

Chronic Health Conditions and Behaviors Among Persons Entering Maximum Security Prisons

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Overview

- Brief background
- Objective/methods
- Results
- Conclusions

Background

Incarceration in the United States

- The US has the highest incarceration rate in the world
 - 716 per 100,000 US residents in 2011
 - ~1% of adults or 2.3 million people

- Prisons versus jails

Glaze LE, Parks E. Bureau of Justice Statistics Bulletin (Publication No. NCJ 239972). Washington, D.C.: U.S. Department of Justice; 2012. Available at: <http://www.prisonpolicy.org/scans/bjs/cpus10.pdf>.
International Centre for Prison Studies. World Prison Brief. Available at:
http://www.prisonstudies.org/info/worldbrief/wpb_stats.php?area=all&category=wb_poprate.

“A view through a window to our society at large...”

- Underserved population disproportionately comprised of undereducated, lower income, Black and Hispanic males
- High risk of mental illness, communicable disease, consequences of substance abuse
- Living conditions, inadequate hygiene, access to health care and treatment, and health policies within jails and prisons perpetuate risk

Chronic Conditions in the Incarcerated

- The prevalence of chronic conditions in the incarcerated is higher than what is found in the general population.
- The majority of studies have focused on single chronic condition rather than assessing the overall prevalence and burden of chronic conditions.
- Data regarding potential risk factors or predictors such as race/ethnicity, obesity, exercise, and cigarette smoking have not been reported.
- Little is know about the prevalence of chronic conditions in newly admitted inmates.

Study Setting

Sing Sing Correctional Facility

- Male maximum security prison
- Houses one of the largest populations of male prisoners in the state
- Approx. 1700 inmates
- Some of the most dangerous inmates from New York State



Study Setting

Bedford Hills Correctional Facility

- Only female maximum security prison
- Approx. 750 inmates
- Reception center for all newly admitted female inmates into the New York State DOCCS
- Is a diagnostic and treatment center for the female inmates in the NYS DOCCS



Objective

- To define health conditions and risk behaviors in prisoners entering maximum security prisons in New York State.

Methods

- Inclusion criteria:
 - Provided informed consent
 - Were at least 16 years old
 - Were entering the initial intake process at either facility (i.e., newly entering that facility and recidivists) between November 2, 2009 and January 10, 2011.
 - Prisoners in isolation were excluded
- During the interview:
 - Anterior nares and oropharyngeal samples were collected
 - Inmates were administered a structured questionnaire
- Samples
 - Characterized using microbiologic and molecular techniques

Assessed Study Characteristic

- Demographic Characteristics
 - Type and location of residence
 - Occupation
- Hygiene
 - Sharing of personal items including towels, clothing, razors, and soap
 - Number of showers taken per week
- Behavior
 - Tattoo and piercing history
 - Sexual activity in the previous six months
 - Tobacco consumption and substance use
 - Injection drug use
 - Participation in social groups
 - Fights during the previous six months
 - Use of athletic equipment during the previous six months
- Health
 - Self-perceived general health
 - Diagnosis of diabetes
 - Heart and pulmonary condition
 - Kidney and liver disease
 - Cancer
 - HIV/AIDS
 - Skin condition (eczema, acne, dermatitis, or psoriasis)
 - History of any skin infection
 - History of *S. aureus* infection
 - Use of oral or topical antibiotics, steroids, and nasal spray during the previous six months

Results

Table 1. Demographics of newly admitted inmate participants

Characteristics	Study population N= 747	
	Females N=361(%)	Males N= 386 (%)
Age		
Mean	35	34
Range	16-61	17-64
BMI		
Mean	35.6	33.9
Range	16.9-61.5	17.6-64.9
Smoker	215 (59.6)	267 (69.2)
Race/Ethnicity		
Non-Hispanic White	144(39.9)	27(6.9)
Non-Hispanic Black	152(42.1)	199(51.6)
Hispanic	48(13.3)	140(36.3)
Others	17(4.7)	20(5.2)
Education		
Less than High School	168(46.5)	168(43.5)
High School/GED	111(30.8)	158(40.9)
Some College	67(18.6)	40(10.4)
College Graduate	15(4.2)	20(5.2)

Table 2. Prevalence of chronic medical conditions among inmates entering male and female maximum-security prisons

Chronic Medical Condition	Prevalence		
	Females (%) N=361	Males (%) N= 386	Total (%) N= 747
Diabetes Mellitus	7.5	2.6	4.9
Cardiovascular Condition	18.3	16.6	17.4
Respiratory Condition	38.2	30.3	34.1
Kidney Disease	1.4	1.8	1.6
Liver Disease	10.8	8.8	9.8
Cancer	2.8	0.8	1.7
HIV	5.3	1.8	3.5
Sexually Transmitted Disease	23.6	9.1	16.1
Other Chronic Conditions	22.7	22.0	22.4

Table 3. Multivariate analysis on predictors of chronic conditions among inmates entering male and female maximum-security prisons

Risk Factors	Medical Conditions: Odd Ratio (OR), 95%CI				
	Diabetes Mellitus	Cardiovascular Condition	Respiratory Condition	Liver Disease	Sexually Transmitted Disease
Gender					
Male	1	1	1	1	1
Female	2.35 (1.05, 5.24)	-	1.65 (1.17, 2.33)	-	3.96 (2.48, 6.33)
Age					
16-27	1	1	1	1	1
28-39	-	2.95 (1.45, 6.01)	-	-	-
40-64	5.81 (1.97, 17.15)	9.63 (5.10, 19.54)	-	4.05 (1.99, 8.25)	-
Race/Ethnicity					
Non-Hispanic White	1	1	1	1	1
Non-Hispanic Black	-	-	1.74 (1.14, 2.67)	0.44 (0.23, 0.85)	2.81 (1.65, 4.81)
Hispanic	-	-	1.75 (1.06, 2.87)	-	-
Others	-	-	-	-	-
Cigarette Smoking					
No	1	1	1	1	1
Yes	-	-	1.71 (1.22, 2.40)	-	-
BMI					
< 30	1	1	1	1	1
≥ 30	2.83 (1.37, 5.88)	2.17(1.43, 3.29)	1.62 (1.17, 2.25)	-	-

Table 4. Prevalence of *S. aureus* colonization among newly admitted inmates

	Bedford Hills n=404 n (%)	Sing Sing (n=426) n (%)	Total (n=830) n (%)
Colonized* with <i>S. aureus</i>	204 (50.5%)	248 (58.3%)	452 (54.4%)
Colonized* with MRSA	43 (10.6%)	25/425 (5.9%)	68/829 (8.2%)

*Culture positive at nose, or throat, or nose and throat

Conclusions

- There is a heavy burden of chronic illness among newly admitted inmates which exceeds rates found in age-adjusted men and women in the general population.
- High rates of such chronic health conditions and behaviors increase the risk of disease and infection.
- Rates of MRSA colonization in newly admitted inmates are about 10 times that of the general population.
- These data can be used to plan for adequate screening, prevention and treatment services.