Robust short-term effectiveness of a comprehensive Care Coordination Program (CCP) in New York City (NYC)

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Number and proportion of persons with HIV in New York City engaged in selected stages of the continuum of care at the end of 2012

Of all persons estimated to be infected with HIV in NYC, 41% have a suppressed viral load.

As reported to the New York City Department of Health and Mental Hygiene by June 30, 2013.
BACKGROUND: PREDICTORS OF SUBOPTIMAL CARE OUTCOMES

- Black or latino race/ethnicity
- Younger age
- Lower income
- Non-AIDS status
- Mental health issues
- Substance use issues
- Stigma
- Low levels of social support
- Non-U.S. country of birth
- Unstable housing

Torian LV, et. al., *AIDS Patient Care STDS* 2011.
CCP Goal:

Ensure that HIV+ Ryan White clients at risk for suboptimal health outcomes receive support to achieve full engagement in care and treatment through coordinated care strategies.
BACKGROUND:
THERE ARE 28 CARE COORDINATION PROVIDER AGENCIES IN NEW YORK CITY

CCP Lead and Satellite Service Sites

- ★ Lead CCP Service Site
- ○ Satellite CCP Service Site

HIV Prevalence as % of UHF Population

Percent (%)

- <= .40
- .41-1.30
- 1.31-2.40
- >= 2.41
- Non-residential zones

*For multi-site programs, the lead and satellite sites are displayed in the same color.

The United Hospital Fund (UHF) classifies NYC into 42 neighborhoods, comprising contiguous zip codes.
CCP targets persons at high risk for suboptimal care outcomes:

- newly diagnosed
- previously lost to care/never in care
- irregularly in care
- initiating a new regimen
- with incomplete medication adherence or response to treatment
CCP model provides:

- case management
- patient navigation, including accompaniment
- adherence support, including directly observed therapy (DOT)
- health promotion in home visits
- assistance with medical/social services
Assess the effectiveness of this large-scale, multi-site HIV care coordination program in NYC

Compare engagement in care (EiC) and viral load suppression (VLS) in 12 months before and after CCP enrollment

Examine subgroup differences in outcomes*

*Subgroups defined based on characteristics at time of enrollment
Matched CCP eSHARE with NYC HIV Registry data

Programmatic Data: Ryan White Service Provider Reporting (eSHARE = Electronic System for HIV/AIDS Reporting and Evaluation)

HIV Surveillance Data: Registry of NYC HIV cases (laboratory VL and CD4 tests, HIV diagnostic events)

METHODS: DATA SOURCES
Clients Eligible for Analysis: enrolled by March 2011, matched to Registry, and alive for ≥ 1 year of follow-up.

Key Terms:
- **Newly Diagnosed**: HIV diagnosis date in 12 months before enrollment
- **Current to Care (Baseline)**: Any CD4 or VL test date in 6 months before enrollment*
- **Out of Care (Baseline)**: No CD4 or VL test date in 6 months before enrollment*

*Among the previously diagnosed
METHODS: SAMPLE ELIGIBILITY

3,803 Clients enrolled on or before March 31, 2011

3,641 (96.5%) Clients living 12 months post-CCP enrollment

28 (.7%) clients excluded: did not match to the Registry

134 (3.5%) clients excluded: died within 12 months of CCP enrollment

SAMPLE POPULATION

465 (12.8%) Newly diagnosed at CCP enrollment

2,682 (73.7%) Current to Care at CCP enrollment

494 (13.6%) Out of Care at CCP enrollment

Previously Diagnosed
METHODS: STATISTICAL MEASURES

- **Outcome Measures:**
  - **Engagement in Care (EiC):** ≥2 CD4 or VL tests ≥90 days apart, with ≥1 in each half of 12-month period
  - **Viral Load Suppression (VLS):** VL ≤ 200 copies/mL on most recent test in second half of 12-month period *
  - **Estimated post- vs. pre- CCP enrollment relative risks (RRs) using GEE**

* Missing VL in 2nd half of 12-month period considered equivalent to unsuppressed VL.
METHODS: CCP FOLLOW-UP TIME FOR OUTCOME MEASURES

Baseline: EiC0; VLS0

Outcomes: EiC1; VLS1

Enrollment Date: Start of follow-up

Yes VLS ≤ 200

No VLS 500

100 days = Yes EiC

200 days = Yes EiC

12 months pre-enrollment

12 months post-enrollment

Viral Load Lab

CD4 Lab

CUNY SCHOOL OF PUBLIC HEALTH
<table>
<thead>
<tr>
<th>Study Population Characteristics at CCP Enrollment</th>
<th>CCP Overall N</th>
<th>%</th>
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<tbody>
<tr>
<td>TOTAL</td>
<td>3,641</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
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<tr>
<td>Male</td>
<td>2,286</td>
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<td>Female</td>
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<td>1,936</td>
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<td>204</td>
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<tr>
<td>Other/Unknown</td>
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<td>3.0</td>
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<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
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<tr>
<td>≤ 24</td>
<td>224</td>
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<td>25 – 44</td>
<td>1,534</td>
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<tr>
<td>Other</td>
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<tr>
<td>Uninsured</td>
<td>998</td>
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<td>Study Population Characteristics at CCP Enrollment</td>
<td>CCP Overall</td>
<td>%</td>
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<tr>
<td>---------------------------------------------------</td>
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<td>Housing status</td>
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<td>≥ $9,000</td>
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<td>Missing</td>
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<td>Taking ART</td>
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<td>Yes</td>
<td>2,562</td>
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<tr>
<td>No</td>
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<td>Year of HIV Diagnosis</td>
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<td>&lt;1995</td>
<td>690</td>
<td>19.0</td>
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<tr>
<td>1995 - 2004</td>
<td>1,732</td>
<td>47.6</td>
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<td>2005 - 2011</td>
<td>1,219</td>
<td>33.5</td>
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<tr>
<td>Viral suppression (≤200 copies/mL)</td>
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<tr>
<td>Yes</td>
<td>1,072</td>
<td>29.4</td>
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<tr>
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<td>2,324</td>
<td>63.8</td>
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<tr>
<td>Unknown</td>
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<td>6.7</td>
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<tr>
<td>CD4 (cells/μL)</td>
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<td></td>
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<tr>
<td>&lt; 200</td>
<td>972</td>
<td>26.7</td>
</tr>
<tr>
<td>200 - 349</td>
<td>683</td>
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<td>350 – 499</td>
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<tr>
<td>500+</td>
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<td>19.0</td>
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<tr>
<td>Unknown</td>
<td>785</td>
<td>21.6</td>
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RESULTS:
ENGAGEMENT IN CARE, PRE & POST

- Improvements were observed for EiC at 25 (89%) of the 28 agencies
Engagement in Care (previously dx’d): Post- vs. Pre- Enrollment Change, Relative Risk

- **Sex**: Male, Female
- **Age**: ≤ 44, > 45
- **Insurance Status**: Insured, Uninsured
- **Housing Status**: Homeless, Not Homeless
- **ART Rx**: On ART, Not on ART
- **Baseline VL**: Yes VLS, No VLS

Relative Risk (RR) = 1.24

95% CI, Previously Dx’d

Previously Dx’d
RESULTS: VL SUPPRESSION PRE & POST

- Improvements were observed for VLS at 21 (75%) of the 28 agencies

<table>
<thead>
<tr>
<th></th>
<th>% with VLS</th>
<th>12 months prior to CCP enrollment</th>
<th>12 months post CCP enrollment</th>
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</thead>
<tbody>
<tr>
<td>Newly diagnosed</td>
<td>66%</td>
<td></td>
<td></td>
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<tr>
<td>ALL previously diagnosed</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out of care</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current to care</td>
<td>38%</td>
<td></td>
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</table>

RR=1.58 (95% CI 1.5 - 1.66)
RR=1.34 (95% CI 1.27 - 1.4)
Viral Load Suppression (previously dx): Post- vs. Pre- Enrollment Change, Relative Risk


Relative Risk (RR) = 1.58 (95% CI).

Previously Dx’d vs. 95% CI, Previously Dx’d.
LIMITATIONS AND CONSIDERATIONS

- Labs are an imperfect proxy for primary care
  - May overstate care engagement to the extent that some labs reflect acute care vs. primary care visits
  - Not all primary care visits produce lab data

- Ceiling effects may explain some subgroup findings
  - Certain groups have very little room for improvement

- Evolving HIV service and policy landscape
Short-term EiC and VLS improvements were robust across most subgroups examined.
- Especially among those previously diagnosed and out of care

Newly diagnosed also show promising outcomes.

CCP may substantially improve short-term adherence to care and treatment among persons at risk for sub-optimal outcomes.
ACKNOWLEDGEMENTS

- Care Coordination Program Service Providers and Clients
- Levi Waldron
- Bisrat Abraham
- Fabienne Laraque
- PACT Staff and Consultants

This work was supported through a grant from the Health Resources and Services Administration (H89HA00015) and a grant from NIMH (1R01MH101028) entitled “HIV care coordination: comparative effectiveness, outcome determinants and costs” (CHORDS study).