RATES OF TRANSMITTED DRUG RESISTANT MUTATIONS IN NEWLY DIAGNOSED HIV IN NSW 2004-2015

Angie Pinto | 6 November 2017

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on behalf of the NSW HIV Prevention Partnership Project.
Disclosures

Background

Treatment scale-up and emergence of transmitted drug resistance (TDR)

Sub-Saharan Africa

- Overall
- NRTI
- NNRTI
- PI

Years Since ART Scale-Up

% Resistance

Number of individuals

Previously reported TDR rates in Australia among highest in world

HIV-1 Drug Resistance in ARV-naive Populations
Compilation of published nucleotide sequences from HIV RNA patients, HIV drugs according to report, year and continent.

Rates reported in Australia:
17.5% Baxter et al 2015
15.5% Pham et al 2014

Background

NSW has targets to ↑number on Rx & ↓ time from diagnosis to Rx

Objective: to determine rate of transmitted drug resistance in newly diagnosed HIV

Methods

All HIV-1 genotypic antiretroviral resistance tests (GART) in NSW 2004-2015 n=8994

Data linkage to HIV notifications n=2573

Newly diagnosed= GART within 12 months notification n=1493

Excluded: vertical tx & incomplete RT/PR sequences N=1433

N=1475

• Early community consultation (ACON, Positive Life NSW, HALC)
• Framework of strong protection of privacy

TDR analysis: Stanford HIVdb v8.3
WHO SDRM list 2009

Statistical analysis: STATA v14
Univariate and multivariate logistic regression

Results

Baseline demographics

Risk Group

76% Heterosexual
18% MSM
4% Other
2% PWID

70%

100%

0%

CD4 <200
CD4 200 to 349
CD4 350 to 499
CD4 500+
Early

Stage at diagnosis

20%
Baseline demographics

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<thead>
<tr>
<th>Place of Birth</th>
<th>n</th>
<th>%</th>
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<tr>
<td>Australia</td>
<td>831</td>
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<td>South East Asia</td>
<td>158</td>
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<td>Sub-Saharan Africa</td>
<td>67</td>
<td>4.5</td>
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<td>Other</td>
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<table>
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<tr>
<th>Place of acquisition</th>
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<tr>
<td>Australia</td>
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<tr>
<th>Region of residence</th>
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<tr>
<td>Rural and regional</td>
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Results

Decreasing rate of transmitted drug resistance over time

![Graph showing decreasing rate of transmitted drug resistance over time](image)
Most common NRTI mutations

Chart Title

*M184 mutations = 0.5% frequency

Factors associated with TDR

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<tr>
<th></th>
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<th>Adjusted odds Ratio</th>
<th>P value</th>
<th>95% Conf. Interval</th>
<th>Overall P</th>
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<td>Age at diagnosis</td>
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<td>19 to 29 [ref]</td>
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<td>30 to 39</td>
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<td>0.48</td>
<td>&lt;0.01</td>
<td>0.07</td>
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<td>40 to 49</td>
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<tr>
<td>Metro [ref]</td>
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<tr>
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<td>0.68</td>
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<td>1.32</td>
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<td>Year of test</td>
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<td>0.95</td>
<td>0.08</td>
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<td>Non B</td>
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<td>0.28</td>
<td>&lt;0.01</td>
<td>0.17</td>
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</table>
TDR lower rates overall, but higher in non-metropolitan and younger age groups

- Truvada (TDF/FTC) currently used for PrEP in >7000
  - No TDF mutations
  - FTC: 7 x M184 mutations observed (3 in last two years)
- Strengths
  - Inclusive of all risk groups and geographical regions
  - Population-based linkage to HIV register → differentiation of transmitted resistance from acquired resistance
- Limitations
  - Low rates of data linkage but representative of NSW epidemic

Decreased rates of TDR during ART rollout in NSW

- Differs to increasing rates reported in similar populations
- Need for routine surveillance for emerging mutations and high risk groups
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A/Professor Rebecca Guy
A/Professor Garrett Prestage
A/Professor Martin Holt
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