**Recalibrating CC Parameters**

* Exploration notes can be found in “Calibration targets\_07132023.xlsx”
* Basically, I realized the Gui and Darcy used Nicole Campos’ progression rates, which are monthly. But our model inputs are yearly inputs.
* We don’t need to calibrate progression probabilities because these are set values based on Myers et al.
* Cari’s paper is VERY useful.
* Basically, you need to calibrated kSymp using Myers progression probabilities.
* Calibration target is Mungo 2021. I chose it over Kamangar because Kamangar is not specific to Kenya. Also Mungo is cited by Valerian.
* Recalibration July folder
  + This was me doing a grid search and calibrating kSymp along with the progression probs. Turns out I actually don’t need to calibrate the progression probabilities.
  + 15 July Recalibration
    - This was me specifically calibrating kSymp and the progression probabilities based off Cari’s prior distributions. Turns out I don’t actually need to calibrate the progression probabilities.
* Calibration method:
  + I am using Cari’s base ranges for kSymp. Assume uniform distribution.
  + Randomly sampling 100 parameter sets.
  + For the other HIV/HPV parameters, randomly sampling the 25 parameter sets.
  + Evaluating model results against Mungo using the summed log likelihood.
  + From here on, once that first recalibration step is done, I will narrow down the search strategy using the results of the log likelihood. I can think about doing a grid search from there. Or keep pulling from probabilities until the search space is so narrow that it doesn’t affect the results at all.
  + I ideally want to have 25 parameter sets for kSymp so I can have uncertainties for this.
* Model updates:
  + likeFun.m – I edited to only evaluate stage distribution against Mungo
  + modifiedhistoricalSim.m – I edited to calculate the log likelihood
  + loadup2 – added code to read in the Mungo results. Make sure to edit loadup2 for the future. I also updated the progression probabilities to Myers et al.
  + sympCalibration – added code to read in kSymp\_ParamSets.xlsx, which is the 100 randomly generated parameter sets
  + Config/Calibration\_targets\_Kenya – I added the Mungo results
  + Params/calibData.mat – contains the Mungo calibration results data that will be read into loadup2
  + pullingParamSets.R – randomly samples 100 parameter sets for the initial step of the recalibration
  + processRecalibResults.m – needs to be edited to process the recalibration
  + vizRecalibResults.Rmd – takes the results from processRecalibResults and turns it into a probability distribution, and generates a new set of 100 parameter sets that toggles the original parameters within -20 to 20% of the original value.