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BACKGROUND

- People with HIV (PWH) who report a history of injection drug use (IDU) have disproportionately higher mortality than those who do not report a history of IDU despite decreasing trends in all-cause mortality among PWH.

METHODS

Study population

- Data from the New York City (NYC) HIV Surveillance Registry and data on underlying cause of death from the NYC Vital Statistics Registry or National Death Index.
- PWH ≥20 years of age and alive at the end of 2017 or who died during 2008-2017.

Statistical analysis

- HIV surveillance data were linked with the NYC Vital Statistics Registry to obtain information on PWH who died in NYC and with the National Death Index to obtain information on PWH who died outside NYC.
- Age-adjusted mortality rates were calculated for all PWH and by selected transmission risk groups, including IDU. Rates are per mid-year number of people living with HIV (PLWH) and standardized against the 2000 U.S. Standard Population.
- Cochran-Armitage trend test was used to test the significance of decreases in mortality rates over time.
- Cox-Proportional Hazards regression was used to predict risk factors for death.

KEY POINTS

- Persistently higher mortality among IDU PWH compared to all other PWH (Figure 1).
- Nine out of ten decedents with IDU history were either non-Hispanic Black or Hispanic.
- After adjusting for demographic factors, IDU PWH ages 50-59, Hispanic IDU PWH, and those living in high- or very high-poverty neighborhoods had higher risk of death.
- Of IDU PWH decedents, nearly two-thirds died from non-HIV-related cause (cardiovascular diseases and cancer were most common).
- Among IDU PWH, the rate of death among females ages 20-29 and those ages 30-39 were 3.9 and 1.9 times higher, respectively, than among males in the same age groups (Table 1).
- The rate of death among female Asian/Pacific Islander IDU PWH was 1.3 times higher than the rate among male Asian/Pacific Islander IDU PWH (Table 1).

RESULTS

- There were 145,799 PWH included in the analysis representing 1,192,752 person-years.
- Of these, 25,144 reported a history of injection drug use (Table 1).
- Mortality rates decreased substantially among NYC PWH overall and among all transmission groups during 2008-2017 (Figure 1).
- However, the mortality among IDU PWH remained persistently higher than others; 34.3% of all deaths were among the PWH with a history of IDU (Table 2).
- Nine out of ten (87.6%) decedents with IDU history were either non-Hispanic Black or Hispanic and nearly half were ages 50-59 years (44.1%) (Table 2).
- Almost two-thirds (60%) of IDU PWH died from a non-HIV-related cause and 39% died from an HIV-related cause (data not shown).

Table 2. Mortality by transmission risk group with demographic characteristics.

	All deaths N (%)	IDU N (%)	Heterosexual N (%)	MSM N (%)
Total	19,617 (100.0)	6,733 (34.3*)	3,647 (18.6*)	4,002 (20.4*)
Sex at birth				
Male	13,814 (70.4)	4,841 (71.9)	1,151 (31.6)	4,002 (100.0)
Female	5,803 (29.6)	1,892 (28.1)	2,496 (68.4)	n/a
Age group (years)				
20 - 29	486 (2.5)	23 (0.3)	46 (1.3)	190 (4.7)
30 - 39	1,426 (7.3)	243 (3.6)	303 (8.3)	496 (12.4)
40 - 49	4,455 (22.7)	1,294 (19.2)	982 (26.9)	1,043 (26.1)
50 - 59	7,125 (36.3)	2,971 (44.1)	1,260 (34.5)	1,223 (30.6)
60+	6,125 (31.2)	2,202 (32.7)	1,056 (29.0)	1,050 (26.2)
Race/Ethnicity				
Black	9,803 (50.0)	3,034 (45.1)	2,212 (60.7)	1,548 (38.7)
Hispanic	6,469 (33.0)	2,862 (42.5)	1,111 (30.5)	988 (24.7)
White	3,028 (15.4)	791 (11.7)	253 (6.9)	1,389 (34.7)
Asian/Pacific Islander	222 (1.1)	20 (0.3)	55 (1.5)	61 (1.5)
Other/unknown	55 (0.3)	26 (0.4)	16 (0.4)	16 (0.3)
Neighborhood poverty				
Low poverty (<10% below FPL)	1,106 (5.6)	286 (4.2)	162 (4.4)	394 (9.8)
Medium (10 to <20% below FPL)	3,848 (19.6)	1,177 (17.5)	693 (19.0)	922 (23.0)
High (20 to <30% below FPL)	4,546 (23.2)	1,669 (24.8)	917 (25.1)	795 (19.9)
Very high poverty (30%+ below FPL)	6,253 (31.9)	2,531 (37.6)	1,260 (34.5)	781 (19.5)
Not available	3,864 (19.7)	1,070 (15.9)	615 (16.9)	1,110 (27.7)

*percent of total deaths.

Table 1. Demographic characteristics, deaths and mortality risk among PWH IDU by sex.

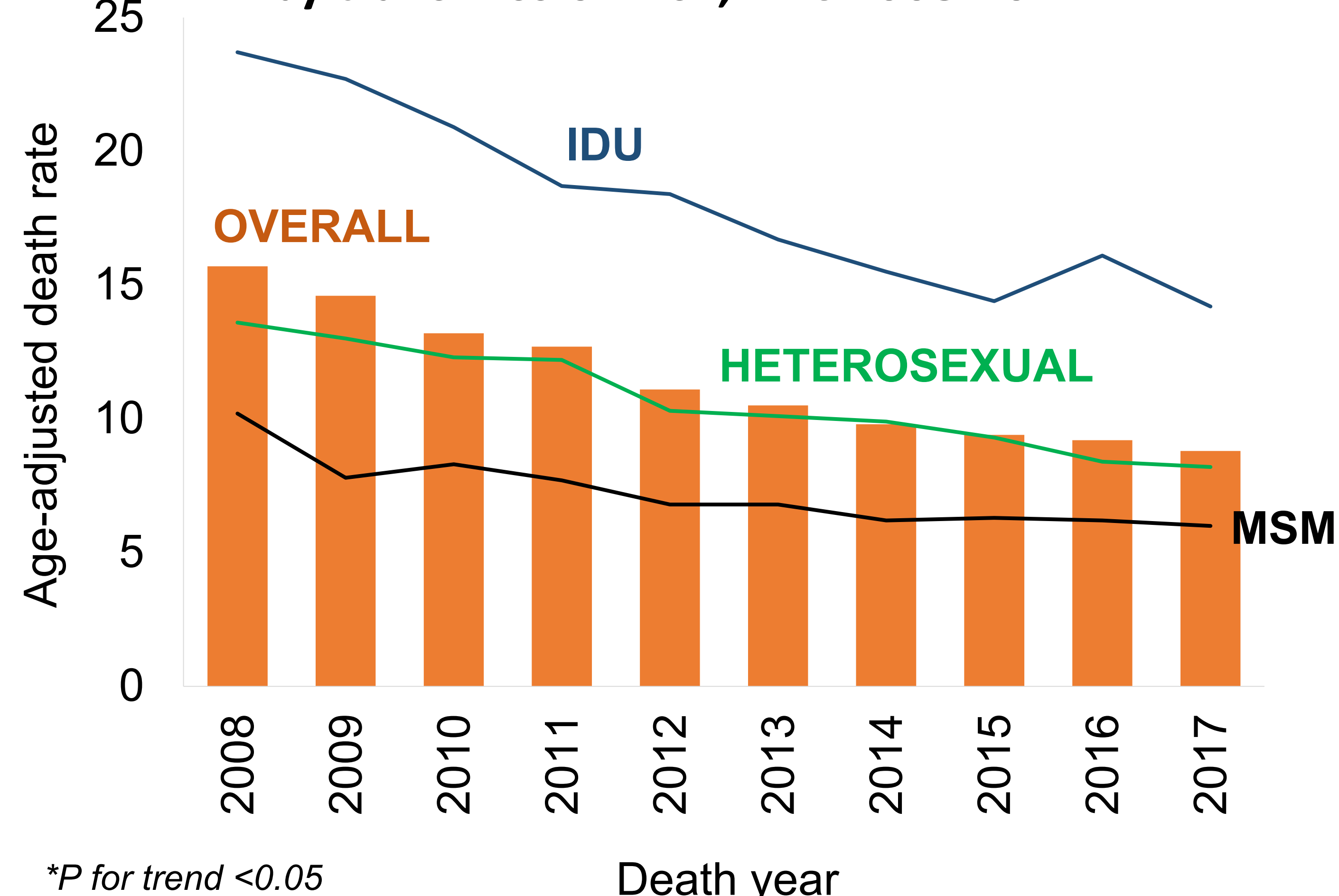
	Total			Males			Females			Rate Ratio
	In the study	Deaths	Percent died	In the study	Deaths	Percent died	In the study	Deaths	Percent died	
	N	N	%	N	N	%	N	N	%	Female/Male
Total	25,144	6,733	26.8	18,111	4,841	26.7	7,033	1,892	26.9	1.0
Age group (years)										
20 - 29	286	23	8.0	257	16	6.2	29	7	24.1	3.9
30 - 39	1,202	243	20.2	936	158	16.9	266	85	32.0	1.9
40 - 49	3,546	1,294	36.5	2,340	807	34.5	1,206	487	40.4	1.2
50 - 59	9,963	2,971	29.8	6,754	2,092	31.0	3,209	879	27.4	0.9
60+	10,147	2,202	21.7	7,824	1,768	22.6	2,323	434	18.7	0.8
Race/Ethnicity										
Black	10,629	3,034	28.5	7,253	2,116	29.2	3,376	918	27.2	0.932
Hispanic	10,961	2,862	26.1	8,144	2,098	25.8	2,817	764	27.1	1.1
White	3,328	791	23.8	2,534	597	23.6	794	194	24.4	1.0
Asian/Pacific Islander	138	20	14.5	116	16	13.8	22	4	18.2	1.3
Other/unknown	88	26	29.5	64	14	21.9	24	12	50.0	2.3
Neighborhood poverty										
Low poverty (<10% below FPL)	1,400	286	20.4	1,031	203	19.7	369	83	22.5	1.1
Medium (10 to <20% below FPL)	6,747	1,177	17.4	5,031	851	16.9	1,716	326	19.0	1.1
High (20 to <30% below FPL)	6,116	1,669	27.3	4,278	1,183	27.7	1,838	456	24.8	0.9
Very high poverty (30%+ below FPL)	9,160	2,531	27.6	6,393	1,787	28.0	2,767	744	26.9	1.0
Not available	1,721	1,070	62.2	1,378	817	59.3	343	253	73.8	1.2

For tables:

FPL - Federal Poverty Level, PWH - Persons With HIV, IDU - Injection Drug Use, MSM - Men who have sex with men, n/a - not applicable, *percent of total deaths.

Figure 1.

Trends* in death rates per 1,000 mid-year PLWH by transmission risk, NYC 2008-2017



*P for trend <0.05