

Brief description of the workings of the ASSA600 model

The ASSA600 model only models the heterosexual (i.e. Pattern II) spread of HIV and subsequent AIDS deaths. It models the epidemic for the country as a whole and does not distinguish between the different population groups. (The ASSA2000 update extends the model to allow for different population groups and models the provinces separately).

In ASSA600, the population is divided into groups differentiated by their level of exposure to the risk of a heterosexual epidemic. These risk groups are:

- PRO: Sex workers and their clients.
- STD: Individuals regularly infected with sexually transmitted diseases (STDs)
- RSK: Individuals exposed to risky sexual behaviour but not infected with STDs
- NOT: Individuals who are not at risk of HIV infection.

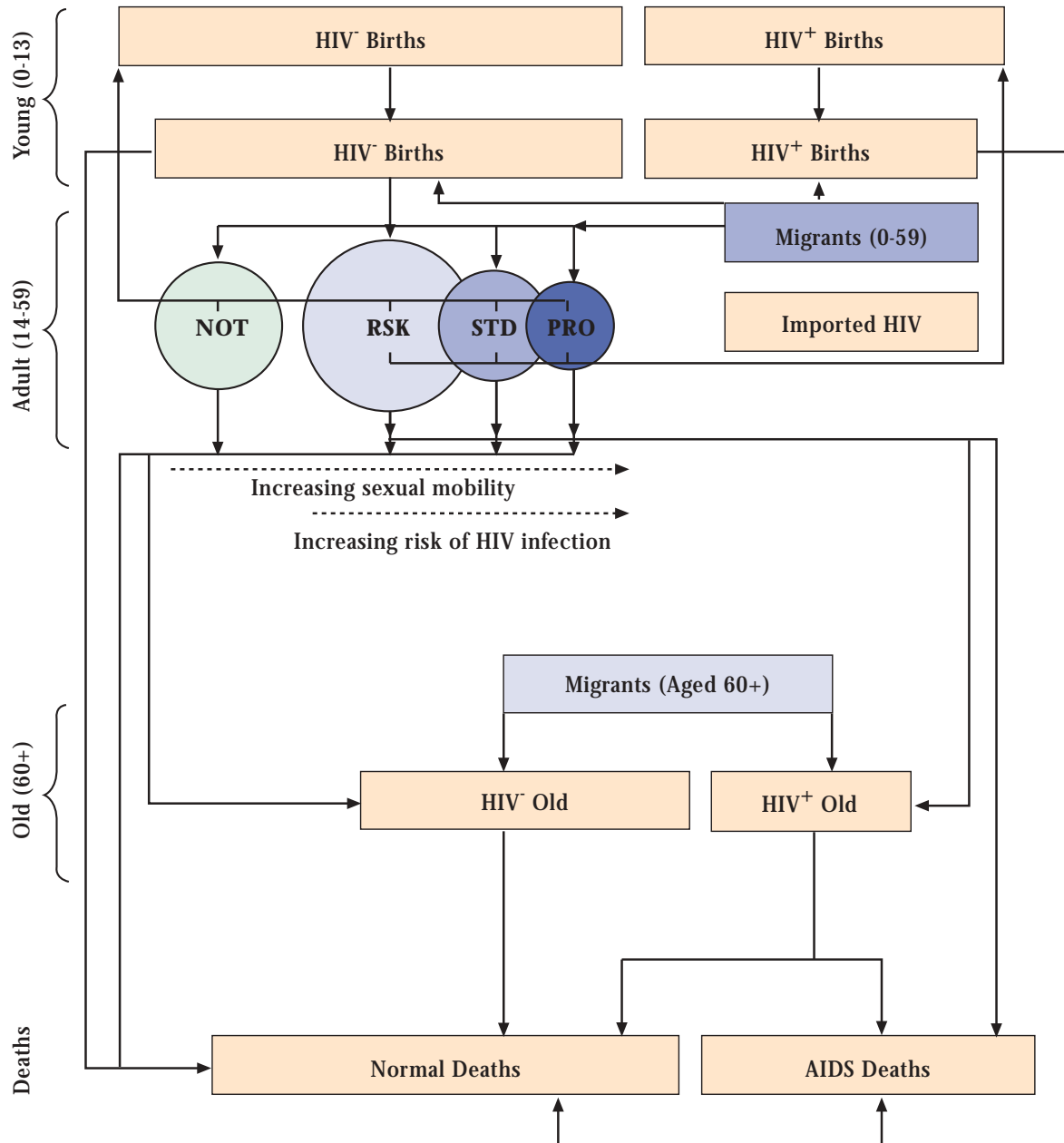
"Sexual activity" in this context is a combination of "number of new contacts" and "probability of successful infection" with each new contact. Rather than model number of contacts and probability infection during a single sexual encounter, the model uses a "force of infection" to model the spread of HIV within each risk group and between a risk group and the neighbouring risk group.

The population is therefore divided into the following groups, with each group's calculation done on a separate worksheet within the workbook:

- Young:** All individuals aged 0 to 13. The only infections assumed are those arising at birth. On their 14th birthday individuals are allocated into the various other risk groups according to the assumed proportions in the population as a whole.
- FemPRO:** Female members of the PRO risk group subdivided by duration since infection up to age 59
- FemSTD:** Female members of the STD risk group subdivided by duration since infection up to age 59
- FemRSK:** Female members of the RSK risk group subdivided by duration since infection up to age 59
- FemNOT:** Female member of the NOT group up to age 59
- FemOLD:** On their 60th birthdays all individuals are allocated to the OLD class. The duration since infection classification still applies although no further infections or fertility occur beyond this age. The OLD worksheets are just a run-off of the population. No one is assumed to survive beyond age 90.
- MaleXXX:** The same structure as the FemXXX but with no births.

APPENDIX C

Figure C1: A schematic diagram of the ASSA AIDS Model



Percentage under-registration of adult (15+) deaths: ASSA600 vs specific effort to determine the extent of under-registration

Table D1: Number of deaths, completeness of registration of deaths 15 years and older by year of occurrence

Year	Number of adult deaths registered	Completeness according to Timæus <i>et al</i> ¹⁷	Completeness according to ASSA600
1989	141 876	60%	66%
1990	129 256	54%	59%
1991	145 587	59%	65%
1992	152 485	61%	66%
1993	168 489	57%	71%
1994	205 266	73%	83%
1995	231 932	79%	89%
1996	258 220	85%	93%
1997/98+	295 483	87%	94%
1998/99+	326 761	87%	94%
1999/2000+	366 790	89%	94%

+ deaths from the Population Register, scaled up to allow for deaths reported but not on the Population Register