

**Modelling the epidemiological impact of scaling up HIV testing and antiretroviral treatment in China***Lei Zhang<sup>A</sup>, Richard T. Gray<sup>A</sup> and David P. Wilson<sup>A,B</sup>*<sup>A</sup>The Kirby Institute, University of New South Wales, Corner West and Boundary Streets, Darlinghurst, Sydney, NSW 2010, Australia.<sup>B</sup>Corresponding author. Email: [dwilson@nchechr.unsw.edu.au](mailto:dwilson@nchechr.unsw.edu.au)

Description	Value	Reference
<b>Male general population</b>		
Average number of regular sexual partners per year	1.1	[1]
Average number of casual sexual partners per year	2	[1, 2]
Condom use in casual partnerships with general females	30-50%	[3-5]
Condom use in regular partnerships with general females	5-35%	[4-8]
Prevalence of HIV	0.024%	<i>a</i>
Prevalence of Syphilis	0.3-0.6%	[9]
<b>Male clients of female commercial sex workers</b>		
Population size	22-49 million	[1, 10-13]
Number of visits to sex workers per year	30-50	<i>b</i>
Condom use in acts between clients and sex workers	30-80%	[14-23]
Prevalence of HIV	0.2-0.6%	[13, 24]
Prevalence of Syphilis	3.0-5.8%	[25]
<b>Men who have sex with men (MSM)</b>		
Population size	4-10 million	[13, 14, 26, 27]
Average number of male regular sexual partners per year	1-2	[28-30]
Average number male casual sexual partners per year	7-9	[28-30]
Average number of female regular sexual partners per year	0.34	[3, 31]
Average number of female casual sexual partners per year	0.66	[3, 31]
Condom use in penetrative acts between MSM (regular)	40-50%	[28, 31-33]
Condom use in penetrative acts between MSM (casual)	48%	[32, 33]
Condom use in penetrative acts between MSM and women	30-35%	[28, 30]
Prevalence of HIV	1-3%	[13, 17, 18, 34-38]
Prevalence of Syphilis	10-20%	[9, 25, 29, 30, 34, 36, 37]
<b>Male Injecting drug users</b>		
Population size	1.2-2.1 million	[17, 38-41] <sup>c</sup>
Average number of injecting partners per year	1	[42]

Average frequency of injecting per year	700-850	[43-45]
Percentage of people who share injecting equipment	23-55%	[40, 44, 46, 47]
Percentage of shared syringes that are cleaned before re-use	40%	[18]
Number of regular sexual partners	0.3-0.5	[39, 43, 44, 48]
Condom use in regular sexual relationships	15-50%	[44, 46, 49]
Number of casual sexual partners	2-2.3	[39, 48, 49]
Condom use in casual sexual relationships	20%	[49]
Average number of contacts IDUs have with FSWs per year	1.6	[43]
Condom use in commercial sexual contacts	20-30%	[44, 49]
Prevalence of HIV	7-19%	[13, 16, 18, 35, 44, 50]
Prevalence of Syphilis	5.4%	[41]
<b>Female Injecting drug users</b>		
Population size	0.8-1.4 million	[17, 38-41] <sup>c</sup>
Average number of injecting partners per year	1	[42]
Average frequency of injecting per year	700-850	[43-45]
Percentage of shared syringes that are cleaned before re-use	40%	[18]
Percentage engaged in commercial sex	40-60%	[44, 46, 51, 52]
Percentage of people who share injecting equipment	24-36%	[46, 52]
Number of regular partners	0.40-0.55	[44, 51]
Condom use in regular sexual relationships	10-45%	[44, 46, 52]
Number of casual partners	0.5-0.8	[51]
Condom use in casual sexual relationships	30-60%	[44, 46, 52]
Number of commercial sexual acts	100-200	<i>d</i>
Condom use in commercial sexual contacts	76%	[44]
Prevalence of HIV	7-19%	[13, 16, 18, 35, 44, 50]
Prevalence of Syphilis	5.4%	[41]
<b>Females general population</b>		
Prevalence of HIV	0.022%	<i>e</i>
Prevalence of Syphilis	0.3-0.6%	[9]
Average number of regular sexual partners per year	1	[1]
<b>Female commercial sex workers (FSWs)</b>		
Population size	3-10 million	[13, 21, 39, 53-55]
Average number of regular sexual partnerships	0.6-1.2	[56, 57]
Average number of casual sexual partnerships, outside sex work, that FSWs have per year	1.6	[56]
Condom use in acts between FSWs and regular partners	20-50%	[19, 20, 22, 56-58]
Condom use in acts between FSWs and casual partners	30-80%	[56, 58]
Prevalence of HIV	0.5-1%	[13, 18, 38]
Prevalence of Syphilis	7-12%	[9, 19]
Sexual activity between FSWs and clients	200-400	[56, 57, 59, 60]
<b>Former Plasma Donors</b>		
Population size	1.2-1.5 million	[13]
Prevalence of HIV	4-20%	[13, 17, 38, 39, 61, 62]

- a. The estimated number of HIV infections in the general male population is calculated by subtracting all cases of male high-risk subpopulations from the overall population estimate of HIV-infected males.
- b. Balanced with the total sexual acts of FSWs per year
- c. The male-to-female ratio among IDUs is about 3:2 [46, 63]
- d. Estimated as half of the commercial sexual acts of FSWs, as half of all female IDUs are also involved in commercial sexual work.
- e. The estimated number of HIV infections in the general female population is calculated by subtracting all cases of female high-risk subpopulations from the overall population estimate of HIV-infected males.

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