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Argonaut 2020 Patient Lists

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Who am I?

- Eric M Haas, MS, DVM
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- Email: ehaas@healthedatainc.com
- During DevDays, you can find / reach me here:
 - Via Whova App – Speaker's Gallery
- FHIR Zulip Chat

Argonaut Patient Lists



- Scope
- Background
- Sketch of API
- Implementation Experience
- Demo
- Roadmap
- Next Steps
- Resources



Argonaut Patient List Project Scope

GOAL: Support interoperable and standard exchange using the FHIR API for exposing *existing* EHR user-facing patient lists

- “System Generated” Lists (e.g., Calender for the day showing patients)
- “User Generated” Lists(e.g., Patients I want to follow up on)
- Write is Out of Scope
- Final Work Product will be an implementation Guide

Background

- **User-facing apps often need to know things like:**
 - “Who are the patients I’m seeing today,”
 - “Who are the patients I’m responsible for in the hospital right now,”
 - “Who are the patients in this ward.”
- **This core functionality is already supported by EHR systems**
- **However no standards based guidance for creation of and manipulation of patient lists currently exists.**
- **Several Options:**
 - Search
 - Assemble Patients in List Resource
 - Assemble Patients in Group Resource



Sketch of API

Patient List Uses the FHIR **Group** Resource

1. Discovery of 'User Facing' Lists

2. Fetch Patient List

3. Fetch Additional Data about each Patient

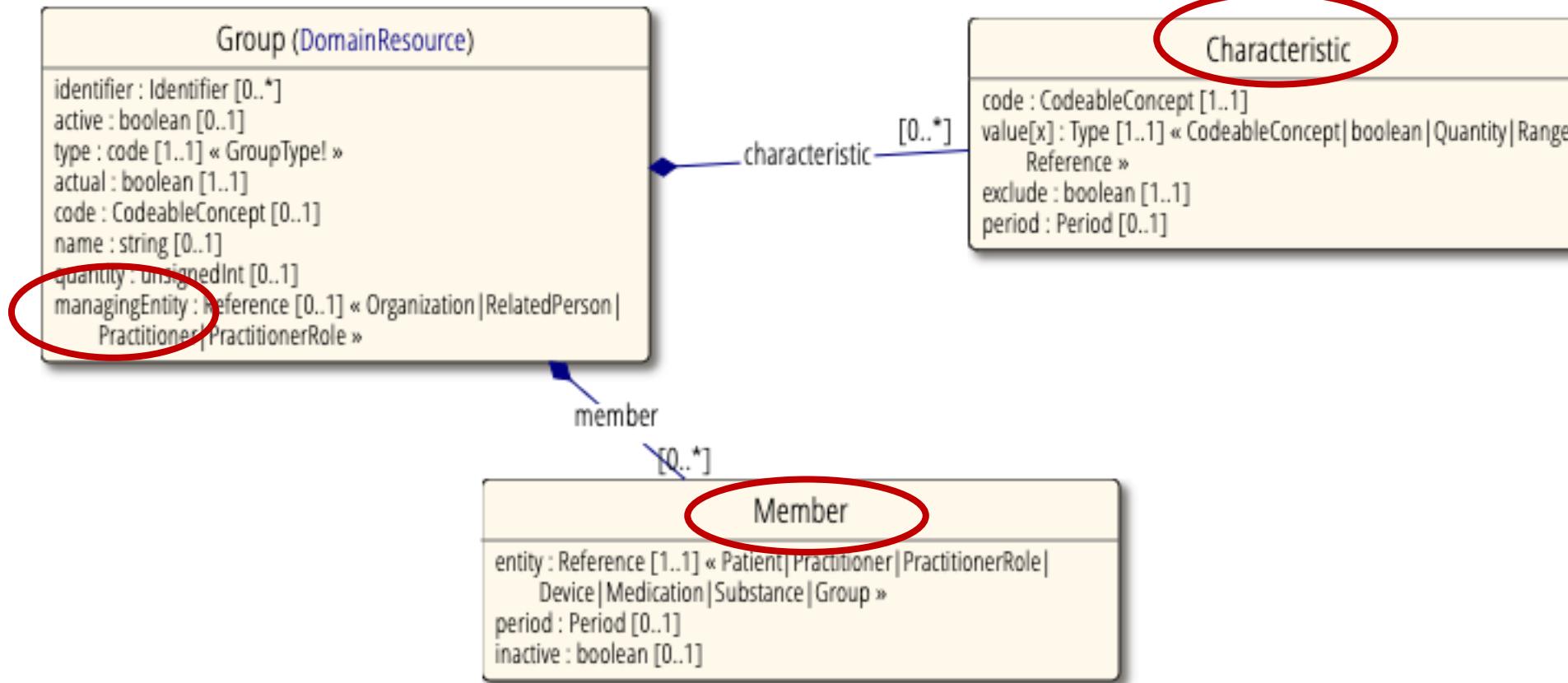
REMEMBER

For Patient List Think Group Resource

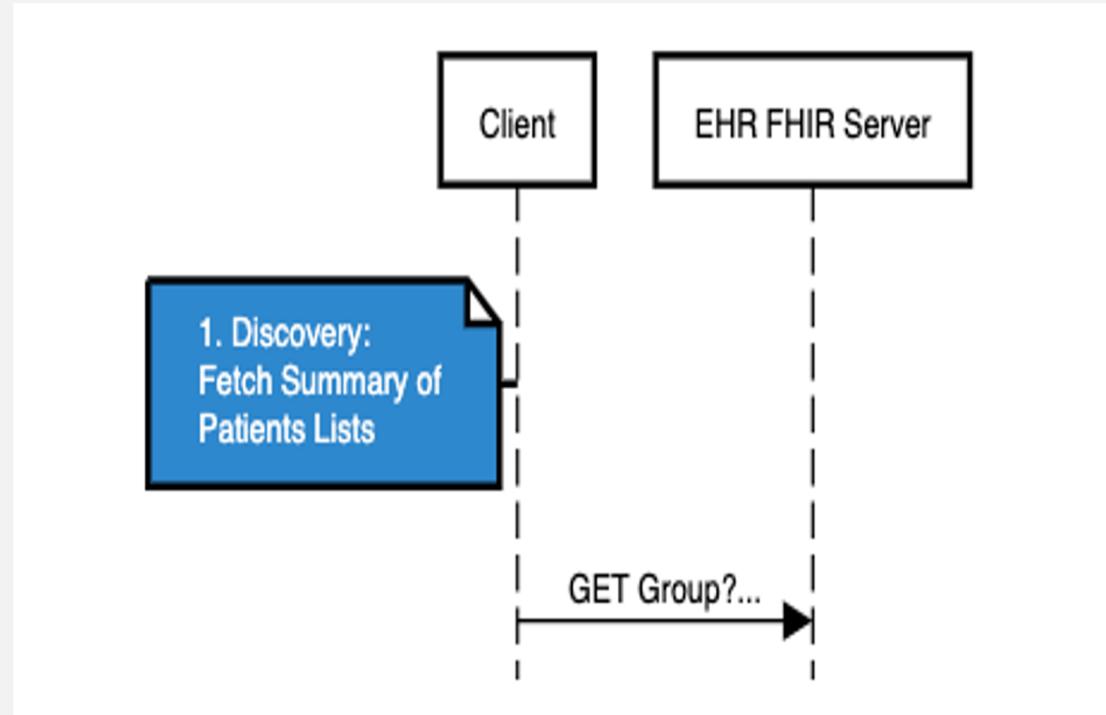
For our use case, Group lists members (`actual` = true) and members reference Patients using their logical FHIR ids.

FHIR Group Resource

UML Diagram (Legend)



1. Discovery



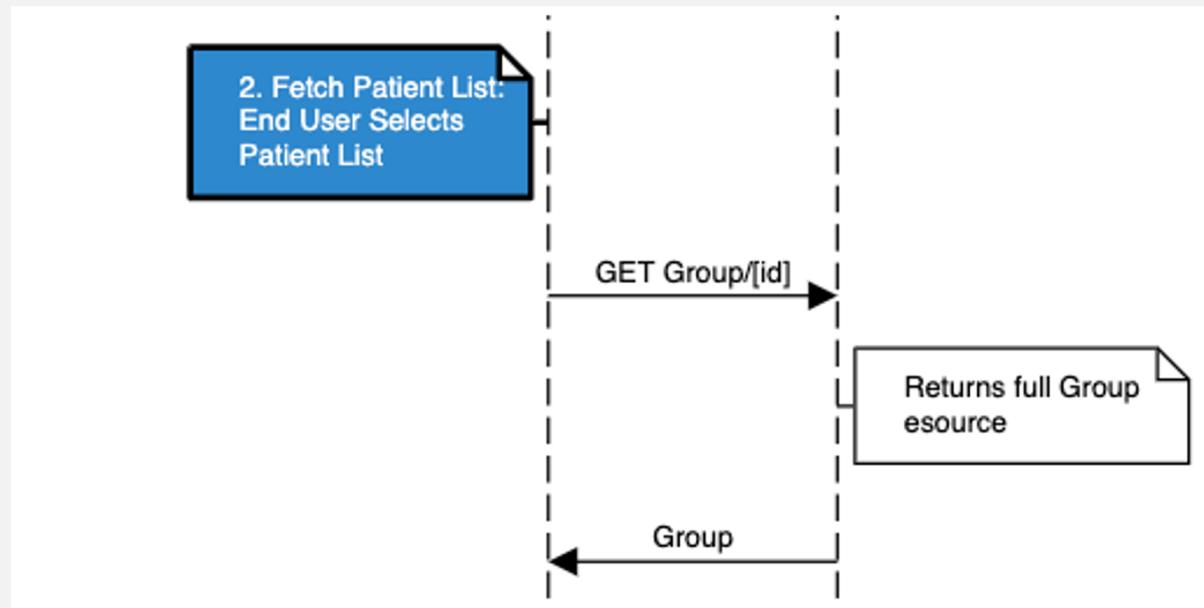
- Use Group Resource
- Ability to Search by characteristic
 - Location
 - Practitioner
 - Organization
 - CareTeam
- Ability to Search by manager of List
- Use Summary Search to limit payload size

Example Search Syntax for Getting all the available Patient Lists

```
`GET Group?_summary=true&type=person&  
characteristic=[Code value] &  
value-reference=[Value value]
```

* value-reference is a custom SearchParameter in FHIR R4 added to FHIR R5

2. Fetch Individual Patient List



- Patient list is selected using a simple Fetch operation:

/Group/ [id]

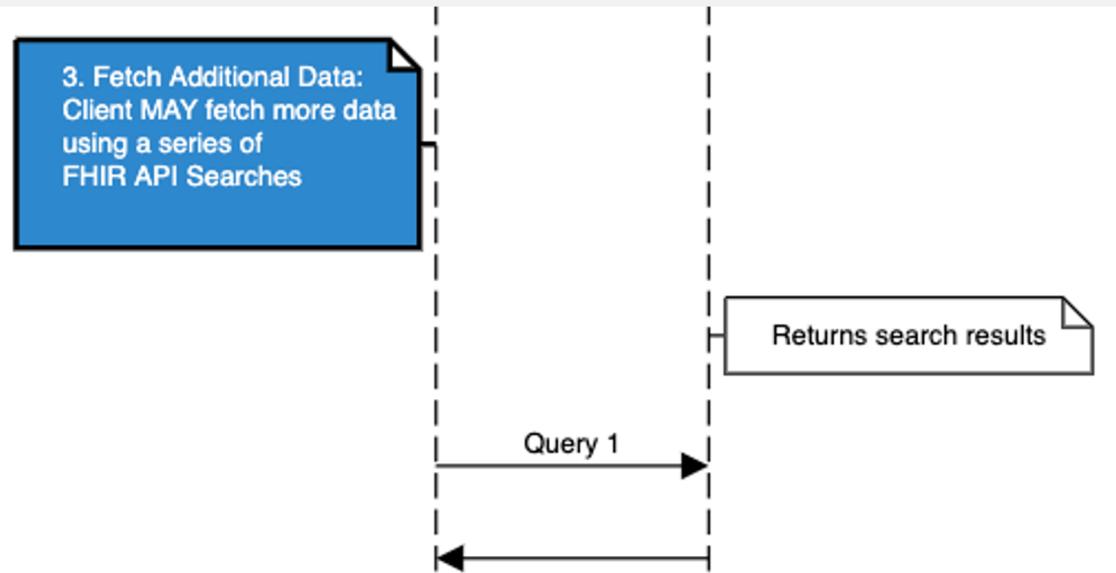
End User gets the list of Members

Are We Done?....

... Maybe, but typically need more data about the patient

MY Patients:			
Patient	id	DOB	Sex
Mr. Elden718 Halvorson124	06e1f0dd-5fbe-4480-9bb4-6b54ec02d31b		
			etc.

3. Fetch Additional Data about each Patient



- The Simplest approach is to do a series of queries on the Server to fetch additional data...

Example Search Syntax for Getting data about the members in a Patient List

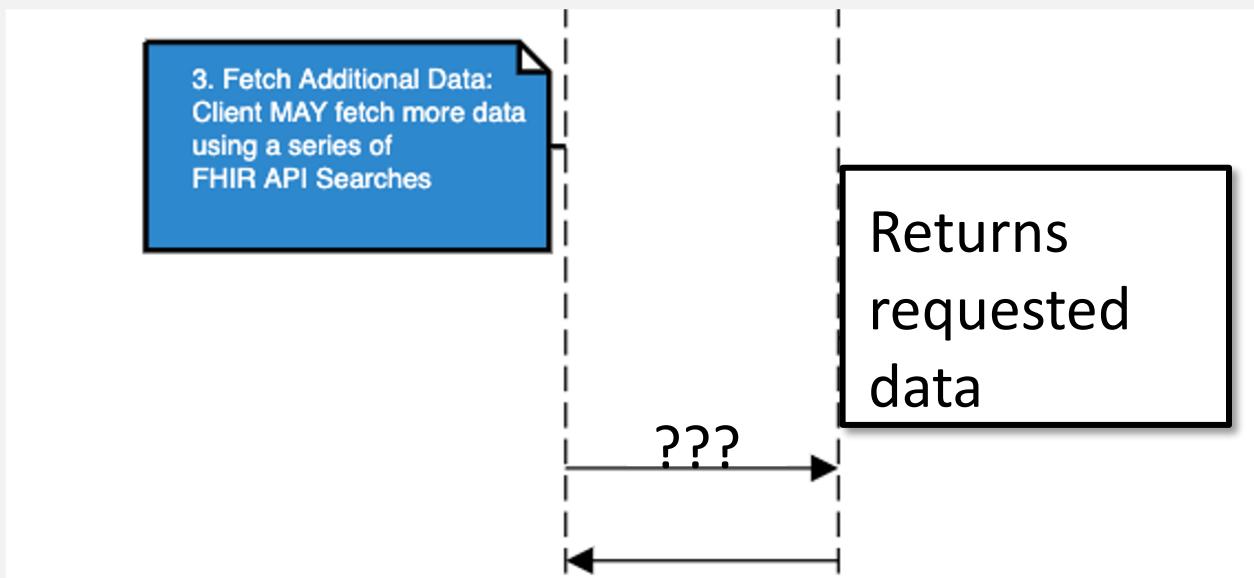
for each patient in Group:

GET Patient/ ID

GET

Observation/\$lastn?patient=Patient/ ID &category
=laboratory

When a Patient Based Query Fails



- Sometimes a patient based query isn't going to get you what you want...

Get the Specific Encounter or Appointment that defines the Group Membership

A patient-based search on Encounter or Appointment may not give you only the one you are interested in

Group

0.. * Group.members

Group.member.extension to reference the specific Encounter or Appointment which define the group membership:

For example, the appointment for each patient I am seeing today.

Fetching Additional Data Using Questionnaire

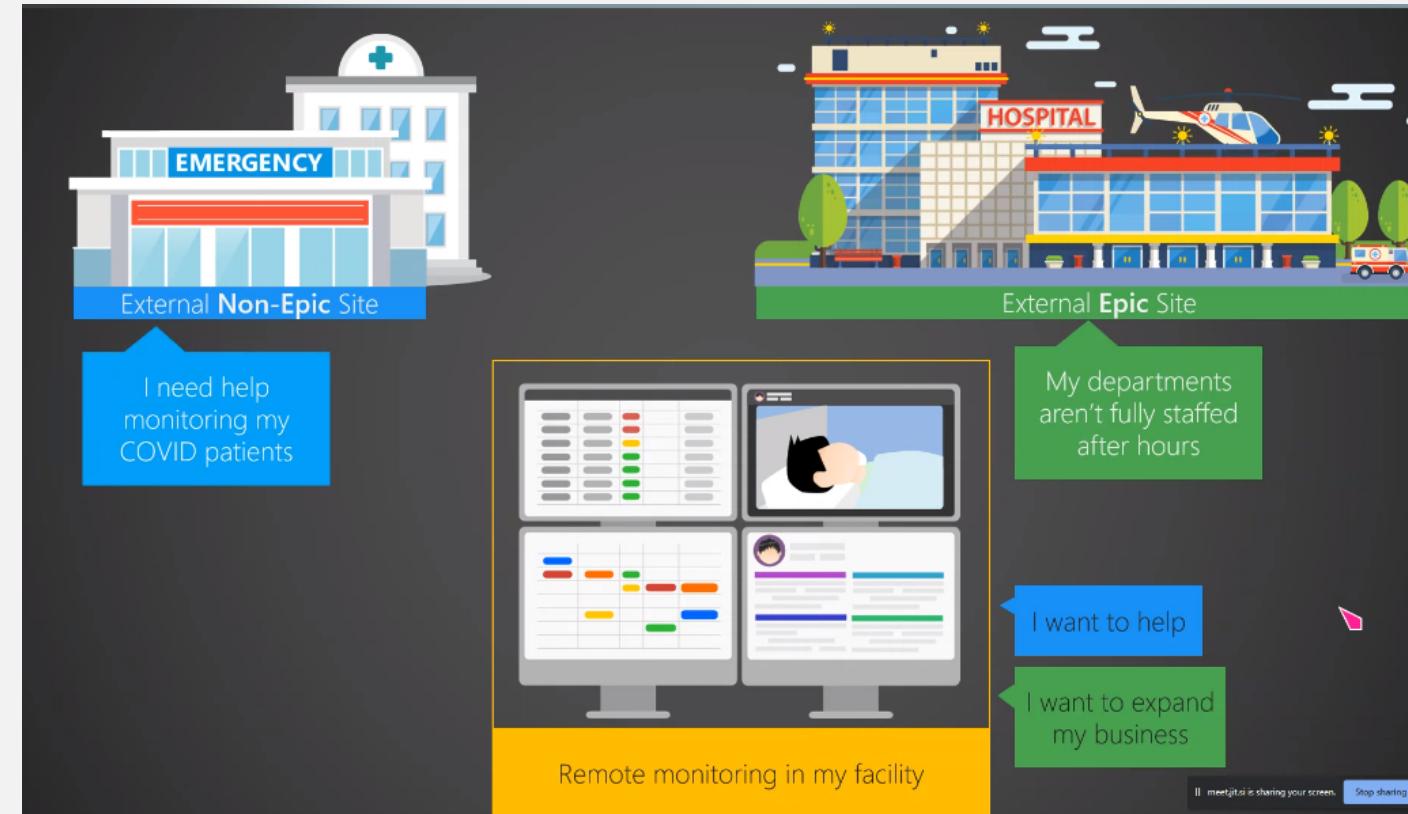
Group

Group.extension that references a Questionnaire form defining the data that is provided for each patient (Group.member)

0.. * Group.members

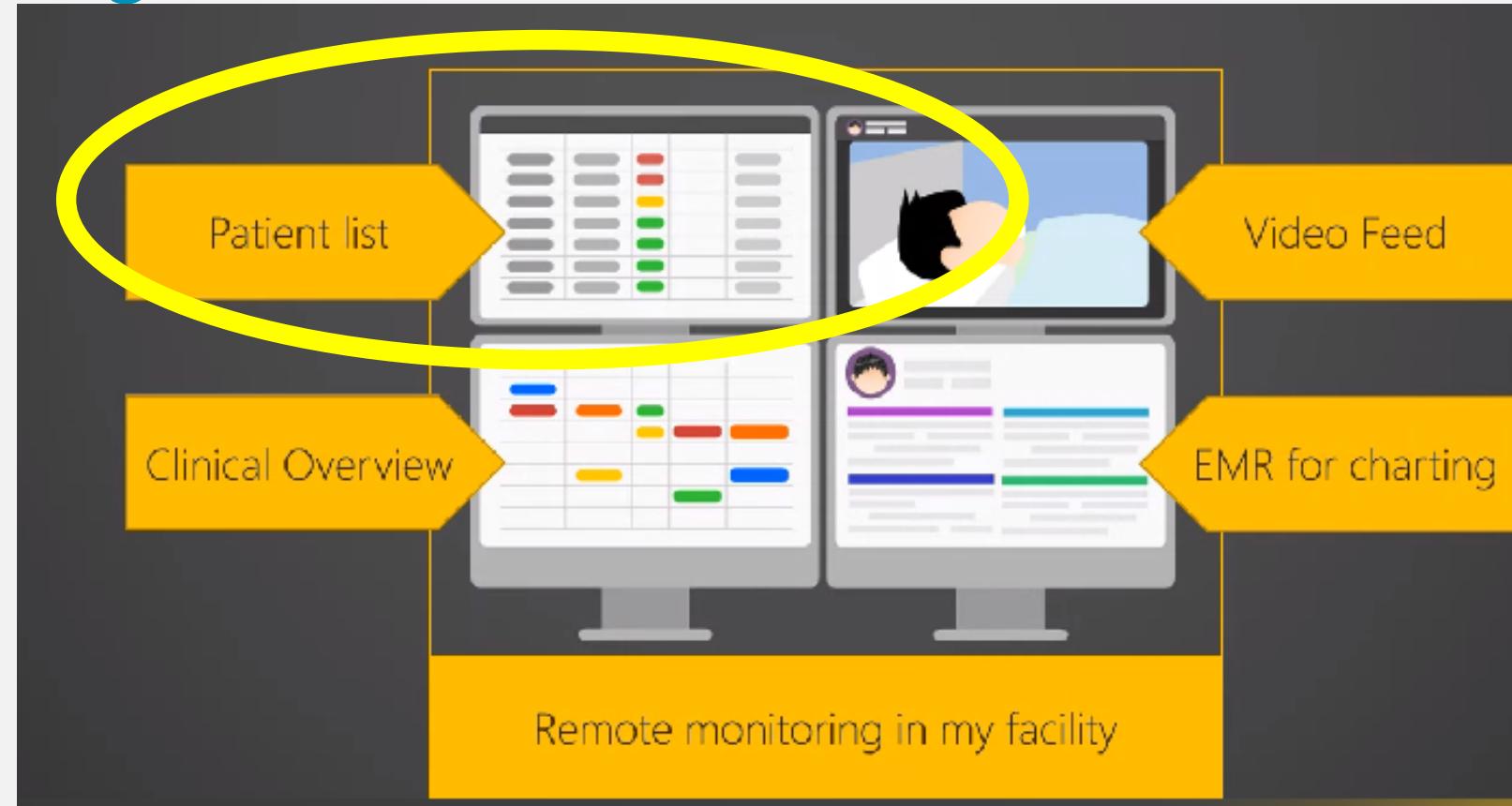
Group.member.extension that references the filled out form (QuestionnaireResponse) supplying the patient data defined by the Questionnaire (filled by server not the patient)

Using the Questionnaire Extension - Remote Monitoring



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Using the Questionnaire Extension - Remote Monitoring



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Using the Questionnaire Extension - Remote Monitoring

Risk score	Change since last review	Last reviewed	Name	Age	Sex	Problem	SOFA (or other scores)	Vitals	Alerts
800	+150	15m ago	G Atwood	45y	M	Community acquired pneumonia			Can be text, icons, or scores
750	+100	2m ago	D Warner	52y	M	Angina Pectoris			Can be text, icons, or scores
692	-22	16m ago	Q I	19y	F	Kidney Failure			Can be text, icons, or scores

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Implementation Experience

HL7 Connectathon 25: Sept 10th,11th

Servers: Cerner, Meditech, Microsoft,

Clients: Apple, Epic, Microsoft, Argonaut Test App

Accomplishments:

- Able to demonstrate basic proof of concept for above workflow for both Clients and Servers
- Identified Several Issues



Live Demonstration

Argo Patient List! About Contact Us 

Index - Argo Patient List Client

Current date/time: 2020/11/16 07:16

Patient Lists



The Argo Patient List client application will cover some foundational, early-design operations such as list discovery, selecting list member records, and selection of 'extra'

Argonaut Patient List Roadmap

April		Kickoff
May-June		Define Scope and API Design
July - August		Draft and Iterate on IG and prototype implementations
September		Connectathon Track - test multiple servers and clients
October - December		Iterate on IG and prototype implementations
January 2021		????: Ballot IG
		Connectathon Track - test multiple servers and clients

Next Steps

- HL7 FHIR January Connectathon
 - More Testing Capacity
 - Focus on getting additional Data using Q/QR
 - Large Lists
 - Getting Encounters and Appts that defined membership on the list
- Publish Argonaut Implementation Guide
- After more implementation experience hand off to HL7 for publishing as an HL7 IG.

Argonaut Patient List Resources

- Patients lists Wednesday 1-2 PM EDT (Next Meeting ...)
[Running meeting notes](#)
- [Draft API](#) (sequence diagrams, FHIR artifacts)
- [2020-09 Patient Lists Connectathon 25 Summary](#)
- Codelab exercise: <https://aka.ms/patient-lists-codelab>
- [Argo Patient Lists Test App](#)

