The Office of the National Coordinator for Health Information Technology

ONC Move Health Data Forward Challenge

ONC Tech Lab's Interoperability in Action Day
March 20, 2017

Papia R. Paul, MS MPA
Public Health Analyst | Papia.Paul@hhs.gov

Individuals Experience Gaps in Health Information Exchange

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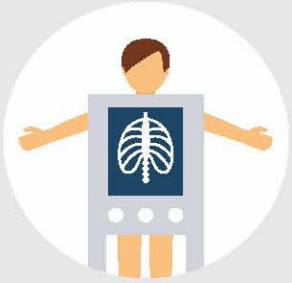
MOVE HEALTH DATA FORWARD CHALLENGE

1 IN 3 INDIVIDUALS

who have seen a health care provider in the last year experienced at least one of the following gaps in information exchange.

Had to bring an X-ray, MRI, or other type of test result with them to the appointment.

Had to wait for test results longer than they thought reasonable.



Had to redo a test or procedure because the earlier test results were not available.

Had to provide their medical history again because their chart could not be found.

Had to tell a health care provider about their medical history because they had not gotten their records from another health care provider.

Source: http://www.nejm.org/doi/pdf/10.1056/NEJMsa063979

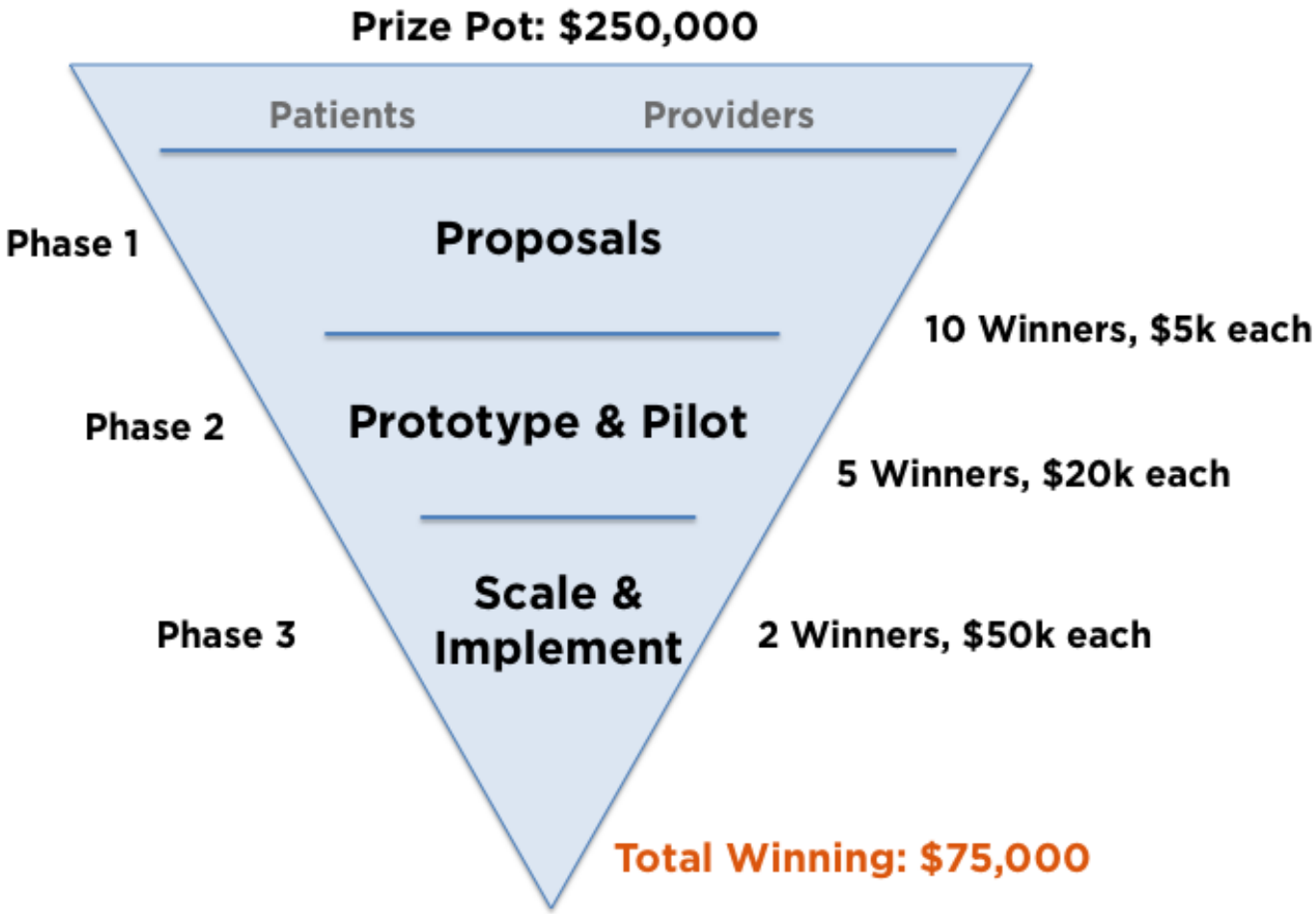
Individuals Can Serve as the Hub of Information Exchange

In a given year, the average Medicare patient visits...

Source: https://www.healthit.gov/sites/default/files/briefs/oncdatabrief30_accesstrends_.pdf

MHDF Challenge Overview

The Move Health Data Forward Challenge aims to promote the development of technology solutions that can enable consumers to authorize the movement of their health data to destinations they choose.



General Requirements

- Participants are tasked to develop a technological solution to help authorize the movement of health data.

- Participants are expected to engage people to test the implementation of the Solution and make possible processes for consumers to authorize the release of their health data to a destination they choose.

- The data for the API and solution should be provided by challenge finalists.

- This Challenge encourages applicants to apply independently or team with others including health IT developers, health care providers, and other entities with the appropriate expertise related to this solution.

The HEART WG

- ONC has collaborated to launch the Health Relationship Trust Working Group (HEART WG).

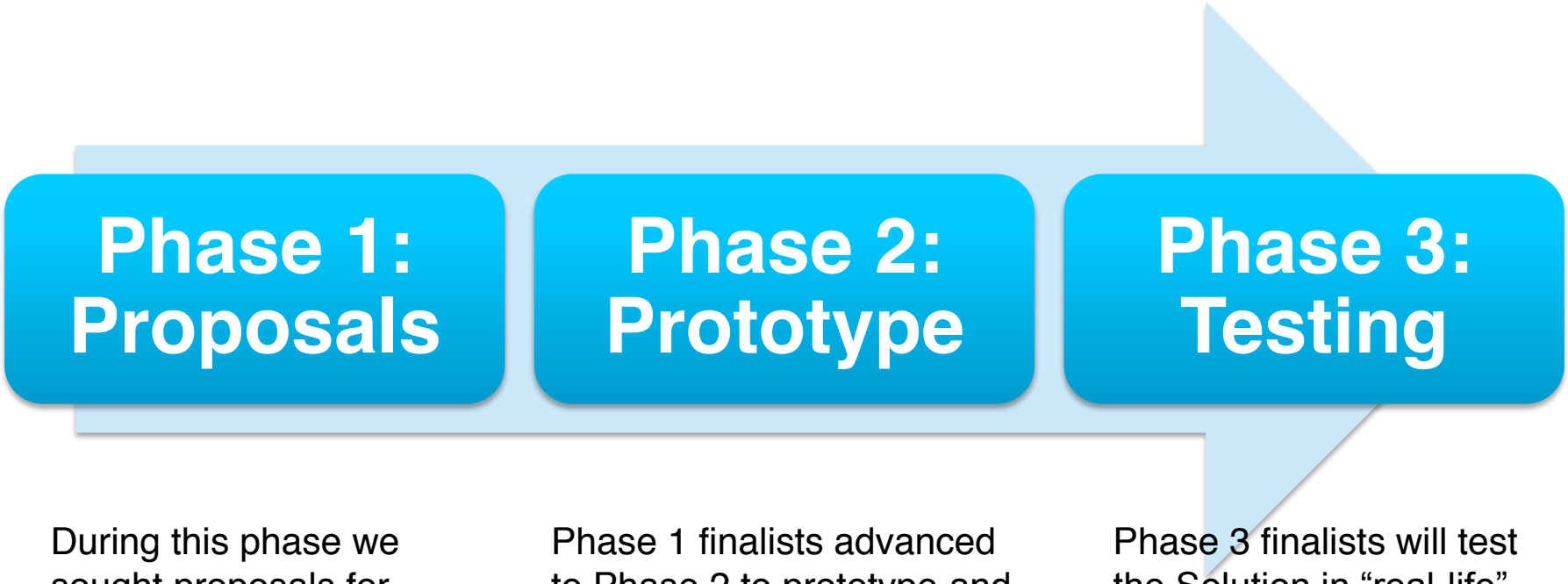
- HEART WG is developing a set of privacy and security specifications to empower people to control the authorization of access to health-related data sharing APIs, using the following open standards:

  - OAUTH 2.0
  - OpenID Connect
  - User Managed Access (UMA)

- Challenge teams are testing HEART technology and creating an open API that enables heath data sharing.

  http://openid.net/wg/heart/

Challenge Overview



During this phase we sought proposals for solutions that increase consumers' access to and sharing of their information within electronic health record systems.

Phase 1 finalists advanced to Phase 2 to prototype and demonstrate the effectiveness of their Solutions and their impact on consumer or provider health records accessibility and data exchange.

Phase 3 finalists will test the Solution in "real-life" situations, as well as the scalability of the Solution, the feasibility of implementation, and the impact of the intended outcomes.

Phase 1 Summary: Proposals

- ONC received approximately 30 submissions.
- Evaluation criteria included:

- 10 were selected as Phase 1 winners and announced on November 2, 2016.

Phase 1 Winners	
TrustedCare and ARM	kreateIOT, Technatomy, & Koncero
CedarBridge Group LLC	Live and Leave Well, LLC
EMR Direct	SpunJohn Consultants, LLC
Lush Group, Inc.	Thoughtkeg Application Services Corporation
Foxhall Wythe LLC	Resilient Network Systems, Webshield & SAFE Biopharma

Phase 2 Summary: Prototype

- Participants submitted implementation plans and conducted live demos.
- Evaluation criteria included:

- 5 were selected as Phase 2 winners and announced on February 21, 2017.

Phase 2 Winners
CedarBridge Group LLC
EMR Direct
Foxhall Wythe LLC
Live and Leave Well, LLC
Lush Group, Inc.

Phase 3 Summary: Testing

- Phase 3 submissions due May 1, 2017. Participants will report on:
  - Completed Objectives
  - Lessons Learned
  - Commercialization Path
  - Value Proposition
  - Customer Acquisition
- Conduct a live demonstration of their Solutions and results.
- Evaluation criteria includes:

- 2 participants will be selected as Phase 3 and overall Challenge winners.
- Announcement is tentatively scheduled for May 31, 2017.

CareApprove™

Connecting the Care Team

Alex

CareApprove™

Connecting the Care Team

Behavioral Health

Primary Care

CAREAPPROVE™ EHR Plug-in

PracticeFusion

Behavioral Health

Image courtesy of Molly's Fund Fighting Lupus

Behavioral Health

Prezi

Alex

CAREAPPROVE™ Plug-in

StellaEHR

Primary Care

Primary Care

HEART-Enabled EHR

EHR Security Domain

EHR ⟷ CareApprove Plug-in

HEART Actors for CareApprove Services:

- OpenID Identity Provider
- OpenID Relying Party
- OAuth Authorization Server, Resource Server
- OAuth Client
- UMA Resource Server
- UMA Authorization Server (protection API)
- UMA Requesting Party

CareApprove Security Domain

- CareApprove Service
- CareApprove Authorization Server
- CareApprove Resource Server

OpenID

http://openid.net/certification/testing/

Non-HEART EHR

EHR Security Domain

EHR ⟷ CareApprove Gateway ⟷ CareApprove Plug-in

- CareApprove Authorization Server
- CareApprove Resource Server

CareApprove Security Domain

- CareApprove Service
- CareApprove Authorization Server
- CareApprove Resource Server

Interoperability In Action Day -

PLEASE REFER TO SESSION VIDEO FOR LIVE DEMO

Alex

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Connecting the Care Team

Behavioral Health

Primary Care

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Interoperability In Action Day

March 20, 2017

Luis C. Maas III, MD, PhD

CTO, EMR Direct

EMR Direct simplifies healthcare interoperability by developing easy-to-use Healthcare IT software solutions that maintain robust privacy and security while facilitating consumer-mediated exchange and patient engagement. EMR Direct offers Direct HISP service, HL7® FHIR® as a service, identity services including CA/RA, and associated APIs.

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SIMPLIFYING INTEROPERABILITY

Here's the Situation…

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- Today, patients manage multiple different patient portals -- ”portalitis”
- When patient data is better utilized, better care can be provided
- New ONC 2015 Edition Certification requirements and the interest in FHIR open up a lot of possibilities
- Some missing building blocks were needed to scale this well and avoid portalitis—this is where the Move Health Data Forward Challenge emerged
- Along the way, we'd like to help build that sought-after longitudinal patient record by enabling access to multiple data sources from a single client

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What is HealthToGo?

HealthToGo™

- HealthToGo API helps authorize the secure movement of healthcare data, minimizing the number of accounts to maintain & eliminating redundant grant data storage—paving the way for better patient user experience
- We do this by implementing the HEART Profiles plus our own special extensions, available either within a healthcare organization or for use in a distributed identity environment by other trusted, HealthToGo-enabled identity providers

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What is HealthToGo?

HealthToGo™

- HealthToGo API is used in our client app of the same name that queries FHIR resources & will also soon be Direct Messaging enabled
  - HealthToGo API can also be used on its own for grant management in any client/API context
- About Interoperability Engine:
  - Makes FHIR and Direct services easy—our flagship phiMail made Direct so easy to implement that we helped over 100 EMR vendors certify
  - ONC 2015 Edition Certified for Direct & Application Access APIs
    - We used the HealthToGo client to demonstrate API functionality during our certification testing; our FHIR as a service customers will follow the same model

Interoperability Engine™

2015 EDITION Drummond certified ONC-ACB HEALTH IT MODULE

http://www.emrdirect.com/onc-hit-2015-edition-hisp-h2-application-access-g7-g8-g9-certification.html

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Demo

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What does FHIR® data access & grant management look like?

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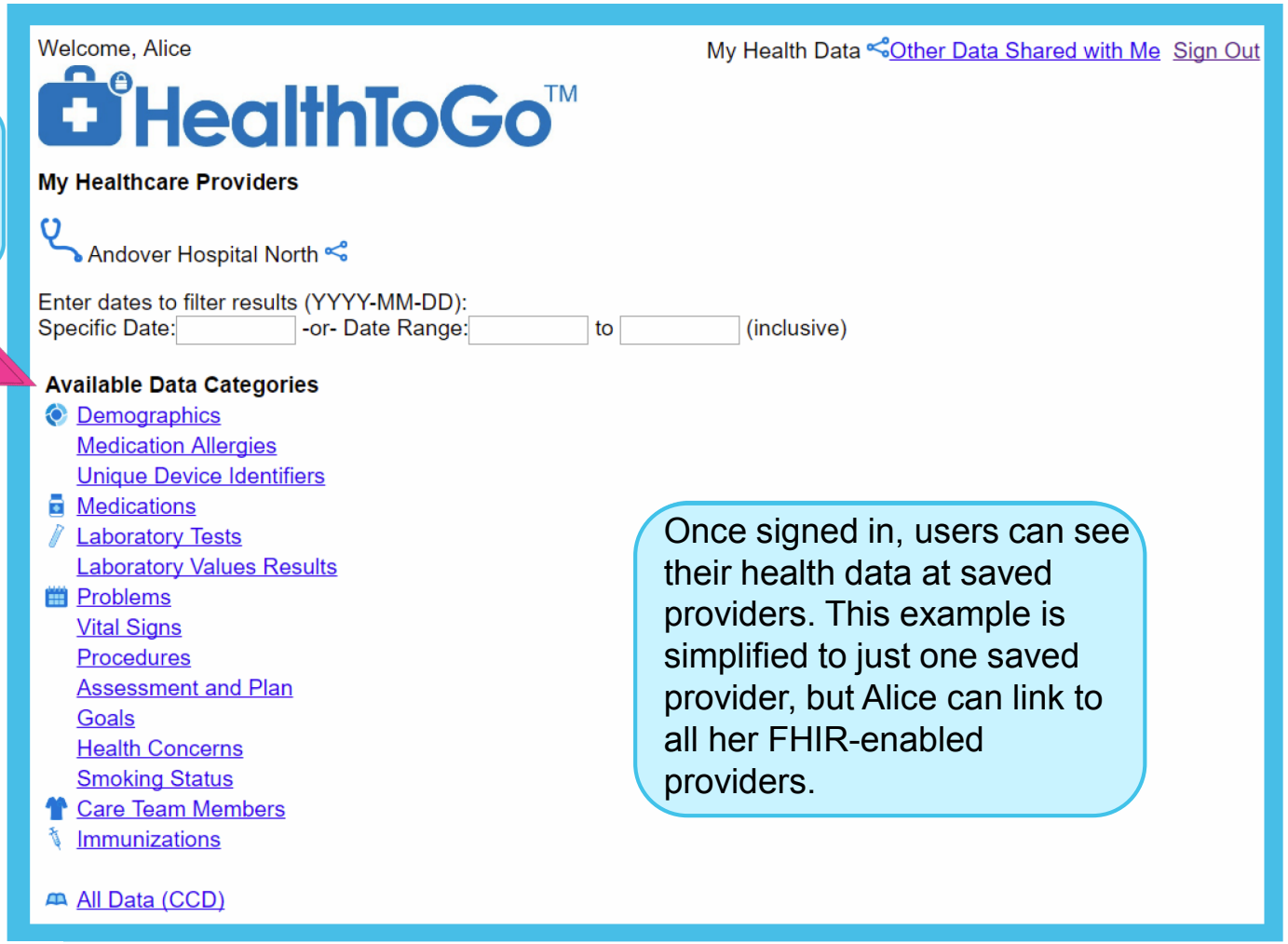
Alice Views Her Data

HealthToGo™

MU3 Data Categories



Once signed in, users can see their health data at saved providers. This example is simplified to just one saved provider, but Alice can link to all her FHIR-enabled providers.

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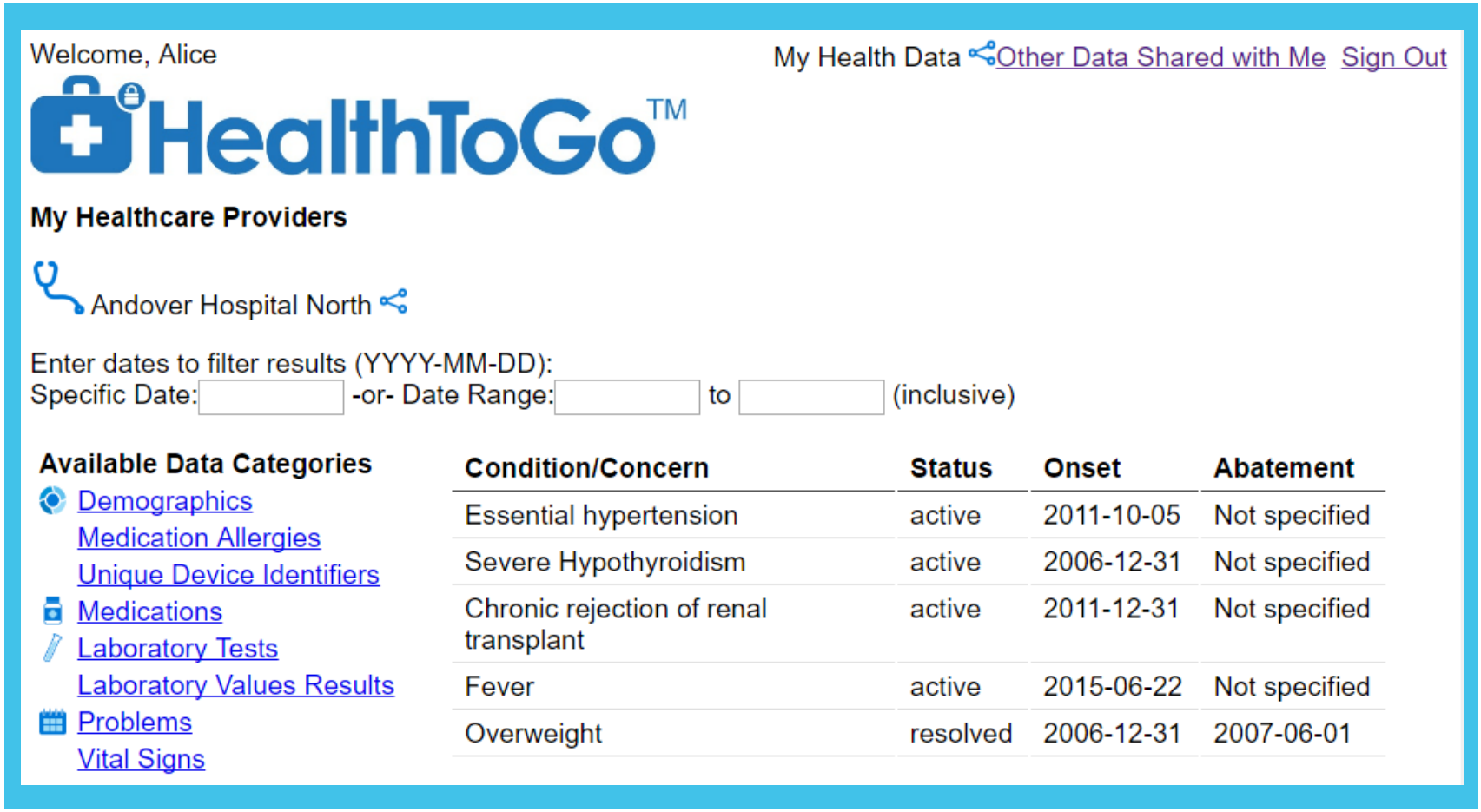
Alice Clicks to see Problems…

Alice Views Problems



Alice Clicks to View Grants that allow others access to her Health Data from this Provider…

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Alice Views & May Edit her Grants

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Alice's Grant Data Management

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Let's take a look under the hood…

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Application Access with HealthToGo API Grant Management enabled

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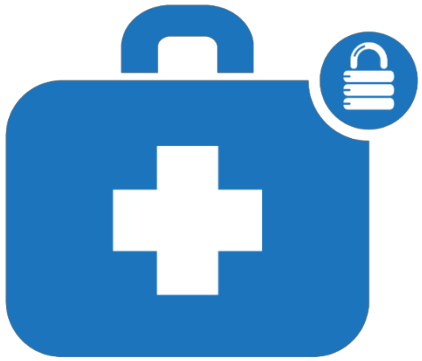
EMR Direct
authorization server

HL7® FHIR® + HEART Profiles



HealthToGo

Or other client app, using HealthToGo Grant Management API

EHR

Interoperability Engine™

Or other FHIR-enabled Data Holder

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Alice Clicks to View Data Others have Shared with her…

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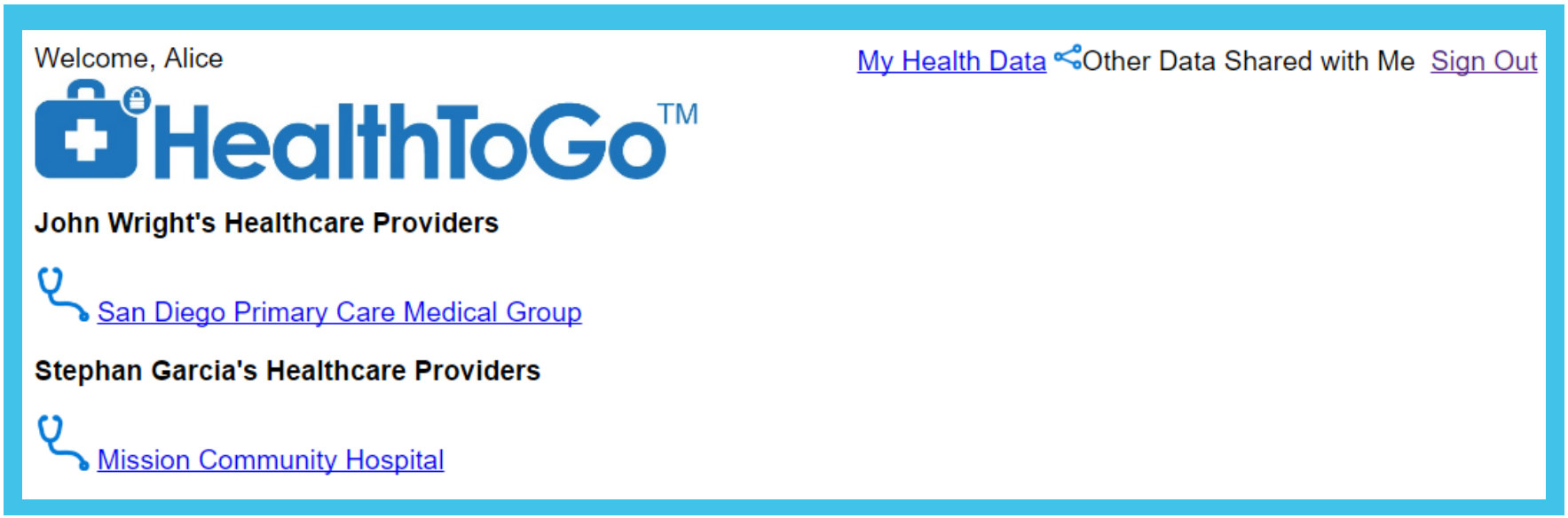
Other Data Shared with Alice



Different Use Case: User Stephan Grants Data Access to a Provider, Dr. Tina Jones

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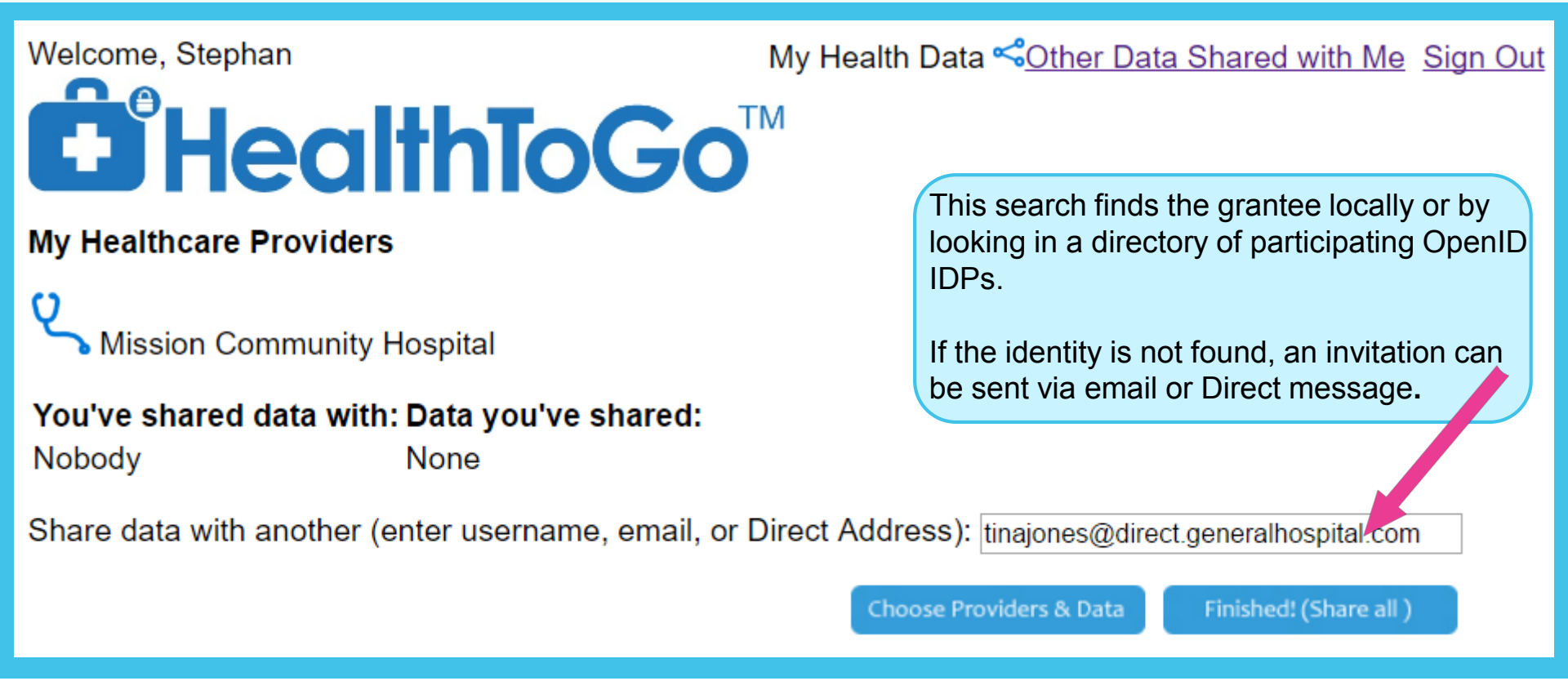

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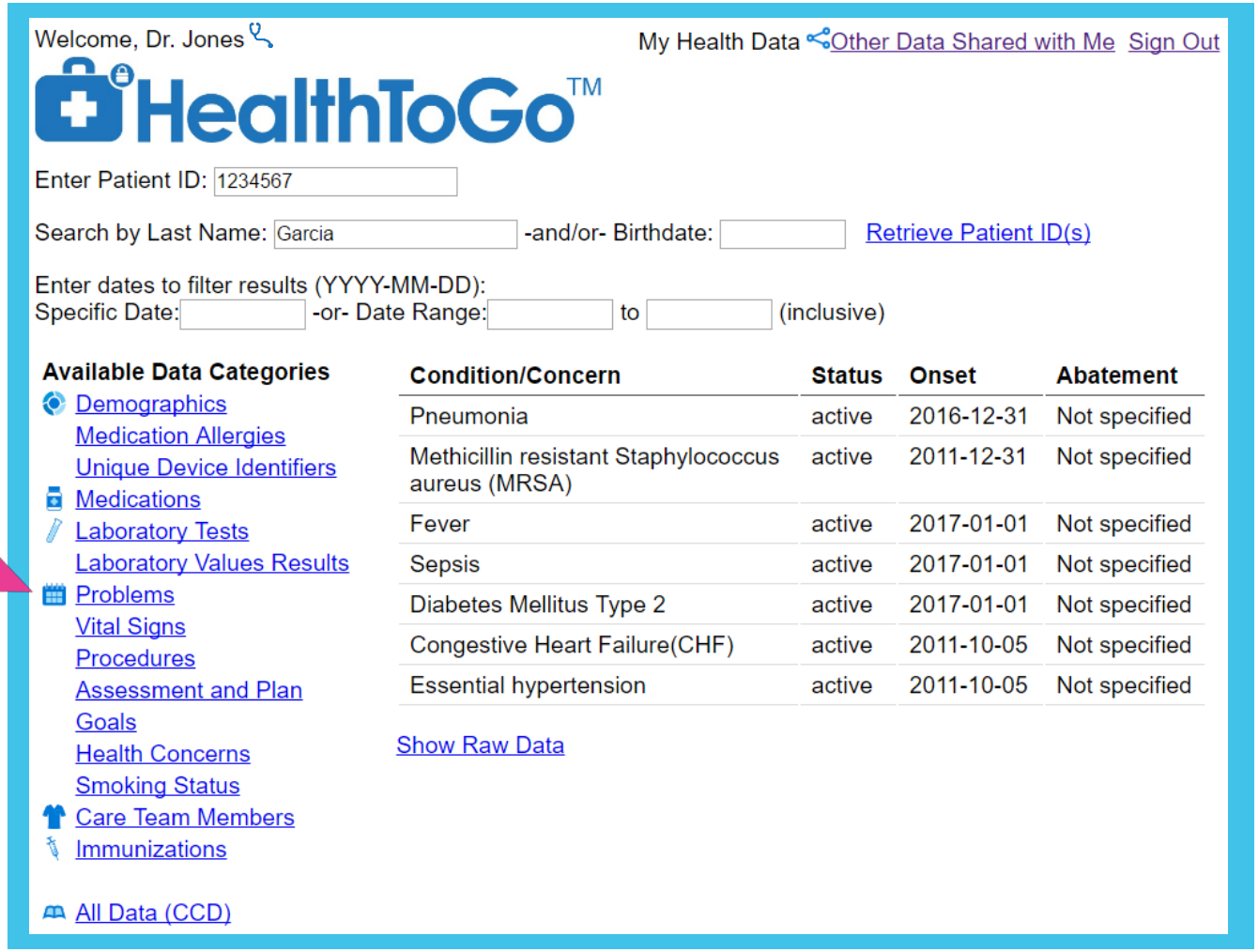
Dr. Jones signs in to a Provider View of Stephan's Data; Clicks to View Problems



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Related Work

HealthToGo™

- EMR Direct led the effort to bring the Implementation Guide for Expressing Context in Direct to Draft for Trial Use stage in the Direct Project Implementers Workgroup.
  - Includes a spec for adding patient metadata and RESTful transaction encapsulation capabilities to Direct messages
  - Next Direct Project Implementers Workgroup meeting: 3/21
- Provider-to-provider authorizations: the UDAP profile written by EMR Direct establishes a method for trust-enabled token validation

Thank you

HealthToGo™

We're now forming pilots for HealthToGo & Interop Engine!

Please contact us to participate:

- EMR Developers or other data holders interested in FHIR-as-a-service or Direct Messaging (HISP) service
- FHIR Service Providers interested in distributed grant management among trusted identity services

http://www.emrdirect.com/subscribe-developer
mail@emrdirect.com

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PLEASE REFER TO & SESSION VIDEO FOR Docket DEMO &

Let’s get in touch.

info@hellodocket.com

Schedule a Demo: Take the grand tour!

Beta Test: Get early access to upcoming features.

Feedback: Influence future development cycles.

Docket™ White Label: Customize for your organization.

Integrating with Docket™ : Ask us about our API.

Interoperability In Action Day –

Live & Leave Well

Slides Not Provided

Lush Group, Inc.

2017 Interoperability in Action Day!

HealthyMePHR

Enables patients to securely and easily manage the sharing of their clinical data with users they choose while maintaining patient privacy.

March 20, 2017

Nancy Lush

Lush Group, Inc.

Landscape

- The Healthcare industry has long recognized the need for and benefit of patient clinical interoperability.
- FHIR is a new HL7 standard that simplifies clinical data sharing
  - Many EMR vendors have implemented, and FHIR capability is included in current versions already deployed
  - Used within their domain for internal clinical solutions
- HEART standard enables patients to control access of their health data, supporting privacy and security.
  - Secure interoperable clinical data exchange controlled by the patient.

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Landscape Reality

- Most organizations, wishing to minimize risk and liability, are not yet willing to allow external users to access their clinical data.

- However, all organizations are obligated to share clinical data with the patient.

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Solution

HealthyMePHR will improve patient-mediated information sharing by providing a secure, private method for sharing clinical data while solving today's interoperability challenges.

Patients will directly control with whom they share their data, be it specialists, nursing homes, care managers, college health centers, or family members.

Lush Group, Inc.

Why HealthyMePHR ?

- The patient can have a portable, personal copy of their clinical data.
- They can then share it as they wish.
- The HEART principles are implemented, and patient directed sharing is enabled.
- Future releases will interface with a wide variety of healthcare applications.

Our approach also positions us to support other organizations in implementing patient directed sharing using HEART tenets.

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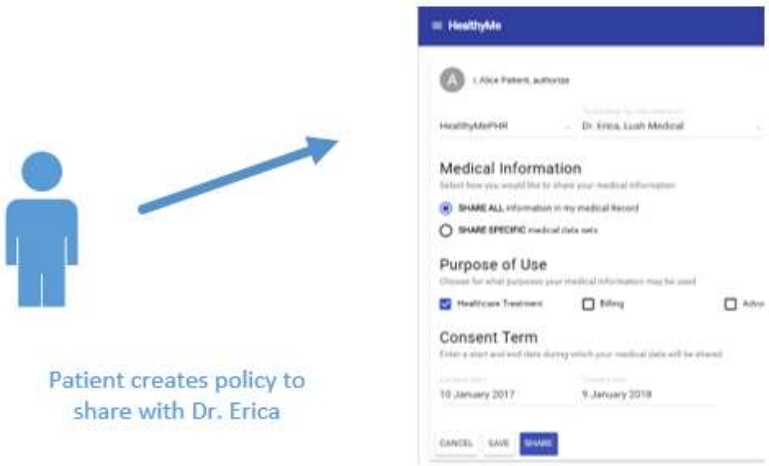
Ease of Use

- The patient creates individual consent policies for each sharing partner.
  - Create each policy and press ‘Share’.
- The receiving party receives an email, clicks the link, enters authentication credentials, then has access to our patient’s clinical data.

Solution Overview



Patient creates policy to share with Dr. Erica

Share

Press Share

Dr Erica Receives email

Patient's Clinical Data

Dr. Erica, presses link, signs in, then views patient data

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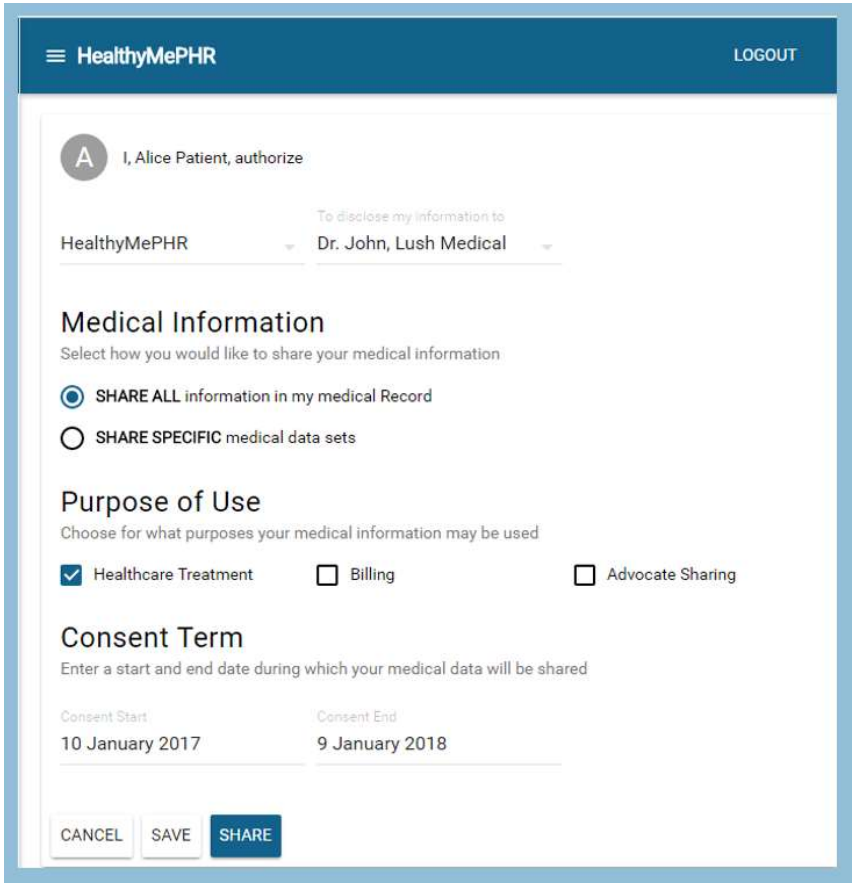
Patient wishes to share Clinical Data



Patient Alice logs into the solution.

Alice creates a policy to share with Dr. John, customizes to reflect her wishes, and presses SHARE.

SHARE

Patient sharing is easy!

Dr John receives email and authenticates

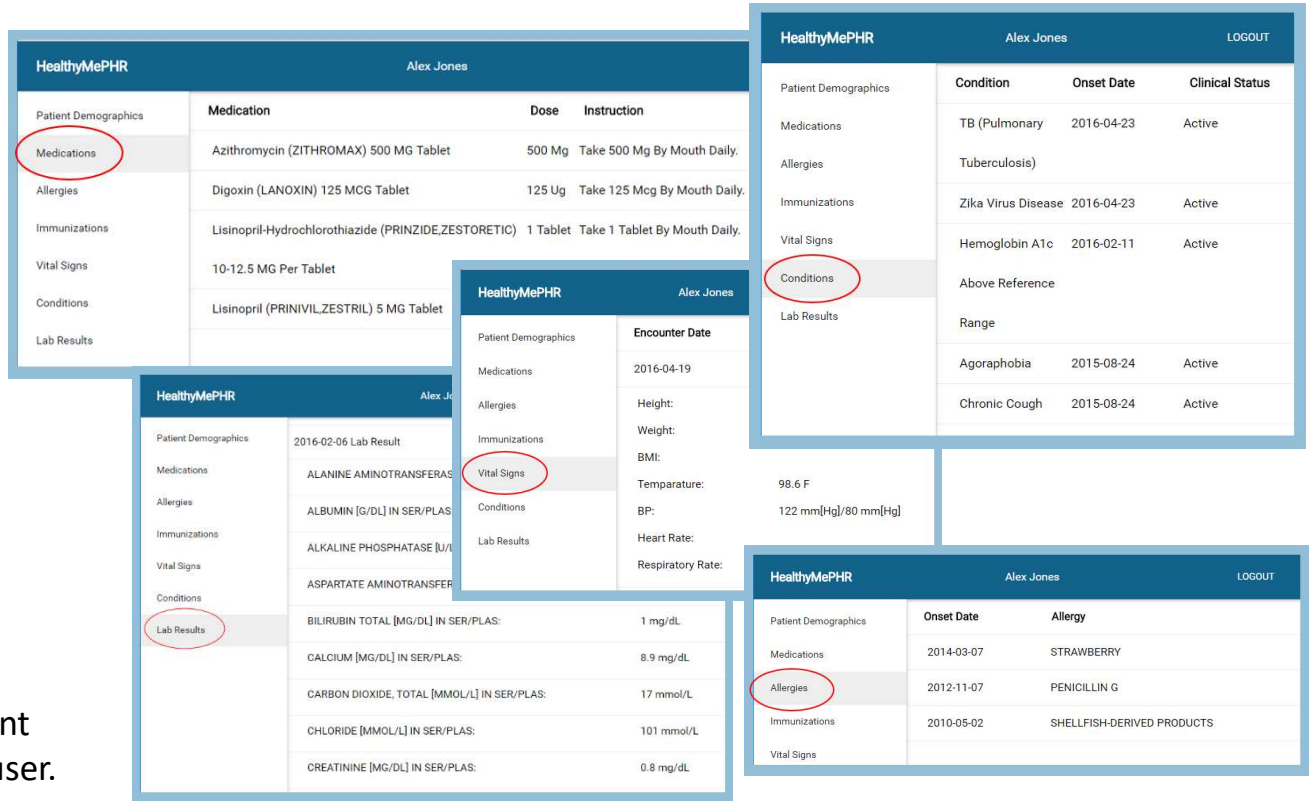
Lush Group, Inc.

Provider wishes to view clinical Data

Dr John receives secure email

Dr John Clicks link, Signs in, and views Clinical Data

Only the data authorized in the patient consent is available to the provider/user.



Provider usage is also easy. The power is in what happens behind the scenes!

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HealthyMePHR | Alex Jones | LOGOUT

- Patient Demographics
- Medications
- Allergies
- Immunizations
- Vital Signs
- Conditions
- Lab Results

Medication	Dose	Instruction
Azithromycin (ZITHROMAX) 500 MG Tablet	500 Mg	Take 500 Mg By Mouth Daily.
Digoxin (LANOXIN) 125 MCG Tablet	125 Ug	Take 125 Mcg By Mouth Daily.
Lisinopril-Hydrochlorothiazide (PRINZIDE,ZESTORETIC) 10-12.5 MG Per Tablet	1 Tablet	Take 1 Tablet By Mouth Daily.
Lisinopril (PRINIVIL,ZESTRIL) 5 MG Tablet	1 Tablet	Take 1 Tablet (5 Mg Total) By Mouth Daily.

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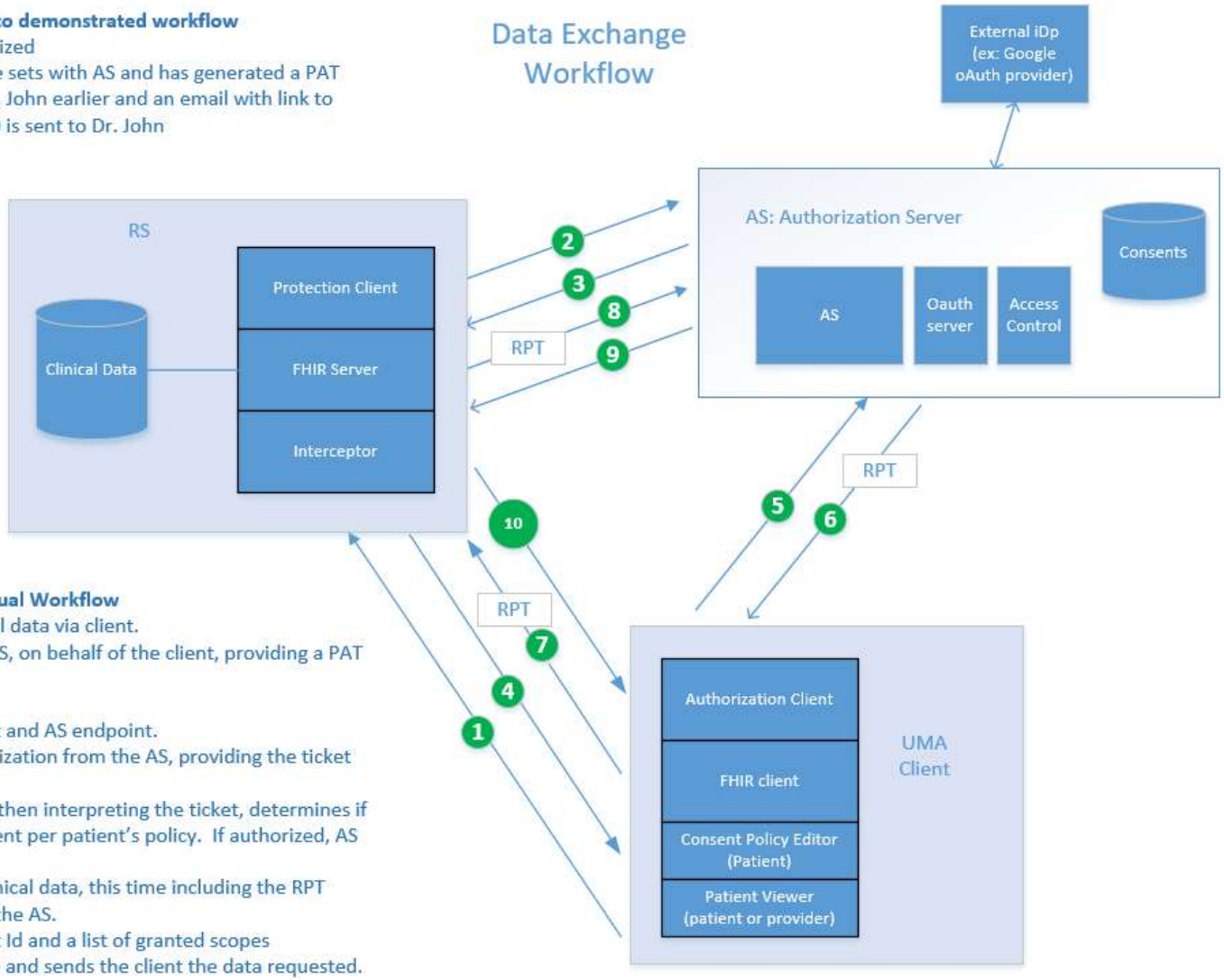
The user interface is simple, the complication is invisible to the user.

Assumptions prior to demonstrated workflow

1. Client app is previously authorized
2. The RS has registered resource sets with AS and has generated a PAT
3. Patient creates consent for Dr. John earlier and an email with link to client, RS endpoint and patientID is sent to Dr. John



Actual Workflow

1. Dr John requests patient clinical data via client.
2. RS requests permission from AS, on behalf of the client, providing a PAT but no RPT.
3. AS denies, but returns a ticket
4. RS denies but returns the ticket and AS endpoint.
5. The client now requests authorization from the AS, providing the ticket and user credentials
6. The AS authenticates Dr. John, then interpreting the ticket, determines if Dr. John is authorized by the patient per patient's policy. If authorized, AS returns an RPT to the client.
7. The client now requests the clinical data, this time including the RPT
8. The RS introspects the RPT via the AS.
9. The AS returns the resource set Id and a list of granted scopes
10 The RS interprets the response and sends the client the data requested. Dr. John views clinical data.

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HealthyMePHR Benefits

- At Lush Group we are passionate about improving health and wellness.
- Studies have shown that when patients are engaged with their data, healthcare quality improves.
- Multiple providers need the same access to the same data to provide consistent care. Too often, care givers that are outside of the organizational domain, do not have current access to patient data.
- Too often, repeat tests are ordered unknowingly.
- Patients often do not remember all of their clinical data points. Too often this leads to omission of critical data exchange.

- Initial reaction to this solution has been very positive.

Design/Implementation Decisions

- One objective was to support a wide ecosystem. We wanted our patient to have the ability to share with 'anyone' but needed the ability to authenticate the user. HealthyMe requires that each user must have an openid. We used the google external iDp. This could be replaced by a different component as the industry evolves.

- Much of the prototype effort was R&D, solving the technical challenges. We created a very simple user interface that demonstrated the power of HEART components.

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Potential Challenges

- Both FHIR and patient centered sharing are new concepts. The industry will not embrace these overnight. While we plan to quickly show benefits in pockets of need, broader challenges will need to be addressed.

- Our prototype depends on the ability to initially import the patient's data. This is easily done when the patient has a FHIR based portal, soon to be broadly available from many vendors. For early users, they will depend on importing a CDA. During the pilot, we will provide extra support to users toward this effort. Longer term we will simplify the process.

- Our prototype makes assumptions based on the existing HEART specification draft, which may well change before it is finalized. While this will require changes in future versions of our product, we consider this an acceptable risk.

We look forward to moving the dial on secure patient-centered sharing.

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Pilot Phase Activities

- Conduct user tests for three use cases
- Continue to recruit additional users and focus on market segments with highest value
- Support users in exchanging data, collecting feedback
- Survey effectiveness and plan to resolve identified issues
- Continue to add key features to core solution

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Differentiators

- Any user could start using this solution immediately. Users gain immediate benefits during this transition time while other organizations prepare to adopt.
- Users can authorize apps to integrate with their clinical data, speeding the adoption of this new class of health improvement tools.
- Patients don't need to wait for their organization to adopt the technology
- It can be applied to target markets immediately: Nursing home access, college student sharing clinical data with their college, referring physicians who don't have access.

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We look forward to moving the dial on secure patient-centered sharing.

Thank you

Nancy Lush

Nancy.Lush@LGIsoftware.com

401-423-9111