

Injury Surveillance in New York City Jails

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To characterize injuries occurring in jails, we analyzed injury report forms from the New York City jail system. We abstracted data from 4695 injury report forms representing 3863 patients. Of the injuries reported, 66% were classified as intentional. The 2 leading causes of injuries were inmate-on-inmate aggression (40%) and slips and falls (27%). Injuries place a considerable burden on jail health care systems, and there is a need for more studies on this problem and development of injury prevention programs. (*Am J Public Health*. 2012;102:1108–1111. doi:10.2105/AJPH.2011.300306)

Although inmate injuries place a considerable burden on both individuals and the jail health care system, there is little published research on the topic.^{1–4} These injuries also have an impact on the communities to which inmates return and have been found to compound existing barriers to employment, education, housing, and substance abuse treatment, which can affect reintegration into the community and increase the likelihood of recidivism.^{5–10}

New York City has one of the largest jail systems in the United States, with more than 90 000 admissions annually and a daily inmate population of approximately 13 000. Inmates are in the custody of the New York City Department of Correction (DOC), and the New York City Department of Health and Mental Hygiene (DOHMH) is responsible for their health care. According to protocols developed by the 2 agencies, all inmates who are injured or suspected of being injured are taken to the jail clinic by the DOC for medical evaluation even if their injuries appear minor or if they intend to refuse treatment. We

analyzed New York City jail system injury report data in an effort to gain a better understanding of the extent and nature of injuries occurring in jails.

METHODS

DOC protocols require that all staff-observed or inmate-reported injuries be followed by an injury report by DOC staff as well as an evaluation by medical staff. The report contains elements that are completed by the DOC (such as the narrative of the circumstances of the injury and the location of the injury) as well as by medical staff (including a physical examination and disposition). As part of DOHMH's routine surveillance of health statistics in the jail system, we reviewed 5454 injury reports from all 11 New York City jails that were logged between January 1, 2010, and April 30, 2010. Injury reports were assessed for completeness, and only the 4695 (86%) complete reports were coded for analysis. Of these reports, 3062 (65%) included a detectable medical injury based on a physical examination conducted by a medical staff member.

Injuries were categorized according to Centers for Disease Control and Prevention classifications as either unintentional (e.g., slips, falls, seizures, occupational accidents) or intentional (inmate-on-inmate violence, use of force by a correction officer, or a self-inflicted injury) based on the DOC staff's narrative description of the injury. Because multiple injuries may occur during a single incident and be recorded on a single report, up to 3 injuries were included from each report.

We used SPSS version 17.0 (SPSS Inc, Chicago, IL) in our data analyses. To calculate injury rates, we used the average daily inmate census of 12 500 and 0.33 years as the denominator for exposure time (based on the 4-month report review period). Unadjusted injury rates are reported in person-years.

Separately, we used a daily emergency log completed by the DOHMH to review all cases during this period referred by medical or correctional staff for emergency treatment or treatment that required equipment not available in the regular prison health clinics. This log records all emergencies that occur within the jail system and includes information on whether

the patient is treated in the regular jail clinic, a jail urgent care clinic, or a local hospital emergency department. The log is cross checked on a daily basis with a similar log maintained by the DOC. As a means of validating observed injury rates, we reviewed emergencies listed in the log to determine whether they appeared to involve an injury and, if so, whether an injury report form had been submitted.

RESULTS

The 4695 complete injury reports represented 3863 unique individuals, of whom 832 had more than one report. Ultimately, 3062 (65%) reports representing 2519 individuals contained a detectable medical injury. Table 1 shows selected characteristics of inmates with injury reports who were found by medical staff to have a confirmed injury. These individuals had a median age of 26 years (mode = 17 years) at the time of their injury and had been incarcerated for a median of 71 days (mode = 1 day).

Table 2 shows the characteristics associated with the 3062 confirmed injury reports. The majority of injuries were reported as intentional (66%), and all types of injuries with the exception of neck and spinal injuries were more likely to be classified as intentional. Housing areas (29%) were the most common location at which injuries occurred. The most prevalent types of injuries were soft tissue or muscle injuries (35%), followed by skin and soft tissue injuries (27%), which ranged from minor abrasions to severe lacerations and puncture wounds. Of all confirmed injuries reported, 39% were deemed not resolvable by facility medical staff and required further evaluation or treatment at jail urgent care clinics or local hospital emergency departments. The rate of reported, medically detectable injuries was 736 per 1000 person-years.

Self-injury (classified as the cause of 8% of injuries) and asphyxiation (accounting for 2% of injuries) represent overlapping and important indicators of mental illness in jail settings. Of these injuries, approximately 40% required evaluation and care outside the jail. All self-injurious behavior results in immediate medical and mental health evaluations.

In our separate review of the daily emergency log used by the DOHMH, we observed

TABLE 1—Selected Characteristics of Inmates With Reported Injuries: New York City Jails, January–April 2010

Characteristic	Sample (n = 3062), Mean (Range) or No. (%)
Age, y	31 (17–76)
Length of stay at time of injury, d	142 (1–3761)
No. of previous arrests	4 (0–14)
Gender	
Male	2786 (91)
Female	276 (9)
Mental illness diagnosis (current or history)	
Yes	1163 (38)
No	1877 (61)
Data missing	22 (1)
Illicit drug use (current or history)	
Yes	980 (32)
No	2059 (67)
Data missing	23 (1)
Self-reported alcohol abuse	
Yes	337 (11)
No	2695 (88)
Data missing	30 (1)
Self-reported smoking status	
Smoker	1592 (52)
Nonsmoker	1317 (43)
Former smoker	92 (3)
Data missing	61 (2)
Jail housing category	
General housing	2878 (94)
23-h isolation	184 (6)

that injuries were reported for 32% (324) of the 1014 patients transferred to hospital emergency departments and 42% (1238) of the 2948 patients transferred to jail urgent care clinics during the 4-month study period. Of injury-related transfers to jail urgent care clinics or hospital emergency departments, 33% did not involve an associated injury report in the medical record and were therefore not included in our classification analysis.

DISCUSSION

We found that injuries were relatively common medical problems in jail settings. The injury rates observed in this study differ from those reported in the community, which are generally between 90 and 300 per 1000 person-years for all medically consulted

injuries.^{11–17} However, unlike in the community setting, every report of injury, assault, and use of force in the correctional settings assessed here must be documented and investigated, leading to higher rates of documented injuries. A more useful comparison can be made with state prisons. A brief report on injuries from a state prison in 1995 revealed injury rates similar to ours but with a concentration in sports-related injuries.¹⁸ The most serious injuries in jails, those resulting in death from accident, homicide, or suicide, represent approximately 35% of all deaths.¹⁹

Although this summary of injuries occurring in jails is an important initial step, our analysis has several limitations. Despite the jail protocol, our medical emergency log review revealed potential gaps in injury reporting.

One third of injury-related transfers to hospitals and urgent care clinics recorded in the emergency log lacked a corresponding injury report in the medical record. Conversely, some injuries may have been fabricated by inmates seeking medical attention for other reasons (e.g., those seeking attention and those wishing to be moved away from, or closer to, other inmates). Some narrative reports did not contain sufficient information for analysis and were therefore not included.

Additional limitations stem from systemic biases in injury reporting, including biases due to perceived secondary gains such as compensation from possible lawsuits, a desire for transfer, or simply a desire to go to the hospital. In addition, some inmates may choose to report an injury as accidental (e.g., as a “slip and fall”), as opposed to reporting the real reason, as a result of fear, shame, or other motives. Consequently, our calculated injury rates may be either underestimates or overestimates of the actual rates.

Ultimately, we found that almost 40% of the urgent care and emergency department care for inmates is injury related, which has both medical and financial significance. Injuries represent an important health risk for those who are incarcerated, and their treatment often requires medical staff to interrupt their regularly scheduled sick call and chronic care appointments.

Because of the security response associated with some injuries, the movement of other patients to and from the clinic may be curtailed. Injuries requiring transportation outside the jail necessitate dedicated correction officers to accompany the patient. A conservative estimate is that 750 emergency department visits each year by inmates in New York City are injury related, creating significant additional costs for the DOC, the DOHMH, and emergency medical services, as well as hospital emergency departments and jail health staff. Some of these costs could be offset through investments in diagnostic equipment and personnel usually reserved for hospital settings, although a comprehensive cost–benefit analysis would be needed to assess the feasibility of this solution.

Given the dearth of published research on injuries in incarcerated populations, future studies are needed to thoroughly investigate

TABLE 2—Characteristics of Medically Detectable Injuries Reported in New York City Jails, January–April 2010

Characteristic	Confirmed Injuries (n = 3062), No. (%)
Intentionality	
Unintentional	979 (32)
Intentional	2021 (66)
Unknown/data missing	62 (2)
Reported cause	
Inmate-on-inmate fight	1230 (40)
Slip or fall	813 (27)
Use of force	369 (12)
Self-inflicted	254 (8)
Occupational	85 (3)
Alleged attack by staff	63 (2)
Attack by unknown assailant	57 (2)
Vehicle	21 (< 1)
Environmental	15 (< 1)
Seizure related	15 (< 1)
Other	46 (2)
Data missing	94
Type of injury	
Soft tissue injury (contusion, no fracture concern)	1694 (55)
Skin and soft tissue injury (abrasion, laceration)	1262 (41)
Possible fracture	856 (28)
Head injury	398 (13)
Neck/spinal injury	172 (6)
Chemical burn	109 (4)
Foreign body	61 (2)
Asphyxiation	58 (2)
Dental	43 (1)
Sexual assault	16 (< 1)
Splash	14 (< 1)
Other	23 (< 1)
Data missing	93
Location/area in which injury reportedly occurred	
Housing	895 (29)
Common area ^a	593 (19)
Shower	309 (10)
Recreation area	163 (5)
Intake/holding pen	146 (5)
Transportation/court	110 (4)
Occupational setting	80 (3)
School	59 (2)
Clinic	49 (2)
Visit area	22 (1)
Search by Department of Correction	16 (< 1)
Other	42 (1)
Data missing	578 (19)

^aIncluding mess hall, dayroom, and corridors.

the incidence and circumstances of these injuries. The results of these studies can be used to inform injury prevention strategies in correctional facilities. ■

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Contributors

A. Ludwig and H. Venters wrote the first draft of the article. L. Cohen worked on an outline of the first draft and on subsequent revisions. A. Parsons contributed to subsequent revisions and to revisions of tables. H. Venters made final changes on all subsequent revisions of both the article and the tables.

Human Participant Protection

Because this study was part of routine health surveillance and involved no personal health information, no protocol approval was needed.

References

1. Beck AJ, Harrison PM. *Sexual Victimization in Local Jails Reported by Inmates, 2007*. Washington, DC: Bureau of Justice Statistics; 2008.
2. Mumola CJ. *Suicide and Homicide in State Prisons and Local Jails*. Washington, DC: Bureau of Justice Statistics; 2005.
3. Noonan M. *Deaths in Custody Reporting Program*. Washington, DC: Bureau of Justice Statistics; 2010.
4. Sung H- E. Nonfatal violence-related and accident-related injuries among jail inmates in the United States. *Prison J*. 2010;90(3):353–368.
5. Michaels AJ, Michaels CE, Smith JS, Moon CH, Peterson C, Long WB. Outcome from injury: general health, work status, and satisfaction 12 months after trauma. *J Trauma*. 2000;48(5):841–848.
6. Resnick H, Aciermo R, Kilpatrick D. Health impact of interpersonal violence 2: medical and mental health outcomes. *Behav Med*. 1997;23(2):65–78.
7. Steel J, Youssef M, Pfeifer R, et al. Health-related quality of life in patients with multiple injuries and traumatic brain injury 10+ years post injury. *J Trauma*. 2010;69(3):523–530.
8. Holbrook TL, Anderson JP, Sieber WJ, Browner D, Hoyt DB. Outcome after major trauma: 12-month and 18-month follow-up results from the Trauma Recovery Project. *J Trauma*. 1999;46(5):765–771.
9. Miller TR, Pindus NM, Douglass JB, Rossman SB. *Databook on Nonfatal Injury: Incidence, Costs and Consequences*. Washington, DC: Urban Institute Press; 1995.
10. Zatzick D, Jurkovich GJ, Rivara FP, et al. A national US study of posttraumatic stress disorder,

depression, and work and functional outcomes after hospitalization for traumatic injury. *Ann Surg.* 2008;248(3):429–437.

11. Adams PF, Dey AN, Vickerie JL. Summary health statistics for the U.S. population: National Health Interview Survey, 2005. *Vital Health Stat 10.* 2007; 233:1–104.
12. National Center for Injury Prevention and Control. *CDC Injury Fact Book.* Atlanta, GA: Centers for Disease Control and Prevention; 2006.
13. New York City Dept of Health and Mental Hygiene. Summary of vital statistics 2002. Available at: <http://www.nyc.gov/html/doh/downloads/pdf/vs/2002sum.pdf>. Accessed March 27, 2012.
14. *Hospital Admissions for Injuries.* New York, NY: New York City Dept of Health and Mental Hygiene; 2004.
15. Tiesman H, Zwerling C, Peek-Asa C, Sprince N, Cavanaugh JE. Non-fatal injuries among urban and rural residents: the National Health Interview Survey, 1997–2001. *Inj Prev.* 2007;13(2):115–119.
16. 10 leading causes of hospitalizations (live discharges)—New York City: 2002–2006. Available at: <http://www.nyc.gov/html/doh/downloads/pdf/ip/ip-hosp-all-rank.pdf>. Accessed March 27, 2012.
17. Wilt SA, Gabrel CS. A weapon-related injury surveillance system in New York City. *Am J Prev Med.* 1998;15(suppl 3):75–82.
18. Centers for Disease Control and Prevention. Injury surveillance in correctional facilities—Michigan, April 1994–March 1995. *MMWR Morb Mortal Wkly Rep.* 1996;45(3):69–72.
19. Office of Justice Programs, Bureau of Justice Statistics. Local jail deaths, 2000–2006. Available at: <http://bjs.ojp.usdoj.gov/content/dcrp/tables/dst06lj2.cfm>. Accessed March 27, 2012.