



DEPARTMENT OF

Family Medicine and Community Health

UNIVERSITY OF WISCONSIN

SCHOOL OF MEDICINE AND PUBLIC HEALTH

Systems Consultation: A Novel Implementation Strategy for Adopting Clinical Guidelines for Opioid Prescribing in Primary Care

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The Center for Health
Enhancement Systems Studies
UNIVERSITY OF WISCONSIN-MADISON

Acknowledgments

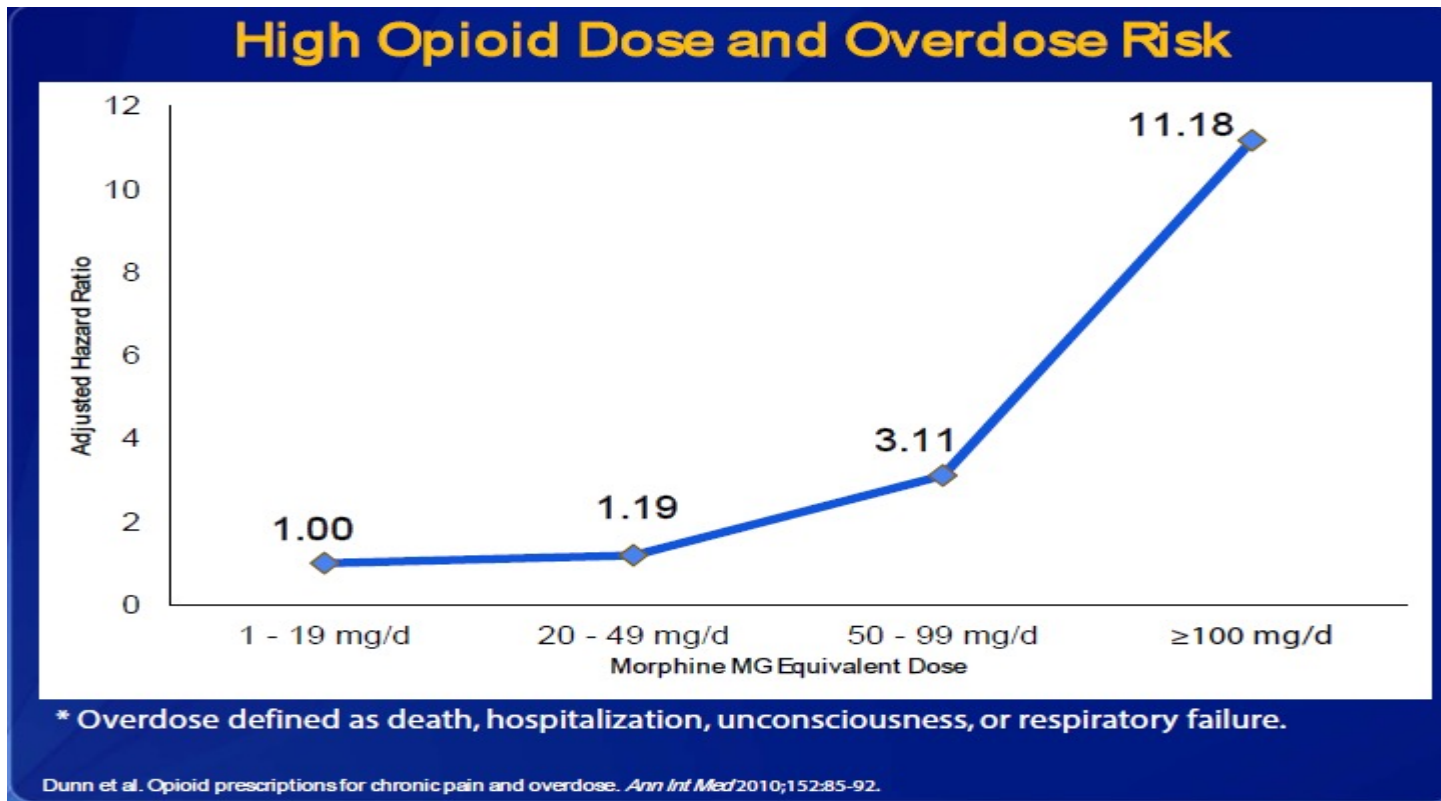
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Special thanks to research team members: Rose Garza Hennessy PhD, Nicholas Schumacher, and Morgan Burns

Aims of the Project

- Overall goal of this line of research is to improve patient safety by instituting a set of universal precautions for opioid prescribing in primary care based on leading clinical guidelines
- R34 grant mechanism is specifically for testing the feasibility, acceptability, and preliminary effectiveness of novel implementation strategies in preparation for larger trials

Background & Motivation



Risk of overdose is directly correlated with morphine equivalent daily dose (Dunn et al., 2010).

[CITATION] **Addiction rare in patients treated with narcotics.**

J Porter, H Jick - *The New England journal of medicine*, **1980** - [ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov)

1. *N Engl J Med.* **1980** Jan 10;302(2):123. Addiction rare in patients treated with narcotics.

Porter J, Jick H. PMID: 7350425 [PubMed - indexed for MEDLINE]. Publication Types: Letter. MeSH Terms. Humans; Narcotics/adverse effects; Narcotics/therapeutic use*; Opioid-Related Disorders/epidemiology*. Substances. Narcotics.

☆  Cited by 1011 [Related articles](#) [All 3 versions](#) [Web of Science: 503](#)

To the Editor:

Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients¹ who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients,² Percodan in one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

Jane Porter

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02154

Clinical guidelines



The Journal of Pain, Vol 10, No 2 (February), 2009: pp 113-1
Available online at www.sciencedirect.com

Opioid Treatment Guidelines

Clinical Guidelines for the Use of Chronic Opioid Therapy in Chronic Noncancer Pain

Roger Chou,¹ Gilbert J. Fanciullo,² Perry G. Fine,³ Jeremy A. Adler,⁴ Jane C. Ballantyne,
Pamela Davies,⁶ Marilee I. Donovan,⁷ David A. Fishbain,⁸ Kathy M. Foley,⁹ Jeffrey Fudin,
Aaron M. Gilson,¹¹ Alexander Kelter,¹² Alexander Mauskop,¹³ Patrick G. O'Connor,¹⁴
Steven D. Passik,¹⁵ Gavril W. Pasternak,¹⁶ Russell K. Portenoy,¹⁷ Ben A. Rich,¹⁸
Richard G. Roberts,¹⁹ Knox H. Todd,²⁰ and Christine Miaskowski,²¹ FOR THE AMERICAN PAIN
SOCIETY—AMERICAN ACADEMY OF PAIN MEDICINE OPIOIDS GUIDELINES PANEL

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

Recommendations and Reports / March 18, 2016 / 65(1):1–49



On March 15, 2016, this report was posted online as an MMWR Early Release.

Please note: An erratum has been published for this report. To view the erratum, please click [here](#).

Deborah Dowell, MD¹; Tamara M. Haegerich, PhD; Roger Chou, MD¹ ([View author affiliations](#))

Consensus emerged around guidelines in 2016, with CDC guidelines leading the way

R34 clinical trial planning grant showed positive results

- 4 clinics designated teams consisting of six to eight staff members, with at least one prescriber – paired with 4 matched control clinics
- Attendance at intervention meetings was 83%.
- At 6 months, statistically significant improvements were noted in the percentage of patients with mental health screens, treatment agreements, urine drug tests, and opioid-benzodiazepine co-prescribing.
- At 12 months, morphine-equivalent daily dose was significantly reduced in intervention clinics compared to controls (approximately 19%)
- The cost to deliver the strategy was \$7345 per clinic.

A randomized matched-pairs study of feasibility, acceptability, and effectiveness of systems consultation: a novel implementation strategy for adopting clinical guidelines for Opioid prescribing in primary care

Andrew Quanbeck  , Randall T. Brown, Aleksandra E. Zgierska, Nora Jacobson, James M. Robinson, Roberta A. Johnson, Brienna M. Deyo, Lynn Madden, Wen-Jan Tuan and Esra Alagoz

Implementation Science 2018 13:21

<https://doi.org/10.1186/s13012-018-0713-1> | © The Author(s). 2018

Received: 25 September 2017 | Accepted: 16 January 2018 | Published: 25 January 2018

Study protocol | [Open Access](#) | [Published: 25 April 2020](#)

The Balanced Opioid Initiative: protocol for a clustered, sequential, multiple-assignment randomized trial to construct an adaptive implementation strategy to improve guideline-concordant opioid prescribing in primary care

[Andrew Quanbeck](#) , [Daniel Almirall](#), [Nora Jacobson](#), [Randall T. Brown](#), [Jillian K. Landeck](#), [Lynn Madden](#), [Andrew Cohen](#), [Brienna M. F. Deyo](#), [James Robinson](#), [Roberta A. Johnson](#) & [Nicholas Schumacher](#)

Implementation Science 15, Article number: 26 (2020) | [Cite this article](#)

2252 Accesses | 3 Citations | 3 Altmetric | [Metrics](#)

Next phase: scaling up

- NIDA R01 submitted Feb 5, 2018 (Dissemination and implementation Research in Health study section)
- Funding began 10/1/2018
- Current phase: finishing intervention, ending in April 2022



Why care about implementation costs?

PAR-19-274: Dissemination and Implementation Research in Health (R01 Clinical Trial Optional)

Selected review criteria:

- *Has consideration been given to the resource requirements and costs of the intervention?*
- *Are the measurements and analysis plan linked to the study aims, and does the analysis incorporate the best available data to track dissemination or implementation process and impact, including cost-effectiveness?*
- *How appropriate are the plans to sustain effective dissemination and implementation approaches once the research-funding period has ended?*



The \$64,000 question...

How much will it cost to implement?

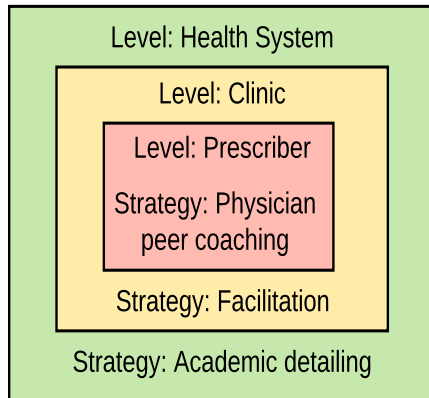
Possible study designs for R01

- Two arm cluster randomized trial
- Stepped wedge
- Sequential, multiple assignment randomized trial design

Research on implementation strategies in primary care settings

- Lau et al. conducted a review in 2015 of 91 studies aimed at determining the effectiveness of strategies for implementation of complex interventions in primary care settings
- Findings:
 - Little use of implementation strategies targeted at organizations or health systems
 - Limited data on the costs and cost-effectiveness of different strategies
 - Unclear about which strategies should be used under what conditions
 - Future research should study implementation strategies targeted at levels more broadly than individual providers.

Systems Consultation components



Sources: Ferlie & Shortell (2001);
Powell, et al. (2015)

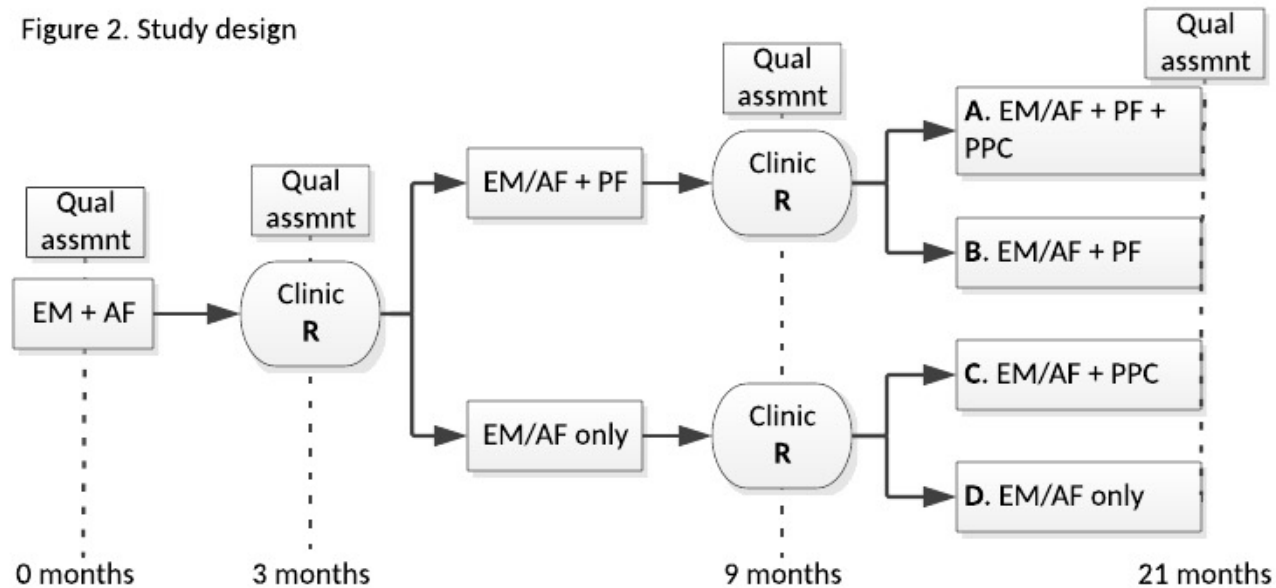
- **Educational meetings (EM):** system level strategy, in which a respected physician imparts information on the current state of the science on opioid prescribing
 - General and minimally intensive
 - Includes performance feedback reports
- **Practice facilitation (PF):** clinic level strategy that targets clinic processes and workflows
 - More tailored and labor intensive
- **Physician peer coaching (PPC):** prescriber level strategy that targets the management of challenging panels of patients through one-on-one consultation between physician and a physician experienced in opioid management
 - Most tailored and highly resource intensive

Specific aims

1. Compare the effect over 18 months of an adaptive systems consultation implementation strategy vs educational meetings alone on average MME dose
2. Develop an assessment of contextual factors that influence the effectiveness of different implementation strategies
3. Estimate the costs of delivering four different sequences and combinations of strategies, including the incremental cost effectiveness of adding practice facilitation and physician peer coaching

Study design

Figure 2. Study design



Qual assmnt: Qualitative assessment
EM: Educational meeting
AF: Audit with monthly feedback reports

R: Randomization point
PF: Practice facilitation
PPC: Prescriber peer consulting

Observations leading to rationale for a SMART design

- Not all clinics required the “kitchen sink” approach
- Absence of a dedicated, initial training session at the health system level was viewed as a missed opportunity to raise awareness of issue
- We developed a team-based engagement model using both a physician expert consultant and a practice facilitator
- Clinicians and front-line staff require performance feedback to do the work associated with practice facilitation (e.g., plan-do-study-act cycles).

Observations leading to rationale for a SMART design (cont.)

- Different clinics prioritized different focal problems
- As the intervention drills deeper, we ultimately reach the level of patient-prescriber interactions, warranting the need for prescriber peer consulting
- Determinants of effectiveness of different implementation strategies were identified across multiple levels.

Recruitment sites

- Family medicine and general internal medicine clinics in two health systems
- Recruited 34 clinics

UWHealth

belinhealth

Study outcomes

- Assessed from data collected by the Wisconsin Collaborative for Healthcare Quality based on EMR data.
 - Overall rate of opioid prescribing
 - Average daily morphine milligram equivalent
 - Patients with urine drug test in past 12 months
 - Patients with PHQ mental health screen in past 12 months
 - Overall rate and dose of opioid-benzodiazepine co-prescribing
 - Patients with signed treatment agreements in past 12 months
 - Patients with daily morphine milligram equivalent above 90 mg
 - Depression, pain, function, quality of life scores



Costing methods

- Mapped study implementation strategies onto ERIC taxonomy (Powell et al., 2015)
- Applied Proctor et al.'s (2013) guidance for specifying implementation strategies to facilitate micro-costing
- Focused on pre-implementation and implementation stages
- Decision making perspective: How much would it cost for a health system to replicate this study?

Powell, B. J., Waltz, T. J., Chinman, M. J., Damschroder, L. J., Smith, J. L., Matthieu, M. M., ... & Kirchner, J. E. (2015). A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project. *Implementation Science*, *10*(1), 1-14.

Proctor, E.K., Powell, B.J. & McMillen, J.C. Implementation strategies: recommendations for specifying and reporting. *Implementation Sci*8, 139 (2013). <https://doi.org/10.1186/1748-5908-8-139>



Pre-implementation costs

Fixed costs

- None

Variable costs

- Time
 - IT time to develop quality monitoring system
 - Consultant time to develop quarterly educational content
 - Prescriber peer consultant training



Implementation costs

Fixed costs

- Remote video calling subscription (Teams, WebEx, Zoom, etc.)

Variable costs

- Time
 - Clinic staff's time away from clinic duties
 - Scheduling events
 - Presenters at educational meetings
 - Facilitation
 - Prescriber peer consultation

Implementation: Practice facilitation

Strategy	Actor	Actions	Target of the action	Temporality*	Dose or intensity	Targeted implementation outcomes	Micro-costing
<p>Promote adaptability</p> <p>Provide local technical assistance</p> <p>Tailor strategies</p> <p>Re-examine the implementation</p>	Practice facilitator	<p>Practice facilitator teaches change team members to use tools such as:</p> <ul style="list-style-type: none"> · Walkthroughs · Flowcharting · Nominal group technique · Plan-Do-Study-Act cycles 	Knowledge and skills of change team members	Six months after the initial educational meeting	Six, one-hour monthly video calls. Followed by four quarterly video calls	Increase adoption, feasibility, and fidelity.	Up to 60 minutes of facilitator time per meeting.
Promote network weaving	Practice facilitator	Practice facilitator organizes a video call so members of different change teams can learn from one another.	Engagement, knowledge, and skills of change team members	Eighteen months after the initial educational meeting	One-hour	Increase adoption, fidelity, penetration, and sustainability.	Up to 60 minutes of facilitator time.
Stage implementation scale up	Practice facilitator	Practice facilitator works with clinic change team members to plan for dissemination of improved workflows across the clinic	Engagement, knowledge, and skills of change team members & all clinic staff	Nine months after the initial educational meeting	Part of monthly practice facilitation meetings	Increase adoption, penetration, and sustainability.	Included as one of the facilitation meetings.



Data collection

Contact logs: record each email, phone, in-person communication broken down by clinic

Time logs: record time spent preparing and delivering facilitation or prescriber peer consultations

*Researchers spend about 4 hours each month to manually record entries in each log

Cost effectiveness

- Costs will be analyzed for each of the four sequences and combinations of the strategies
 - Will help decision-makers weigh the costs and effects of using different implementation strategies
- Analysis is based on engineering economics
 - Takes the perspective of organizational leaders who ultimately make decisions about the adoption of evidence-based practices in organizations
- Use incremental cost effectiveness ratios to quantify the tradeoff between the additional effectiveness achieved through scaling up the intensity of implementation strategies

Planned cost-effective analysis

Primary effectiveness outcome

- Clinic-level average morphine milligram equivalent (MME)

Incremental cost-effectiveness ratio

- $(\Delta MME)/(\Delta \$)$

Compare each implementation strategy to the EM/AF group

A constantly shifting landscape...

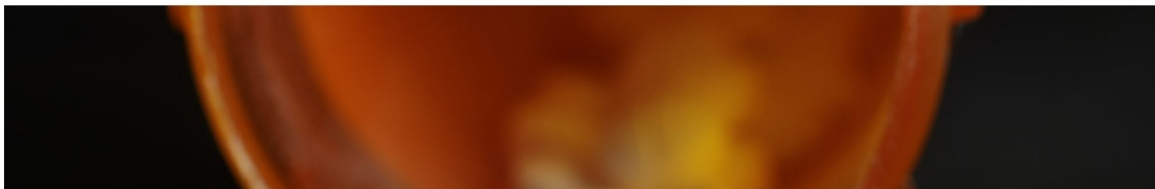
HEALTH

Faced with an outcry over limits on opioids, authors of CDC guidelines acknowledge they've been misapplied



By [Andrew Joseph](#) and [Ed Silverman](#) April 24, 2019

[Reprints](#)



CDC tones down....html ^

...continued

HEALTH

In a victory for pain experts, CDC tones down its opioid prescribing guidelines



By [Andrew Joseph](#)  Feb. 10, 2022

[Reprints](#)



CDC tones down....html



Useful references/examples

Garner, B. R., Lwin, A. K., Strickler, G. K., Hunter, B. D., & Shepard, D. S. (2018). Pay-for-performance as a cost-effective implementation strategy: results from a cluster randomized trial. *Implementation Science*, 13(1), 1-11.

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Other resources and future directions

- Upcoming special issue on economic evaluation in Implementation Science:

<https://cancercontrol.cancer.gov/is/initiatives/ccis/public-goods>

Thank you!

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