New HIV Diagnoses and Community Viral Load During the COVID-19 Pandemic in Washington, DC

Amanda Castel, MD, MPH
George Washington University Milken Institute School of Public Health

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Background: Impact of COVID-19 Pandemic on HIV Services

- Widespread disruption to HIV prevention, care and treatment services during the COVID-19 pandemic
- HIV testing disruptions led to decreased testing, yet higher positivity rates among those tested
- Disruptions in HIV services may have led to increases in new and late HIV diagnoses as well as increases in community viral load (CVL)
- Overall progress may have slowed towards achieving the Ending the HIV Epidemic goals of HIV prevention and early diagnosis and treatment
Background: Pandemic Period

HIV Services in Washington, DC

- Washington, DC is a priority jurisdiction for EHE efforts
  - HIV prevalence of 1.7% in 2022
  - Historically CVL was one of the highest in the US at 33,847 copies/ml (2008)
- New diagnoses city-wide have declined 85% from a peak of 1,374 cases in 2007 to 210 cases in 2022
- During the pandemic, DC Health reported
  - 32% decline in volume of HIV labs report received in 2021 vs. 2019
  - A decline in the number of new HIV diagnoses from Jan- April 2020 followed by an increase in the number of new diagnoses from May to July 2020

Source: Castel et al, AIDS 2011, DC Health Annual Epi Report, 2022
Objective

To explore the impact of the COVID-19 pandemic on HIV services by measuring CVL and describing demographic and clinical characteristics of new diagnoses before and during the pandemic among a cohort of PWH in Washington, DC.
Methods: Data source

• DC Cohort longitudinal HIV study
  • Recruit patients from 14 HIV clinics in Washington, DC
  • Conduct monthly EHR data abstraction on >12,800 consented PWH
  • Ongoing prospective enrollment from January 2011-present
• Identified new HIV diagnoses, stratified by pandemic time-period:
  • Pre-pandemic: January 2017-March 2020
  • Peri-pandemic: April 2020-March 2023
Methods: Statistical Analysis

• Calculated frequency and prevalence estimates of new diagnoses by pandemic time-period and conducted bivariable analyses to compare by time-period

• Estimated CVL by quarter between 2017 and 2023 using most recent viral load measures
  • Total in care CVL: sum of all reported VLs among all PWH
  • Mean in care CVL: most recent VL among all PWH

• Produced Kaplan Meier survival curves for time to event for:
  • HIV diagnosis to first HIV care encounter
  • HIV diagnosis to ART initiation
  • ART initiation to viral suppression
  • HIV diagnosis to viral suppression
Results
Table 1: Demographic Characteristics among New HIV Diagnoses

<table>
<thead>
<tr>
<th></th>
<th>Pre-Pandemic (n=538)</th>
<th></th>
<th>Peri-Pandemic (n=93)</th>
<th></th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td><strong>Age at diagnosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(median, IQR)</td>
<td>32</td>
<td>25, 44</td>
<td>32</td>
<td>27, 43</td>
<td>0.4465</td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>393</td>
<td>73.3</td>
<td>53</td>
<td>57.0</td>
<td>0.0009</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>55</td>
<td>10.3</td>
<td>9</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>48</td>
<td>9.0</td>
<td>20</td>
<td>21.5</td>
<td></td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>40</td>
<td>7.5</td>
<td>11</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td><strong>Gender (at consent)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>109</td>
<td>20.3</td>
<td>22</td>
<td>23.7</td>
<td>0.1299</td>
</tr>
<tr>
<td>Male</td>
<td>419</td>
<td>78.2</td>
<td>67</td>
<td>72.0</td>
<td></td>
</tr>
<tr>
<td>Transgender</td>
<td>8</td>
<td>1.5</td>
<td>4</td>
<td>0.30</td>
<td></td>
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</tbody>
</table>
# Table 1: Demographic Characteristics among New HIV Diagnoses (2)

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Pre-Pandemic (n=538)</th>
<th>Peri-Pandemic (n=93)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time</td>
<td>140 (26.0)</td>
<td>34 (36.6)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Part time</td>
<td>16 (3.0)</td>
<td>7 (7.5)</td>
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</tr>
<tr>
<td>Student/retired/disabled</td>
<td>34 (6.3)</td>
<td>4 (4.3)</td>
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</tr>
<tr>
<td>Unemployed</td>
<td>75 (13.9)</td>
<td>23 (24.7)</td>
<td></td>
</tr>
<tr>
<td>Unknown/missing</td>
<td>273 (50.7)</td>
<td>25 (26.9)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insurance (at consent)</th>
<th>Pre-Pandemic (n=538)</th>
<th>Peri-Pandemic (n=93)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>204 (38.0)</td>
<td>45 (48.4)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Private</td>
<td>316 (58.9)</td>
<td>36 (38.7)</td>
<td></td>
</tr>
<tr>
<td>Ryan White</td>
<td>11 (2.1)</td>
<td>10 (10.8)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6 (1.1)</td>
<td>2 (2.2)</td>
<td></td>
</tr>
<tr>
<td>HIV transmission risk</td>
<td>Pre-Pandemic (n=538)</td>
<td>Peri-Pandemic (n=93)</td>
<td>P-value</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>---------</td>
</tr>
<tr>
<td>High risk heterosexual</td>
<td>135 25.1</td>
<td>30 32.3</td>
<td>0.4656</td>
</tr>
<tr>
<td>IDU</td>
<td>11 2.0</td>
<td>2 2.2</td>
<td></td>
</tr>
<tr>
<td>MSM</td>
<td>293 54.5</td>
<td>48 51.6</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>99 18.4</td>
<td>13 14.0</td>
<td></td>
</tr>
<tr>
<td>Late HIV Diagnosis</td>
<td>142 27.3</td>
<td>30 33.7</td>
<td>0.2152</td>
</tr>
<tr>
<td>Most recent CD4 ≥200 cells/mm3</td>
<td>505 93.9</td>
<td>87 93.6</td>
<td>0.1792</td>
</tr>
<tr>
<td>Most recent VL suppressed (≤200 copies/mL)</td>
<td>329 79.7</td>
<td>67 95.7</td>
<td><strong>0.0003</strong></td>
</tr>
<tr>
<td>Most recent VL detectable (≥20 copies/mL)</td>
<td>164 31.4</td>
<td>22 25.0</td>
<td>0.2264</td>
</tr>
</tbody>
</table>
Figure 1: Community Viral Load Measures Among All DC Cohort Participants, January 2017-March 2023, n=11, 156

- **Total Community Viral Load**: p<0.0001
- **Mean Community Viral Load**: p<0.001
- **Proportion Virally Suppressed (<=200 copies/ml)**: p<0.0001
- **Number of New HIV Diagnoses**: p<0.0001
Survival Curves for Key Care Continuum Metrics: Time from HIV diagnosis to first HIV encounter

![Product-Limit Survival Estimates](image)

- Censored
- Logrank p=0.0002

Survival Curves for Key Care Continuum

Metrics: Time from HIV diagnosis to ART initiation

Product-Limit Survival Estimates

+ Censored
Logrank p < .0001

Survival Probability

time_art

Period
April 2020 to March 2023
Jan 2017 to March 2020
Survival Curves for Key Care Continuum Metrics: Time from ART initiation to viral suppression
Survival Curves for Key Care Continuum

Metrics: Time from HIV diagnosis to viral suppression

Product-Limit Survival Estimates

+ Censored
Logrank p < .0001

Survival Probability

0.0 0.2 0.4 0.6 0.8 1.0

time_dx_vs

0 500 1000 1500 2000 2500

Period
April 2020 to March 2023
Jan 2017 to March 2020
Conclusions

• Despite COVID-19 pandemic disruptions to HIV services, we observed a decrease in CVL in our cohort of PWH.
• While new HIV diagnoses decreased during the pandemic
  • Certain demographic groups were disproportionately represented (Hispanics, unemployed, underinsured)
  • Demonstrates persistent health disparities in access to testing and HIV care
• New diagnoses during the pandemic experienced shorter time to first encounter, ART initiation, and viral suppression.
  • Might be explained by changes in clinical level services (e.g., prioritization of new diagnoses, availability of telehealth)
• As the pandemic ends, increased emphasis on HIV testing and access to HIV care will help identify delayed diagnoses and improve care continuum outcomes.
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Questions

acastel@gwu.edu

The DC Cohort

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References


