

Purpose

- To understand the sources of new HIV infections and the importance of each
- To use this information for program planning

Major modes of transmission of HIV in adults

- Sexual contact
 - Commercial sex
 - Casual sex
 - Marital sex
 - Men who have sex with men
- Injecting drug use
- Blood transfusions
- Medical injections

New infections from *sexual transmission*

- New infections = f (HIV prevalence in partners, number of partners, acts per partner, transmission probability per act, STI co-factors, condom use)
- Protection = condom use

Probability of HIV Transmission (sexual)

$$I = S [1 - \{ pB[1-\beta']^{\alpha(1-v)} + p(1-B)[1-\beta]^{\alpha(1-v)} + (1-p) \}^n]$$

S = Number susceptible

p = HIV prevalence in partners

B = prevalence of STIs in partners

β = probability of transmission (with STI (β'), without STI (β))

α = contacts per partner

v = proportion acts protected by condom use

n = number of partners

Probability of HIV Transmission (IDU)

$$I = S [1 - \{ p [1 - \beta]^{\alpha(1-v)} + (1-p) \}^n]$$

p = HIV prevalence in needle sharing partners

β = probability of transmission

α = contacts per partner

v = use of sterile needles

n = number of partners

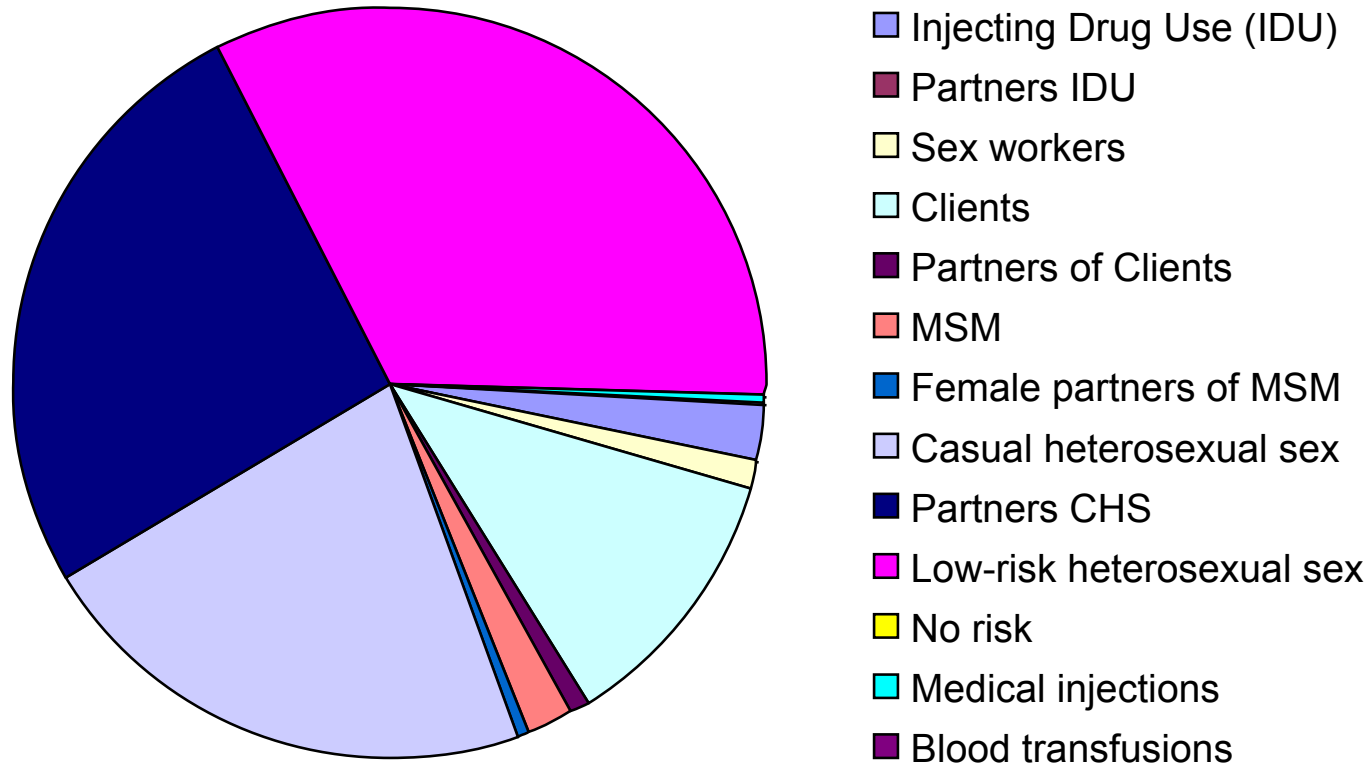
Data needs

Population sizes	
HIV prevalence	
STI prevalence	
Number of partners	
Number of acts	
Percent protection	
Transmission probability	

Data needs

Population sizes	Surveillance, MOH statistics
HIV prevalence	Surveillance, household surveys
STI prevalence	Special studies
Number of partners	DHS, BSS
Number of acts	BSS
Percent protection	DHS, BSS, service statistics
Transmission probability	Literature

Distribution of infections



Distribution of new infections

