Rapid HIV testing increases testing frequency among gay and bisexual men: a controlled before–after study.

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Impact of Rapid HIV Testing at the Point of Care

Background

- HIV diagnoses among gay and bisexual men (GBM) in Australia have increased in the past decade
  - One quarter of GBM diagnosed late (CD4 count <350) (Kirby Institute, 2015)
- HIV testing and treatment is a key prevention focus
  - ~10% of gay and bisexual men (GBM) never tested (Hull et al, CSRH 2015)
  - ~50% of high risk GBM re-tested after 6 months (Callander et al, Kirby Institute, 2015)
  - Testing guidelines for high-risk GBM: 3-6 monthly
- NSW HIV Strategy 2012-2015 goal to increase testing

Rapid HIV testing at the Point of Care (PoCT)

- Barriers to HIV testing
  - Annoyance at returning for results
  - Stress in waiting for results (Conway et al, JAIDS, 2015)
- Rapid HIV testing acceptable and preferred by GBM
  (Conway et al, PLOS one, 2015)
- Rapid HIV testing impact
  - High yield of new HIV cases in private clinics and community based sites (Bu et al, Sex Health, 2014; Macbruch et al, HIV Med, 2014)
  - Increase number of men presenting for tests (Gilbourn, SF AIDS Foundation, 2014)
  - High rates of previously untested clients (Ferrer et al, Sex Transf Infect, 2015)

Study Aim

- Assess the real world impact of rapid HIV testing at PoCT

Methods

- Trinity Uni-Gold HIV-1/2 Ab rapid test (10 min incubation)
- Clinics integrated rapid test into routine care (single consultation)
  - Rapid test result at visit
  - Parallel HIV serology on 4th gen immunosassays
- Client records extracted from clinics
  - 8 public sexual health clinics
  - 1 private general practice clinic
  - 1 community site
Impact of Rapid HIV Testing at the Point of Care

Methods

- Client survey at 5 clinics
- Promotion of rapid HIV testing (by ACON, NSW Health, clinics)

Impact evaluation design

- Rapid testers
  - (n=4,889)
- Historical control
  - (n=8,714)
  - RHT not available
- Concurrent control
  - (n=6,464)
  - Non-rapid testers
- Paired control (Rapid testers)
  - Attended before and during study period (n=901)

Impact indicators

- Mean number of HIV tests in 12 months
- Mean time between HIV tests (days)
Impact of Rapid HIV Testing at the Point of Care

Characteristics of study groups

<table>
<thead>
<tr>
<th></th>
<th>Historical Control</th>
<th>Concurrent Control</th>
<th>Rapid testers</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group (years)</td>
<td>n=8,714</td>
<td>n=6,464</td>
<td>n=4,889</td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>39.4</td>
<td>38.3</td>
<td>31.9</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>30-39</td>
<td>31.0</td>
<td>29.9</td>
<td>31.9</td>
<td></td>
</tr>
<tr>
<td>40+</td>
<td>29.5</td>
<td>31.8</td>
<td>24.5</td>
<td></td>
</tr>
<tr>
<td>High-risk</td>
<td>42.0</td>
<td>29.8</td>
<td>41.5</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Testing frequency in a year

<table>
<thead>
<tr>
<th></th>
<th>Mean number HIV tests/patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>1.6</td>
</tr>
<tr>
<td>High risk*</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Testing frequency in paired sample

(attended before and after rapid testing introduced)

<table>
<thead>
<tr>
<th></th>
<th>Mean number HIV tests/patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Test Period</td>
<td>1.6</td>
</tr>
<tr>
<td>Before Period</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Interval between HIV tests

<table>
<thead>
<tr>
<th></th>
<th>Mean time (days) between tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>92</td>
</tr>
<tr>
<td>High risk*</td>
<td>106</td>
</tr>
</tbody>
</table>

Multivariate analysis

Outcome: >2 tests in 12 months

<table>
<thead>
<tr>
<th></th>
<th>Adjusted odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.01</td>
</tr>
<tr>
<td>Received RHT</td>
<td>3.56</td>
</tr>
<tr>
<td>High risk</td>
<td>2.79</td>
</tr>
</tbody>
</table>

p < 0.001

*p High risk = > 5 partners in 3 months; > 20 partners in 12 months
Impact of Rapid HIV Testing at the Point of Care

### Contribution of increased HIV testing frequency to overall amount of HIV testing

- **Figure**: Graph showing contribution of increased HIV testing frequency to overall amount of HIV testing.
- **Key Points**:
  - Increased HIV testing frequency.
  - Overall amount of HIV testing increased.
  - Not a randomised controlled trial.

### Characteristics of men in the patient survey

<table>
<thead>
<tr>
<th>Total</th>
<th>Median age (IQR)</th>
<th>Country of birth</th>
<th>Identified as Gay/homosexual</th>
<th>Identified as Bisexual</th>
</tr>
</thead>
<tbody>
<tr>
<td>369</td>
<td>30 (25-38)</td>
<td>Australia</td>
<td>88.6%</td>
<td>9.2%</td>
</tr>
</tbody>
</table>

**Rapid test ever**
- Yes: 60.2%

### Importance of rapid HIV testing availability as a motivator for testing*

- **Figure**: Bar chart showing importance of rapid HIV testing.
- **Key Points**:
  - Importantly motivator for 88%.
  - n=283

### Likelihood to test for HIV twice a year if rapid HIV testing available

- **Figure**: Bar chart showing likelihood to test for HIV.
- **Key Points**:
  - 77% more likely to test twice per year.
  - n=362

### Limitations

- Not a randomised controlled trial
- Controlled for main patient factors known to influence testing
- Other unmeasurable factors may have influenced outcomes
- Included three control groups, including concurrent control, to overcome potential for external events to influence outcome
- Also conducted survey, which supported findings

### Conclusions

- Rapid testing increased
  - Test frequency, reduced interval between tests
  - In turn, the overall amount of HIV testing increased
- Greater increases in testing frequency among high risk men
- Promotion of rapid testing likely to have played a role
- To realise benefits, rapid HIV testing should be performed with 4th generation EIA/pooled RNA
  - Rapid HIV test sensitivity in acute infections (57%) (Keen, IAS, 2015)
- Rapid HIV testing is important as a testing option to increase HIV testing among GBM
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