HIV Care Engagement and Viral Load Suppression in a Comprehensive HIV Care Coordination Program (CCP)

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Background: Evidence is needed regarding HIV interventions improving engagement in care (EiC) and viral load suppression (VLS) and reducing demographic disparities in those outcomes. We assessed overall and subgroup-specific EiC and VLS changes following enrollment into a comprehensive medical case management intervention, the NYC Ryan White Part A HIV Care Coordination Program (CCP).

Methods: Using local program data and laboratory records from surveillance, we examined pre- and post-enrollment outcomes for 3,641 clients enrolled before April 2011 and diagnosed >1 year before CCP enrollment, at 28 agencies. For the year before and after enrollment, we estimated EiC (≥2 tests 290 days apart, ≥1 in each half-year) and VLS (VL ≤200 copies/mL, last test in the second half of the year). Relative risks (RRs) and confidence intervals (CIs) for the outcomes were estimated for the sample overall and for subgroups defined by baseline demographic and clinical characteristics, site of enrollment, and duration of enrollment.

Results: The proportions with EiC and VLS increased from 74% to 91% (RR=1.24, 95% CI: 1.21-1.27) and from 32% to 51% (RR=1.56, 95% CI: 1.50-1.61). Significant improvements held across subgroups. Greater improvements were observed among those enrolled in the CCP throughout the follow-up year and generally among those with clearer risk for suboptimal outcomes at baseline, with the exception of recent drug users, who improved less than non-users. Significant improvements were observed for EiC at 25% (89%) and VLS at 21% (75%) of 28 agencies.

Conclusions: EiC and VLS improvements were robust across most subgroups. Improvements were greater among those with longer enrollment in the CCP, and generally among those with greater barriers at enrollment.

Objectives of Study

1. Compare engagement in care (EiC) and viral load suppression (VLS) in the 12 months before and after CCP enrollment
2. Examine subgroup differences in outcomes

Definitions of Terms

1. Base-line Classifications for the Study Sample:
   - Newly Diagnosed: HIV diagnosis date in 12 months before enrollment
   - Previously Diagnosed, Current to Care: HIV diagnosis >12 months before enrollment, and evidence of care in 6 months prior to enrollment
   - Previously Diagnosed, Out of Care: HIV diagnosis >12 months before enrollment, and no evidence of care in 6 months prior to enrollment

2. Outcome Measures:
   - Engagement in Care (EiC) ≥2 CD4 or VL tests ≥290 days apart, ≥1 in each half of the (pre- or post- enrollment) 12-month period
   - Viral Load Suppression (VLS) VL ≤200 copies/mL in the second half of the (pre- or post- enrollment) 12-month period

Study Design and Methodology

1. Eligibility: CCP clients who were enrolled by March 31, 2011, able to be matched to the Registry, and alive for at least one year of follow-up.

Figure 1: CCP Sites by Neighborhood HIV Prevalence (at end of 2011)

Figure 2: Eligibility Flowchart

Figure 3: Review Periods for Baseline and Outcomes Data

Table 1. Baseline Characteristics by Care Status Group within Sample

<table>
<thead>
<tr>
<th>Study Sample (%)</th>
<th>Newly Diagnosed (%)</th>
<th>Previously Diagnosed, Out of Care (%)</th>
<th>Previously Diagnosed, Current to Care (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosed</td>
<td>3,329 (92)</td>
<td>403 (87)</td>
<td>457 (93)</td>
</tr>
<tr>
<td>U.S. Country of Birth</td>
<td>2,403 (66)</td>
<td>218 (47)</td>
<td>316 (64)</td>
</tr>
<tr>
<td>English as Primary Language</td>
<td>2,717 (75)</td>
<td>296 (64)</td>
<td>370 (75)</td>
</tr>
<tr>
<td>Male Sex at Birth</td>
<td>2,286 (63)</td>
<td>329 (71)</td>
<td>347 (70)</td>
</tr>
<tr>
<td>Black or Hispanic Race/Ethnicity</td>
<td>2,422 (67)</td>
<td>0 (0)</td>
<td>314 (64)</td>
</tr>
<tr>
<td>Public Insurance</td>
<td>2,643 (73)</td>
<td>256 (55)</td>
<td>301 (61)</td>
</tr>
<tr>
<td>HIV Diagnosis Before 2005</td>
<td>2,422 (67)</td>
<td>0 (0)</td>
<td>314 (64)</td>
</tr>
<tr>
<td>HIV Prevalence (at end of 2011)</td>
<td>86 (2.4%)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

Conclusions

- EiC and VLS improvements were robust across most subgroups (defined by baseline characteristics, enrollment site, and enrollment duration).
- Generally, those with recognized barriers at enrollment (e.g., low-income, uninsured, unstably housed, and younger populations, and those with lower CD4, unsuppressed viral load, and/or no current prescription for ART at enrollment) showed no significant difference in RRs or showed higher RRs for the desired outcomes. One exception was observed among recent drug users, who had significantly less improvement in EiC than non-users.

Significant improvements were observed even after six months, and the relative risks showed an upward trend with increased length of enrollment duration.

Results Narrative

- Clients in comprehensive HIV care coordination for persons with evident barriers to care showed substantial and consistent improvement in short- to medium-term outcomes, with greater benefit among those enrolled for a full year.
- Significant improvements in both care engagement and HIV viral suppression were observed even among those with major care treatment barriers, e.g., mental illness, substance use, and history of incarceration.
- While the general pattern of subgroup differences suggests the potential value of further focusing recruitment on those with greater risk for poor care outcomes, the countervailing finding on recent drug use requires further investigation.

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Next Steps

- Compare CCP clients with similar persons with HIV (in usual care) who have laboratory data available during the same periods.
- Examine longer-term outcomes (12-36 months).
- Examine barriers/facilitators for good outcomes in the CCP, using provider-reported, site-level, and client interview data.
- Further explore intervention dose-response effects.
- Assess program cost-effectiveness.

Citation