Men who have sex with men and viral hepatitis: What do we know?

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Regional Office for the Western Pacific

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Comparison of global and Western Pacific mortality by major communicable diseases, 2013

Viral hepatitis B-related deaths in the Western Pacific Region, 2013

Viral hepatitis C-related deaths in the Western Pacific Region, 2013

HIV and hepatitis – intersecting epidemics and men who have sex with men

- During the past decade rapidly rising epidemics of HIV infection have been observed in MSM and TGW in virtually all urban areas in East and Southeast Asia.

- Whereas the timing, HIV prevalence, incidence, ceiling effects and saturation levels of these epidemics differ among countries, the direction is similar without exception: upwards.

- This development occurs at a time when the global HIV epidemic has entered a decline and regional and local HIV epidemics in heterosexuals have largely been brought under control or did not materialize.

Source: Frits van Griensven (personal communication, 13 Nov 2015, Manila)
Why is it difficult to control HIV among MSM?

- The epidemic force (or R0) in MSM is causing more new HIV infections than we can prevent by behavioral change and protection.

- Prevention bid is overruled by MSM versatility: MSM sexual behavior inherently combines the most efficient routes of HIV acquisition and onward transmission (bottom and top) in every MSM individual and this doubles the risk in every possible MSM dyad.

- Transmission probability penile vaginal sex (1 in 200 to 1 in 2,000)
- Transmission probability anal penile sex (1 in 20 to 1 in 300)

Source: Frits van Griensven (personal communication, 13 Nov 2015, Manila)
HCV sexual transmission

- HCV is difficult to transmit by unprotected sexual intercourse
- Though traumatic sexual practices and HIV coinfection are conducive to HCV sexual transmission
- Explained by blood-to-blood transmission (small amount, imperceptible) during sexual activities
- Outbreaks of acute hepatitis C (AHC) through sexual transmission have been increasingly recognized among HIV-infected and HIV-uninfected men who have sex with men (MSM) in Europe, North America, Australia, Japan and Taiwan

Hepatitis C among MSM

- Hepatitis C virus (HCV) infects an estimated 2.6%-3.1% of the world population
- HIV-infected MSM carry approximately 4 times the risk of acute HCV acquisition than HIV uninfected MSM
- In HIV-infected individuals, HCV coinfection is common and the sero-prevalence ranges from <5% in low-risk patients, to 5-10% among MSM, and to 50-90% among injection drug users (IDU)
- In HIV/HCV-co-infected individuals, HCV disease progresses more rapidly than HCV-mono-infected individuals and has become a leading cause of non-AIDS related death

Hepatitis B sexual transmission

- Sexual transmission well described
- Likelihood of chronic HBV infection substantially higher if underlying HIV infection
- HBV prevalence among key populations reflects general population prevalence, though often marginally higher
- Much higher HBV prevalence rates among MSM than among general population before introduction of HBV vaccination
- WHO recommends HBV catch-up vaccination for MSM

Co-infections in MSM, Germany

Prevalences of coinfections in MSM of the HIV seroconverter cohort.

Incidence of HBV, HCV and syphilis increasing in Germany

Incidences of coinfections in MSM of the HIV seroconverter cohort, by time period.


http://journals.plos.org/plosone/article?id=info:doi/10.1371/journal.pone.0142515
Hepatitis C incidence increasing in Taiwan

The incidence density of hepatitis C virus (HCV) and syphilis, 2006–2013.

During 2006–2013, 12,143 clients sought VCT services for HIV and were tested for hepatitis B, C and syphilis.
High HCV incidence among HIV+ MSM in Tokyo

- Of 753 HIV-1 infected MSM patients negative for HCV antibody (HCVAb) at baseline
- HCV incidence of 9.35 per 1000 PY
- Incidence increased over time from
  - 0 per 1000 PY in 2005–2006,
  - 3.0 per 1000 PY in 2007–2008, 7.7 per 1000 PY in 2009–2010,
  - to 24.9 per 1000 PY in 2011–2012 (P = 0.012).
Hepatitis C among MSM in Latin America still low

Past/current HAV and HBV infection was high in Bangkok MSM

Of 1,285 men tested for HCV infection, 11 (0.9) were reactive. Of these, 5 were HIV positive. During follow-up a small number of men seroconverted for HCV infection.

## HCV infection among different populations in China

<table>
<thead>
<tr>
<th>Population</th>
<th>Anti-HCV(%)</th>
<th>Estimated infected population (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General population</td>
<td>0.43</td>
<td>5.6</td>
</tr>
<tr>
<td>HIV infection (0.7)</td>
<td>60-90</td>
<td>0.42 - 0.63</td>
</tr>
<tr>
<td>Dialysis (0.6)</td>
<td>20-50</td>
<td>0.12 - 0.30</td>
</tr>
<tr>
<td>MSM (5-10)</td>
<td>4</td>
<td>0.20 – 0.40</td>
</tr>
<tr>
<td>Sex Worker (6)</td>
<td>6</td>
<td>0.36</td>
</tr>
<tr>
<td>DU (1.16)</td>
<td>70-90</td>
<td>0.84 – 1.04</td>
</tr>
<tr>
<td>STD (6)</td>
<td>15-20</td>
<td>0.90-1.20</td>
</tr>
<tr>
<td>Blood Donor (10)</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Organ Donor (0.0015)</td>
<td>5-13</td>
<td>0.19</td>
</tr>
<tr>
<td>Other High Risk (10)</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

Slide courtesy of Prof. ZHUANG Hui
Systematic review of hepatitis B and C mono-infection among key populations in China

Hepatitis B among MSM
- 8 studies
- Too few studies to be conclusive about the prevalence

Hepatitis C among MSM
- Included 91 studies across 25 provinces
- Pooled prevalence estimate: 0.701%
- National Surveillance Report (2009-2012): 0.7% (264/3933)
Hepatitis B (mono infection) studies in MSM (China)

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Sample Size</th>
<th>Number of HBsAg +</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Nanning</td>
<td>469</td>
<td>61</td>
<td>13.0</td>
</tr>
<tr>
<td>2009-2010</td>
<td>Nanning</td>
<td>882</td>
<td>114</td>
<td>12.9</td>
</tr>
<tr>
<td>2010-2011</td>
<td>Beijing</td>
<td>1180</td>
<td>107</td>
<td>9.0</td>
</tr>
<tr>
<td>2011</td>
<td>Lucheng</td>
<td>401</td>
<td>13</td>
<td>3.2</td>
</tr>
<tr>
<td>2012</td>
<td>Zhenjiang</td>
<td>426</td>
<td>38</td>
<td>8.9</td>
</tr>
<tr>
<td>2012-2014</td>
<td>Shenzhen</td>
<td>458</td>
<td>72</td>
<td>15.7</td>
</tr>
</tbody>
</table>
# HIV and hepatitis co-infection (China)

- 2 studies presented data on co-infection on hepatitis C and HIV

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Number of HIV +</th>
<th>Number of Anti-HCV (+)</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Qinhuang</td>
<td>6</td>
<td>1</td>
<td>16.67</td>
</tr>
<tr>
<td>2010</td>
<td>Chengdu</td>
<td>104</td>
<td>3</td>
<td>2.88</td>
</tr>
</tbody>
</table>

- One study on hepatitis B

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Number of HIV +</th>
<th>Number of HBsAg (+)</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Chengdu</td>
<td>104</td>
<td>8</td>
<td>7.69</td>
</tr>
</tbody>
</table>
Conclusions

- Very few data on hepatitis infection among MSM in Asia
- Syphilis, hepatitis B and C incidence and other STI will increase alongside HIV incidence among MSM
- This will likely co-occur with role out of ART and PrEP in MSM, which has been shown to increase unprotected sexual contact, and thus the transmission of viral infections not covered by these drugs
- Emphasis on the need for both chemo and latex prophylaxis
- Most data are from small studies and sentinel surveillance sites
- Studies on delivering testing service beyond sentinel sites are needed
- Need for more surveillance surveys on HBV and HCV among MSM
- Besides routine surveillance, studies on how to link key populations under surveillance to educations, safer practice and HBV and HCV treatment are needed
Thank you

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