

October 25, 2018 CDS Connect Work Group Call



CDS Connect

AGENDA

3:00 – 3:05	Roll Call, Ginny Meadows (MITRE)
3:05 – 3:10	Review of the Agenda, Ginny Meadows (MITRE)
3:10– 3:50	CDS Connect OY2 Clinical Domain and Approach (MITRE) <ul style="list-style-type: none"> • Share Clinical Domain and Partner approach (Sharon Sebastian) • Discuss potential approaches to artifact development and pilot implementation (Sharon Pacchiana, Ginny Meadows) • Question and answer period
3:50 – 4:00	CDS Connect OY2 Prototype Development (Chris Moesel) <ul style="list-style-type: none"> • Discuss options for prototype development for OY2
4:00 – 4:10	CDS Connect Notification Options (Dave Winters) <ul style="list-style-type: none"> • Discuss possible options and priority for notification capability
4:10– 4:20	Repository Updates (Dave Winters, Ginny Meadows) <ul style="list-style-type: none"> • New menu format and Patient Perspective design demonstration • Artifact discovery
4:20 – 4:25	Other Announcements, Sharon Sebastian (MITRE) <ul style="list-style-type: none"> • Final status of publishing the Pain Management Summary artifact, SMART on FHIR app, and CQL Services prototype tool
4:25 – 4:30	Open Discussion and Close Out, Ginny Meadows (MITRE) <ul style="list-style-type: none"> • Open discussion and announcements • Concluding comments, review next steps and adjourn

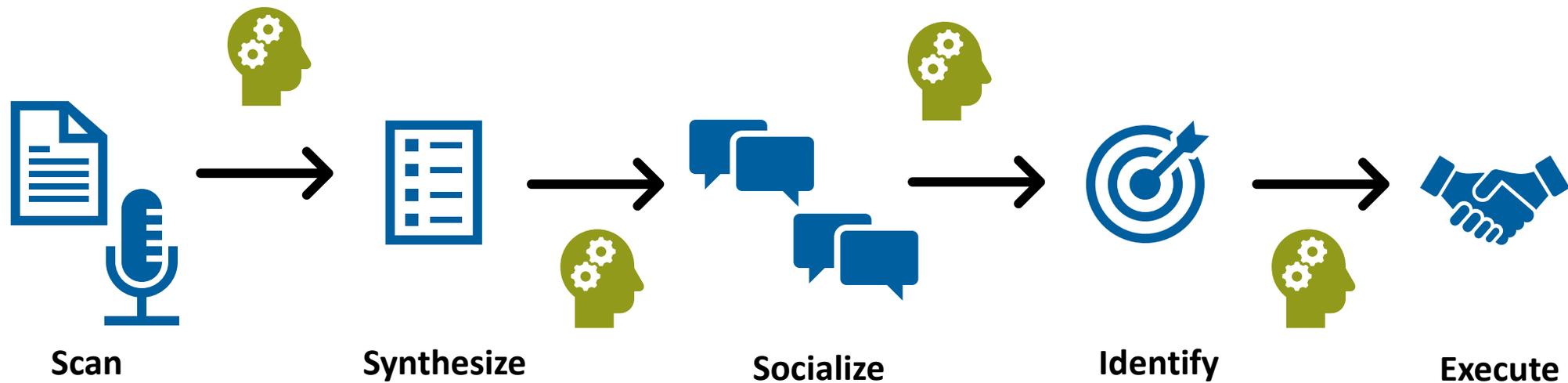
- *CDS = Clinical Decision Support*
- *OY2 = Option Year 2*
- *CQL = Clinical Quality Language*
- *SMART on FHIR= Substitutable Medical Applications, Reusable Technologies on Fast Healthcare Interoperability Resources*

OY2 Clinical Domain and Approach

CDS Domain and Development Approach

■ Clinical Domain: Preventive Health

- Evidence-based source: U.S. Preventive Services Task Force recommendations



U.S. Preventive Services Task Force (USPSTF)



- Independent, volunteer panel of nationally recognized experts
- Make evidence-based recommendations about clinical preventive services to primary care clinicians
- Convened by AHRQ
- 90+ graded recommendations across a range of clinical domains
- Often embedded in EHRs as a reminder or dashboard
- Demonstrated to reduce costs and utilization, improve quality of care

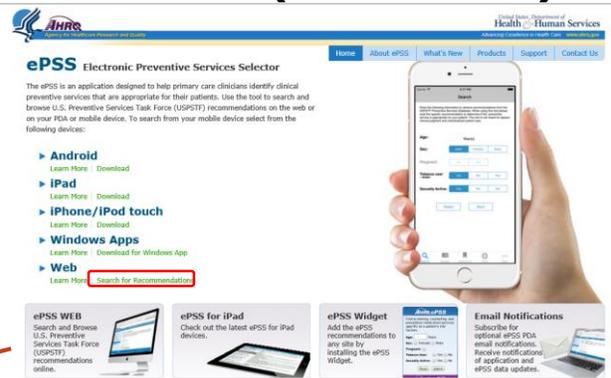
Show 100 entries		Search: <input type="text"/>	
Name ▲	Type ◆	Year ◆	Age Group ◆
Atrial Fibrillation: Screening With Electrocardiography	Screening	2018	Adult, Senior
Abdominal Aortic Aneurysm: Screening	Screening	2014	Adult, Senior
Abnormal Blood Glucose and Type 2 Diabetes Mellitus: Screening	Screening	2015	Adult, Senior
Adolescent Idiopathic Scoliosis: Screening	Screening	2018	Adolescent, Pediatric
Alcohol Misuse: Screening and Behavioral Counseling Interventions in Primary Care	Counseling, Screening	2013	Adolescent, Adult, Senior
Aspirin Use to Prevent Cardiovascular Disease and Colorectal Cancer: Preventive Medication	Preventive medication	2016	Adult, Senior
Asymptomatic Bacteriuria in Adults: Screening	Screening	2008	Adolescent, Adult
Autism Spectrum Disorder in Young Children: Screening	Screening	2016	Pediatric
Bacterial Vaginosis in Pregnancy to Prevent Preterm Delivery: Screening	Screening	2008	Adolescent, Adult
Bladder Cancer in Adults: Screening	Screening	2011	Adult
Blood Pressure in Children and Adolescents (Hypertension): Screening	Screening	2013	Adolescent, Pediatric
BRCA-Related Cancer: Risk Assessment, Genetic Counseling, and Genetic Testing	Counseling, Screening	2013	Adult, Senior
Breast Cancer: Medications for Risk Reduction	Preventive medication	2013	Adult, Senior

Electronic Preventive Services Selector (ePSS)

Focus: Electronic Preventive Services Selector and its content, US Preventive Services Task Force Recommendations (USPSTF)

ePSS

- Application for identifying pertinent USPSTF recommendations
- Available via android, iPad, iPhone, windows, web and through an API



Age: Years

Sex: Female Male Pregnant

Tobacco User - ever: Yes No

Sexually Active: Yes No

Grade	Title	Risk Info	Details
1 - Recommended (A, B)			
A	HIV Screening - Adolescents and Adults		
A	High Blood Pressure: Screening and Home Monitoring - Adults		
A	Tobacco Smoking Cessation: Behavioral and Pharmacotherapy Interventions - Adults who are not pregnant		
B	Alcohol Misuse: Screening and Behavioral Counseling Interventions in Primary Care - Adults		
B	Depression: Screening - General adult population, including pregnant and postpartum women		
B	Healthy Diet and Physical Activity for CVD Disease Prevention: Counseling - Adults with CVD Risk Factors		
B	Hepatitis B: Screening - Nonpregnant Adolescents and Adults at High Risk		
B	Hepatitis C Virus Infection: Screening - Adults at High Risk and Adults born between 1945 and 1965		
B	Latent Tuberculosis Infection: Screening - Asymptomatic adults at increased risk for infection		
B	Weight Loss to Prevent Obesity-Related Morbidity and Mortality: Behavioral Interventions - Adults 18 and older with a BMI ≥30		
2 - Selectively Recommended (C)			
C	Healthy Diet and Physical Activity: Behavioral Counseling - Adults without obesity who do not have known cardiovascular disease risk factors		
C	Skin Cancer Prevention: Behavioral Counseling - Adults older than 21 years with fair skin types		
3 - Not Recommended (D)			
D	Asymptomatic Bacteriuria: Screening - Men and Non-Pregnant Women		
D	Cardiovascular Disease Risk With Electrocardiography: Screening - Adults at low risk of CVD events		
D	Carotid Artery Stenosis: Screening - Adults		
D	Chronic Obstructive Pulmonary Disease: Screening - Asymptomatic adults		
D	Cervical Infection: Serologic Screening - Asymptomatic adolescents and adults, including those who are pregnant		
D*	Painful Cancer: Screening - Adults, Asymptomatic		
D	Testicular Cancer: Screening - Adolescent and Adult Men		
D	Thyroid Cancer: Screening - Adults		
4 - Uncertain (I)			
I	Abuse of Elderly & Vulnerable Adults: Screening - Elderly & Vulnerable Adults		

Recommended (A, B)

Selectively recommended (C)

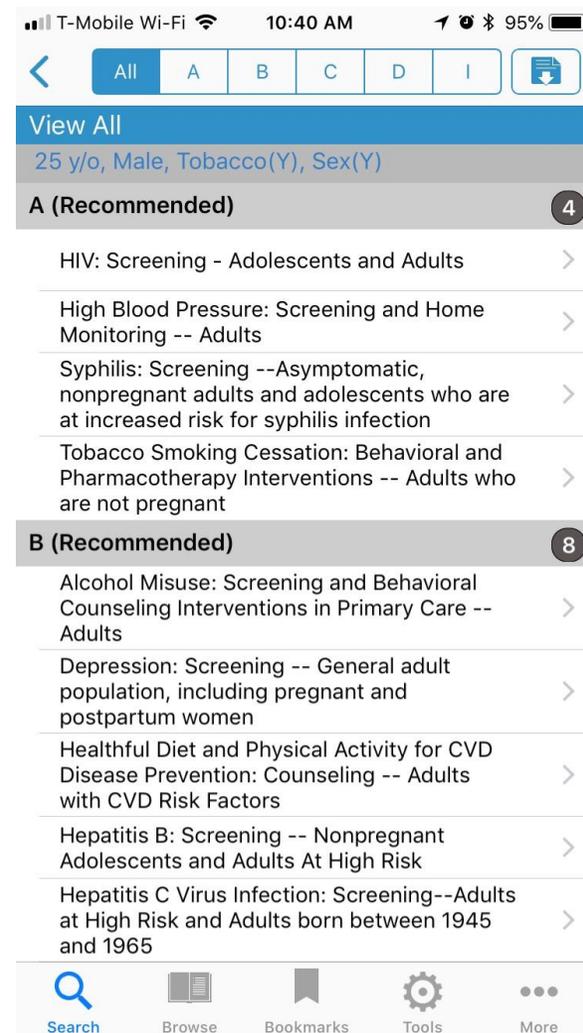
Not recommended (D)

Uncertain (I)

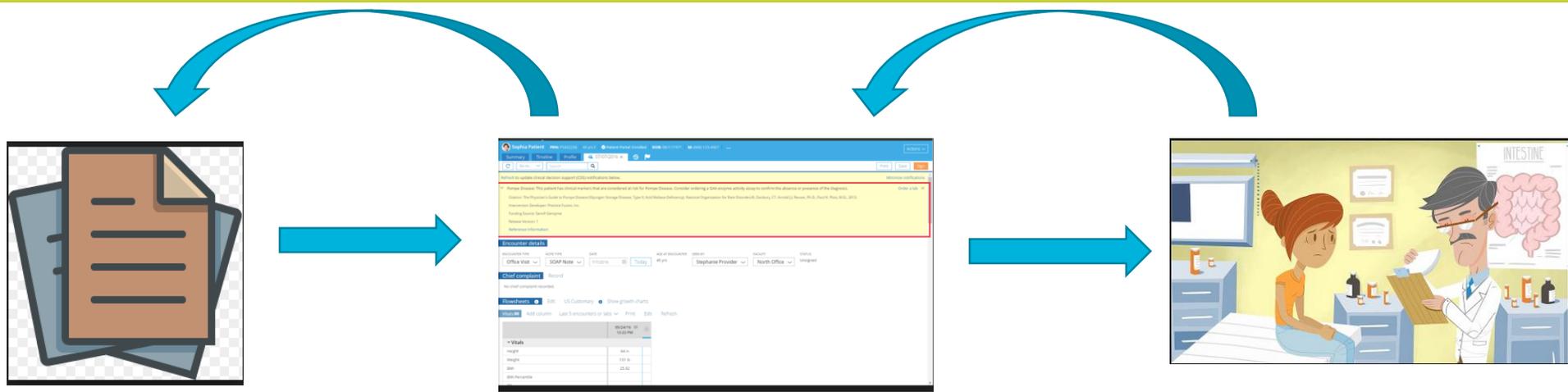


Filtered USPSTF Recommendations via ePSS

- Results shown are for a 25 year old male smoker, sexually active.
- Results are filtered by recommendation grade
- Selecting a recommended screening displays complete information, such as:
 - General description
 - Rationale
 - Clinical Considerations
 - Other additional information
 - Tools (Screening tools, Consumer-facing information, etc.)



Iterative Brainstorming on Potential Approaches



Environmental Scan

Brainstorm CDS Artifact

Brainstorm Pilot Settings

- USPSTF recommendations
- ePSS website
- Evolving models of primary care
- Occupational Health, Employee Health
- Mobile applications

- Ways to enhance the ePSS
- CDS format (e.g., mobile, SMART on FHIR)
- CDS end user (provider vs. patient)
- How to address redundant or conflicting CDS

- Primary Care
- Occupational or Employee Health
- Telehealth
- “Minute Clinic”
- Pharmacy

OY2 Prototype Development

CDS Connect Prototype Tools for FY 2019

- **Task:** Create & deliver alpha, beta, and production prototype tool(s)
- **Last Year:** CQL Services (RESTful CQL execution & CDS Hooks)
- **Potential Prototype Tools** in FY 2019
 - **CQL Services Enhancements:** Improved CDS Hooks support
 - **CQL Testing Framework:** Developer-focused tools for testing CQL
 - **CQL Documentation Generator:** User-friendly documentation from CQL

Option 1: CQL Services Enhancements

- Update to conform to final CDS Hooks 1.0 spec (when available)
- Support dynamic queries of FHIR server when “prefetch” is not provided
- Improved support for passing context and non-context parameters
- Better control of and fine-tuning of FHIR queries (performance optimization)
- (Optionally) distribute suggested config file with artifacts on CDS Connect
- Other configuration and performance enhancements

Option 2: CQL Testing Framework

- Leverage open source CQL execution engine to execute CQL-based tests
- Easily specify synthetic patient test cases and expected output
- Easily export test cases as FHIR patient bundles (for integration testing)
- Calculate test coverage to ensure all paths in the artifact are tested
- Generate easy-to-read test reports
- Share test cases on CDS Connect to allow users to locally test artifacts

Option 3: CQL Documentation Generator

- Creates user-friendly, author-annotated HTML view of CQL logic
- Allows users to review CQL details without downloading files or special IDEs
- Provides formatting and syntax highlighting of the CQL for easier reading
- Comments embedded in CQL provide additional documentation / annotation
- Special markup for sources, external terminologies, inclusion criteria, etc.
- Can be embedded into the CDS Connect repository or used stand-alone

CDS Connect Prototype Tools for FY 2019

- **Option 1: CQL Services Enhancements**
 - Improved CDS Hooks support
- **Option 2: CQL Testing Framework**
 - Developer-focused tools for testing CQL
- **Option 3: CQL Documentation Generator**
 - User-friendly, author-annotated documentation from CQL

CDS Connect Notification Options

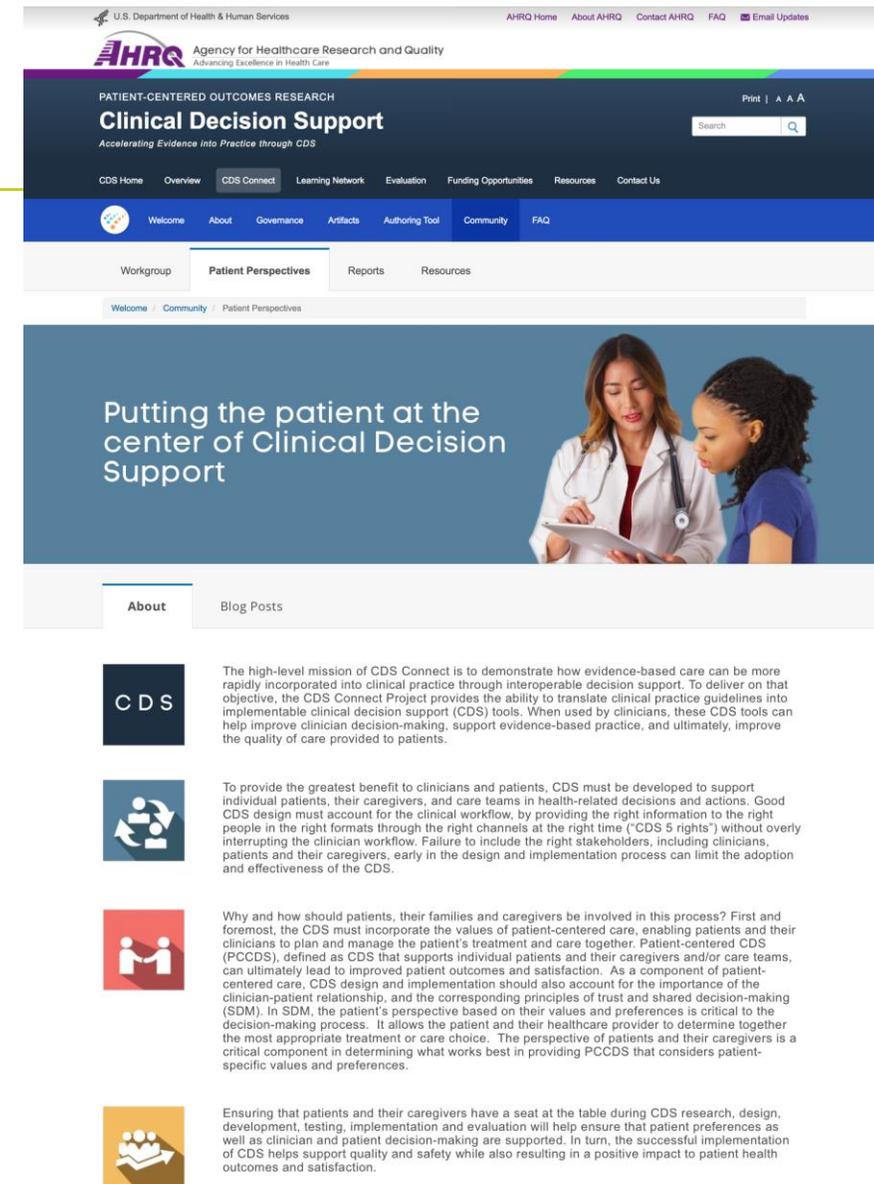
Notifications Discussion

- **Who to send notifications to?**
 - Registered users?
 - Require users to register to get notifications?
- **What to send notifications about?**
 - Site updates?
 - New or updated artifacts?
 - Site maintenance?
- **When to send notifications?**
 - As updates occur?
 - Weekly / Monthly / Quarterly?

Repository Updates

Patient Perspectives

- **Patient-centered CDS (PCCDS) supports individual patients and their caregivers and/or care teams, enabling them to work together to plan and manage care.**
- **CDS design and implementation should account for the importance of the clinician-patient relationship, and the corresponding principles of trust and shared decision-making (SDM).**
- **To emphasize this, a space is being created where the patient perspective can be shared**
 - Patient Perspective Blog
- **Starting with one entry, with more to potentially follow**



The screenshot shows the AHRQ website for Clinical Decision Support. The main navigation includes CDS Home, Overview, CDS Connect, Learning Network, Evaluation, Funding Opportunities, Resources, and Contact Us. The sub-navigation for Patient Perspectives includes Workgroup, Patient Perspectives, Reports, and Resources. The main content area features a banner with the text "Putting the patient at the center of Clinical Decision Support" and an image of a doctor and a patient. Below the banner, there are sections for "About" and "Blog Posts".

About

CDS

The high-level mission of CDS Connect is to demonstrate how evidence-based care can be more rapidly incorporated into clinical practice through interoperable decision support. To deliver on that objective, the CDS Connect Project provides the ability to translate clinical practice guidelines into implementable clinical decision support (CDS) tools. When used by clinicians, these CDS tools can help improve clinician decision-making, support evidence-based practice, and ultimately, improve the quality of care provided to patients.

Blog Posts

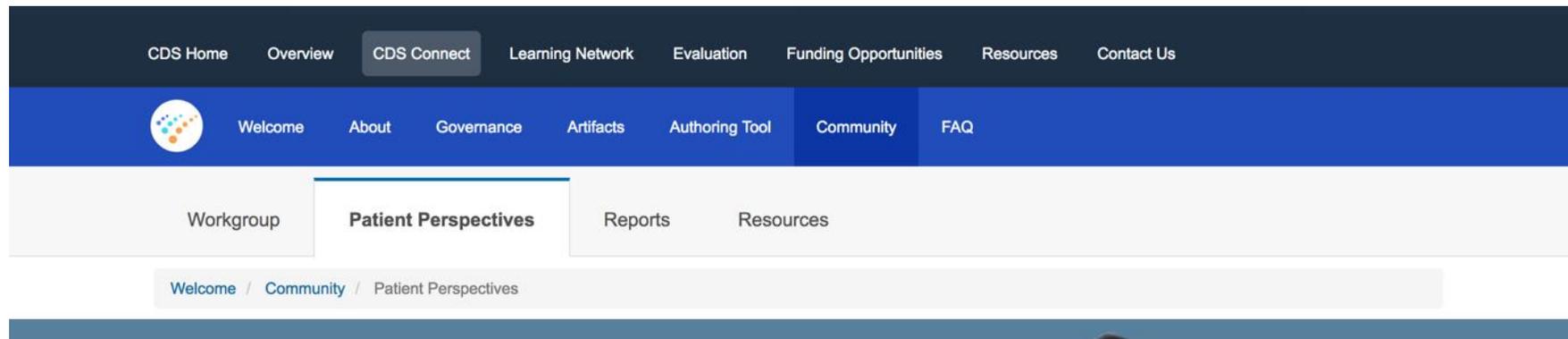
To provide the greatest benefit to clinicians and patients, CDS must be developed to support individual patients, their caregivers, and care teams in health-related decisions and actions. Good CDS design must account for the clinical workflow, by providing the right information to the right people in the right formats through the right channels at the right time ("CDS 5 rights") without overly interrupting the clinician workflow. Failure to include the right stakeholders, including clinicians, patients and their caregivers, early in the design and implementation process can limit the adoption and effectiveness of the CDS.

Why and how should patients, their families and caregivers be involved in this process? First and foremost, the CDS must incorporate the values of patient-centered care, enabling patients and their clinicians to plan and manage the patient's treatment and care together. Patient-centered CDS (PCCDS), defined as CDS that supports individual patients and their caregivers and/or care teams, can ultimately lead to improved patient outcomes and satisfaction. As a component of patient-centered care, CDS design and implementation should also account for the importance of the clinician-patient relationship, and the corresponding principles of trust and shared decision-making (SDM). In SDM, the patient's perspective based on their values and preferences is critical to the decision-making process. It allows the patient and their healthcare provider to determine together the most appropriate treatment or care choice. The perspective of patients and their caregivers is a critical component in determining what works best in providing PCCDS that considers patient-specific values and preferences.

Ensuring that patients and their caregivers have a seat at the table during CDS research, design, development, testing, implementation and evaluation will help ensure that patient preferences as well as clinician and patient decision-making are supported. In turn, the successful implementation of CDS helps support quality and safety while also resulting in a positive impact to patient health outcomes and satisfaction.

Updated Menu

- **Additional menu space is needed**
 - Adding Patient Perspectives area and blog
 - Also want to add a resources link
 - For posting user's guide and other documentation
- **Updated menu to create a new Community link**
 - Live on the repository
 - Patient's Perspective link to be available soon



Artifact Discovery

- **Currently artifacts can be searched or found listed at:**
 - <https://cds.ahrq.gov/cdsconnect/artifact>
- **Current listing of artifacts on CDS Connect Repository is manually organized by clinical domain**
 - Not scalable as number of artifacts or clinical domains increases
- **Investigated use of MeSH as a clinical taxonomy for tagging artifacts**
 - MeSH = UMLS Medical Subject Headings
 - <https://www.nlm.nih.gov/research/umls/sourcereleasedocs/current/MSH/>
 - Richer vocabulary for describing clinical domains
- **“Artifact discovery” will be the new process by which users find and navigate the content on CDS Connect**
 - With the help of MeSH tags
 - Especially important as the number of artifacts and clinical domains grow

Artifact Discovery User Needs

- **As a User, I want to be able to:**
 - Browse CDS artifacts by date added; by contributor; by clinical terms
 - Find artifacts by clinical term
 - Find artifacts authored by a specific contributor organization
 - Find artifacts added within a date range
 - Combine two or more search criteria, e.g., find artifacts authored by a contributor that are tagged with a specific clinical term
 - Other?

Artifact Discovery Contributor Needs

- **As an artifact contributor, I want to be able to:**
 - Tag my artifacts with one or more clinical terms (using MeSH terms to 5th level)
 - Search for tags using key words/partial word search (fragments)
 - Other?

Announcements, Open Discussion, and Close-out

Hot off the Press!

- **Newly published artifacts**
 - Pain Management Summary
 - Contact us
 - C-diff Treatment Pathway from Penn
- **Artifacts on the way**
 - 4 new CDC opioid prescribing artifacts
 - 19 new VHA cardiology artifacts
- **Open source code available on GitHub**
 - CQL Services
 - Pain Management Summary

<https://github.com/AHRQ-CDS>

The screenshot shows the CDS Connect website interface. The top navigation bar includes links for Home, Overview, CDS Connect, Learning Network, Evaluation, Funding Opportunities, Resources, and Contact Us. Below this is a secondary navigation bar with Welcome, About, Governance, Artifacts, Authoring Tool, Community, and FAQ. The main content area displays the title 'Factors to Consider in Managing Chronic Pain: A Pain Management Summary' and a brief description of the artifact. A 'PROMINENT REPORTS' section lists several PDF documents. Below this is a table with columns for Version (0.1), Status (Active), and Experimental (False). The 'ARTIFACT CREATION AND USAGE' section includes fields for Steward (Agency for Healthcare Research and Quality), Publisher (The MITRE Corporation), License (Federal Government Unlimited Rights License), and Clinical Domain (Pain Medicine (Family Medicine), Family Medicine, Internal Medicine, Rheumatology, Physical Medicine and Rehabilitation). A 'Keywords' section lists terms like Chronic Pain, Analgesics, Opioid, Prescription Drug Misuse, risk assessment, Pain Assessment, Alternative Therapies, and Drug Safety. The 'IMPLEMENTATION DETAILS' section provides information about the artifact's integration with EHR systems.

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