Slide 1:

Homelessness and Poor Health: Housing as Treatment

Jessie M. Gaeta, MD

BHCHP

There is a photograph of an African-American male sitting on a sidewalk in front of a building with individuals walking past him.

Disclaimer: This document is presented at the request of the Duals Demonstration Implementation Council. Any information or opinions contained herein are the express views of the author(s) and are not endorsed by or binding on EOHHS or MassHealth.

Slide 2:

Outline

- ☐ Link Between Homelessness and Poor Health
- ☐ Impact of Housing on Health Costs

There is a painting that depicts a young man sleeping on a bench in a park with tall buildings in the background.

Slide 3:

There is a photograph of a shelter sleeping environment. Bunkbeds with mattresses and blankets are lined in rows and all are within close proximity to each other.

Slide 4:

There is a photograph of a bathroom showing lines of toilet stalls without doors and sinks. Paint is peeling on bricks separating the stalls.

Slide 5:

There is another photograph of shelter sleeping environment. Many closely placed bunkbeds are in a large sprawling room. Mattresses and pillows with sheets are on each bed. The room looks brighter than room in the previous picture.

Slide 6:

There is another photograph of a bathroom that shows lines of toilet stalls without doors. The tiles are in better condition than the tiles in the previous picture.

Slide 7:

There is a photograph of a person or persons sleeping on the ground under blankets and upon cardboard boxes. The location is outside a convenience store and beside a train station exit. People are exiting the train station.

Slide 8:

There is a photograph of an outdoor space used as a living environment. A tarp is situated above a mattress. Four milk crates and a plastic sheet are also on the mattress. An upside down American flag is hanging from shrubbery surrounding the mattress.

Slide 9:

Link Between Homelessness and Poor Health

"The medical problems of homeless persons are rarely exotic but rather common illnesses magnified by prolonged neglect during the daily struggle for survival."

- Jim O'Connell, MD

Slide 10:

Homelessness is a marker for sickness.

There is a painting of the back of an older man wearing a trench coat and cap walking down a city street and carrying a plastic bag.

Slide 11:

There is a picture of a white male pursing his lips and looking to the right. The man has white facial hair and wrinkles around his eyes. He is wearing a baseball cap.

Slide 12:

Increased Mortality

- ☐ Seven large scale mortality studies in USA
  - ◘ Drug overdose has replaced HIV as the emerging epidemic
  - ◘ Cancer, heart disease next most common
- ☐ Mortality rates 4.5 – 9.0 times that of the general public
- ☐ Average age at death in Boston = 51
- ☐ Death from complications of substance use and undertreated medical illness

There is a picture of a white woman wearing a hooded sweatshirt looking to the left. She has her mouth closed and it appears that she is missing teeth.

Slide 13:

Mortality Among Homeless Adults in Boston

Shifts in Causes of Death over a 15-Year Period

Study by: Travis P. Baggett, MD, MPH; Stephen W. Hwang, MD, MPH; James J. O'Connell, MD; Bianca C. Porneala, MS; Erin J. Stringfellow, MSA; E. John Orav, PhD; Daniel E. Singer, MD; Nancy A. Rigotti, MD

- ☐ Cohort of 28,033 adults seen at BHCHP in 2003-2008
- ☐ Drug overdose was the leading cause of death
- ☐ Opioids implicated in 81% of overdose deaths

Article source: Baggett TP, et al. Mortality among homeless adults in Boston: shifts in causes of death over a 15-year period. JAMA Internal Medicine 2013; 173(3): 189-195.

Slide 14:

Tobacco-, Alcohol-,and Drug-Attributable Deaths and Their Contribution to Mortality Disparities in a Cohort of Homeless Adults in Boston

Study by: Travis P. Baggett, MD, MPH; Yuchiao Chang, PhD; Daniel Singer, MD; Bianca C. Porneala, MS; Jessie M. Gaeta, MD; James J. O'Connell, MD; and Nancy A. Rigotti, MD

- ☐ Follow up study using same cohort

- ☐ Estimated proportion of deaths attributed to substances using population-attributable fractions
- ☐ Over half of all deaths attributable to substances

Article source: Baggett TP, et al. Tobacco-, alcohol-, and drug-attributable deaths and their contribution to mortality disparities in a cohort of homeless adults in Boston. AJPH 2015.

Slide 15:

Proportion of Deaths Attributable to Substances

A pie chart includes the following data:

- Non-substance: 48.1%
- Tobacco only: 17.6%
- Tobacco & alcohol: 0.3%
- Alcohol only: 12.1%
- Alcohol & drugs: 4.9%
- Drugs only: 17.0%

Slide 16:

Age-Stratified Substance Attributable Rates

A bar chart shows the rates of tobacco, alcohol, and drug-attributable death for homeless men, stratified by age. Drug-attributable deaths were relatively steady across all age groups. Alcohol-attributable deaths increased gradually with age. Smoking-attributable deaths start out relatively low but then increase considerably in the older age group. The bar chart includes the following data points:

- Mortality rate (per 100,000 PY)
    - 20 – 34 years
        - ~150 alcohol-attributable deaths
        - ~305 drug-attributable deaths
    - 35-49 years
        - ~135 tobacco-attributable deaths
        - ~290 alcohol-attributable deaths
        - ~450 drug-attributable deaths
    - 50-64 years
        - ~625 tobacco-attributable deaths
        - ~440 alcohol-attributable deaths

- ~365 drug-attributable deaths

Slide 17:

Age-Stratified Substance Attributable Rates

The same bar chart is shown but this time it includes an overlay of the corresponding rates for the Massachusetts general population. The rates are dramatically higher for the homeless population in all cases.

Slide 18:

Medical Implications

A list of implications is shown and severity of illness is highlighted. The list includes:

- ☐ Increased mortality
- ☐ Severity of illness
  - ◘ Layered addiction-related, psychiatric, medical illness
- ☐ Exposure
- ☐ Violence and victimization
- ☐ Competing priorities
- ☐ Chronic stress
- ☐ Medication difficulties
- ☐ Stigmatization by health care providers

Slide 19:

BHCHP Cohort 2010:
Mental Health and Substance Use

- All (N=6494)
- Mental Illness – 4384 (68%)
- Schizophrenia – 1264 (19%)
- Bipolar Disorders – 1889 (30%)
- Depression – 3068 (47%)
- Anxiety – 2627 (40%)
- Substance use disorders – 3890 (60%)
- Alcohol use disorder – 2628 (40%)
- Drug use disorder – 3118 (48%)
- Co-occurring mental illness and substance use – 3135 (48%)

Slide 20:

Disparities in Cancer Incidence, Stage, and Mortality at Boston Health Care for the Homeless Program (AJPM, in press)

Table 3: Incident Cancer Cases and Deaths in the BHCHP Cohort, With Age-Standardized Incidence and Mortality Ratios

Cancer site/type	**Incident cases (Male)**	**SIR (95% CI) (Male)**	**Deaths (Male)**	**SMR (95% CI) (Female)**	**Incident cases (Female)**	**SIR (95% CI) (Female)**	**Deaths (Female)**	**SMR (95% CI) (Female)**
All Sites	361	1.13 (1.02, 1.25)	168	1.88(1.61,2.19)	98	0.93(0.76,1.14)	38	1.61(1.14,2.20)
Brain and other nervous systems	5	.94(.31,2.20)	1-4	0.60(0.07,2.15)	0	-	0	-
Breast	0	-	0	-	21	0.59(0.37,0.91)	5	1.01(0.35,2.50)
Bronchus and lung	85	2.30(1.84,2.84)	61	2.39(1.83,3.08)	23	2.23(1.14,3.35)	14	2.31(1.26,3.88)
Cervix uteri	N/A	-	N/A	-	10	4.42(2.12,8.12)	1-4	6.01(1.24,17.6)
Colon and rectum	36	1.24(0.87,1.71)	19	2.37(1.43,3.70)	7	0.99(0.40,2.03)	1-4	1.61(0.33,4.72)
Corpus uteri and uterus NOS	N/A	-	N/A	-	1-4	0.54(0.15,1.38)	1-4	1.29(0.03,7.17)
Esophagus	10	1.51(0.73, 2.78)	8	1.82(0.79,3.59)	0	-	0	-
Hodgkin lymphoma	1-4	0.37(0.01,2.07)	0	-	0	-	0	-
Kidney and renal pelvis	10	0.69(0.33,1.26)	0	-	1-4	0.43(0.01,2.40)	1-4	2.90(0.07,16.2)
Larynx	8	2.07(0.90,4.09)	1-4	3.13(0.85,8.00)	0	-	0	-
Leukemia	6	0.82(0.30, 1.79)	1-4	1.28(0.35,3.28)	0	-	0	-
Liver and intrahepatic bile ducts	34	4.31(2.99,6.02)	22	4.35(2.73,6.59)	1-4	3.58(0.43,12.9)	0	-
Melanoma	8	0.47(0.20,0.92)	1-4	1.77(0.48,4.53)	1-4	0.29(0.03,1.04)	0	-
Multiple myeloma	1-4	1.08(0.29,2.76)	1-4	1.29(0.16,4.67)	1-4	1.47(0.04,8.21)	1-4	3.50(0.09,19.5)
Non-Hodgkin lymphoma	10	0.72(0.35,1.33)	1-4	0.33(0.01,1.85)	1-4	0.31(0.01,1.73)	0	-
Oral cavity and pharynx	25	2.03(1.31,3.00)	9	2.37(1.08,4.49)	5	3.34(1.08,7.79)	1-4	2.81(0.07,15.7)
Ovary	N/A	-	N/A	-	1-4	.063(0.08,2.29)	1-4	1.57(0.19,5.66)

Pancreas	11	1.64(0.82,2.94)	9	1.62(0.74,3.07)	1-4	1.24(0.15,4.48)	1-4	1.61(0.20,5.83)
Prostate	59	0.63(0.48,0.81)	1-4	0.92(0.25,2.36)	N/A	-	N/A	-
Stomach	8	1.60(0.69,3.15)	1-4	1.42(0.39,3.63)	1-4	2.75(0.33,9.95)	1-4	2.42(0.06,1.35)
Testis	0	-	0	-	N/A	-	N/A	-
Thyroid	1-4	0.29(0.03,1.03)	0	-	5	0.52(0.17,1.21)	0	-
Urinary bladder	17	0.93(0.54,1.49)	1-4	1.29(0.35,3.30)	1-4	0.53(0.01,2.97)	1-4	3.11(0.08,1.73)

Slide 21:

Staked Bar Chart:

- Bronchus and lung - BHCHP (N=96), MA (N=23,400)
    - Local = BHCHP~18%, MA ~22%
    - Regional = BHCHP ~26%, MA ~24%
    - Distance = BHCHP ~56%, MA~52%
- Colon and rectum - BHCHP (N=39), MA (N=16,411)
    - Local = BHCHP~31%, MA ~45%
    - Regional = BHCHP ~28%, MA ~37%
    - Distance = BHCHP ~41%, MA~18%
- Liver and intrahepatic bile ducts- BHCHP (N=27), MA (N=1957)
    - Local = BHCHP~44%, MA ~48%
    - Regional = BHCHP ~34%, MA ~31%
    - Distance = BHCHP ~22%, MA~81%
- Female breast- BHCHP (N=19), MA (N=25,250)
    - Local = BHCHP~32%, MA ~68%
    - Regional = BHCHP ~68%, MA ~27%
    - Distance = BHCHP ~22%, MA~5%

Slide 22:

Medical Implications

☐ Increased mortality
☐ Severity of illness
  ◘ Layered addiction-related, psychiatric, medical illness
☐ Exposure
☐ Violence and victimization
☐ Competing priorities

- ☐ Chronic stress
- ☐ Medication difficulties
- ☐ Stigmatization by health care providers

Slide 23:

There is a picture of an African American woman reaching into a medicine cabinet while facing the camera.

Slide 24:

Medical Implications

- ☐ Behavioral health issues
- ☐ Developmental discrepancies
- ☐ Risk of communicable diseases
- ☐ Barriers to disability assistance
- ☐ Lack of transportation
- ☐ Lack of social supports
- ☐ Criminalization
- ☐ Limited access to nutritious food and water
- ☐ High health care costs

Slide 25:

There is a picture of a tray of food including macaroni and cheese, cooked carrots, potato salad, bread and salad. The picture includes a small bowl of pudding.

Slide 26:

Medical Implications

- ☐ Behavioral health issues
- ☐ Developmental discrepancies
- ☐ Risk of communicable diseases
- ☐ Barriers to disability assistance
- ☐ Lack of transportation
- ☐ Lack of social supports
- ☐ Criminalization
- ☐ Limited access to nutritious food and water
- ☐ High health care costs

Slide 27:

BHCHP Cohort 2010: ED Use

Proportions of Patients by Number of Emergency Room Visit (Bar chart)

- 0 visits = 31% (N=2006)
- 1-2 visits = 30% (N=1938)
- 3-5 visits = 18% (N=1170)
- 6-12 visits = 14% (N=902)
- Greater than 12 visits = 7% (N=477)

The average number of ER visits for all patients was 4.0

Slide 28:

BHCHP PCC versus Other Medicaid PCC Patients

Diagnostic and Other Characteristics	Statewide	BHCHP Patients*
Number	426,768	3,998
DxCG Score	1.5	3.4
Both Mental Health & Substance Use	10%	51%
Asthma or COPD	6%	24%
Diabetes	6%	15%
Hospital Discharges Per 1,000	129	859
ED Visits Per Person	1.1	4.2
Average Annual Cost	$6,679	$20,925

*Medicaid-only BHCHP patients enrolled in the PCC plan.

Slide 29:

Key Aspects of a Care Model

- ☐ Engagement
- ☐ Outreach
- ☐ Framework of prioritization
- ☐ Patient-centered goal setting
- ☐ Connection to housing opportunities

Slide 30:

Impact of Housing on Health Costs

Slide 31:

New Approach: Housing First

- ☐ Combination of affordable housing with services that helps people live more stable, productive lives
- ☐ Flip old model upside-down
- ☐ Provide support services *in the home*
- ☐ "Harm reduction" service model
- ☐ Improved health and quality of life
- ☐ Cost effective

Slide 32:

Home & Healthy for Good

There is a picture of keys on a key chain and pill bottles and a pepper shaker in the background.

- ◘ 922 housed statewide
- ◘ Chronically homeless persons from shelters and street

Slide 33:

HHG Cost Savings

This slide includes a bar chart.

- Before Entering HHG = $38,639 for Medical Services, Shelter and Incarceration Costs
- After Entering HHG = $9,894 for Medical Services, Shelter and Incarceration Costs, $15,468 for Housing First Costs
- Total Overall Savings: $13,277

Slide 34:

Impact of Supportive Housing in Los Angeles Study

Average Monthly Costs when Homeless and Savings when in Supportive Housing by Subgroup

A bar chart shows average costs and savings for individuals when they were homeless and when they were Supportive Housing Residents. Further breakdowns are shown by gender, work history, substance abuse, age, mental illness, and HIV/AIDs.

There was a $2,291 average savings per person per month when homeless individuals were moved into Supportive Housing. Additional approximate data points are listed below for subpopulations:

Gender

- Female
    - Homeless population cost = ~$2,985
    - Supportive Housing resident cost = ~$500
    - Monthly cost savings for Supportive Housing residents = ~$2,485
- Male
    - Homeless population cost = ~$2,998
    - Supportive Housing resident cost = ~$600
    - Monthly cost savings for Supportive Housing residents = ~$2,398

Work History

- Worked in 3 Years
    - Homeless population cost = ~$1,500
    - Supportive Housing resident cost = ~$450
    - Monthly cost savings for Supportive Housing residents = ~$1,050
- No Work in 3 Years
    - Homeless population cost = ~$3,050
    - Supportive Housing resident cost = ~$700
    - Monthly cost savings for Supportive Housing residents = ~$2,350

Substance Use

- No Substance Use
    - Homeless population cost = ~$2,150
    - Supportive Housing resident cost = ~$450
    - Monthly cost savings for Supportive Housing residents = ~$1,700
- Substance Abuse Program
    - Homeless population cost = ~$3,050

    - Supportive Housing resident cost = ~$800
    - Monthly cost savings for Supportive Housing residents = ~$2,250

Age

- 30-45 Years
    - Homeless population cost = ~$2,900
    - Supportive Housing resident cost = ~$650
    - Monthly cost savings for Supportive Housing residents = ~$2,250
- 46-65 Years
    - Homeless population cost = ~$3,300
    - Supportive Housing resident cost = ~$700
    - Monthly cost savings for Supportive Housing residents = ~$2,600

Mental Illness

- Mental Illness
    - Homeless population cost = ~$3,050
    - Supportive Housing resident cost = ~$750
    - Monthly cost savings for Supportive Housing residents = ~$2,300
- Mental Illness & Substance Abuse
    - Homeless population cost = ~$3,500
    - Supportive Housing resident cost = ~$800
    - Monthly cost savings for Supportive Housing residents = ~$2,700

HIV/AIDS

- No HIV/AIDS
    - Homeless population cost = ~$2,600
    - Supportive Housing resident cost = ~$750
    - Monthly cost savings for Supportive Housing residents = ~$1,850
- HIV/AIDS
    - Homeless population cost = ~$3,925
    - Supportive Housing resident cost = ~$850
    - Monthly cost savings for Supportive Housing residents = ~$3,075

Source: Flaming D, et al. Where We Sleep: Costs when Homeless and Housed in Los Angeles. Los Angeles: Economic Roundtable: 2009.

Slide 35:

Bar Chart showing: Actual Medicaid Claims (HHG Sub-Cohort, 2009)

- Pre-Housing: $26,124
- Post-Hosting: $8,500

Slide 36:

Medicaid Expenditures in Study in Portland, Oregon

Line chart showing: Average Per Member Per Month Medicaid Expenditures for Residents, Before And After Moving Into Supportive Housing in Portland, Oregon

- 24 to 12 months prior to move-in date expenditures averaged $1252 per member per month
- 12 to 0 months prior to move-in date expenditures averaged $1626 per member per month
- 0 to 12 months after move-in date: expenditures averaged $899 per member per month
- 12 to 24 months after move-in date: expenditures averaged $995 per member per month

Source: Wright B, et al. Formerly homeless people had lower overall health care expenditures after moving into supportive housing. Health Affairs 2016; 35 (1): 20-27.

Slide 37:

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