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## Supporting Evidence-based Care through Informatics Innovation to Address the Overdose Epidemic

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### Introduction

The drug overdose crisis in the United States continues to evolve, driven by overdose deaths involving synthetic opioids, often in combination with other substances, highlighting the need for adapting and innovating evidence-based prevention and response strategies (1). The Centers for Disease Control and Prevention (CDC) reports that 106,699 Americans died of drug overdoses in 2021, an increase of nearly 14% from 93,655 deaths in 2020 (2). As public health leaders engage in the complex process of prevention on a population and individual basis, close strategic partnerships between public health and healthcare delivery systems have become increasingly important. Informatics innovation offers a timely and practical avenue to enhance these partnerships. For example, a recent publication (3) on the West Virginia Prescription Drug Monitoring Program demonstrated the benefit of informatics innovation to support clinical decision making and surveillance as vital components of that state's strategic partnerships which focus on the opioid overdose epidemic.

In this column, we review leadership practices including facilitators, barriers, lessons learned, and guiding principles leading to informatics innovation and partnership development to address the challenges of the drug overdose crisis. We highlight examples from health system pilot projects that support closer linkages between public health and the health care system, which build from a model of data system modernization (4), as discussed in previous Management Moment columns in this journal.

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Author(s) Disclaimer:

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the views of the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry.

## Background: Building Clinical Decision Support Tools for Electronic Health Records.

To help support evidence-based care, CDC and the Office of the National Coordinator for Health Information Technology (ONC) worked collaboratively to convert the 2016 CDC *Guideline for Prescribing Opioids for Chronic Pain* (5) recommendations into shareable electronic clinical decision support (CDS) tools (6) for electronic health records (EHRs). Integrating the scientific content of the 2016 CDC Guideline for Prescribing Opioids for Chronic Pain recommendations into electronic CDS equips clinicians with tools and resources within the patient encounter while also helping support care that is individualized, flexible, and patient-centered (5,7,8).

## Pilot Testing Clinical Decision Support (CDS) Tools

Informatics innovation begins with a question. In this case, the question was: “Can the scientific content of the 2016 CDC Guideline recommendations be converted into standardized and shareable electronic CDS tools developed by CDC that can be directly integrated into clinical care through the use of EHRs?” To explore this question, four large health care systems piloted some of the guideline concordant CDS tools mentioned above. Each participating health system developed EHR-embedded CDS tools that aligned with the 2016 CDC Guideline recommendations and that integrated directly into each system’s clinical workflow. The pilot project evaluation included measuring the implementation process, use, and utility of the CDS tools.

The pilot project evaluation in certain health systems (8) found:

- Clinician use of prescription drug monitoring program (PDMP) data increased by 45% (KS health system)
- The number of patients with counseling on opioid risks and benefits increased by 50% (TX health system)
- Naloxone counseling increased by 350% (PA health system)
- Urine toxicology testing increased by 30% (PA health system)

Some overall lessons learned in this pilot project were:

- The design, validation, and implementation process for electronic CDS tools can be highly variable depending on the recommendation being implemented.
- Health systems’ capabilities and resources were critical in determining which CDS modules to implement and how.
- Technical staff from the health systems worked with their EHR and other health IT vendors to closely coordinate testing, refinement, and implementation of the electronic CDS tools to ensure that unique health system and state policies were incorporated within the tools and to support clinician buy-in and widespread use.
- Flexibility in creating electronic CDS tools and data definitions was key to successful integration into clinical workflow.

- Working in collaboration with other federal partners and health systems facilitated shared learning with other project leads and health systems and informed the CDS tool development.

Some of the important facilitators to successfully developing and implementing guideline concordant electronic CDS tools were:

- Internal health system champion to promote the CDS tools development and implementation.
- In-house health information technology staff expertise and availability
- Access to and relationship with EHR service advisor
- EHR system-specific administrative regulations and clinical policies
- Early engagement of clinical staff in development

Other key barriers and challenges that health systems can consider when designing and implementing informatics innovation include:

- EHR system-specific features to how data are captured.
- System limitations within the EHR system to build and implement the tools.
- Processes and time needed to build, test, iterate, and implement.
- Level of expertise or IT experience that exists in-house or is needed through external partnerships.

## Guiding Principles for Informatics Innovation in Public Health Practice

As we reflect on the findings of this pilot study, a few guiding principles emerged which can be applicable more broadly to other public health informatics innovations:

1. **CDS “Right Practices” Framework** - Keeping in mind the “5-Rights” for Clinical Decision Support (CDS) can be helpful to keep solutions focused and user-friendly: 1) the right information, 2) to the right people, 3) through the right channels, 4) in the right intervention formats, and 5) at the right points in clinical workflow (9).
2. **Committing to sustainable and scalable solutions through public, open standards** (10) Public use, open standards such as Health Level 7 (HL7) (11) and Fast Healthcare Interoperability Resources (FHIR) (12) standards can be used to scale up informatics innovation across health systems. These standards help create the use of IT tools and techniques.
3. **Maintaining an open mind and active curiosity** helps foster the development of innovative tools and solutions, which can lead to improvements in technology and patient care.
4. **Attention to cost considerations** particularly in low resource settings by implementing, standards-based, non-proprietary approaches to support the development of reproducible processes, resources, and tools.

## Future Application

In November 2022, the Centers for Disease Control and Prevention (CDC) released the 2022 CDC *Clinical Practice Guideline for Prescribing Opioids for Pain* (13). As the 2022 Clinical Practice Guideline updates and replaces the 2016 CDC Guideline, CDC and ONC are focusing on developing and updating the CDS tools to align with 2022 Clinical Practice Guideline for Prescribing Opioids for Pain (14). Its recommendations are voluntary and are meant to provide more flexibility to support shared decision making for clinicians and patients.

## Conclusion and summary

By implementing and scaling these electronic CDS tools within health systems, clinicians have improved access to evidence-based guidance on prescribing and safer care for pain, which can ultimately benefit both patients and clinicians to address the opioid overdose epidemic. As key strategic partners with public health agencies, health systems can help encourage the uptake and use of guideline recommendations through the implementation of guideline concordant electronic CDS tools for health promotion.

This work shows that through collaborative partnerships, health systems and public health partners can successfully implement evidence-based electronic CDS tools into their respective EHRs within the clinician-patient encounter. These electronic CDS tools equip clinicians with the data, tools, and resources they need to make decisions collaboratively with their patients about optimal pain care and ultimately to serve the health of the public in communities across the nation.

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