June 20, 2019 CDS Connect Work Group Call

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AGENDA

Time	Item
3:00 – 3:05	**Roll Call, Ginny Meadows (MITRE)**
3:05 – 3:10	**Review of the Agenda, Maria Michaels (MITRE)**
3:10 – 3:40	**b.well Patient-facing Notification and Content Development, Ginny Meadows (MITRE)** • Share information on the b.well patient notification methods and educational challenge content development • Question and answer period
3:40 – 4:05	**Artifact Data Elements Definition, MITRE** • Artifact data requirements (Ginny Meadows) • Value set identification and creation (Sharon Sebastian) • Pilot data challenges (E.g., FHIR Status, data mapping) (Ginny Meadows) • Question and answer period
4:05 – 4:15	**Demonstrate Uploading External CQL Libraries, Julia Afeltra (MITRE)** • Uploading single files and zipped collections for use in data elements
4:15– 4:25	**Demonstrate Specifying Parameter Values with the Testing Tool, Chris Moesel (MITRE)** • Ability to specify parameter values when using the "Testing" capability on CQL with parameters
4:25 – 4:30	**Open Discussion and Close Out, Maria Michaels (MITRE)** • Open discussion and announcements • Concluding comments, review next steps and adjourn

• FHIR = Fast Healthcare Interoperability Resources
• CQL = Clinical Quality Language

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b.well® Patient Notification and Content Development

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Background: b.well Platform Overview

- **Aggregates clinical, financial, user-contributed and medical device information into a personal health record for a consumer**

- **Provides a personalized health experience based on preferences and health needs**

- **Presents consumer/end-users with activities specific to their health needs and incentivizes preventive care and achievable behaviors, identified as "Care Needs"**

- **Care Needs activities include:**
  - <u>Challenges</u>: Activities that end-users engage in to achieve points or badges
    - **The activities may include scheduling an appointment with their doctor, watching an educational video on a relevant health topic, or taking a quiz**
  - <u>Education</u>: to inform the end-user on why the challenge presented is important to their health

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Examples: b.well Care Needs
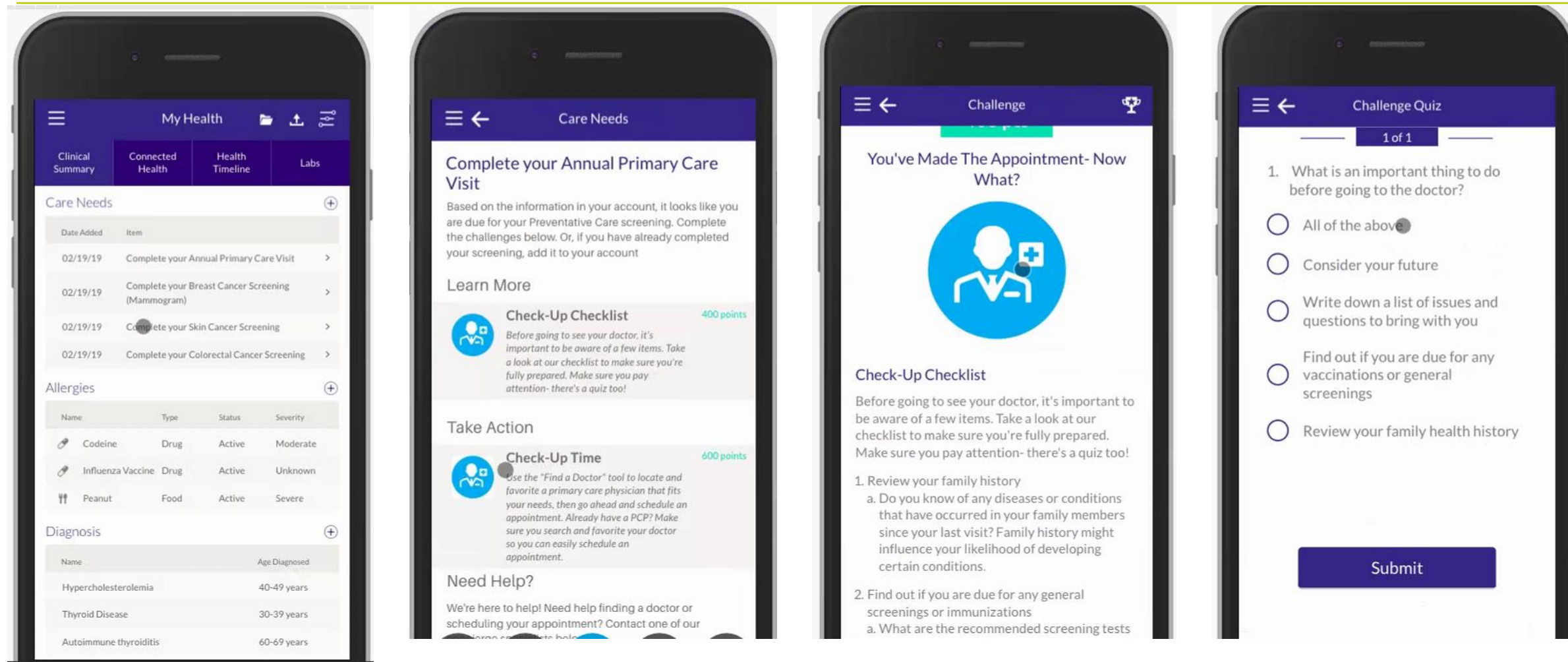
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Background: Pilot USPSTF Recommendations

- **b.well pilot includes implementation of the following USPSTF Recommendations:**
  - Healthful Diet and Physical Activity for CVD Prevention
    - Recommendation: Offering or referring adults who are overweight or obese and had have additional cardiovascular disease (CVD) risk to intensive behavioral counseling interventions to promote a healthful diet and physical activity for CVD prevention
  - Screening for Abnormal Blood Glucose Part 1:
    - Recommendation: Screening for abnormal blood glucose as part of CVD risk assessment in adults who are overweight or obese
  - Screening for Abnormal Blood Glucose Part 2:
    - Recommendation: Adults with abnormal blood glucose should be referred to intensive behavioral counseling interventions to promote a healthful diet and physical activity
  - Statin Use for Primary Prevention of CVD (includes logic/artifact for ASCVD risk calculation)
    - Recommendation: Adults age 40 to 75 years without a history of CVD who meet the screening criteria should consider use of a low- to moderate- does statin for the prevention of CVD.

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Content Development Process

- **MITRE provided the following resources to b.well to help inform their content development:**
    - Consumer-facing documents created by the USPSTF:
        - Understanding Task Force Recommendations: *Healthy Diet and Physical Activity*
        - Understanding Task Force Recommendations: *Screening for Abnormal Blood Glucose & Type 2 Diabetes Mellitus*
        - JAMA Patient Page: *Lipid Disorders: Screening and Treatment*
    - All relevant content from the healthfinder.gov site (catalogued into one spreadsheet with associated links and pdfs)

- **MITRE and b.well collaborated through a series of meetings to discuss the content resources and subsequent content development.**

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Healthfinder.gov

- **Healthfinder.gov is a government funded tool/website that includes resources on a wide range of health topics selected from approximately 1,400 government and non-profit organizations with the intention to bring the consumer the best, most reliable health information on the Internet.**

- **The "myhealthfinder" section of the website provides consumer-friendly information and educational resources regarding preventive services, including the USPSTF recommendations.**

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Recommendation Process and Notifications

- **When the CDS logic for each of the USPSTF recommendations is invoked, the b.well end-users that meet the defined criteria for one or more of the recommendations are identified and captured in a log file.**

- **Similar to b.well's existing process for Care Needs, the end-user is alerted through either a push notification or an email (dependent on user preference).**
  - Notifications contain **no** protected health information
  - Notifications include links to take the end-user directly to a Care Need challenge in the b.well app.
  - Notifications are "tiered":
    - Initial notification is sent upon notice that the end-user meets the recommendation criteria
    - If the end-user does not access the "challenge", a reminder notification is sent 1 week later
    - If the end-user has not opened the challenge 3 weeks later, reminder #2 is sent
    - If the end-user has not opened the challenge 5 weeks later, reminder #3 is sent
    - If the end-user has not opened the challenge 7 weeks later, reminder #4 is sent

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Examples: Notification Content

Initial Notification:

(push)

Take time for your health

We have a new health recommendation for you! We can walk you through what it is and why it may be right for you. Tap to learn more (and earn points while you're at it)!

(email)

Have a minute for your health, {Name}?

Hi {Name},

Based on our records, we have a new health recommendation for you. We know you've got a lot going on — so let us walk you through it! We'll go over what it is and why it was selected for you, and you'll earn points when you complete the challenge. Take a look!

Learn about my care need

Warm regards,

b.well Consumer Experience Team

Reminder #1

(push)

What can I do for my health?

We have a new recommendation to help you stay on track. Just tap this message to see what it is, and pick up some easy points. Let's go!

(email)

How to stay on track with your health

Hi {Name},

 We wanted to let you know about a new health recommendation geared towards prevention. We've pulled together a little information on what this is and why it's important. Check it out today and earn points!

Learn about my care need

Warm regards,

b.well Consumer Experience Team

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Opening the Notification and Accessing the "Care Needs"

- **The end-user opens the notification, which contains a link to the Care Needs section of the b.well app.**

- **The Care Needs defined for the pilot recommendations are integrated with other b.well-specific Care Needs.**

- **When the end-user selects a Care Need, personalized "educational challenge" content relevant to that Care Need and end-user is displayed.**
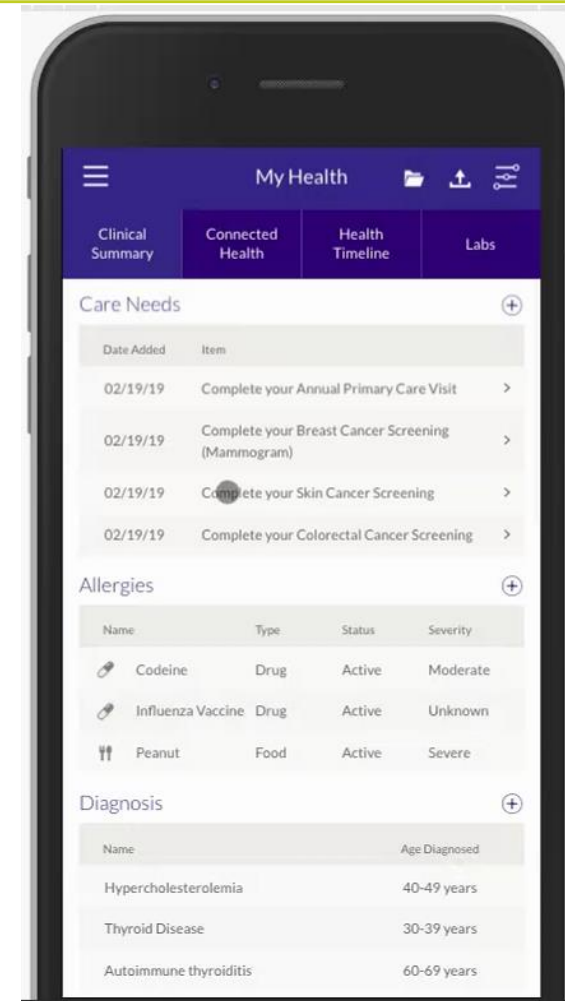
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Examples: CVD Behavioral Counseling: Educational Challenges

Give Your Heart Some Love

An important conversation to have with your doctor

Did you know you may be at higher risk for heart disease? Fortunately, there's so much you can do to protect yourself. Let's walk through a key recommendation together.

We chose this challenge for you because we noticed you may have some risk factors for heart disease and stroke. Let's go over the what and why — and then talk about how you can stay healthy!

Based on our information, you may have these risk factors *(only displays end-user's risk factors):*

The US Preventive Services Task Force recommends that you schedule time to talk with your doctor about counseling to help you eat right and stay active. Because working together, you can help turn these risk factors around.

A Heart-Healthy Plate

Eat well and keep your heart happy

Take a little time to learn about heart-healthy eating, and easy ways to incorporate it into your life.

If you're trying to prevent heart disease, you probably know that healthy eating is essential. It's true that changes can be tricky at first. But there are small things you can do that make a big difference and help you build healthier habits.

We wanted to share this healthfinder.gov resource: https://healthfinder.gov/HealthTopics/Category/health-conditions-and-diseases/diabetes/eat-healthy

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Examples: CVD Behavioral Counseling: Action Challenge

Take Action to Protect Your Heart

Take a moment to set up an appointment to talk about eating and physical activity with your healthcare team. We can help you with this!

Taking small steps to eat healthier and get more active is a great way to help prevent heart disease and stroke. This is why The US Preventive Services Task Force recommends that people at higher risk work with their healthcare team on these areas.

So set up an appointment today to ask your doctor for help with healthy eating and physical activity. Working together, you can lower your risk and stay healthy.

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Examples: Diabetes Screening: Educational Challenge

Video link: https://vimeo.com/334954104

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Examples of Additional Content Developed

- **Diabetes/Abnormal Glucose Screening Action Challenge:**
  - Take Action: Schedule that Screening!

- **Diabetes/Abnormal Glucose Educational Challenges:**
  - You Can Lower Your Risk for Diabetes!
  - Take Steps to Prevent Diabetes!

- **Diabetes/Abnormal Glucose Action Challenge:**
  - Take Action: Schedule that Appointment!

- **Statin Counseling: Education Challenges:**
  - Let's Talk About Statins And You

- **Statin Counseling: Action Challenge:**
  - Take Action: Schedule that Appointment!

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Next Steps

- **The b.well notifications and content are now "live" in the b.well production platform.**

- **MITRE is working with our Patient Advocate, Danny van Leeuwen, to develop example patient-facing intervention text for each artifact.**
  - The example text could be displayed to a patient if the artifact logic is triggered for that patient.

- **We expect that most organizations that implement one or more of these artifacts will tailor the intervention text to meet their needs and methodology.**

Questions?

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Artifact Data Elements Definition

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Artifact Data Requirements

- **In order to clearly define the required data elements for each CDS artifact, MITRE created a "Data Requirements" spreadsheet.**

- **The spreadsheet contains the following information for each data element:**
  - Data element name
  - Inclusion or exclusion criteria?
  - Artifact(s) that use this data element
  - FHIR resource
  - FHIR attributes
  - Definition code or value set(s) used to represent the data element
  - Value set object identifier (OID) for each Value set used

- **The Data Requirements will be published as an appendix for each Implementation Guide**

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Artifact Data Requirements - Example

Data Element	Inclusion (I) vs Exclusion (X)	FHIR Resource	Attributes	Definition Code/ Value set Components	OID/code/specification #1
Age	I	Patient	birthDate	N/A	
Behavioral Counseling for Nutrition and Activity Referral	X	ReferralRequest	serviceRequested status is 'requested', 'accepted', 'active', or 'completed' (see https://www.hl7.org/fhir/DSTU2/valueset-referralstatus.html) dateSent	Single VS	2.16.840.1.113762.1.4.1032.79
Behavioral Counseling for Nutrition and Activity Order	X	ProcedureRequest	code status is 'request', 'received', 'accepted', 'in-progress' or 'completed' (see https://www.hl7.org/fhir/DSTU2/valueset-procedure-request-status.html)	Union of 3 VS (same as above)	2.16.840.1.113762.1.4.1195.112
Behavioral Counseling for Nutrition and Activity Procedure	X	Procedure	code status is not 'entered-in-error' notPerformed is not true performedDateTime or performedPeriod	Union of 3 VS (same as above)	2.16.840.1.113762.1.4.1195.112
Behavioral Counseling for Nutrition and Activity Encounter	X	Encounter	status is not 'cancelled' reason (code) period	Union of 3 VS (same as above)	2.16.840.1.113762.1.4.1195.112
Body Mass Index (BMI)	I	Observation	code effectiveDateTime, effectivePeriod, or issued (to determine most recent) status is 'final' or 'amended' (see https://www.hl7.org/fhir/DSTU2/valueset-observation-status.html)	Single LOINC code	39156-5
Myocardial Infarction (MI) (Cardiovascular Disease (CVD))	X	Condition	code verificationStatus is 'confirmed'	CVD = Union of 8 VSs	2.16.840.1.113883.3.526.3.403
Ischemic vascular disease (Cardiovascular Disease (CVD))	X	Condition	code verificationStatus is 'confirmed'	CVD = Union of 8 VSs	2.16.840.1.113883.3.464.1003.104.12.1003
Coronary Artery Bypass Graft (CABG) (Cardiovascular Disease (CVD))	X	Procedure	code status is 'completed' notPerformed is absent or false	CVD = Union of 8 VSs CABG: Union of 2	2.16.840.1.113883.3.666.5.694
Percutaneous Coronary Intervention (PCI) (Cardiovascular Disease (CVD))	X	Procedure	code status is 'completed' notPerformed is absent or false	CVD = Union of 8 VSs PCI: Union of 2 VSs	2.16.840.1.113883.3.3157.2000.1
Carotid Intervention (Cardiovascular Disease (CVD))	X	Procedure	code status is 'completed' notPerformed is absent or false	CVD = Union of 8 VSs Carotid Intervention: Single	2.16.840.1.113883.3.117.1.7.1.204

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Value Set Identification and Creation

- **Determine the most appropriate way to represent the data concept**
  - "Family History of Diabetes" (i.e., First Degree Family Member with Diabetes) = Diagnosis of Diabetes associated with a First Degree Family Member

- **Identify whether an existing value set can be used**
  - Search VSAC for existing value sets
  - Compare available value sets for best fit
  - Consider using multiple value sets if needed
    - **Behavioral Counseling for Diet and Activity – defined by grouping 3 existing value sets**

- **When necessary, create new value sets**
  - Research appropriate terminology codes
  - Include descriptive metadata to ensure other potential users understand the intent, inclusion and exclusion criteria

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Value Set and Concept Definition Tally

- **Total # of concepts that were defined this year: 44!**
  - Year 1 – 18 concepts (8 new value sets created)
  - Year 2 – 19 concepts (13 new value sets created)
  - Year 3 – 44 concepts (11 new value sets created and 6 existing value sets updated – totaling **17** publicly-available resources)
- **Varied definitions**
  - Single codes vs. a single value set vs. a union of value sets vs. hybrid approaches
- **New value sets include:**
  - Waist circumference, Referral for Behavioral Counseling for Nutrition and Activity
  - Gestational Diabetes, Glucose Tolerance Test, Fasting Plasma Glucose, Impaired Glucose Tolerance, First Degree Family Member

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Pilot Data Challenges

- **b.well data sources include the following:**
  - Claims
  - Pharmacy benefit manager (PBM)
  - Reference laboratories (Quest, LabCorp, etc.)
  - Electronic Health Record (EHR)
  - Biometrics (Fitbit, Apple Watch, etc.)
  - User-entered
- **Multiple data sources provide a rich data repository yet introduce challenges**
  - Claims data does not contain important FHIR data attributes, such as verificationStatus or clinicalStatus for conditions
  - Claims data may not include all relevant patient diagnoses, only those specific to that individual claim

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Pilot Data Challenges

- **Multiple data sources provide a rich data repository yet introduce challenges (cont.)**
  - Claims data is not received in a timely manner (3 months or more lag time)
  - PBM data identifies medications with National Data Codes (NDC), not RxNorm.
  - Many laboratories still don't send LOINC codes with results.
  - EHR data can be siloed, in that it only represents the patient data from one or two providers, and not the complete set of patient data
  - User-entered and biometric data may not include terminology tagging (unless specific efforts are made to ensure this)

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Specific b.well Data Challenges and Solutions

- **Most Lab results or observations do not include LOINC codes**
  - MITRE created a document to help b.well map all lab results and observations required by the CDS artifacts to an appropriate LOINC code.

- **Procedures are primarily available from claims data, using CPT-4 codes.**
  - As MITRE does not have a license to use CPT-4, any value sets created did not include CPT-4 codes.
    - **MITRE provided mapping instructions for any required procedure data.**
    - **This included Behavioral Counseling (used as exclusions for 2 artifacts) as well as four other procedures.**

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Specific b.well Data Challenges and Solutions

- **A valid "status" indicator was missing for data elements that require a documented status:**
  - MITRE provided a "Status Mapping Guide" to help b.well determine the appropriate status to send for the following, based on additional criteria:
    - **Conditions**
    - **Observations**
    - **Procedures**
    - **ProcedureRequest**
    - **Encounter**
    - **Referral Request**
    - **MedicationOrder**
    - **MedicationStatement**

- **MITRE and b.well determined it would be difficult to discern an "active" pregnancy or breastfeeding**
  - Therefore, this data will not be available

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Specific b.well Data Challenges and Solutions

- **ASCVD Risk Calculation**
  - A majority of the b.well patient data was missing race or smoking status, both required to calculate a risk score (and the risk score is a required data element for the Statin Use artifact).
  - b.well and MITRE agreed upon the following solution:
    - **For missing Race, b.well is sending the code for "white"**
    - **For missing Smoking Status, b.well is sending the code for "Never"**
    - **b.well has implemented a user survey to collect additional data from their end-users, including smoking status.**
  - It was noted that using the above default values will likely cause each patient's risk to be underestimated.
    - **Since the CDS logic looks for CVD risk >=10%, we could be sure that the appropriate patients were receiving the CDS intervention based on the additional data available**

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Demonstration: Uploading External CQL Libraries

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Demonstration: Specifying Parameter Values with the Testing Tool

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Open Discussion and Close-out

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