Sexually transmitted infection in Australia: Recent epidemiological findings

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The epidemiological questions

- How much infection is there?
- How much disease is there?
- Which populations are affected?
- What is changing over time?
- Are the known interventions in place?
- Are they working?
## Sexually transmitted infection in Australia

<table>
<thead>
<tr>
<th>STI</th>
<th>Notifications 2010</th>
<th>New infections</th>
<th>Number living with infection</th>
<th>Current trends</th>
<th>Populations at risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>1 043</td>
<td>650</td>
<td>21 000</td>
<td>Flat</td>
<td>gay men African born</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>7637</td>
<td></td>
<td></td>
<td>increase</td>
<td>gay men Remote Aboriginal</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>74 305</td>
<td></td>
<td></td>
<td>increase</td>
<td>Young people</td>
</tr>
<tr>
<td>Infectious syphilis</td>
<td>1 098</td>
<td></td>
<td></td>
<td>Increase decrease</td>
<td>gay men Remote Aboriginal</td>
</tr>
<tr>
<td>Donovanosis</td>
<td>1</td>
<td></td>
<td></td>
<td>decrease</td>
<td>Remote Aboriginal</td>
</tr>
<tr>
<td>Trichomonas</td>
<td>2886 NT only</td>
<td></td>
<td></td>
<td></td>
<td>Remote women</td>
</tr>
<tr>
<td>HPV</td>
<td>Not notifiable</td>
<td></td>
<td></td>
<td>Decrease</td>
<td>Young people</td>
</tr>
<tr>
<td>HSV-1, 2</td>
<td>Not notifiable</td>
<td></td>
<td></td>
<td>Unknown</td>
<td>Young people</td>
</tr>
<tr>
<td>Mycoplasma Genitalium</td>
<td>Not notifiable</td>
<td></td>
<td></td>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>
Seroprevalence of HSV-1 in Australia

Seroprevalence of HSV-2 in Australia

Risk factors for HSV in HIV negative gay men, Sydney

HIV Notifications in Australia

Source: State and Territory health authorities
HIV Newly diagnosed infection in Australia

Source: State and Territory health authorities
Highest estimated HIV prevalence countries - 2009

Region
- Sub-Saharan Africa
- Caribbean
- Asia-Pacific
- Baltic region
- Eastern Europe
- North Africa

Countries:
- Swaziland 1
- Botswana 2
- Lesotho 3
- South Africa 4
- Zimbabwe 5
- Zambia 6
- Namibia 7
- Mozambique 8
- Malawi 9
- Uganda 10
- Kenya 11
- Tanzania 12
- Cameroon 13
- Gabon 14
- Equatorial Guinea 15
- Central African Republic 16
- Cote d'Ivoire 17
- Congo 18
- Chad 19
- Burundi 20
- Togo 21
- Bahamas 22
- Rwanda 23
- Guinea-Bissau 24
- Djibouti 25
- Belize 26
- Angola 27
- Haiti 28
- Ghana 29
- Jamaica 30
- Sierra Leone 31
- Liberia 32
- Trinidad and Tobago 33
- Barbados 34
- Thailand 35
- Guinea 36
- Burkina Faso 37
- Benin 38
- Guyana 39
- Estonia 40
- Ukraine 41
- Sudan 42
- Russian Federation 43
- Mauritius 44
- Mali 45
- Suriname 46
- Papua New Guinea 47
- Senegal 48
- Panama 49
- Dominican Republic 50
- Cambodia 51
- Indonesia 52
- Australia 53

Note: The chart shows the estimated HIV prevalence rates in various countries for the year 2009.
HIV prevalence in selected countries

- Australia
- New Zealand
- China
- United Kingdom
- Canada
- Indonesia
- India
- Italy
- France
- Vietnam
- Spain
- United States
- Malaysia
- Cambodia
- Myanmar
- Papua New Guinea
- Thailand

HIV prevalence per 100,000
HIV exposure category for new infections in Australia (2006-2010)

**Newly diagnosed HIV infection**
- 63% Men who have sex with men
- 25% Heterosexual contact
- 7% Men who have sex with men and injecting drug use
- 3% Other
- 3% Unknown

**Newly acquired HIV infection**
- 83% Men who have sex with men
- 10% Men who have sex with men and injecting drug use
- 1% Heterosexual contact
- 3% Other
- 3% Unknown

*Source: State and Territory health authorities*
Newly acquired HIV among gay men seen at Australian sexual health clinics

Source: Collaborative Group on Sentinel Surveillance in Sexual Health Clinics
HIV: Self reported prevalence in gay men in Sydney (Gay community periodic survey)

Hull et al. Gay Community Periodic Survey: Sydney, February 2012
HIV prevalence in two Australian studies

- **Birrell et al.** Sex Health. 2010
  - QLD (n=464): 7.1% self-report, 8.8% diagnosed
  - QLD (n=464): 6.3% self-report, 9.5% diagnosed

- **Pedrana et al.** AIDS Behav. 2011
  - Vic (n=639): 7.1% self-report, 8.8% diagnosed

Pedrana *et al.* AIDS Behav. 2011

Birrell *et al.* Sex Health. 2010
Unprotected sex with casual partners, Gay Community Surveys in Australia

Source: Gay Community Periodic Surveys
HIV prevalence in people who inject drugs in Australia (HIV antibody prevalence)
HIV in needle and syringe program clients, Australia, 2010

Source: Collaboration of Australian Needle and Syringe Programs
HIV in people who inject drugs: Selected Asian cities

Figure 2.7: HIV can rise very quickly among drug injectors, and reach very high levels

Source: UNAIDS, Redefining AIDS in Asia: Crafting an effective response, Report of the Commission on AIDS in Asia
HIV diagnoses in Australia by region of birth

Source: State and Territory health authorities
HIV diagnoses, by Aboriginal and Torres Strait Islander status in Australia
HIV diagnoses by Indigenous status and HIV exposure category (2006-2010)

Aboriginal and Torres Strait Islander

- Men who have sex with men: 19%
- Men who have sex with men and inject drug use: 7%
- Heterosexual contact: 18%
- Injecting drug use: 3%
- Other/undetermined: 5%
- Total: 49%

Non-Indigenous

- Men who have sex with men: 13%
- Injecting drug use: 4%
- Total: 76%

Data source: The Kirby Institute 2011 HIV, Viral Hepatitis and Sexually Transmitted Infections in Australia Annual Surveillance Report
HIV diagnoses in South Australia 2000 – 2010 (n=513)

Hawke et al, Australian HIV Conference 2011
HIV diagnoses in South Australia

Hawke et al, Australian HIV Conference 2011
Gonorrhoea diagnoses in Australia

Source: National Notifiable Diseases Surveillance System
Gonorrhoea in Australia by Aboriginality and region 2010

Source: State/Territory health authorities
Gonorrhoea sensitivity to penicillin in Australia 2010

Australian Gonococcal Surveillance Programme Annual Report, 2010
Gonorrhoea sensitivity to ciprofloxacin and quinolone in Australia 2010

* LS QRNG: MIC 0.06–0.5 mg/L
† R QRNG: MIC 1 mg/L or more

Australian Gonococcal Surveillance Programme Annual Report, 2010
Chlamydia diagnosis rate in Australia

National Notifiable Diseases Surveillance System
Chlamydia notifications in Australia

The Kirby Institute 2011 HIV, Viral Hepatitis and Sexually Transmitted Infections in Australia Annual Surveillance Report
Chlamydia notifications by Aboriginality and region, 2010

Source: State/Territory health authorities
Chlamydia positivity in family planning clinics 2009

Hospitalisations for PID-related sequelae in New South Wales

Infertility (female origin)  Ectopic pregnancy

Liu et al. (in press)
Chlamydia positivity rates among patients seen for the first time at sexual health services participating in ACCESS, 2007-2010, by priority population

Data source: The Kirby Institute 2011 HIV, Viral Hepatitis and Sexually Transmitted Infections in Australia Annual Surveillance Report
Chlamydia positivity in Sexual Health Services in Australia

Positivity rates at SHS in 15-29 year olds heterosexuals, by sex, 2007-2011

Testing and positivity rates at SHS in MSM and female sex workers, by sex, 2007-2011

Australian Collaboration for Chlamydia Enhanced Sentinel Surveillance (ACCESS) Project
Chlamydia testing rate by service, 2009: ACCESS

<table>
<thead>
<tr>
<th>Network</th>
<th>16-19</th>
<th>20-24</th>
<th>25-29</th>
<th>30-39</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP</td>
<td>5.3</td>
<td>7.2</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td>ACCHS</td>
<td>17</td>
<td>19.8</td>
<td>17.4</td>
<td>13.4</td>
</tr>
<tr>
<td>FPC</td>
<td>45.1</td>
<td>41.9</td>
<td>26.5</td>
<td></td>
</tr>
<tr>
<td>SHS</td>
<td>74.5</td>
<td>81.5</td>
<td>80.9</td>
<td>73.2</td>
</tr>
</tbody>
</table>
Repeat chlamydia notification in NSW women (n= 40 936)

*Adjusted for year of index notification, socioeconomic status, area of residence, linked birth record, gonococcal infection and specimen type.

Liu et al. Sex Transm Infect 2011
Infectious syphilis rates in Australia

The Kirby Institute 2011 HIV, Viral Hepatitis and Sexually Transmitted Infections in Australia Annual Surveillance Report

A: Indigenous Australians

B: Non-Indigenous Australians

Ward, et al. MJA 2011
Donovanosis notifications in Australia, 1991–2004

Bowden FJ. Sex Transm Infect. 2005
Donovanosis diagnoses in Australia, 2006-2010

1 Jurisdictions (NT, QLD and WA) reporting diagnoses of Donovanosis in 2006 - 2010

Source: State/Territory health authorities
Trichomoniasis prevalence in remote Aboriginal communities in participating in STRIVE trial (n=1828)

Guy et al. Presentation Sexual Health Conference 2011
HPV Prevalence of HPV types prior to vaccination program

(A) HPV16 or 18;
(B) 11 high-risk HPV types without 16/18;
(C) low-risk and possible high-risk HPV types.

Garland et al. BMC Medicine 2011
Prevalence of HPV types in women ≤40 years prior to vaccination program

<table>
<thead>
<tr>
<th>HPV type</th>
<th>Non-Indigenous women (n = 1494)</th>
<th>Indigenous women (n = 655)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple</td>
<td>354 (23.7%)</td>
<td>180 (27.4%)</td>
</tr>
<tr>
<td>6/11/16/18</td>
<td>220 (14.7%)</td>
<td>102 (15.5%)</td>
</tr>
<tr>
<td>16/18</td>
<td>185 (12.5%)</td>
<td>86 (13.1%)</td>
</tr>
<tr>
<td>16&lt;sup&gt;a&lt;/sup&gt;</td>
<td>141 (9.4%)</td>
<td>69 (10.5%)</td>
</tr>
<tr>
<td>51&lt;sup&gt;a&lt;/sup&gt;</td>
<td>94 (6.3%)</td>
<td>37 (5.6%)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Established high-risk HPV type.

Adapted from Garland et al. BMC Medicine 2011
Vaccine coverage of Australian women by age in 2007 (at March 2011)

Eight public sexual health services
Proportion of Australian born women with genital warts at first visit to sexual health clinic

Source: Genital Warts Surveillance Network
Proportion of Australian born heterosexual men with genital warts at first visit to sexual health clinic

Source: Genital Warts Surveillance Network
Proportion of Australian born MSM with genital warts at first visit, 2004-2011

Source: Genital Warts Surveillance Network
High grade cervical abnormalities in young Victorian women, by age group, 2003-2009

Red lines = Lowess smoothing

Brotherton JML et al. Lancet 2011
High grade cervical abnormalities in young Victorian women, by age group, 2003-2009

Red lines = Lowess smoothing

Brotherton JML et al. Lancet 2011
HPV prevalence in young women: impact of Australia’s vaccination program

* indicates p<0.05 for difference in percentages between groups

Tabrizi et al. In press 2012
Hepatitis B prevalence by NT birth cohort

- Reduction per year 0.12%; p trend = 0.1
- Reduction per year 0.27%; p trend < 0.001

Catch-up program
Newborn program
Hepatitis B prevalence by NT birth cohort

![Graph showing the prevalence of hepatitis B by NT birth cohort]

- Main analysis - all Aboriginal women
- Usually resident remote NT
- 'Perinatal' linked hepatitis records

Chronic hepatitis B prevalence, %

Birth cohort (year of birth)*