

HIV outbreak & response in Scott County, Indiana: a case study in public health decision making

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Feb 27, 2020: Mike Pence named head of COVID response

PHOTOS

Pence seizes control of coronavirus response amid criticism of his qualifications

By Tasha Ostrom, Josh Slocum and Hannah Sokol
February 27, 2020 at 7:00pm EST



This weekend, on Saturday, Trump doubled down on that claim. Asked about Pence's role in the response to an HIV outbreak in Scott County, Indiana, during his governorship. Trump responded, "I think he's done a phenomenal job on healthcare. One of the best, if not the best, in the country." He then turned the podium over to the Vice President.

Pence described his response to the outbreak of HIV in Scott County: "the state of Indiana did not allow for providing a needle exchange to citizens. But the CDC came in and made a recommendation. And I declared a public health emergency. And made for 30 days a needle exchange available in the state of Indiana. And I'm proud to say that every one of those patients was treated. We ended the spread of the HIV/AIDS virus in that community."

In February, 2020, President Trump named Mike Pence head of the coronavirus task force. To justify his choice, Trump cited Pence's handling of the HIV outbreak in 2014-2015 in Pence's home state of Indiana while he was governor.

What really happened in Indiana? Gregg and I had already written a paper about it!

The HIV outbreak in Scott County, Indiana



The story of the 2014-2015 HIV outbreak in Scott County IN involves:

- major political figures
- a vulnerable and criminalized risk population
- a stigmatized health outcome
- political opposition to proven interventions
- federal (CDC) and local responses
- competing narratives about what happened and what public health decision-makers should have done

A slowly growing catastrophe for PWID



Prescription Painkiller OPANA- 9 Overdose Deaths so far in 2012 in Scott County, Indiana

APRIL 9, 2012 BY ADMIN

[LEAVE A COMMENT](#)

Opana: Newest Prescription Painkiller Being Abused in Rural Areas

By Join Together Staff | March 27, 2012

Opana, a powerful opioid, is increasingly being abused in rural America, Reuters reports.

At least nine people have died so far in 2012 from prescription drug overdoses in Scott County, Indiana, and most of the deaths involved Opana.

Potential for outbreaks of blood-borne infections in Indiana was apparent 10 years before the outbreak in 2014.

- Rise in drug poisoning between 1999-2013
- High painkiller prescriptions and underage Rx drug use (2011-2012)
- Emergence of HCV among young PWID (2006-2012)
- Outbreak of HCV among PWID in Indiana in 2010-2011
- Large gaps in opioid agonist therapy capacity (2012)
- OxyContin → Opana reformulation spurred switch to injection

Emerging HIV outbreak among people who inject drugs

Morbidity and Mortality Weekly Report

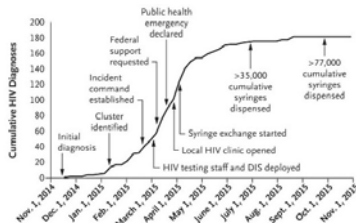
Community Outbreak of HIV Infection Linked to Injection Drug Use of Oxycodone — Indiana, 2015

Caitlin Conrad¹, Heather M. Bradley², Dina Patel³, Swamy Budhiga¹, Erika L. Chapman¹, Renee R. Galang^{2,3}, David Hillman¹, John Hsu¹, Kaiti W. Hoover⁴, Monica R. Patel^{2,3}, Andrea Perna², Philip J. Peters², Pam Pomonis², Jeremy C. Roseberry¹, Michelle Sandora^{1,3}, Jessica Sheldahl⁴, Justine Walshall⁴, Dorothy Wasthousar⁴, Paul J. Winstler⁴, Hain Wu^{2,3}, Joan M. Dwyer^{1,2} (Author affiliations at end of text)

On April 24, 2015, this report was posted as an MMWR Early Release on the MMWR website (<http://www.cdc.gov/mmwr>).

On January 23, 2015, the Indiana State Department of Health (ISDH) began an ongoing investigation of an outbreak of human immunodeficiency virus (HIV) infection, after

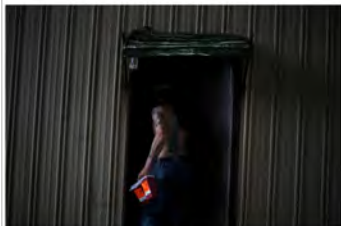
identified as syringe-sharing or sex partners, and 54 (42.2%) are social contacts regarded as at high risk for HIV infection. Injection drug use in this community is a multi-generational activity, with as many as three generations of a family and multiple community members injecting together. IDU practices



- November 2014: First HIV case diagnosed
- January 2015: ISDH investigation began, 17 HIV cases
- March 23, 2015: team of CDC investigators arrives in Scott County

A growing outbreak; Pence deliberates

Mike Pence's Response to H.I.V. Outbreak: Prayer, Then a Change of Heart



Perry Berger walked into his home with containers of used needles he had collected from intravenous drug users. A needle exchange program in Scott County, Ind., helped halt a H.I.V. epidemic in the area. Aaron Horvath for The New York Times

Aug. 7, 2016



AUSTIN, Ind. — On the evening of March 24, 2015, Sheriff Dan McClain got an unexpected voice mail: “This is Gov. Mike Pence calling. I would welcome the opportunity to get your counsel on what’s going on in Scott County.”

What was going on was unprecedented in Indiana and rare in the United States: [H.I.V. was spreading](#) with terrifying speed among intravenous drug users in this rural community near the Kentucky border. Local, state and federal health officials were urging the governor to allow clean needles to be distributed to slow the outbreak.

But Indiana law made it illegal to possess a syringe without a prescription. And Mr. Pence, [a steadfast conservative](#), was morally opposed to needle

- March 13, 2015: HIV testing clinic opens
- March 26, 2015: Indiana declares public health emergency
- April 4, 2015: Pence authorizes temporary syringe exchange
- May 5, 2015: Pence signs bill allowing counties to establish SEP in an HIV/HCV outbreak. Also signs a bill upgrading possession of a syringe to felony charge.

The aftermath: counterfactual claims

Campbell and colleagues:

“Had an SSP [syringe-service program] been in place prior to recognition of the outbreak, the explosive phase of the outbreak may have been blunted”

Rich and Adashi:

“what happened in Indiana was predictable and avoidable”

NIDA Director Nora Volkow:

“This epidemic should not have happened. We have known for many years that providing free needles to injection drug users is a strategy that can prevent the spread of HIV in a community. A temporary emergency needle exchange program went into effect in Scott County in early April, but this was far too late to prevent the outbreak.”

The aftermath: Adams responds to criticism of Pence



Indiana State Health Commissioner Jerome Adams argued that he and other officials persuaded Pence to authorize SEP, and criticism of Pence ignores political realities in rural settings. He called Volkow and colleagues “commentators”.

Political epidemiology & epistemology

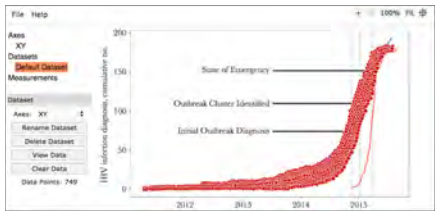
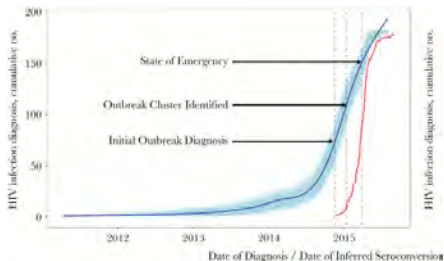
Question: Did Pence's SEP authorization stop the outbreak? Would earlier action by Pence and Adams have reduced the toll of the HIV outbreak?

Gregg and I wanted to answer these questions in a credible and quantitative way. We decided to do as much as possible without using models or statistics. But we needed data.

We also thought carefully about making a credible argument people who disagree with us: *What evidence could convince political adversaries of the need for public health interventions that they morally oppose?*

We first decided to ask nicely for HIV incidence and infection recency assay data. These were reported in several publications by ISDH and CDC investigators.

If the government won't give you the data, steal it

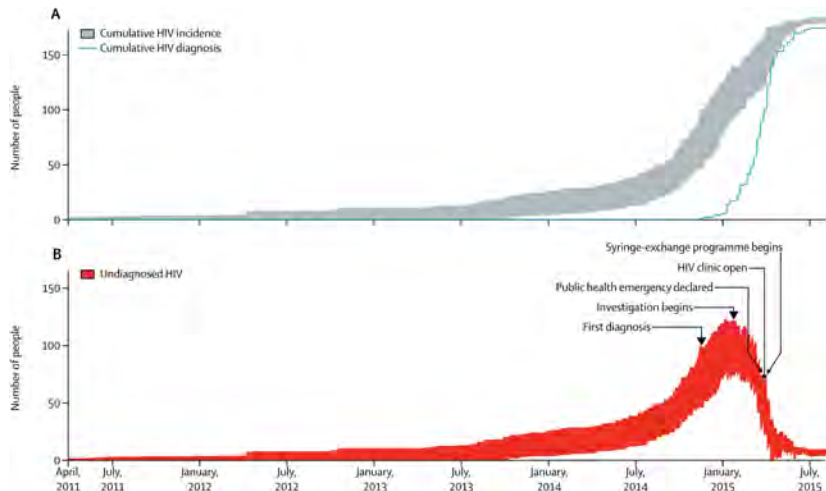


The CDC and state of Indiana refused our FOIA requests for HIV incidence data collected using public money.

We obtained everything by digitizing information in a published figure.

This gave us bounds for the true HIV “incidence curve” for infections that we could compare to the known trajectory of HIV diagnoses.

Reconstructing undiagnosed HIV infections



Subtracting cumulative diagnoses from cumulative infections gives bounds for undiagnosed infections.

Almost no modeling; ok, a little modeling

$D(t)$ = cumulative diagnoses (observed)

$C(t)$ = cumulative HIV incidence (stolen), with bounds $\overline{C}(t)$ and $\underline{C}(t)$

$I_{\text{udx}}(t) = C(t) - D(t)$ = number of undiagnosed HIV infections

Diagnosis rate (per HIV infection)

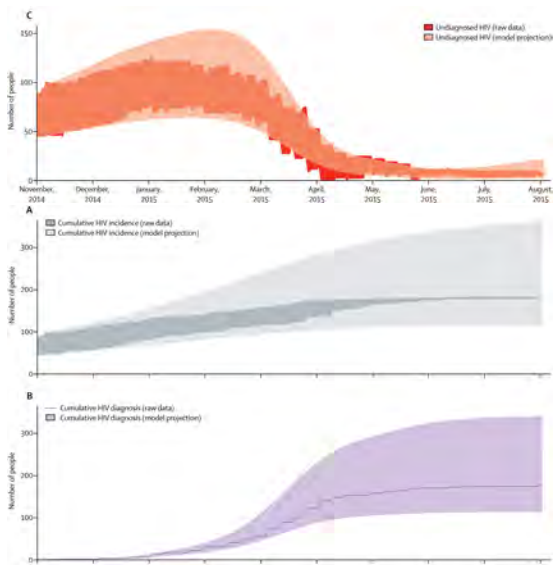
$$\gamma(t) = \frac{dD(t)}{I_{\text{udx}}(t)dt}$$

Incidence rate dynamics

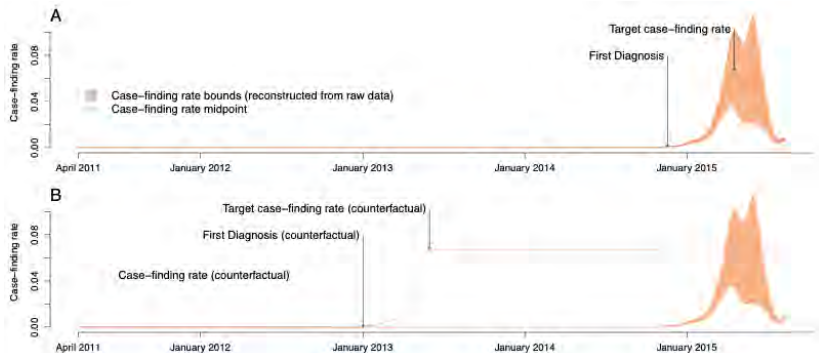
$$\frac{dI_{\text{udx}}}{dt} = \beta(t)S(t)I_{\text{udx}}(t) - \gamma(t)I_{\text{udx}}(t)$$

Key insight: we can reconstruct bounds for all the compartments of a dynamic HIV transmission model from available data, *with no statistics*.

Running the HIV transmission/diagnosis model forward



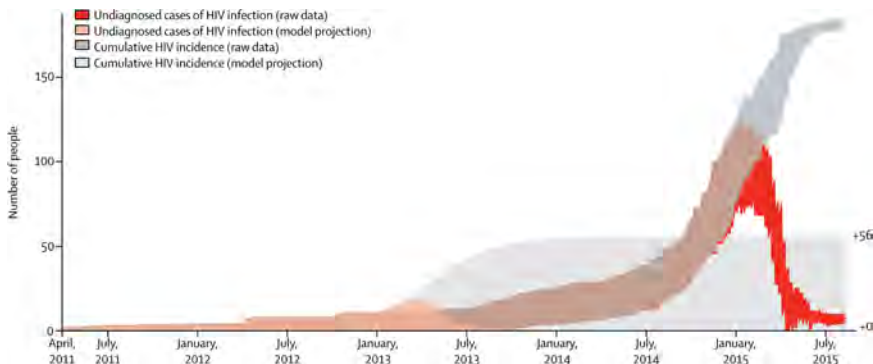
Estimated and counterfactual diagnosis rates



We estimated the actual HIV case-finding rate throughout the outbreak. It was flat at near zero from 2011 to late 2014.

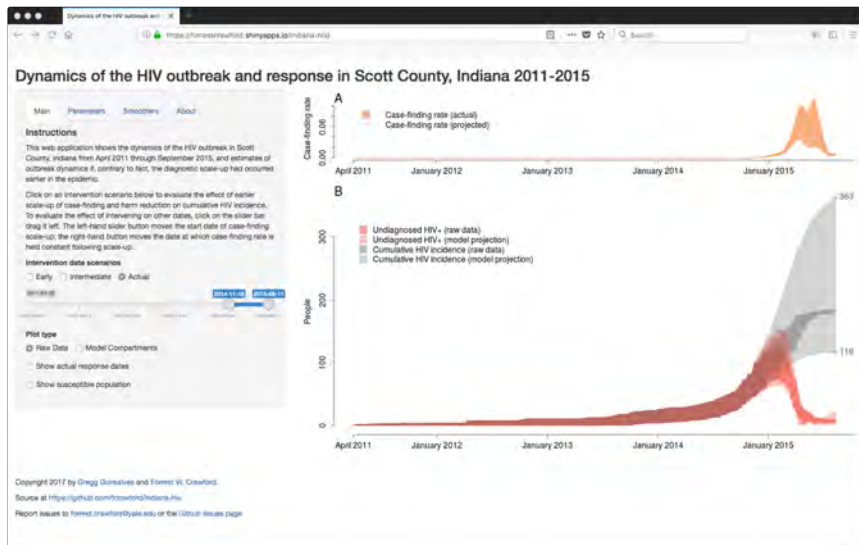
We *imagined* the actual case-finding rate being applied earlier, in 2013.

Result: earlier action could have prevented HIV infections



The HIV epidemic in Scott County might have been prevented or mitigated with an earlier response.

An interactive web app



Finally, a reckoning for now-VP Pence

Articles

Dynamics of the HIV outbreak and response in Scott County, IN, USA, 2011–15: a modelling study

Summary

Background: In November 2014, a cluster of HIV infections was detected among people who inject drugs in Scott County, IN, USA, with 215 infections eventually attributed to the outbreak. This study examines whether timely implementation of a public health response could have reduced the scale of the outbreak.

Methods: In this modelling study, we derived weekly case data from the HIV outbreak in Scott County, IN, and used the output of HIV testing, treatment and prevention services from publicly available reports from the US Centers for Disease Control and Prevention (CDC) and researchers from Indiana. The primary objective was to determine if an earlier response to the outbreak could have had an effect on the number of people infected. We compared upper and lower bounds for transmissible HIV incidence by digitally extracting data from published images from a CDC study using a Rio-Rad ability interface writing to improve the accuracy of such transcription events. We constructed a generation-of-the-susceptible-infections-removed model to capture the transmission dynamics of the HIV outbreak. We compared two parameterised: inferred estimates of the number of individuals with an undiagnosed HIV infection, the case-finding rate per undiagnosed HIV infection, and evidence-based bounds for the HIV transmission rate throughout the epidemic. We used these models to assess the potential effect if the same intervention had begun at two key timepoints earlier than the actual date of the initiation of efforts to control the outbreak.

Results: The upper bound for undiagnosed HIV infections in Scott County peaked at US around Jan 08, 2015, over 3 months before the Governor of Indiana declared a public health emergency on March 26, 2015. Applying the observed case-finding rate according to earlier interventions shows that an earlier public health response could have substantially reduced the number of infections (between 10 and 100). An earlier response to the outbreak by April 11, 2015, initiation of a response on Jan 1, 2014, could have suppressed the number of infections to 10 or fewer, averting at least 127 infections, whereas an intervention on April 1, 2011, could have reduced the number of infections to two or fewer, averting at least 173 infections.

Conclusions: Early and robust surveillance efforts and case-finding could reduce current epidemics. Investing across in HIV services and harm-reduction interventions could further reduce the likelihood of outbreaks and substantially mitigate their societal and age.

Funding: US National Institute on Drug Abuse, US National Institute of Mental Health, US National Institutes of Health Big Data to Knowledge programme, and the US National Institutes of Health.

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Introduction

Scott County, USA, was the site of a major outbreak of HIV infection in 2014–15 among people who inject drugs (PWID). In Mar 2014, the first case of HIV infection in Scott County attributed to this outbreak was diagnosed. The investigation by the Indiana State Department of Health began in Jan 2015, by which time 17 case cases of HIV infection had been reported. On March 26, 2015, Governor Ho signed the Governor's Executive Order (EO) 14, which directed investigations into Scott County and the Indiana State Department of Health to declare a public health emergency in Scott County, allowing a temporary syringe-exchange programme to be established. An HIV testing clinic opened in March 2015. Syringe-exchange programmes reduce HIV transmission among PWID, but do not encourage drug use. On April 4, 2015, after consultation between the Governor and the Indiana State Department of Health, CDC, and local law enforcement, a week after Governor Order (EO) 14, a public health emergency was declared in Scott County. The investigation of the programme in Scott County was delayed by conflicts between police officers, PWID, and drug distributing groups, with police officers unable to enforce the emergency. On May 5, 2015, Governor Ho signed a bill that allowed counties in Indiana to apply for permission to establish drug-exchange programmes if they could show that a public health emergency existed. These exchange programmes were to be temporary and did not receive financial state support. In June 2015, Governor Pence also signed a bill that expanded permission of a syringe with intent to commit an offence with a controlled substance from a misdemeanor to a felony charge, subject to imprisonment for up to 3.4 years, to go

Comment

No more Scott Counties

The opioid crisis in the USA has caused enormous suffering and the loss of hundreds of thousands of lives, and in 2017 surpassed motor vehicle accidents as a cause of death in the USA. In 2017, about 62 000 estimated deaths resulting from overdoses, more than 62 000 were due to opiates, exceeded the number of US military personnel who died during the Vietnam war (about 58 000 people). The greatest number of people who died of drug overdoses were Americans aged 24–35 years. In 2016, one in five deaths in this vital age group involved opiates.¹ The opioid crisis has generated additional public health threats because some individuals who are dependent on opiates have transitioned to injecting use of opiates (including heroin), and outbreaks of HIV and hepatitis C virus (HCV) have predictably followed. Scott County, IN, USA, where one of the most volatile HIV and HCV outbreaks occurred in 2013–15,² is just one of 230 US counties in 26 states deemed by the US Centers for Disease Control and Prevention (CDC) to be at high risk for outbreaks of these transmissible infections.³

What Scott County and many of these other jurisdictions share is not only high burdens of opioid use and dependency, but also multiple, predominantly legal and political, restrictions that have blunted prevention, treatment, and care responses for people with substance misuse disorders.⁴ The longstanding ban on federal funding for needle and syringe exchange programmes operates in Scott County at the time of the outbreak, and restrictive Indiana state laws further prohibiting these services, were one component that contributed to the Scott County outbreak, and inadequate housing and treatment facility capacity for all those seeking treatment for drug addiction was another. Furthermore, although the Affordable Care Act offered generous subsidies to US states willing to expand Medicaid programmes to increase capacity for drug treatment, many states refused to accept these funds. Could earlier provision of these basic services have reduced the extent of the HIV (and HCV) outbreak in Scott County, and other US counties like it?

In the latest HIV, Greg S Gonsales and Forrest W Crawford report a modelling study investigating the dynamics of the HIV outbreak as it spread through people who inject drugs in Scott County, using publicly

available data on the outbreak from the CDC, and a novel estimation approach based on the susceptible-infections-removed model. They generated interval estimates of undiagnosed HIV infections, case-finding rates, and upper and lower bounds of estimates of HIV infections over time. These estimates enabled assessment of possible preventive effects of earlier interventions on the scale of the outbreak.

Gonsales and Crawford report that interventions earlier in the course of the outbreak could have substantially reduced the number of HIV infections. Of the estimated 183–184 HIV infections in the Scott County HIV outbreak, the authors found that if public health measures had been implemented in January 2013, the epidemic might have halted after 56 or fewer infections, averting at least 127 cases. If interventions had begun in April 2011, the number of infections could have been reduced to ten or fewer, preventing at least 173 cases. Although the model did not account for HCV transmission, some 80% of people who acquired HIV during the outbreak were also found to be HCV co-infected, underscoring the tight epidemiological linkage of these pathogens in such outbreaks.⁵

The implications of these findings are several and of real importance. Effective HIV prevention measures are well established for interruption of transmission in outbreaks among people who inject drugs, legal and other structural barriers to the implementation of these public health measures are unacceptable in a public health crisis as severe as the US opioid epidemic. Mike Pence, the Governor of Indiana at the time of the Scott County outbreak, showed considerable leadership in 2015. He went against Republican party convention and allowed limited harm-reduction services as the scale of the outbreak led to a declaration of a public health emergency. But, as Gonsales and Crawford have shown, these interventions came too late for many people in the county. We urgently need public health interventions of commensurate scale for this enormous epidemic, which will require resources, strategic, credible engagement, and proactive leadership from local, county, state, and federal authorities. Delayed responses to the Scott County outbreak clearly occurred, and with about 230 US counties at risk of a similar outbreak, these delays should not be repeated.

www.thelancet.com Published online September 13, 2016; doi:10.1016/S0140-6736(16)03622-0

Surgeon General Adams gets the last word



The success of Pence and Adams in reducing infection rates drew national praise. But a Yale University School of Public Health study would later conclude that the crisis could have been avoided if Indiana officials had taken action earlier.

The outbreak had begun three years before Adams became Indiana health commissioner, but the criticism, which spilled into his tenure, still stings. The researchers he calls "armchair epidemiologists" just didn't understand, he says, that gentle persuasion takes time.



Adams was right that Gregg and I did this analysis from the comfort of our offices at Yale. We weren't on the ground in Indiana.

But SEP, OAT, and HIV testing are known to reduce HIV transmission. We showed the HIV outbreak could have been prevented or mitigated with an earlier response.

Fast forward: Pence to lead coronavirus response

MAGAZINE

HISTORY DEPT.

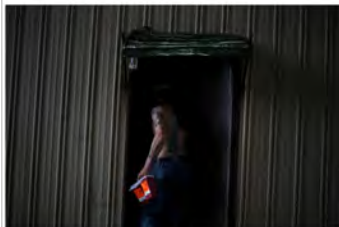
How Mike Pence Made Indiana's HIV Outbreak Worse

The vice president claims success tamping down HIV. Now he's leading Trump's coronavirus response. We studied what he did as governor, and it's not encouraging.



The outbreak and reckoning in perspective

Mike Pence's Response to H.I.V. Outbreak: Prayer, Then a Change of Heart



Perry Beager walked into his home with containers of used needles he had collected from intravenous drug users. A needle exchange program in Scott County, Ind., helped halt a H.I.V. epidemic in the area. Anne Norton for The New York Times

Aug. 7, 2018



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What was going on was unprecedented in Indiana and rare in the United States: [H.I.V. was spreading](#) with terrifying speed among intravenous drug users in this rural community near the Kentucky border. Local, state and federal health officials were urging the governor to allow clean needles to be distributed to slow the outbreak.

But Indiana law made it illegal to possess a syringe without a prescription. And Mr. Pence, [a steadfast conservative](#), was morally opposed to needle

It’s easy to criticize Pence for praying about syringe exchange before belatedly allowing it in Indiana. But Jerome Adams and other officials did the rhetorical work to convince Pence to respond, and careful deliberation by policymakers isn’t something we should dismiss.

In this project, Gregg and I tried to use data to make an argument that would be convincing to anyone, including non-statisticians and political opponents of harm reduction and public health programs.

The end

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Please email me if you have questions.

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