

Step-Wedge Design to Evaluate the Effectiveness of Opioid Prescribing Aids

Caroline Ledbetter¹
@C_line_sealion
caroline.ledbetter@cuanschutz.edu

¹ Colorado School of Public Health

Introduction

In 2017, 47,600 people died of an opioid overdose (68% of all overdose deaths). Our study explored the effect of integrating the prescription drug monitoring program into the electronic health record on physician prescribing behaviors in emergency department. Billions of dollars are being spent to reduce opioid addiction in the US. Stakeholders need data on the most effective efforts but given all the attention, guidelines and interventions, the actual effects of interventions can be difficult to disentangle from secular time trends. Instituting an intervention effort across multiple sites simultaneously can be expensive. Through simulations, we demonstrate that three sites can be used to evaluate the effects of an intervention using a step wedge design even in the presence of complex secular time trends and site effects.

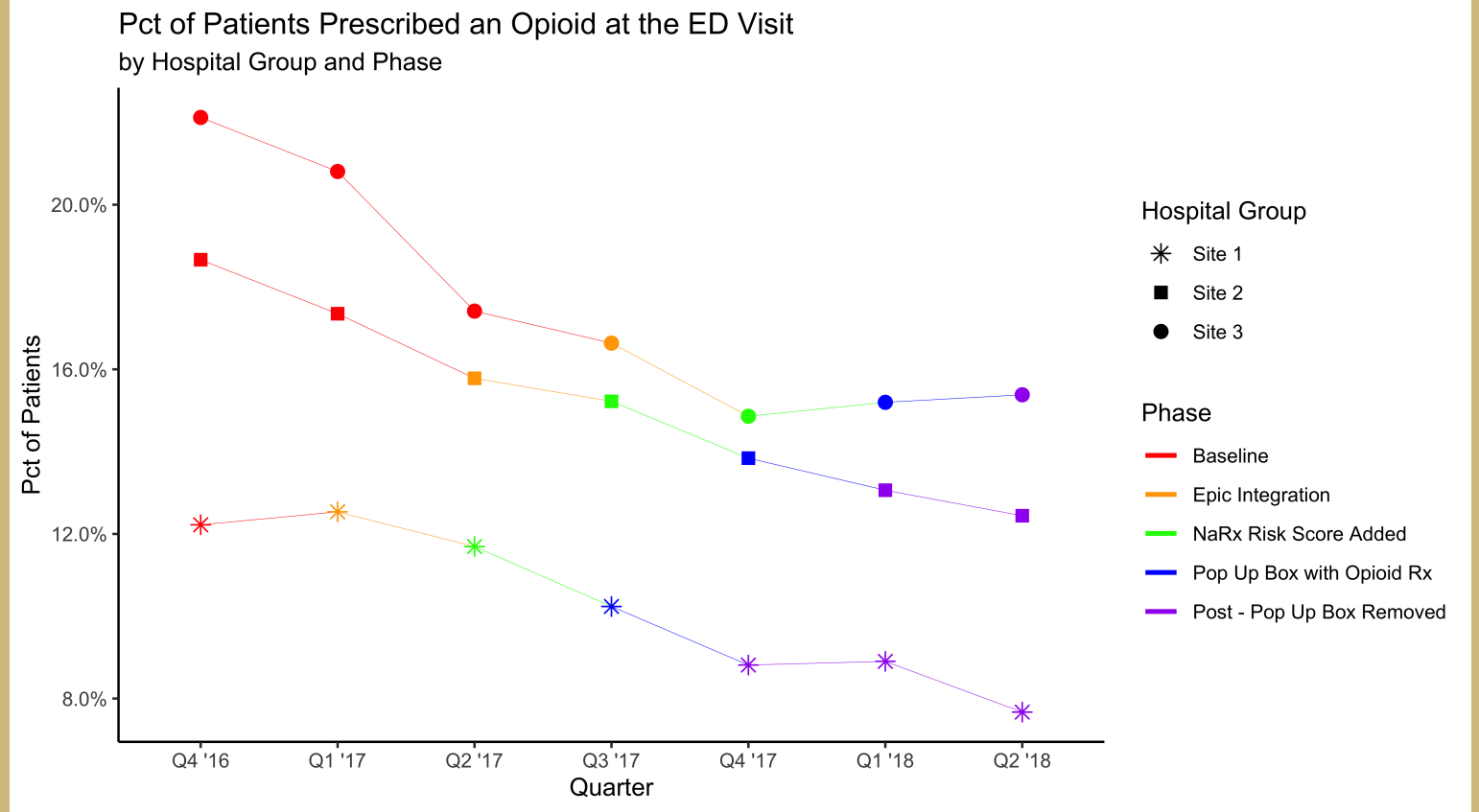
Objectives

- 1. Explore how PDMP integration effects prescribing behaviour.
- 2. Simulate different "truths" and evaluate how well they are captured by the model.

Methods

Data on all non-admitted emergency room visits and outpatient prescription medications for each phase were collected from the EHR (electronic health record). Data were also collected on searches of the PDMP data base, the controlled substance prescription record (for six months before

Through simulations, we demonstrate that three sites can be used to evaluate the effects of an intervention using a step wedge design even in the presence of complex secular time trends and site effects.

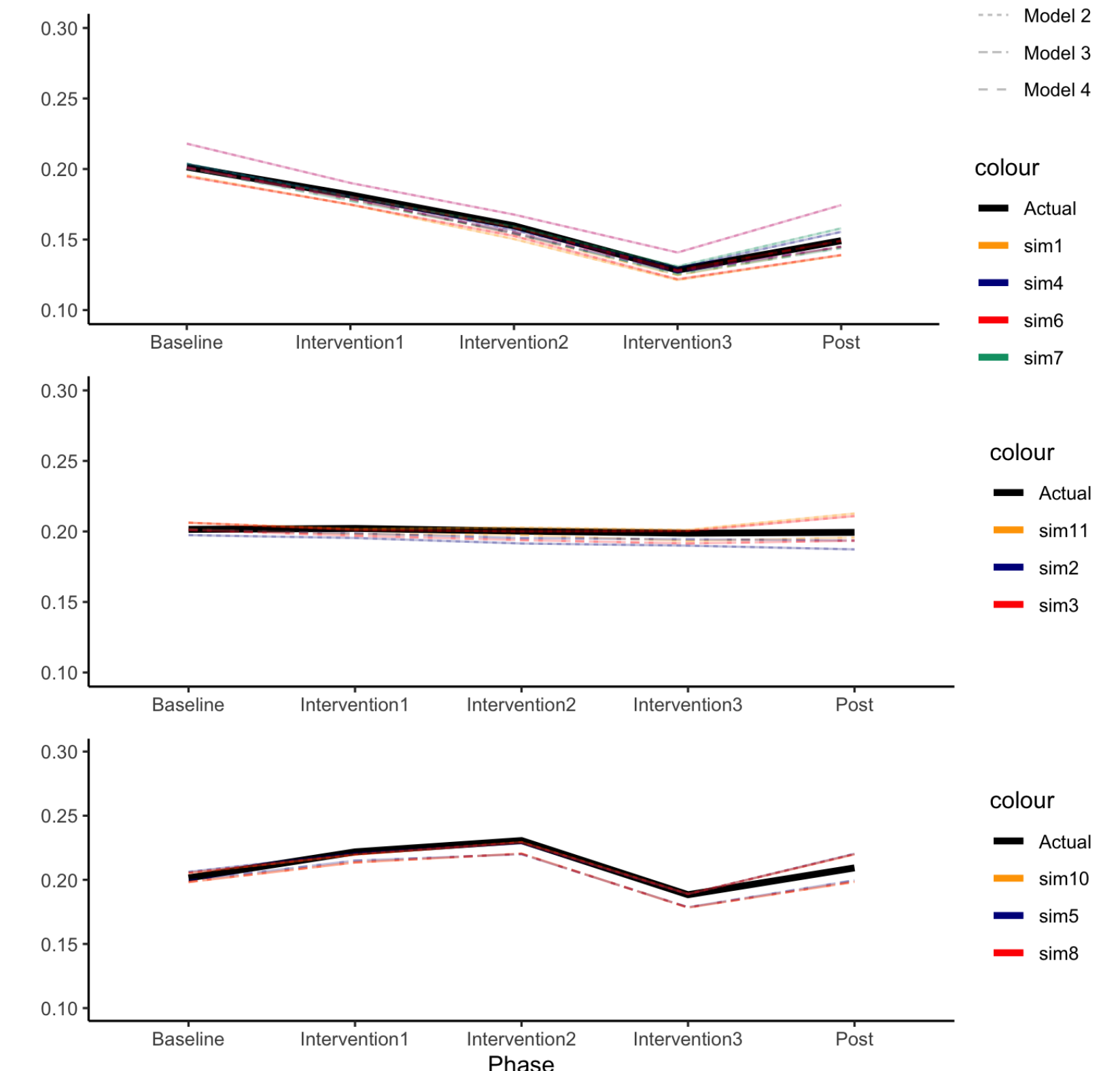


and after the visit) and the NaRxcheck score. 11 different scenarios with varying secular time trends, site effects, intervention effects and interactions were simulated.

Now on to the results!

Results

Our study found that introduction of the PDMP into the workflow did not reduce overall opioid prescriptions but did reduce the prescribing rates in high risk individuals. Our simulations showed that even with only one site per cluster secular time trends and interaction effects were actively separated.



Key Takeaways

- It is not clear that overall opioid prescribing rates are measurably affected outside of the overall secular time trend.
- Simulations indicate we can reasonably detect intervention effects even given complex site and time effects.