Understanding and Preventing Homeless Mortality:
Lessons from the Bay Area, CA

Tuesday, December 6, 2022
10 – 11:30 am PT / 11 am – 12:30 pm MT / 12 – 1:30 pm CT / 1 – 2:30 pm ET
“Grounded in human rights and social justice, the NHCHC mission is to build an equitable, high-quality health care system through training, research, and advocacy in the movement to end homelessness.”
Housekeeping

• Webinar Style

• Type Questions in Q&A or Chat Feature

• Designated Q&A Period
Take a moment to:
• Answer the poll questions
• Introduce yourself in the chat
Marin County Health and Human Services
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Medical Director, Street Medicine, Whole Person Integrated Care
Background

Marin County

- Population 260,000
- High wealth status
- Ranked 1st of 58 CA counties in the County Health Rankings
- High disparities

Homelessness in Marin

- Initiated Coordinated Entry in 2017 by the Continuum of Care, County and homelessness service providers
- Observations among service providers that deaths among people experiencing homelessness were increasing during the pandemic
Purpose

- Find mortality rate, years of potential life lost (YPLLs), and causes of death among people with a history of homelessness with a focus on substance-related causes

- Objectives:
  - Compare mortality rates and YPLLs of adults with a history of homelessness in Marin and adult Marin residents
  - Find substance-related deaths over time as a mortality rate and proportion of total deaths and compare with adult Marin residents
  - Use findings to help prioritize policy and program actions to reduce deaths among people experiencing homelessness
Methods: Data Sources

● Population Data
  ○ Adults with a history of homelessness
    ■ All people who have a VI-SPDAT score in Homeless Management Information System (HMIS) including those who have been housed
  ○ Adult Marin residents
    ■ California Department of Finance projections

● Mortality Data
  ○ California Vital Records Business Intelligence System (VRBIS)
  ○ Marin County has a Coroner’s Office
Methods: Analyses

- Matched people from HMIS and VRBIS
  - First 4 letters first, first 4 letters last, date of birth
  - Manual review

- Years of potential life lost (YPLLs): 75 minus age at death for all people who died younger than 75
  - Examples: Decedents who died at 65 years old contributes 10 years, and 80 years old contributes 0 years.

- Outcome variables
  - All cause deaths: final cause
  - Substance-related deaths: final cause, secondary causes, and injury description for substance-related deaths
Methods: Classifying Acute Drug- and Alcohol-related Deaths

**Substance-Related Deaths**

- Death record contains at least one of the following:
  - Final Cause
    - Drug- or alcohol-poisoning ICD-10 code
  - Subsequent Causes
    - Drug- or alcohol-poisoning ICD-10 code
  - Injury Description
    - Text contains at least one of the following:
      - Toxic
      - Utilized
      - Drug
      - Lethal
      - Alcohol
      - Ingested

**Overdose Deaths**

- Final Cause
  - Drug-poisoning ICD-10 code
An adult with a history of homelessness was 1.5 times as likely to die of any cause compared to adults in the total population.

Median age at death (18+):
- Homelessness: 61
- Marin: 83

*YPLLs are calculated as 75 years of age minus age of death.
People who die at the age of 75 or older do not contribute YPLLs.
*San Quentin inmates are excluded.

Data Source: VRBIS, HMIS, DOF
An adult with a history of homelessness was 12.2 times as likely to die of substance-related causes compared to adults in the total population.
Substance-related deaths accounted for 20–40% of deaths in the population experiencing homelessness and 3% of deaths in total Marin adult population.
Sharing Findings and Taking Action

Presentations
- Marin County leadership (public health, behavioral health, homelessness)
- Community coalitions on wellness, homelessness
- Re-entry Team in the Marin County Jail

Program Actions
- Catalyst/Seeds of Hope events
- Street Medicine/Street Behavioral Health
- MAT in the jail
- Overdose Free Marin Summit

NHCHC Paper
- Deaths Uncounted: Using Local Data to Act on Unnecessary Tragedy
  https://nhchc.org/research/publications/
Thank you!

In front of the Narcan vending machine in the jail
How to Carry out Homeless Mortality Reporting to Direct Policy Change

Alameda County Health Care for the Homeless Program
David Modersbach, Grants Manager
Alameda County Data-based Homeless Mortality Review

Bring Together Key Partners:
• HCH providers to lead
• Public Health Epi data folks to connect to Death Certificate Data
• Countywide Homeless data systems
• Community/People Experiencing Homelessness to Advocate

Bring Together Sources of Data:
• Comprehensive Lists of People Experiencing Homelessness
  • SHIE, HMIS, HCH Utilization Lists
• List of People Known to Have Passed Away (California Comprehensive Death Files (CCDF))
• List of Community Reported Homeless Deaths
  • ACHCH online community report https://www.achch.org/alameda-county-homeless-mortality.html
  • Study (HOPE/HOME)
  • Homeless Provider Mortality Reports to HCH
  • Coroner “Transient” death report
• List of Homeless Services Addresses (Alameda County 700 address)

Make a big old spreadsheet and use fancy data matching software and SPSS best you can! Plan on working on this for at least 3-4 months...
Analysis of Death Records for Signs or Notations of Homelessness

**Death records are NOT the same as Coroner death investigation records.** Some 10,000 residents/nonresident deaths are recorded in Alameda County every year. CCDF Spreadsheet is 10,000 rows of all Death Certificate Entries with 200 columns (fields). There are a few fields that might contain valuable information:

<table>
<thead>
<tr>
<th>Death Record Field</th>
<th>Clues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Data bump with list of your homeless services addresses, Review: “Homeless, transient, unknown, GPS location, behind..., block address,</td>
</tr>
<tr>
<td>Death Facility, Name/Location, Injury Location, Place of Death, Injury Place</td>
<td>Vehicle, homeless camp, wooded area, railroad tracks, homeless shelter, public sidewalk, motel/hotel, tent, friend’s residence, park, overpass, review outdoor deaths</td>
</tr>
<tr>
<td>Death Cause Immediate, Injury Description, Death Cause Consequences</td>
<td>Review Overdoses, exposure, alcohol-related and look for clues</td>
</tr>
<tr>
<td>Other Significant Conditions</td>
<td>Homelessness,</td>
</tr>
<tr>
<td>Funeral establishment, Disposition Place</td>
<td>How/where does your jurisdiction contract for unclaimed, transient decedents?</td>
</tr>
<tr>
<td>Informant/Next of Kin</td>
<td>Coroner is Informant,</td>
</tr>
<tr>
<td>NEW IN 2022!</td>
<td></td>
</tr>
</tbody>
</table>
Data Matching: Lists of People With Homeless History

Collect Comprehensive Lists of Persons Known to Be Homeless in County:

1. **Countywide SHIE** (Social Health Information Exchange) includes
   A. Homeless Management Info System (HMIS): Last date of contact, provider, housing status (17,000 persons/year)
   B. County FQHC Clinics and safety net (some homeless flags)

2. **Homeless Health Center (HCH) utilization**: Last Contact, provider, status (10,000 persons/year) including contractor providers

Try to identify housing status & last date of contact: Can be difficult

**Carry Out Data Matching (SPSS) Between:**

- Comprehensive List of People Known to Have Passed Away (California Comprehensive Death Files (CCDF) (in Alameda County or Alameda County residents)
  Vs.
- Comprehensive Lists of People Experiencing Homelessness (SHIE, HMIS, HCH utilization data list)
Bring together Reports of People Known to Have Died in Homelessness

Match Reported Homeless Deaths with CCDF Death Records
- ACHCH online community report https://www.achch.org/alameda-county-homeless-mortality.html
- Study (HOPE/HOME)
- Homeless Provider Mortality Reports to HCH
- Coroner “Transient” death report
- Jail Homeless Death Reports
- Media Reports

Review the list closely, review individual HMIS or HCH records for those who have records, determine housing status at time of death.

This is laborious work and in our locality required someone to look up and review almost 700 individual patient HMIS records.
Make Subjective Calls Based On Analysis

Determine Housing Status at Time of Death

1. Determined to be Homeless at Time of Death
2. Homeless within 5 years of Death, but Unknown Housing Status at Time of Death
3. Homeless Within 5 years of Death, but Housed at Time of Death

Justify How Determination Was Made:

- Death Certificate Review
- Community Reported
- HCH Utilization Records
- Coroner Report
- HMIS Records
- Multiple Matches
- SHIE/CCDF Review

Determine Death Location Type of Death Based on Death Certificate Analysis:

- Encampment
- Hospital
- Motel/Hotel
- Other’s Residence
- Outdoors
- Road Accident
- Streets/Sidewalk
- Vehicle
- Shelter/Program
- Own Residence
- Nursing Facility

Determine City of Last Residence based on HMIS/Death Certificate Analysis:

Otherwise, location of death will be weighted towards hospital or nursing facility where they were pronounced dead, not the locality where they were last known to be residing.
Use Data Analytics to Review Causes of death by:

- Cause of Death/Manner of Death
- Homeless Status
- Cause of Death
- Death Location Type
- Sex (NOTE generally M/F)
- Race
- Age Group
- HMIS Utilization
- City or Region of Death

Determine Estimated Number of People Experiencing Homelessness on an Average One Day during Measurement Period and compare against General Population Mortality Data

- We used linear progression of PITC numbers for our last 2021 Report estimate
- We used age breakdowns from 2021 HMIS age breakdown of HUD homeless
- Aligned Homeless Cause of Death with General Population (added death types such as Struck By Train).
### Alameda County Age-Adjusted Mortality Rate 2021
#### Homeless Vs. General Population

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Homeless Count</th>
<th>General Population Count</th>
<th>Mortality Rate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Causes</strong></td>
<td>346</td>
<td>11226</td>
<td>5.8</td>
</tr>
<tr>
<td>Unintentional or undetermined intent overdose</td>
<td>104</td>
<td>316</td>
<td>50.1</td>
</tr>
<tr>
<td>Heart disease</td>
<td>54</td>
<td>2093</td>
<td>5.5</td>
</tr>
<tr>
<td>All other diseases</td>
<td>35</td>
<td>1560</td>
<td>4.1</td>
</tr>
<tr>
<td>Homicide</td>
<td>22</td>
<td>142</td>
<td>22.9</td>
</tr>
<tr>
<td>Cancer (malignant neoplasms)</td>
<td>16</td>
<td>2293</td>
<td>1.6</td>
</tr>
<tr>
<td>All other injuries</td>
<td>17</td>
<td>268</td>
<td>11.8</td>
</tr>
<tr>
<td>R99</td>
<td>19</td>
<td>64</td>
<td>45.4</td>
</tr>
<tr>
<td>COVID</td>
<td>9</td>
<td>805</td>
<td>2.6</td>
</tr>
<tr>
<td>Chronic liver disease and cirrhosis</td>
<td>8</td>
<td>205</td>
<td>9.2</td>
</tr>
<tr>
<td>CLRD</td>
<td>7</td>
<td>359</td>
<td>5.4</td>
</tr>
<tr>
<td>Sequelae of drug and alcohol abuse &amp; dependence</td>
<td>7</td>
<td>59</td>
<td>28.5</td>
</tr>
<tr>
<td>Suicide</td>
<td>9</td>
<td>151</td>
<td>10.0</td>
</tr>
<tr>
<td>Unintentional or undetermined intent pedestrian or bike crash</td>
<td>9</td>
<td>56</td>
<td>27.6</td>
</tr>
<tr>
<td>Hypertensive renal disease/essential hypertension</td>
<td>6</td>
<td>272</td>
<td>5.6</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>4</td>
<td>802</td>
<td>1.3</td>
</tr>
<tr>
<td>HIV</td>
<td>5</td>
<td>23</td>
<td>34.3</td>
</tr>
<tr>
<td>Unintentional or undetermined intent pedestrian struck by train</td>
<td>4</td>
<td>5</td>
<td>110.3</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>4</td>
<td>369</td>
<td>1.5</td>
</tr>
<tr>
<td>Other communicable diseases</td>
<td>4</td>
<td>169</td>
<td>2.4</td>
</tr>
<tr>
<td>Exposure</td>
<td>1</td>
<td>2</td>
<td>208.8</td>
</tr>
<tr>
<td>Alzheimer’s, Parkinson’s, and other dementias</td>
<td>1</td>
<td>1148</td>
<td>0.1</td>
</tr>
<tr>
<td>Pregnancy; perinatal; congenital malformations and chromosomal abnormalities</td>
<td>0</td>
<td>56</td>
<td>0.0</td>
</tr>
<tr>
<td>Alcohol overdose</td>
<td>0</td>
<td>9</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Share and Use Results to Drive Health Program Operations

Homeless City of Last Residence

<table>
<thead>
<tr>
<th>City/Place</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>oakland</td>
<td>204</td>
<td>58.12%</td>
</tr>
<tr>
<td>hayward</td>
<td>34</td>
<td>9.69%</td>
</tr>
<tr>
<td>berkeley</td>
<td>25</td>
<td>7.12%</td>
</tr>
<tr>
<td>Fremont</td>
<td>19</td>
<td>5.41%</td>
</tr>
<tr>
<td>unknown</td>
<td>12</td>
<td>3.42%</td>
</tr>
<tr>
<td>livermore</td>
<td>9</td>
<td>2.56%</td>
</tr>
<tr>
<td>san leandro</td>
<td>8</td>
<td>2.28%</td>
</tr>
<tr>
<td>alameda</td>
<td>8</td>
<td>2.28%</td>
</tr>
<tr>
<td>Union City</td>
<td>6</td>
<td>1.71%</td>
</tr>
<tr>
<td>newark</td>
<td>6</td>
<td>1.71%</td>
</tr>
<tr>
<td>outside Alameda</td>
<td>6</td>
<td>1.71%</td>
</tr>
<tr>
<td>pleasanton</td>
<td>5</td>
<td>1.42%</td>
</tr>
<tr>
<td>emeryville</td>
<td>4</td>
<td>1.14%</td>
</tr>
<tr>
<td>castro valley</td>
<td>2</td>
<td>0.57%</td>
</tr>
<tr>
<td>san lorenzo</td>
<td>2</td>
<td>0.57%</td>
</tr>
<tr>
<td>Dublin</td>
<td>1</td>
<td>0.28%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>351</strong></td>
<td></td>
</tr>
</tbody>
</table>

Homeless Deaths by Housing Status, Alameda County 2018-2021

- Known to be homeless at time of death
- Homeless within 5 years of death, but housed at time of death
- Homeless within 5 years of death, but unknown housing status at death

Homeless Overdose Deaths Alameda County 2018-2021

- CY 2018: 35
- CY 2019: 61
- CY 2020: 94
- CY 2021: 104

Age Group of Homeless Deaths 2021

- 0-17: 2
- 18-24: 6
- 25-34: 36
- 35-44: 59
- 45-54: 69
- 55-64: 60
- 65+: 7
- Unknown: 7

Unattended Homeless Deaths – Manner of Death Alameda County 2021

- Acute/chronic disease: 70.34%
- Sudden illness: 13.9%
- Accidental injuries: 11.2%
- Suicide: 5.2%
- Unnatural/undetermined: 13.9%
Challenges for Homeless Mortality Work:

- Must connect and work with local public health/epi units!
- This work is very laborious and not well-funded or appreciated
- Data Overload: How to focus and find key areas where we can make a difference
- Coroner vs. Medical Examiner: Which do you have? A helpful coroner’s office might be helpful but might lead to complacency and undercounting.
- You’ll generally be a year behind, if you depend on Death Certificate Data
- Nationwide/Regional: How do we standardize methods, definitions, rates?
- The purpose isn’t just to have something to mourn on National Homeless Persons Memorial Day 12/21 Winter Solstice... WHAT ARE WE DOING WITH THIS DATA AND HOW CAN IT MAKE A DIFFERENCE?!!


https://nhchc.org/homeless-mortality/

David Modersbach, Grants Manager ACHCH

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SAN FRANCISCO WHOLE PERSON INTEGRATED CARE

Homeless Mortality in San Francisco

LOOKING UNDER THE HOOD: LESSONS LEARNED AND CHALLENGES

12/6/22

Barry Zevin MD
barry.zevin@sfdph.org
Purpose of Review

• Inform quality improvement efforts to prevent homeless deaths
• Inform provider outreach efforts following deaths
• Monitor trends over time
• Inform Public Policy
History of Homeless Death Review In San Francisco

• 1988-1993? Review carried out by journalist reviewing medical examiner death records
• 1994-2000 Similar review managed by SFDPH
  – Ended due to political reasons
• 2014 onwards revived as Quality Improvement Project
  – 2016-2021 incorporated into Whole Person Care evaluation
    • UCSF epidemiology team
Methodology
In the best of all possible worlds...

- Informed promptly of all deaths of PEH
- Cause of death
  - Grouped into relevant categories
- Location of death and living situation
  - Location of death (location of incident for hospital deaths)
    - Street, shelter, SIP hotel, indoors (public place vs private)
    - Geographical location
  - Living situation at time of death (incident)
    - Shelter, street alone, street encampment
In the best of all possible worlds...

- Accurate demographics and clinical background
  - Race, age, gender
  - Length of time experiencing homelessness
  - Underlying acute and chronic health conditions
    - Medical, mental health, substance use disorder
- History of connections to care
  - Emergency systems vs continuity systems
  - Homeless services, Medical Services, MH services, SUD treatment
In the best of all possible worlds...

• Sophisticated epidemiological analysis
  – Ability to compare those who died to those who have not in affected community
  – Follow trends over time
• Use data to change policy and procedures to prevent deaths
Homeless Death Review In SF: Current State

- Weekly reports of all medical examiner cases OCME→WPIC (BZ) ~ 1600 in 2021, ~30/wk
- WPIC (BZ) uses available information to determine PEH vs not homeless
  - Manual review to determine PEH, location of incident (if different from location of death), inform other caregivers
  - Initial review to determine if any immediate actions could prevent future deaths
Homeless Death Review In SF: Current State

- Identifiers to UCSF team
  - Enter in database
  - Match to SFDPH and other city and county systems
  - Create analysis
- Report to stakeholders
Methodology
DATA SOURCES

OFFICE OF THE CHIEF MEDICAL EXAMINER (OCME)

The OCME’s responsibilities include deaths from:

- Accident or injury
- Potential homicides or suicides
- Solitary deaths (body found)
- Physician unsure of cause of death
- Poisoning (including drugs)
- Deaths related to suspected criminal activity
- Deaths of unidentified individuals
- Indigent (unclaimed) cases

COORDINATED CARE MANAGEMENT SYSTEM (CCMS)

Integrated, interagency dataset from the San Francisco Department of Public Health

CCMS matches and merges citywide health and social service data into unique records for individuals observed or reported to be homeless by the DPH and the Department of Homelessness and Supportive Housing. CCMS also includes information from the California Death Registry.
Methodology
INCLUSION CRITERIA

Record received from OCME...

- CCMS living situation listed as homeless? NO →
- No Fixed Address or other non-residential address on report? NO →
- Recent medical records mention homelessness? NO →

YES → HOMELESS SS YES

NO → HOMELESS SS NO
Methodology
CASE REVIEW PROCESS

1. Initial report from OCME
   Identifiers, date and location of death
   2019 n=147
   2020 n=278
   2021 n=284 (prelim)

2. Final report from OCME
   Cause and manner of death, autopsy and toxicology reports
   2019 n=135
   2020 n=215
   2021 n=24

3. Linked to CCMS
   Demographics, diagnostic codes and service utilization
   2019 n=142
   2020 n=255
   2021 n=145
Demographics

SAN FRANCISCO HOMELESS DEATHS 2016 – 2021

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>128</td>
</tr>
<tr>
<td>2017</td>
<td>128</td>
</tr>
<tr>
<td>2018</td>
<td>138</td>
</tr>
<tr>
<td>2019</td>
<td>147</td>
</tr>
<tr>
<td>2020</td>
<td>278</td>
</tr>
<tr>
<td>2021</td>
<td>284</td>
</tr>
</tbody>
</table>

CCMS DATA

3% of cases of OCME cases of homeless deaths in 2019, 8% of cases in 2020, and 7% in the first half of 2021 had no CCMS records (had not used SF health or social services*** prior to death)
Challenges of this methodology

• Dependent on cooperation of Medical Examiners Office which has competing demands
  — Not funded by public health
  — Not having mandates to work with public health
• Medical examiner methodology may change
• Health and Social Services record connectivity may change
  — Not getting full range of outreach records
• Very time consuming to do manual reviews to determine homelessness and match identifiers
• Does not include natural deaths that are not ME cases
• Very difficult to compare to other counties or cities using different methodology
Conclusions

- Increase in deaths among people experiencing homelessness starting 3/2020 due to increase in overdose deaths
  - Coincident with COVID shelter in place suggests disruptions contributed to this but very few COVID deaths
  - Timing coincident with fentanyl becoming predominant drug used among opioid users
  - Contribution of “unintentional” fentanyl use much less than intentional use but significant
- Unsheltered deaths predominate
- Congregate shelter or encampment settings associated with fewer deaths
- Deaths in SIP hotels in between rates of outdoors and shelter
- Drug – Set – Setting issues may play important role
  - Need support models for people under extreme stress
Conclusions

• Proportion Black African-American much higher than SF general population but equivalent or lower than proportion of PEH who are BAA (2022 PIT 38%)
• Deaths concentrated in central city but not exclusively
• Homeless population accounts for about 25% of SF overdose deaths
• Homeless population accounts for 1/3+ of pedestrians killed by auto
• Continue focus on overdose prevention and on central city area but not to the exclusion of other neighborhoods
• Further work needed to understand and intervene on very high-risk group with very low utilization of SUD treatment services
• Need similar review of formerly homeless individuals now in permanent housing
Thank you!

Special thanks to the SF Office of the Chief Medical Examiner

San Francisco Whole Person Care
UCSF Evaluation of Whole Person Care
San Francisco Department of Public Health

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Kenny Perez (kenneth.perez@ucsf.edu)
Jenna Birkmeyer (jennafer.birkmeyer@ucsf.edu)
• Submit your questions in the “Chat” box.
• Make sure you select “Everyone”
Morality Working Group

Be part of this work.
Join the Council’s Mortality Working Group!
https://nhchc.org/homeless-mortality/

Learn more about the workgroup
Check out the Mortality Data Toolkit

Want to sign-up?
Contact Ashley Meehan (ashleymeehan20@gmail.com)