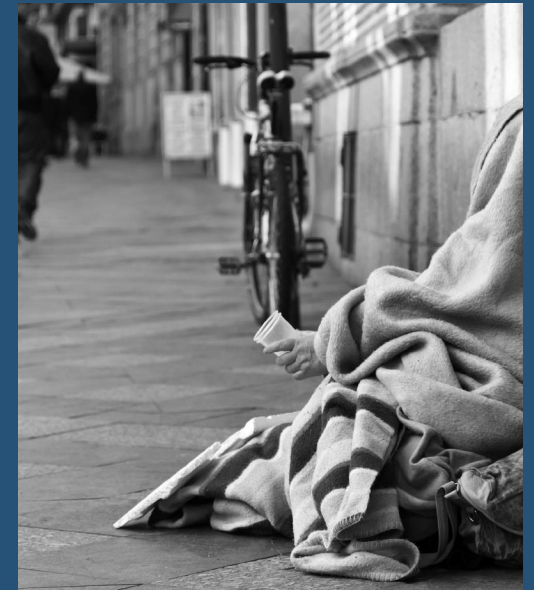


Underscreened/Underserved Populations: Cervical Dysplasia and Cancer in Homeless Women



Levi S. Downs, Jr., M.D.
Professor, Gynecologic Oncology
University of Minnesota Medical School



Disclosures

- No financial relationships or conflict of interest to disclose

Homelessness in the US

The 2016 Annual Homeless Assessment Report (AHAR) to Congress

NOVEMBER 2016



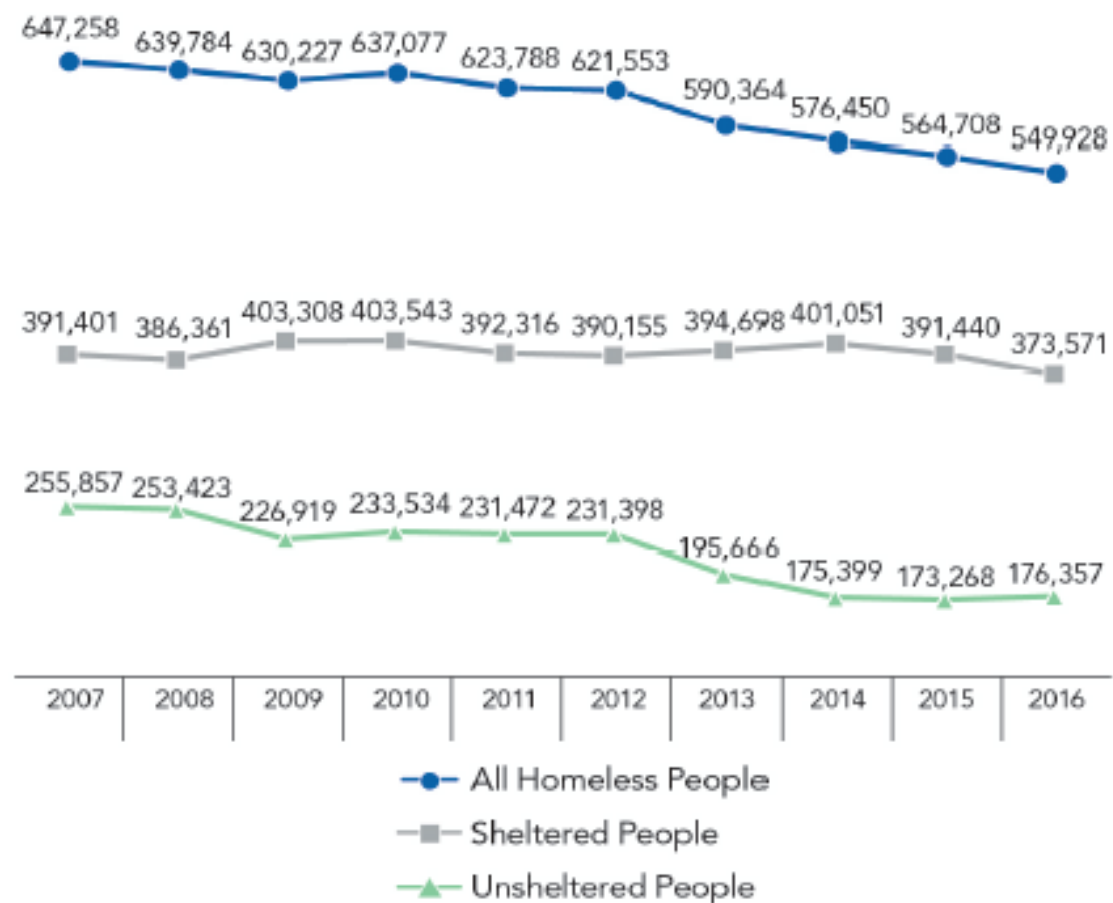
The U.S. Department of
Housing and Urban Development
OFFICE OF COMMUNITY PLANNING AND DEVELOPMENT

Definitions:



- **Homeless:**
no fixed, regular, adequate nighttime residence
- **Sheltered Homelessness:**
staying in emergency shelters, transitional housing
- **Unsheltered Homelessness:**
nighttime residence is a public or private place not a regular sleeping accommodation (streets, vehicles, or parks).

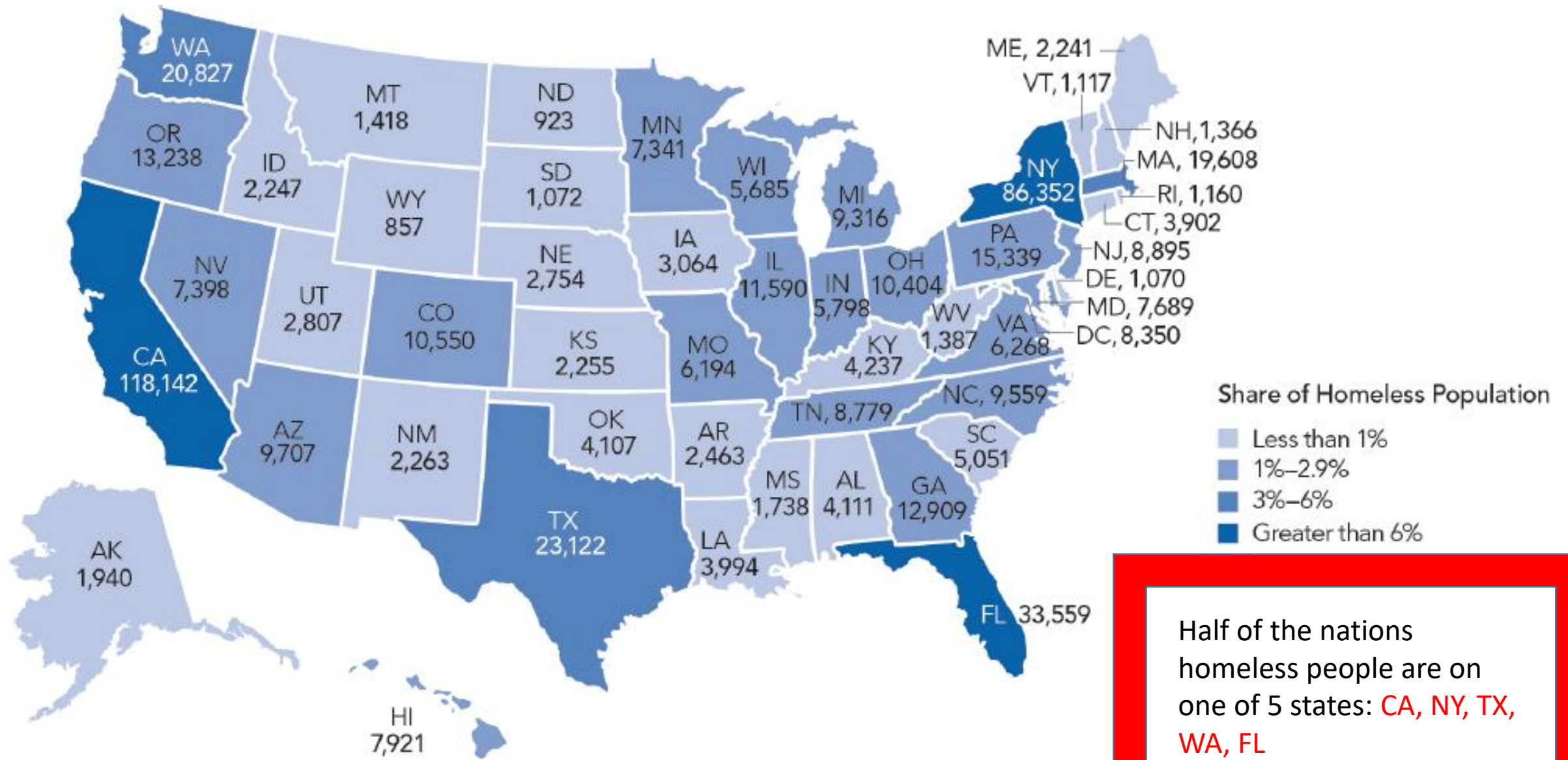
EXHIBIT 1.1: PIT Estimates of People Experiencing Homelessness By Sheltered Status, 2007–2016



Jan 2016:
550,000

Sheltered

Unsheltered



Half of the nation's homeless people are on one of 5 states: CA, NY, TX, WA, FL

Characteristic	All Homeless People		Sheltered People		Unsheltered People	
	#	%	#	%	#	%
Total	549,928	100.0	373,571	100.0	176,357	100.0
Gender						
Female	217,268	39.5	165,780	44.4	51,488	29.2
Male	330,890	60.2	206,999	55.4	123,891	70.3
Transgender	1,770	0.3	792	0.2	978	0.6
Ethnicity						
Non-Hispanic	428,629	77.9	286,430	76.7	142,199	80.6
Hispanic	121,299	22.1	87,141	23.3	34,158	19.4
Race						
White	265,660	48.3	163,881	43.9	101,779	57.7
African American	215,177	39.1	168,623	45.1	46,554	26.4
Asian	5,603	1.0	3,476	0.9	2,127	1.2
Native American	15,229	2.8	7,880	2.1	7,349	4.2
Pacific Islander	8,734	1.6	4,499	1.2	4,235	2.4
Multiple Races	39,525	7.2	25,212	6.8	14,313	8.1

Characteristic	All Homeless People		Sheltered People		Unsheltered People	
	#	%	#	%	#	%
Total	549,928	100.0	373,571	100.0	176,357	100.0
Gender						
Female	217,268	39.5	165,780	44.4	51,488	29.2
Male	330,890	60.2	206,999	55.4	123,891	70.3
Transgender	1,770	0.3	792	0.2	978	0.6
Ethnicity						
Non-Hispanic	428,629	77.9	286,430	76.7	142,199	80.6
Hispanic	121,299	22.1	87,141	23.3	34,158	19.4
Race						
White	265,660	48.3	163,881	43.9	101,779	57.7
African American	215,177	39.1	168,623	45.1	46,554	26.4
Asian	5,603	1.0	3,476	0.9	2,127	1.2
Native American	15,229	2.8	7,880	2.1	7,349	4.2
Pacific Islander	8,734	1.6	4,499	1.2	4,235	2.4
Multiple Races	39,525	7.2	25,212	6.8	14,313	8.1

Characteristic	All Homeless People		Sheltered People		Unsheltered People	
	#	%	#	%	#	%
Total	549,928	100.0	373,571	100.0	176,357	100.0
Gender						
Female	217,268	39.5	165,780	44.4	51,488	29.2
Male	330,890	60.2	206,999	55.4	123,891	70.3
Transgender	1,770	0.3	792	0.2	978	0.6
Ethnicity						
Non-Hispanic	428,629	77.9	286,430	76.7	142,199	80.6
Hispanic	121,299	22.1	87,141	23.3	34,158	19.4
Race						
White	265,660	48.3	163,881	43.9	101,779	57.7
African American	215,177	39.1	168,623	45.1	46,554	26.4
Asian	5,603	1.0	3,476	0.9	2,127	1.2
Native American	15,229	2.8	7,880	2.1	7,349	4.2
Pacific Islander	8,734	1.6	4,499	1.2	4,235	2.4
Multiple Races	39,525	7.2	25,212	6.8	14,313	8.1

Characteristic	All Homeless People		Sheltered People		Unsheltered People	
	#	%	#	%	#	%
Total	549,928	100.0	373,571	100.0	176,357	100.0
Gender						
Female	217,268	39.5	165,780	44.4	51,488	29.2
Male	330,890	60.2	206,999	55.4	123,891	70.3
Transgender	1,770	0.3	792	0.2	978	0.6
Ethnicity						
Non-Hispanic	428,629	77.9	286,430	76.7	142,199	80.6
Hispanic	121,299	22.1	87,141	23.3	34,158	19.4
Race						
White	265,660	48.3	163,881	43.9	101,779	57.7
African American	215,177	39.1	168,623	45.1	46,554	26.4
Asian	5,603	1.0	3,476	0.9	2,127	1.2
Native American	15,229	2.8	7,880	2.1	7,349	4.2
Pacific Islander	8,734	1.6	4,499	1.2	4,235	2.4
Multiple Races	39,525	7.2	25,212	6.8	14,313	8.1

The Health of Homeless Population

- **Mortality rate increased: 2-5X age standardized population**
 - Young Age
 - Women
- **Causes of excess mortality**
 - Infections (HIV, TB)
 - CAD
 - Substance abuse
 - Trauma (including suicide, homicide, substance poisoning)

Fazel S, Lancet, 2014

The Health of Homeless Population

- **Risk Factors for illness**
 - Increased above age matched low-income, traditional underserved
- **Risk factors for homelessness linked to risk factors for health**
 - Early life poverty
 - Mental health
 - Substance abuse
- **Exacerbated by homelessness**
 - Poor nutrition
 - Environmental exposures
 - Access and compliance

Fazel S, Lancet, 2014

The Health of Homeless Population

- **Risk Factor: Tobacco use and smoking related diseases**
 - Early onset CAD
 - COPD
 - Tobacco related cancers
- 68-80% of homeless are smokers
- Stable rate
- 4X general population
- 2.5X low income population



Fazel S, Lancet, 2014

Cancer in Homeless Population

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

Travis P. Baggett, MD, MPH,^{1,2,3} Yuchiao Chang, PhD,^{1,2} Bianca C. Porneala, MS,¹
Monica Bharel, MD, MPH,^{2,4,5} Daniel E. Singer, MD,^{1,2} Nancy A. Rigotti, MD^{1,2}

(Am J Prev Med 2015;49(5):694–702) © 2015 American Journal of Preventive Medicine

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

Travis P. Baggett, MD, MPH,^{1,2,3} Yuchiao Chang, PhD,^{1,2} Bianca C. Porneala, MS,¹
Monica Bharel, MD, MPH,^{2,4,5} Daniel E. Singer, MD,^{1,2} Nancy A. Rigotti, MD^{1,2}

- 90,000 person-years
- 98 cancer cases in women (SIR = 0.93, CI=0.76, 1.14)
- 38 cancer deaths in women (SIR = 1.61, CI=1.14, 2.20)
- Lung cancer most common in men and women
- Cervical cancer: most excess death in women (SIR = 6.01, CI = 1.24, 17.6)

Cancer site/type	Male				Female			
	Incident cases	SIR (95% CI)	Deaths	SMR (95% CI)	Incident cases	SIR (95% CI)	Deaths	SMR (95% CI)
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	0	0.94 (0.31, 2.20)	1-4	0.60 (0.07, 2.13)	0	—	0	—
Breast	0	—	0	—	21	0.59 (0.37, 0.91)	5	1.07 (0.35, 2.50)
Bronchus and lung	85	2.30 (1.84, 2.84)	61	2.39 (1.83, 3.08)	23	2.23 (1.41, 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	0.63 (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, 13.5)
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, 17.3)

Note: Cell sizes of 1-4 are suppressed for confidentiality. Boldface indicates statistical significance.

Cancer site/type	Male				Female			
	Incident cases	SIR (95% CI)	Deaths	SMR (95% CI)	Incident cases	SIR (95% CI)	Deaths	SMR (95% CI)
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	0.94 (0.31, 2.20)	1-4	0.60 (0.07, 2.15)	0	—	0	—
Breast	0	—	0	—	21	0.59 (0.37, 0.91)	5	1.07 (0.35, 2.50)
Bronchus and lung	85	2.30 (1.84, 2.84)	61	2.39 (1.83, 3.08)	23	2.23 (1.41, 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	58	1.24 (0.87, 1.71)	19	2.37 (1.43, 3.76)	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	0.63 (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, 13.5)
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, 17.3)

Note: Cell sizes of 1-4 are suppressed for confidentiality. Boldface indicates statistical significance.

Cancer site/type	Male				Female			
	Incident cases	SIR (95% CI)	Deaths	SMR (95% CI)	Incident cases	SIR (95% CI)	Deaths	SMR (95% CI)
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	0.94 (0.31, 2.20)	1-4	0.60 (0.07, 2.15)	0	—	0	—
Breast	0	—	0	—	21	0.59 (0.37, 0.91)	5	1.07 (0.35, 2.50)
Bronchus and lung	85	2.30 (1.84, 2.84)	61	2.39 (1.83, 3.08)	23	2.23 (1.41, 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	0.63 (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, 13.5)
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, 17.3)

Note: Cell sizes of 1-4 are suppressed for confidentiality. Boldface indicates statistical significance.

The Boston Healthcare for the Homeless Program

- Lower adherence to screening protocols
50% vs. 82%
Screen in prior year 36% vs. 55%
- Transportation, scheduling issues, complex algorithms requiring follow up
- Denial of health needs, mistrust of health system, competing priorities



The Boston Healthcare for the Homeless Program

- 205 Women in respite care
- 63% pap test indicated
- Interviewed and offered, repeat interviews
- 40% declined testing
- Of those accepting testing only 70% had pap performed
- Barriers beyond **access** and **cost**



The Boston Healthcare for the Homeless Program

- Of those accepting testing only 70% had pap performed
- Homeless women in this sample required more follow up than general population
- Colposcopy, STI treatment or other follow up
20% vs. 2.3%



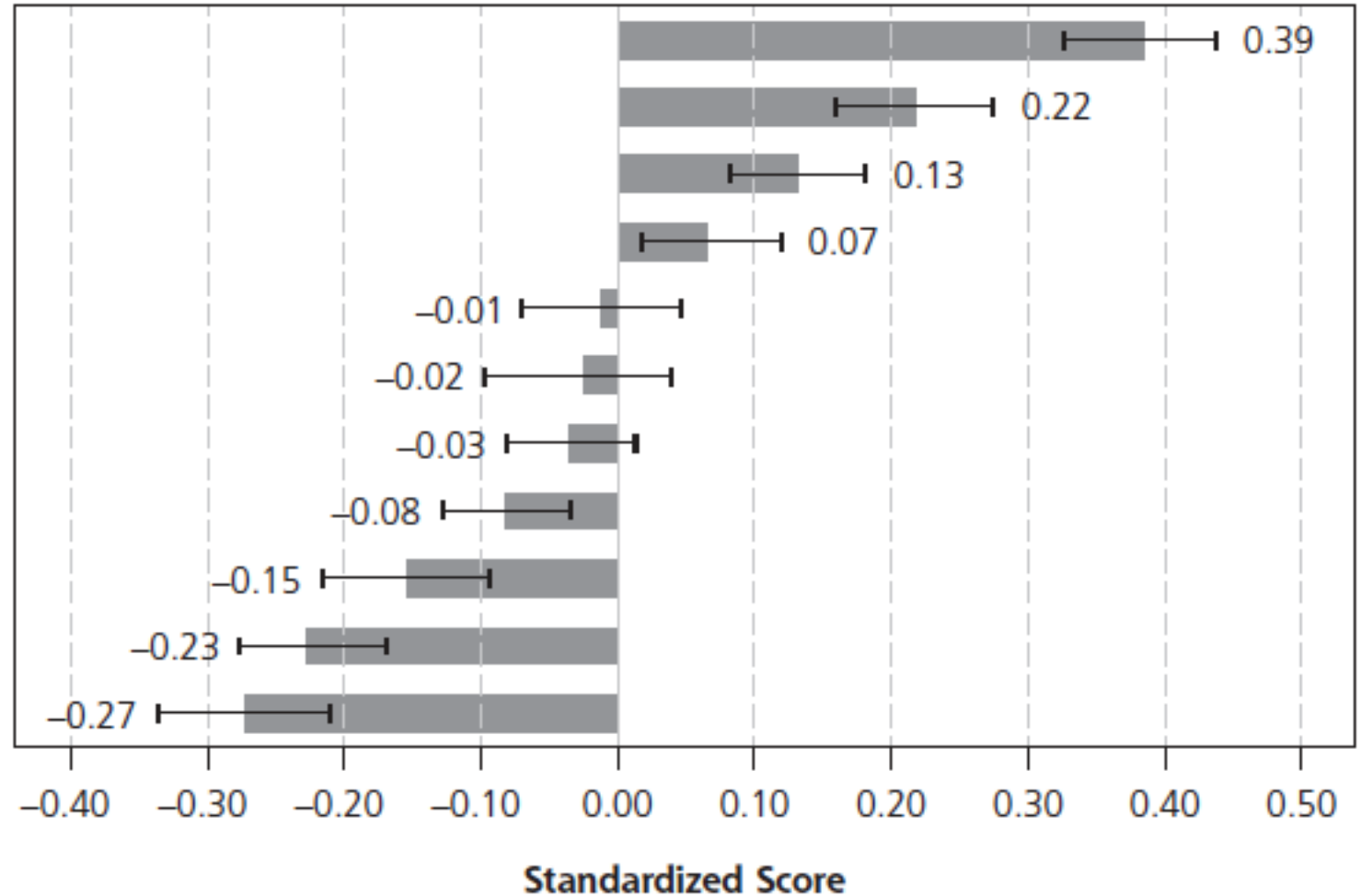
Best Worst Scaling to understand priorities

Imagine that this describes a new way of providing Pap tests. Thinking about women like you, tell us which part of this description would have the **BIGGEST** influence in women getting tested and which part would have the **SMALLEST** influence.

	Biggest	Smallest
Counseling is available to discuss results	<input checked="" type="checkbox"/>	<input type="checkbox"/>
There is a place to wash up before the test	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The provider is kind to all women	<input type="checkbox"/>	<input type="checkbox"/>
Testing is done at a convenient time for the woman	<input type="checkbox"/>	<input type="checkbox"/>
Testing is done regardless of whether women are clean/sober	<input type="checkbox"/>	<input type="checkbox"/>

Best Worst Scaling to understand priorities

Support is available for all issues the woman is facing
Testing is done at no cost
Counseling is available to discuss results
Testing is done at convenient time
Choice of provider sex
Testing is not contingent on substance use
Time during the procedure for questions/explanations
Provider is kind
Setting is accepting of homeless
Provider is familiar to woman
Personal hygiene accommodations



Conclusions

- Decline in homelessness rates in recent years
- Multifactorial risk factors for cervical cancer in homeless population
- Risk factors exacerbate each other
- Tobacco Cessation is a key risk factor to address
- Burden of Cervical cancer and HPV related / Tobacco related cancer

Challenges to address:

- Care format that addresses patients competing priorities
- Care that follow's guidelines and best practice
- Compassionate, low cost/free care that treats the whole woman

