CROI 2016: Highlights on epidemiology

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MSM: incidence and behaviours

Bangkok (#972): MSM testing uptake was spatially correlated. MSM who tested positive were more likely to be testing for first time. 5% of a cohort were diagnosed with acute or early infection.

Figure 1. Sexual Behaviors and Condom Use

Nigeria (#922): Condom use among MSM is high but not high enough
Stigma and status awareness among MSM in Africa

Nigeria (#924): Men go on-line to find partners and avoid stigma

Mali (#921): Low HIV status awareness among MSM

Table 1. Significant bivariate associations of MSM social/sexual networks and sexual behavior stigma with online sex-seeking, among MSM in Nigeria TRUST study at baseline (N=1,370)

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
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<tbody>
<tr>
<td>MSM social and sexual networks</td>
<td></td>
<td></td>
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<tr>
<td>MSM network size (per 15 MSM)</td>
<td>1.02</td>
<td>1.01, 1.03**</td>
</tr>
<tr>
<td>Participates in MSM community activities</td>
<td>1.81</td>
<td>1.36, 2.41***</td>
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<tr>
<td>RDS accrual wave number</td>
<td>0.93</td>
<td>0.92, 0.95***</td>
</tr>
<tr>
<td>Number of male anal sex partners within past 12 months (per 5 MSM)</td>
<td>1.05</td>
<td>1.00, 1.11*</td>
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<tr>
<td>Sexual behavior-related stigma (ever experienced/perceived)</td>
<td></td>
<td></td>
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<tr>
<td>Did not feel protected by police</td>
<td>2.42</td>
<td>1.75, 3.36***</td>
</tr>
<tr>
<td>Felt scared to walk around in public</td>
<td>1.41</td>
<td>1.06, 1.88*</td>
</tr>
<tr>
<td>Verbally harassed</td>
<td>1.71</td>
<td>1.35, 2.18***</td>
</tr>
<tr>
<td>Blackmailed</td>
<td>2.39</td>
<td>1.80, 3.18***</td>
</tr>
<tr>
<td>Physically hurt</td>
<td>2.51</td>
<td>1.85, 3.42**</td>
</tr>
<tr>
<td>Afraid to seek healthcare services</td>
<td>3.44</td>
<td>2.16, 4.53***</td>
</tr>
<tr>
<td>Avoided healthcare services</td>
<td>4.35</td>
<td>3.12, 6.08***</td>
</tr>
</tbody>
</table>

*p<0.05; **p<0.01; ***p<0.001
VL among MSM and PWID, FSW intervention effect, TG HIV prevalence

India (#1032): Viral suppression among MSM and PWID

Benin (#1047): Intervention reduced HIV transmission related to FSW but to other women
Increasing numbers of PMTCT impact studies being published:

- National study from Malawi (Gupta #37) of women in PMTCT programme found impact of Option B+ at 6-12 weeks was 2.9%

- Study from Western Cape, South Africa on transmission rates at 6 weeks found a decline between 2009 and 2014 from 5.9% to 1.5%, testing of infant at birth increased from 1% to 14% (Maritz #782)

Cost effectiveness of confirmatory testing (Ciaranello et al, #786). Up to 30% of children could be false positives without confirmatory testing. Especially important in low prevalence settings.
Mortality among HIV exposed, uninfected (HEU) children: growing population in coming years

- Study in Botswana (#800) showed mortality 3 times higher in HEU children compared to HIV uninfected children. (They were not able to tease out breastfeeding impact.)
- Half of 24-month child mortality is among HEU in Botswana (#802)
- Davis et al (801LB) showed the importance of cotrimoxazole prophylaxis in reducing morbidity, and potentially mortality, among HEU children in Malawi
Mortality

- Good news among people lost to ART follow up in sub-Saharan Africa: decreasing mortality in the population associated with higher CD4 at start of ART. Not explained by increasing transfers (Egger #1021)
Reaching the 90*90*90 targets

SEARCH, POPART, Botswana: close to reaching 90*90*90 targets (#111, 114, 115, 979, 981)

Differences in 90x90x90 by age and sex

• Viral suppression is less likely among young adults 16-34 (Novitsky #904)
• Among age 40+ population, 22% prevalence in Agincourt, SA; 44% did not know their status (Rosenberg #905)
HIV incidence assays (pre/post-CROI meeting)

- Assay performance can provide reasonable estimates of national level incidence for most countries in SSA; large sample sizes required for detecting small reductions in incidence.
- Evidence that assay performance depends on subtype; more data on subtype A and D needed (found in Eastern Africa, e.g., Uganda).
- New assays under development, including Geenius and Architect Avidity possibly have longer MDRI and may be used for diagnostic and incidence testing; still more development work to do.
HIV incidence: levels and determinants

- **HIV incidence in Rwanda (Abstract 166 – Remera).** Prospective national population-based survey (15-49 yrs, 2013-2014) followed for 1 year. 33 of 12,686 people seroconverted for 0.27% (95%: 0.18-0.35%) incidence rate; highest in urban areas and among ages 46-55 yrs; results higher than model estimates (being investigated)

- **HIV incidence during pregnancy in SA and Zim (Poster 770 – Teasdale, et al).** MIRA cohort 2003-2006. 4,549 women, of which 776 pregnant. Pregnancy did not increase risk of HIV incidence in unadjusted (HR 0.8, 95%: 0.5-1.3%) or adjusted models (AHR 0.7, 95%CI 0.4-1.2)

- **HIV and men** - ART coverage in SA and Pop ART (HTPN 072) in Zambia and SA – majority of people not knowing partner’s status were women. Men not accessing testing services, not at home for home-based outreach services (90% women but 77% of men)
Focus on location and population: recent trends in surveillance

- New emphasis on case-based surveillance; cases come with information on geographic location;
- Population-based surveys extended to include incidence assays, viral load assays; ART coverage;
- HIV prevalence among pregnant women derived from programmatic data (hence all facilities) rather than sentinel surveillance;
- Key populations: size estimates, IBBS supported by several partners; size estimates for 99 countries; > 136 countries with recent IBBS (last 5 years)
Focus on location and population: model-based geostatistics

Method

- Uses time trend from national or 1st subnational model, HIV prevalence from PBS as well as co-variates. Potential to include other data (ART, new diagnoses, PMTCT prevalence)
- Currently predicting HIV prevalence, PLHIV, and ART coverage and gap at high resolution, including time trends
- Bayesian methods: allow for uncertainty

Results

Geospatial mapping, United Republic of Tanzania, all ages

YEAR : 1970
Focus on location and population: men who have sex with men in Viet Nam: population size estimate and HIV prevalence, 2013–2014

Sources: Viet Nam AIDS response progress report, 2014; HIV sentinel surveillance with a behavioural component (HSS+) and Integrated Biological and Behavioural Surveys (IBBS), 2013; Global AIDS Response Progress Reporting, 2015; 2013 HIV estimates.
Focus on location and population: Conclusion

– Distribution of HIV geographically, by sex and age and for key populations has become essential in informing estimates and an efficient response for ending the AIDS epidemic. Today’s funding decisions are taken on this basis in many countries.

– Local distribution of programme gaps can further inform management of the response, while holding facility, community, sub-district, district, province, state and national managers and leaders accountable.

– New and expanded data sources and innovative analytic tools are key.