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 Vitals Statistics Registry or National Death Index.
  - PWH ≥20 years of age and alive at the end of 2017 or who died during 2017-2018.

- 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.
  - Non-Hispanic Black, Hispanic, Asian/Pacific Islander, IDU.

- 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 age-adjusted results.

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).

- Interventions are needed to reduce the prevalence of risk factors among IDU PWH such as smoking, high-risk sexual behaviors, and co-infections such as hepatitis C given their role in CVD- and cancer-related mortality.
- In addition, since over a third of deaths were due to HIV, improvement in HIV outcomes in this population should reduce HIV-related mortality.

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 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).

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

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Age-adjusted death rate</th>
<th>Rate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>286</td>
<td>23</td>
<td>5</td>
<td>8.0</td>
<td>29</td>
</tr>
<tr>
<td>20 - 29</td>
<td>1,202</td>
<td>243</td>
<td>969</td>
<td>20.2</td>
<td>936</td>
</tr>
<tr>
<td>30 - 39</td>
<td>3,546</td>
<td>1,294</td>
<td>2,252</td>
<td>36.5</td>
<td>2,940</td>
</tr>
<tr>
<td>40 - 49</td>
<td>5,963</td>
<td>1,071</td>
<td>4,892</td>
<td>29.8</td>
<td>4,754</td>
</tr>
<tr>
<td>50 - 59</td>
<td>10,147</td>
<td>2,102</td>
<td>8,045</td>
<td>21.7</td>
<td>7,824</td>
</tr>
<tr>
<td>60+</td>
<td>6,733</td>
<td>1,892</td>
<td>4,841</td>
<td>18.3</td>
<td>4,002</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Age-adjusted death rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>10,629</td>
<td>3,034</td>
<td>7,595</td>
<td>28.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10,961</td>
<td>2,862</td>
<td>8,099</td>
<td>26.1</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>222</td>
<td>21</td>
<td>201</td>
<td>1.1</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>55</td>
<td>20</td>
<td>35</td>
<td>n/a</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- Although there have been declines in the past decade, the mortality rate among NYC PWH with IDU history remains elevated.
- Interventions are needed to reduce the prevalence of risk factors among IDU PWH such as smoking, high-risk sexual behaviors, and co-infections such as hepatitis C given their role in CVD- and cancer-related mortality.
- In addition, since over a third of deaths were due to HIV, improvement in HIV outcomes in this population should reduce HIV-related mortality.