**AAAPS Model User Guide**

***Key Functions***

*main.m*

* Run the model from here.
* Year that HIV screening starts and screening rate plateaus is set through the variables ‘hivScreenStart’ and ‘hivScreenPlat’. Initial and plateau rates of screening are set through kHivScreen\_init and kHivScreen respectively.
* The initial number of people in each population group (by HIV status, GC status, GC infection site, risk group) is set here. Condom usage can be modified here.
* Extent of serosorting and assorting by risk is specified in *main.m*. HIV treatment rate is set here.
* Uses *ode45* (see MATLAB documentation for more details) to solve the system of differential equations describing the infection, mixing, and treatment process
* Plots are created in *main.m*

*mixInfect.m*

* Mixing and infection processes are described here using a set of differential equations.
* Partner balancing, screening (routine and partner services), treatment, entrance into the population, and exit from the population are described through the equations in this script

*loadUp.m*

* Loads model parameters from Excel sheet*, ‘GC\_HIV\_ModelParameters.xlsx’* and saves them as parameters to be used by the model.
* If conciseness is not a priority, this script can be neglected if parameter values are entered directly into *main.m*

*mainEnsemble.m*

* Identical to *main.m* except model is run using a range of parameter value assumptions to produce a consensus projection
* Development lags behind changes to *main.m*

***Useful Files***

*Notes.txt* – Contains information about the indices used to reference matrix elements in the model

*GC\_HIV\_ModelParameters.xlsx* – Specifies partnerships per year, condom usage rates, etc.

MATLAB Data files – *gc\_prop, gcParams, genParams, gcHIVParams* – store parameter values for the model to use. These files can be updated by running the *loadUp.m* script. As mentioned above, if conciseness is not a priority, this script can be neglected if parameter values are entered directly into *main.m*