



The Office of the National Coordinator for
Health Information Technology

Improving Opioid Prescribing through Electronic Clinical Decision Support Tools

ONC Annual Meeting 2018

November 29th, 2018 | 2:45 – 3:45 PM



Panelists



**Wesley Sargent, Jr., EdD,
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Prevention, National Center for
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Leigh Burchell

Vice President, Health Policy and
Industry Affairs, Allscripts and
Chair, EHRA Opioid Crisis Task
Force

Improving Opioid Prescribing through Electronic Clinical Decision Support Tools: Implementation of CDC's *Guideline for Prescribing Opioids for Chronic Pain*

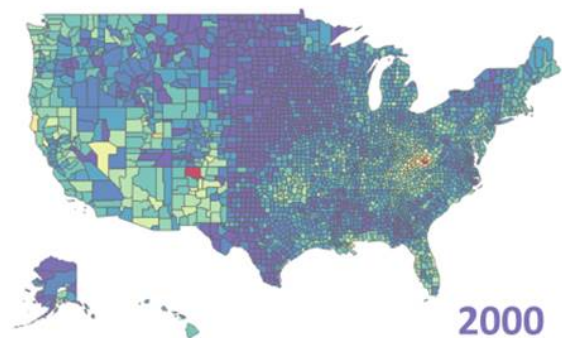
Wesley Sargent, Jr, EdD, MA, CDC

ONC 2018 Annual Meeting

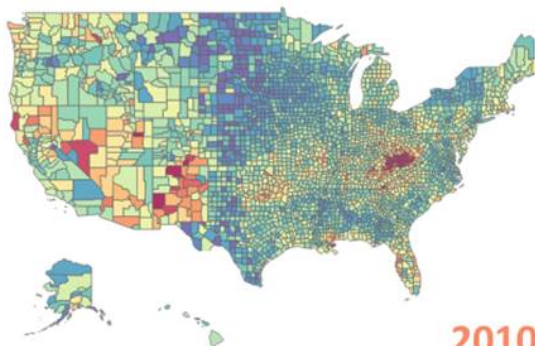
November 29, 2018



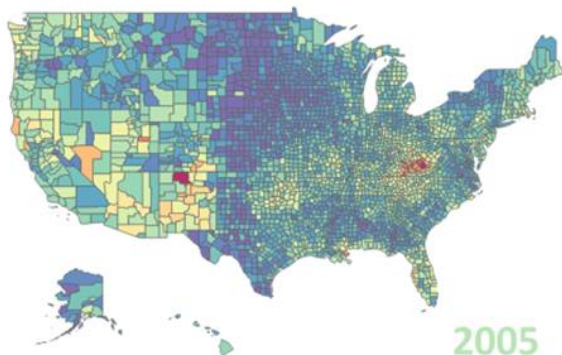
Rapid Increase in Drug Overdose Death Rates by County



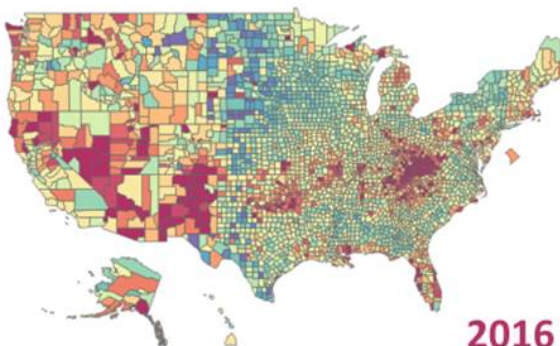
2000



2010

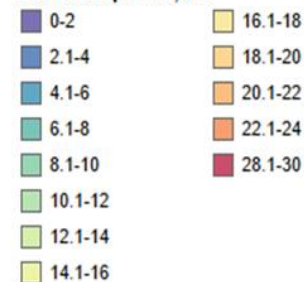


2005



2016

Estimated Age-adjusted
Death Rate per 100,000:



Vital Signs: Opioid Overdoses Treated in Emergency Departments

↑30%

Opioid overdoses went up 30% from July 2016 through September 2017 in 52 areas in 45 states.

↑70%

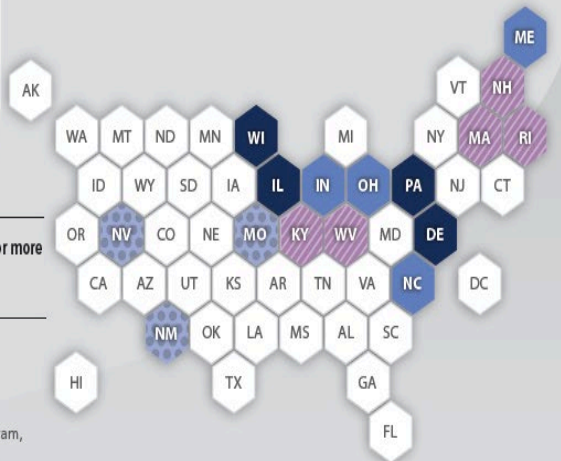
The Midwestern region saw opioid overdoses increase 70% from July 2016 through September 2017.

↑ 54%

Opioid overdoses in large cities increased by 54% in 16 states.

Opioid overdose ED visits continued to rise from 2016 to 2017.

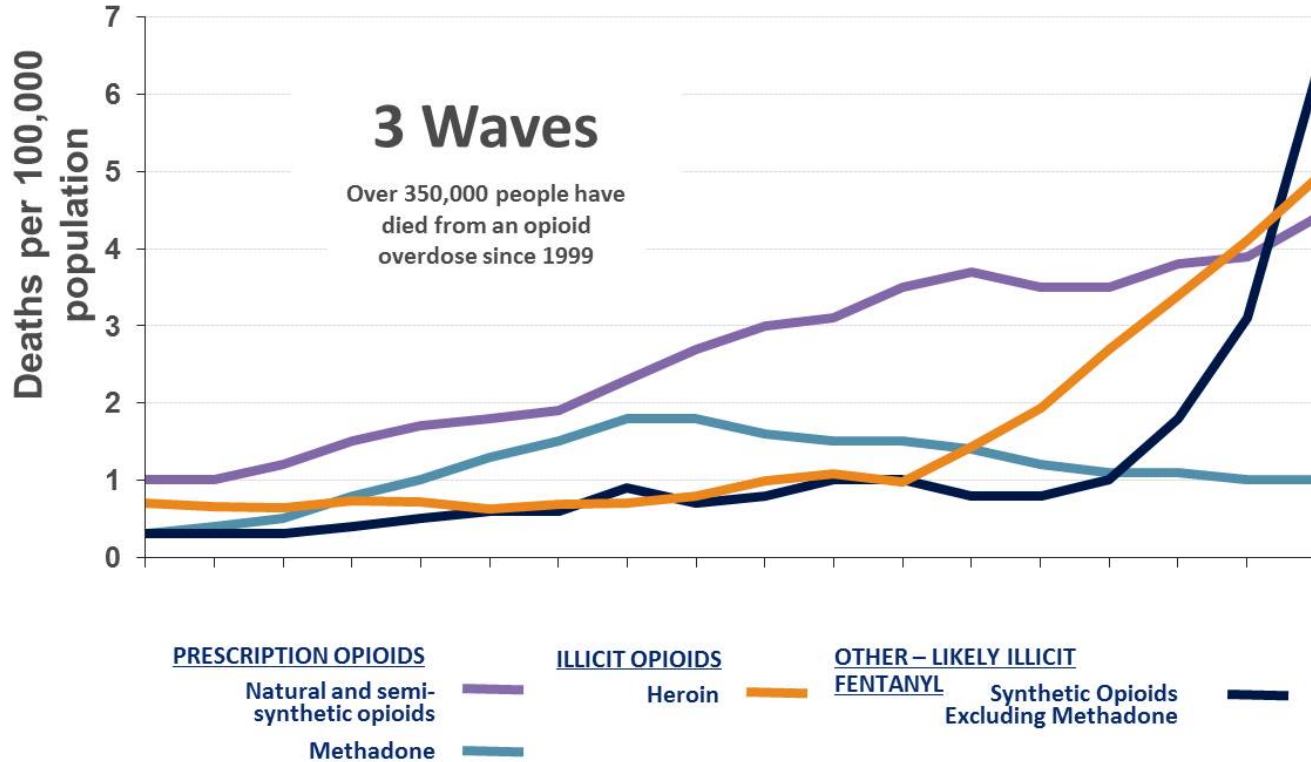
Detecting recent trends in opioid overdose ED visits provides opportunities for action in this fast-moving epidemic.



SOURCE: CDC's Enhanced State Opioid Overdose Surveillance (ESOOS) Program, 16 states reporting percent changes from July 2016 through September 2017.

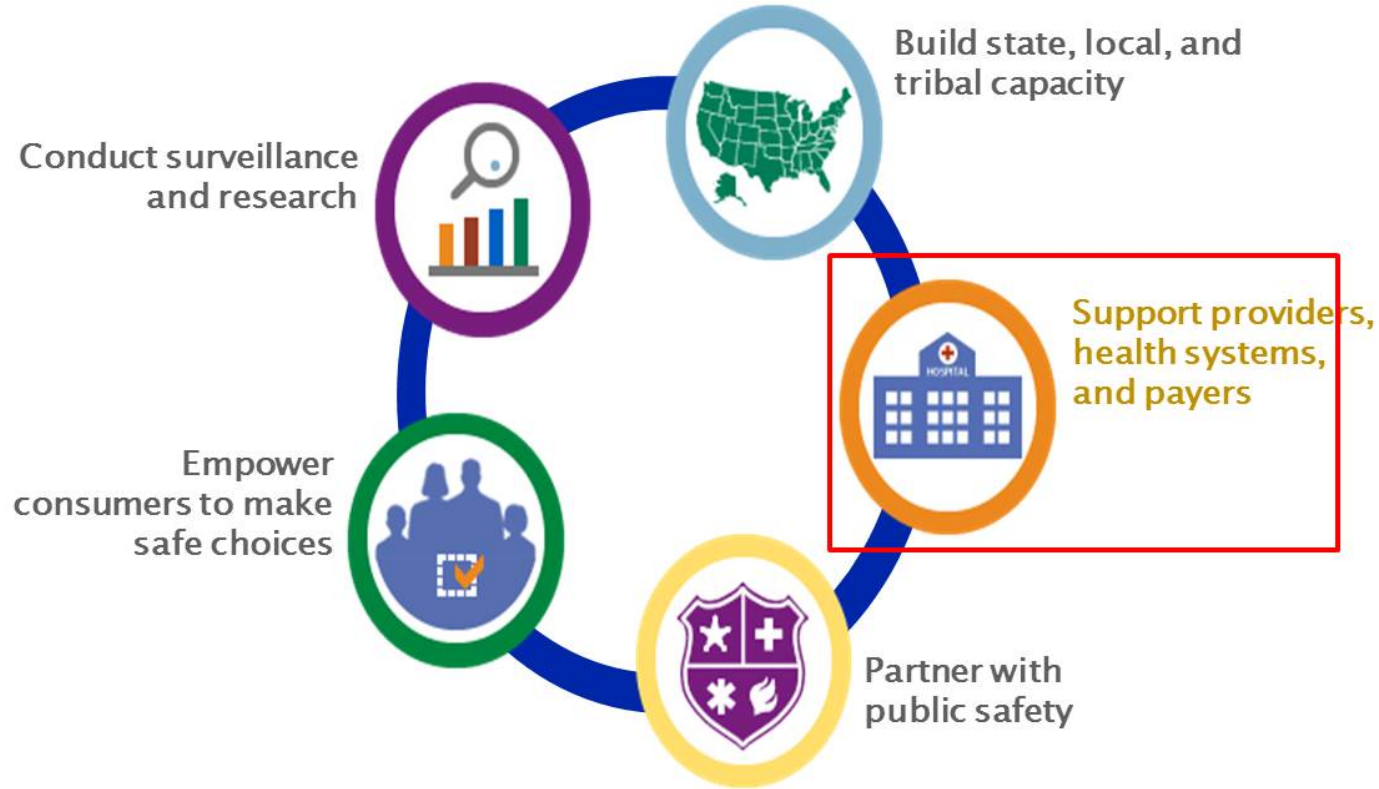
RISE IN OPIOID DEATHS

Overlapping, Entangled but Distinct Epidemics



SOURCE: National Vital Statistics System Mortality File

Preventing Opioid Overdoses and Opioid-Related Harms



Centers for Disease Control and Prevention

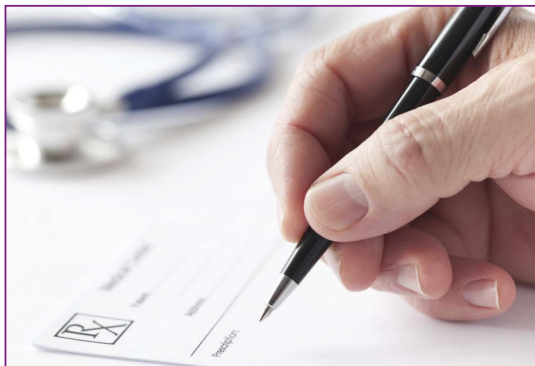
MMWR

Recommendations and Reports / Vol. 65 / No. 1

Morbidity and Mortality Weekly Report

March 18, 2016

CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016



Continuing Education Examination available at <http://www.cdc.gov/mmwr/cme/conted.html>.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

- Primary care providers
- Patients 18 years or older with chronic pain
- Outpatient settings
- Outside of active cancer, palliative, and end of life care

**GUIDELINE FOR
PRESCRIBING
OPIOIDS FOR
CHRONIC PAIN**

www.cdc.gov

Organization of Guideline Recommendations

12 recommendations grouped into 3 conceptual areas:

- Determining when to initiate or continue opioids for chronic pain
- Opioid selection, dosage, duration, follow-up, and discontinuation
- Assessing risk and addressing harms of opioid use



EMPOWERING PROVIDERS.

www.cdc.gov

GUIDELINE FOR PRESCRIBING
OPIOIDS FOR CHRONIC PAIN

Comprehensive Implementation Approach for the CDC Prescribing Guideline

Translation &
Communication

Education &
Training

Insurer
Interventions



Health System
Interventions

Translation & Communication

Checklist for prescribing opioids for chronic pain

For primary care providers treating adults (18+) with chronic pain ≥3 months, excluding cancer, palliative, and end-of-life care

CHECKLIST

When CONSIDERING long-term opioid therapy

- Set realistic goals for pain and function based on diagnosis (eg, walk around the block).
- Check that non-opioid therapies tried and optimized.
- Discuss benefits and risks (eg, addiction, overdose) with patient.

When REASSESSING at return visit

Continue opioids only after confirming clinically meaningful improvements in pain and function without significant risks or harm.

- Assess pain and function (eg, PEG); compare results to baseline.
- Evaluate risk of harm or misuse:
 - Observe patient for signs of over-sedation or overdose risk.
 - If yes: Taper dose.
 - Check PDMP.
 - Check for opioid use disorder if indicated (eg, difficulty controlling use).
 - If yes: Refer for treatment.
- Check that non-opioid therapies optimized.
- Determine whether to continue, adjust, taper, or stop opioids.
- Calculate opioid dosage morphine milligram equivalent (MME).
 - If ≥ 50 MME/day total (≥ 50 mg hydrocodone; ≥ 33 mg oxycodone), increase frequency of follow-up; consider offering naloxone.
 - Avoid ≥ 90 MME/day total (≥ 90 mg hydrocodone; ≥ 60 mg oxycodone), or carefully justify; consider specialist referral.
- Schedule reassessment at regular intervals (≤3 months).

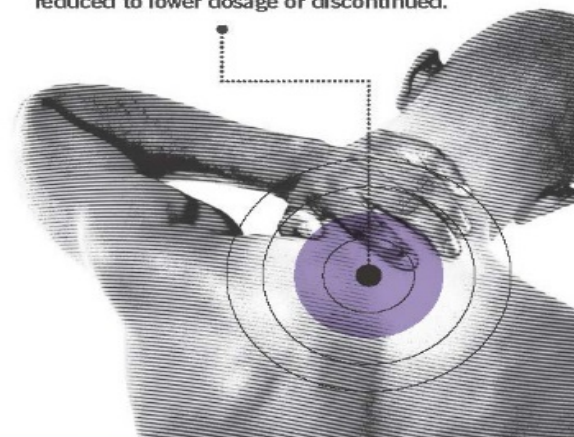
REFERENCE

EVIDENCE ABOUT OPIOID THERAPY

- Benefits of long-term opioid therapy for chronic pain not well supported by evidence.
- Short-term benefits small to moderate for pain; inconsistent for function.
- Insufficient evidence for long-term benefits in low back pain, headache, and fibromyalgia.

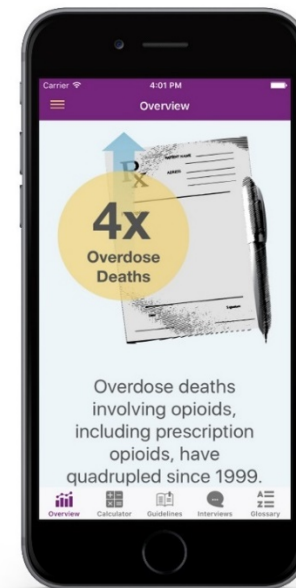
POCKET GUIDE: TAPERING OPIOIDS FOR CHRONIC PAIN

Follow up regularly with patients to determine whether opioids are meeting treatment goals and whether opioids can be reduced to lower dosage or discontinued.



GUIDELINE FOR PRESCRIBING OPIOIDS FOR CHRONIC PAIN

*Recommendations focus on pain lasting longer than 3 months or past the time of normal tissue healing, outside of active cancer treatment, palliative care, and end-of-life care.



APP includes:

- MME Calculator
- Prescribing Guidance
- Motivational Interviewing

Education & Training

Online training modules & webinars for clinicians (earn CE/CME credits)



Interactive Trainings

1. Addressing the Opioid Epidemic: Recommendations from CDC
 2. Treating Chronic Pain Without Opioids
 3. Communicating with Patients
 4. Reducing the Risk of Opioids
 5. Assessing and Addressing Opioid Use Disorder
- + 6 more planned



Clinical Outreach and Communication Activity (COCA) Free Webinars

1. Overview of Guideline
2. Nonopioid Treatments for Chronic Pain
3. Assessing Benefits and Harms of Opioid Therapy
4. Dosing and Titration of Opioids
5. Opioid Use Disorder—Assessment and Referral
6. Risk Mitigation Strategies
7. Effective Communication with Patients

To learn more:

<https://www.cdc.gov/drugoverdose/training/online-training.html>

To learn more:

<https://www.cdc.gov/drugoverdose/training/webinars.html>

Insurer Interventions

1

Cover evidence-based non-pharmacologic therapies like exercise and cognitive behavioral therapy

2

Make it easier to prescribe non-opioid pain medications

3

Reimburse patient counseling, care coordination, and checking PDMP

4

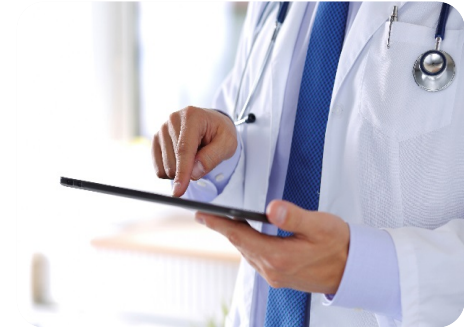
Promote more judicious use of high dosages of opioids using drug utilization review and prior authorization

5

Remove barriers to evidence-based treatment of opioid use disorder

Health Systems Interventions

- **Clinical Quality Improvement and Care Coordination**
- **EHR and PDMP (prescription drug monitoring program) Data Integration**
- **Clinical decision support (CDS) tools embedded into electronic health records (EHRs)**



Quality Improvement (QI) and Care Coordination Resource



- Companion resource to facilitate implementation of the Guideline recommendations into practice.
- Intended to help healthcare systems and providers integrate QI measures and care coordination into their clinical practice.

CDC Resources

CDC Opioid Overdose Prevention Website

www.cdc.gov/drugoverdose

State Efforts

<https://www.cdc.gov/drugoverdose/states/index.html>

CDC Guideline for Prescribing Opioids for Chronic Pain

<https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm>

Resources for Patients

<https://www.cdc.gov/drugoverdose/patients/index.html>

Resources for Providers

<https://www.cdc.gov/drugoverdose/providers/index.html>

Clinical Decision Support Resources

- **Implementation Guide Output**
<http://build.fhir.org/ig/cqframework/opioid-cds/>
- **Source for the implementation guide**
<https://github.com/cqframework/opioid-cds>
- **Supporting Java packages for the CQL-to-ELM translator and CQL Engine**
<https://github.com/cqframework/opioid-cds-logic>



**CENTERS FOR DISEASE
CONTROL AND PREVENTION**

**EDWARD R. ROYBAL
CAMPUS**

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Please note that the findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



STANDARDS-BASED ONC-CDC DECISION SUPPORT RESOURCES FOR CDC PRESCRIBING GUIDELINE: DEVELOPMENT, USE, AND LESSONS LEARNED

ONC ANNUAL MEETING, NOVEMBER 29, 2018

KENSAKU KAWAMOTO, MD, PHD, MHS

ASSOCIATE CHIEF MEDICAL INFORMATION OFFICER

VICE CHAIR OF CLINICAL INFORMATICS, DEPT. OF BIOMEDICAL INFORMATICS

DISCLOSURES

- In the past year, I have been a consultant or sponsored researcher on clinical decision support for ONC*, Hitachi, McKesson InterQual, and Klesis Healthcare

*via SRS, Inc. and ESAC, Inc.

ONC-CDC OPIOID DECISION SUPPORT PROJECT

- Goal: provide point-of-care, standards-based decision support for CDC Prescribing Guideline
- ONC and CDC-sponsored effort
- Contributors: CDC, ONC, AHRQ, Yale, SRS, ESAC, Epic, and many others
- Approach:
 - Use of HL7 standards: CDS Hooks, SMART on FHIR, CQL
 - Use of open-source OpenCDS framework (opencds.org)
 - Pilot implementation at University of Utah with Epic EHR using CDS Hooks and SMART on FHIR

TARGETED RECOMMENDATIONS (INITIAL)

4. When starting opioid therapy for chronic pain, prescribe **immediate-release opioids** instead of extended-release/long-acting (ER/LA) opioids
5. Carefully reassess evidence of individual benefits and risks when considering increasing dosage to ≥ 50 **morphine milligram equivalents (MME)**/day, and avoid increasing dosage to ≥ 90 MME/day or carefully justify a decision to titrate dosage to ≥ 90 MME/day

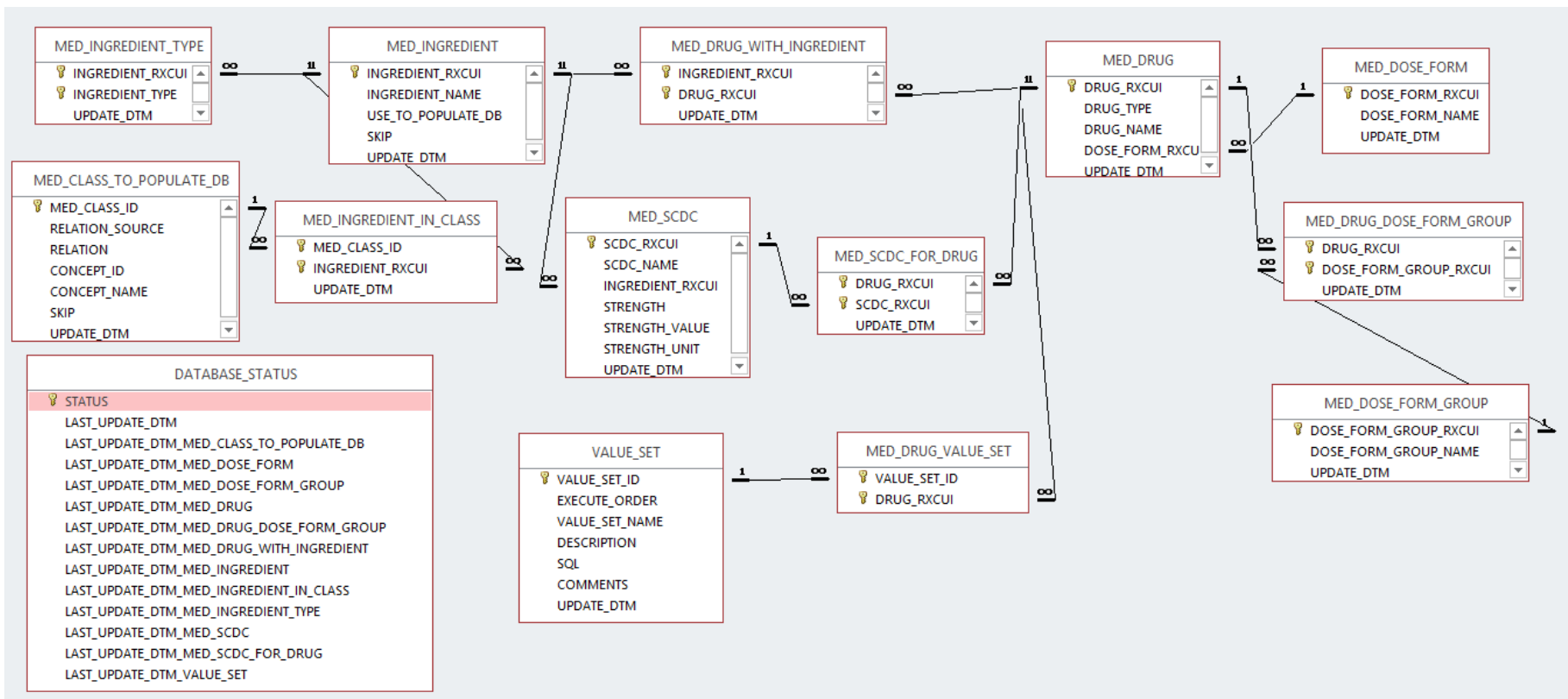
TARGETED RECOMMENDATIONS (INITIAL)

7. **Evaluate** benefits and harms with patients within 1 to 4 weeks of starting opioid therapy for chronic pain or of dose escalation. Evaluate benefits and harms of continued therapy with patients every 3 months or more frequently.
8. Consider offering **naloxone** when factors that increase risk for opioid overdose are present
10. Use **urine drug testing** before starting opioid therapy and consider urine drug testing at least annually
11. Avoid prescribing opioid pain medication and **benzodiazepines** concurrently

EXAMPLE CQL

```
98 // TotalMME - Sum of all MME for currently and about-to-be prescribed opioid medications
99 define TotalMME: System.Quantity { value: Sum(MME M return M.mme.value), unit: 'mg/d' }
100
101 define IsMME50OrMore: TotalMME >= 50 'mg/d'
102
103 define Results:
104   IsMME50OrMore M
105   return {
106     mmeOver50: M,
107     title:
108       if M
109       then 'High risk for opioid overdose - '
110         + case when TotalMME.value >= 90
111           then 'taper now'
112           else 'consider tapering'
113       end
114     else 'MME is within the recommended range.',
115     description:
116       if M
117       then 'Total morphine milligram equivalent (MME) is ' + ToString(TotalMME) + '. Taper to less than 50.'
118       else 'Total morphine milligram equivalent (MME) is ' + ToString(TotalMME) + '. This falls within the accepted range.'
119   }
```


NLM RXNAV-BASED TERMINOLOGY KNOWLEDGE



FREE TEXT SIG PARSING

- Close to 20% of opioid Rxs use free-text Sigs (>10,000 unique patterns). E.g.:
 - 1-2 tablets q 3 hours as needed for pain up to a max of 12/day. Not valid without seal. May fill 3 days before use date. Use dates: X/XX-X/XX/2017.
- Traditional analytics tools cannot evaluate free-text Sigs
- Parsing algorithms developed to enable computation on ~80% of Sigs

U of U CODE - PAIN MANAGEMENT CENTER - Hyperspace - KENSAKU KAWAMOTO

Home Schedule In Basket Chart Encounter Telephone Call Triage Call Pt Station Patient Lists Secure Help Desk Print Downtime Patient Station Log Out

U of U CODE Search

Testpatient, Opioid1
 Pref Name: None
 Last V
 Last V
 Opt Out: -
 Male, 48 year old, 01/01/1970
 MRN: 21343091, CrCl:

Place orders (En)

Chart Review
 PowerChart
 Results Revi...
 Review Flows...
 Medications
 Immunizations
 Education
 Communicati...
 MAR
 Order Entry
 Visit Navigator

Medications (1 Order)

oxyCODONE (ROX
 Take 1 tablet (5 mg
 Disp-120 tablet, R-
 ⚠ This medica
 ⚠ DISABLED
 Dose check

Previously Signed Ord

HYDROcodone-acetamin
 Take 1-1.5 t
 Disp-120 tab
 HYDROcodone-acetamin
 Earliest Fill D
 Disp-120 tab
 HYDROcodone-acetamin
 Earliest Fill D
 Disp-120 tab
 fentaNYL (ACTIQ) 200 m
 Place 1 each
 Disp-20 each

Customize
 More

> Diagnoses Associate
 Auth Prov: No authorizing

BestPractice Advisory - Testpatient,Opioid1

Patient's average oral morphine equivalence (OME) is **87.33 mg/day**. CDC recommends reassessing evidence of individual benefits and risks when increasing dosage to ≥ 50 OME/d.

Active Opioid Rx	Start Date	Ave. OME/day*	Max OME/day*
[New] Oxycodone Hydrochloride 5 MG Oral Tablet > Sig: 5 mg Oral Every 6 hours as needed + Click for Details	02/10/18	30 mg	30 mg
FENTANYL CITRATE 200 MCG BU LPOP *** May be expiring soon *** > Sig: Place 1 each (200 mcg) inside cheek every 2 hours as needed. Use prior to bowel movements, maximum 4 per day - Click for Details > Morphine equivalence: 130x. For 1 lozange, OME = 26 mg. > Rx by Smith, John on 02/07/18. Disp 20 each, Refills 0. > Start date: 02/06/18. End date (estimated): 02/11/18. Based on dispense quantity and max daily dose in sig. > Daily dose (ave): Fentanyl Oral Lozenge 20 dispense * 0.2 mg / 30d supply (**assumed**) = 0.13 mg. > Daily dose (max): Fentanyl Oral Lozenge 4 (daily max per sig) * 0.2 mg = 0.8 mg.	02/06/18	17.33 mg	104 mg
HYDROCODONE-ACETAMINOPHEN 10-325 MG PO TABLET *** Not adding OME for presumed redundant Rx's with start dates of 02/06/18 and 04/06/18. *** > Sig: Earliest Fill Date: 3/7/18. Take 1-1.5 tables by mouth every 4 hours as needed for pain + Click for Details	03/06/18	40 mg	90 mg
Total		87.33 mg	224 mg

*Ave OME = (qty dispensed)/(days supply). 30d supply assumed unless otherwise noted in Sig or note to pharmacy.
 *Max OME = max amount patient may take on a given day according to Sig, even if patient runs out of med early.

OME conversion table
 CPG opioid Rx guideline
 Source: CDC opioid Rx guideline -- recommendation #5

Accept Cancel

1 order entered

Check BPA Calculator
 Next Edit Multiple
 Phases of Care
 Remove
 Prev Order F8- Next Order
 Reprint All Meds
 Reprint Discontinue
 Reprint Discontinue
 Reprint Discontinue
 Reprint Discontinue
 Edit

Discern: (1 of 1)



High risk for opioid overdose - taper now.

Maximum morphine equivalent daily dose (MEDD) is **365 mg/day** (PRN meds assumed to be taken at maximum allowed frequency). Taper to < 50.

Active Opioid Rx	Max MEDD
[New] Oxycodone Hydrochloride 5 MG Oral Capsule > Sig: 5 mg Oral Every 4 hours as needed > Daily dose: Oxycodone Oral Capsule 6/d 5 mg = 30 mg. Morphine equivalence: 1.5x.	45 mg
72 HR Fentanyl 0.1 MG/HR Transdermal System > Sig: 1 patch q3d > Prescriber: Michael Flynn, MD (Internal Medicine/Pediatrics). > Daily dose: Fentanyl patch: 1 0.1 mg/hr = 0.1 mg/hr. Morphine equivalence: 2400x.	240 mg
Buprenorphine 2 MG Sublingual Tablet > Sig: Place 1 tablet under the tongue Every 6 hours as needed. > Prescriber: Michael Flynn, MD (Internal Medicine/Pediatrics). Rx date: 2017-10-19. > Dispense: 120 tablets. Refills: 0. Expected supply duration: through 2017-07-30. > Daily dose: Buprenorphine Sublingual Tablet 1/d 1 tablet 2 mg = 2 mg. Morphine equivalence: 30x.	60 mg
Methadone Hydrochloride 10 MG Oral Tablet > Sig: Take 0.5 tablets by mouth Every 6 hours as needed for pain. > Prescriber: Michael Flynn, MD (Internal Medicine/Pediatrics). Rx date: 2017-10-19. > Dispense: 120 tablets. Refills: 0. Expected supply duration: through 2017-08-05. > Daily dose: Methadone Oral Tablet 1/d 0.5 tablet 10 mg = 5 mg. Morphine equivalence: 4x.	20 mg
Total	365 mg

[CDC opioid recommendation #5](#)[MME conversion table](#)

Source: CDC

History

OK

D [Admit Dt: 8/31/2017 2:29 PM] Loc: 1S, Baseline West

Inpatient

PETERS, TIMOTHY - 10000883

Done

op date 11/01/17 9:08:00 CDT, DO not forget to take tab...

0 CDT, Nurse Collect Non-Blood Specimens

18/17 15:22:00 CDT

18/17 15:21:00 CDT

:00 CDT, Nurse Collect Non-Blood Specimens

0/18/17 12:07:00 CDT, Nurse Collect Non-Blood Specim...

1/17 3:00:00 CDT

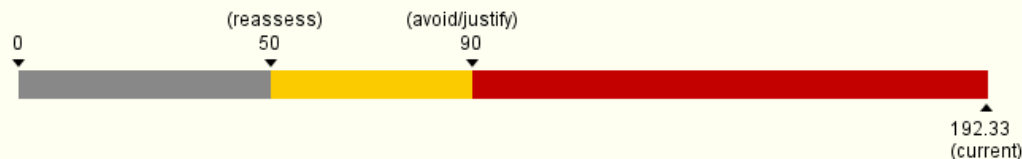
Orders for Signature



©2018 Epic Systems Corporation. Used with permission.

Patient's average oral morphine equivalence (OME) is **192.33 mg/day**.

Daily Average OME (mg/day)



For adults, CDC recommends reassessing evidence of individual benefits and risks when increasing dosage to ≥ 50 OME/day, and avoid increasing dosage to ≥ 90 OME/day or carefully justifying such a decision.

Active Opioid Rx

New Oxycodone Hydrochloride 15 MG Oral Tablet ⌵

**Avg
OME/day***

135 mg

FENTANYL CITRATE 200 MCG BU LPOP ⬆

17.33 mg

⚠ Verify taking; Rx may have expired



Sig: Place 1 each (200 mcg) inside cheek every 2 hours as needed. Use prior to bowel movements, maximum 4 per day

Morphine equivalence: 130x. For 1 lozange, OME = 26 mg.

Rx by Smith, John on 02/07/18. Disp 20 each, Refills 0.

Start date: 02/07/18. **End date (estimated):** 02/12/18. Based on dispense quantity and max daily dose in sig.

Daily dose (avg): Fentanyl Oral Lozenge 20 dispense * 0.2 mg / 30d supply (assumed) = 0.13 mg.

Daily dose (max): Fentanyl Oral Lozenge 4 (daily max per sig) * 0.2 mg = 0.8 mg.

U of U CODE - PAIN MANAGEMENT CENTER - Hyperspace - KENSAKU KAWAMOTO

Epic Home Schedule In Basket Chart Encounter Telephone Call Triage Call PT Station

Testpatient, Opioid1

Opt Out... MRN: 2... Last Ht... Dosi... Cr... Te... Co... Inf... Allergies CC: N... Regist... Outpatien
Male, 1... Last Wt... BMI... My... Fa... Isol... Unkno... Care T... Resea... oxyCO...

Outpatient Opioid Oral Morphine Equivalence (OME) Calculator

Chart Review
PowerChart
RL6
Axis
Results Revi...
Synopsis
Review Flows...
Problem List
History
Allergies
Medications
Immunizations
Patient Station
Health Mainte...
Opioid OME

Patient's average oral morphine equivalence (OME) is **57.33 mg/day**.

Daily Average OME (mg/day)

0 (reassess) 50 (avoid/justify) 90

57.33 (current)

For adults, CDC recommends reassessing evidence of individual benefits and risks when increasing dosage to ≥ 50 OME/day.

Active Opioid Rx	Avg OME/day*
FENTANYL CITRATE 200 MCG BU LPOP ⚠	17.33 mg
⚠ Verify taking; Rx may have expired	
HYDROCODONE-ACETAMINOPHEN 10-325 MG PO TABLET ⚠	40 mg
⚠ Verify taking; Rx may have expired	
⚠ Not adding OME for presumed redundant Rx's with start dates of 02/07/18 and 03/07/18.	
Total Average OME/Day	57.33 mg

*Avg OME = (qty dispensed)/(days supply). 30d supply assumed unless otherwise noted in Sig or note to pharmacy.
*Max OME (see details) = max amount patient may take on a given day according to Sig, even if patient runs out of med early.

OME conversion table
CPG opioid Rx guideline
Source: CDC opioid Rx guideline -- recommendation #5

Customize
More

Avoid co-prescribing opioid and benzodiazepine concurrently whenever possible.

- ❗ CPG opioid use guidelines
Source: CDC opioid Rx guideline -- recommendation #11

Recommend use of immediate-release opioids when starting patients on opioids.

- ❗ CPG opioid use guidelines
Source: CDC opioid Rx guideline -- recommendation #4

Consider offering naloxone. Risk factor(s) for opioid overdose: average OME \geq 50 mg/day, concurrent use of benzodiazepine.

- ❗ CPG opioid use guidelines
Source: CDC opioid Rx guideline -- recommendation #8

LESSONS LEARNED

- Bleeding-edge work: ordering-based CDS “Hooks” not yet standardized, EHR vendor implementations in process
 - Required use of CDS Hooks middleware and/or SMART on FHIR
- Complex CDS Hooks visual displays handled differently by different EHR vendors; requires further standardization
- Achieving desired end-user functionality requires hybrid of CDS Hooks services and local EHR CDS capabilities
 - E.g., snoozing, enabling 1-click order placement and cancellation, restricting service invocation to relevant contexts
- Despite challenges, evidence-based care supported by standards-based CDS finally appears to be within reach

FUTURE DIRECTIONS

- Standards-based encoding of remaining 6 CDC Prescribing Guideline recommendations as CDS Hooks services
- Pilot deployments and iterative enhancement
- Impact evaluation
- Facilitating enhancement and adoption of underlying standards
- Use of SMART on FHIR in addition to CDS Hooks for workflow integration
- Ultimate goal: widespread dissemination and impact

ACKNOWLEDGMENTS (PARTIAL LIST)

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- Rick Shiffman, MD
- Scott Junkins, MD
- Wesley Sargent, EdD

Disclaimer: The findings and conclusions in this presentation are those of the presenter and do not necessarily represent the official position of CDC or of the organizations involved

THANK YOU!

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AHRQ Resources for Opioid-related Clinical Decision Support

**Edwin Lomotan, MD | Chief of Clinical
Informatics
Agency for Healthcare Research and
Quality**

November 29, 2018 | ONC 2018 Annual Meeting

AHRQ Clinical Decision Support (2016-)

Advancing evidence into practice through CDS and making CDS more shareable, standards-based, and publicly-available

Four components:

1. Engaging a stakeholder community
2. Creating prototype infrastructure for sharing and developing CDS
3. Advancing CDS through demonstration and dissemination research
4. Evaluating the overall initiative



Patient-Centered
Clinical Decision Support
Learning Network



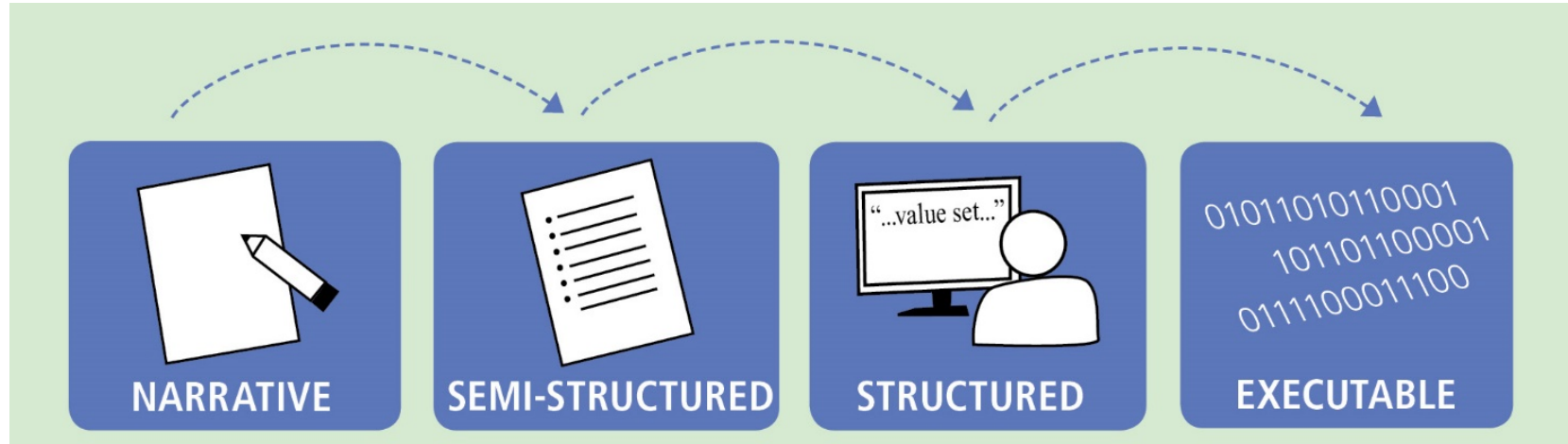
CDS Connect



Taking a Broad View of CDS

- CDS “Five Rights”
 - CDS should deliver the ***right information***, to the ***right person***, in the ***right format***, in the ***right channel***, at the ***right time*** during work flow.
- CDS as an enabler and tool for quality improvement
 - Not just an app, widget, alert, or reminder
 - Not just for physicians at the point of care
 - Can represent the “actionable” side of quality measurement

Knowledge Translation into CDS



Adapted from: Boxwala, A. A., et al. (2011). "A multi-layered framework for disseminating knowledge for computer-based decision support." Journal of the American Medical Informatics Association : JAMIA 18 Suppl 1: i132-139.

Level 1 to Level 2 Translation

“Before starting, and periodically during continuation of opioid therapy, clinicians should evaluate risk factors for opioid-related harms. Clinicians should incorporate into the management plan strategies to mitigate risk, including considering offering naloxone when factors that increase risk for opioid overdose, such as history of overdose, history of substance use disorder, higher opioid dosages (greater than or equal to \geq 50 morphine milligram equivalents [MME]/day), or concurrent benzodiazepine use, are present.”



NARRATIVE



SEMI-STRUCTURED

ARTIFACT REPRESENTATION

Triggers

Trigger Type: Named event

Trigger Event: clicks on link to the Pain Management Summary

Inclusions

Age \geq 18 years

AND

- OR Conditions associated with chronic pain (confirmed, active or recurring status, onset date, asserted date, abatement date)
- OR Opioid pain medication
 - o Orders (date, active, completed, or stopped within past 180 days)
 - o Statements (date, active, or completed within past 180 days)
- OR Adjuvant analgesic medication
 - o Orders (date, active, completed, or stopped within past 180 days)
 - o Statements (date, active, or completed within past 180 days)

Exclusions

None

Level 2 to Level 3 Translation

ARTIFACT REPRESENTATION

Triggers

Trigger Type: Named event

Trigger Event: clicks on link to the Pain Management Summary

Inclusions

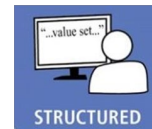
Age >=18 years

AND

- OR Conditions associated with chronic pain (confirmed, active or recurring status, onset date, asserted date, abatement date)
- OR Opioid pain medication
 - o Orders (date, active, completed, or stopped within past 180 days)
 - o Statements (date, active, or completed within past 180 days)
- OR Adjuvant analgesic medication
 - o Orders (date, active, completed, or stopped within past 180 days)
 - o Statements (date, active, or completed within past 180 days)

Exclusions

None



```
// INCLUSIONS

// Determines if patient's age, in years, at the time CQL is run, is
define Is18orOlder:
  AgeInYears() >= 18

// Conditions associated with chronic pain
define ConditionsAssociatedWithChronicPain:
  C3F.Confirmed(C3F.ActiveOrRecurring([Condition: "Conditions associa

// Determines if the patient has any of the conditions associated wit
define HasConditionAssociatedWithChronicPain:
  exists(ConditionsAssociatedWithChronicPain)

// Determines if the patient has any record of opioid pain medication
//   - Medication Order within past 180 days (lookback can be mad
//   - Medication Statement by patient within past 180 days (look
define HasRecentOpioidPainMedication:
  exists(C3F.ActiveCompletedOrStoppedMedicationOrder(C3F.MedicationOr
    [MedicationOrder: "Opioid Pain Medications"],
    InclusionMedicationsLookbackPeriod)
  ))
  or exists(C3F.ActiveOrCompletedMedicationStatement(C3F.MedicationSt
    [MedicationStatement: "Opioid Pain Medications"],
    InclusionMedicationsLookbackPeriod)
  ))
// Determines if the patient has any record of adjuvant analgesic med
```



Level 3: Clinical Quality Language

- `include` CDS_Connect_Commons_for_FHIRv102 `version` '1.3.0' `called` C3F
- `valueset` "Conditions associated with chronic pain":
 - '2.16.840.1.113762.1.4.1032.37'
- `define` ConditionsAssociatedWithChronicPain:
 - C3F.Confirmed(C3F.ActiveOrRecurring(
 - [Condition: "Conditions associated with chronic pain"]
 -))
- `define` HasConditionAssociatedWithChronicPain:
 - `exists`(ConditionsAssociatedWithChronicPain)



Level 4: Locally-executed Code and User Interface

```
// INCLUSIONS

// Determines if patient
define Is18orOlder:
  AgeInYears() >= 18

// Conditions associated
define ConditionsAssociatedWithChronicPain:
  C3F.Confirmed(C3F.ActiveChronicPain)

// Determines if the patient has a condition associated with chronic pain
define HasConditionAssociatedWithChronicPain:
  exists(ConditionsAssociatedWithChronicPain)

// Determines if the patient has a recent opioid prescription
define HasRecentOpioidPrescription:
  exists(C3F.ActiveCompleteMedicationOrder: "Opioid")
  or exists(C3F.ActiveCompleteMedicationStatement: "Opioid")
  or exists(C3F.ActiveCompleteMedicationInclusionMedicationStatement: "Opioid")

// Determines if the patient has a recent opioid prescription
```

CDS Connect

Fuller Jackson
64 YRS MALE

22 Total Entries
8 Flagged Entries

Factors to Consider in Managing Chronic Pain

⚠ TAKE NOTICE: This summary is not intended for patients who are undergoing end-of-life care (hospice or palliative) or active cancer treatment.

Pertinent Medical History (3)

Pain Assessments (3)

Historical Pain-related Treatments (9)

Risk Considerations (7)

Conditions Associated with Chronic Pain

Name	Status	Start	End	Recorded
Fibromyalgia (disorder)	active	2012-Apr-05 (age 58)		2012-Apr-05

Risk Factors for Opioid-related Harms

Name	Status	Start	End	Recorded
⚠ Agoraphobia with panic attacks (disorder)	active	2014-Sep-01 (age 60)		2015-Feb-12

Name	Visit
⚠ Suicide attempt, initial encounter	2015-Feb-01 (age 60) - ongoing

Pain Assessments (3)

Numeric Pain Intensity Assessments

Status bar: Patient ID: 7a205c05-09a7-457a-ad11-e033a50509e7 User ID: none Encounter ID: 3d545b1c-621b-48ea-a2c4-90716a12cc7b



CDS Connect: Pain Management Summary

U.S. Department of Health & Human Services

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AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

PATIENT-CENTERED OUTCOMES RESEARCH
Clinical Decision Support
Accelerating Evidence into Practice through CDS

CDS Home Overview **CDS Connect** Learning Network Evaluation Funding Opportunities Resources Content

CDS Connect About View Artifacts Workgroup Governance Authoring Tool FAQ Reports

Welcome to CDS Connect

CDS Connect is a project to demonstrate how evidence-based care can be more rapidly into clinical practice through interoperable decision support.

The CDS Connect Repository follows AHRQ's mission of focusing on evidence based care, by identifying and evidence based standards of care as CDS artifacts. These CDS artifacts address the domain of cholesterol management, extended in 2018 to support pain management and opioids. These artifacts will be piloted in a live clinical setting to evaluate the effectiveness of the Repository and its processes around artifacts and their development. 30+ org individuals participate and guide development of the Repository through our external workgroup.

CDS artifacts are items that represent medical knowledge from various sources (e.g. clinical guidelines). They are in many forms, but the ultimate goal is to create computable, interoperable translations using CQL. For more information on knowledge levels in the FAQ.

Welcome About Governance **Artifacts** Authoring Tool Community FAQ

Welcome / Artifacts / Factors to Consider in Managing Chronic Pain: A Pain Management Summary

Factors to Consider in Managing Chronic Pain: A Pain Management Summary

This artifact provides relevant information (i.e., factors) to inform the care decision-making process when managing a patient's chronic pain. The information is presented to the clinician as a Pain Management Summary dashboard. The key factors include:

- **Pertinent Medical History** (i.e., Conditions associated with chronic pain and Risk factors for opioid-related harm)
- **Pain Assessments** (responses and scores)
- **Historical Treatments** (i.e., Opioid and non-opioid pain medications, Non-pharmacologic treatments, and Stool softeners and laxatives)
- **Risk Considerations** (i.e., Morphine milligram equivalent [MME] amount, Urine drug screen results, Benzodiazepine medications, Naloxone medications, and Risk assessments relevant to pain management)

PROMINENT REPORTS

[Artifact Enhancements Based on Pilot Implementation \(PDF 406 Kb\)](#)

[Implementation Guide \(PDF 1.1 Mb\)](#)

[Pilot Final Report \(PDF 727Kb\)](#)

Artifact Type
🕒 Data Summary

Creation Date
Fri, 06/01/2018 - 12:00

Version	Status	Experimental
0.1	Active	False



AHRQ Pain Management Summary: Highlights

- Informed by 2016 CDC guideline
- Consolidates patient-specific information normally found on different tabs and screens into a single view
- Launched by clicking a link from the home screen within a patient record in the EHR
- Uses SMART on FHIR health IT standard for interoperability
- Piloted in a community health center that uses Epic

GUIDELINE FOR PRESCRIBING OPIOIDS FOR CHRONIC PAIN

IMPROVING PRACTICE THROUGH RECOMMENDATIONS

CDC's Guideline for Prescribing Opioids for Chronic Pain is intended to improve communication between providers and patients about the risks and benefits of opioid therapy for chronic pain, improve the safety and effectiveness of pain treatment, and reduce the risks associated with long-term opioid therapy, including opioid use disorder and overdose. The Guideline is not intended for patients who are in active cancer treatment, palliative care, or end-of-life care.

DETERMINING WHEN TO INITIATE OR CONTINUE OPIOIDS FOR CHRONIC PAIN

1. Nonpharmacologic therapy and nonopioid pharmacologic therapy are preferred for chronic pain. Clinicians should consider opioid therapy only if expected benefits for both pain and function are anticipated to outweigh risks to the patient. If opioids are used, they should be combined with nonpharmacologic therapy and nonopioid pharmacologic therapy, as appropriate.
2. Before starting opioid therapy for chronic pain, clinicians should establish treatment goals with all patients, including realistic goals for pain and function, and should consider how opioid therapy will be discontinued if benefits do not outweigh risks. Clinicians should continue opioid therapy only if there is clinically meaningful improvement in pain and function that outweighs risks to patient safety.
3. Before starting and periodically during opioid therapy, clinicians should discuss with patients known risks and realistic benefits of opioid therapy and patient and clinician responsibilities for managing therapy.

CLINICAL REMINDERS

- Opioids are not first-line or routine therapy for chronic pain
- Establish and measure goals for pain and function
- Discuss benefits and risks and availability of nonopioid therapies with patient

OCHIN



AHRQ Pain Management Summary or “Dashboard”

CDS Connect

Pertinent Medical History (3)

Conditions Associated with Chronic Pain

Risk Factors for Opioid-related Harms

Pain Assessments (3)

Historical Pain-related Treatments (9)

Risk Considerations (7)

Fuller Jackson
64 YRS MALE

22 Total Entries

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Name	Status	Start	End	Recorded
Agoraphobia with panic attacks (disorder)	active	2014-Sep-01 (age 60)		2015-Feb-12
Suicide attempt, Initial encounter	Visit	2015-Feb-01 (age 60) - ongoing		

Pain Assessments (3)

Numeric Pain Intensity Assessments

Status bar

Patient ID: 7a206c5f-09a7-457a-ad11-ed33a50509e7

User ID: none

Encounter ID: 3d545b1c-821b-40ea-a2c4-9f215a12cc7b



AHRQ Pain Management Summary: What's Available

- Description of CDS, including all relevant metadata
- Technical files
 - Clinical Quality Language (CQL) code
- Reports
 - Implementation guidance
 - Pilot report, including enhancements made
 - Yearly project final report
- Open source on GitHub
 - SMART on FHIR app specifications and code
- Try it on SMART App Gallery

➤ Aims to give health care systems and CDS developers a “head start” with interoperable building blocks for this type of summary



➤ <https://cds.ahrq.gov>



CDS Connect: Opioid and Pain Management Resources

PATIENT-CENTERED OUTCOMES RESEARCH

Clinical Decision Support

Accelerating Evidence into Practice through CDS

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Welcome About Governance Artifacts Authoring Tool C

Welcome / Topic / Opioids and Pain Management

Opioids and Pain Management

Optimal management of pain is a challenge for clinicians and patients. Safe and effective use of opioids requires a careful balance of risks and benefits.

Artifacts

Factors to Consider in Managing Chronic Pain: A Pain Management Summary

© Data Summary
Publisher: The MITRE Corporation
2018

✓ Pain Medicine (Family Medicine), Family Medicine, Internal Medicine, Rheumatology, Physical Medicine and Rehabilitation

Recommendation #5 - Lowest Effective Dose

Event-Condition-Action (ECA) rule
Publisher: Centers for Disease Control and Prevention
2017

✓ Family Medicine, Internal Medicine

Recommendation #8: Naloxone Consideration

Event-Condition-Action (ECA) rule
Publisher: Centers for Disease Control and Prevention
2018

✓ Family Medicine, Internal Medicine

Recommendation #11: Concurrent Use of Opioids and Benzodiazepines

Event-Condition-Action (ECA) rule
Publisher: Centers for Disease Control and Prevention
2018

Recommendation #4 - Opioid Release Rate When Starting Opioid Therapy

Event-Condition-Action (ECA) rule
Publisher: Centers for Disease Control and Prevention
2018

✓ Family Medicine, Internal Medicine

Recommendation #7 - Opioid Therapy Risk Assessment

Event-Condition-Action (ECA) rule
Publisher: Centers for Disease Control and Prevention
2018

✓ Family Medicine, Internal Medicine

Recommendation #10 - Urine Drug Testing

Event-Condition-Action (ECA) rule
Publisher: Centers for Disease Control and Prevention
2017

✓ Family Medicine, Internal Medicine



Thank you!

CONTACT INFORMATION

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EHR Association

*Maximizing the Role of Health IT in
the Fight Against the Opioid Crisis*

Leigh Burchell

VP, Health Policy & Industry Affairs, Allscripts

Chair, EHRA Opioid Crisis Task Force

Chair, EHRA Public Policy Workgroup

Opioid Crisis Task Force - Clinical Impact Subgroup Leadership

Dan Seltzer

Senior Analyst, MEDITECH Inc.

Co-chair, EHRA Opioid Crisis Task Force, Clinical Impact Subgroup

Alan Staples

Senior Solution Strategist, Cerner Corporation

Co-chair, EHRA Opioid Crisis Task Force, Clinical Impact Subgroup

We are EHR developers who work with hospitals and providers that represent the majority of EHR users in the US. We have lots of common expertise on EHR policy, standards, and best practices.



- Opioid Crisis Task Force began work in early 2018
- Examines how to best utilize electronic health record systems' data and capabilities as a tool in nationwide efforts to fight opioid crisis
- Volunteer participants from member companies include pharmacists, doctors, nurses, and technical experts
- Focused on the unique contributions that EHRs have to offer federal and state policymakers, public health officials, providers and patients
- The Task Force has designated subgroups focused on three areas:
 - **Policy** - Provide policy and technical input to lawmakers, regulators and other stakeholders
 - **Clinician Impact** - Focus on the intersection of clinicians and technology, maximizing tools and methods for reducing provider burden and optimizing workflow
 - **Standards and Technology** - Recommend solutions to improve system-to-system and state-to-state information sharing through consistent, standards-based approaches

CDC Opioid Guidelines: Implementation Guide for EHRs

- Goals for clinical practice in the opioid crisis are not as simple as reducing the rate of prescribing opioid therapy
- Thankfully, a wealth of clinical practice guidelines have been validated and published, e.g.
 - Advisory Board - [Confronting the Opioid Epidemic \(April 2018\)](#)
 - CDC - [Guideline for Prescribing Opioids for Chronic Pain - United States, 2016](#)
 - Improving Opioid Care (AHRQ, CDC, WA DOH) - [Six Building Blocks: A Team-Based Approach to Improving Opioid Management in Primary Care \(2018\)](#)
 - Intermountain Healthcare - [Assessment and Management of Opioid Use in Pregnancy \(2014\)](#)
 - VA/DoD - [Clinical Practice Guideline: Management of Opioid Therapy \(OT\) for Chronic Pain \(2017\)](#)

- Problem:
 - Limited adoption and adherence to published clinical practice guidelines
 - Delay in getting the results of research to the bedside: 17 years¹
 - Low accessibility in the workflow, such as diagrams, websites, and pocket reference cards
- Solution: clinical decision support bringing best practice guidance to the clinical and EHR workflows
 - EHRs and other health IT are a delivery mechanism; content and clinical guidance comes from a variety of resources and can be constantly updated

The CDC published the *Guideline for Prescribing Opioids for Chronic Pain*, which provides twelve recommendation statements for appropriate use of opioids within a larger pain management strategy

GUIDELINE FOR PRESCRIBING OPIOIDS FOR CHRONIC PAIN

IMPROVING PRACTICE THROUGH RECOMMENDATIONS

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- 3 Before starting and periodically during opioid therapy, clinicians should discuss with patients known risks and realistic benefits of opioid therapy and patient and clinician responsibilities for managing therapy.

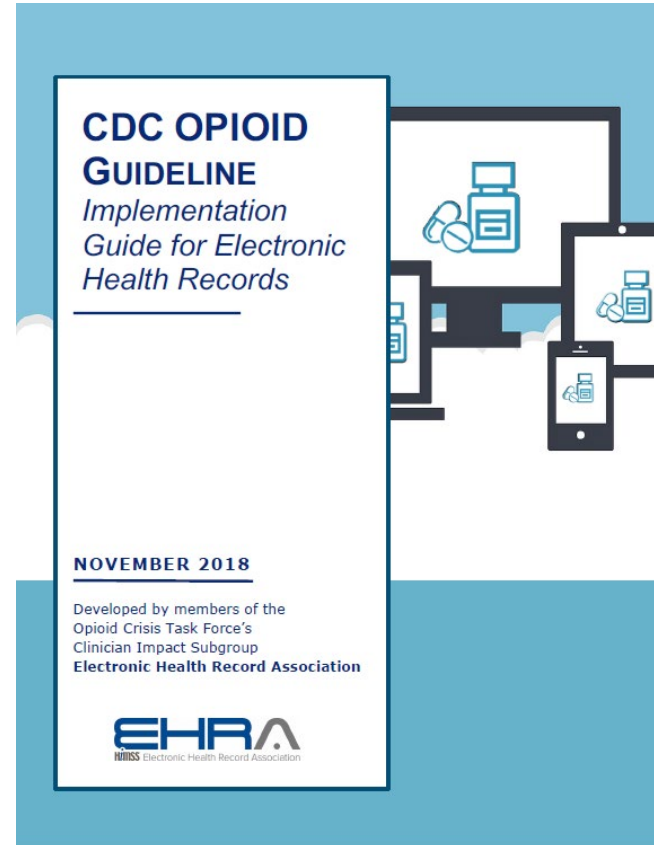
CLINICAL REMINDERS

- Opioids are not first-line or routine therapy for chronic pain
- Establish and measure goals for pain and function
- Discuss benefits and risks and availability of nonopioid therapies with patient

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

LEARN MORE | www.cdc.gov/drugoverdose/prescribing/guideline.html

EHRA published today an implementation guide to help hospitals, physician practices, other care settings and the EHR developer community operationalize the CDC's recommendations.



Goals

- Provide a CDS implementation model that is “low lift” - approachable by organizations of all sizes, IT capabilities; can be done iteratively
 - Industry thirst for even basic guidance
- Improve quality, safety, and patient experience in pain management
- Reduce unwarranted and dangerous variance in care
- Support risk/benefit decision making when using opioid medications - help clinicians make a more informed decision
- Develop the Implementation Guide with input from clinicians and medical organizations

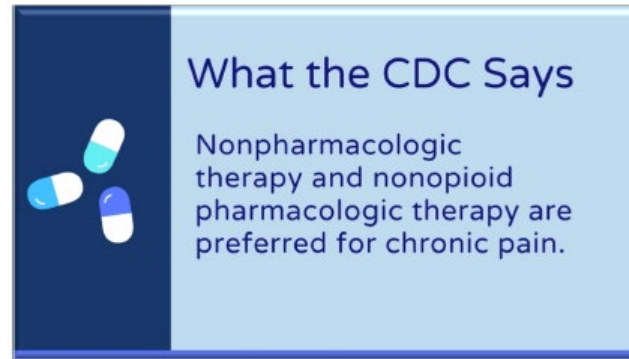
- Designed to assist the information technology team of healthcare provider organizations, as well as software developers supporting them
- Increase adoption of CDC's Guidelines
- Allow for more rapid design and implementation of clinical decision support by clinicians who treat and manage pain
- Not all recommendations will be equally applicable to every clinical environment

Target Healthcare Provider Organizations	Exclusions
<ul style="list-style-type: none">● Ambulatory specialty clinic● Ambulatory surgery center● Federally qualified health center● Home health● Hospital● Hospital outpatient surgery center● Primary care	<ul style="list-style-type: none">● Behavioral Health● Long-term care● Retail pharmacy● Palliative care● Cancer treatment centers
<i>Note: This is not a comprehensive list of stakeholders and roles. Include all applicable stakeholders in your organization's opioid stewardship initiatives.</i>	

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

- Electronic Prescribing of Controlled Substances (EPCS)
- Prescription Drug Monitoring Program (PDMPs) Integration
- Risk Assessments and Screening Tools for Drug Abuse
- Order Sets for Pain Management
- Clinical Decision Support
- Pain Agreements (aka Pain Contracts)
- Patient Education
- Physician Documentation
- Population Health
- Reporting on Outcomes
- Predictive Analytics

Guideline 1: Opioids are not a first line therapy



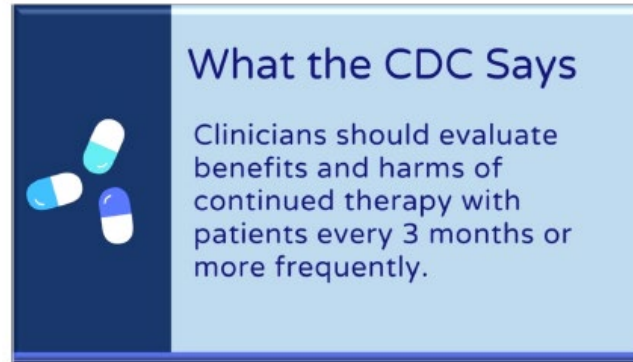
How Technology Can Help: EHRs provide the platform for order entry and treatment selection, so there are natural opportunities to guide clinicians towards the selection of nonpharmacologic therapies as a first line approach to pain management.

Guideline 1: Opioids are not a first line therapy

What You Can Do:

- Review specific non-opioid treatments and alternative pain management strategies recommended by the CDC and other evidence -based sources
- Adopt advisory text in order sets that remind providers to begin with non pharmacologic therapy
- Utilize passive clinical decision support in order sets by placing opioid orders below other analgesics and NSAIDS, or nested under drop down headers
- Utilize active clinical decision support at the point of ordering opioids to check if nonpharmacologic therapy has been tried yet, and suggest nonpharmacologic orders if applicable

Guideline 7: Evaluate benefits and harms frequently



How Technology Can Help: EHRs can prompt physicians to consider the benefits and harms of opioid therapy at the point of ordering opioids. In addition, population health solutions such as dashboards or registries can monitor patients currently on opioid therapy and can make sure patients aren't falling through the cracks in terms of scheduled follow-up appointments and urine screenings.

Guideline 7: Evaluate benefits and harms frequently

What You Can Do:

- Adopt advisory text in order sets that remind providers to evaluate the benefits and harms of extended use of opioid therapy.
- Make the [CDC Prescribing Checklist](#) available to providers and encourage them to use it when renewing or continuing opioid therapy.
- Develop population health tools such as dashboards or registries to monitor patients currently on opioid therapy and ensure that patients are getting follow-up visits and screenings at regular intervals.

- EHRA encourages organizations to work with their EHR developers to discuss the implementation approaches and strategies contained in the implementation guide.
- Some EHRs may not currently be able to implement every recommendation in this guide; organizations may help their developers prioritize desired new capabilities in future updates.

Implementation Guide [available for download](#) on the EHR Association Website as of today!

For more information on the EHR Association or the Opioid Crisis Task Force, please contact Sarah Willis-Garcia at swillis@ehra.org or (312) 915-9518.



The Office of the National Coordinator for
Health Information Technology

Thank you!

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