



COSRI

# COSRI Clinical Opioid Summary with Rx Integration

University of Washington  
2020

**W** CLINICAL INFORMATICS RESEARCH GROUP  
UNIVERSITY of WASHINGTON

**THE COSRI TEAM**

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# Goals (depending on what Chris just said)

MOTIVATION	Opioid Harm Reduction in WA State
WHY NEEDED?	Improve <u>PMP</u> Access for Providers in WA State CDC Guidelines and WA Regulation & Rules
WHAT IS IT?	COSRI Overview
CHALLENGES	Technical, post-hoc Design, Organizational
LOOKING AHEAD	Provider Participatory Design Early Adopters Design $\Delta$ 's, Implementation

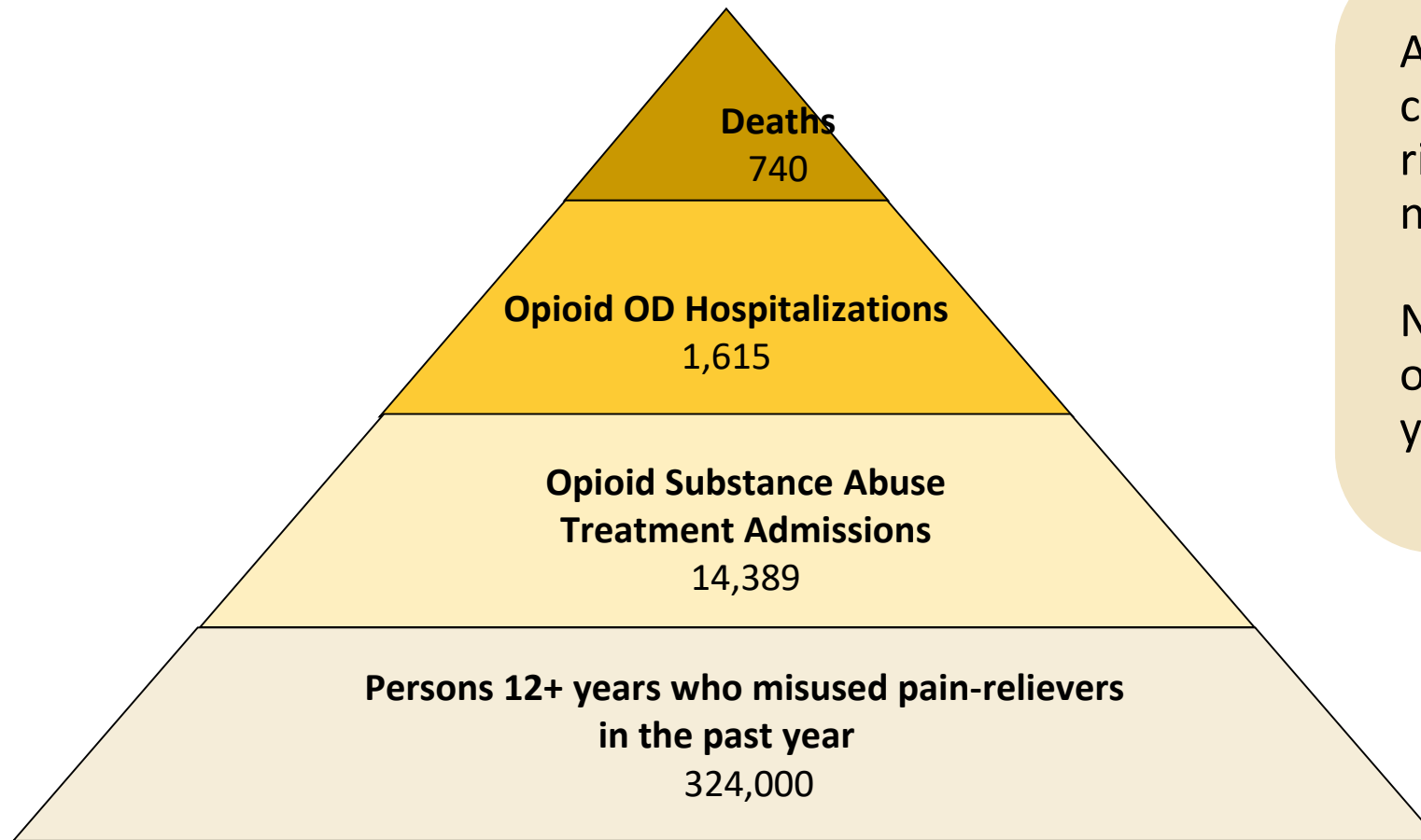


# ACRONYMS WE USE IN THIS DEMO

ACRONYMS	DEFINITION
<u>PMP</u>	<b>Prescription Drug Monitoring Program:</b> Database housing statewide dispensing records for Schedule II, III, IV and V drugs. Washington State omits the “D” in their acronym, whereas, other states refer to it as PDMP.
MME	<b>Morphine Milligram Equivalents:</b> Conversion factor that is relative to the potency of an opioid, to convert doses from one opioid to another, using morphine as the standard for the purpose of pain control.
<u>MED</u>	<b>Morphine Equivalent Dose:</b> Equals the sum of MMEs for a given period of time, typically <u>daily</u> .
CDSCoconnect	Clinical decision support software based on the CDC national prescribing guidelines
AHRQ	<b>Agency for Healthcare Research and Quality:</b> Organization leading the CDSCoconnect software. Home of open-source AHRQ Pain Management Summary
<u>COSRI</u>	<b>Clinical Opioid Summary with Rx Integration:</b> Our extension of AHRQ CDSCoconnect CPMS



# OPIOID CRISIS IN WASHINGTON STATE, 2018



Additional public health issues caused by opioid abuse include rising hepatitis C infections and neonatal abstinence syndrome.

New evidence in WA that opioid overdose fatalities have risen this year with COVID-19



# PRESCRIPTION DRUG MONITORING PROGRAM (PMP)

## WA STATE RESPONSE PLAN

**Goal 4:  
Use data to  
monitor &  
evaluate**



**Optimize and  
expand data  
sources**

- WA State Opioid Response Plan: **To use data to detect opioid misuse.**
- WA State PMP database houses **statewide dispensing records** for Schedule II, III, IV and V drugs.
- 2019 UW survey of providers found low adoption of PMP data use due to **cost and integration barriers.** (Baseman, UW SPH)
- 2019 WA State Legislature Report calls for **enhanced decision support.**





# Why Needed: Guidelines and RULes

## CDC GUIDELINES

*Focus on chronic pain patients*

- 1. Opioids are not first-line therapy**
2. Establish goals for pain and function
- 3. Discuss risks and benefits**
4. Use immediate-release opioids when starting
- 5. Use the lowest effective dose**
6. Prescribe short durations for acute pain
7. Evaluate benefits and harms frequently
- 8. Use strategies to mitigate risk**
9. Review PDMP data
- 10. Use urine drug testing**
- 11. Avoid concurrent opioid and benzodiazepine prescribing**
12. Offer treatment for opioid use disorder

## WA REGULATION & RULES

*More nuanced with complexities and slight variations –*

- Focus on phases of pain, not just chronic
- Focus on ambulatory care is the same, but with a slightly different patient exclusion criteria
- Co-prescribing rules in WA include more than just benzodiazepines – also barbiturates, Soma, and other sedative-hypnotics (CDC #11)
- PMP Access requires more specific steps and documentation in WA (CDC #9)
- For chronic pain patients, WA rules allow a higher MED than the CDC guidelines (120 vs. 90)
- Required screening for prior overdoses, which comes from the EHR data

*WA House Bill 1427 (2017), WA Senate Bill 5380 (2019)*



## WHO & WHY

Overarching funding to improve PMP usage comes from the **CMS Support ACT** through the **Washington Healthcare Authority**.

As part of that WHA project, **Washington State Department of Health (DOH)** has partnered with **UW CIRG** to ease access and improve health impact of the information in the PMP.

## WHAT

**Integrated application** for accessing PMP.

Provides **decision support** based on WA rules and CDC guidelines, and **decreases overhead and cost barriers** associated with vendor-based EHR-integrated applications.

Open source, **freely distributable**.  
COSRI extends and contextualizes software from CDSCONnect project, led by AHRQ



# What is it: COSRI Overview

- Screenshots
  - differences from CPMS
- Demo launch
  - <https://dashboard.cosri-demo.cirg.washington.edu/>



# Luke Skywalker



Imagine you are with a patient, medical record is open in your EHR...



## Luke Skywalker, M, 43

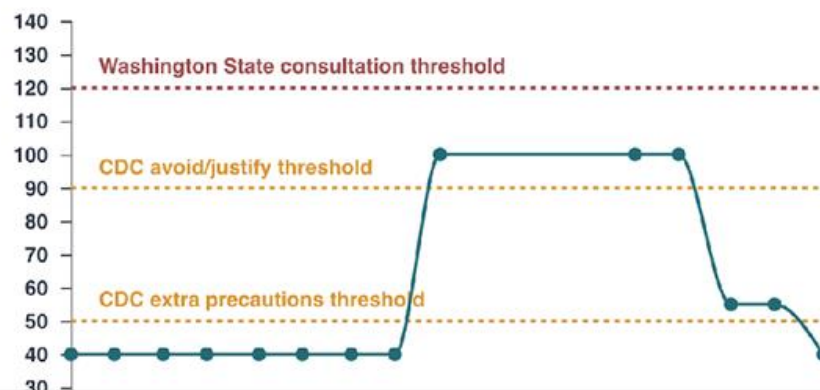
Mr. Skywalker is a general contractor who has serious chronic back pain from a work-related injury years ago. He also experiences intense anxiety at times. His primary health goal is to keep his pain and anxiety under control so that he can continue to work. He has tried physical therapy and other treatments, but continues to come to the clinic for pain control.

**WA State rules require providers review PMP data for prescribing.  
Feedback encouraged throughout the demo...**



## Patient Education Materials

## 📊 Patient Risk Overview



### Patient Risk Assessment

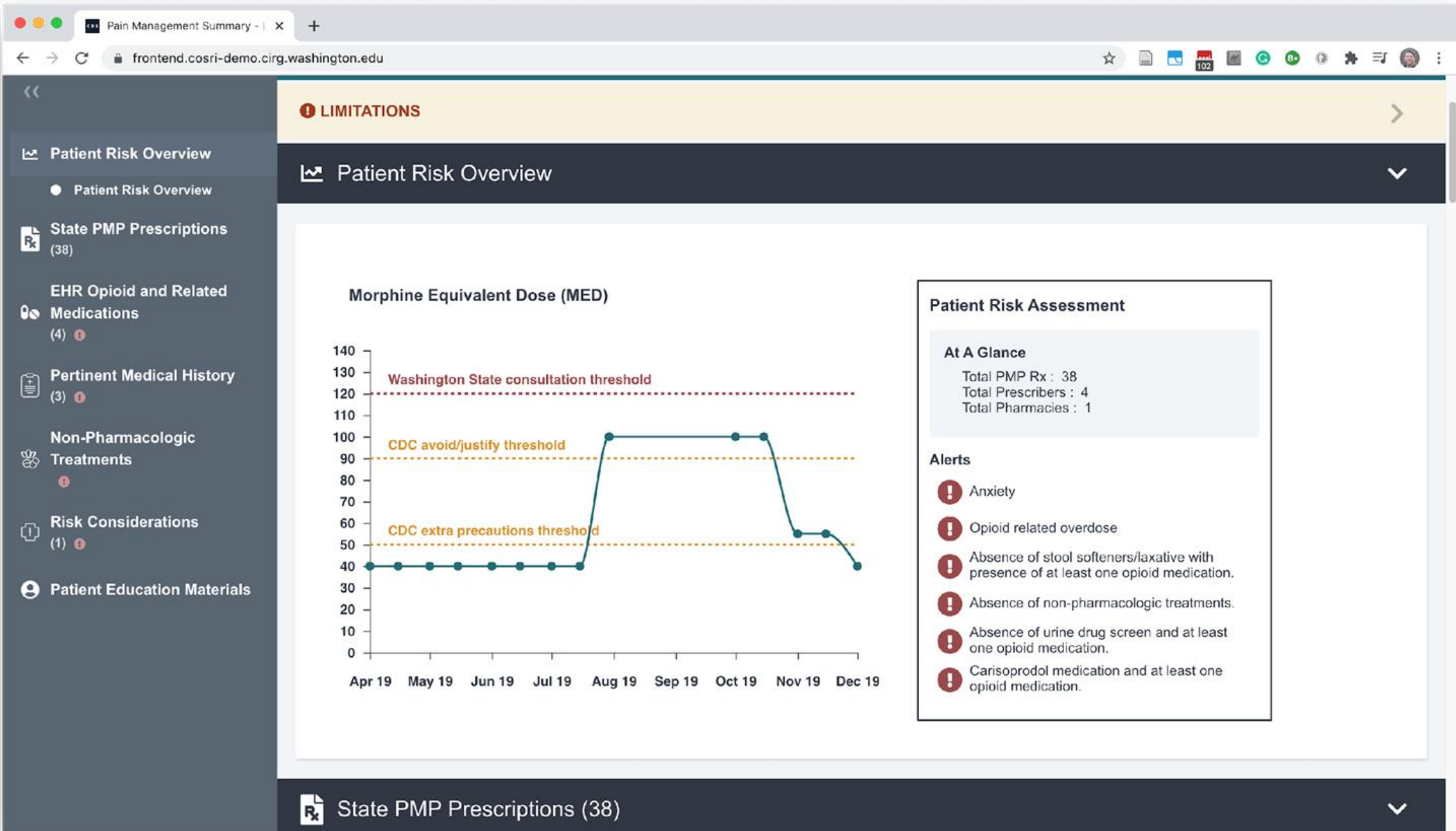
## At A Glance

Total PMP Rx : 38  
Total Prescribers : 4  
Total Pharmacies : 1

## Alerts

- ! Anxiety
- ! Opioid related overdose
- ! Absence of stool softeners/laxative with presence of at least one opioid medication.







Pain Management Summary - X

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State PMP Prescriptions (38)

State PMP Prescriptions (38)

Patient Risk Overview

State PMP Prescriptions (38)

PMP Prescriptions

EHR Opioid and Related Medications (4)

Pertinent Medical History (3)

Non-Pharmacologic Treatments

Risk Considerations (1)

Patient Education Materials

State PMP Prescriptions (38)

Drug Description	Quantity	Written Date	Dispensed	Prescriber	Pharmacy
METHADONE HCL 10 MG TABLET	1	2019-Dec-01	2019-Dec-01	TEST TEST	TEST, DOCTOR
METHADONE HCL 10 MG TABLET	1	2019-Nov-15	2019-Nov-15	TEST TEST	TEST, DOCTOR
METHADONE HCL 10 MG TABLET	1	2019-Nov-01	2019-Nov-01	TEST TEST	TEST, DOCTOR
ZOLPIDEM TARTRATE 10 MG TABLET	10	2019-Oct-25	2019-Oct-25	HID PRESCRIBER	TEST, DOCTOR
TRAMADOL HCL 50 MG TABLET	120	2019-Oct-25	2019-Oct-25	TEST PRESCRIBER	TEST, DOCTOR
DEPO-TESTOSTERONE 200 MG/ML	30	2019-Oct-25	2019-Oct-25	HID PRESCRIBER	TEST, DOCTOR
MORPHINE 10 MG SOLUBLE TAB	120	2019-Oct-25	2019-Oct-25	TEST PRESCRIBER	TEST, DOCTOR
DEPO-TESTOSTERONE 200 MG/ML	30	2019-Oct-24	2019-Oct-24	HID PRESCRIBER	TEST, DOCTOR
ZOLPIDEM TARTRATE 10 MG TABLET	10	2019-Oct-24	2019-Oct-24	HID PRESCRIBER	TEST, DOCTOR
ZOLPIDEM TARTRATE 10 MG TABLET	10	2019-Oct-23	2019-Oct-23	HID PRESCRIBER	TEST, DOCTOR

Previous

Page 1 of 4

10 rows

Next















Pain Management Summary - 1 X

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📊 Patient Risk Overview

📄 State PMP Prescriptions (38)

🏠 EHR Opioid and Related Medications (4) ⓘ

📋 Pertinent Medical History (3) ⓘ

🌿 Non-Pharmacologic Treatments ⓘ

● Non-Pharmacologic Treatments

🚨 Risk Considerations (1) ⓘ

👤 Patient Education Materials

🌿 Non-Pharmacologic Treatments ⓘ

🚨 Risk Considerations (1) ⓘ

🌿 Non-Pharmacologic Treatments ⓘ

no entries found

ⓘ Absence of non-pharmacologic treatments.

CDC Guideline #1: Opioids are not first-line therapy.

The query was last executed at September 11th 2020, 5:15:51 pm.

🚨 Risk Considerations (1) ⓘ

Most Recent MED [more info](#)

no entries found

ⓘ CDC Guideline #5: Use lowest effective dose.

Urine Drug Screens [more info](#)

no entries found

ⓘ Absence of urine drug screen and at least one opioid medication.

CDC Guideline #10: Use urine drug testing.

Benzodiazepine Medications [more info](#)



Pain Management Summary - L X

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Patient Risk Overview

State PMP Prescriptions

(38)

EHR Opioid and Related Medications

(4)

Pertinent Medical History

(3)

Non-Pharmacologic Treatments

Risk Considerations

(1)

● Most Recent MED

● Urine Drug Screens

● Benzodiazepine Medications

● Carisoprodol Medications

● Naloxone Medications

Patient Education Materials

CDC Guideline #10: Use urine drug testing.

Benzodiazepine Medications

[more info](#)

no entries found

CDC Guideline #11: Avoid concurrent opioid and benzodiazepine prescribing.

Carisoprodol Medications

[more info](#)

<u>Drug Description</u> ⬆	<u>Written Date</u> ⬆	<u>Dispensed</u> ⬆	<u>Prescriber</u>	<u>Pharmacy</u>
<span></span> Carisoprodol 250 MG Oral Tablet	2019-Apr-15			

WA Guideline: Washington State Rules require documentation of decision making when coprescribing carisoprodol with opioids.

Naloxone Medications

[more info](#)

no entries found

CDC Guideline #8: Use strategies to mitigate risk.

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Patient Education Materials

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Pain Management Summary - 1

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Patient Risk Overview

State PMP Prescriptions

(38)

EHR Opioid and Related Medications

(4) ⓘ

Pertinent Medical History

(3) ⓘ

Non-Pharmacologic Treatments

ⓘ

Risk Considerations

(1) ⓘ

Patient Education Materials

● Resources

Patient Education Materials

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Resources

Chronic Pain Patient

(PDF, size: 552 KB)

Surgical Pain Patient

(PDF, size: 492 KB)

Acute Pain Patient

(PDF, size: 495 KB)

Sub-Acute Patient

(PDF, size: 487 KB)

Naloxone Patient / Public

(PDF, size: 1.1 MB)

Clarification of Opioid Prescribing Rules

(PDF, size: 103 KB)

Patient / Public Video

➤

Visit the rest of the DOH toolkit

The query was last executed at September 11th 2020, 5:15:51 pm.

Please see the [CDC Guideline for Prescribing Opioids for Chronic Pain](#) for additional information and prescribing guidance.

COSRI incorporates the Clinical Pain Management Summary application, released as open-source software by CDS Connect project at the Agency for Healthcare Research and Quality (AHRQ). We have extended AHRQ's work to provide enhanced security, improved decision support, integration with state Prescription Drug Monitoring Program databases, standalone operation, and other features. For a description of our open source release, contact [info@cosri.app](mailto:info@cosri.app) . Support for the development of COSRI was provided by the Washington State Department of Health and the Washington State Health Care Authority through the CMS Support Act.

Development Tools

[show/hide]

These development tools are for troubleshooting issues and intended to be used by technical support.



# Challenges – AHRQ PMS to COSRI transition

- Structural
- Architectural/Development
- Compliance
- Deployment
- Implementation



# Challenges - Structural

- Short time frame
- Adopting someone else's Open Source project



# Challenges - Architectural/Development

- Started w/ public (front end) SoF app relying on a single FHIR endpoint, using CQL
- Added confidential (back end) SoF app to keep secrets, allow multiple FHIR endpoints
  - access HIE PMP endpoint w/o exposing certificates
  - provide launch of public (front end) app for UI
  - routing from diverse FHIR endpoints in confidential backend
  - eventually
    - harmonized endpoint w/ routing and integrated authorization
- DSTU2 vs R4





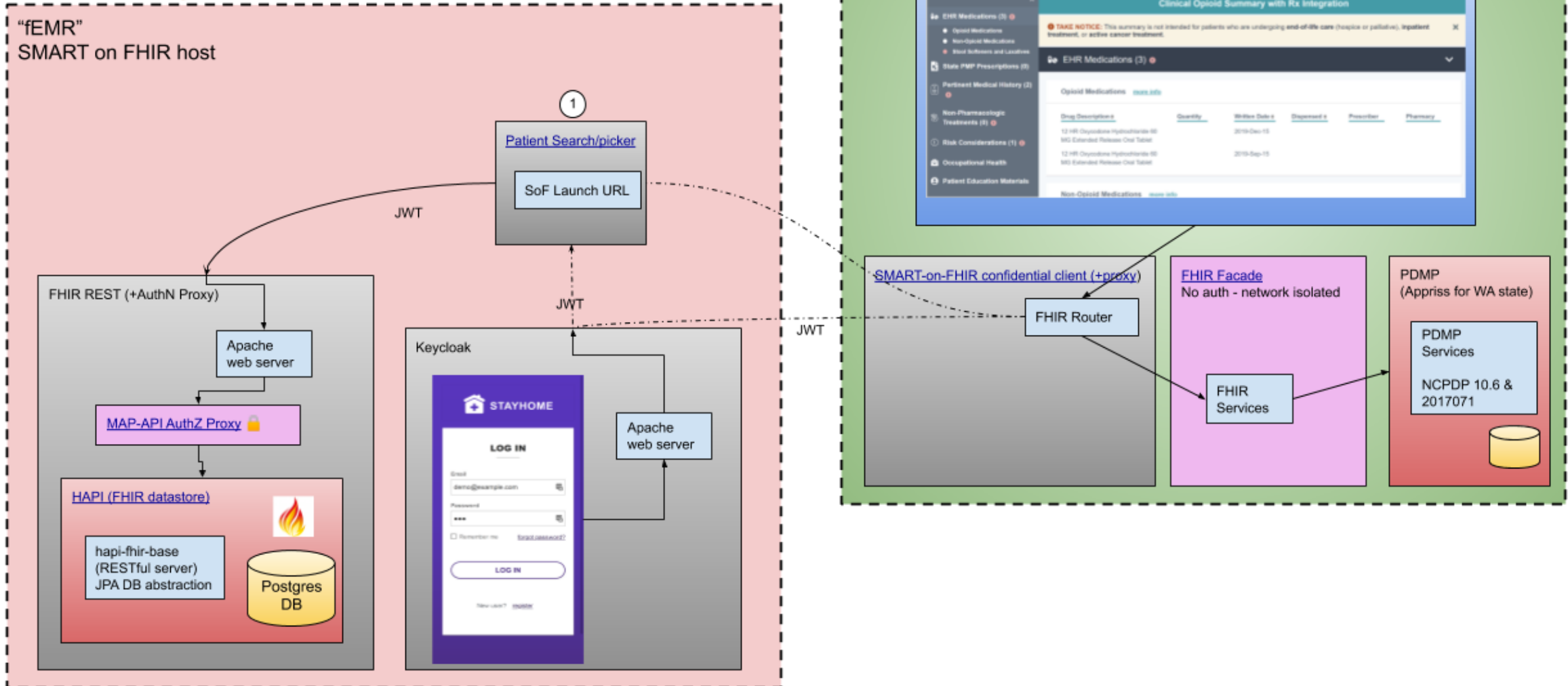
# "COSRI" Opiate Reduction Software Architecture (UW DOH)

See also:

[COSRI Meds Data Flow Diagram](#)

## Key key

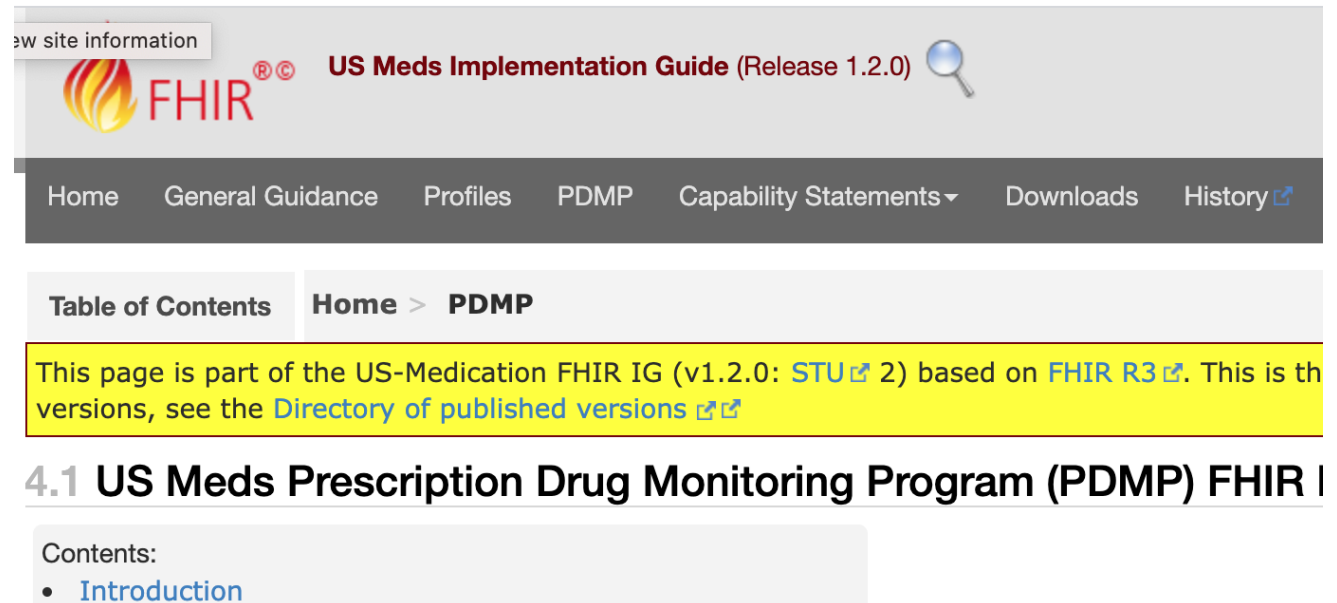
-  - JWT generated at staff login; used by "EMR" for patient search
-  - JWT generated during SoF app launch, used by SoF app






# Challenges - Architectural/Development

- Developed FHIR Facade to expose NCPDP SCRIPT as FHIR
  - used FHIR IG, developed through ONC <http://hl7.org/fhir/us/meds/pdmp.html>
- CQL alerts and calculations
  - Alerts from WA Rules
    - differentiate from CDC guidelines
  - Implement MED calculations
    - NDC -> RxNorm
    - MME calculation
    - Integration into MED



new site information

 **US Meds Implementation Guide (Release 1.2.0)**

Home General Guidance Profiles PDMP Capability Statements Downloads History

Table of Contents Home > PDMP

This page is part of the US-Medication FHIR IG (v1.2.0: STU 2) based on FHIR R3. This is the latest version, see the [Directory of published versions](#).

## 4.1 US Meds Prescription Drug Monitoring Program (PDMP) FHIR Implementation Guide

Contents:

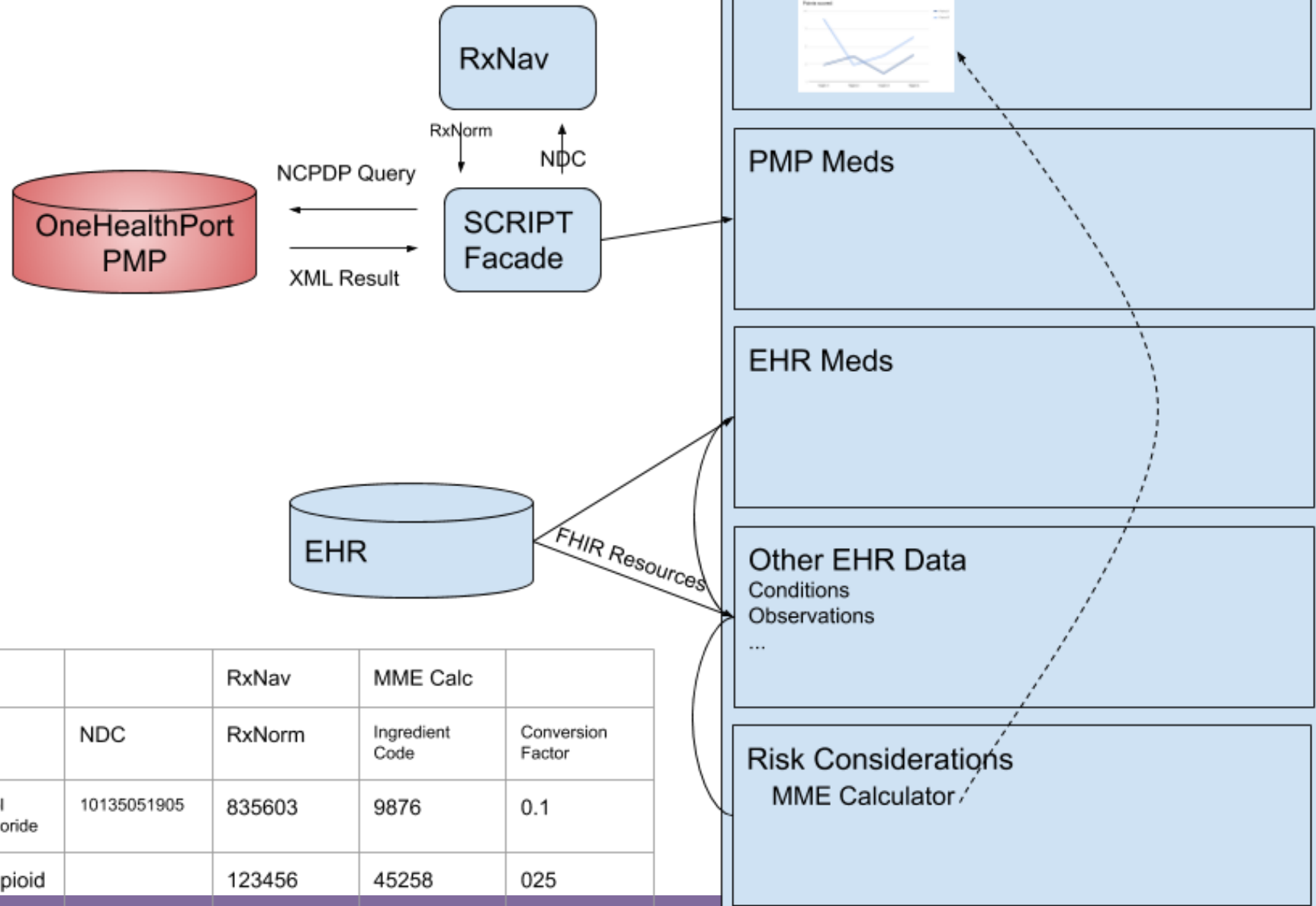
- [Introduction](#)



See also:

[Summary of a med's pathway](#)

[COSRI Arch v2](#)



OHP		RxNav	MME Calc	
Name	NDC	RxNorm	Ingredient Code	Conversion Factor
Tramadol Hydrochloride	10135051905	835603	9876	0.1
EHR Opioid		123456	45258	025



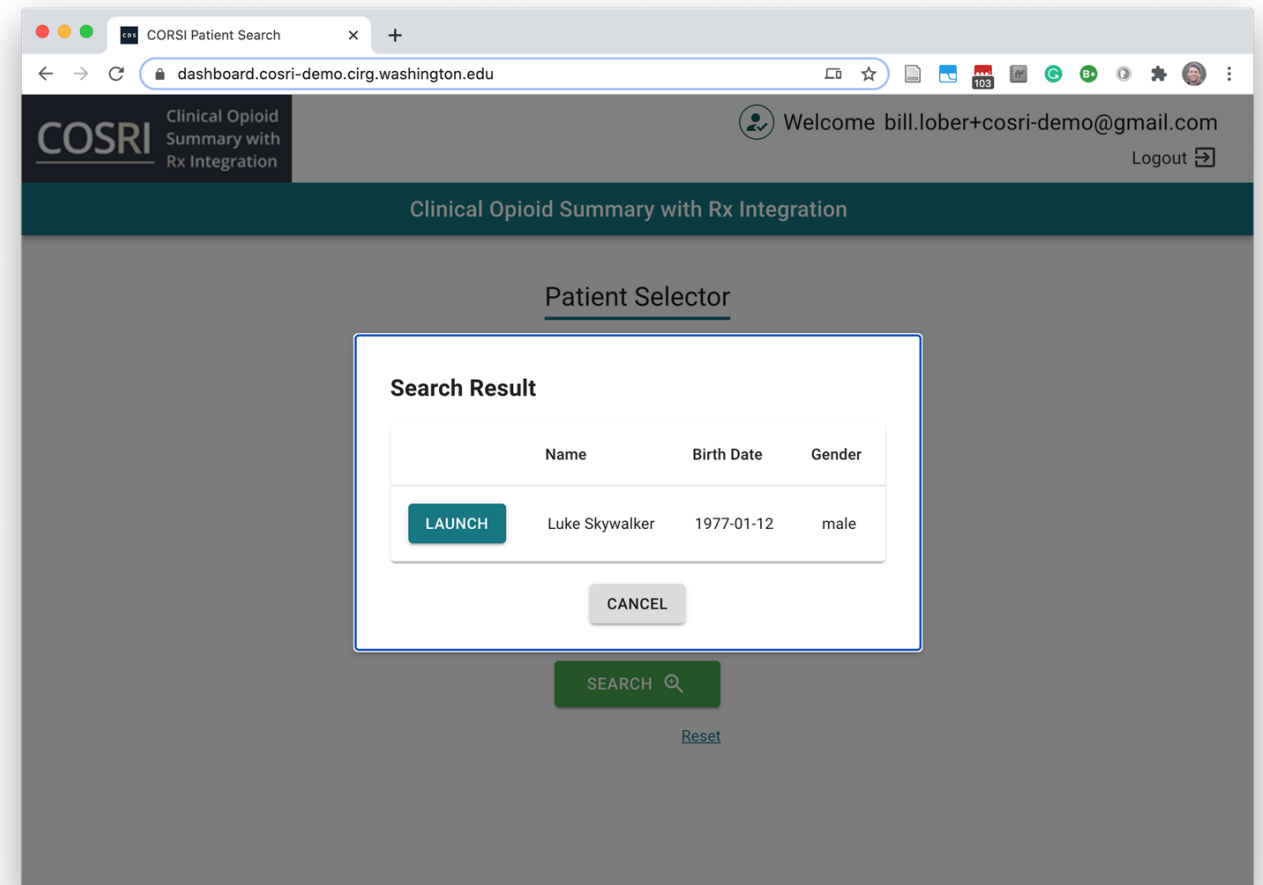
# Challenges - Compliance

- Compliance
  - Move from a demonstration system -> production-grade system
  - Authentication, Security, Auditing
  - DOH Security Team review
  - Compliance w/ HIE access requirements



# Challenges - Deployment Strategies

- Deployment Strategies
  - EHR embedded SMART on FHIR
  - Independent of EHR, fEMR





# Challenges - Implementation

- Retrospective Assessment/Design
- HIE and DOH engagement/approval
- Identifying Early Adopters
  - Heterogeneous HIT environments
  - EHR embedded vs fEMR
- Implementation Plan for each setting



# Alignment w/ National Standards Initiatives

- \* Tested in HIMSS IHE Showcase w/ one set of vendors (Epic EHR, NIC, Appriss, others, cancelled)
- \* Re-tested in NACCHO 360 IHE Showcase w/ another set of vendors (fEMR mode, State PMP sandbox)
- \* Tested again at HL7 Connectathon, yesterday (Epic, State PMP sandbox)



# THANK YOU!

COSRI TEAM  
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## WANT MORE?

### Next Steps

- ❖ Build a better tool
- ❖ Identify functional improvements for COSRI
- ❖ Establish the community of COSRI early adopters
- ❖ Understand what support is needed for COSRI implementations
- ❖ <https://github.com/uwcirg/AHRQ-CDS-Connect-PAIN-MANAGEMENT-SUMMARY>
- ❖ Integration w/ WA Telepain, PainTracker