**Data required for Tanzania modelling (15-49 years age group): country level**

1. **General population data**
   1. Population size for males/females
   2. HIV prevalence/incidence
   3. Circumcision rate per year
   4. Percentage of consistency of condom use in the general population
2. **Client behavioural and epidemiological data**
   * 1. Population size for clients
     2. HIV prevalence/incidence
     3. Frequency that clients have commercial sex
     4. Percentage consistency of condom use during commercial sex
     5. Percentage of clients who have regular partners
     6. Duration that current clients have been buying sex
3. **Partners of female 2+ [females with multiple partners]**
   1. Population size for female 2+ partners
   2. HIV prevalence/incidence
   3. Frequency that partners of female 2+ have sex
   4. Percentage of condom use
   5. Duration one stays as a partner of female 2+
4. **Data on female 2+ [females with multiple partners]**
   1. Population size of female 2+
   2. HIV prevalence/incidence
   3. Percentage of female 2+ in the population
   4. Frequency that females 2+ have sex
   5. Percentage consistency of condom use
   6. Duration one stays as a female 2+
5. **Data on FSWs**
   1. Population size
   2. HIV prevalence/incidence
   3. Percentage/number of FSWs in the population
   4. Percentage/number of FSWs who have regular partners
   5. Number of sex acts with regular partner per month
   6. Percentage of sex acts in which condoms are used with regular non-commercial partner
   7. Duration FSWs have been selling sex
6. **ART and testing data**
   1. Percentage of general population, FSWs and clients that are HIV tested each year over different years
   2. Linkage to care - % of those testing positive for HIV who are linked into pre-ART or ART care
   3. Data of percentage of HIV infected FSWs and general population on ART for different years
   4. ART dropout rate per year

Table 1: Model parameter values

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **Symbol** | **Parameter value/range** | **References and additional details** |
| **Biological Parameters** | | | |
| Probability of HIV transmission |  | 0.006-0.06 | Boily et al. (2009) [1] |
| Duration of initial high viral load phase of HIV |  | 0.242[0.103-0.381] | Hollingsworth et al. (2008)[2] |
| Multiplicative factor due to increase HIV transmission in the high-viremia phase |  | 5.5-24 | Quinn et al.(2000) [3]  Wawer et al. (2005)[4] |
| Multiplicative factor due to reduced HIV transmission due to treatment |  | 0.08 [0-0.16] | Cohen (2011) [5].  Donnell, (2010)[6]. |
| Rate of treatment dropout |  |  |  |
| Life expectancy on HIV treatment |  |  |  |
|  |  |  |  |
| Life expectancy in the population |  |  |  |
| HIV- related death rate |  |  |  |
| **Subgroup Population Sizes** | | | |
| Relative size of FSWs group |  |  |  |
| Relative size of Females with 2+ partners group |  |  |  |
| Relative size of group of clients |  |  |  |
| Relative size of group of Males 2+ partners group |  |  |  |
| **Number of Sexual Partners** | | | |
| Number of client partners of female sex worker. |  |  |  |
| Number of sex acts client have with each FSW partner |  |  |  |
| Number of partners of Females 2+ partners |  |  |  |
| Number of sex acts all male partners of females 2+ have with each female 2+ partner and vice versa |  |  |  |
| Number of FSWs, clients engage with. |  |  |  |
| Number of sex acts client partners have with each FSW partner |  |  |  |
| Number of females 2+ partners, clients FSW engage with. |  |  |  |
| Number of sex acts clients with females 2+ partners |  |  |  |
| Number of sex acts clients have with females 2+ partners |  |  |  |
| Average number of partners for males in the general population |  |  |  |
| Number of sex acts per year for males in general population |  |  |  |
| Average number of partners of females in the general population |  |  |  |
| Number of sex acts per year for females in general population |  |  |  |
| **Condom use** | | | |
| Condom efficacy |  | 0.8 – 0.95 | Weller (2002)[13].  Pinkerton and Abramson (1997) [14]. |
| Consistency of condom use among female sex workers |  |  |  |
| Consistency of condom use of females with 2+ partners |  |  |  |
| Consistency of condom use among females in the general population |  |  |  |
| **Duration of Time Spent as Member of Subgroup** | | | |
| Duration of female sex workers |  |  |  |
| Duration of transactional sex based female sex workers |  |  |  |
| Duration of clients |  |  |  |
| Duration of males 2+ partners |  |  |  |
| **Mixing parameter** | | | |
| Percentage of sex acts of females 2+ with client partners |  | 0-100% |  |
| (Percentage of sex acts of females 2+ with non-client male partners) |  | 0-100% |  |
| Male circumcision efficacy |  | 50-60% | Auvert et al. (2005)[17] |
| Percentage of circumcised males |  |  |  |
| Percentage of married sex workers |  |  |  |
| **Prevalence ranges** | | |  |
| Year | Prevalence in males | Prevalence in females |  |
|  |  |  |  |
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