Supplemental Appendix

Prioritizing additional data collection to reduce decision uncertainty in the HIV/AIDS response in 6 US cities: a value of information analysis

This supplementary appendix provides supporting information to the manuscript and presents the process of the expected value of partially perfect information (EVPPI) result validation and model tuning for the artificial neural network (ANN) model, organized as follows:

- Figure A1 presents the schematic diagram for the structure of the dynamic compartmental HIV transmission model we applied in this value of information analysis. It shows the 19 health states that individuals progress through in the model.

- Figure A2 presents the flowchart depicting the process of the EVPPI analysis.

- Figure A3 shows the result validation comparing the EVPPI estimates for the parameter group of HIV transmission probabilities per homosexual partnership using the ANN model and the generalized additive model (GAM) model.

- Figure A4 shows the probabilities of computing combination strategies representing the highest values, by cost-effectiveness threshold.

- Figure A5 shows the composition of the highest-valued combination strategies, by cost-effectiveness threshold.

- Figure A6 shows the city-level expected value of perfect information, by cost-effectiveness threshold.

- Figure A7 shows the estimated EVPPI for each individual model parameter using GAM at a threshold of $100,000/QALY, ranked by EVPPI. We then identified and grouped those with the greatest EVPPI as key groups of model parameters for further metamodel analysis with the ANN model.

- Table A1 presents the description, values and uncertainty distributions for the key groups of model parameters that were found to be the most influential on decision uncertainty for each city.

Result validation and model tuning

Given the novelty of the ANN metamodel, we performed several checks to ensure the validity of EVPPI estimates from this model for the key groups of parameters. First, given the extensive evidence for the precision and validation of the GAM approach, we treated the EVPPI estimates from GAM as the "gold standard" and compared the estimated EVPPI for HIV transmission probabilities per homosexual partnership (three parameters in the group) based on both the ANN and GAM approach (Figure A3). Second, following best practices, we defined the lower bound of the EVPPI for a given parameter group as the maximum EVPPI value estimated for each single parameter (using GAM) within that group, while the upper bound was defined as the city-level EVPI which measured the decision uncertainty from all model parameters jointly. We compared the ANN metamodel results to ensure the EVPPI estimates for all the identified key groups of parameters fell within the two bounds. Third, the variance of model predictions and resulted EVPPI from the ten repeated estimations can indicate good model fit, i.e. large variance indicates poor fit. We hand tuned the model by varying the number of hidden layers and hidden nodes until the estimated variance was within a reasonable range while the mean $\pm$ 1.96 x standard deviation of the estimated values was inside the two bounds. Figure A3 shows the result validation for the parameter group of HIV transmission probabilities per homosexual partnership.
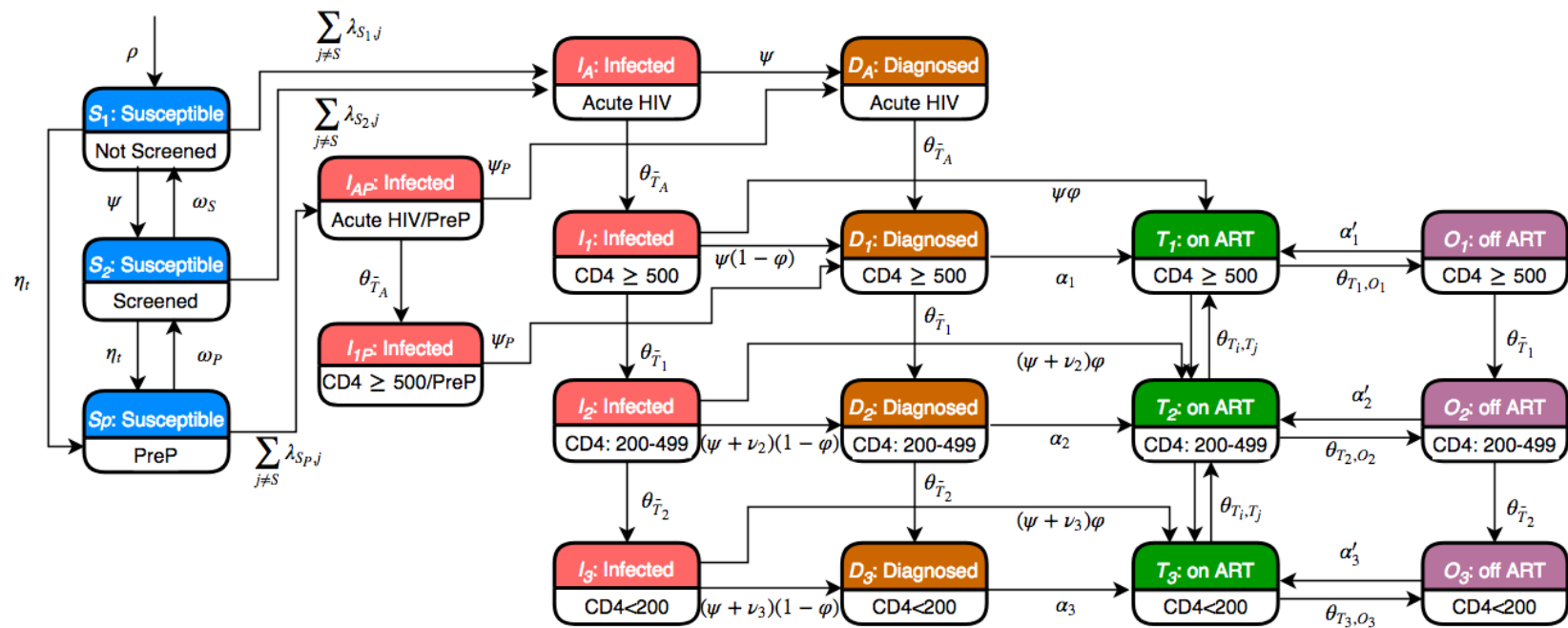
Figure A1. Model schematic diagram
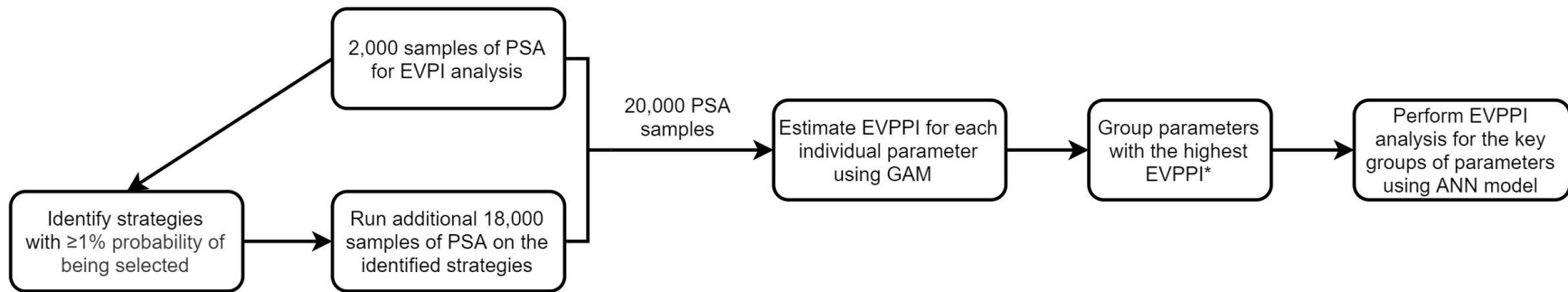
Figure A2. Flowchart depicting the process of the expected value of partial perfect information analysis.
PSA: probabilistic sensitivity analysis; EVPI: expected value of perfect information; EVPPI: expected value of partial perfect information; GAM: generalized additive model; ANN: artificial neural network. * Key groups of parameters were defined by having at least one parameter whose EVPPI > (0.05 x EVPI) and groupings were based on as per suggested in practice.
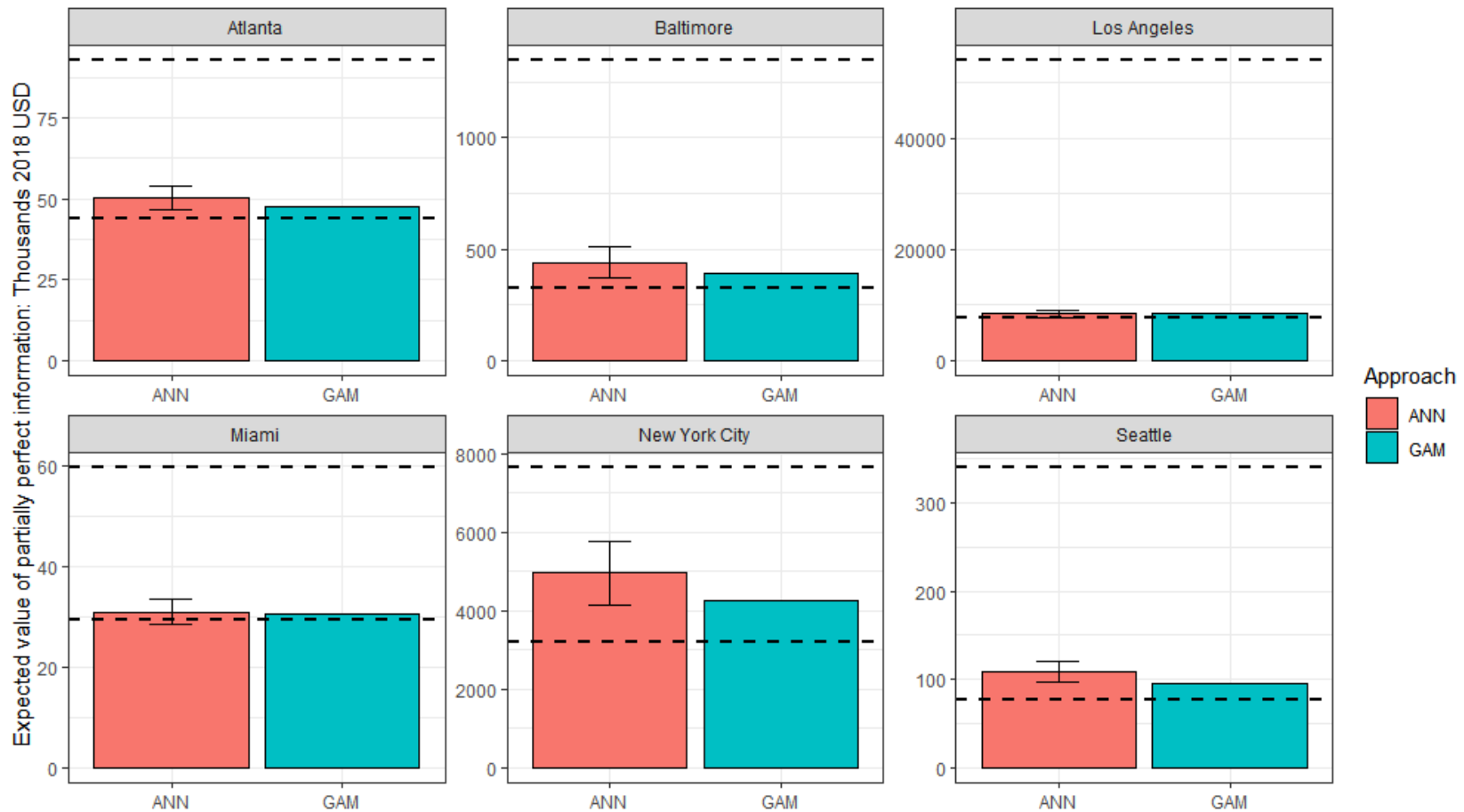
Figure A3. Result validation for the parameter group of HIV transmission probabilities per homosexual partnership
The error bars represent the mean ± 1.96 x standard deviation of the estimated values from the ten repeated estimations; two dashed lines represent the corresponding lower and upper bounds. ANN: artificial neural network; GAM: generalized additive model
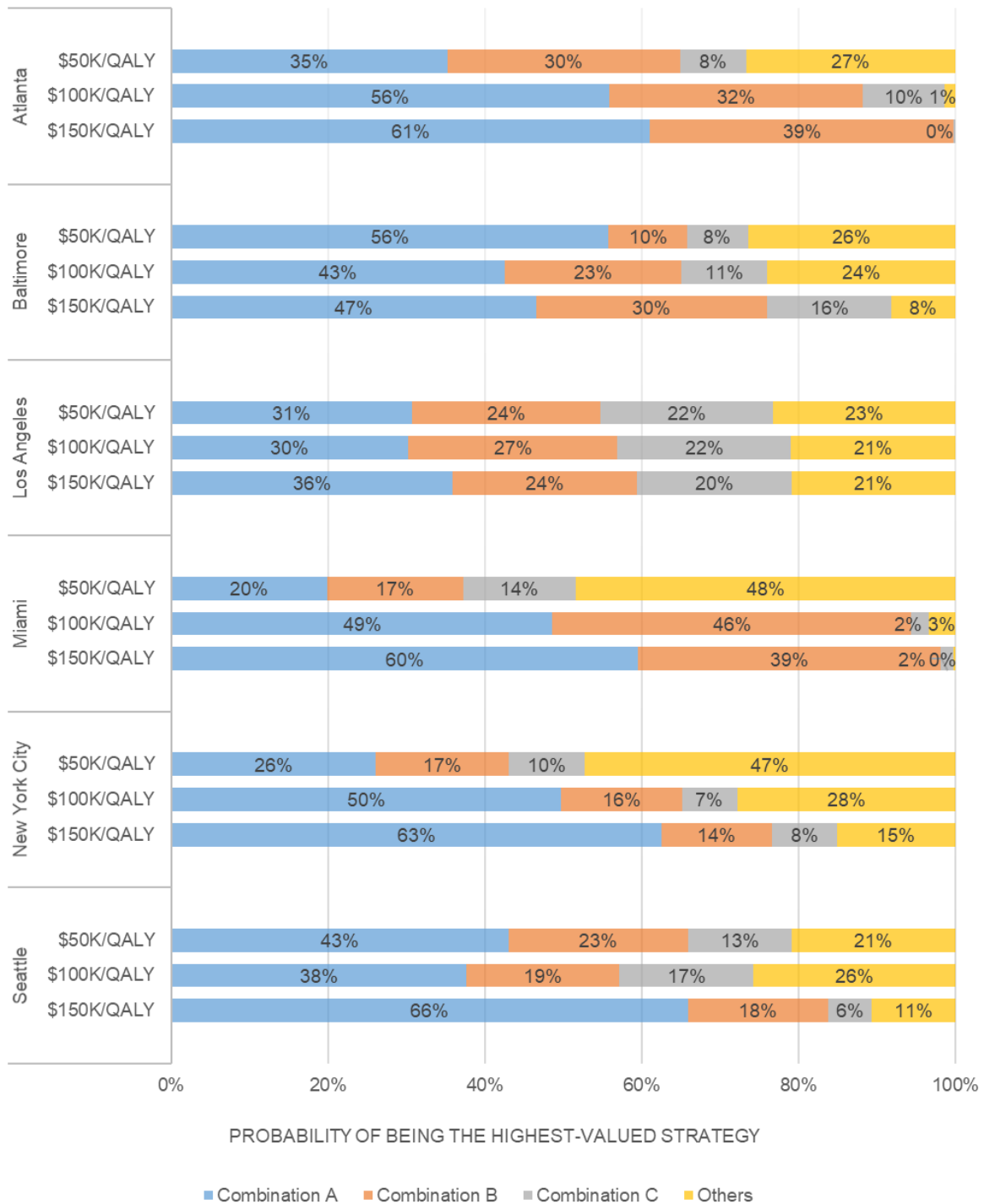
Figure A4. Probabilities of computing combination strategies representing the highest values, by cost-effectiveness threshold.

QALY: quality-adjusted life year
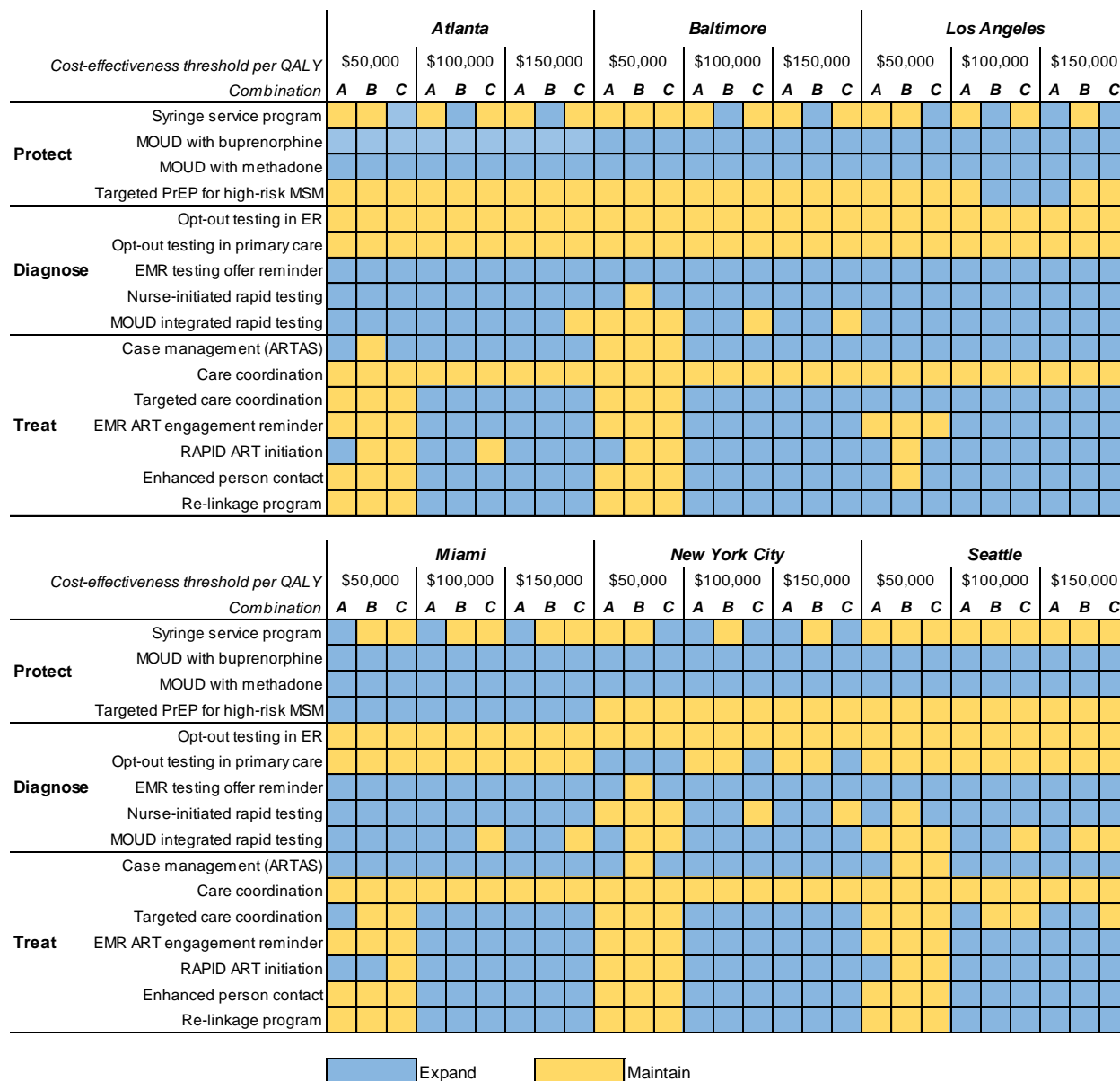
Figure A5. The composition of the highest-valued combination strategies, by cost-effectiveness threshold.

MOUD: Medication for opioid use disorder; PrEP: Pre-exposure prophylaxis; MSM: Men who have sex with men; ER: Hospital emergency room; EMR: Electronic medical records; ART: antiretroviral therapy.

Figure A6. The city-level expected value of perfect information, by cost-effectiveness threshold.

Figure A7. Distribution of the expected value of partial perfect information (EVPPI) for each individual model parameter.

Table A1. The key groups of model parameters most influential on decision uncertainty for each city

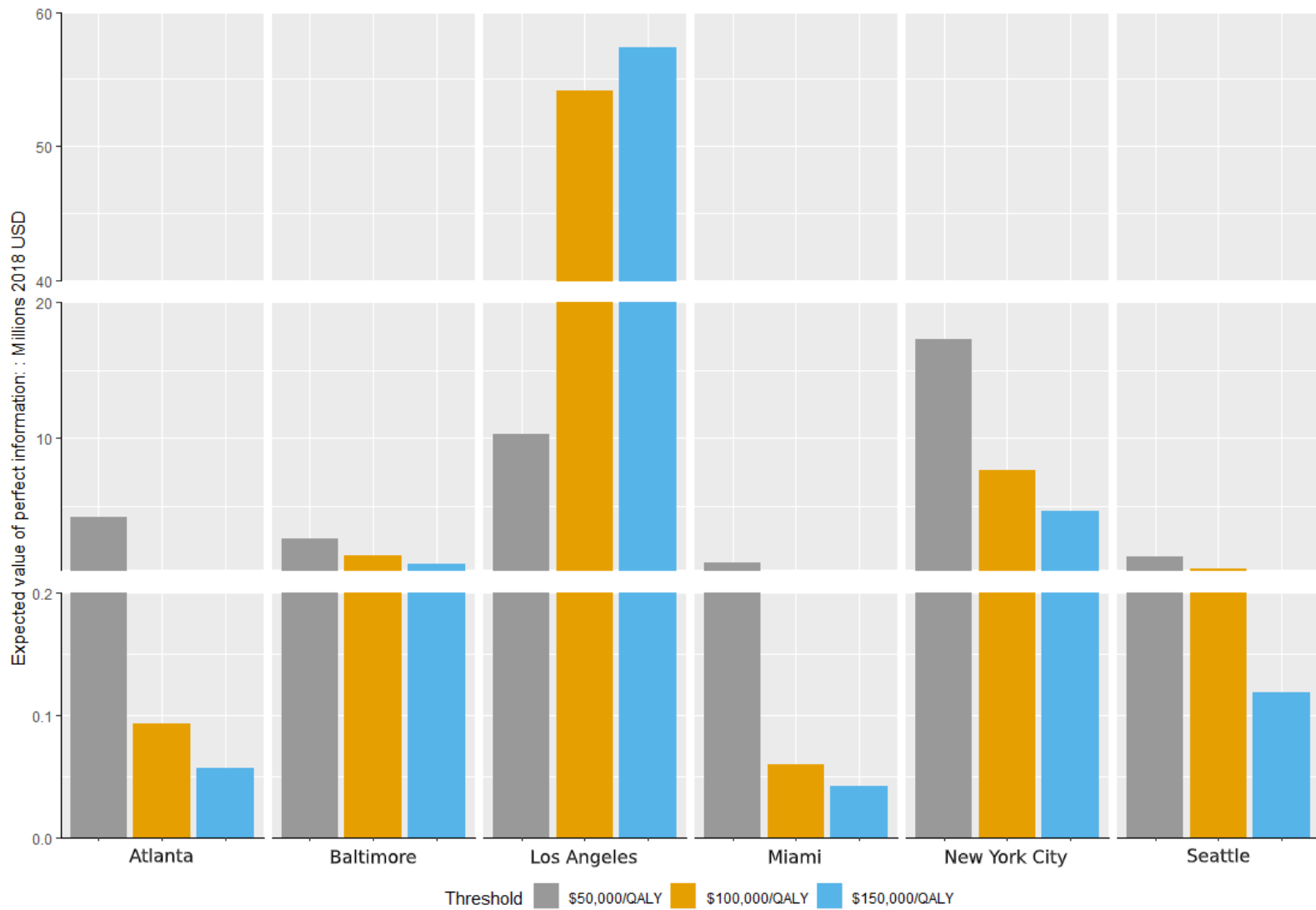| CITY	Atlanta	Baltimore	Los Angeles	Miami	New York City	Seattle
MORTALITY RATES FOR PLHIV						
Monthly mortality rate for PLHIV (CD4: 200-499), except PWID						
PE	6.39E-04	6.39E-04	6.39E-04	6.39E-04	6.39E-04	6.39E-04
Distribution	Pert(1.13, 4.02)	Pert(1.13, 4.02)	Pert (1.13, 4.02)	Pert (1.13, 4.02)	Pert (1.13, 4.02)	Pert (1.13, 4.02)
Monthly mortality rate for PLHIV (CD4<200), except PWID						
PE	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072
Distribution	Pert (3.21, 4.53)	Pert (3.21, 4.53)	Pert (3.21, 4.53)	Pert (3.21, 4.53)	Pert (3.21, 4.53)	Pert (3.21, 4.53)
Multiplier of mortality rate for PLHIV that inject drugs (CD4: 200-499)						
PE	1.59	1.59	1.59	1.59	1.59	1.59
Distribution	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)
Multiplier of mortality rate for PLHIV that inject drugs (CD4<200)						
PE	1.59	1.59	1.59	1.59	1.59	1.59
Distribution	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)	Pert (1.16, 4.06)
Monthly mortality rate for PLHIV on ART (CD4>500), Male White PWID						
PE	0.000868	0.000798	0.000786	0.000868	0.000798	0.000748
Distribution	ln (-7.13, 0.246)	ln (-7.13, 0.246)	ln (-7.15, 0.288)	ln (-7.13, 0.246)	ln (-7.13, 0.246)	ln (-7.20, 0.316)
Monthly mortality rate for PLHIV on ART (CD4>500), Male White MSM						
PE	0.000303	0.000277	0.000273	0.000303	0.000277	0.000259
Distribution	ln (-8.10, 0.184)	ln (-8.19, 0.167)	ln (-8.21, 0.196)	ln (-8.10, 0.184)	ln (-8.19, 0.167)	ln (-8.26, 0.236)
Monthly mortality rate for PLHIV on ART (CD4>500), Male White MWID						
PE	0.000693	0.000636	0.000625	0.000693	0.000636	0.000617
Distribution	ln (-7.27, 0.237)	ln (-7.36, 0.221)	ln (-7.38, 0.241)	ln (-7.27, 0.237)	ln (-7.36, 0.221)	ln (-7.39, 0.29)
Monthly mortality rate for PLHIV on ART (CD4>500), Male White HET						
PE	0.000380	0.000348	0.000343	0.000380	0.000348	0.000314
Distribution	ln (-7.88, 0.234)	ln (-7.96, 0.236)	ln (-7.98, 0.279)	ln (-7.88, 0.234)	ln (-7.96, 0.236)	ln (-8.07, 0.304)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Black PWID						
PE	0.000759	0.000699	0.000688	0.000759	0.000699	0.000630
Distribution	ln (-7.18, 0.204)	ln (-7.27, 0.204)	ln (-7.28, 0.27)	ln (-7.18, 0.204)	ln (-7.27, 0.204)	ln (-7.37, 0.3)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Black MSM						
PE	0.000265	0.000242	0.000239	0.000265	0.000242	0.000218
Distribution	ln (-8.24, 0.198)	ln (-8.32, 0.193)	ln (-8.34, 0.244)	ln (-8.24, 0.198)	ln (-8.32, 0.193)	ln (-8.43, 0.287)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Black MWID						
PE	0.000606	0.000556	0.000548	0.000606	0.000556	0.000519
Distribution	ln (-7.41, 0.248)	ln (-7.49, 0.243)	ln (-7.51, 0.277)	ln (-7.41, 0.248)	ln (-7.49, 0.243)	ln (-7.56, 0.338)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Black HET						
PE	0.000332	0.000305	0.000301	0.000332	0.000305	0.000264
Distribution	ln (-8.01, 0.207)	ln (-8.10, 0.204)	ln (-8.11, 0.257)	ln (-8.01, 0.207)	ln (-8.10, 0.204)	ln (-8.24, 0.303)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Hispanic PWID						
PE	0.000439	0.000403	0.000398	0.000439	0.000403	0.000376
Distribution	ln (-7.73, 0.272)	ln (-7.82, 0.274)	ln (-7.83, 0.292)	ln (-7.73, 0.272)	ln (-7.82, 0.274)	ln (-7.89, 0.351)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Hispanic MSM						
PE	0.000153	0.000140	0.000138	0.000153	0.000140	0.000130

Distribution	ln (-8.78, 0.265)	ln (-8.87, 0.228)	ln (-8.89, 0.292)	ln (-8.78, 0.265)	ln (-8.87, 0.228)	ln (-8.95, 0.307)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Hispanic MWID						
PE	0.000351	0.000321	0.000316	0.000351	0.000321	0.000310
Distribution	ln (-7.96, 0.315)	ln (-8.04, 0.294)	ln (-8.06, 0.34)	ln (-7.96, 0.315)	ln (-8.04, 0.294)	ln (-8.08, 0.372)
Monthly mortality rate for PLHIV on ART (CD4>500), Male Hispanic HET						
PE	0.000192	0.000176	0.000174	0.000192	0.000176	0.000158
Distribution	ln (-8.56, 0.295)	ln (-8.65, 0.266)	ln (-8.66, 0.327)	ln (-8.56, 0.295)	ln (-8.65, 0.266)	ln (-8.75, 0.333)
Monthly mortality rate for PLHIV on ART (CD4>500), Female White PWID						
PE	0.000673	0.000616	0.000606	0.000673	0.000616	0.000597
Distribution	ln (-7.30, 0.267)	ln (-7.39, 0.241)	ln (-7.41, 0.288)	ln (-7.30, 0.267)	ln (-7.39, 0.241)	ln (-7.42, 0.307)
Monthly mortality rate for PLHIV on ART (CD4>500), Female White HET						
PE	0.000294	0.000269	0.000264	0.000294	0.000269	0.000250
Distribution	ln (-8.13, 0.232)	ln (-8.22, 0.228)	ln (-8.24, 0.263)	ln (-8.13, 0.232)	ln (-8.22, 0.228)	ln (-8.29, 0.294)
Monthly mortality rate for PLHIV on ART (CD4>500), Female Black PWID						
PE	0.000587	0.000539	0.000531	0.000587	0.000539	0.000502
Distribution	ln (-7.44, 0.217)	ln (-7.53, 0.226)	ln (-7.54, 0.282)	ln (-7.44, 0.217)	ln (-7.53, 0.226)	ln (-7.6, 0.309)
Monthly mortality rate for PLHIV on ART (CD4>500), Female Black HET						
PE	0.000257	0.000235	0.000232	0.000257	0.000235	0.000211
Distribution	ln (-8.27, 0.182)	ln (-8.36, 0.19)	ln (-8.37, 0.265)	ln (-8.27, 0.182)	ln (-8.36, 0.19)	ln (-8.46, 0.297)
Monthly mortality rate for PLHIV on ART (CD4>500), Female Hispanic PWID						
PE	0.000341	0.000311	0.000307	0.000341	0.000311	0.000300
Distribution	ln (-7.98, 0.289)	ln (-8.07, 0.286)	ln (-8.09, 0.318)	ln (-7.98, 0.289)	ln (-8.07, 0.286)	ln (-8.11, 0.356)
Monthly mortality rate for PLHIV on ART (CD4>500), Female Hispanic HET						
PE	0.000149	0.000136	0.000134	0.000149	0.000136	0.000126
Distribution	ln (-8.81, 0.274)	ln (-8.90, 0.251)	ln (-8.92, 0.302)	ln (-8.81, 0.274)	ln (-8.90, 0.251)	ln (-8.98, 0.328)
Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male White PWID						
PE	0.00132	0.00140	0.00165	0.00132	0.00140	0.00137
Distribution	ln (-6.63, 0.191)	ln (-6.57, 0.186)	ln (-6.41, 0.204)	ln (-6.63, 0.191)	ln (-6.57, 0.186)	ln (-6.6, 0.223)
Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male White MSM						
PE	0.000595	0.000628	0.000739	0.000595	0.000628	0.000613
Distribution	ln (-7.43, 0.14)	ln (-7.37, 0.151)	ln (-7.21, 0.145)	ln (-7.43, 0.14)	ln (-7.37, 0.151)	ln (-7.4, 0.183)
Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male White MWID						
PE	0.000936	0.000985	0.001158	0.000936	0.000985	0.000951
Distribution	ln (-6.97, 0.198)	ln (-6.92, 0.187)	ln (-6.76, 0.192)	ln (-6.97, 0.198)	ln (-6.92, 0.187)	ln (-6.96, 0.23)
Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male White HET						
PE	0.000844	0.000896	0.001054	0.000844	0.000896	0.000882
Distribution	ln (-7.08, 0.179)	ln (-7.02, 0.186)	ln (-6.85, 0.208)	ln (-7.08, 0.179)	ln (-7.02, 0.186)	ln (-7.03, 0.203)
Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Black PWID						
PE	0.00107	0.00113	0.00133	0.00107	0.00113	0.00104
Distribution	ln (-6.84, 0.158)	ln (-6.78, 0.16)	ln (-6.62, 0.192)	ln (-6.84, 0.158)	ln (-6.78, 0.16)	ln (-6.86, 0.226)
Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Black MSM						
PE	0.000481	0.000507	0.000597	0.000481	0.000507	0.000469
Distribution	ln (-7.64, 0.155)	ln (-7.59, 0.163)	ln (-7.42, 0.172)	ln (-7.64, 0.155)	ln (-7.59, 0.163)	ln (-7.67, 0.21)
Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Black MWID						

PE	0.000758	0.000796	0.000936	0.000758	0.000796	0.000728
Distribution	ln (-7.18, 0.206)	ln (-7.14, 0.193)	ln (-6.97, 0.223)	ln (-7.18, 0.206)	ln (-7.14, 0.193)	ln (-7.22, 0.266)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Black HET

PE	0.000682	0.000723	0.000851	0.000682	0.000723	0.000674
Distribution	ln (-7.29, 0.14)	ln (-7.23, 0.158)	ln (-7.07, 0.196)	ln (-7.29, 0.14)	ln (-7.23, 0.158)	ln (-7.3, 0.205)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Hispanic PWID

PE	0.000730	0.000768	0.000904	0.000730	0.000768	0.000733
Distribution	ln (-7.22, 0.196)	ln (-7.17, 0.185)	ln (-7.01, 0.213)	ln (-7.22, 0.196)	ln (-7.17, 0.185)	ln (-7.22, 0.256)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Hispanic MSM

PE	0.000328	0.000344	0.000405	0.000328	0.000344	0.000329
Distribution	ln (-8.02, 0.195)	ln (-7.98, 0.177)	ln (-7.81, 0.191)	ln (-8.02, 0.195)	ln (-7.98, 0.177)	ln (-8.02, 0.226)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Hispanic MWID

PE	0.000518	0.000540	0.000636	0.000518	0.000540	0.000512
Distribution	ln (-7.57, 0.239)	ln (-7.52, 0.219)	ln (-7.36, 0.25)	ln (-7.57, 0.239)	ln (-7.52, 0.219)	ln (-7.58, 0.261)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Male Hispanic HET

PE	0.000464	0.000490	0.000577	0.000464	0.000490	0.000473
Distribution	ln (-7.68, 0.188)	ln (-7.62, 0.179)	ln (-7.46, 0.196)	ln (-7.68, 0.188)	ln (-7.62, 0.179)	ln (-7.66, 0.229)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Female White PWID

PE	0.00135	0.00142	0.00167	0.00135	0.00142	0.00140
Distribution	ln (-6.61, 0.198)	ln (-6.56, 0.205)	ln (-6.39, 0.238)	ln (-6.61, 0.198)	ln (-6.56, 0.205)	ln (-6.57, 0.249)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Female White HET

PE	0.000858	0.000908	0.001068	0.000858	0.000908	0.000903
Distribution	ln (-7.06, 0.187)	ln (-7.00, 0.193)	ln (-6.84, 0.194)	ln (-7.06, 0.187)	ln (-7.00, 0.193)	ln (-7.01, 0.224)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Female Black PWID

PE	0.00109	0.00115	0.00135	0.00109	0.00115	0.00107
Distribution	ln (-6.82, 0.169)	ln (-6.77, 0.182)	ln (-6.61, 0.213)	ln (-6.82, 0.169)	ln (-6.77, 0.182)	ln (-6.84, 0.243)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Female Black HET

PE	0.000694	0.000732	0.000862	0.000694	0.000732	0.000690
Distribution	ln (-7.27, 0.159)	ln (-7.22, 0.159)	ln (-7.06, 0.196)	ln (-7.27, 0.159)	ln (-7.22, 0.159)	ln (-7.28, 0.216)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Female Hispanic PWID

PE	0.000745	0.000780	0.000917	0.000745	0.000780	0.000752
Distribution	ln (-7.2, 0.215)	ln (-7.16, 0.206)	ln (-6.99, 0.236)	ln (-7.2, 0.215)	ln (-7.16, 0.206)	ln (-7.19, 0.26)

Monthly mortality rate for PLHIV on ART (CD4: 200-499), Female Hispanic HET

PE	0.000473	0.000497	0.000585	0.000473	0.000497	0.000485
Distribution	ln (-7.66, 0.194)	ln (-7.61, 0.183)	ln (-7.44, 0.215)	ln (-7.66, 0.194)	ln (-7.61, 0.183)	ln (-7.63, 0.24)

Monthly mortality rate for PLHIV on ART (CD4<200), Male White PWID

PE	0.00798	0.00426	0.00566	0.00798	0.00426	0.00575
Distribution	ln (-4.83, 0.15)	ln (-5.46, 0.156)	ln (-5.17, 0.168)	ln (-4.83, 0.15)	ln (-5.46, 0.156)	ln (-5.16, 0.196)

Monthly mortality rate for PLHIV on ART (CD4<200), Male White MSM

PE	0.00556	0.00295	0.00393	0.00556	0.00295	0.00409
Distribution	ln (-5.19, 0.117)	ln (-5.82, 0.138)	ln (-5.54, 0.125)	ln (-5.19, 0.117)	ln (-5.82, 0.138)	ln (-5.5, 0.154)

Monthly mortality rate for PLHIV on ART (CD4<200), Male White MWID

PE	0.00891	0.00475	0.00632	0.00891	0.00475	0.00649
Distribution	ln (-4.72, 0.148)	ln (-5.35, 0.148)	ln (-5.06, 0.148)	ln (-4.72, 0.148)	ln (-5.35, 0.148)	ln (-5.04, 0.181)

Monthly mortality rate for PLHIV on ART (CD4<200), Male White HET

PE	0.00498	0.00265	0.00353	0.00498	0.00265	0.00363
Distribution	ln (-5.3, 0.136)	ln (-5.93, 0.15)	ln (-5.65, 0.16)	ln (-5.3, 0.136)	ln (-5.93, 0.15)	ln (-5.62, 0.169)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Black PWID						
PE	0.00718	0.00384	0.00510	0.00718	0.00384	0.00504
Distribution	ln (-4.94, 0.117)	ln (-5.56, 0.137)	ln (-5.28, 0.168)	ln (-4.94, 0.117)	ln (-5.56, 0.137)	ln (-5.29, 0.191)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Black MSM						
PE	0.00500	0.00266	0.00355	0.00500	0.00266	0.00359
Distribution	ln (-5.3, 0.107)	ln (-5.93, 0.129)	ln (-5.64, 0.14)	ln (-5.3, 0.107)	ln (-5.93, 0.129)	ln (-5.63, 0.166)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Black MWID						
PE	0.00802	0.00428	0.00569	0.00802	0.00428	0.00569
Distribution	ln (-4.83, 0.146)	ln (-5.45, 0.162)	ln (-5.17, 0.167)	ln (-4.83, 0.146)	ln (-5.45, 0.162)	ln (-5.17, 0.198)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Black HET						
PE	0.00449	0.00239	0.00318	0.00449	0.00239	0.00318
Distribution	ln (-5.41, 0.102)	ln (-6.04, 0.122)	ln (-5.75, 0.156)	ln (-5.41, 0.102)	ln (-6.04, 0.122)	ln (-5.75, 0.168)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Hispanic PWID						
PE	0.00616	0.00328	0.00437	0.00616	0.00328	0.00430
Distribution	ln (-5.09, 0.149)	ln (-5.72, 0.16)	ln (-5.43, 0.178)	ln (-5.09, 0.149)	ln (-5.72, 0.16)	ln (-5.45, 0.192)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Hispanic MSM						
PE	0.00429	0.00228	0.00303	0.00429	0.00228	0.00306
Distribution	ln (-5.45, 0.125)	ln (-6.09, 0.145)	ln (-5.8, 0.164)	ln (-5.45, 0.125)	ln (-6.09, 0.145)	ln (-5.79, 0.174)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Hispanic MWID						
PE	0.00688	0.00366	0.00487	0.00688	0.00366	0.00486
Distribution	ln (-4.98, 0.163)	ln (-5.61, 0.172)	ln (-5.32, 0.193)	ln (-4.98, 0.163)	ln (-5.61, 0.172)	ln (-5.33, 0.204)
Monthly mortality rate for PLHIV on ART (CD4<200), Male Hispanic HET						
PE	0.00384	0.00204	0.00272	0.00384	0.00204	0.00271
Distribution	ln (-5.56, 0.135)	ln (-6.19, 0.149)	ln (-5.91, 0.166)	ln (-5.56, 0.135)	ln (-6.19, 0.149)	ln (-5.91, 0.177)
Monthly mortality rate for PLHIV on ART (CD4<200), Female White PWID						
PE	0.00856	0.00457	0.00608	0.00856	0.00457	0.00612
Distribution	ln (-4.76, 0.166)	ln (-5.39, 0.169)	ln (-5.1, 0.181)	ln (-4.76, 0.166)	ln (-5.39, 0.169)	ln (-5.1, 0.208)
Monthly mortality rate for PLHIV on ART (CD4<200), Female White HET						
PE	0.00534	0.00284	0.00378	0.00534	0.00284	0.00386
Distribution	ln (-5.23, 0.142)	ln (-5.86, 0.167)	ln (-5.58, 0.172)	ln (-5.23, 0.142)	ln (-5.86, 0.167)	ln (-5.56, 0.189)
Monthly mortality rate for PLHIV on ART (CD4<200), Female Black PWID						
PE	0.00770	0.00412	0.00547	0.00770	0.00412	0.00537
Distribution	ln (-4.87, 0.132)	ln (-5.49, 0.149)	ln (-5.21, 0.178)	ln (-4.87, 0.132)	ln (-5.49, 0.149)	ln (-5.23, 0.196)
Monthly mortality rate for PLHIV on ART (CD4<200), Female Black HET						
PE	0.00481	0.00256	0.00341	0.00481	0.00256	0.00339
Distribution	ln (-5.34, 0.112)	ln (-5.97, 0.138)	ln (-5.68, 0.161)	ln (-5.34, 0.112)	ln (-5.97, 0.138)	ln (-5.69, 0.179)
Monthly mortality rate for PLHIV on ART (CD4<200), Female Hispanic PWID						
PE	0.00661	0.00352	0.00468	0.00661	0.00352	0.00458
Distribution	ln (-5.02, 0.173)	ln (-5.65, 0.177)	ln (-5.36, 0.199)	ln (-5.02, 0.173)	ln (-5.65, 0.177)	ln (-5.39, 0.204)
Monthly mortality rate for PLHIV on ART (CD4<200), Female Hispanic HET						
PE	0.00412	0.00219	0.00292	0.00412	0.00219	0.00289
Distribution	ln (-5.49, 0.15)	ln (-6.12, 0.159)	ln (-5.84, 0.177)	ln (-5.49, 0.15)	ln (-6.12, 0.159)	ln (-5.85, 0.196)

IMMEDIATE ART ENGAGEMENT

Probability of direct ART engagement following diagnosis (CD4>500), PWID					
PE	0.226	0.226	0.226	0.226	0.226	0.226
Distribution	Beta (12, 41)	Beta (12, 41)	Beta (12, 41)	Beta (12, 41)	Beta (12, 41)	Beta (12, 41)
Probability of direct ART engagement following diagnosis (CD4>500), MWID					
PE	0.200	0.200	0.200	0.200	0.200	0.200
Distribution	Beta (8, 32)	Beta (8, 32)	Beta (8, 32)	Beta (8, 32)	Beta (8, 32)	Beta (8, 32)
Probability of direct ART engagement following diagnosis (CD4>500), MSM					
PE	0.146	0.349	0.251	0.146	0.349	0.349
Distribution	Beta (66, 387)	Beta (176, 329)	Beta (44, 131)	Beta (66, 387)	Beta (176, 329)	Beta (176, 329)
Probability of direct ART engagement following diagnosis (CD4>500), Male, HET					
PE	0.0893	0.421	0.105	0.0893	0.421	0.421
Distribution	Beta (10, 102)	Beta (40, 55)	Beta (2, 17)	Beta (10, 102)	Beta (40, 55)	Beta (40, 55)
Probability of direct ART engagement following diagnosis (CD4>500), Female, HET					
PE	0.165	0.281	0.269	0.165	0.281	0.281
Distribution	Beta (36, 182)	Beta (27, 69)	Beta (7, 19)	Beta (36, 182)	Beta (27, 69)	Beta (27, 69)
Probability of direct ART engagement following diagnosis (CD4: 200-499), PWID					
PE	0.294	0.294	0.294	0.294	0.294	0.294
Distribution	Beta (15, 36)	Beta (15, 36)	Beta (15, 36)	Beta (15, 36)	Beta (15, 36)	Beta (15, 36)
Probability of direct ART engagement following diagnosis (CD4: 200-499), MWID					
PE	0.333	0.333	0.333	0.333	0.333	0.333
Distribution	Beta (10, 20)	Beta (10, 20)	Beta (10, 20)	Beta (10, 20)	Beta (10, 20)	Beta (10, 20)
Probability of direct ART engagement following diagnosis (CD4: 200-499), MSM					
PE	0.265	0.435	0.321	0.265	0.435	0.435
Distribution	Beta (198, 550)	Beta (237, 308)	Beta (69, 146)	Beta (198, 550)	Beta (237, 308)	Beta (237, 308)
Probability of direct ART engagement following diagnosis (CD4: 200-499), Male, HET					
PE	0.349	0.297	0.246	0.349	0.297	0.297
Distribution	Beta (84, 157)	Beta (35, 83)	Beta (15, 46)	Beta (84, 157)	Beta (35, 83)	Beta (35, 83)
Probability of direct ART engagement following diagnosis (CD4: 200-499), Female, HET					
PE	0.295	0.424	0.425	0.295	0.424	0.424
Distribution	Beta (80, 191)	Beta (39, 53)	Beta (17, 23)	Beta (80, 191)	Beta (39, 53)	Beta (39, 53)
Probability of direct ART engagement following diagnosis (CD4<200), PWID					
PE	0.515	0.515	0.515	0.515	0.515	0.515
Distribution	Beta (34, 32)	Beta (34, 32)	Beta (34, 32)	Beta (34, 32)	Beta (34, 32)	Beta (34, 32)
Probability of direct ART engagement following diagnosis (CD4<200), MWID					
PE	0.545	0.545	0.545	0.545	0.545	0.545
Distribution	Beta (12, 10)	Beta (12, 10)	Beta (12, 10)	Beta (12, 10)	Beta (12, 10)	Beta (12, 10)
Probability of direct ART engagement following diagnosis (CD4<200), MSM					
PE	0.526	0.596	0.644	0.526	0.596	0.596
Distribution	Beta (242, 218)	Beta (115, 78)	Beta (87, 48)	Beta (242, 218)	Beta (115, 78)	Beta (115, 78)
Probability of direct ART engagement following diagnosis (CD4<200), Male, HET					
PE	0.460	0.577	0.701	0.460	0.577	0.577
Distribution	Beta (159, 187)	Beta (45, 33)	Beta (47, 20)	Beta (159, 187)	Beta (45, 33)	Beta (45, 33)
Probability of direct ART engagement following diagnosis (CD4<200), Female, HET					
PE	0.457	0.475	0.486	0.457	0.475	0.475
Distribution	Beta (100, 119)	Beta (28, 31)	Beta (18, 19)	Beta (100, 119)	Beta (28, 31)	Beta (28, 31)

ART ENGAGEMENT: INITIATION						
Monthly ART initiation rate (CD4>500), PWID						
PE	0.0292	0.0292	0.0292	0.0292	0.0292	0.0292
Distribution	Poisson (23) / 789.01	Poisson (23) / 789.01	Poisson (23) / 789.01	Poisson (23) / 789.01	Poisson (23) / 789.01	Poisson (23) / 789.01
Monthly ART initiation rate (CD4>500), MSM						
PE	0.0556	0.0662	0.0853	0.0556	0.0662	0.0662
Distribution	Poisson (280) / 5039.22	Poisson (259) / 3914.6	Poisson (107) / 1254.01	Poisson (280) / 5039.22	Poisson (259) / 3914.6	Poisson (259) / 3914.6
Monthly ART initiation rate (CD4>500), MWID						
PE	0.0690	0.0690	0.0690	0.0690	0.0690	0.0690
Distribution	Poisson (23) / 333.49	Poisson (23) / 333.49	Poisson (23) / 333.49	Poisson (23) / 333.49	Poisson (23) / 333.49	Poisson (23) / 333.49
Monthly ART initiation rate (CD4>500), Male, HET						
PE	0.0425	0.0782	0.0800	0.0425	0.0782	0.0782
Distribution	Poisson (65) / 1529.89	Poisson (38) / 486.15	Poisson (14) / 174.99	Poisson (65) / 1529.89	Poisson (38) / 486.15	Poisson (38) / 486.15
Monthly ART initiation rate (CD4>500), Female, HET						
PE	0.0398	0.0551	0.0866	0.0398	0.0551	0.0551
Distribution	Poisson (120) / 3011.48	Poisson (46) / 834.31	Poisson (17) / 196.37	Poisson (120) / 3011.48	Poisson (46) / 834.31	Poisson (46) / 834.31
Monthly ART initiation rate (CD4: 200-499), PWID						
PE	0.108	0.108	0.108	0.108	0.108	0.108
Distribution	Poisson (30) / 277.24	Poisson (30) / 277.24	Poisson (30) / 277.24	Poisson (30) / 277.24	Poisson (30) / 277.24	Poisson (30) / 277.24
Monthly ART initiation rate (CD4: 200-499), MSM						
PE	0.145	0.149	0.184	0.145	0.149	0.149
Distribution	Poisson (490) / 3375.28	Poisson (271) / 1823.46	Poisson (131) / 710.62	Poisson (490) / 3375.28	Poisson (271) / 1823.46	Poisson (271) / 1823.46
Monthly ART initiation rate (CD4: 200-499), MWID						
PE	0.0573	0.0573	0.0573	0.0573	0.0573	0.0573
Distribution	Poisson (14) / 244.44	Poisson (14) / 244.44	Poisson (14) / 244.44	Poisson (14) / 244.44	Poisson (14) / 244.44	Poisson (14) / 244.44
Monthly ART initiation rate (CD4: 200-499), Male, HET						
PE	0.118	0.189	0.134	0.118	0.189	0.189
Distribution	Poisson (134) / 1135.85	Poisson (74) / 390.83	Poisson (42) / 312.92	Poisson (134) / 1135.85	Poisson (74) / 390.83	Poisson (74) / 390.83
Monthly ART initiation rate (CD4: 200-499), Female, HET						
PE	0.142	0.125	0.149	0.142	0.125	0.125
Distribution	Poisson (175) / 1231.67	Poisson (46) / 368.53	Poisson (21) / 141.34	Poisson (175) / 1231.67	Poisson (46) / 368.53	Poisson (46) / 368.53
Monthly ART initiation rate (CD4<200), PWID						
PE	0.314	0.314	0.314	0.314	0.314	0.314
Distribution	Poisson (31) / 98.84	Poisson (31) / 98.84	Poisson (31) / 98.84	Poisson (31) / 98.84	Poisson (31) / 98.84	Poisson (31) / 98.84
Monthly ART initiation rate (CD4<200), MSM						
PE	0.282	0.257	0.190	0.282	0.257	0.257
Distribution	Poisson (206) / 730.76	Poisson (74) / 287.61	Poisson (43) / 226.7	Poisson (206) / 730.76	Poisson (74) / 287.61	Poisson (74) / 287.61
Monthly ART initiation rate (CD4<200), MWID						
PE	0.240	0.240	0.240	0.240	0.240	0.240
Distribution	Poisson (9) / 37.45	Poisson (9) / 37.45	Poisson (9) / 37.45	Poisson (9) / 37.45	Poisson (9) / 37.45	Poisson (9) / 37.45
Monthly ART initiation rate (CD4<200), Male, HET						
PE	0.262	0.230	0.182	0.262	0.230	0.230

Distribution	Poisson (180) / 686.23	Poisson (28) / 121.9	Poisson (18) / 98.92	Poisson (180) / 686.23	Poisson (28) / 121.9	Poisson (28) / 121.9
Monthly ART initiation rate (CD4<200), Female, HET						
PE	0.296	0.113	0.294	0.296	0.113	0.113
Distribution	Poisson (112) / 378.97	Poisson (24) / 212.4	Poisson (19) / 64.72	Poisson (112) / 378.97	Poisson (24) / 212.4	Poisson (24) / 212.4
ART ENGAGEMENT: RETENTION						
Monthly ART dropout rate (CD4>500), Male White PWID						
PE	0.0191	0.00725	0.00970	0.0191	0.00725	0.00427
Distribution	ln (-3.96, 0.0689)	ln (-4.93, 0.098)	ln (-4.64, 0.1369)	ln (-3.96, 0.0689)	ln (-4.93, 0.098)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4>500), Male White MSM						
PE	0.0132	0.00398	0.00920	0.0132	0.00398	0.00340
Distribution	ln (-4.33, 0.0428)	ln (-5.53, 0.0551)	ln (-4.69, 0.0503)	ln (-4.33, 0.0428)	ln (-5.53, 0.0551)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4>500), Male White MWID						
PE	0.0189	0.00442	0.0114	0.0189	0.00442	0.00340
Distribution	ln (-3.97, 0.0644)	ln (-5.42, 0.0995)	ln (-4.48, 0.1018)	ln (-3.97, 0.0644)	ln (-5.42, 0.0995)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4>500), Male White HET						
PE	0.0133	0.00654	0.00784	0.0133	0.00654	0.00516
Distribution	ln (-4.32, 0.0587)	ln (-5.03, 0.0905)	ln (-4.85, 0.1122)	ln (-4.32, 0.0587)	ln (-5.03, 0.0905)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4>500), Male Black PWID						
PE	0.0182	0.00725	0.00919	0.0182	0.00725	0.00427
Distribution	ln (-4, 0.0607)	ln (-4.93, 0.0901)	ln (-4.69, 0.1454)	ln (-4, 0.0607)	ln (-4.93, 0.0901)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4>500), Male Black MSM						
PE	0.0125	0.00398	0.00871	0.0125	0.00398	0.00703
Distribution	ln (-4.38, 0.0404)	ln (-5.53, 0.061)	ln (-4.74, 0.0942)	ln (-4.38, 0.0404)	ln (-5.53, 0.061)	Unif (0.0056, 0.0084)
Monthly ART dropout rate (CD4>500), Male Black MWID						
PE	0.0180	0.00442	0.0108	0.0180	0.00442	0.00571
Distribution	ln (-4.02, 0.0622)	ln (-5.42, 0.1008)	ln (-4.53, 0.1372)	ln (-4.02, 0.0622)	ln (-5.42, 0.1008)	Unif (0.0046, 0.0069)
Monthly ART dropout rate (CD4>500), Male Black HET						
PE	0.0127	0.00654	0.00743	0.0127	0.00654	0.00516
Distribution	ln (-4.37, 0.0453)	ln (-5.03, 0.0689)	ln (-4.9, 0.1276)	ln (-4.37, 0.0453)	ln (-5.03, 0.0689)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4>500), Male Hispanic PWID						
PE	0.0109	0.00744	0.00595	0.0109	0.00744	0.00475
Distribution	ln (-4.52, 0.0802)	ln (-4.9, 0.0928)	ln (-5.12, 0.1507)	ln (-4.52, 0.0802)	ln (-4.9, 0.0928)	Unif (0.0038, 0.0057)
Monthly ART dropout rate (CD4>500), Male Hispanic MSM						
PE	0.0075	0.00408	0.00564	0.0075	0.00408	0.00340
Distribution	ln (-4.9, 0.0625)	ln (-5.5, 0.0624)	ln (-5.18, 0.0912)	ln (-4.9, 0.0625)	ln (-5.5, 0.0624)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4>500), Male Hispanic MWID						
PE	0.0107	0.00453	0.00698	0.0107	0.00453	0.00340
Distribution	ln (-4.53, 0.0832)	ln (-5.4, 0.1066)	ln (-4.96, 0.1318)	ln (-4.53, 0.0832)	ln (-5.4, 0.1066)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4>500), Male Hispanic HET						
PE	0.0076	0.00670	0.00481	0.0076	0.00670	0.00516
Distribution	ln (-4.89, 0.0696)	ln (-5.01, 0.0727)	ln (-5.34, 0.1294)	ln (-4.89, 0.0696)	ln (-5.01, 0.0727)	Unif (0.0041, 0.0062)

Monthly ART dropout rate (CD4>500), Female White PWID						
PE	0.0191	0.00725	0.00970	0.0191	0.00725	0.00427
Distribution	ln (-3.96, 0.0695)	ln (-4.93, 0.0993)	ln (-4.64, 0.1272)	ln (-3.96, 0.0695)	ln (-4.93, 0.0993)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4>500), Female White HET						
PE	0.0133	0.00654	0.00784	0.0133	0.00654	0.00340
Distribution	ln (-4.32, 0.0601)	ln (-5.03, 0.0889)	ln (-4.85, 0.1169)	ln (-4.32, 0.0601)	ln (-5.03, 0.0889)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4>500), Female Black PWID						
PE	0.0182	0.00725	0.00919	0.0182	0.00725	0.00427
Distribution	ln (-4, 0.055)	ln (-4.93, 0.0924)	ln (-4.69, 0.1437)	ln (-4, 0.055)	ln (-4.93, 0.0924)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4>500), Female Black HET						
PE	0.0127	0.00654	0.00743	0.0127	0.00654	0.00340
Distribution	ln (-4.37, 0.0444)	ln (-5.03, 0.0713)	ln (-4.9, 0.1333)	ln (-4.37, 0.0444)	ln (-5.03, 0.0713)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4>500), Female Hispanic PWID						
PE	0.0109	0.00744	0.00595	0.0109	0.00744	0.00427
Distribution	ln (-4.52, 0.0789)	ln (-4.9, 0.0933)	ln (-5.12, 0.1518)	ln (-4.52, 0.0789)	ln (-4.9, 0.0933)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4>500), Female Hispanic HET						
PE	0.0076	0.00670	0.00481	0.0076	0.00670	0.00340
Distribution	ln (-4.89, 0.0662)	ln (-5.01, 0.075)	ln (-5.34, 0.1309)	ln (-4.89, 0.0662)	ln (-5.01, 0.075)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4: 200-499), Male White PWID						
PE	0.0262	0.00925	0.0128	0.0262	0.00925	0.00427
Distribution	ln (-3.64, 0.0669)	ln (-4.68, 0.1123)	ln (-4.36, 0.1218)	ln (-3.64, 0.0669)	ln (-4.68, 0.1123)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4: 200-499), Male White MSM						
PE	0.0141	0.00661	0.0110	0.0141	0.00661	0.00340
Distribution	ln (-4.26, 0.0449)	ln (-5.02, 0.063)	ln (-4.51, 0.0601)	ln (-4.26, 0.0449)	ln (-5.02, 0.063)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4: 200-499), Male White MWID						
PE	0.0235	0.00703	0.0134	0.0235	0.00703	0.00340
Distribution	ln (-3.75, 0.0691)	ln (-4.96, 0.1073)	ln (-4.31, 0.1129)	ln (-3.75, 0.0691)	ln (-4.96, 0.1073)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4: 200-499), Male White HET						
PE	0.0157	0.00871	0.0105	0.0157	0.00871	0.00516
Distribution	ln (-4.16, 0.0583)	ln (-4.74, 0.0937)	ln (-4.56, 0.1137)	ln (-4.16, 0.0583)	ln (-4.74, 0.0937)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4: 200-499), Male Black PWID						
PE	0.0296	0.00939	0.0143	0.0296	0.00939	0.00427
Distribution	ln (-3.52, 0.054)	ln (-4.67, 0.0893)	ln (-4.25, 0.1435)	ln (-3.52, 0.054)	ln (-4.67, 0.0893)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4: 200-499), Male Black MSM						
PE	0.0159	0.00671	0.0123	0.0159	0.00671	0.00703
Distribution	ln (-4.14, 0.0407)	ln (-5, 0.0679)	ln (-4.4, 0.0986)	ln (-4.14, 0.0407)	ln (-5, 0.0679)	Unif (0.0056, 0.0084)
Monthly ART dropout rate (CD4: 200-499), Male Black MWID						
PE	0.0266	0.00713	0.0150	0.0266	0.00713	0.00571
Distribution	ln (-3.63, 0.0605)	ln (-4.94, 0.1093)	ln (-4.2, 0.1381)	ln (-3.63, 0.0605)	ln (-4.94, 0.1093)	Unif (0.0046, 0.0069)
Monthly ART dropout rate (CD4: 200-499), Male Black HET						
PE	0.0177	0.00884	0.0117	0.0177	0.00884	0.00516

Distribution	ln (-4.03, 0.0401)	ln (-4.73, 0.0707)	ln (-4.45, 0.1183)	ln (-4.03, 0.0401)	ln (-4.73, 0.0707)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4: 200-499), Male Hispanic PWID						
PE	0.0208	0.01032	0.0107	0.0208	0.01032	0.00475
Distribution	ln (-3.87, 0.0685)	ln (-4.57, 0.0891)	ln (-4.54, 0.1428)	ln (-3.87, 0.0685)	ln (-4.57, 0.0891)	Unif (0.0038, 0.0057)
Monthly ART dropout rate (CD4: 200-499), Male Hispanic MSM						
PE	0.0111	0.00737	0.0092	0.0111	0.00737	0.00340
Distribution	ln (-4.5, 0.0544)	ln (-4.91, 0.0678)	ln (-4.69, 0.0816)	ln (-4.5, 0.0544)	ln (-4.91, 0.0678)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4: 200-499), Male Hispanic MWID						
PE	0.0187	0.00784	0.0112	0.0187	0.00784	0.00340
Distribution	ln (-3.98, 0.0759)	ln (-4.85, 0.1083)	ln (-4.49, 0.1306)	ln (-3.98, 0.0759)	ln (-4.85, 0.1083)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4: 200-499), Male Hispanic HET						
PE	0.0124	0.00971	0.00875	0.0124	0.00971	0.00516
Distribution	ln (-4.39, 0.0587)	ln (-4.63, 0.0718)	ln (-4.74, 0.1205)	ln (-4.39, 0.0587)	ln (-4.63, 0.0718)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4: 200-499), Female White PWID						
PE	0.0262	0.00925	0.0128	0.0262	0.00925	0.00427
Distribution	ln (-3.64, 0.0704)	ln (-4.68, 0.1067)	ln (-4.36, 0.1317)	ln (-3.64, 0.0704)	ln (-4.68, 0.1067)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4: 200-499), Female White HET						
PE	0.0157	0.00871	0.0105	0.0157	0.00871	0.00340
Distribution	ln (-4.16, 0.0577)	ln (-4.74, 0.0937)	ln (-4.56, 0.1042)	ln (-4.16, 0.0577)	ln (-4.74, 0.0937)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4: 200-499), Female Black PWID						
PE	0.0296	0.00939	0.0143	0.0296	0.00939	0.00427
Distribution	ln (-3.52, 0.0501)	ln (-4.67, 0.0894)	ln (-4.25, 0.1317)	ln (-3.52, 0.0501)	ln (-4.67, 0.0894)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4: 200-499), Female Black HET						
PE	0.0177	0.00884	0.0117	0.0177	0.00884	0.00340
Distribution	ln (-4.03, 0.0404)	ln (-4.73, 0.072)	ln (-4.45, 0.1165)	ln (-4.03, 0.0404)	ln (-4.73, 0.072)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4: 200-499), Female Hispanic PWID						
PE	0.0208	0.0103	0.0107	0.0208	0.0103	0.00427
Distribution	ln (-3.87, 0.0698)	ln (-4.57, 0.0885)	ln (-4.54, 0.1485)	ln (-3.87, 0.0698)	ln (-4.57, 0.0885)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4: 200-499), Female Hispanic HET						
PE	0.0124	0.0097	0.00875	0.0124	0.0097	0.00340
Distribution	ln (-4.39, 0.0606)	ln (-4.63, 0.0712)	ln (-4.74, 0.1153)	ln (-4.39, 0.0606)	ln (-4.63, 0.0712)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4<200), Male White PWID						
PE	0.0314	0.0129	0.0241	0.0314	0.0129	0.00427
Distribution	ln (-3.46, 0.0993)	ln (-4.35, 0.1465)	ln (-3.73, 0.1711)	ln (-3.46, 0.0993)	ln (-4.35, 0.1465)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4<200), Male White MSM						
PE	0.0188	0.0113	0.0141	0.0188	0.0113	0.00340
Distribution	ln (-3.97, 0.0799)	ln (-4.49, 0.1252)	ln (-4.26, 0.1152)	ln (-3.97, 0.0799)	ln (-4.49, 0.1252)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4<200), Male White MWID						
PE	0.0281	0.0137	0.0208	0.0281	0.0137	0.00340
Distribution	ln (-3.57, 0.0987)	ln (-4.29, 0.1621)	ln (-3.88, 0.1642)	ln (-3.57, 0.0987)	ln (-4.29, 0.1621)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4<200), Male White HET						

PE	0.0210	0.0106	0.0164	0.0210	0.0106	0.00516
Distribution	ln (-3.86, 0.0894)	ln (-4.55, 0.1473)	ln (-4.11, 0.1571)	ln (-3.86, 0.0894)	ln (-4.55, 0.1473)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4<200), Male Black PWID						
PE	0.0405	0.0156	0.0259	0.0405	0.0156	0.00427
Distribution	ln (-3.21, 0.0774)	ln (-4.16, 0.1202)	ln (-3.65, 0.1763)	ln (-3.21, 0.0774)	ln (-4.16, 0.1202)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4<200), Male Black MSM						
PE	0.0243	0.0136	0.0152	0.0243	0.0136	0.00703
Distribution	ln (-3.72, 0.0645)	ln (-4.3, 0.1014)	ln (-4.18, 0.1406)	ln (-3.72, 0.0645)	ln (-4.3, 0.1014)	Unif (0.0056, 0.0084)
Monthly ART dropout rate (CD4<200), Male Black MWID						
PE	0.0363	0.0166	0.0224	0.0363	0.0166	0.00571
Distribution	ln (-3.32, 0.0958)	ln (-4.1, 0.1409)	ln (-3.8, 0.1828)	ln (-3.32, 0.0958)	ln (-4.1, 0.1409)	Unif (0.0046, 0.0069)
Monthly ART dropout rate (CD4<200), Male Black HET						
PE	0.0272	0.0128	0.0177	0.0272	0.0128	0.00516
Distribution	ln (-3.61, 0.0606)	ln (-4.36, 0.1077)	ln (-4.04, 0.1541)	ln (-3.61, 0.0606)	ln (-4.36, 0.1077)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4<200), Male Hispanic PWID						
PE	0.0240	0.0170	0.0176	0.0240	0.0170	0.00475
Distribution	ln (-3.73, 0.1086)	ln (-4.07, 0.1252)	ln (-4.04, 0.2068)	ln (-3.73, 0.1086)	ln (-4.07, 0.1252)	Unif (0.0038, 0.0057)
Monthly ART dropout rate (CD4<200), Male Hispanic MSM						
PE	0.0144	0.0148	0.0103	0.0144	0.0148	0.00340
Distribution	ln (-4.24, 0.0903)	ln (-4.21, 0.1143)	ln (-4.57, 0.1468)	ln (-4.24, 0.0903)	ln (-4.21, 0.1143)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4<200), Male Hispanic MWID						
PE	0.0215	0.0181	0.0152	0.0215	0.0181	0.00340
Distribution	ln (-3.84, 0.1193)	ln (-4.01, 0.1516)	ln (-4.19, 0.2084)	ln (-3.84, 0.1193)	ln (-4.01, 0.1516)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4<200), Male Hispanic HET						
PE	0.0161	0.0139	0.0120	0.0161	0.0139	0.00516
Distribution	ln (-4.13, 0.0931)	ln (-4.27, 0.1027)	ln (-4.43, 0.1747)	ln (-4.13, 0.0931)	ln (-4.27, 0.1027)	Unif (0.0041, 0.0062)
Monthly ART dropout rate (CD4<200), Female White PWID						
PE	0.0314	0.0129	0.0241	0.0314	0.0129	0.00427
Distribution	ln (-3.46, 0.0987)	ln (-4.35, 0.149)	ln (-3.73, 0.177)	ln (-3.46, 0.0987)	ln (-4.35, 0.149)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4<200), Female White HET						
PE	0.0210	0.0106	0.0164	0.0210	0.0106	0.00340
Distribution	ln (-3.86, 0.0895)	ln (-4.55, 0.1348)	ln (-4.11, 0.1504)	ln (-3.86, 0.0895)	ln (-4.55, 0.1348)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4<200), Female Black PWID						
PE	0.0405	0.0156	0.0259	0.0405	0.0156	0.00427
Distribution	ln (-3.21, 0.0761)	ln (-4.16, 0.1174)	ln (-3.65, 0.1839)	ln (-3.21, 0.0761)	ln (-4.16, 0.1174)	Unif (0.0034, 0.0051)
Monthly ART dropout rate (CD4<200), Female Black HET						
PE	0.0272	0.0128	0.0177	0.0272	0.0128	0.00340
Distribution	ln (-3.61, 0.0581)	ln (-4.36, 0.0961)	ln (-4.04, 0.1538)	ln (-3.61, 0.0581)	ln (-4.36, 0.0961)	Unif (0.0027, 0.0041)
Monthly ART dropout rate (CD4<200), Female Hispanic PWID						
PE	0.0240	0.0170	0.0176	0.0240	0.0170	0.00427
Distribution	ln (-3.73, 0.1041)	ln (-4.07, 0.1338)	ln (-4.04, 0.2026)	ln (-3.73, 0.1041)	ln (-4.07, 0.1338)	Unif (0.0034, 0.0051)

Monthly ART dropout rate (CD4<200), Female Hispanic HET					
PE	0.0161	0.0139	0.0120	0.0161	0.0139	0.00340
Distribution	ln (-4.13, 0.0953)	ln (-4.27, 0.1026)	ln (-4.43, 0.1754)	ln (-4.13, 0.0953)	ln (-4.27, 0.1026)	Unif (0.0027, 0.0041)

NUMBER OF SEXUAL PARTNERS

Monthly number of homosexual partners: White, low-risk MSM					
PE	0.174	0.174	0.174	0.174	0.174	0.174
Distribution	Gamma (133, 0.00131)	Gamma (133, 0.00131)	Gamma (133, 0.00131)	Gamma (133, 0.00131)	Gamma (133, 0.00131)	Gamma (133, 0.00131)

Monthly number of homosexual partners: Black low-risk MSM					
PE	0.213	0.213	0.213	0.213	0.213	0.213
Distribution	Gamma (26.5, 0.00806)	Gamma (26.5, 0.00806)	Gamma (26.5, 0.00806)	Gamma (26.5, 0.00806)	Gamma (26.5, 0.00806)	Gamma (26.5, 0.00806)

Monthly number of homosexual partners: Hispanic low-risk MSM					
PE	0.158	0.158	0.158	0.158	0.158	0.158
Distribution	Gamma (39.2, 0.00404)	Gamma (39.2, 0.00404)	Gamma (39.2, 0.00404)	Gamma (39.2, 0.00404)	Gamma (39.2, 0.00404)	Gamma (39.2, 0.00404)

Monthly number of homosexual partners: White, high-risk MSM					
PE	0.802	0.904	0.857	1.30	0.907	0.669
Distribution	Pert (3.23, 4.52)	Pert (2.55, 4.67)	Pert (3.35, 4.47)	Pert (3.32, 4.48)	Pert (3.23, 4.52)	Pert (3.14, 4.55)

Monthly number of homosexual partners: Black, high-risk MSM					
PE	0.457	0.665	0.633	1.06	0.603	0.558
Distribution	Pert (1.51, 4.37)	Pert (3.48, 4.40)	Pert (2.52, 4.67)	Pert (3.27, 4.50)	Pert (2.38, 4.67)	Pert (1.91, 4.57)

Monthly number of homosexual partners: Hispanic, high-risk MSM					
PE	0.72	0.932	0.725	1.04	0.817	0.757
Distribution	Pert (3.06, 4.58)	Pert (3.11, 4.57)	Pert (3.50, 4.38)	Pert (3.19, 4.54)	Pert (3.51, 4.38)	Pert (2.98, 4.61)

Monthly number of heterosexual partners: Male, White, low-risk MSM and MWID					
PE	0.0219	0.0219	0.0219	0.0219	0.0219	0.0219
Distribution	Gamma (31, 0.00071)	Gamma (31, 0.00071)	Gamma (31, 0.00071)	Gamma (31, 0.00071)	Gamma (31, 0.00071)	Gamma (31, 0.00071)

Monthly number of heterosexual partners: Male, White, low-risk HET					
PE	0.0883	0.0883	0.0800	0.0883	0.0883	0.0800
Distribution	Gamma (1248, 0.00007)	Gamma (1248, 0.00007)	Gamma (490, 0.00016)	Gamma (1248, 0.00007)	Gamma (1248, 0.00007)	Gamma (490, 0.00016)

Monthly number of heterosexual partners: Male, Black, low-risk MSM and MWID					
PE	0.0220	0.0220	0.0220	0.0220	0.0220	0.0220
Distribution	Gamma (13, 0.00176)	Gamma (13, 0.00176)	Gamma (13, 0.00176)	Gamma (13, 0.00176)	Gamma (13, 0.00176)	Gamma (13, 0.00176)

Monthly number of heterosexual partners: Male, Black, low-risk HET					
PE	0.110	0.110	0.105	0.110	0.108	0.105
Distribution	Gamma (697, 0.00016)	Gamma (697, 0.00016)	Gamma (68, 0.00155)	Gamma (697, 0.00016)	Gamma (152, 0.00071)	Gamma (68, 0.00155)

Monthly number of heterosexual partners: Male, Hispanic, low-risk MSM and MWID					
PE	0.0181	0.0181	0.0181	0.0181	0.0181	0.0181
Distribution	Gamma (6, 0.00282)	Gamma (6, 0.00282)	Gamma (6, 0.00282)	Gamma (6, 0.00282)	Gamma (6, 0.00282)	Gamma (6, 0.00282)

Monthly number of heterosexual partners: Male, Hispanic, low-risk HET					
PE	0.0842	0.0842	0.0867	0.0842	0.0908	0.0867
Distribution	Gamma (638, 0.00013)	Gamma (638, 0.00013)	Gamma (513, 0.00017)	Gamma (638, 0.00013)	Gamma (317, 0.00029)	Gamma (513, 0.00017)

Monthly number of heterosexual partners: Female, White, low-risk HET					
PE	0.0825	0.0825	0.0825	0.0825	0.0925	0.0825

Distribution	Gamma (1089, 0.00008)	Gamma (1089, 0.00008)	Gamma (1046, 0.00008)	Gamma (1089, 0.00008)	Gamma (740, 0.00013)	Gamma (1046, 0.00008)
Monthly number of heterosexual partners: Female, Black, low-risk HET						
PE	0.0875	0.0875	0.0925	0.0875	0.0992	0.0925
Distribution	Gamma (689, 0.00013)	Gamma (689, 0.00013)	Gamma (174, 0.00053)	Gamma (689, 0.00013)	Gamma (44, 0.00223)	Gamma (174, 0.00053)
Monthly number of heterosexual partners: Female, Hispanic, low-risk HET						
PE	0.0850	0.0850	0.0808	0.0850	0.0858	0.0808
Distribution	Gamma (1156, 0.00007)	Gamma (1156, 0.00007)	Gamma (643, 0.00013)	Gamma (1156, 0.00007)	Gamma (261, 0.00033)	Gamma (643, 0.00013)
Monthly number of heterosexual partners: Male, White, high-risk MSM and MWID						
PE	0.0149	0.0191	0.0125	0.0264	0.0212	0.0419
Distribution	Pert (3.42, 4.43)	Pert (3.03, 4.59)	Pert (2.97, 4.61)	Pert (2.99, 4.6)	Pert (2.84, 4.64)	Pert (4.37, 3.53)
Monthly number of heterosexual partners: Male, White, high-risk HET						
PE	0.670	0.6700	0.623	0.6700	0.591	0.6225
Distribution	Gamma (121, 0.00552)	Gamma (121, 0.00552)	Gamma (253, 0.00246)	Gamma (121, 0.00552)	Gamma (66, 0.009)	Gamma (253, 0.00246)
Monthly number of heterosexual partners: Male, Black, high-risk MSM and MWID						
PE	0.0795	0.0631	0.0321	0.0595	0.0285	0.0357
Distribution	Pert (3.88, 4.11)	Pert (3.8, 4.18)	Pert (2.23, 4.65)	Pert (3.64, 4.3)	Pert (3.4, 4.44)	Pert (2.72, 4.66)
Monthly number of heterosexual partners: Male, Black, high-risk HET						
PE	0.633	0.633	0.814	0.633	0.990	0.814
Distribution	Gamma (327, 0.00193)	Gamma (327, 0.00193)	Gamma (24, 0.03447)	Gamma (327, 0.00193)	Gamma (43, 0.02282)	Gamma (24, 0.03447)
Monthly number of heterosexual partners: Male, Hispanic, high-risk MSM and MWID						
PE	0.0371	0.0535	0.0263	0.0719	0.0263	0.0471
Distribution	Pert (1.71, 4.49)	Pert (3.04, 4.59)	Pert (1.85, 4.55)	Pert (3.43, 4.43)	Pert (2.59, 4.67)	Pert (3.62, 4.31)
Monthly number of heterosexual partners: Male, Hispanic, high-risk HET						
PE	0.579	0.579	0.722	0.579	0.703	0.722
Distribution	Gamma (302, 0.00192)	Gamma (302, 0.00192)	Gamma (541, 0.00133)	Gamma (302, 0.00192)	Gamma (55, 0.01274)	Gamma (541, 0.00133)
Monthly number of heterosexual partners: Female, White, high-risk HET						
PE	0.657	0.657	0.666	0.657	0.581	0.666
Distribution	Gamma (213, 0.00308)	Gamma (213, 0.00308)	Gamma (460, 0.00145)	Gamma (213, 0.00308)	Gamma (40, 0.01439)	Gamma (460, 0.00145)
Monthly number of heterosexual partners: Female, Black, high-risk HET						
PE	0.545	0.545	0.533	0.545	0.672	0.533
Distribution	Gamma (85, 0.00642)	Gamma (85, 0.00642)	Gamma (201, 0.00265)	Gamma (85, 0.00642)	Gamma (305, 0.0022)	Gamma (201, 0.00265)
Monthly number of heterosexual partners: Female, Hispanic, high-risk HET						
PE	0.474	0.474	0.626	0.474	0.608	0.626
Distribution	Gamma (193, 0.00246)	Gamma (193, 0.00246)	Gamma (76, 0.00825)	Gamma (193, 0.00246)	Gamma (167, 0.00363)	Gamma (76, 0.00825)
Monthly number of heterosexual partner multiplier: PWID to HET						
PE	0.400	0.400	0.400	0.400	0.400	0.400
Distribution	Unif (0.1, 2)	Unif (0.1, 2)	Unif (0.1, 2)	Unif (0.1, 2)	Unif (0.1, 2)	Unif (0.1, 2)
TRANSMISSION PROBABILITY PER HETEROSEXUAL PARTNERSHIP						
Transmission probability (CD4>500): Female to Male						
PE	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150
Distribution	Pert (1.638, 4.445)	Pert (1.638, 4.445)	Pert (1.638, 4.445)	Pert (1.638, 4.445)	Pert (1.638, 4.445)	Pert (1.638, 4.445)
Transmission probability (CD4: 200-499): Female to Male						
PE	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250

Distribution	Pert (2.754, 4.654)	Pert (2.754, 4.654)	Pert (2.754, 4.654)	Pert (2.754, 4.654)	Pert (2.754, 4.654)	Pert (2.754, 4.654)
Transmission probability (CD4<200): Female to Male						
PE	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Distribution	Pert (2.656, 4.666)	Pert (2.656, 4.666)	Pert (2.656, 4.666)	Pert (2.656, 4.666)	Pert (2.656, 4.666)	Pert (2.656, 4.666)
Transmission probability (CD4>500): Male to Female						
PE	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Distribution	Pert (1.968, 4.592)	Pert (1.968, 4.592)	Pert (1.968, 4.592)	Pert (1.968, 4.592)	Pert (1.968, 4.592)	Pert (1.968, 4.592)
Transmission probability (CD4: 200-499): Male to Female						
PE	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Distribution	Pert (4.443, 3.397)	Pert (4.443, 3.397)	Pert (4.443, 3.397)	Pert (4.443, 3.397)	Pert (4.443, 3.397)	Pert (4.443, 3.397)
Transmission probability (CD4<200): Male to Female						
PE	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Distribution	Pert (4.27, 3.681)	Pert (4.27, 3.681)	Pert (4.27, 3.681)	Pert (4.27, 3.681)	Pert (4.27, 3.681)	Pert (4.27, 3.681)
TRANSMISSION PROBABILITY PER HOMOSEXUAL PARTNERSHIP						
Transmission probability (CD4>500)						
PE	0.045	0.045	0.045	0.045	0.045	0.045
Distribution	Pert (2.456, 4.673)	Pert (2.456, 4.673)	Pert (2.456, 4.673)	Pert (2.456, 4.673)	Pert (2.456, 4.673)	Pert (2.456, 4.673)
Transmission probability (CD4: 200-499)						
PE	0.065	0.065	0.065	0.065	0.065	0.065
Distribution	Pert (4.168, 3.814)	Pert (4.168, 3.814)	Pert (4.168, 3.814)	Pert (4.168, 3.814)	Pert (4.168, 3.814)	Pert (4.168, 3.814)
Transmission probability (CD4<200)						
PE	0.125	0.125	0.125	0.125	0.125	0.125
Distribution	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)
TRANSMISSION PROBABILITY PER SHARED INJECTION						
Transmission probability (CD4>500)						
PE	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
Distribution	Pert (2.005, 4.604)	Pert (2.005, 4.604)	Pert (2.005, 4.604)	Pert (2.005, 4.604)	Pert (2.005, 4.604)	Pert (2.005, 4.604)
Transmission probability (CD4: 200-499)						
PE	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Distribution	Pert (2.938, 4.617)	Pert (2.938, 4.617)	Pert (2.938, 4.617)	Pert (2.938, 4.617)	Pert (2.938, 4.617)	Pert (2.938, 4.617)
Transmission probability (CD4<200)						
PE	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060
Distribution	Pert (1.4, 4.283)	Pert (1.4, 4.283)	Pert (1.4, 4.283)	Pert (1.4, 4.283)	Pert (1.4, 4.283)	Pert (1.4, 4.283)
HIV TESTING						
Monthly rate of symptom-based case finding (CD4: 200-499)						
PE	0.00874	0.00874	0.00874	0.00874	0.00874	0.00874
Distribution	Pert (3.86, 4.13)	Pert (3.86, 4.13)	Pert (3.86, 4.13)	Pert (3.86, 4.13)	Pert (3.86, 4.13)	Pert (3.86, 4.13)
Monthly rate of symptom-based case finding (CD4<200)						
PE	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184
Distribution	Pert (3.84, 4.15)	Pert (3.84, 4.15)	Pert (3.84, 4.15)	Pert (3.84, 4.15)	Pert (3.84, 4.15)	Pert (3.84, 4.15)
Monthly rate of HIV testing/screening: Male White PWID						
PE	0.0363	0.0984	0.0426	0.0544	0.0764	0.0595
Distribution	Beta (35.7, 65.4)	Beta (45, 20)	Beta (99.1, 148.6)	Beta (109, 118)	Beta (154, 103)	Beta (194, 187)
Monthly rate of HIV testing/screening: Male White low-risk MSM						
PE	0.0112	0.0066	0.0066	0.0061	0.0313	0.0058

Distribution	Beta (18.2, 127)	Beta (13.1, 158.7)	Beta (133.7, 1618.2)	Beta (68.3, 903)	Beta (102, 225)	Beta (93, 1292)
Monthly rate of HIV testing/screening: Male White high-risk MSM						
PE	0.0974	0.0955	0.1108	0.0787	0.1304	0.0860
Distribution	Beta (59.8, 26.9)	Beta (52.3, 24.4)	Beta (131, 47.2)	Beta (119, 75.6)	Beta (129, 34.2)	Beta (103, 57.1)
Monthly rate of HIV testing/screening: Male White MWID						
PE	0.0363	0.0984	0.0426	0.0544	0.0764	0.0595
Distribution	Beta (35.7, 65.4)	Beta (45, 20)	Beta (99.1, 149)	Beta (108.7, 118)	Beta (154, 103)	Beta (194, 187)
Monthly rate of HIV testing/screening: Male White low-risk HET						
PE	0.0112	0.0066	0.0066	0.0061	0.0313	0.0058
Distribution	Beta (18.2, 127)	Beta (13.1, 158.7)	Beta (134, 1618)	Beta (68.3, 903)	Beta (102, 225)	Beta (93, 1292)
Monthly rate of HIV testing/screening: Male White high-risk HET						
PE	0.116	0.0457	0.0143	0.2496	0.0916	0.0160
Distribution	Beta (53.7, 17.9)	Beta (13.2, 18)	Beta (19.3, 103.1)	Beta (348, 18.3)	Beta (125, 62.4)	Beta (24.4, 115)
Monthly rate of HIV testing/screening: Male Black PWID						
PE	0.0642	0.0984	0.0647	0.0892	0.0946	0.0440
Distribution	Beta (17.8, 15.3)	Beta (12.5, 5.5)	Beta (3.9, 3.4)	Beta (13.6, 7.1)	Beta (12.6, 5.99)	Beta (1.8, 2.7)
Monthly rate of HIV testing/screening: Male Black low-risk MSM						
PE	0.0236	0.0206	0.0170	0.0101	0.0336	0.0218
Distribution	Beta (19.1, 58.4)	Beta (27.8, 99)	Beta (22.1, 97.7)	Beta (17.7, 137)	Beta (113, 228)	Beta (12.2, 40.8)
Monthly rate of HIV testing/screening: Male Black high-risk MSM						
PE	0.113	0.0955	0.1651	0.0971	0.101	0.0578
Distribution	Beta (17.1, 5.9)	Beta (14.5, 6.8)	Beta (6.1, 0.97)	Beta (12.1, 5.5)	Beta (11.5, 4.9)	Beta (1.6, 1.6)
Monthly rate of HIV testing/screening: Male Black MWID						
PE	0.0642	0.0984	0.0647	0.0892	0.0946	0.0440
Distribution	Beta (17.8, 15.3)	Beta (12.5, 5.5)	Beta (3.9, 3.4)	Beta (13.6, 7.1)	Beta (12.6, 5.99)	Beta (1.8, 2.7)
Monthly rate of HIV testing/screening: Male Black low-risk HET						
PE	0.0236	0.0206	0.0170	0.0101	0.0336	0.0218
Distribution	Beta (19.1, 58.4)	Beta (27.8, 99)	Beta (22.1, 97.7)	Beta (17.7, 137)	Beta (113, 228)	Beta (12.2, 40.8)
Monthly rate of HIV testing/screening: Male Black high-risk HET						
PE	0.0473	0.0457	0.0338	0.0470	0.0561	0.0207
Distribution	Beta (12.2, 16)	Beta (3.5, 4.8)	Beta (2.2, 4.4)	Beta (9.8, 12.9)	Beta (8.2, 8.5)	Beta (0.84, 2.98)
Monthly rate of HIV testing/screening: Male Hispanic PWID						
PE	0.0578	0.0984	0.0595	0.0719	0.116	0.0501
Distribution	Beta (1.6, 1.6)	Beta (4, 1.8)	Beta (58.1, 55.8)	Beta (5.3, 3.9)	Beta (9.1, 3.03)	Beta (22.1, 26.8)
Monthly rate of HIV testing/screening: Male Hispanic low-risk MSM						
PE	0.0441	0.0150	0.0075	0.0157	0.0366	0.0039
Distribution	Beta (5.3, 7.6)	Beta (4, 20)	Beta (73.4, 785)	Beta (16.5, 79.6)	Beta (123, 223)	Beta (4.98, 104)
Monthly rate of HIV testing/screening: Male Hispanic high-risk MSM						
PE	0.0512	0.0955	0.106	0.0799	0.132	0.0897
Distribution	Beta (1.4, 1.7)	Beta (4.2, 2)	Beta (58.7, 23)	Beta (4.9, 3)	Beta (9.9, 2.5)	Beta (13, 6.7)
Monthly rate of HIV testing/screening: Male Hispanic MWID						
PE	0.0578	0.0984	0.0595	0.0719	0.116	0.0501
Distribution	Beta (1.6, 1.6)	Beta (4, 1.8)	Beta (58.1, 55.8)	Beta (5.3, 3.9)	Beta (9.1, 3.03)	Beta (22.1, 26.8)
Monthly rate of HIV testing/screening: Male Hispanic low-risk HET						
PE	0.0441	0.0150	0.0075	0.0157	0.0366	0.0039

Distribution	Beta (5.3, 7.6)	Beta (4, 20)	Beta (73.4, 785)	Beta (16.5, 79.6)	Beta (123, 223)	Beta (4.98, 104)

Monthly rate of HIV testing/screening: Male Hispanic high-risk HET

PE	0.0186	0.0457	0.0144	0.0338	0.0547	0.0219
Distribution	Beta (0.8, 3)	Beta (1.3, 1.8)	Beta (8.5, 45.4)	Beta (2.8, 5.6)	Beta (5.9, 6.4)	Beta (5.03, 16.8)

Monthly rate of HIV testing/screening: Female White PWID

PE	0.0530	0.0911	0.0381	0.104	0.142	0.0485
Distribution	Beta (191, 214)	Beta (60, 30)	Beta (122, 210)	Beta (241, 96)	Beta (184, 41)	Beta (263, 333)

Monthly rate of HIV testing/screening: Female White low-risk HET

PE	0.0060	0.0071	0.0055	0.0052	0.0257	0.0050
Distribution	Beta (21.7, 289)	Beta (42.6, 479)	Beta (130, 1916)	Beta (91.7, 1434)	Beta (133.9, 370)	Beta (112.3, 1814)

Monthly rate of HIV testing/screening: Female White high-risk HET

PE	0.0426	0.0627	0.0969	0.0916	0.0916	0.0459
Distribution	Beta (135, 203)	Beta (58, 52)	Beta (189, 86)	Beta (247, 123)	Beta (176, 88)	Beta (160, 217)

Monthly rate of HIV testing/screening: Female Black PWID

PE	0.0659	0.0911	0.0880	0.1083	0.116	0.0657
Distribution	Beta (53.2, 44.1)	Beta (8.5, 4.3)	Beta (6, 3.2)	Beta (8.1, 3.03)	Beta (20.8, 6.9)	Beta (2.96, 2.5)

Monthly rate of HIV testing/screening: Female Black low-risk HET

PE	0.0191	0.0278	0.0185	0.0223	0.0356	0.0135
Distribution	Beta (40, 156)	Beta (61.4, 155)	Beta (34.2, 137)	Beta (43.1, 140)	Beta (190, 358)	Beta (6.7, 38)

Monthly rate of HIV testing/screening: Female Black high-risk HET

PE	0.0446	0.0627	0.0402	0.0486	0.0508	0.0343
Distribution	Beta (34.2, 48.2)	Beta (8.2, 7.3)	Beta (3.2, 5.2)	Beta (6.4, 8.1)	Beta (13.2, 15.8)	Beta (1.5, 2.9)

Monthly rate of HIV testing/screening: Female Hispanic PWID

PE	0.0034	0.0911	0.0609	0.0706	0.123	0.0372
Distribution	Beta (8, 192.7)	Beta (2.8, 1.4)	Beta (60.1, 55.8)	Beta (23, 17.2)	Beta (16.4, 4.9)	Beta (11.6, 20.6)

Monthly rate of HIV testing/screening: Female Hispanic low-risk HET

PE	0.0024	0.0161	0.0112	0.0076	0.0407	0.0091
Distribution	Beta (1.2, 40)	Beta (6.5, 30.5)	Beta (154.5, 1078.8)	Beta (18.6, 194)	Beta (225, 357)	Beta (19.4, 168)

Monthly rate of HIV testing/screening: Female Hispanic high-risk HET

PE	0.0764	0.0627	0.0251	0.0392	0.0603	0.0338
Distribution	Beta (86.7, 57.8)	Beta (1.8, 1.6)	Beta (20.7, 59)	Beta (14.6, 24.3)	Beta (12.2, 11.5)	Beta (6.5, 12.9)

Annual change in HIV testing rate

PE	0.05	0.05	0.05	0.05	0.05	0.05
Distribution	Unif (0, 0.1)	Unif (0, 0.1)	Unif (0, 0.1)	Unif (0, 0.1)	Unif (0, 0.1)	Unif (0, 0.1)

QUALITY-ADJUSTED LIFE-YEAR WEIGHTS

QALY weight for infected PLHIV (CD4>500)

PE	0.91	0.91	0.91	0.91	0.91	0.91
Distribution	Pert (4.44, 3.4)	Pert (4.44, 3.4)	Pert (4.44, 3.4)	Pert (4.44, 3.4)	Pert (4.44, 3.4)	Pert (4.44, 3.4)

QALY weight for infected PLHIV (CD4: 200-499)

PE	0.79	0.79	0.79	0.79	0.79	0.79
Distribution	Pert (4.17, 1.27)	Pert (4.17, 1.27)	Pert (4.17, 1.27)	Pert (4.17, 1.27)	Pert (4.17, 1.27)	Pert (4.17, 1.27)

QALY weight for infected PLHIV (CD4<200)

PE	0.72	0.72	0.72	0.72	0.72	0.72
Distribution	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)

QALY weight for diagnosed PLHIV (CD4>500)

PE	0.865	0.865	0.865	0.865	0.865	0.865
Distribution	Pert (1.61, 4.43)	Pert (1.61, 4.43)	Pert (1.61, 4.43)	Pert (1.61, 4.43)	Pert (1.61, 4.43)	Pert (1.61, 4.43)
QALY weight for diagnosed PLHIV (CD4: 200-499)						
PE	0.72	0.72	0.72	0.72	0.72	0.72
Distribution	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)
QALY weight for diagnosed PLHIV (CD4<200)						
PE	0.72	0.72	0.72	0.72	0.72	0.72
Distribution	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)	Pert (4.59, 1.97)
QALY weight for treated PLHIV (CD4>500)						
PE	0.865	0.865	0.865	0.865	0.865	0.865
Distribution	Pert (1.611, 4.429)	Pert (1.611, 4.429)	Pert (1.611, 4.429)	Pert (1.611, 4.429)	Pert (1.611, 4.429)	Pert (1.611, 4.429)
QALY weight for treated PLHIV (CD4: 200-499)						
PE	0.83	0.83	0.83	0.83	0.83	0.83
Distribution	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)	Pert (1.97, 4.59)
QALY weight for treated PLHIV (CD4<200)						
PE	0.82	0.82	0.82	0.82	0.82	0.82
Distribution	Pert (0.667, 3.33)	Pert (0.667, 3.33)	Pert (0.667, 3.33)	Pert (0.667, 3.33)	Pert (0.667, 3.33)	Pert (0.667, 3.33)
QALY weight adjusted for PWID						
PE	0.174	0.174	0.174	0.174	0.174	0.174
Distribution	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)	Pert (4, 4)
QALY weight adjusted for opioid agonist therapy recipients						
PE	0.213	0.213	0.213	0.213	0.213	0.213
Distribution	Pert (3.7, 4.25)	Pert (3.7, 4.25)	Pert (3.7, 4.25)	Pert (3.7, 4.25)	Pert (3.7, 4.25)	Pert (3.7, 4.25)
HEALTH CARE COSTS FOR PLHIV RECEIVING ART						
Health care cost (CD4>500): Male PWID						
PE	4559	4219	4604	4559	4219	4604
Distribution	Gamma (6301, 2.17)	Gamma (6511, 1.94)	Gamma (5048, 2.74)	Gamma (6301, 2.17)	Gamma (6511, 1.94)	Gamma (5048, 2.74)
Health care cost (CD4>500): Male MSM						
PE	3784	3503	3821	3784	3503	3821
Distribution	Gamma (24395, 0.47)	Gamma (28851, 0.36)	Gamma (15423, 0.74)	Gamma (24395, 0.47)	Gamma (28851, 0.36)	Gamma (15423, 0.74)
Health care cost (CD4>500): Male MWID						
PE	4173	3862	4214	4173	3862	4214
Distribution	Gamma (3013, 4.15)	Gamma (3027, 3.83)	Gamma (2989, 4.23)	Gamma (3013, 4.15)	Gamma (3027, 3.83)	Gamma (2989, 4.23)
Health care cost (CD4>500): Male HET						
PE	3951	3657	3990	3951	3657	3990
Distribution	Gamma (14940, 0.79)	Gamma (14297, 0.77)	Gamma (9092, 1.32)	Gamma (14940, 0.79)	Gamma (14297, 0.77)	Gamma (9092, 1.32)
Health care cost (CD4>500): Female PWID						
PE	4781	4425	4828	4781	4425	4828
Distribution	Gamma (3594, 3.99)	Gamma (3615, 3.67)	Gamma (3142, 4.61)	Gamma (3594, 3.99)	Gamma (3615, 3.67)	Gamma (3142, 4.61)
Health care cost (CD4>500): Female HET						
PE	4090	3786	4130	4090	3786	4130
Distribution	Gamma (17345, 0.71)	Gamma (16692, 0.68)	Gamma (9559, 1.3)	Gamma (17345, 0.71)	Gamma (16692, 0.68)	Gamma (9559, 1.3)
Health care cost (CD4: 200-499): Male PWID						
PE	4620	4277	4666	4620	4277	4666

Distribution	Gamma (6362, 2.18)	Gamma (6526, 1.97)	Gamma (5072, 2.76)	Gamma (6362, 2.18)	Gamma (6526, 1.97)	Gamma (5072, 2.76)
Health care cost (CD4: 200-499): Male MSM						
PE	3835	3550	3873	3835	3550	3873
Distribution	Gamma (24477, 0.47)	Gamma (28010, 0.38)	Gamma (15325, 0.76)	Gamma (24477, 0.47)	Gamma (28010, 0.38)	Gamma (15325, 0.76)
Health care cost (CD4: 200-499): Male MWID						
PE	4229	3914	4271	4229	3914	4271
Distribution	Gamma (3020, 4.2)	Gamma (3024, 3.88)	Gamma (2991, 4.28)	Gamma (3020, 4.2)	Gamma (3024, 3.88)	Gamma (2991, 4.28)
Health care cost (CD4: 200-499): Male HET						
PE	4004	3706	4044	4004	3706	4044
Distribution	Gamma (15199, 0.79)	Gamma (14288, 0.78)	Gamma (9140, 1.33)	Gamma (15199, 0.79)	Gamma (14288, 0.78)	Gamma (9140, 1.33)
Health care cost (CD4: 200-499): Female PWID						
PE	4845	4485	4893	4845	4485	4893
Distribution	Gamma (3595, 4.04)	Gamma (3602, 3.74)	Gamma (3137, 4.68)	Gamma (3595, 4.04)	Gamma (3602, 3.74)	Gamma (3137, 4.68)
Health care cost (CD4: 200-499): Female HET						
PE	4145	3837	4186	4145	3837	4186
Distribution	Gamma (17205, 0.72)	Gamma (16243, 0.71)	Gamma (9466, 1.33)	Gamma (17205, 0.72)	Gamma (16243, 0.71)	Gamma (9466, 1.33)
Health care cost (CD4<200): Male PWID						
PE	4928	4561	4977	4928	4561	4977
Distribution	Gamma (5983, 2.47)	Gamma (6089, 2.25)	Gamma (4815, 3.1)	Gamma (5983, 2.47)	Gamma (6089, 2.25)	Gamma (4815, 3.1)
Health care cost (CD4<200): Male MSM						
PE	4091	3786	4131	4091	3786	4131
Distribution	Gamma (18905, 0.65)	Gamma (20517, 0.55)	Gamma (12845, 0.96)	Gamma (18905, 0.65)	Gamma (20517, 0.55)	Gamma (12845, 0.96)
Health care cost (CD4<200): Male MWID						
PE	4511	4175	4555	4511	4175	4555
Distribution	Gamma (2921, 4.63)	Gamma (2916, 4.3)	Gamma (2889, 4.73)	Gamma (2921, 4.63)	Gamma (2916, 4.3)	Gamma (2889, 4.73)
Health care cost (CD4<200): Male HET						
PE	4271	3953	4313	4271	3953	4313
Distribution	Gamma (13136, 0.98)	Gamma (12299, 0.96)	Gamma (8314, 1.56)	Gamma (13136, 0.98)	Gamma (12299, 0.96)	Gamma (8314, 1.56)
Health care cost (CD4<200): Female PWID						
PE	5168	4783	5219	5168	4783	5219
Distribution	Gamma (3455, 4.49)	Gamma (3449, 4.16)	Gamma (3025, 5.18)	Gamma (3455, 4.49)	Gamma (3449, 4.16)	Gamma (3025, 5.18)
Health care cost (CD4<200): Female HET						
PE	4421	4092	4465	4421	4092	4465
Distribution	Gamma (14313, 0.93)	Gamma (13461, 0.91)	Gamma (8481, 1.58)	Gamma (14313, 0.93)	Gamma (13461, 0.91)	Gamma (8481, 1.58)

PE: point estimate; PLHIV: people living with HIV; PWID: people who inject drugs; MSM: men who have sex with men; MWID: men who are both MSM and PWID; HET: heterosexual; ln: lognormal; Unif: uniform; QALY: quality-adjusted life year.