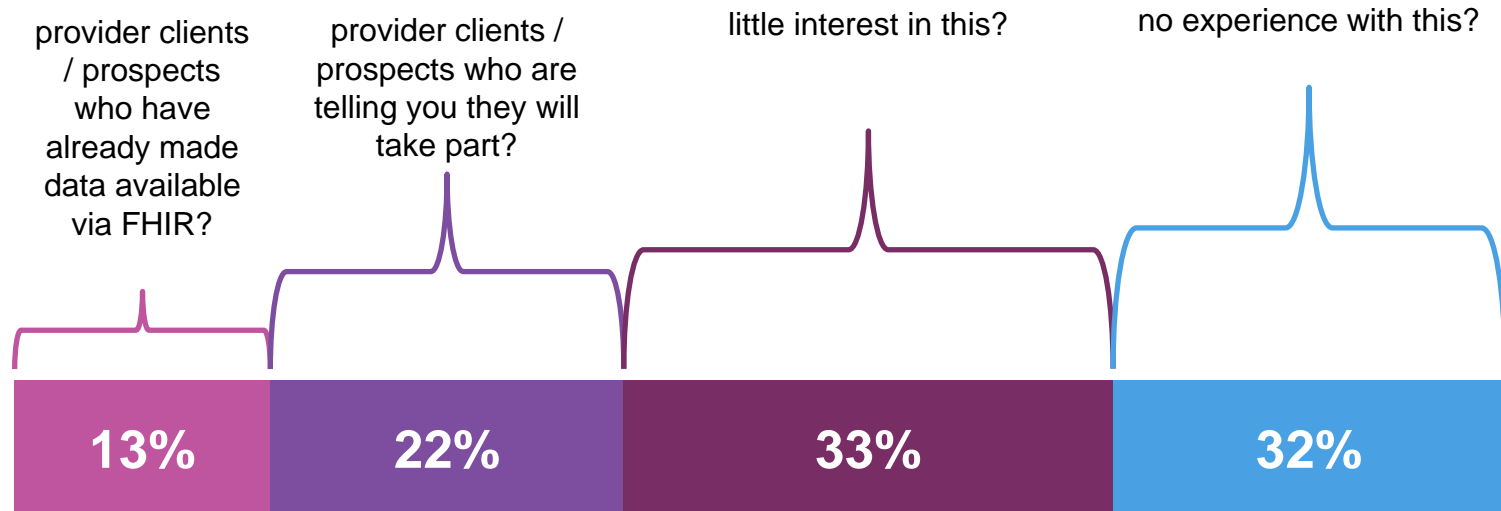


Are providers a **barrier**?

Providers may be the biggest hurdle

Do you, as a startup, have:

Do you, as a startup, find your provider clients have:



Total respondents: 54



#HIMSS19

Why should providers do this?

Modern software development and deployment ideas are knocking on HCO doors

- Cloud deployment, agile development, social/mobile, microservices, REST/JSON, NoSQL databases have changed IT
- APIs are revenue source for many companies in many industries

New models of care need:

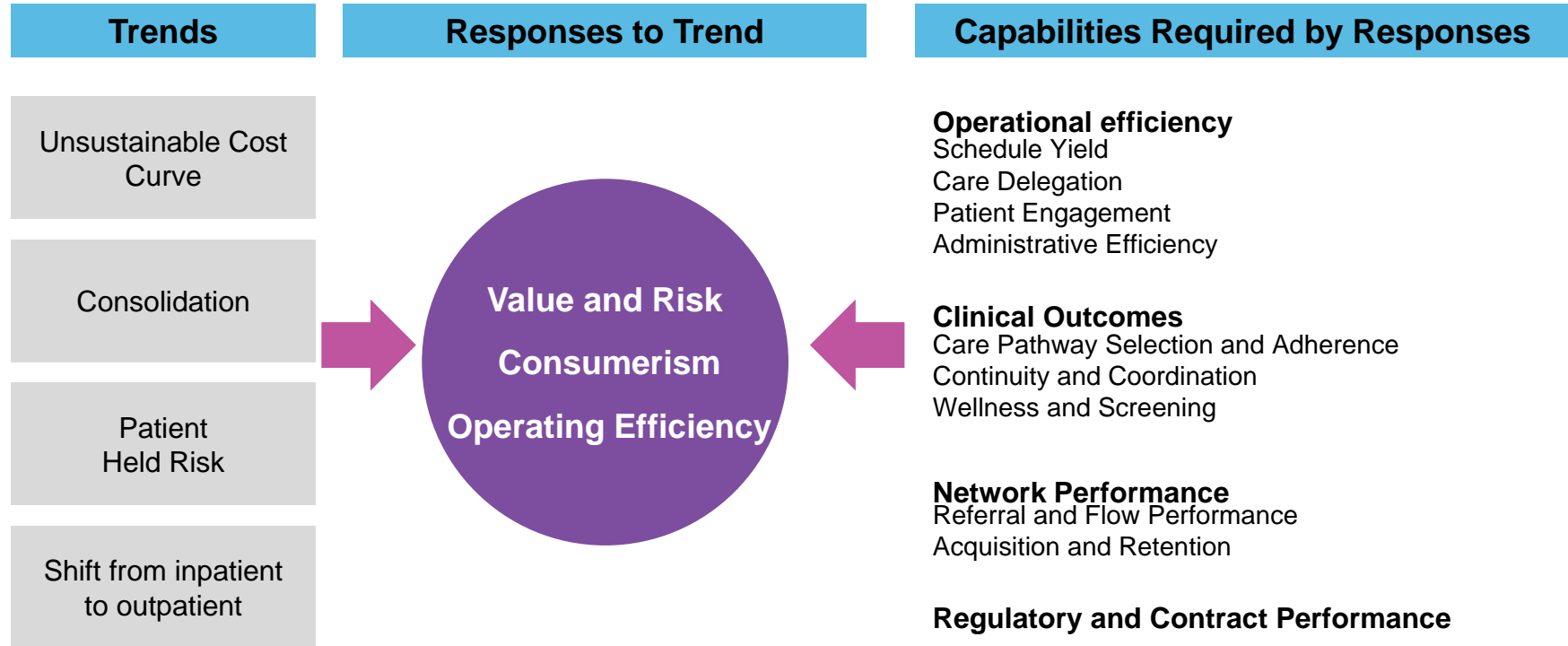
- Broader distribution of clinical expertise
- Delivery in lower cost venues and in different channels

Opportunities to reduce inefficiencies

- Reusable clinical alerts, quality metrics
- New approaches to care coordination



As providers, payers, and patients react to these forces, data and analytics become a daily need of most medical practices



Disruptors are focused on using data and analytics as a key advantage as they respond to these trends

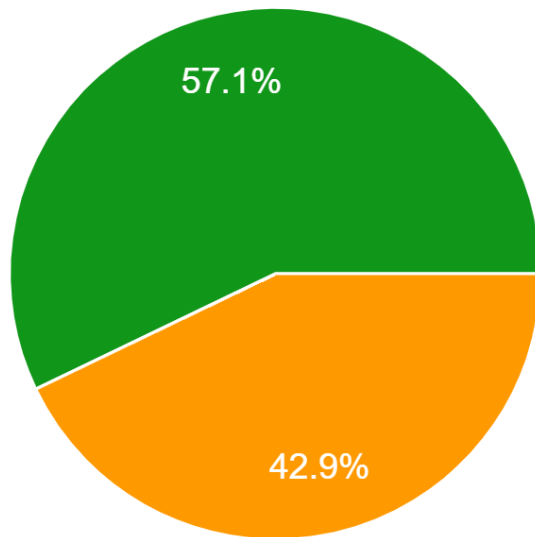
Disruptive Care Delivery Organizations



Open data models will help you to...

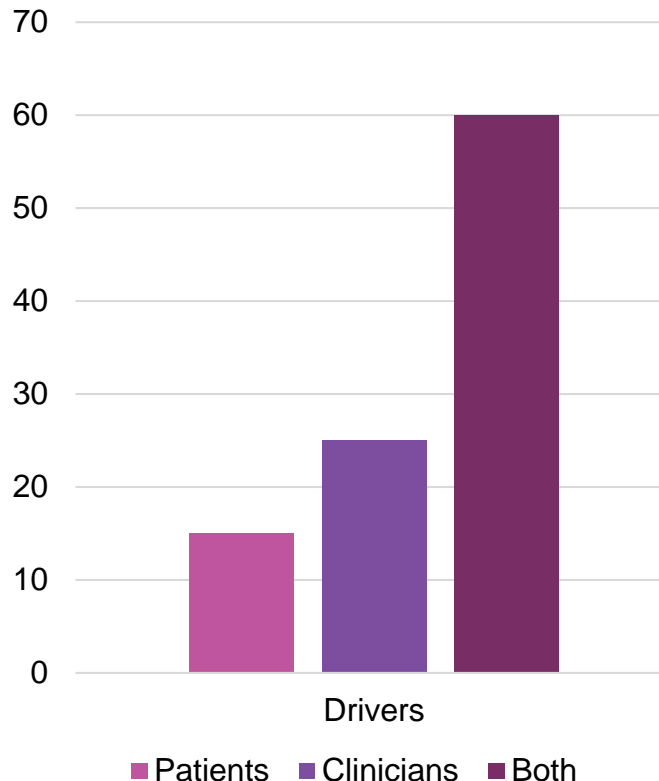


Are you actively utilizing/working on utilizing APIs in any of your applications?



- No APIs
- Thinking about utilizing APIs
- Actively working on utilizing APIs
- Have APIs live in production

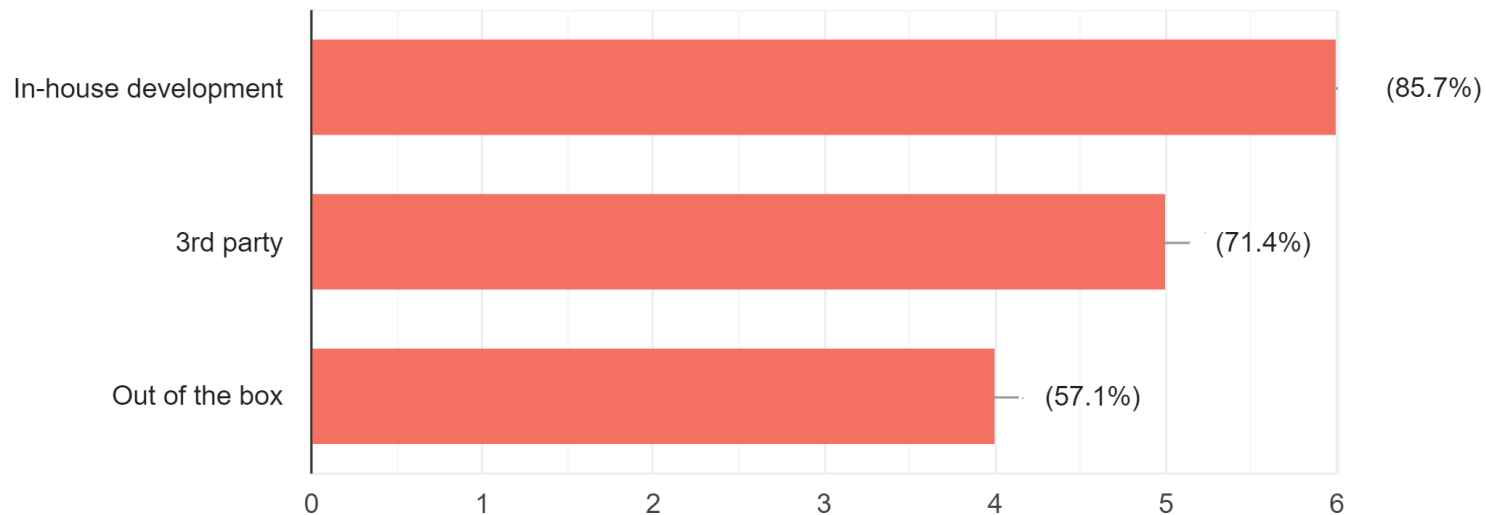
Is the demand and usage of API-based apps being driven mainly by patients or clinicians?



What are your pioneer API-based applications?

- We have several in the works, including integration with Amazon's Alexa.
- Apple Health, Video Visit
- Apps, claims , health insurance
- Apple Health / Visual Dx / a Cerner developed one for heart risk
- Find a Doc, JeffDocs, myJeffHealth, and more internal apps. Epic, ECW, AllScripts, Cerner, etc. as external apps.
- all epic related. IoT
- Medical Year in Review

For any work you're doing on APIs, is this:



Who is paying for apps and what cost considerations (if any) are driving your efforts?

The business models are still being worked out. Definitely an area of focus.

Health system

The health system

Using the free ones currently

We have our own budget and cost has so far not been an issue as we do a lot of internal development at lower cost.

our organization

ACOs



Which of your existing data sources will be most valuable for API-driven applications?

Freeing the clinical data and allowing patients to actively engage and interact.

EMR's and Data Warehouse

Research

EMR (Millenium)

EMRs, Data Warehouse, Clinical Intelligence Systems, ERP, Supply Chain, IoT systems, Building Automation Systems, Messaging Systems, Workflow Systems, BPM tools, etc.

all things clinical

Claims and Clinical



What role does your IT department play with API-based applications? What are some essential skill sets and processes to build into the IT department?

IT helps manage day to day operations, which is critical. Would be great to have IT interact more with developers and the startup ecosystem.

Define the API design patterns, security, monitoring, Mobile developers

We build and get it approved

We don't possess yet

The Digital Group I founded does most of the API-based application work and development. You need software developers, data scientists, and designers.

drivers of API. Previous API experience helpful. We leverage Agile for DevOps

IT maintains the API server.



Do you have specific governance around APIs? Please explain your model.

This is an area of opportunity. Currently, governance around APIs is tied to overall governance around access to data and resources within the org.

Enterprise Architecture team - Facilitates the Architecture Review Board

Yes cybersecurity and value for the institution

We don't - but models I've seen presented previously were similar to how a P&T committee does its work (ie - show us the evidence, cost, etc. etc.) I could probably dig up the presentation - it was given at AMDIS 2 or 3 years ago

Yes. We have data governance around APIs.

Follow Agile and ITSM processes but fairly open

Yes. Governance is needed to ensure that as APIs evolve they do not impacting other applications



What's the one thing you'd want your EMR vendor to do more of around APIs?

Make available more FHIR based resources with dev toolkits etc.

Support Bulk Access to data vs.1:1

FHIR server at least first 30 resources read and write

Go faster, make the tie ins on their end infinitely faster

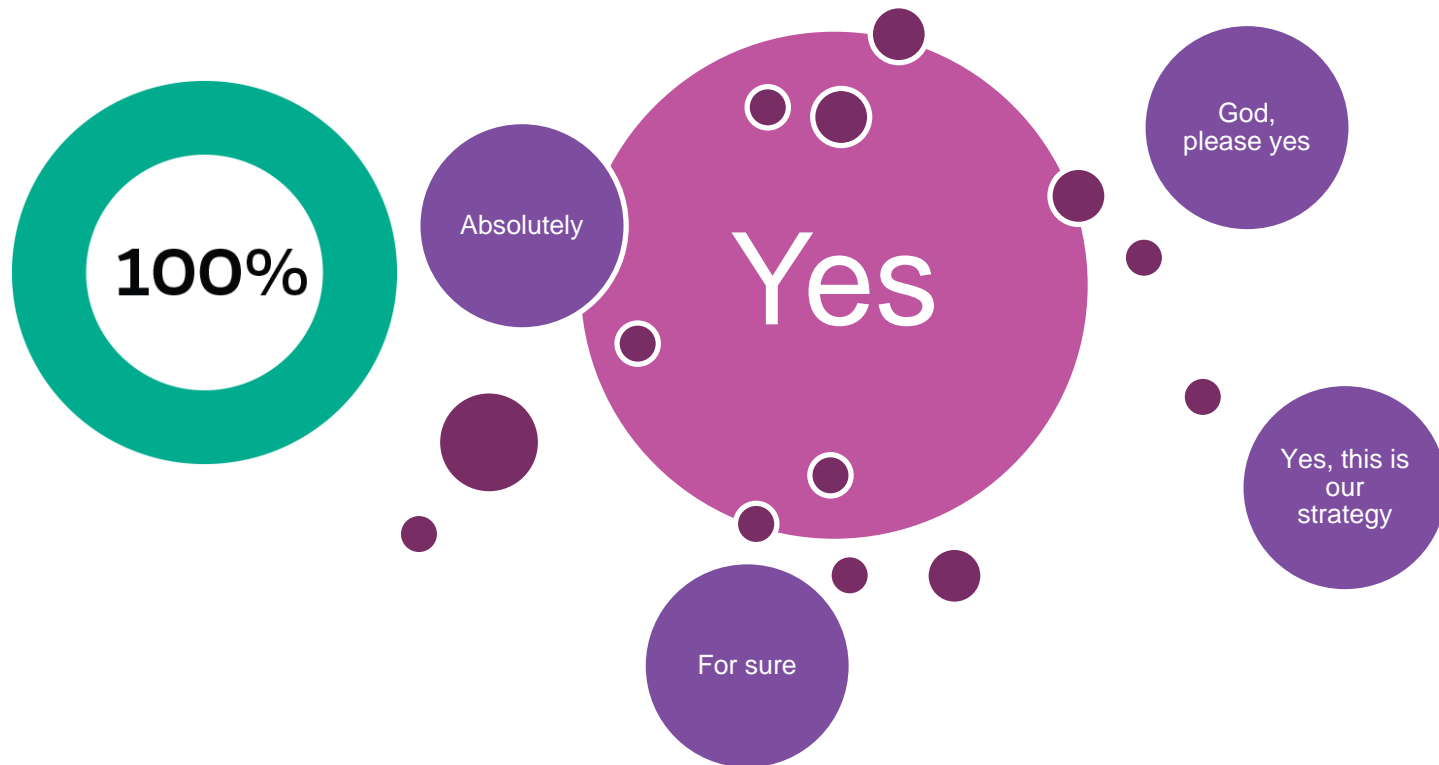
Actually create useful aggregated conduits.

increased openness. not limited to what they are comfortable with but all the data sources we require

Expose more of the patient record



Can open APIs and an app-based ecosystem accelerate your organization's response to changing market dynamics?



Provider action items

Press EHR vendors – “Coalition of the willing”

Upgrade your EHR and integration technology platforms to versions that support FHIR

Begin API governance discussions

Concentrate on EHR UX issues before functional enhancements

Plan your first FHIR projects based on vendor and staff readiness

Encourage your integration and technology teams to experiment with the technologies underlying FHIR, including JSON and RESTful APIs

Educate key interface and application development staff on FHIR essentials









AND THE DAY CAME
WHEN THE RISK TO
REMAIN TIGHT IN A BUD
WAS MORE PAINFUL
THAN THE RISK IT TOOK TO
BLOSSOM

- ANAÏS NIN

Q&A and Contact Information



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