SOCIAL DETERMINANTS OF HEALTH AND DRUG OVERDOSE EVENTS IN GREAT FALLS, MT (2019-2022)

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THE PROBLEM

• Drug overdose events are significantly increasing across the nation
• Opiate-related deaths have garnered national attention
• Narcan distribution is a reactive solution, rather than preventative
PURPOSE OF THIS RESEARCH

• Identify if correlations exist between certain SDoHs and overdose events in Great Falls, MT

• Provide data to guide future targeted interventions and research

• Encourage additional research across Montana communities to address the drug crisis

• Provide research on general drug overdose
  • Current work has strong focus on opiate related deaths and naloxone distribution
• Census Bureau data from 2020 census to provide background of population
• EMS data from NEMSIS for overdose suspected calls and total 911 calls
• Provider’s Primary Impression drove overdose diagnosis
• Provider’s Secondary Impression drove self-harm determination
• Limited by overdoses called into 911 and investigation of EMS personnel
  • Recent studies support EMS data as accurate, despite potential room for error
### Great Falls, MT

- Median Household Income – $55,521
- Homeowning Population – 65.2%
- Poverty Rate – 14.5%
- Bachelor’s or Above – 28.2%
- Aged 65+ - 18.1%
- 59401 Median Home Price – $285,000
- 59404 Median Home Price – $429,900
- 59405 Median Home Price – $325,000

### National

- Median Home Price – $416,100
- Median Home Price – $74,755

#### Estimated Totals
- 39.9%
- 11.9%
- 35.7%
- Estimate – 17.3%
WHAT DOES THIS TELL US?

Population density of 2,627.51

3rd Largest City in State
Representative of other mid-size cities in MT

Blue-collar, working-class community
Representative of other working-class communities in the United States

Affluency concentrated in 59404
EXPECTED FINDINGS

• Disparities will exist across racial groups, including in risk of self-harm\(^3\)
• Overdose events occur more frequently in zip codes with lower income indicators
• Participation in negative health behaviors show a gradient that tracks with SES\(^4\)
SIGNIFICANT FINDINGS

• **No** significant difference in overdose events by zip code
• **No** significant difference in overdose events by race
• Significant findings for self-harm overdose events by age
- Risk ratio of overdosing in all zip codes was ~1.00
  - 59401: 1.00
  - 59404: 1.00
  - 59405: 0.997
  - 59414: 1.02
- Chi-Square Test for Homogeneity
- Compared 59405 and 59404
  - 59405 represents mid-level SES
  - 59404 represents highest level SES
- Chi-Square p-value = 0.305
OVERDOSE BY ZIP CODE

Total 911 Calls by Zip Code

Overdoses by Zip Code
• 4 key groups determined by population size
  • White – 59,002
  • Native American – 3,677
  • Hispanic/Latinx – 3,368
  • African American – 1,156

• Risk ratio showed all groups to have similar risk of overdosing
  • White – 0.971
  • Native American – 1.07
  • Hispanic/Latinx – 0.995
  • African American – 1.01
OVERDOSE BY RACE

Population

- White: 60,000
- Native American: 10,000
- Hispanic/Latinx: 10,000
- African American: 10,000

Overdoses

- White: 600
- Native American: 300
- Hispanic/Latinx: 10
- African American: 10
• Chi-Square Test found a significant association between age group and self-harm overdoses
  • p = 0.00943
• Risk Ratio found significance in self-harm overdoses by age group
  • 0-17 intentionally ODing – 1.27
  • 18-24 intentionally ODing – 1.04
  • 25-44 intentionally ODing – 1.10
  • 45-64 intentionally ODing – 0.919
  • 65+ intentionally ODing – 0.843
SELF HARM AND OVERDOSE

SELF HARM OVERDOSES BY AGE GROUP

- 0-17: Overdose 79, Self Harm 31
- 18-24: Overdose 156, Self Harm 45
- 25-44: Overdose 441, Self Harm 114
- 45-64: Overdose 155, Self Harm 42
- 65+: Overdose 44, Self Harm 6

Percentage:
- 41% Overdose, 29% Self Harm
- 26% Overdose, 22% Self Harm
- 14% Overdose, 6% Self Harm
SELF HARM AND OVERDOSE

- Mental health history may be a good indicator of future self harm
  - Those with mental health history are 2.35x more likely to have a self harm related OD
  - Self harm related ODs have increased risk of fatal outcomes (RR = 1.09)
• Naloxone administration reduced risk of fatality only slightly
  • RR of fatal outcome with naloxone administration = 0.922
• Interventions for mental health may prove more beneficial
  • 0–17-year-olds spend significant amounts of time in school
  • Implementing mental health in schools may be a successful, preventative intervention
  • Addressing mental health from beginning ages may also reduce use in later ages, regardless of self harm intentions
  • **Addiction is a mental health issue**
REFERENCES

1. Explore Census Data. (n.d.). https://data.census.gov/profile/Great_Falls_CCD,_Cascade_County,_Montana?g=060XX00US3001391533

2. Explore Census Data. (n.d.). https://data.census.gov/profile?g=010XX00US
