QUICK RESPONSE TEAM- A NEW MODEL TO ADDRESS OPIOID CRISIS

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Introduction

Substance use disorder (SUD) has emerged as a major public health challenge over the past few decades. In particular, Huntington city, Cabell County, West Virginia is often named as the epi-center of the opiate epidemic. Factory and mining workforce injuries, high rates of adverse childhood experiences, interpersonal violence and lack of employment or educational opportunities contributed to the increase in number of individuals with substance use disorder in the Appalachian region[1,2]. To address this issue, public health organizations in Huntington collaborated to implement a quick response team (QRT) that is tasked with connecting individuals with substance use disorder or those who have experienced a non-fatal overdose to a medication for opioid use disorder treatment or recovery service provider.

Purpose

The purpose of this study is to evaluate the effectiveness of QRT in addressing the opioid crisis in Huntington, West Virginia.

Methods

- A quasi-experimental design was used to examine whether QRT can aid in reduction of overdoses with the target population including all individuals with a SUD or those that have experienced a non-fatal overdose in Huntington between December 2017 and June 2021.

- Demographic data on age, race, and sex was collected by the QRT that operated under Cabell County Emergency Medical Services (CCEMS). We stratified race into the following groups: a) White, b) Black, C) Biracial, d) Unknown.

- Data on suspected overdoses (calls received by 911) was provided to evaluators by QRT project coordinator (who in turn received it from CCEMS). Data was collected and stored in a HIPAA compliant online platform- Cordata (Cordata Health Innovations).

- Demographic data was analyzed using IBM SPSS program (version 24). Trends in overdose data was evaluated by interrupted time series analysis (ITS) using autoregressive integrated moving average (ARIMA) (R program V. 4.3.1). To develop a best fit model, non-stationarity, autocorrelation and seasonality were corrected.

- A $p<.05$ was considered to be statistically significant.

Results

Analysis of the data indicated that individuals aged between 30-39 years have a high prevalence of SUD and experienced an overdose event. In terms of race, 79.0% were white, 3.1% were black, 1.1% were biracial and 16.8% were unknown. Individuals entering treatment and recovery programs by race were highest among white (30%) and black individuals (27.8%). During the intervention period, QRT made contact with 1,171 individuals (those that experienced and overdose and referrals) and linked 335 individuals to treatment and recovery service providers. Of these, 205 were men (29.0%) and 130 were women (29.4%) (Table 1). During the same period, the team distributed Naloxone to 569 individuals (including friends and family members) and also trained them on its administration.

Variable	Individuals with SUD that directly reached out to QRT or were referred by friends and family members that entered treatment or recovery programs through QRT linkage - Number (%)*	Individuals with SUD that directly reached out to QRT or were referred by friends and family members but did not enter treatment or recovery programs- Number (%)*	Individuals with a single non-fatal overdose event in a month that entered treatment or recovery programs through QRT linkage- Number (%)*	Individuals with a single non-fatal overdose event in a month that did not enter treatment or recovery programs-Number (%)*	Individuals with recurrent non-fatal overdoses (overdosed more than once in same month) that entered treatment or recovery programs through QRT linkage - Number (%)*	Individuals with recurrent non-fatal overdoses (overdosed more than once in same month) that did not enter treatment or recovery programs- Number (%)*
Age (Years)	Total n= 201	Total n= 161	Total n= 120	Total n= 642	Total n= 14	Total n= 33
<18	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.5%)	0 (0.0%)	1 (3.0%)
18-29	33 (16.4%)	39 (24.2%)	41 (34.1%)	144 (22.4%)	4 (28.6%)	5 (15.2%)
30-39	42 (20.9%)	31 (19.3%)	42 (35.0%)	231 (36.0%)	4 (28.6%)	11 (33.3%)
40-49	28 (13.9%)	18 (11.2%)	20 (16.7%)	126 (19.6%)	2 (14.3%)	5 (15.2%)
50-59	12 (6.0%)	9 (5.6%)	10 (8.3%)	77 (12.0%)	1 (7.1%)	6 (18.2%)
≥60	1 (0.5%)	1 (0.6%)	5 (4.2%)	36 (5.6%)	0 (0.0%)	1 (3.0%)
Unknown	85 (42.3%)	63 (39.1%)	2 (1.7%)	25 (3.9%)	3 (21.4%)	4 (12.1%)
Gender						
Male	115 (57.2%)	70 (43.5%)	82 (68.3%)	433 (67.5%)	8 (57.1%)	19 (57.6%)
Female	86 (42.8%)	91 (56.5%)	38 (31.7%)	208 (32.4%)	6 (42.9%)	14 (42.4%)
Unknown	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	0 (0.0%)	0 (0.0%)
Race						
White	167 (83.1%)	138 (85.8%)	98 (81.7%)	479 (74.6%)	13 (92.9%)	30 (90.9%)
Black	6 (3.0%)	2 (1.2%)	4 (3.3%)	24 (3.7%)	0 (0.0%)	0 (0.0%)
Biracial	2 (1.0%)	2 (1.2%)	0 (0.0%)	9 (1.4%)	0 (0.0%)	0 (0.0%)
Unknown	26 (12.9%)	19 (11.8%)	18 (15%)	130 (20.3%)	1 (7.1%)	3 (9.1%)

Table 1: Demographics of people that have overdosed and received services or otherwise by Quick Response Team between December 2017 and June 2021 in Huntington, Cabell County, West Virginia.

An interrupted time series analysis using autoregressive integrated moving average was conducted to determine the effect of intervention in changing the trend in non-fatal overdoses (911 calls was used as a surrogate marker) in the city of Huntington over time. The model estimated an immediate decline of 44 suspected overdose 911 calls (p-value = .00002, 95% CI, - 23 to - 64) in a month post intervention and 4 suspected overdose 911 calls (p-value =0.07, 95% CI, 0 to - 7) per month subsequently (Figure 1).
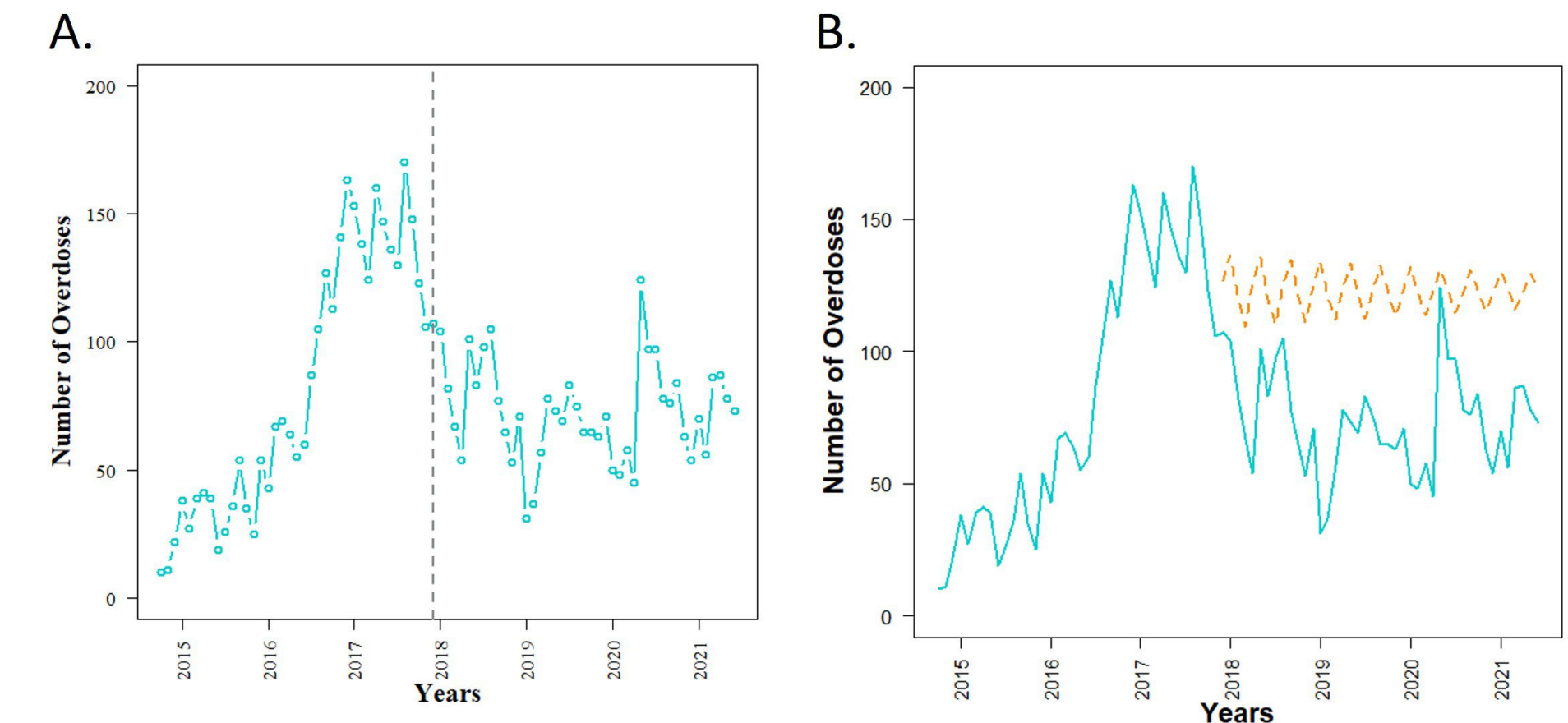
Figure 1: Intervention by QRT beginning December 2017 led to decrease in overdoses in the city of Huntington. (A) Time series of overdose cases (911 suspected overdose calls) in city of Huntington between October 2014 and June 2021 (B) Observed values (solid line) compared with predicted values (dotted line) in absence of intervention based on ARIMA model.

Conclusion

Our study adds to the existing literature on evidence-based practices to address the opioid crisis. Risk factors for SUD range from mental health issues to environmental factors and a multidisciplinary integrated approach is required to address this problem. Quick Response Teams contribute to the solution of addressing the opioid crisis through outreach to individuals with SUD and providing them with tailored social services and connecting them to treatment or recovery program providers through warm hand off referral.

References

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