Piloting a Shared Decision Making Tool for Acute Pain Treatment in the Emergency Room Setting

Kayla Dunn, 2019 SUMR Scholar

Mentors:
Zachary F. Meisel, MD, MPH, MSHP
Marilyn M. Schapira, MD, MPH

49,038

The number of opioid overdoses in 2017

75,800,000,00

The estimated economic burden of opioid misuse

The Opioid Crisis

UP TO
29%

of patients who are prescribed opioids have misused them.

UP TO
12%

will develop an opioid use disorder.

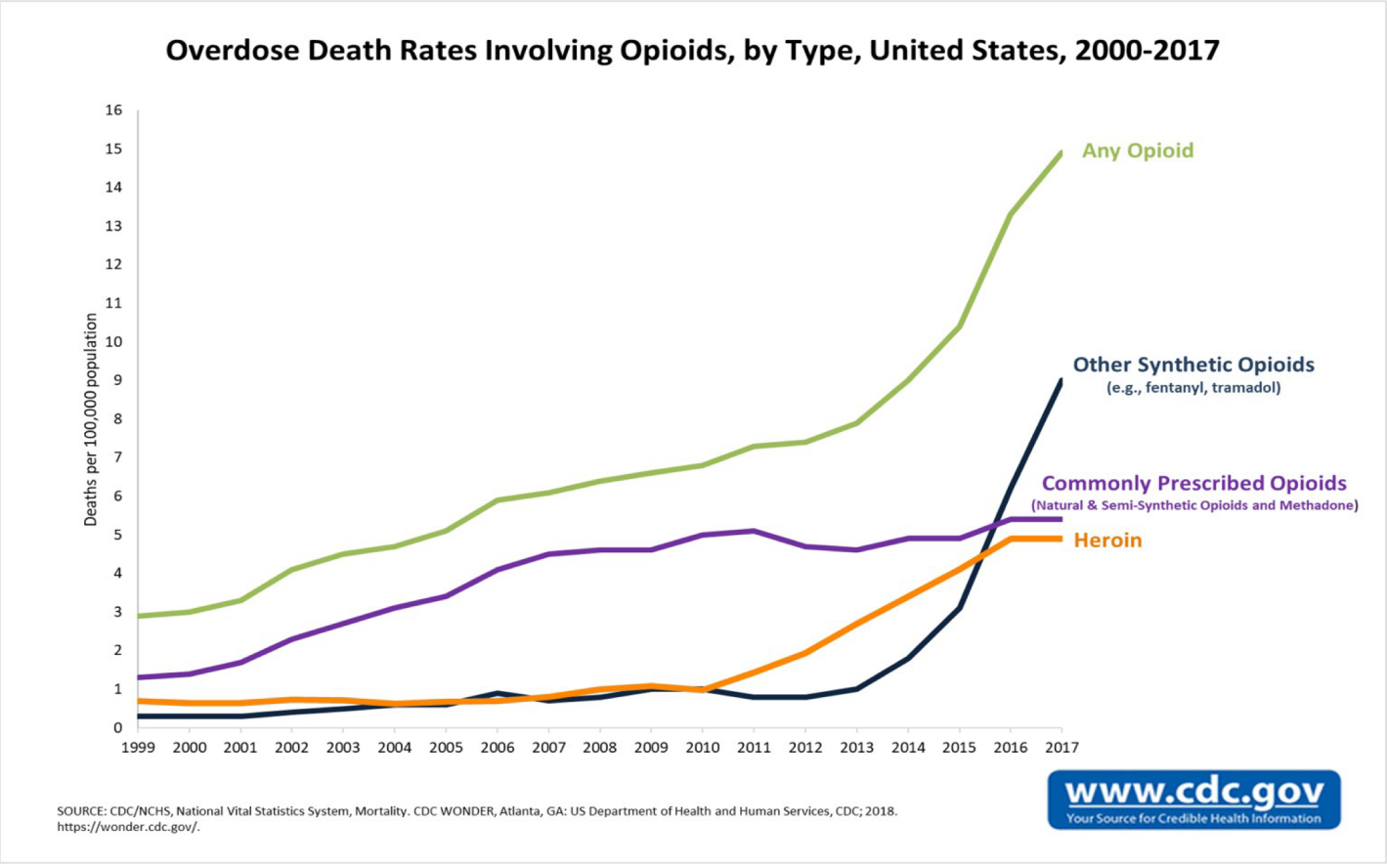
80%

of those who use heroin first misused prescription opioids.

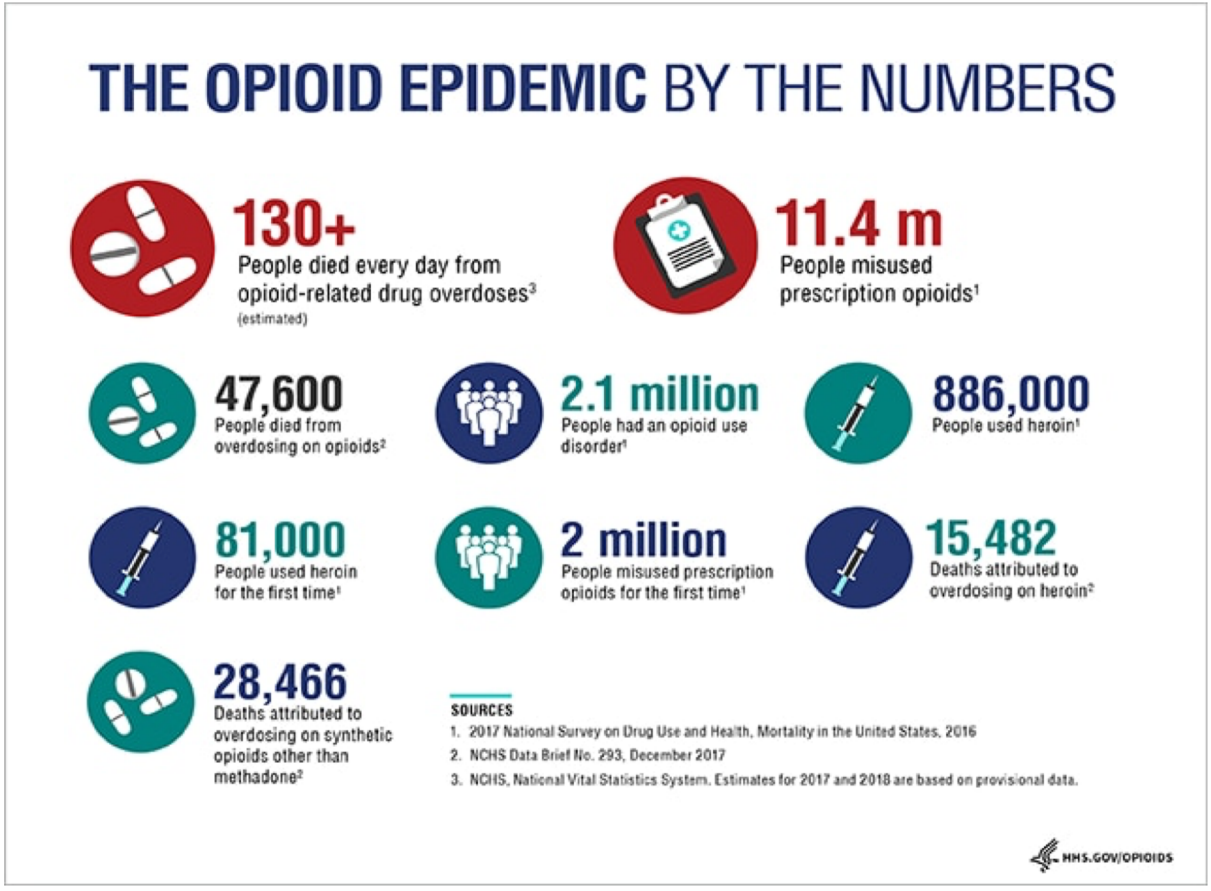
30%

increase in opioid overdoses from July 2016 to Sept. 2017 within over 45 states.

Adapted from Vowles KE et. al, 2017, Muhuri PK et. al, 2013, and Vivolo-Kanto AM et. al, 2017



Adapted from CDC, 2017



https://www.hhs.gov/opioids/about-the-epidemic/index.html

The Opioid Crisis: The Supply Side

The opioid crisis has been driven by:

- Misinformation and incentives from pharmaceutical companies
- Increase in prescribing by healthcare providers
- Pressure on providers to provide adequate pain relief for patients by accrediting bodies and their guidelines

"I am getting hammered by guidelines and regulations for opioid prescribing, and I get it, but no one is helping me communicate to my patients [about prescription decisions]. It takes me 30 seconds to write a script for Percocet and 10 minutes to talk to my patient about why I am not writing her a script.

– A Penn Medicine Clinician

Preventing Opioid Misuse in Acute Care Settings

There is a lack of effective tools to communication risk, benefits, and treatment options

As providers are pressured to meet guidelines and work in a timely fashion, there is a need for effective ways to communication opioid addiction risk and other pain treatment alternatives.

Project Overview

Concepts

Behavioral Economics

A field of inquiry that uses principles of economics and psychology to understand how people make decisions and use that insight to help people make decision that positively impact their lives

Shared-Decision Making

The process in which clinicians and patients work together to make decisions and select tests, treatments, and care plans based on evidence that balances risk and outcomes with patient preference and values

Adapted from CHIBE and National Learning Consortium

Combining Behavioral Economics & SDM

- These concepts have been infrequently combined around the opioid epidemic
- By using the principles and applications of behavioral economics & shared-decision making, we can:
  - Address patient and providers behaviors
  - By presenting various options, patients can make an informed decision about their treatment
  - Incorporate the patient's voice and values in treatment solutions

OUR PROJECT AIMS

1. Leverage principles shared-decision making and behavioral economics to design a provider and patient facing decision tool for use at point of care in the Emergency Room for patients who present with acute pain.
2. Goals:
    a. Evaluate tool usability
    b. Reduce overall opioid prescriptions
    c. Improve patient-centered outcomes

METHODS


Develop Shared-Decision Making Tool
Pilot Tool in Emergency Settings
Analyze Patient and Provider Feedback

How BE & SDM applies to the tool

Behavioral Economics

a broad choice set and the ability to set default choices

Shared Decision Making

evidence based information about outcomes across the choices and encourage patients to participate in the decision making process

Development of the Tool

Tim Wang, 2018 SUMR Scholar, did preliminary feasibility testing of the tool, but it was not interactive.

Which Column below is Most Important to Me? *(check 1 category)*

Options	Pain Relief	Risk of Addiction	Side Effects	Cost	Time to Return to Work	Preference
Advil, Aleve, Motrin ibuprofen, naproxen, NSAIDs	⊕⊕⊕	None	Upset stomach Bleeding Risk of kidney damage	$	Quicker	☐
Percocet, Vicodin opioids	⊕⊕⊕	12 out of 100 people (12%)	Sleepiness Nausea & vomiting Constipation	$$	Delayed	☐
Tylenol acetaminophen	⊕⊕	None	None	$	Not enough data	☐
Muscle relaxants e.g. Valium, Flexeril	⊕⊕	1 out of 100 people (1%)	Sleepiness	$$	Not enough data	☐
Gel or Cream e.g. Capsaicin , Lidocaine	⊕⊕	None	Skin irritation	$$	Not enough data	☐
Physical Therapies e.g., Heating pads, exercise	⊕⊕	None	Injury	$-$$$	Quicker	☐

Developing an Interactive Tool

- Partnered with Punk'd Ave, a local web developer in Philadelphia, to design an interactive tool modelled from the chart created by Tim Wang and our team

Pilot Testing the Interactive Tool

Screening	Provider Interaction	Patient Interaction	Interpreting Feedback
Screen patients using PennChart in the Emergency Department at Hospital of UPenn based on eligibility criteria	If patient is eligible, approach the provider to alter the tool and complete usability and real-world applicabilition surveys	Approach patient with the tool, have them select prefered post-visit treatment, and ask them to complete usability and provider/ER experience surveys	Analyze and interpret survey results and feedback from both patients and providers

Screening

Used PennChart to screen for eligible patients in the ED of the Hospital of UPenn (HUP)

Enrollment Criteria:

- 18 years or older
- Experiencing pain
- Patient in the Emergency Department
- Not pregnant, English-speaking

All screenings were recorded using RedCap

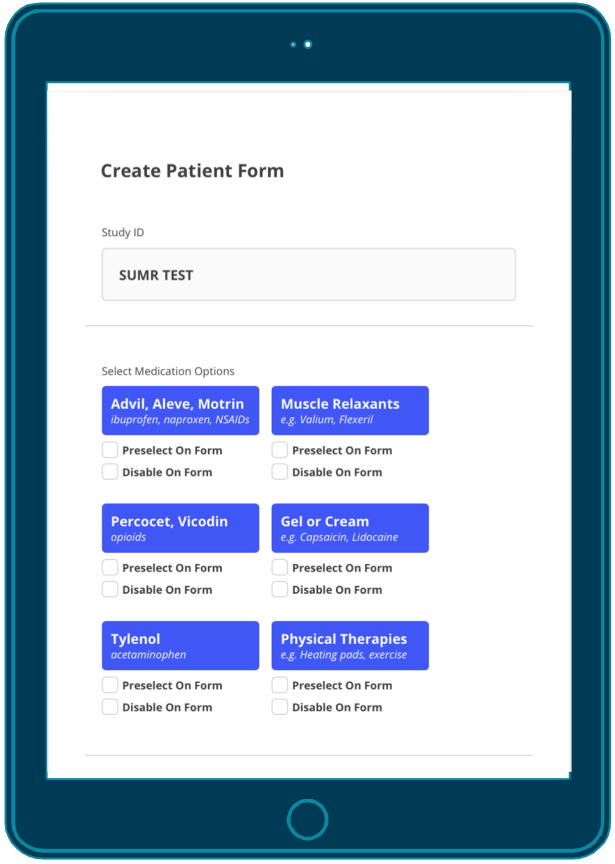
Provider Interaction

If a patient is eligible based on PennChart, the provider was approached
Provider given options to adjust treatment options on tool that was relevant to patient's case
Completed surveys on tool usability and real-world application
Provided open-ended feedback

Patient Interaction

After the provider interaction and their treatment adjustments on the tool, the patient was approached
Patient was shown tool and asked to make treatment selection that they prefered
Completed surveys on tool usability and their experience in the ED
Provided open-ended feedback
Printed version of their selections was given to patient

TOOL SIMULATION



Findings

Patient Demographics

There were 8 patient-provider dyads. The remaining 9 patients had a provider who was already surveyed or did not complete surveys, but used the tool.

Patient Demographics (n=17)	
Sex	
Female	58.8%
Age	
Mean	31.63
Race & Ethnicity	
White	47.1%
Black/African American	35.3%
Asian	11.8%
Multiracial	5.9%
Hispanic/Latino	5.9%

Chief Complaint	
Back Pain	5.9%
Neck Pain	5.9%
Flank Pain	5.9%
Abdominal Pain	35.3%
Fall	11.8%
Other*	35.3%
Enrollment Location	
Main ED	5.9%
Observation Unit	17.6%
Forward Flow	29.4%
Fast Track	23.5%
Ravdin	23.5%

*Other includes: Wrist Injury, Toe Injury, Rib Pain, Ankle Pain, Knee Pain

Patient Survey Responses

Systems Usability Scale Survey responses range from 1= Strongly Disagree to 5 = Strongly Agree.

Systems Usability Scale Survey	
Question	***Avg.***
I think that I would use this tool frequently.	**4.06**
I find the tool to be unnecessarily complex.	**2.18**
I think the tool would be easy to use.	**4.71**
I think that I would need the support of a technical person to be able to use this tool.	**1.76**
I find the various functions in this tool to be well integrated. (n = 11)	**4.19**
I think there is too much inconsistency in this tool.	**1.41**
I would imagine that most people would learn to use this tool very quickly.	**4.53**
I find the tool very cumbersome to use. (n = 11)	**1.94**
I feel very confident in using the tool. (n = 11)	**4.56**
I need to learn a lot of things before I could get going with this tool.	**1.56**

Patient Survey Responses

Interpersonal Processes of Care Survey range from 1= Never to 5 = Always.

Interpersonal Processes of Care Survey (n = 17)	
Question	***Avg.***
Did the provider speak too fast?	**1.65**
Did the provider use words that were hard to understand?	**1.24**
Did the provider really find out what your concerns were?	**4.65**
Did the provider let you say what you thought was important?	**4.82**
Did the provider take your health concerns very seriously?	**4.76**
Did the provider explain your test results such as blood test, X-rays, or cancer screening tests? (n = 6)	**4.57**
Did the provider clearly explain the results of your physical exam? (n = 9)	**4.67**
Did you and your provider work out a treatment plan together? (n = 7)	**4.57**
Did the provider ask if you would like to help decide your treatment? (n = 9)	**3.67**
Was the provider concerned about your feelings?	**4.76**
Did the provider really respect you as a person?	**4.82**
Did the provider treat you as an equal?	**4.53**
Did the provider pay less attention to you because of your race or ethnicity?	**1**
Did you feel discriminated against by the provider because of your race or ethnicity?	**1**
Was the Emergency Department staff rude to you?	**1.06**
Did the Emergency Department staff talk down to you?	**1.18**
Did the Emergency Department staff give you a hard time?	**1.18**
Did the Emergency Department staff have a negative attitude toward you?	**1.12**

“Getting hands on patient involvement in medication selection is empowering.”

– Patient

Provider Demographics

Provider Demographics (n=11)	
Position Title	
RN	9.1%
CRNP	36.4%
PA	36.4%
MD	9.1%
Enrollment Location	
Main ED	9.1%
EDOU	27.3%
Forward Flow	18.2%
Fast Track	9.1%
Ravdin	36.4%

Mainly Nurse Practitioners and Physician Assistants
Other than the 8 provider-patient dyads, 3 providers answered questionnaires without their patient enrolling.

Provider Survey Responses

Systems Usability Scale Survey responses range from 1= Strongly Disagree to 5 = Strongly Agree.

Systems Usability Scale Survey (n = 11)	
Question	***Avg.***
I think that I would use this tool frequently.	**3.82**
I find the tool to be unnecessarily complex.	**2**
I think the tool would be easy to use.	**4.18**
I think that I would need the support of a technical person to be able to use this tool.	**1.55**
I find the various functions in this tool to be well integrated.	**4**
I think there is too much inconsistency in this tool.	**1.73**
I would imagine that most people would learn to use this tool very quickly.	**4.64**
I find the tool very cumbersome to use.	**1.64**
I feel very confident in using the tool.	**4**
I need to learn a lot of things before I could get going with this tool. (n = 9)	**1.78**

Provider Survey Responses

Technology Acceptance Model (TAM) Survey responses ranged from 1 = Not at all; 3 = Moderately, and 5 = Very.

Technology Acceptance Model (TAM) Survey (n = 10)	
Question	***Avg.***
In actual practice, to what extent can using the option grid improve your performance in your work?	**3**
In actual practice, to what extent can using the option grid in your work increase your productivity?	**2.6**
In actual practice, to what extent can using the option grid enhance your effectiveness in your work?	**2.9**
In actual practice, to what extent do you find the option grid to be useful in your work?	**3.1**
In actual practice, to what extent can using the option grid improve patient care?	**3.4**
In actual practice, to what extent can using the option grid improve your ability to organize information for each patient?	**3.2**
In actual practice, to what extent can using the option grid improve your ability to coordinate your patients' care?	**3.1**

- Providers answered on average moderately to all response options.

“Makes it easy to discuss pain management options with a patient, including their risks and benefits.”

- Two different Penn Medicine Providers

“[The tool] opens up a conversation regarding opioids that is really difficult to have.”

- Penn Medicine Provider

Discussion of Findings

Tool is easy to use and well-designed.
Patient participants generally had positive experiences in the ED.
Answered “sometimes to often” on whether provider included patient in treatment plan.
Providers believe it would “moderately” improve productivity and effectiveness during work.
Although still rated “moderately”, a higher average shows that providers believe the tool could benefit patient care.

Next Steps

Short-Term:

- Additionally measuring health literacy, education level, and primary language may be insightful
- Gather more patient and provider feedback

Long-Term:

- Adjust tool based on findings and feedback
- Test tool in other settings for Acute Pain Treatment
- Refine tool for a potential trial

SUMR Reflections

My Roles

Conducted literature review
Help set up protocol
Conducted enrollment
Spoke with patients and providers
Analyzes the data

Lessons Learned

Confidence is important
Patience…
Taking initiative can go a long way
You can’t go far without a great team
Practice humility

Acknowledgements

A special thanks to:

Dr. Zach Meisel, Principal Investigator
Dr. Marilyn Schapira, Principal Investigator
Abby Dolan, Research Coordinator
Erica Goldberg, Research Coordinator

Joy Li, Jason Mazique, Thaddeus Woodard, and Kehinde Oyekanmi, my fellow office mates

THANKS!

Any questions?