TAC Scenario Results

Online Resource 3

Article: A computational framework for posterior probability vectors over discrete pharmacokinetic states

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R aghq comparison records

Summary across sensitivity scenarios

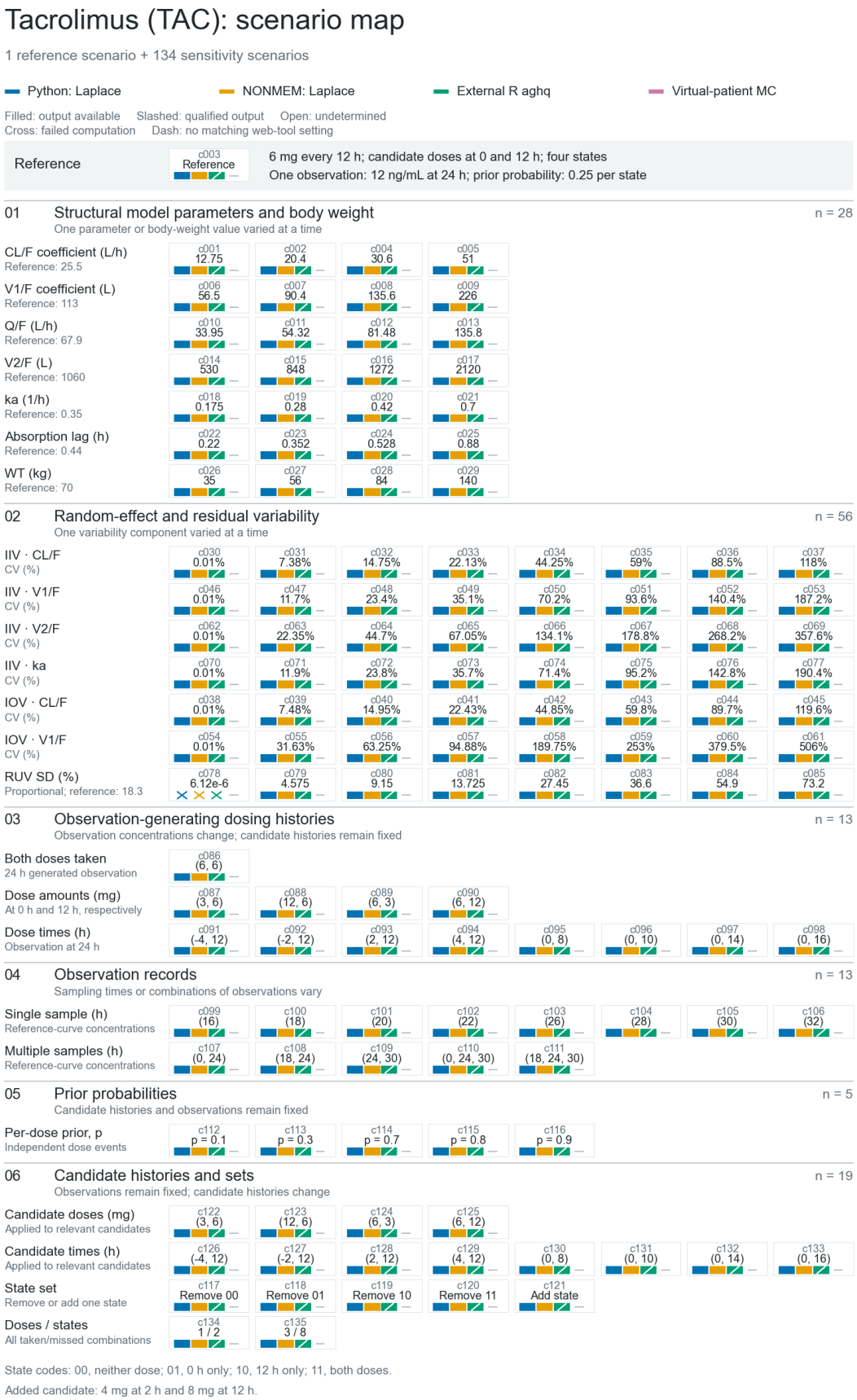
One reference scenario and 134 sensitivity scenarios.

Unavailable denotes missing or excluded values. Valid-output counts refer to the five formal runs; pilot and historical attempts are retained under Run times and numerical checks.

Definitions and comparison rules: Online Resource 1, Section 5.

No virtual-patient comparator was included for TAC.

Scenario map



Filled indicators: available outputs; slashes: qualified outputs; crosses: failed computations; open indicators: undetermined coverage; dash: no corresponding MC setting. R stability flags are retained but do not alone exclude a complete posterior output.

Scenario index

Reference scenario

Scenario	Change from reference	Page
c003	Reference scenario.	7

Structural parameters

Scenario	Change from reference	Page
c001	CL: 25.5 to 12.75.	9
c002	CL: 25.5 to 20.4.	11
c004	CL: 25.5 to 30.6.	13
c005	CL: 25.5 to 51.	15
c006	V1: 113 to 56.5.	17
c007	V1: 113 to 90.4.	19
c008	V1: 113 to 135.6.	21
c009	V1: 113 to 226.	23
c010	Q: 67.9 to 33.95.	25
c011	Q: 67.9 to 54.32.	27
c012	Q: 67.9 to 81.48.	29
c013	Q: 67.9 to 135.8.	31
c014	V2: 1060 to 530.	33
c015	V2: 1060 to 848.	35
c016	V2: 1060 to 1272.	37
c017	V2: 1060 to 2120.	39
c018	ka: 0.35 to 0.175.	41
c019	ka: 0.35 to 0.28.	43
c020	ka: 0.35 to 0.42.	45
c021	ka: 0.35 to 0.7.	47
c022	lag: 0.44 to 0.22.	49
c023	lag: 0.44 to 0.352.	51
c024	lag: 0.44 to 0.528.	53
c025	lag: 0.44 to 0.88.	55
c026	WT: 70 to 35.	57
c027	WT: 70 to 56.	59
c028	WT: 70 to 84.	61
c029	WT: 70 to 140.	63

Variability

Scenario	Change from reference	Page
c030	Clearance IIV: CV 0.01000000002%.	65
c031	Clearance IIV: CV 7.375%.	67
c032	Clearance IIV: CV 14.75%.	69
c033	Clearance IIV: CV 22.125%.	71
c034	Clearance IIV: CV 44.25%.	73
c035	Clearance IIV: CV 59%.	75
c036	Clearance IIV: CV 88.5%.	77
c037	Clearance IIV: CV 118%.	79
c038	Clearance IOV: CV 0.01000000002%.	81
c039	Clearance IOV: CV 7.475%.	83
c040	Clearance IOV: CV 14.95%.	85
c041	Clearance IOV: CV 22.425%.	87
c042	Clearance IOV: CV 44.85%.	89
c043	Clearance IOV: CV 59.8%.	91
c044	Clearance IOV: CV 89.7%.	93
c045	Clearance IOV: CV 119.6%.	95
c046	Central-volume IIV: CV 0.01000000002%.	97
c047	Central-volume IIV: CV 11.7%.	99
c048	Central-volume IIV: CV 23.4%.	101
c049	Central-volume IIV: CV 35.1%.	103
c050	Central-volume IIV: CV 70.2%.	105
c051	Central-volume IIV: CV 93.6%.	107
c052	Central-volume IIV: CV 140.4%.	109
c053	Central-volume IIV: CV 187.2%.	111
c054	Central-volume IOV: CV 0.01000000002%.	113
c055	Central-volume IOV: CV 31.625%.	115
c056	Central-volume IOV: CV 63.25%.	117
c057	Central-volume IOV: CV 94.875%.	119
c058	Central-volume IOV: CV 189.75%.	121
c059	Central-volume IOV: CV 253%.	123
c060	Central-volume IOV: CV 379.5%.	125
c061	Central-volume IOV: CV 506%.	127
c062	Peripheral-volume IIV: CV 0.01000000002%.	129
c063	Peripheral-volume IIV: CV 22.35%.	131
c064	Peripheral-volume IIV: CV 44.7%.	133
c065	Peripheral-volume IIV: CV 67.05%.	135
c066	Peripheral-volume IIV: CV 134.1%.	137
c067	Peripheral-volume IIV: CV 178.8%.	139
c068	Peripheral-volume IIV: CV 268.2%.	141
c069	Peripheral-volume IIV: CV 357.6%.	143
c070	Absorption-rate IIV: CV 0.01000000002%.	145
c071	Absorption-rate IIV: CV 11.9%.	147
c072	Absorption-rate IIV: CV 23.8%.	149

Scenario	Change from reference	Page
c073	Absorption-rate IIV: CV 35.7%.	151
c074	Absorption-rate IIV: CV 71.4%.	153
c075	Absorption-rate IIV: CV 95.2%.	155
c076	Absorption-rate IIV: CV 142.8%.	157
c077	Absorption-rate IIV: CV 190.4%.	159
c078	Proportional residual coefficient SD: 6.11631016e-06%.	161
c079	Proportional residual coefficient SD: 4.575%.	163
c080	Proportional residual coefficient SD: 9.15%.	165
c081	Proportional residual coefficient SD: 13.725%.	167
c082	Proportional residual coefficient SD: 27.45%.	169
c083	Proportional residual coefficient SD: 36.6%.	171
c084	Proportional residual coefficient SD: 54.9%.	173
c085	Proportional residual coefficient SD: 73.2%.	175

Actual dosing histories

Scenario	Change from reference	Page
c086	Observation generated from 6 mg at 0 h and 6 mg at 12 h; candidate histories unchanged.	177
c087	Observation generated from 3 mg at 0 h and 6 mg at 12 h; candidate histories unchanged.	179
c088	Observation generated from 12 mg at 0 h and 6 mg at 12 h; candidate histories unchanged.	181
c089	Observation generated from 6 mg at 0 h and 3 mg at 12 h; candidate histories unchanged.	183
c090	Observation generated from 6 mg at 0 h and 12 mg at 12 h; candidate histories unchanged.	185
c091	Observation generated from 6 mg at -4 h and 6 mg at 12 h; candidate histories unchanged.	187
c092	Observation generated from 6 mg at -2 h and 6 mg at 12 h; candidate histories unchanged.	189
c093	Observation generated from 6 mg at 2 h and 6 mg at 12 h; candidate histories unchanged.	191
c094	Observation generated from 6 mg at 4 h and 6 mg at 12 h; candidate histories unchanged.	193
c095	Observation generated from 6 mg at 0 h and 6 mg at 8 h; candidate histories unchanged.	195
c096	Observation generated from 6 mg at 0 h and 6 mg at 10 h; candidate histories unchanged.	197
c097	Observation generated from 6 mg at 0 h and 6 mg at 14 h; candidate histories unchanged.	199
c098	Observation generated from 6 mg at 0 h and 6 mg at 16 h; candidate histories unchanged.	201

Observation records

Scenario	Change from reference	Page
c099	Observation times: 16 h.	203
c100	Observation times: 18 h.	205
c101	Observation times: 20 h.	207
c102	Observation times: 22 h.	209
c103	Observation times: 26 h.	211
c104	Observation times: 28 h.	213
c105	Observation times: 30 h.	215
c106	Observation times: 32 h.	217
c107	Observation times: 0, 24 h.	219
c108	Observation times: 18, 24 h.	221
c109	Observation times: 24, 30 h.	223
c110	Observation times: 0, 24, 30 h.	225
c111	Observation times: 18, 24, 30 h.	227

Prior probabilities

Scenario	Change from reference	Page
c112	Independent per-dose prior probability: 0.1.	229
c113	Independent per-dose prior probability: 0.3.	231
c114	Independent per-dose prior probability: 0.7.	233
c115	Independent per-dose prior probability: 0.8.	235
c116	Independent per-dose prior probability: 0.9.	237

Candidate states

Scenario	Change from reference	Page
c117	Remove state omega_00.	239
c118	Remove state omega_01.	241
c119	Remove state omega_10.	243
c120	Remove state omega_11.	245
c121	Add one candidate history.	247
c122	Candidate dose events: 3 mg at 0 h; 6 mg at 12 h.	249
c123	Candidate dose events: 12 mg at 0 h; 6 mg at 12 h.	251
c124	Candidate dose events: 6 mg at 0 h; 3 mg at 12 h.	253
c125	Candidate dose events: 6 mg at 0 h; 12 mg at 12 h.	255
c126	Candidate dose events: 6 mg at -4 h; 6 mg at 12 h.	257
c127	Candidate dose events: 6 mg at -2 h; 6 mg at 12 h.	259
c128	Candidate dose events: 6 mg at 2 h; 6 mg at 12 h.	261
c129	Candidate dose events: 6 mg at 4 h; 6 mg at 12 h.	263
c130	Candidate dose events: 6 mg at 0 h; 6 mg at 8 h.	265
c131	Candidate dose events: 6 mg at 0 h; 6 mg at 10 h.	267
c132	Candidate dose events: 6 mg at 0 h; 6 mg at 14 h.	269
c133	Candidate dose events: 6 mg at 0 h; 6 mg at 16 h.	271
c134	Candidate dose times: 12 h; 2 candidate states.	273
c135	Candidate dose times: -12, 0, 12 h; 8 candidate states.	275

Scenario results

TAC c003: Reference scenario

Reference scenario.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

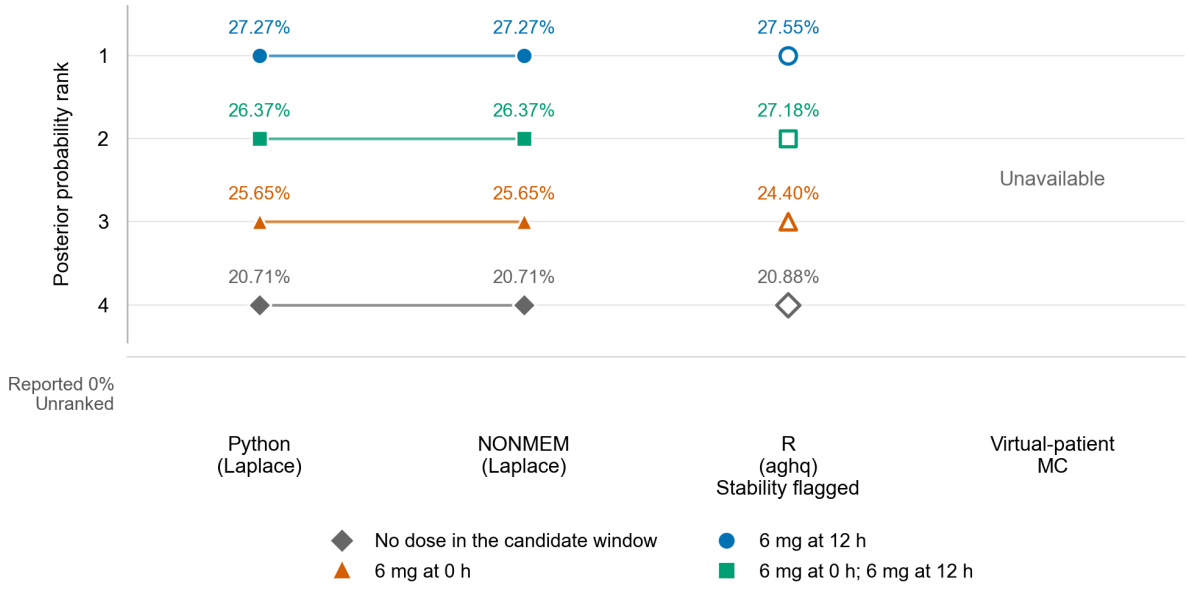
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.93412×10^{-8}	1.93412×10^{-8}	2.39266×10^{-8}	1.71592×10^{-8}
Python vs R aghq	0.012528	0.012528	0.015250	0.010677
NONMEM vs R aghq	0.012528	0.012528	0.015250	0.010677

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20711803	0.20711804	0.20877443
ω_{01}: 6 mg at 0 h	0.25	0.25648544	0.25648542	0.24395704
ω_{10}: 6 mg at 12 h	0.25	0.27267835	0.27267836	0.27549291
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26371818	0.26371818	0.27177562

Method	P_{max}	G	H_N
Python Laplace	0.272678	0.008960	0.996134
NONMEM Laplace	0.272678	0.008960	0.996134
R aghq	0.275493	0.003717	0.995776

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c001: Structural parameters

CL: 25.5 to 12.75.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

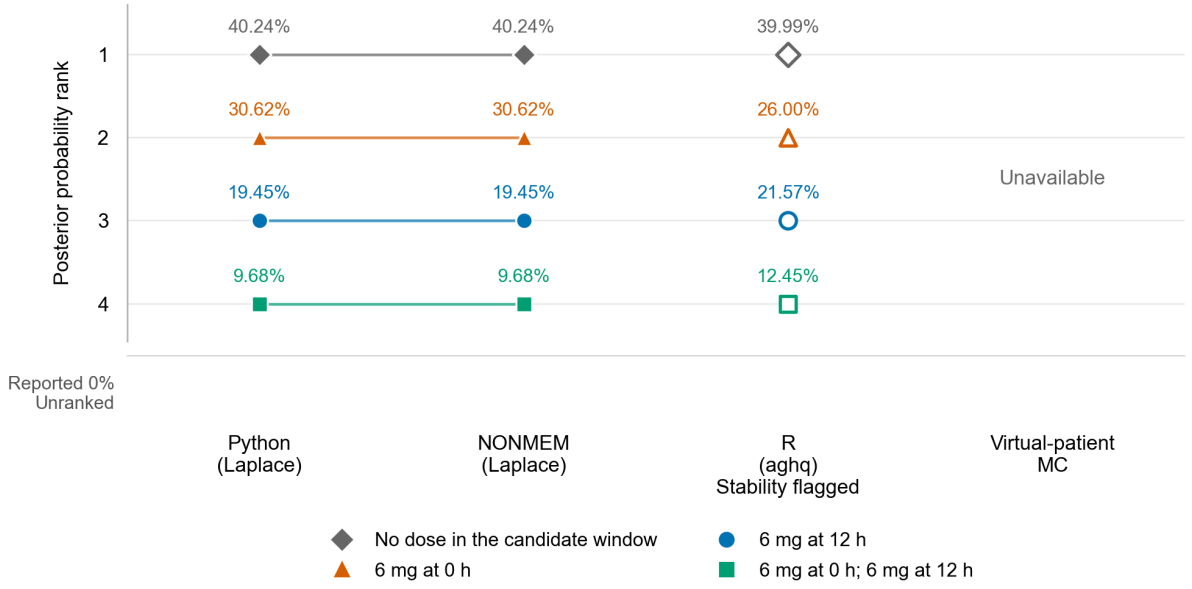
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.63003×10^{-8}	1.63003×10^{-8}	1.95946×10^{-8}	1.50512×10^{-8}
Python vs R aghq	0.046259	0.048845	0.057968	0.045709
NONMEM vs R aghq	0.046259	0.048845	0.057968	0.045709

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.40244225	0.40244225	0.39985578
ω_{01}: 6 mg at 0 h	0.25	0.30623295	0.30623296	0.25997407
ω_{10}: 6 mg at 12 h	0.25	0.19448820	0.19448820	0.21568790
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.09683660	0.09683659	0.12448225

Method	P_{max}	G	H_N
Python Laplace	0.402442	0.096209	0.918450
NONMEM Laplace	0.402442	0.096209	0.918450
R aghq	0.399856	0.139882	0.942785

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c002: Structural parameters

CL: 25.5 to 20.4.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

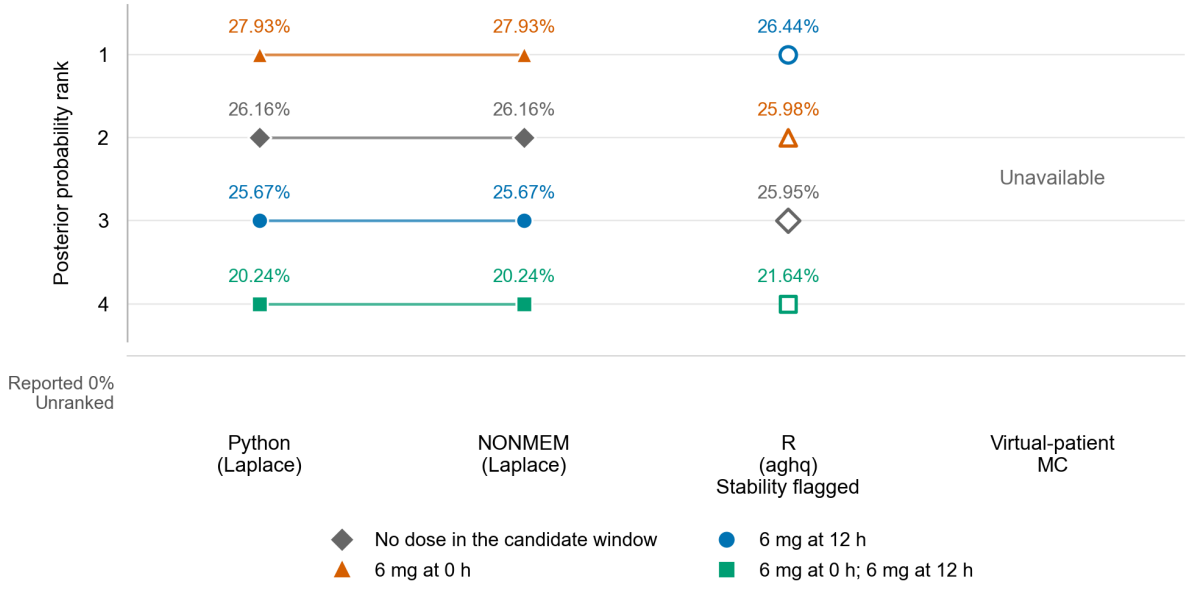
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.99911×10^{-8}	1.99911×10^{-8}	2.41863×10^{-8}	1.72406×10^{-8}
Python vs R aghq	0.019560	0.021651	0.025325	0.018017
NONMEM vs R aghq	0.019560	0.021651	0.025325	0.018017

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.26156599	0.26156601	0.25947442
ω_{01}: 6 mg at 0 h	0.25	0.27931372	0.27931372	0.25975416
ω_{10}: 6 mg at 12 h	0.25	0.25669699	0.25669698	0.26435881
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.20242330	0.20242329	0.21641261

Method	P_{max}	G	H_N
Python Laplace	0.279314	0.017748	0.995057
NONMEM Laplace	0.279314	0.017748	0.995057
R aghq	0.264359	0.004605	0.997739

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c004: Structural parameters

CL: 25.5 to 30.6.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

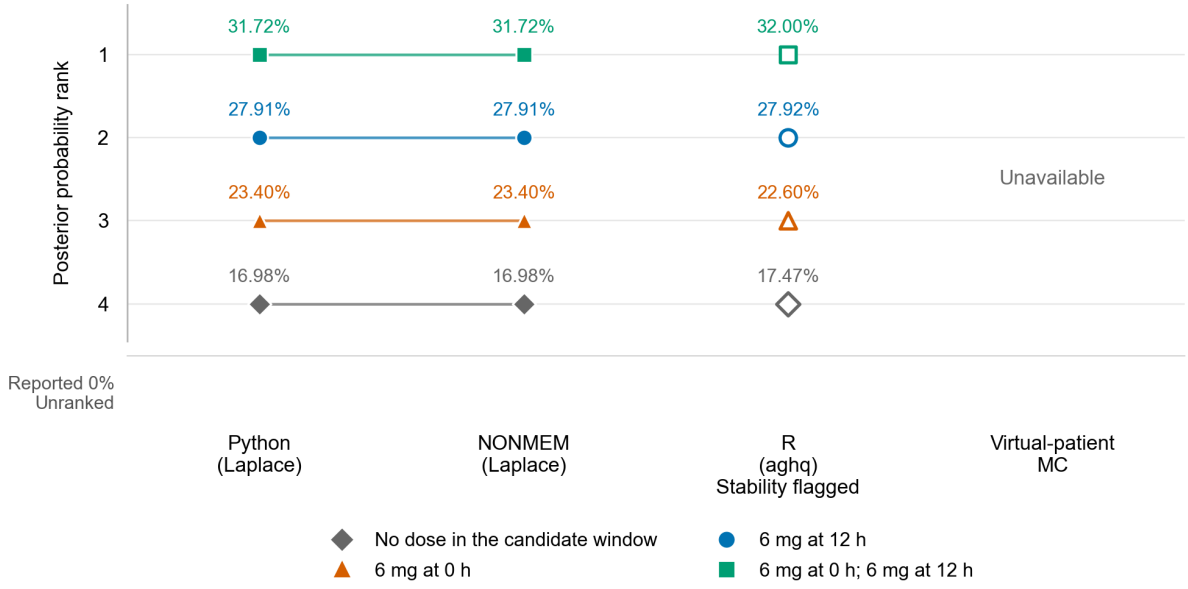
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	6.37623×10^{-8}	6.37623×10^{-8}	7.37914×10^{-8}	6.00910×10^{-8}
Python vs R aghq	7.93225×10^{-3}	7.93225×10^{-3}	9.75910×10^{-3}	7.41469×10^{-3}
NONMEM vs R aghq	7.93223×10^{-3}	7.93223×10^{-3}	9.75906×10^{-3}	7.41465×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.16976703	0.16976709	0.17469428
ω_{01}: 6 mg at 0 h	0.25	0.23395581	0.23395579	0.22602356
ω_{10}: 6 mg at 12 h	0.25	0.27906430	0.27906428	0.27923892
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.31721286	0.31721284	0.32004324

Method	P_{max}	G	H_N
Python Laplace	0.317213	0.038149	0.981966
NONMEM Laplace	0.317213	0.038149	0.981966
R aghq	0.320043	0.040804	0.982304

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c005: Structural parameters

CL: 25.5 to 51.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

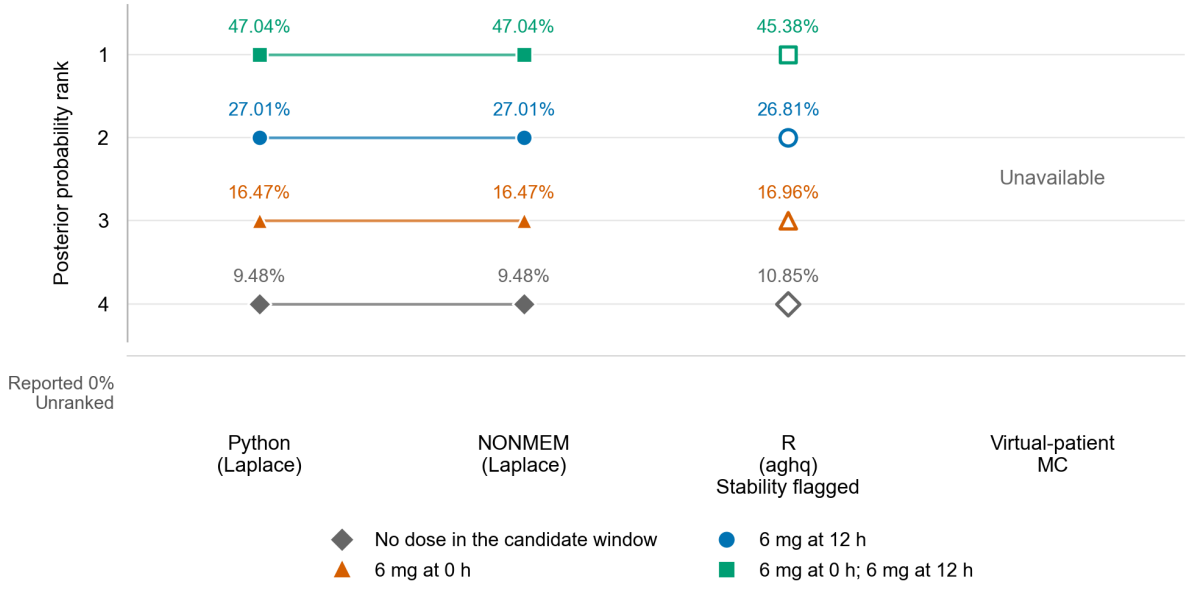
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.10384×10^{-8}	4.10384×10^{-8}	5.12765×10^{-8}	3.31496×10^{-8}
Python vs R aghq	0.016629	0.018613	0.022193	0.018057
NONMEM vs R aghq	0.016629	0.018613	0.022193	0.018057

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.09481901	0.09481902	0.10853296
ω_{01}: 6 mg at 0 h	0.25	0.16467738	0.16467738	0.16957624
ω_{10}: 6 mg at 12 h	0.25	0.27005628	0.27005624	0.26807213
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.47044733	0.47044735	0.45381867

Method	P_{max}	G	H_N
Python Laplace	0.470447	0.200391	0.886320
NONMEM Laplace	0.470447	0.200391	0.886320
R aghq	0.453819	0.185747	0.904125

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c006: Structural parameters

V1: 113 to 56.5.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

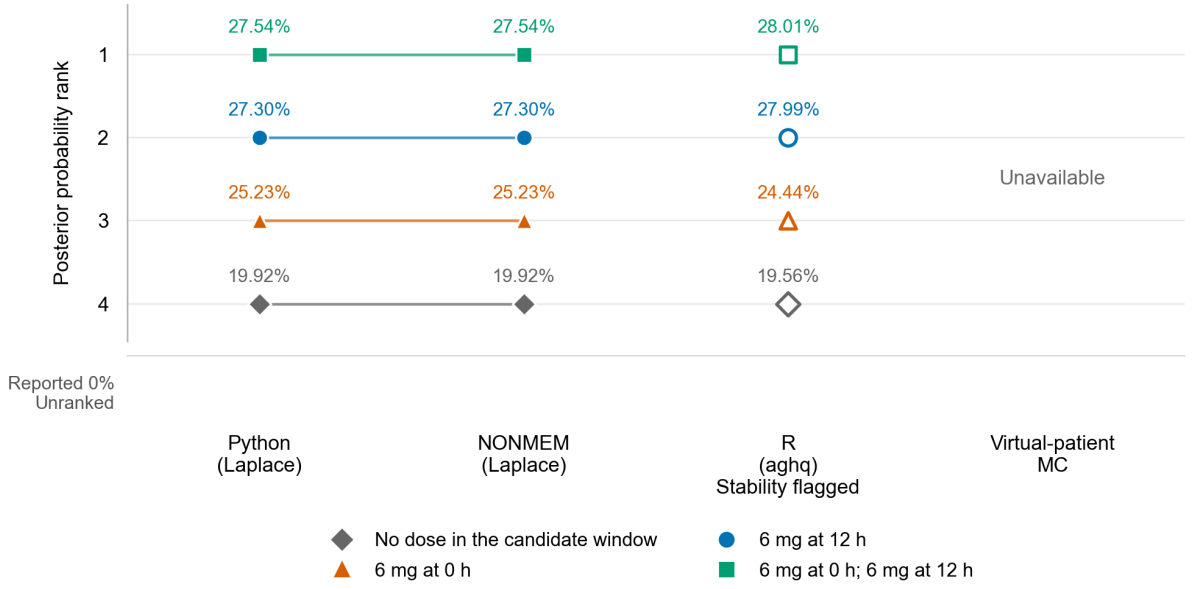
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.24722×10^{-8}	4.02344×10^{-8}	4.53971×10^{-8}	3.14673×10^{-8}
Python vs R aghq	7.92059×10^{-3}	0.011580	0.012056	8.44441×10^{-3}
NONMEM vs R aghq	7.92062×10^{-3}	0.011580	0.012056	8.44444×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19924749	0.19924749	0.19558789
ω_{01}: 6 mg at 0 h	0.25	0.25234025	0.25234029	0.24441966
ω_{10}: 6 mg at 12 h	0.25	0.27304407	0.27304406	0.27987685
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27536819	0.27536816	0.28011560

Method	P_{max}	G	H_N
Python Laplace	0.275368	0.002324	0.994353
NONMEM Laplace	0.275368	0.002324	0.994353
R aghq	0.280116	0.000239	0.992836

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c007: Structural parameters

V1: 113 to 90.4.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

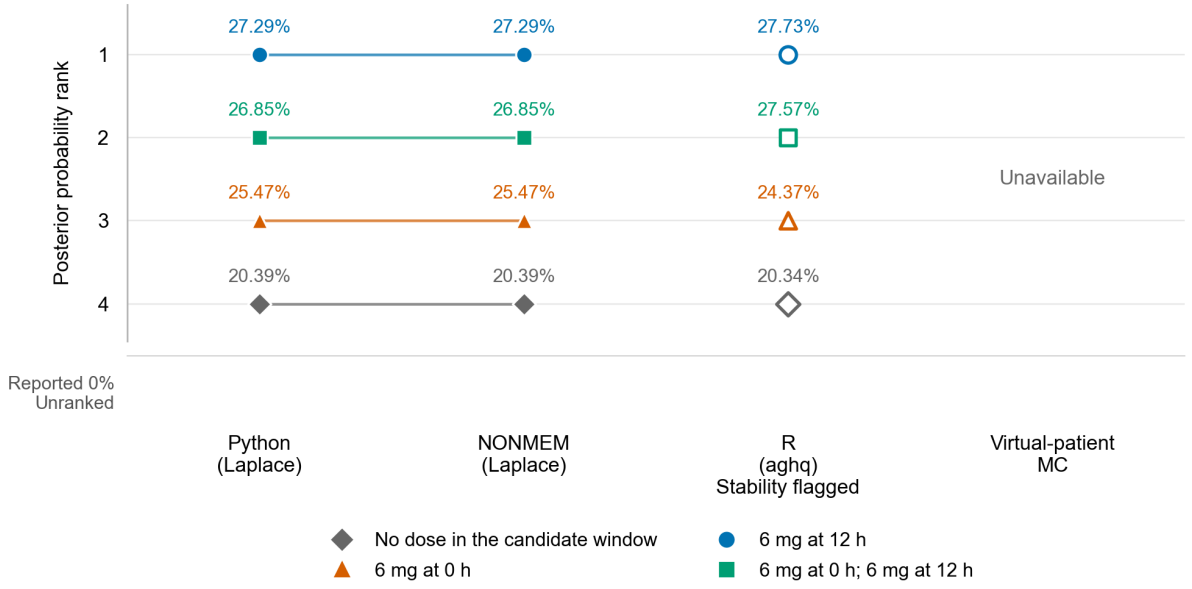
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.91520×10^{-8}	3.91520×10^{-8}	4.52171×10^{-8}	3.11046×10^{-8}
Python vs R aghq	0.011068	0.011525	0.013893	9.68444×10^{-3}
NONMEM vs R aghq	0.011068	0.011525	0.013893	9.68445×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20386946	0.20386948	0.20341196
ω_{01}: 6 mg at 0 h	0.25	0.25472967	0.25472968	0.24366205
ω_{10}: 6 mg at 12 h	0.25	0.27290707	0.27290703	0.27727373
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26849379	0.26849381	0.27565226

Method	P_{max}	G	H_N
Python Laplace	0.272907	0.004413	0.995473
NONMEM Laplace	0.272907	0.004413	0.995473
R aghq	0.277274	0.001621	0.994641

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c008: Structural parameters

V1: 113 to 135.6.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

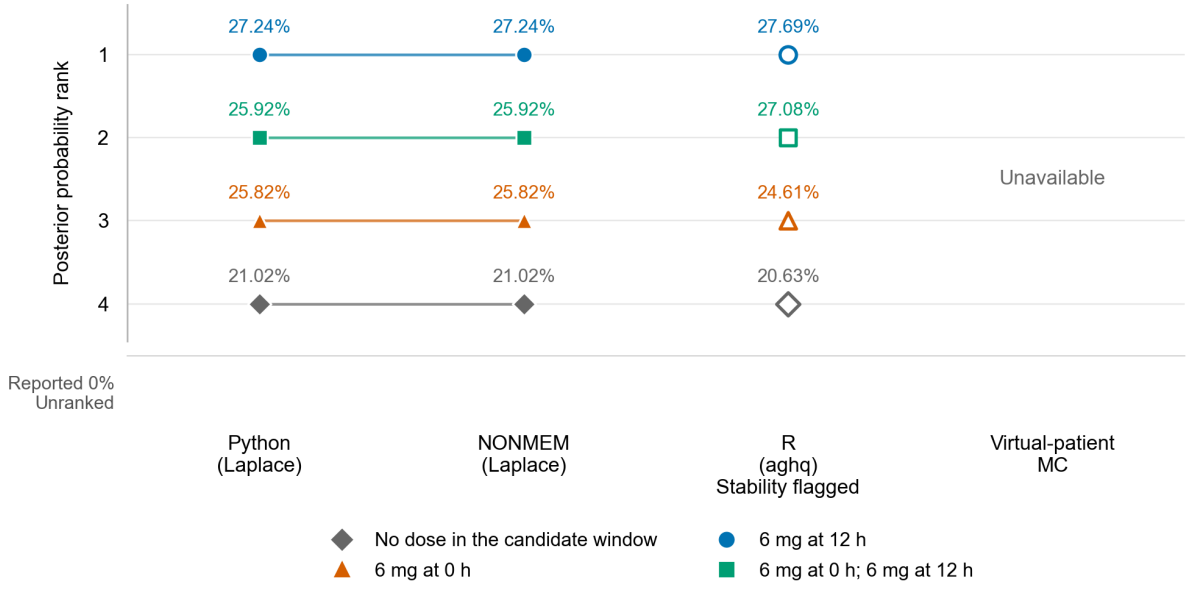
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.86660×10^{-8}	1.86660×10^{-8}	2.34060×10^{-8}	1.72920×10^{-8}
Python vs R aghq	0.012117	0.016099	0.017795	0.012435
NONMEM vs R aghq	0.012117	0.016099	0.017795	0.012435

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21024067	0.21024065	0.20625869
ω_{01}: 6 mg at 0 h	0.25	0.25816944	0.25816944	0.24605268
ω_{10}: 6 mg at 12 h	0.25	0.27235221	0.27235222	0.27690862
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25923768	0.25923769	0.27078001

Method	P_{max}	G	H_N
Python Laplace	0.272352	0.013115	0.996671
NONMEM Laplace	0.272352	0.013115	0.996671
R aghq	0.276909	0.006129	0.995425

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c009: Structural parameters

V1: 113 to 226.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

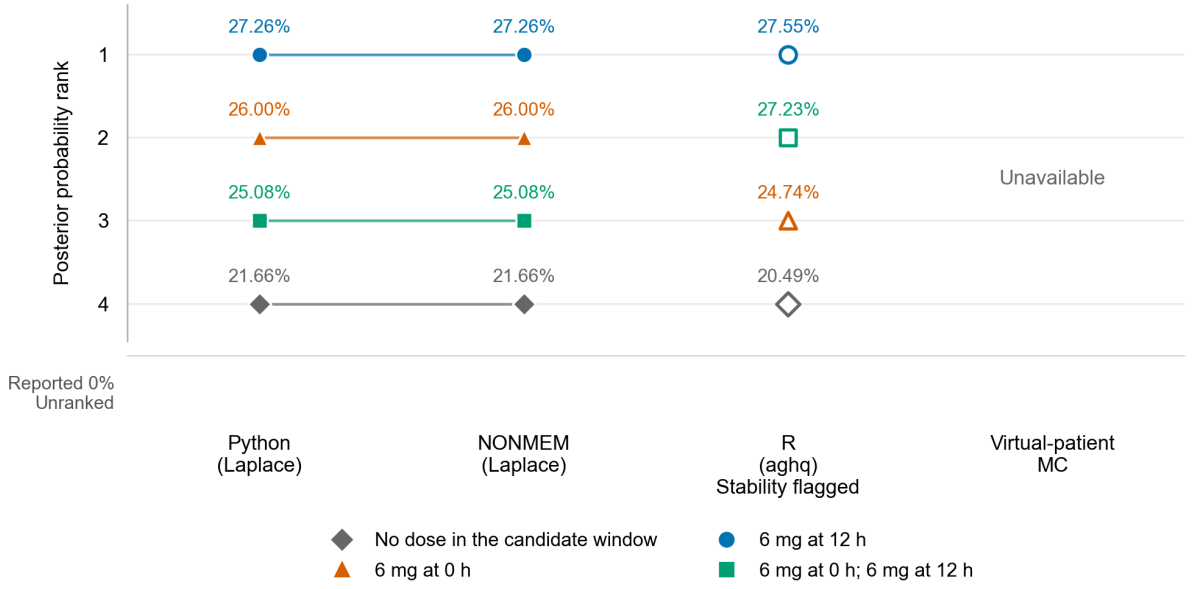
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.64677×10^{-8}	2.64677×10^{-8}	3.51477×10^{-8}	2.54897×10^{-8}
Python vs R aghq	0.021485	0.024324	0.027675	0.019601
NONMEM vs R aghq	0.021485	0.024324	0.027675	0.019601

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21658766	0.21658763	0.20487005
ω_{01}: 6 mg at 0 h	0.25	0.26001240	0.26001240	0.24740602
ω_{10}: 6 mg at 12 h	0.25	0.27262897	0.27262900	0.27546774
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25077097	0.25077097	0.27225620

Method	P_{max}	G	H_N
Python Laplace	0.272629	0.012617	0.997451
NONMEM Laplace	0.272629	0.012617	0.997451
R aghq	0.275468	0.003212	0.995257

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c010: Structural parameters

Q: 67.9 to 33.95.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

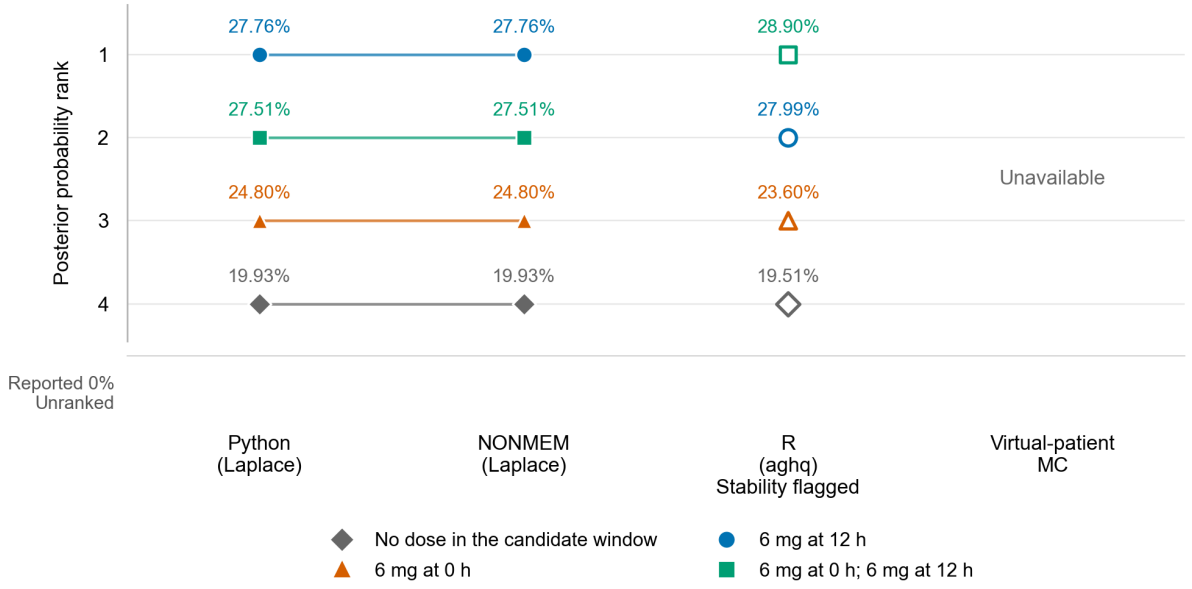
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.93827×10^{-8}	4.30532×10^{-8}	4.45524×10^{-8}	3.08370×10^{-8}
Python vs R aghq	0.013989	0.016204	0.019017	0.013200
NONMEM vs R aghq	0.013989	0.016204	0.019017	0.013200

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19932100	0.19932102	0.19507652
ω_{01}: 6 mg at 0 h	0.25	0.24797840	0.24797838	0.23601874
ω_{10}: 6 mg at 12 h	0.25	0.27764269	0.27764267	0.27985802
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27505790	0.27505793	0.28904672

Method	P_{max}	G	H_N
Python Laplace	0.277643	0.002585	0.994068
NONMEM Laplace	0.277643	0.002585	0.994068
R aghq	0.289047	0.009189	0.991670

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c011: Structural parameters

Q: 67.9 to 54.32.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

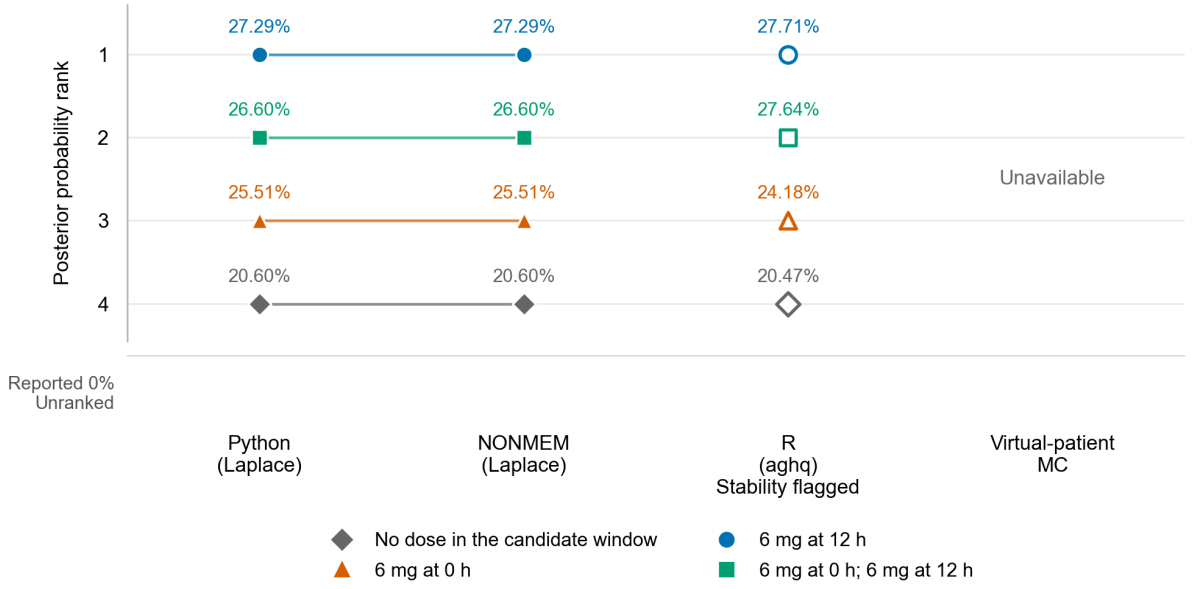
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.60655×10^{-9}	9.60655×10^{-9}	1.15354×10^{-8}	8.69131×10^{-9}
Python vs R aghq	0.013336	0.014641	0.017484	0.012189
NONMEM vs R aghq	0.013336	0.014641	0.017484	0.012189

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20603816	0.20603817	0.20473324
ω_{01}: 6 mg at 0 h	0.25	0.25513652	0.25513652	0.24180032
ω_{10}: 6 mg at 12 h	0.25	0.27285989	0.27285989	0.27710198
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26596542	0.26596542	0.27636446

Method	P_{max}	G	H_N
Python Laplace	0.272860	0.006894	0.995902
NONMEM Laplace	0.272860	0.006894	0.995902
R aghq	0.277102	0.000738	0.994757

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c012: Structural parameters

Q: 67.9 to 81.48.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

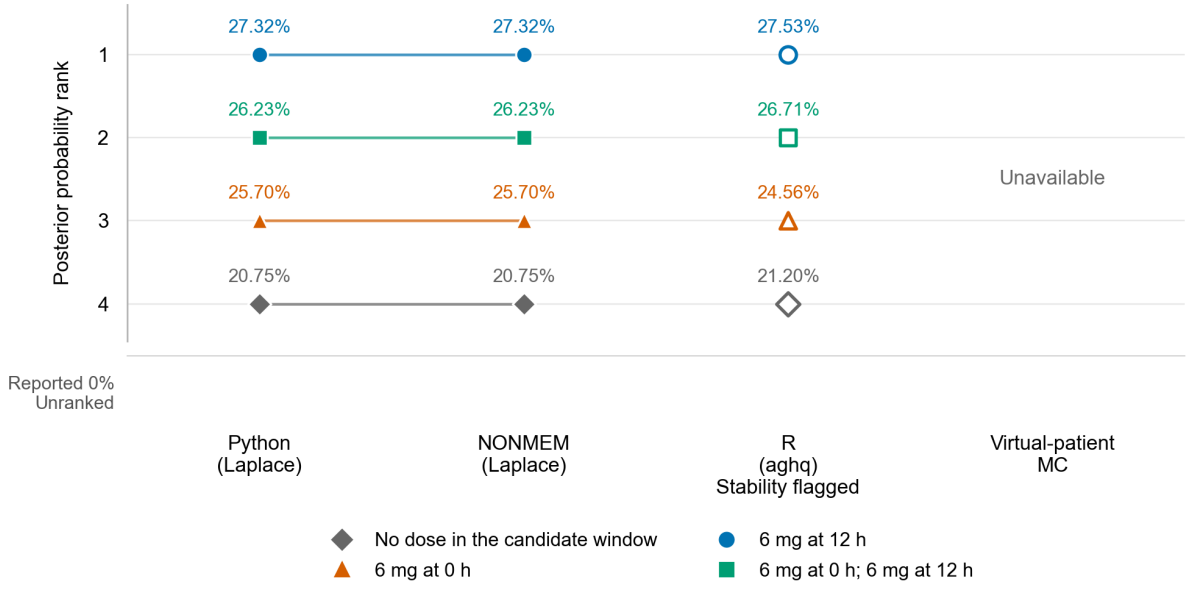
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.92216×10^{-9}	4.92255×10^{-9}	6.59568×10^{-9}	4.87583×10^{-9}
Python vs R aghq	0.011313	0.011313	0.013231	9.39583×10^{-3}
NONMEM vs R aghq	0.011313	0.011313	0.013231	9.39583×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20750829	0.20750829	0.21196201
ω_{01}: 6 mg at 0 h	0.25	0.25695867	0.25695867	0.24564551
ω_{10}: 6 mg at 12 h	0.25	0.27322526	0.27322526	0.27529387
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26230778	0.26230778	0.26709862

Method	P_{max}	G	H_N
Python Laplace	0.273225	0.010917	0.996194
NONMEM Laplace	0.273225	0.010917	0.996194
R aghq	0.275294	0.008195	0.996464

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c013: Structural parameters

Q: 67.9 to 135.8.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

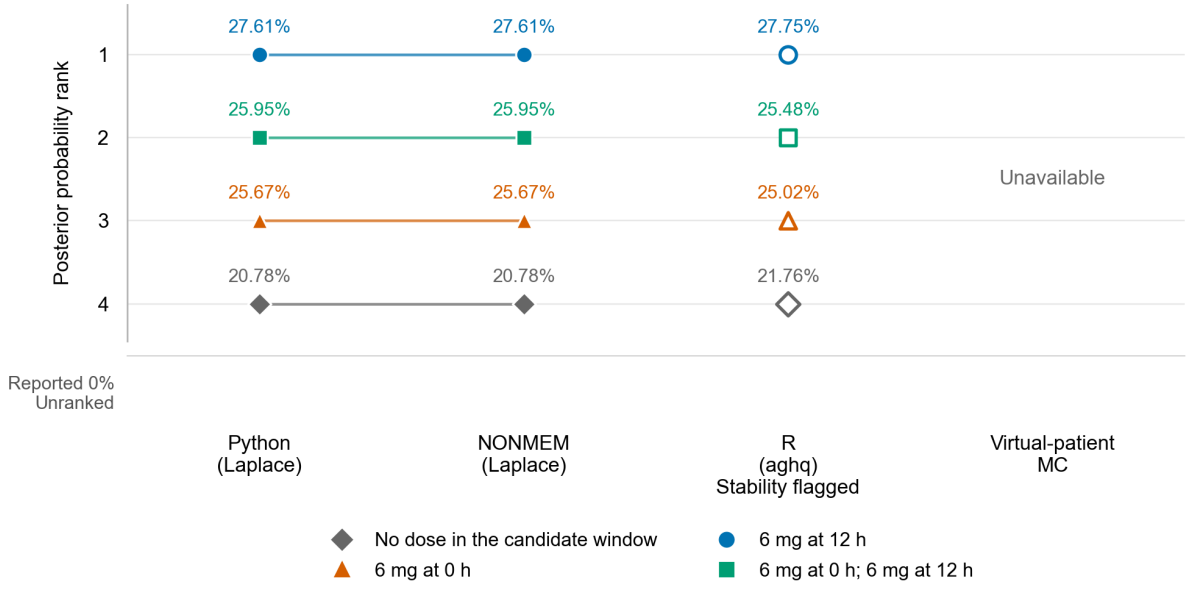
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.78955×10^{-9}	1.20229×10^{-8}	1.31586×10^{-8}	9.37443×10^{-9}
Python vs R aghq	9.77550×10^{-3}	0.011149	0.012694	9.39552×10^{-3}
NONMEM vs R aghq	9.77551×10^{-3}	0.011149	0.012694	9.39553×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20779957	0.20779957	0.21757508
ω_{01}: 6 mg at 0 h	0.25	0.25666194	0.25666195	0.25021193
ω_{10}: 6 mg at 12 h	0.25	0.27608257	0.27608257	0.27745580
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25945592	0.25945591	0.25475719

Method	P_{max}	G	H_N
Python Laplace	0.276083	0.016627	0.996133
NONMEM Laplace	0.276083	0.016627	0.996133
R aghq	0.277456	0.022699	0.997331

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c014: Structural parameters

V2: 1060 to 530.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

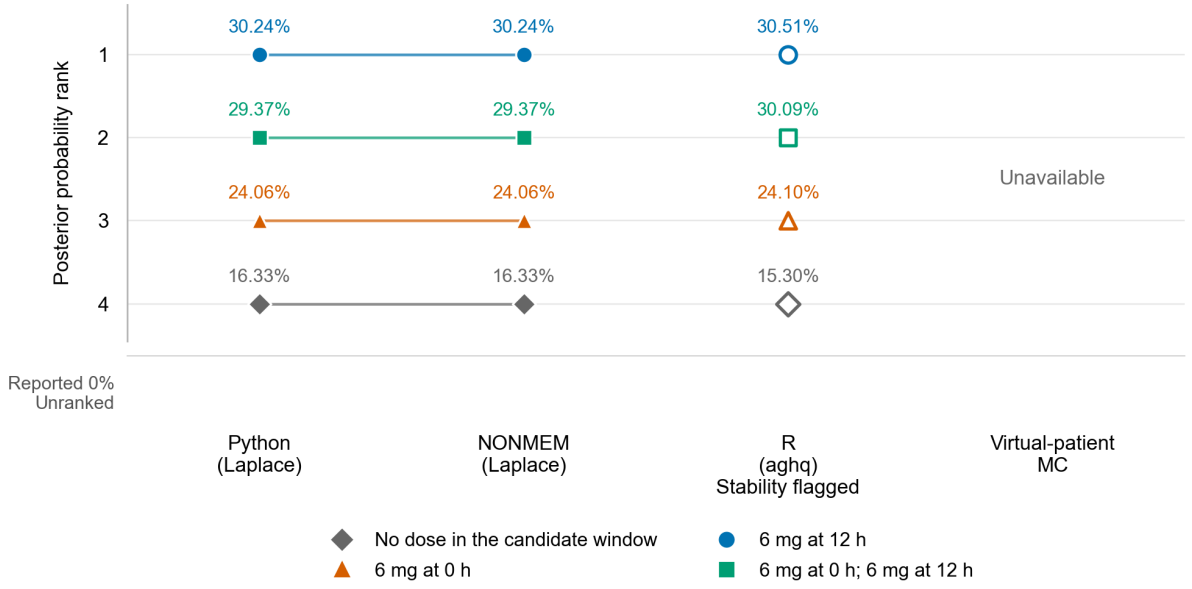
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.70121×10^{-9}	3.96125×10^{-9}	4.65172×10^{-9}	3.26587×10^{-9}
Python vs R aghq	0.010269	0.010269	0.012831	0.010403
NONMEM vs R aghq	0.010269	0.010269	0.012831	0.010403

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.16327765	0.16327765	0.15300900
ω_{01}: 6 mg at 0 h	0.25	0.24063929	0.24063929	0.24103632
ω_{10}: 6 mg at 12 h	0.25	0.30240817	0.30240817	0.30507272
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.29367489	0.29367489	0.30088196

Method	P_{max}	G	H_N
Python Laplace	0.302408	0.008733	0.981174
NONMEM Laplace	0.302408	0.008733	0.981174
R aghq	0.305073	0.004191	0.976517

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c015: Structural parameters

V2: 1060 to 848.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

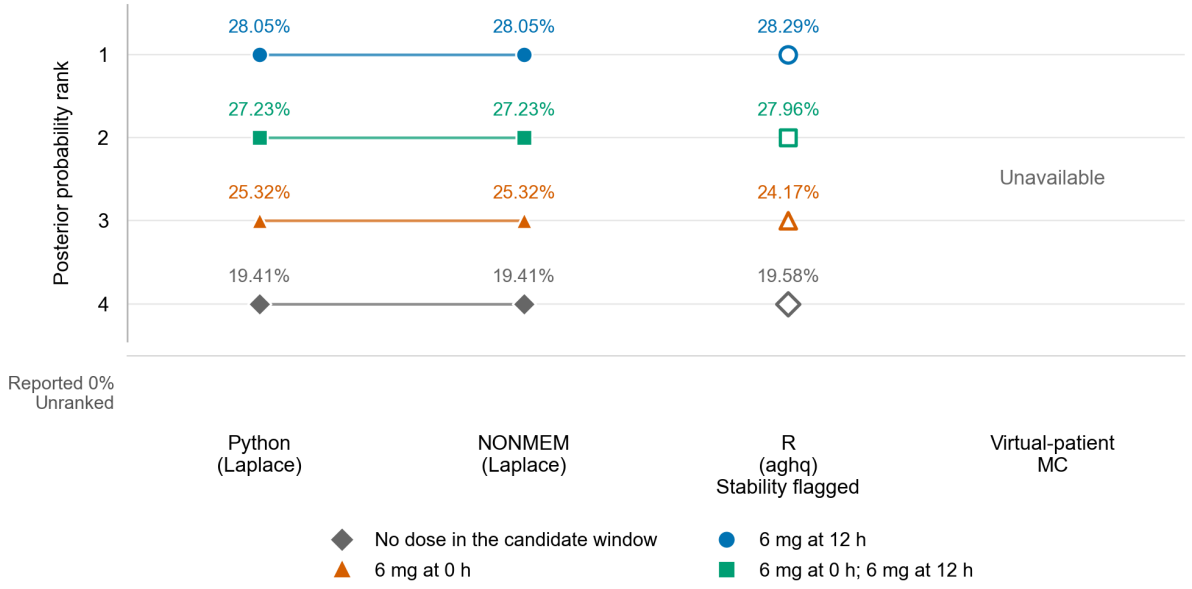
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	8.85629×10^{-9}	8.85629×10^{-9}	1.07034×10^{-8}	8.17051×10^{-9}
Python vs R aghq	0.011531	0.011531	0.014004	9.81346×10^{-3}
NONMEM vs R aghq	0.011531	0.011531	0.014004	9.81346×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19406018	0.19406019	0.19580043
ω_{01}: 6 mg at 0 h	0.25	0.25320856	0.25320855	0.24167799
ω_{10}: 6 mg at 12 h	0.25	0.28046592	0.28046591	0.28288984
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27226534	0.27226534	0.27963174

Method	P_{max}	G	H_N
Python Laplace	0.280466	0.008201	0.993108
NONMEM Laplace	0.280466	0.008201	0.993108
R aghq	0.282890	0.003258	0.992601

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c016: Structural parameters

V2: 1060 to 1272.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

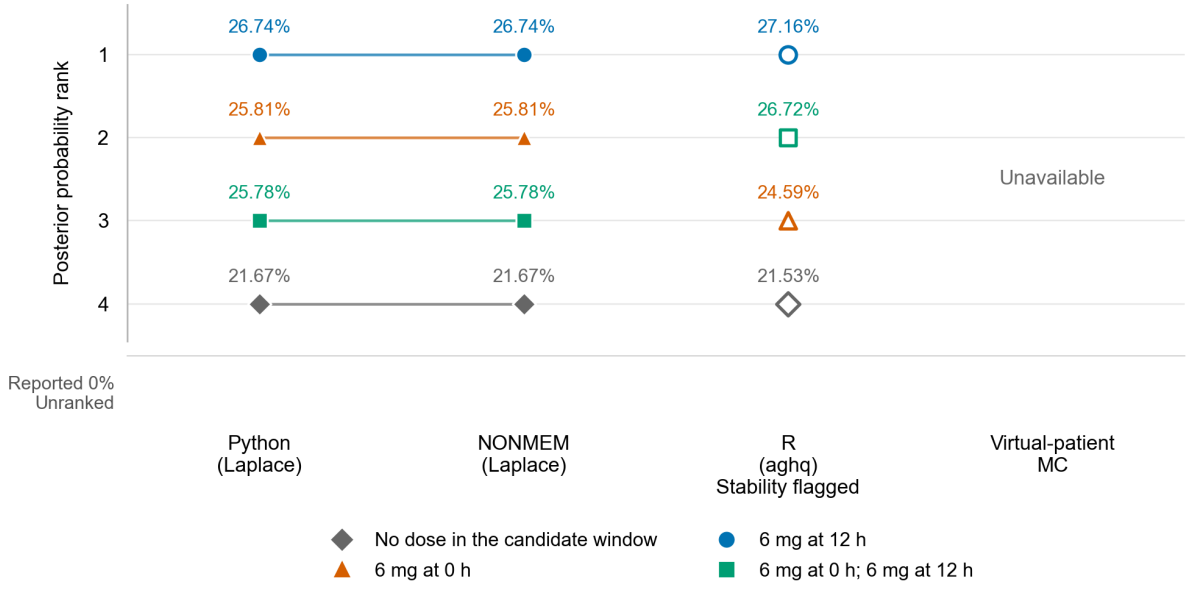
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.23402×10^{-9}	2.52286×10^{-9}	2.97942×10^{-9}	2.18159×10^{-9}
Python vs R aghq	0.012162	0.013633	0.016006	0.011178
NONMEM vs R aghq	0.012162	0.013633	0.016006	0.011178

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21674886	0.21674886	0.21527812
ω_{01}: 6 mg at 0 h	0.25	0.25807315	0.25807315	0.24591094
ω_{10}: 6 mg at 12 h	0.25	0.26735310	0.26735310	0.27160159
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25782489	0.25782489	0.26720935

Method	P_{max}	G	H_N
Python Laplace	0.267353	0.009280	0.997724
NONMEM Laplace	0.267353	0.009280	0.997724
R aghq	0.271602	0.004392	0.997077

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c017: Structural parameters

V2: 1060 to 2120.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

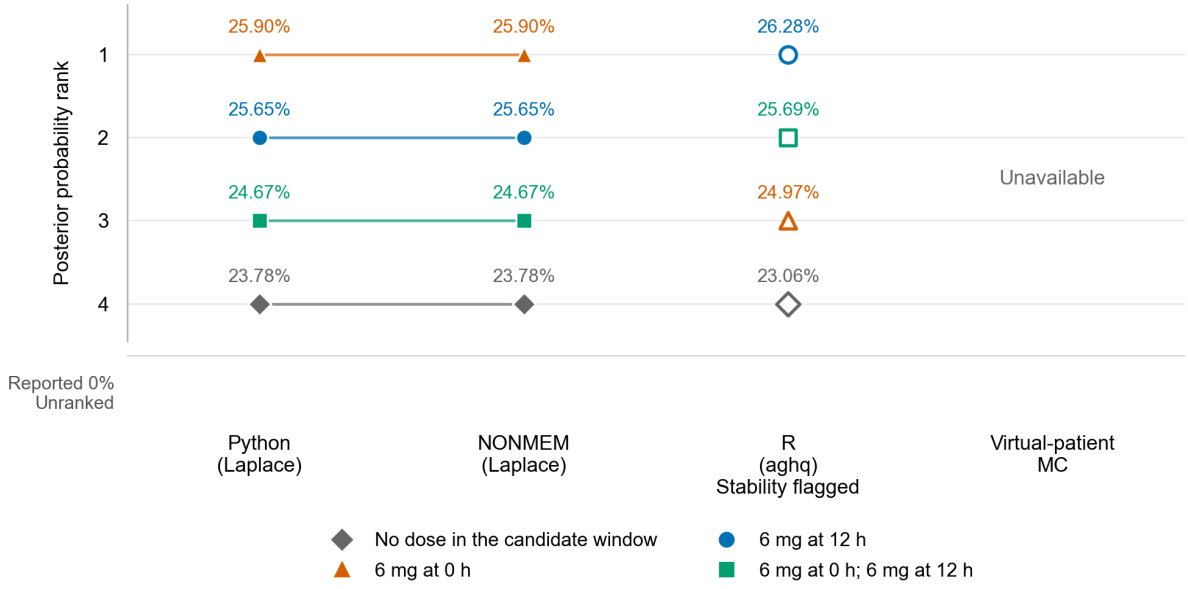
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.54566×10^{-8}	1.54566×10^{-8}	1.87804×10^{-8}	1.30868×10^{-8}
Python vs R aghq	0.010263	0.016540	0.016852	0.011911
NONMEM vs R aghq	0.010263	0.016540	0.016852	0.011911

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.23780320	0.23780320	0.23064804
ω_{01}: 6 mg at 0 h	0.25	0.25903925	0.25903924	0.24965442
ω_{10}: 6 mg at 12 h	0.25	0.25648346	0.25648347	0.26276029
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.24667409	0.24667410	0.25693726

Method	P_{max}	G	H_N
Python Laplace	0.259039	0.002556	0.999589
NONMEM Laplace	0.259039	0.002556	0.999589
R aghq	0.262760	0.005823	0.999145

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c018: Structural parameters

ka: 0.35 to 0.175.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

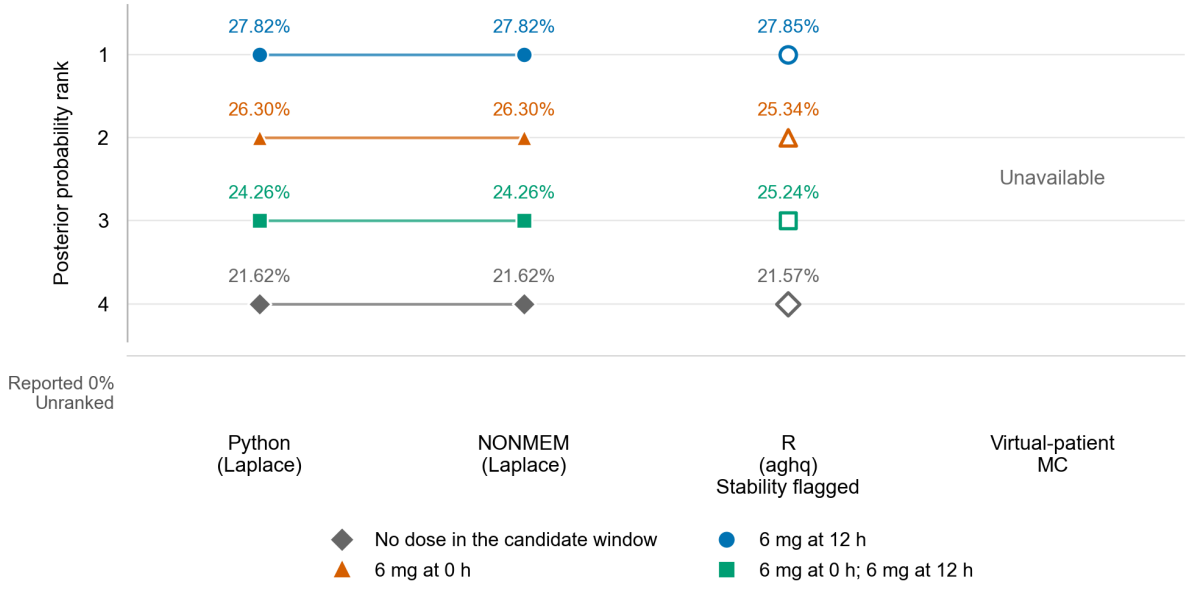
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.85174×10^{-9}	6.90566×10^{-9}	7.18403×10^{-9}	4.98466×10^{-9}
Python vs R aghq	9.79113×10^{-3}	0.010098	0.013725	9.65569×10^{-3}
NONMEM vs R aghq	9.79112×10^{-3}	0.010098	0.013725	9.65569×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21621874	0.21621874	0.21572097
ω_{01}: 6 mg at 0 h	0.25	0.26299977	0.26299977	0.25339990
ω_{10}: 6 mg at 12 h	0.25	0.27820533	0.27820533	0.27851183
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.24257616	0.24257617	0.25236729

Method	P_{max}	G	H_N
Python Laplace	0.278205	0.015206	0.996847
NONMEM Laplace	0.278205	0.015206	0.996847
R aghq	0.278512	0.025112	0.997066

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c019: Structural parameters

ka: 0.35 to 0.28.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

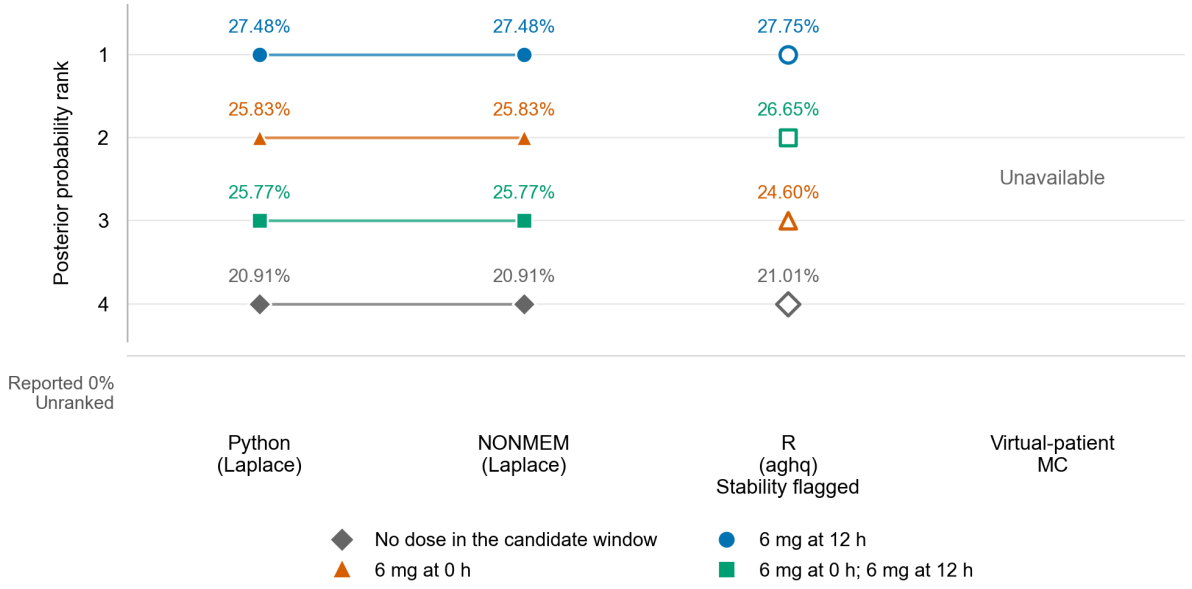
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.74524×10^{-8}	1.74524×10^{-8}	2.10161×10^{-8}	1.57051×10^{-8}
Python vs R aghq	0.012302	0.012302	0.015347	0.010730
NONMEM vs R aghq	0.012302	0.012302	0.015347	0.010730

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20914078	0.20914076	0.21006388
ω_{01}: 6 mg at 0 h	0.25	0.25830529	0.25830529	0.24600326
ω_{10}: 6 mg at 12 h	0.25	0.27481192	0.27481193	0.27745106
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25774201	0.25774202	0.26648180

Method	P_{max}	G	H_N
Python Laplace	0.274812	0.016507	0.996404
NONMEM Laplace	0.274812	0.016507	0.996404
R aghq	0.277451	0.010969	0.996110

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c020: Structural parameters

ka: 0.35 to 0.42.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

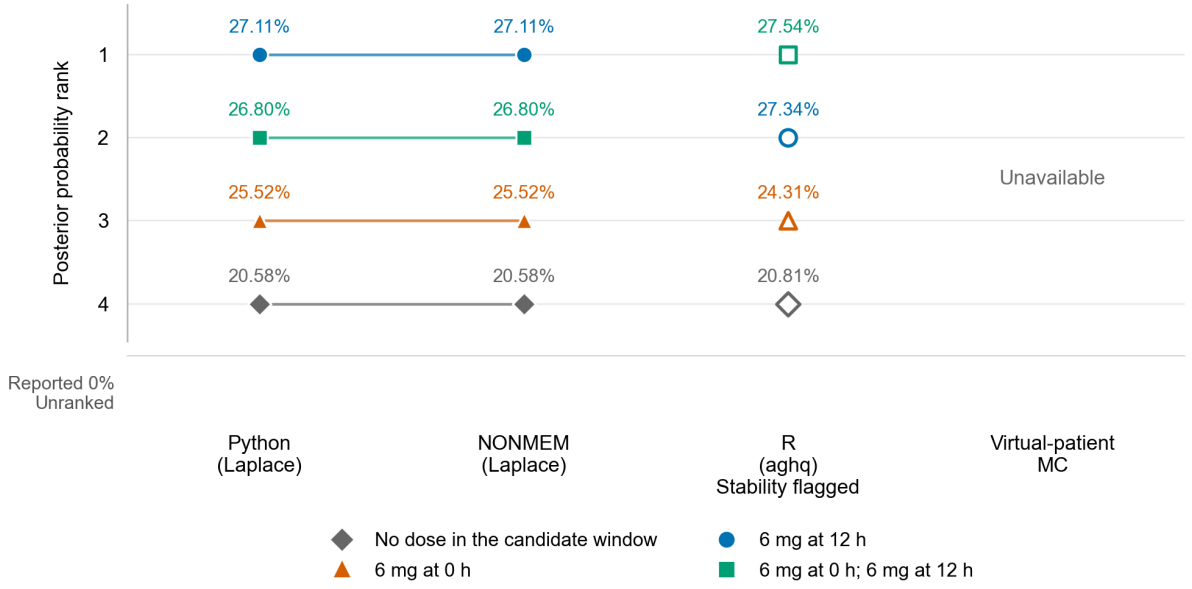
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.69269×10^{-8}	2.69269×10^{-8}	3.11638×10^{-8}	2.15319×10^{-8}
Python vs R aghq	0.012071	0.012071	0.014561	0.010217
NONMEM vs R aghq	0.012072	0.012072	0.014561	0.010217

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20576719	0.20576720	0.20808666
ω_{01}: 6 mg at 0 h	0.25	0.25517580	0.25517581	0.24310430
ω_{10}: 6 mg at 12 h	0.25	0.27110484	0.27110482	0.27339594
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26795217	0.26795218	0.27541311

Method	P_{max}	G	H_N
Python Laplace	0.271105	0.003153	0.995876
NONMEM Laplace	0.271105	0.003153	0.995877
R aghq	0.275413	0.002017	0.995574

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c021: Structural parameters

ka: 0.35 to 0.7.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

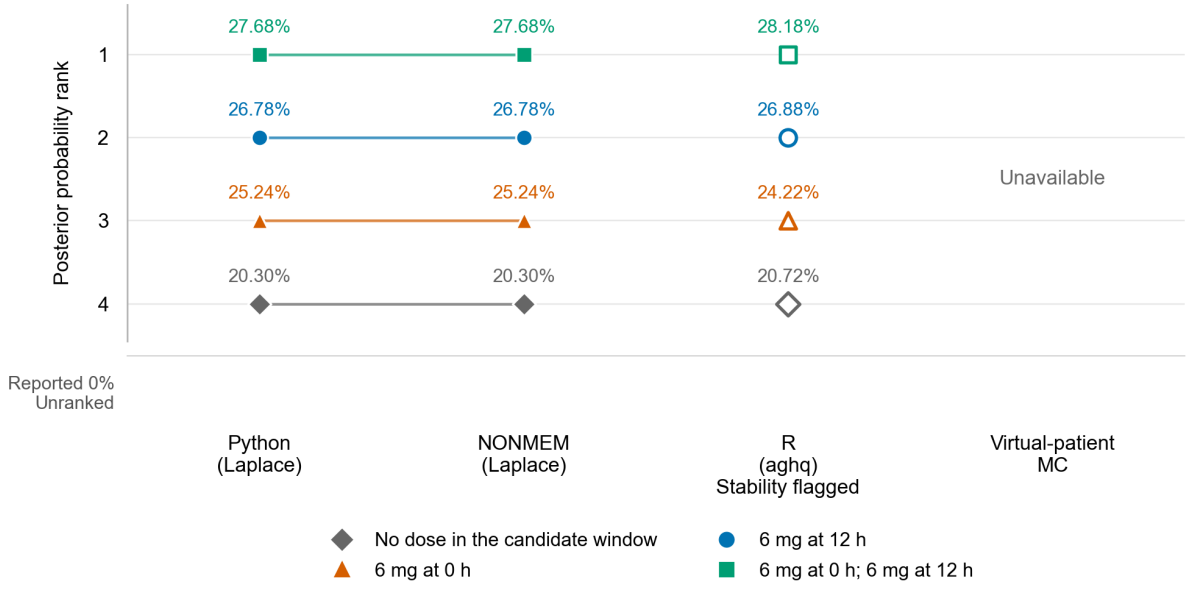
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.23433×10^{-8}	2.23433×10^{-8}	2.71305×10^{-8}	1.89069×10^{-8}
Python vs R aghq	0.010153	0.010153	0.012090	8.61378×10^{-3}
NONMEM vs R aghq	0.010153	0.010153	0.012090	8.61380×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20301860	0.20301860	0.20717020
ω_{01}: 6 mg at 0 h	0.25	0.25237889	0.25237891	0.24222618
ω_{10}: 6 mg at 12 h	0.25	0.26775802	0.26775800	0.26877864
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27684449	0.27684449	0.28182498

Method	P_{max}	G	H_N
Python Laplace	0.276844	0.009086	0.995138
NONMEM Laplace	0.276844	0.009086	0.995138
R aghq	0.281825	0.013046	0.995201

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c022: Structural parameters

lag: 0.44 to 0.22.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

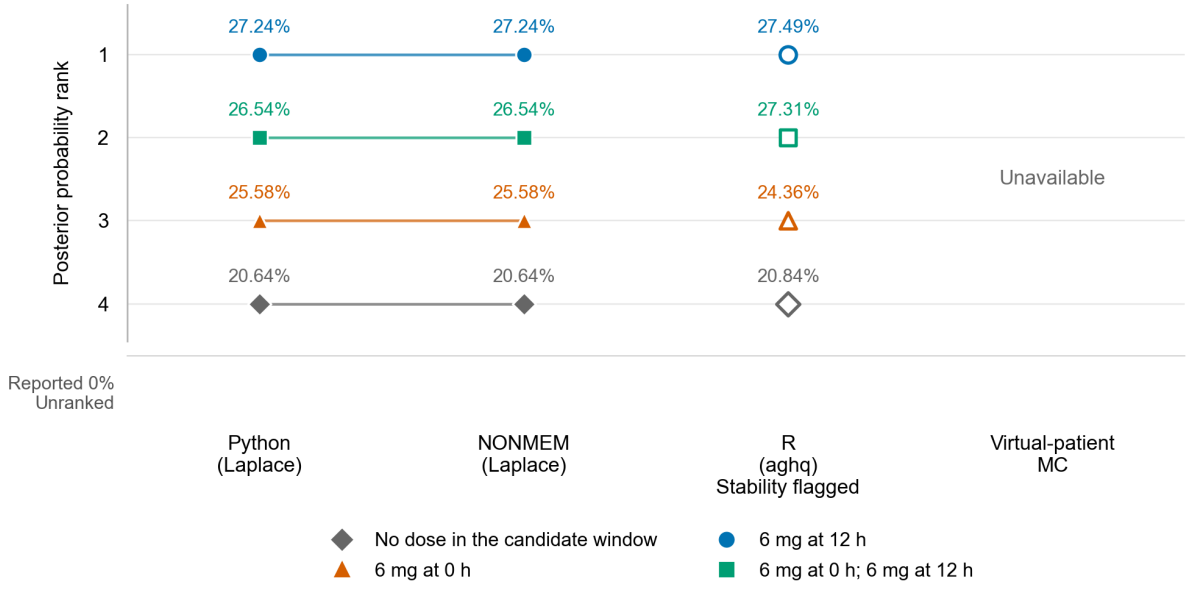
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.30514×10^{-8}	1.33729×10^{-8}	1.62246×10^{-8}	1.14076×10^{-8}
Python vs R aghq	0.012143	0.012143	0.014705	0.010308
NONMEM vs R aghq	0.012143	0.012143	0.014705	0.010308

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20642819	0.20642819	0.20840121
ω_{01}: 6 mg at 0 h	0.25	0.25578562	0.25578560	0.24364303
ω_{10}: 6 mg at 12 h	0.25	0.27235114	0.27235114	0.27486661
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26543506	0.26543506	0.27308915

Method	P_{max}	G	H_N
Python Laplace	0.272351	0.006916	0.996001
NONMEM Laplace	0.272351	0.006916	0.996001
R aghq	0.274867	0.001777	0.995683

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c023: Structural parameters

lag: 0.44 to 0.352.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

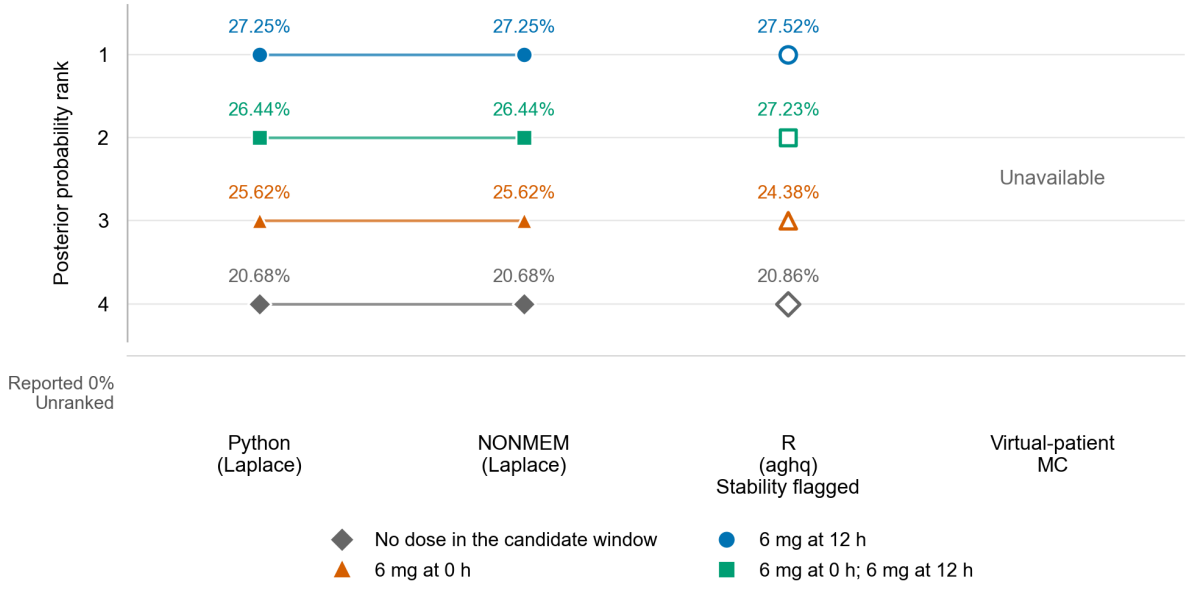
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.04107×10^{-8}	3.04107×10^{-8}	3.66938×10^{-8}	2.62915×10^{-8}
Python vs R aghq	0.012373	0.012373	0.015027	0.010526
NONMEM vs R aghq	0.012373	0.012373	0.015027	0.010526

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20683696	0.20683698	0.20862233
ω_{01}: 6 mg at 0 h	0.25	0.25620042	0.25620039	0.24382777
ω_{10}: 6 mg at 12 h	0.25	0.27254866	0.27254866	0.27524323
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26441396	0.26441397	0.27230668

Method	P_{max}	G	H_N
Python Laplace	0.272549	0.008135	0.996081
NONMEM Laplace	0.272549	0.008135	0.996081
R aghq	0.275243	0.002937	0.995738

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c024: Structural parameters

lag: 0.44 to 0.528.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

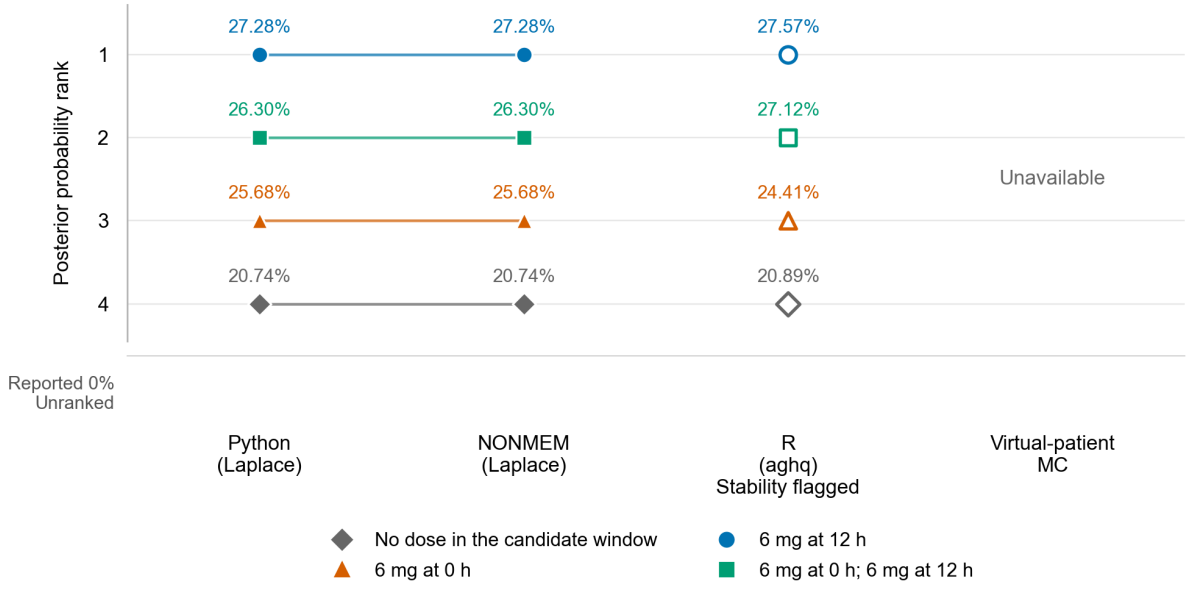
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.36429×10^{-8}	1.48918×10^{-8}	1.79211×10^{-8}	1.24379×10^{-8}
Python vs R aghq	0.012686	0.012686	0.015478	0.010832
NONMEM vs R aghq	0.012686	0.012686	0.015478	0.010832

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20740616	0.20740616	0.20893040
ω_{01}: 6 mg at 0 h	0.25	0.25677753	0.25677754	0.24409132
ω_{10}: 6 mg at 12 h	0.25	0.27280624	0.27280623	0.27574107
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26301008	0.26301007	0.27123721

Method	P_{max}	G	H_N
Python Laplace	0.272806	0.009796	0.996186
NONMEM Laplace	0.272806	0.009796	0.996186
R aghq	0.275741	0.004504	0.995813

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c025: Structural parameters

lag: 0.44 to 0.88.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

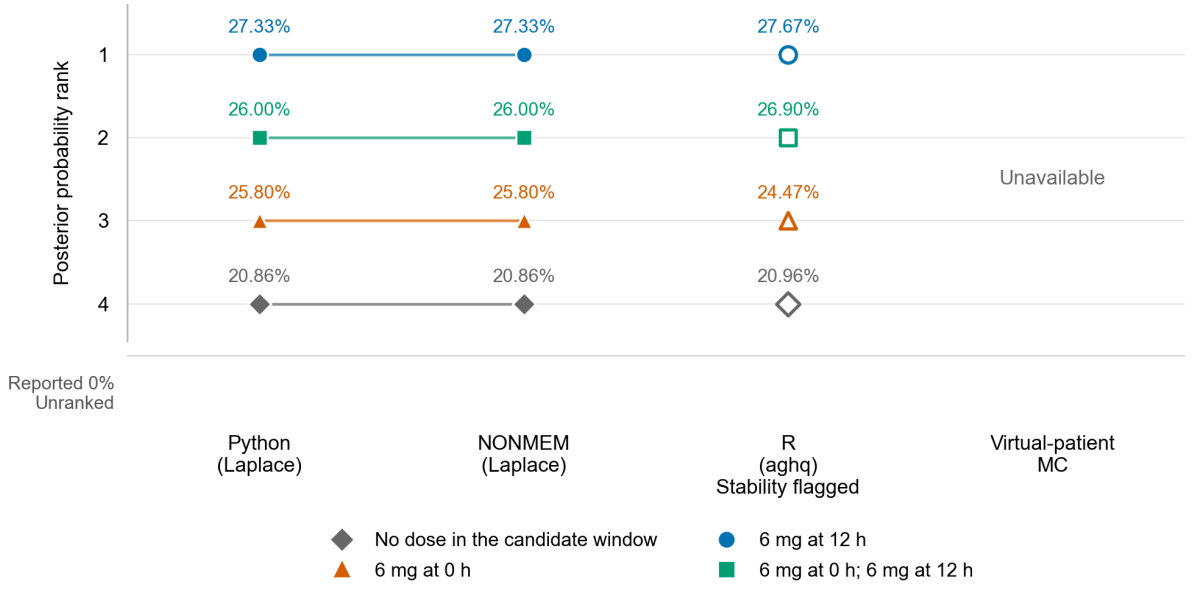
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.01451×10^{-9}	6.12851×10^{-9}	6.27645×10^{-9}	4.47176×10^{-9}
Python vs R aghq	0.013342	0.013342	0.016460	0.011505
NONMEM vs R aghq	0.013342	0.013342	0.016460	0.011505

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20863334	0.20863334	0.20959567
ω_{01}: 6 mg at 0 h	0.25	0.25802097	0.25802096	0.24467929
ω_{10}: 6 mg at 12 h	0.25	0.27329588	0.27329589	0.27671207
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26004981	0.26004981	0.26901297

Method	P_{max}	G	H_N
Python Laplace	0.273296	0.013246	0.996387
NONMEM Laplace	0.273296	0.013246	0.996387
R aghq	0.276712	0.007699	0.995962

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c026: Structural parameters

WT: 70 to 35.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

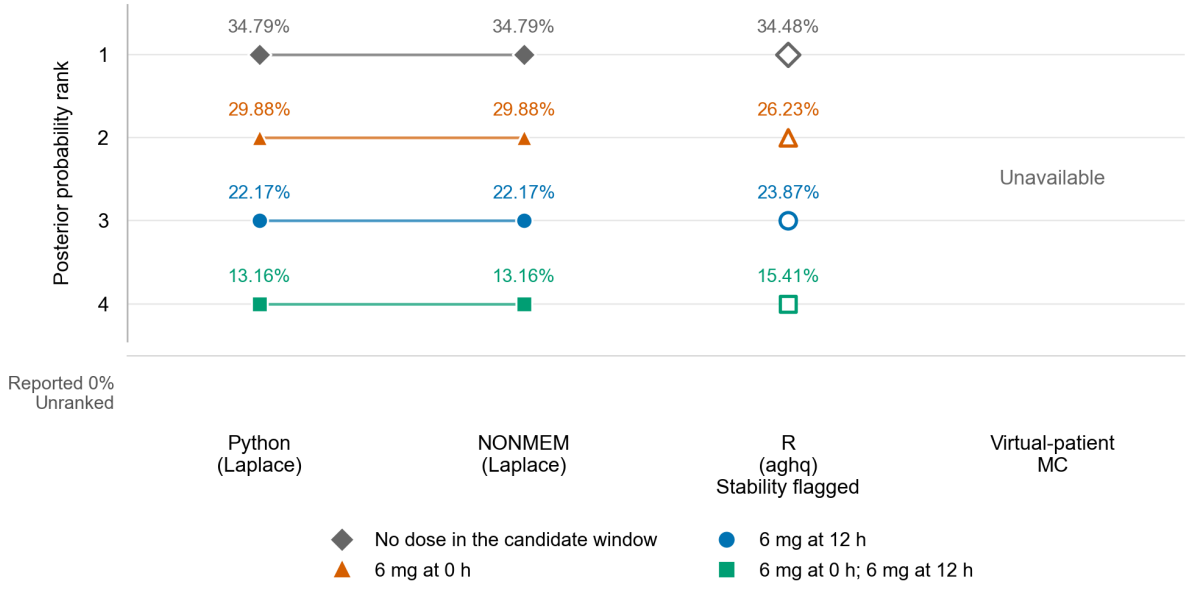
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.50127×10^{-7}	4.50127×10^{-7}	5.25194×10^{-7}	4.72107×10^{-7}
Python vs R aghq	0.036452	0.039568	0.046220	0.034621
NONMEM vs R aghq	0.036452	0.039568	0.046220	0.034622

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.34794306	0.34794322	0.34482696
ω_{01}: 6 mg at 0 h	0.25	0.29877581	0.29877601	0.26232427
ω_{10}: 6 mg at 12 h	0.25	0.22168186	0.22168196	0.23872001
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.13159927	0.13159882	0.15412876

Method	P_{max}	G	H_N
Python Laplace	0.347943	0.049167	0.958756
NONMEM Laplace	0.347943	0.049167	0.958756
R aghq	0.344827	0.082503	0.972629

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c027: Structural parameters

WT: 70 to 56.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

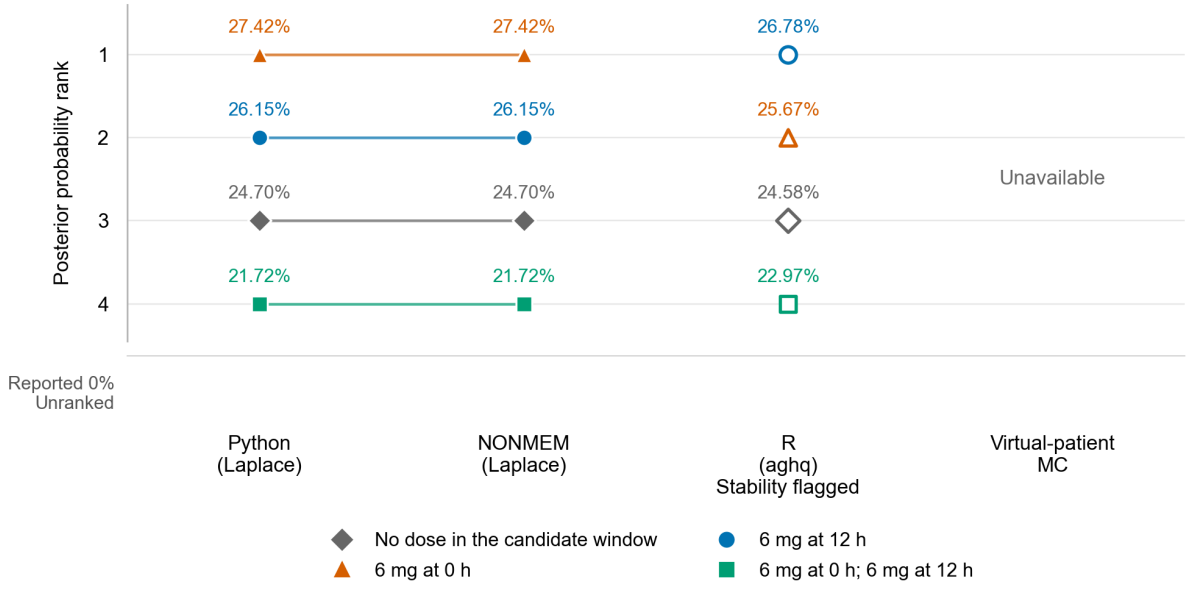
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.25293×10^{-7}	1.25293×10^{-7}	1.47988×10^{-7}	1.02281×10^{-7}
Python vs R aghq	0.017510	0.018760	0.022443	0.015849
NONMEM vs R aghq	0.017510	0.018760	0.022443	0.015849

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.24704280	0.24704283	0.24579251
ω_{01}: 6 mg at 0 h	0.25	0.27421381	0.27421388	0.25670377
ω_{10}: 6 mg at 12 h	0.25	0.26154867	0.26154855	0.26780301
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.21719471	0.21719474	0.22970070

Method	P_{max}	G	H_N
Python Laplace	0.274214	0.012665	0.997353
NONMEM Laplace	0.274214	0.012665	0.997353
R aghq	0.267803	0.011099	0.998852

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c028: Structural parameters

WT: 70 to 84.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

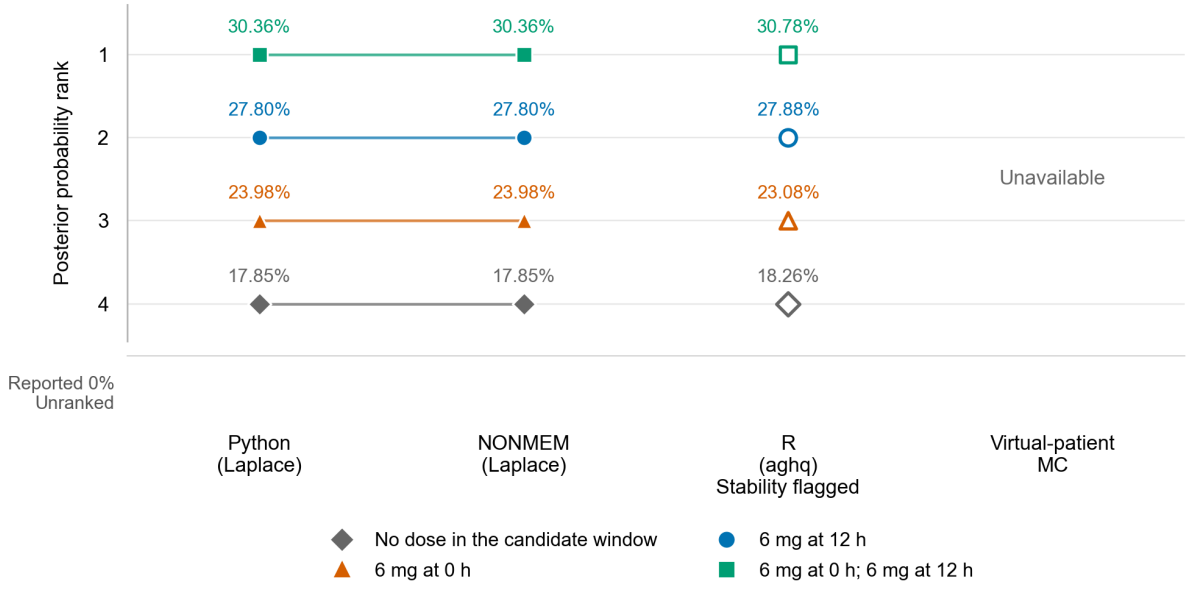
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.25431×10^{-8}	1.95958×10^{-8}	2.00363×10^{-8}	1.50508×10^{-8}
Python vs R aghq	9.05594×10^{-3}	9.05594×10^{-3}	0.010822	7.92054×10^{-3}
NONMEM vs R aghq	9.05593×10^{-3}	9.05593×10^{-3}	0.010822	7.92053×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.17852266	0.17852268	0.18263288
ω_{01}: 6 mg at 0 h	0.25	0.23982769	0.23982768	0.23077176
ω_{10}: 6 mg at 12 h	0.25	0.27801016	0.27801015	0.27875312
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.30363948	0.30363949	0.30784224

Method	P_{max}	G	H_N
Python Laplace	0.303639	0.025629	0.986680
NONMEM Laplace	0.303639	0.025629	0.986680
R aghq	0.307842	0.029089	0.986580

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c029: Structural parameters

WT: 70 to 140.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

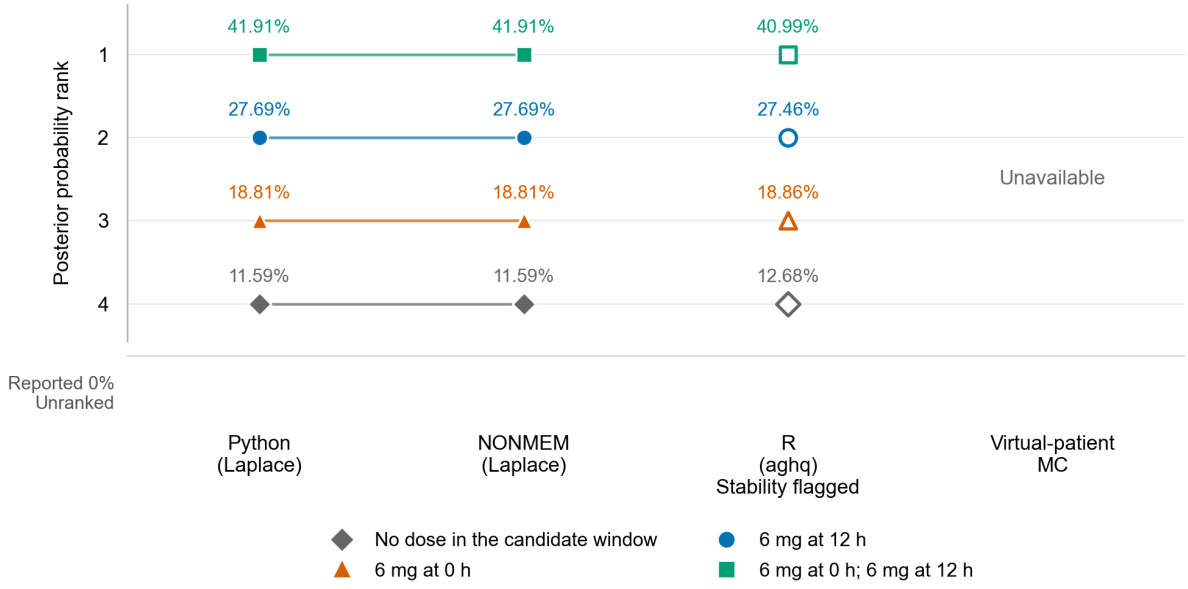
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.70235×10^{-8}	2.70235×10^{-8}	3.25082×10^{-8}	2.14362×10^{-8}
Python vs R aghq	0.010933	0.011427	0.014474	0.012294
NONMEM vs R aghq	0.010933	0.011427	0.014474	0.012294

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.11589779	0.11589779	0.12683078
ω_{01}: 6 mg at 0 h	0.25	0.18813220	0.18813221	0.18862629
ω_{10}: 6 mg at 12 h	0.25	0.27685349	0.27685346	0.27463518
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.41911652	0.41911654	0.40990775

Method	P_{max}	G	H_N
Python Laplace	0.419117	0.142263	0.926269
NONMEM Laplace	0.419117	0.142263	0.926269
R aghq	0.409908	0.135273	0.935587

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c030: Variability

Clearance IIV: CV 0.01000000002%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

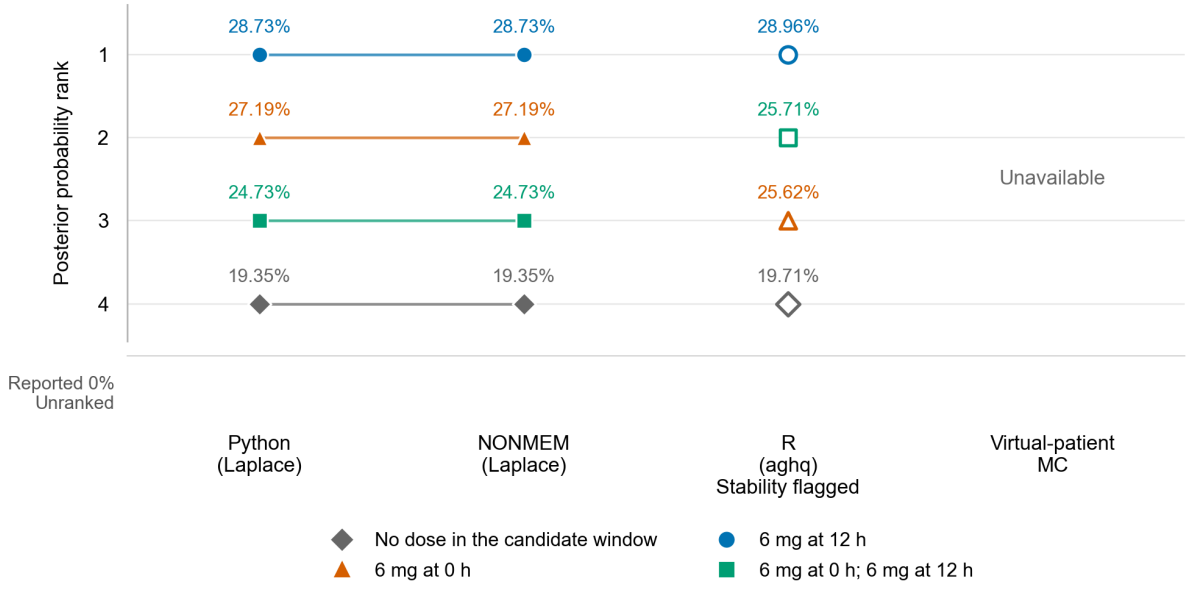
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	6.62577×10^{-9}	1.06165×10^{-8}	1.07977×10^{-8}	7.69295×10^{-9}
Python vs R aghq	0.015707	0.015707	0.019004	0.013231
NONMEM vs R aghq	0.015707	0.015707	0.019004	0.013231

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19350325	0.19350324	0.19708572
ω_{01}: 6 mg at 0 h	0.25	0.27189452	0.27189452	0.25618793
ω_{10}: 6 mg at 12 h	0.25	0.28727723	0.28727722	0.28959044
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.24732501	0.24732501	0.25713591

Method	P_{max}	G	H_N
Python Laplace	0.287277	0.015383	0.992408
NONMEM Laplace	0.287277	0.015383	0.992408
R aghq	0.289590	0.032455	0.993363

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c031: Variability

Clearance IIV: CV 7.375%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

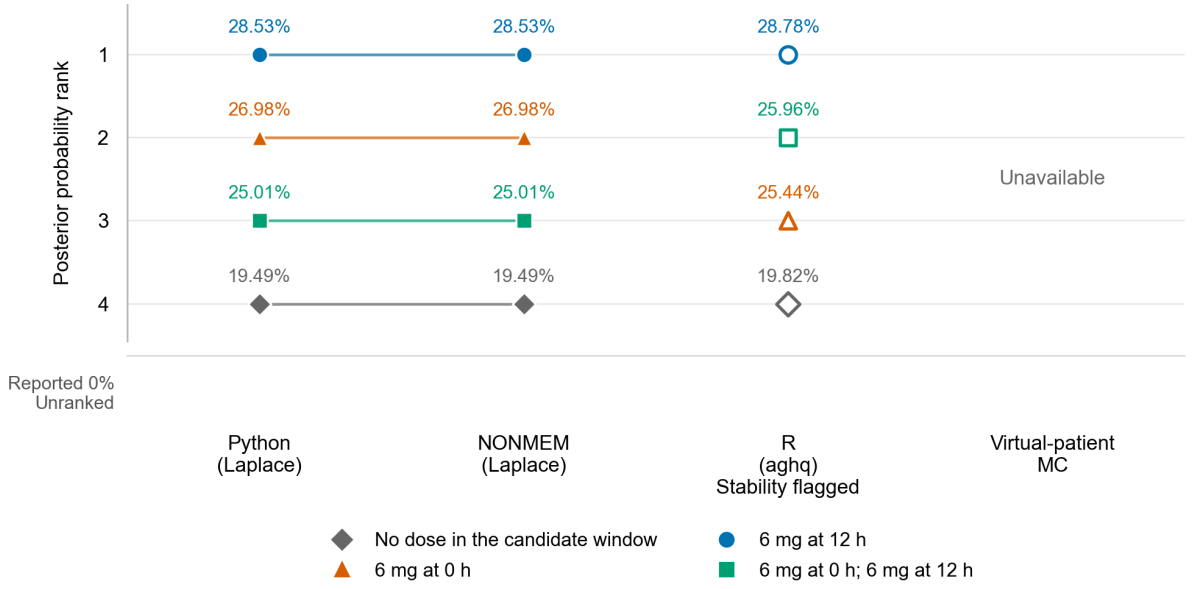
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.90191×10^{-8}	2.90191×10^{-8}	3.49844×10^{-8}	2.68657×10^{-8}
Python vs R aghq	0.015337	0.015337	0.018519	0.012899
NONMEM vs R aghq	0.015337	0.015337	0.018519	0.012899

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19485020	0.19485023	0.19822239
ω_{01}: 6 mg at 0 h	0.25	0.26976103	0.26976101	0.25442386
ω_{10}: 6 mg at 12 h	0.25	0.28533386	0.28533386	0.28779620
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25005492	0.25005491	0.25955755

Method	P_{max}	G	H_N
Python Laplace	0.285334	0.015573	0.992977
NONMEM Laplace	0.285334	0.015573	0.992977
R aghq	0.287796	0.028239	0.993711

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c032: Variability

Clearance IIV: CV 14.75%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

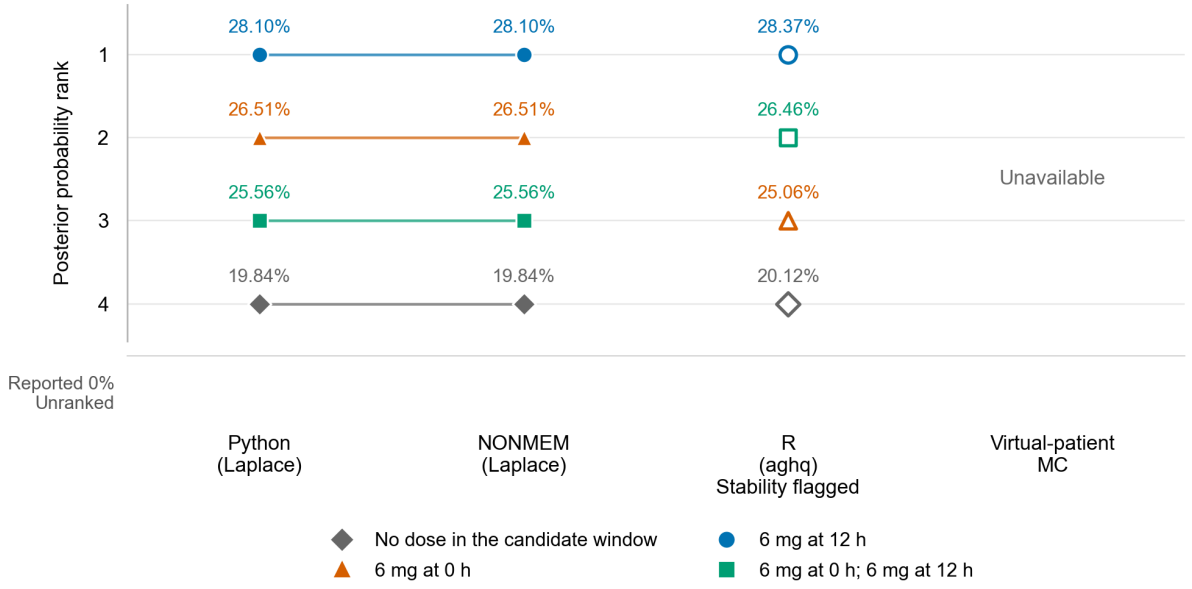
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.74186×10^{-8}	4.74186×10^{-8}	6.09827×10^{-8}	4.44790×10^{-8}
Python vs R aghq	0.014497	0.014497	0.017498	0.012204
NONMEM vs R aghq	0.014497	0.014497	0.017498	0.012204

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19838862	0.19838866	0.20121026
ω_{01}: 6 mg at 0 h	0.25	0.26507060	0.26507055	0.25057397
ω_{10}: 6 mg at 12 h	0.25	0.28097362	0.28097362	0.28365584
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25556716	0.25556717	0.26455993

Method	P_{max}	G	H_N
Python Laplace	0.280974	0.015903	0.994165
NONMEM Laplace	0.280974	0.015903	0.994166
R aghq	0.283656	0.019096	0.994452

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c033: Variability

Clearance IIV: CV 22.125%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

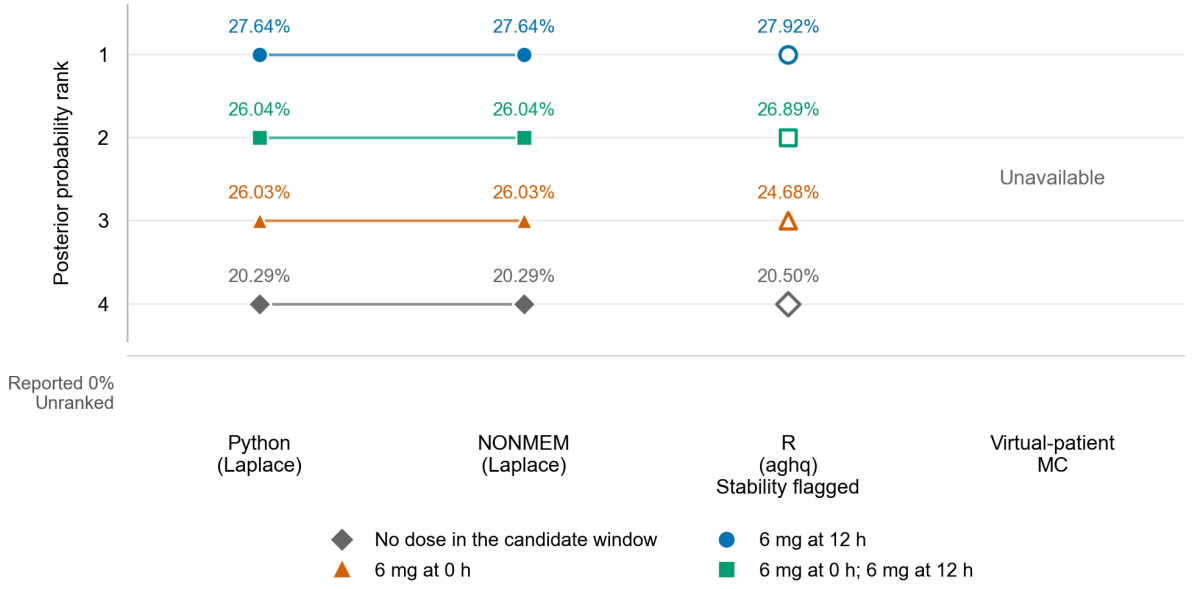
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.93333×10^{-8}	4.93333×10^{-8}	5.92272×10^{-8}	4.09252×10^{-8}
Python vs R aghq	0.013502	0.013502	0.016359	0.011432
NONMEM vs R aghq	0.013502	0.013502	0.016360	0.011432

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20285471	0.20285471	0.20503655
ω_{01}: 6 mg at 0 h	0.25	0.26030987	0.26030992	0.24680769
ω_{10}: 6 mg at 12 h	0.25	0.27642282	0.27642280	0.27921169
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26041260	0.26041257	0.26894406

Method	P_{max}	G	H_N
Python Laplace	0.276423	0.016010	0.995291
NONMEM Laplace	0.276423	0.016010	0.995291
R aghq	0.279212	0.010268	0.995185

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c034: Variability

Clearance IIV: CV 44.25%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

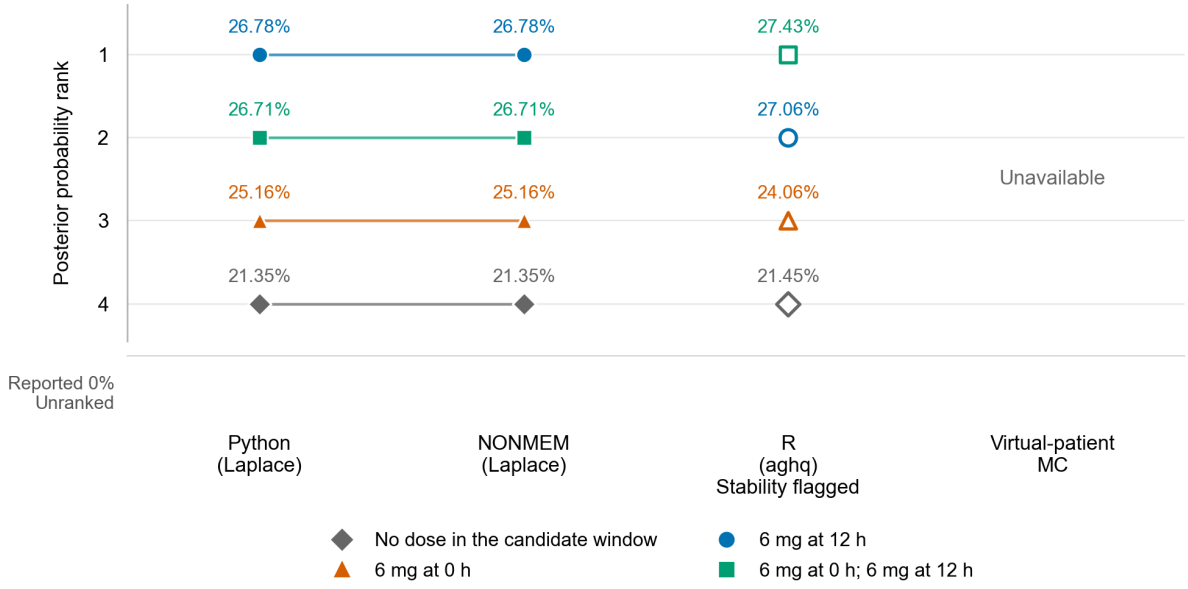
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.82631×10^{-8}	3.38950×10^{-8}	3.76424×10^{-8}	2.62573×10^{-8}
Python vs R aghq	0.010998	0.010998	0.013466	9.45953×10^{-3}
NONMEM vs R aghq	0.010998	0.010998	0.013466	9.45951×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21349859	0.21349859	0.21453137
ω_{01}: 6 mg at 0 h	0.25	0.25158109	0.25158106	0.24058282
ω_{10}: 6 mg at 12 h	0.25	0.26777143	0.26777145	0.27055643
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26714889	0.26714890	0.27432939

Method	P_{max}	G	H_N
Python Laplace	0.267771	0.000623	0.997113
NONMEM Laplace	0.267771	0.000623	0.997113
R aghq	0.274329	0.003773	0.996542

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c035: Variability

Clearance IIV: CV 59%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

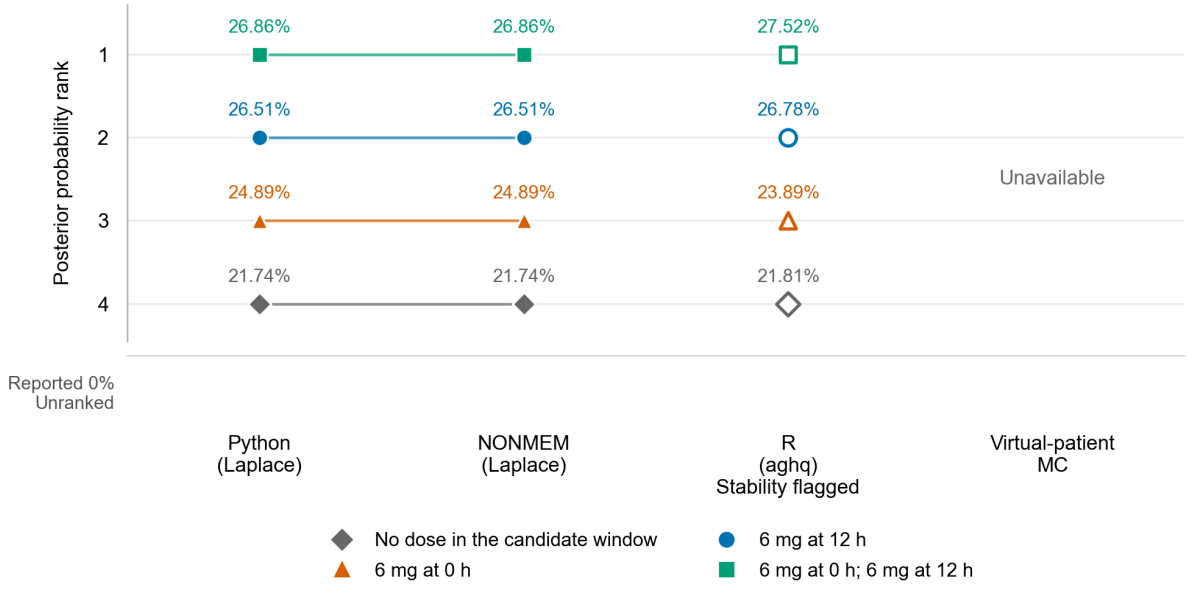
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.81179×10^{-9}	4.81179×10^{-9}	6.04586×10^{-9}	4.46920×10^{-9}
Python vs R aghq	0.010055	0.010055	0.012331	8.68228×10^{-3}
NONMEM vs R aghq	0.010055	0.010055	0.012331	8.68227×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21735532	0.21735532	0.21813440
ω_{01}: 6 mg at 0 h	0.25	0.24894894	0.24894894	0.23889354
ω_{10}: 6 mg at 12 h	0.25	0.26509504	0.26509504	0.26782143
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26860070	0.26860070	0.27515063

Method	P_{max}	G	H_N
Python Laplace	0.268601	0.003506	0.997580
NONMEM Laplace	0.268601	0.003506	0.997580
R aghq	0.275151	0.007329	0.996957

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c036: Variability

Clearance IIV: CV 88.5%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

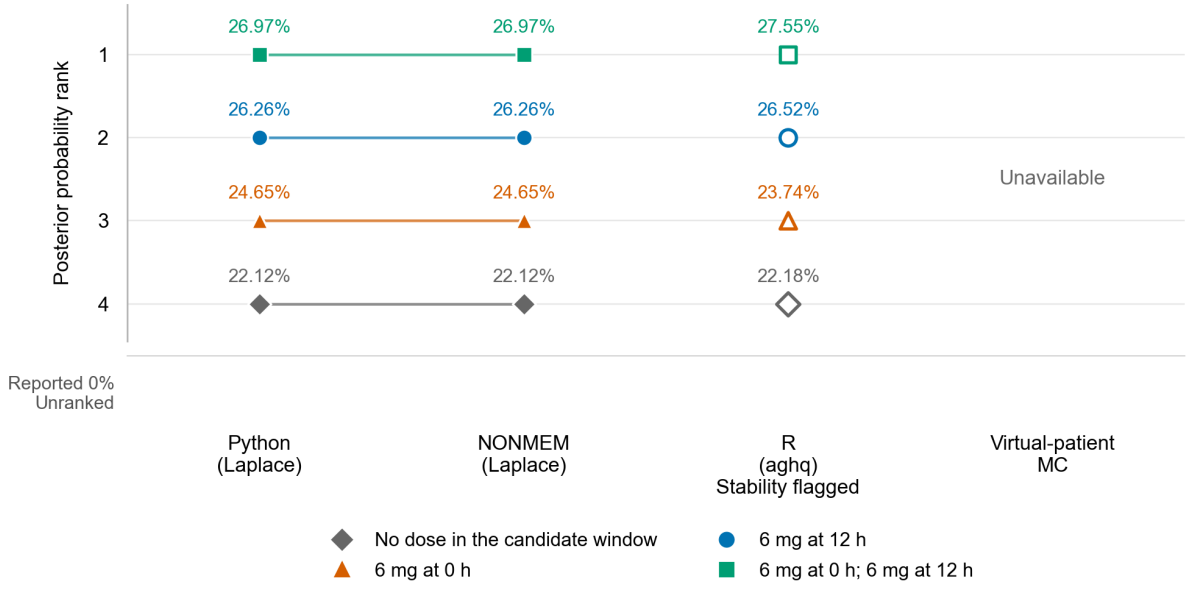
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	7.17775×10^{-9}	7.85729×10^{-9}	9.11072×10^{-9}	6.40186×10^{-9}
Python vs R aghq	9.13729×10^{-3}	9.13729×10^{-3}	0.011181	7.89467×10^{-3}
NONMEM vs R aghq	9.13730×10^{-3}	9.13730×10^{-3}	0.011181	7.89468×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.22116853	0.22116853	0.22183385
ω_{01}: 6 mg at 0 h	0.25	0.24653044	0.24653045	0.23739315
ω_{10}: 6 mg at 12 h	0.25	0.26261311	0.26261310	0.26523788
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26968791	0.26968791	0.27553511

Method	P_{max}	G	H_N
Python Laplace	0.269688	0.007075	0.997964
NONMEM Laplace	0.269688	0.007075	0.997964
R aghq	0.275535	0.010297	0.997338

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c037: Variability

Clearance IIV: CV 118%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

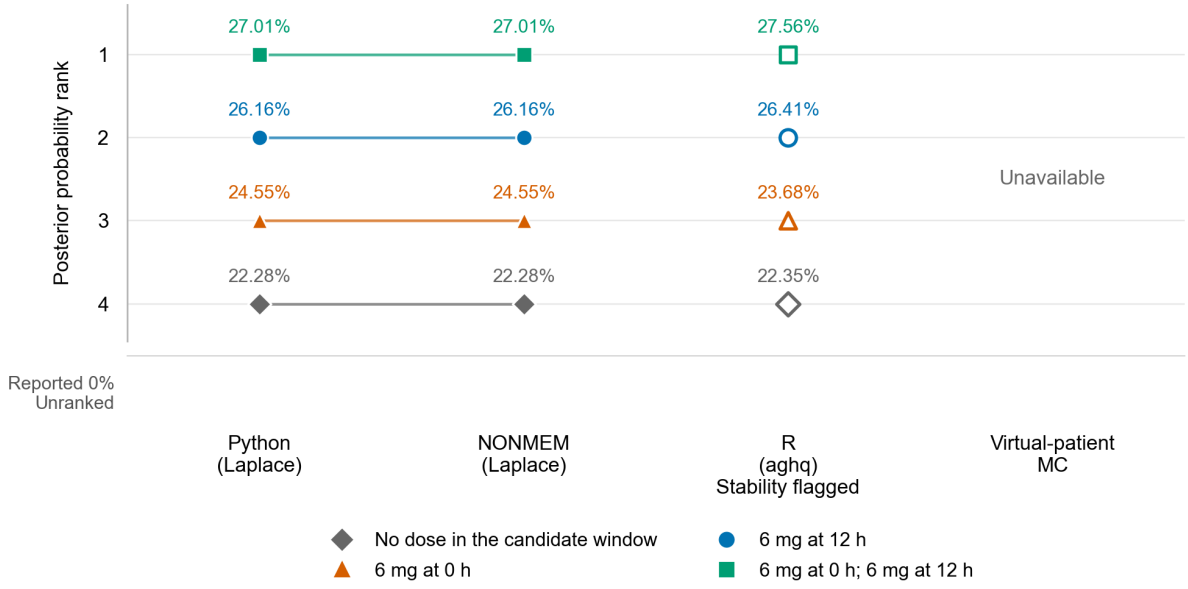
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.22630×10^{-9}	1.01894×10^{-8}	1.22985×10^{-8}	8.56543×10^{-9}
Python vs R aghq	8.74408×10^{-3}	8.74408×10^{-3}	0.010670	7.54531×10^{-3}
NONMEM vs R aghq	8.74409×10^{-3}	8.74409×10^{-3}	0.010670	7.54531×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.22284667	0.22284667	0.22351621
ω_{01}: 6 mg at 0 h	0.25	0.24551510	0.24551510	0.23677102
ω_{10}: 6 mg at 12 h	0.25	0.26156527	0.26156527	0.26412759
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27007296	0.27007295	0.27558518

Method	P_{max}	G	H_N
Python Laplace	0.270073	0.008508	0.998110
NONMEM Laplace	0.270073	0.008508	0.998110
R aghq	0.275585	0.011458	0.997497

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c038: Variability

Clearance IOV: CV 0.01000000002%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

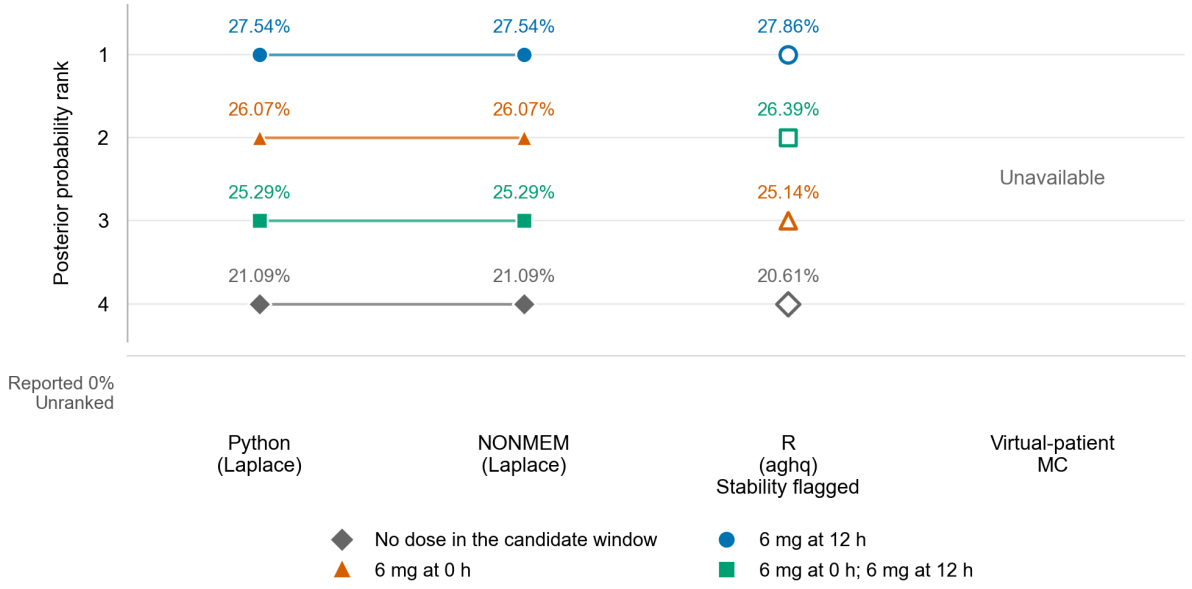
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.98674×10^{-8}	1.98674×10^{-8}	2.57365×10^{-8}	1.86235×10^{-8}
Python vs R aghq	0.010992	0.014185	0.015539	0.010937
NONMEM vs R aghq	0.010992	0.014185	0.015539	0.010937

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21094566	0.21094564	0.20606766
ω_{01}: 6 mg at 0 h	0.25	0.26074606	0.26074608	0.25143868
ω_{10}: 6 mg at 12 h	0.25	0.27539656	0.27539656	0.27858952
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25291172	0.25291172	0.26390415

Method	P_{max}	G	H_N
Python Laplace	0.275397	0.014651	0.996598
NONMEM Laplace	0.275397	0.014650	0.996598
R aghq	0.278590	0.014685	0.995623

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c039: Variability

Clearance IOV: CV 7.475%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

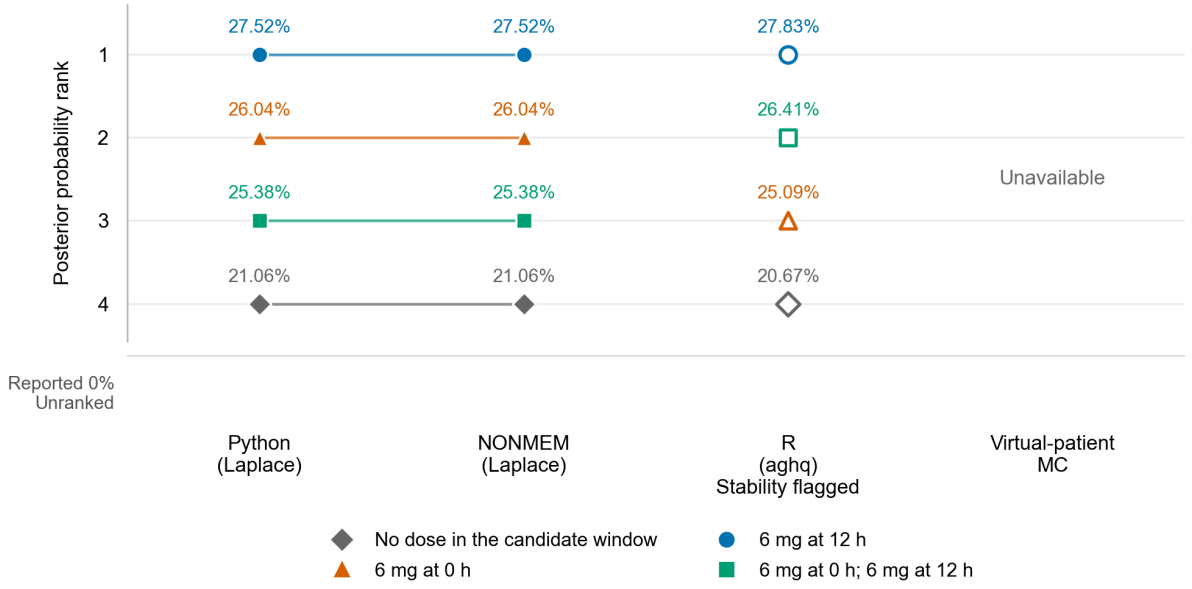
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.60231×10^{-8}	1.60231×10^{-8}	1.85825×10^{-8}	1.39612×10^{-8}
Python vs R aghq	0.010217	0.013351	0.014808	0.010385
NONMEM vs R aghq	0.010217	0.013351	0.014808	0.010385

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21056483	0.21056481	0.20671268
ω_{01}: 6 mg at 0 h	0.25	0.26039427	0.26039427	0.25089529
ω_{10}: 6 mg at 12 h	0.25	0.27519971	0.27519971	0.27833347
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25384120	0.25384121	0.26405856

Method	P_{max}	G	H_N
Python Laplace	0.275200	0.014805	0.996566
NONMEM Laplace	0.275200	0.014805	0.996566
R aghq	0.278333	0.014275	0.995728

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c040: Variability

Clearance IOV: CV 14.95%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

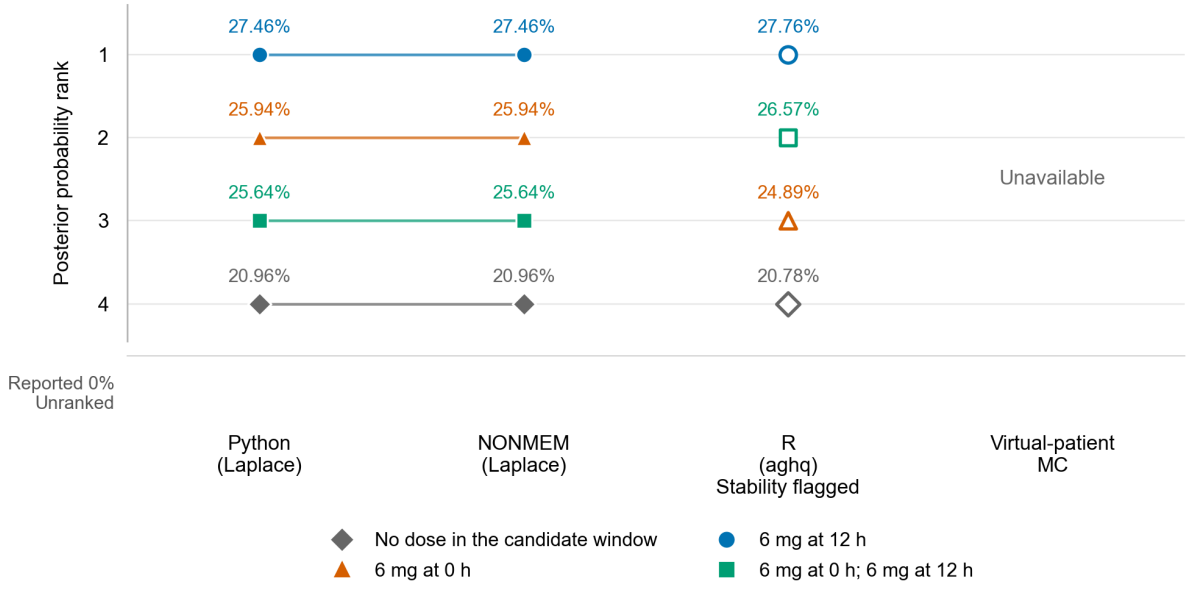
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.23215×10^{-8}	1.43695×10^{-8}	1.63250×10^{-8}	1.17115×10^{-8}
Python vs R aghq	0.010541	0.012316	0.014521	0.010128
NONMEM vs R aghq	0.010541	0.012316	0.014521	0.010128

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20957922	0.20957923	0.20780457
ω_{01}: 6 mg at 0 h	0.25	0.25942316	0.25942315	0.24888185
ω_{10}: 6 mg at 12 h	0.25	0.27462864	0.27462864	0.27756453
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25636898	0.25636898	0.26574906

Method	P_{max}	G	H_N
Python Laplace	0.274629	0.015205	0.996472
NONMEM Laplace	0.274629	0.015205	0.996472
R aghq	0.277565	0.011815	0.995863

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c041: Variability

Clearance IOV: CV 22.425%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

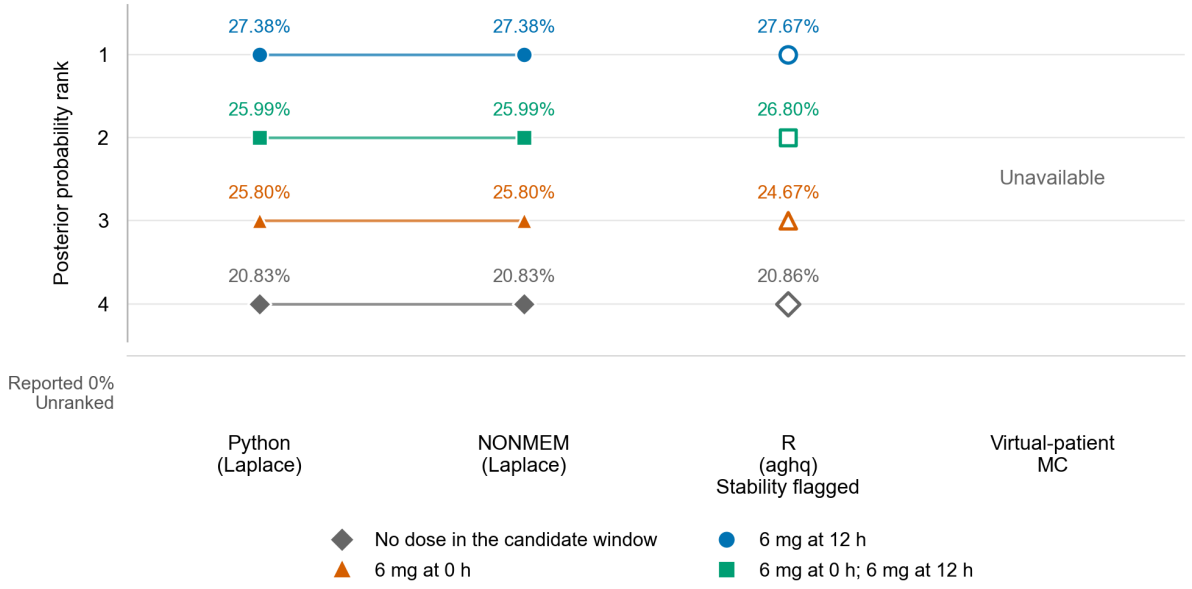
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	8.06929×10^{-9}	9.03796×10^{-9}	1.03475×10^{-8}	7.16027×10^{-9}
Python vs R aghq	0.011302	0.011302	0.014218	9.91770×10^{-3}
NONMEM vs R aghq	0.011302	0.011302	0.014218	9.91769×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20833009	0.20833009	0.20859782
ω_{01}: 6 mg at 0 h	0.25	0.25804136	0.25804135	0.24673968
ω_{10}: 6 mg at 12 h	0.25	0.27375069	0.27375070	0.27667149
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25987786	0.25987786	0.26799101

Method	P_{max}	G	H_N
Python Laplace	0.273751	0.013873	0.996322
NONMEM Laplace	0.273751	0.013873	0.996322
R aghq	0.276671	0.008680	0.995915

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c042: Variability

Clearance IOV: CV 44.85%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

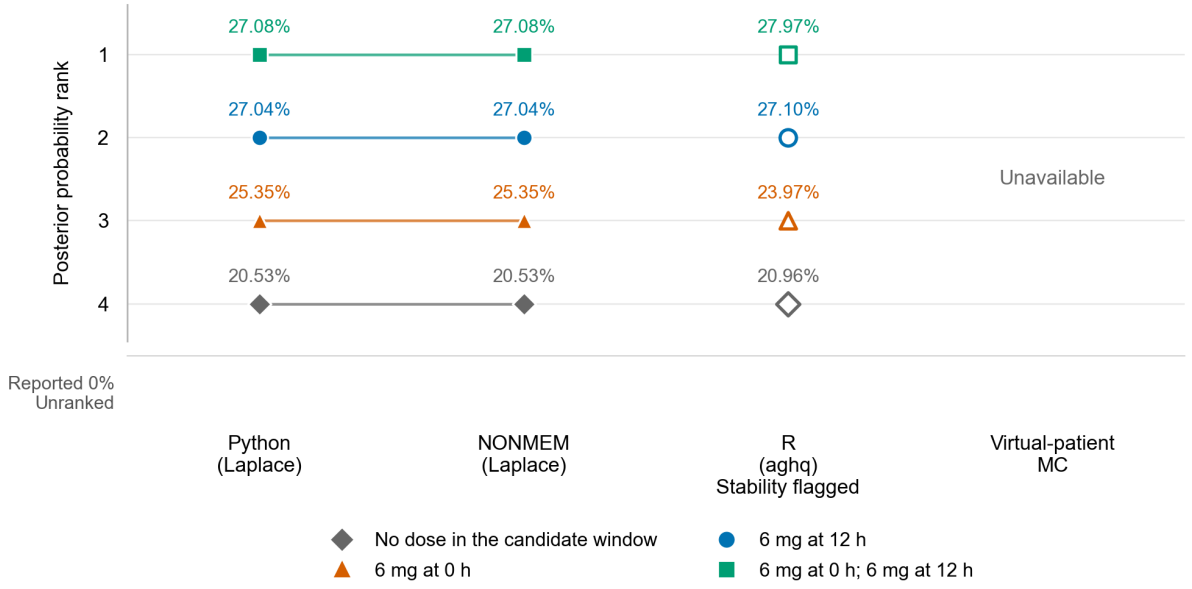
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.05927×10^{-8}	3.07694×10^{-8}	3.23707×10^{-8}	2.26359×10^{-8}
Python vs R aghq	0.013819	0.013819	0.017039	0.012029
NONMEM vs R aghq	0.013819	0.013819	0.017039	0.012029

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20531131	0.20531130	0.20961312
ω_{01}: 6 mg at 0 h	0.25	0.25351995	0.25351993	0.23970074
ω_{10}: 6 mg at 12 h	0.25	0.27041845	0.27041846	0.27096025
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27075029	0.27075031	0.27972589

Method	P_{max}	G	H_N
Python Laplace	0.270750	0.000332	0.995722
NONMEM Laplace	0.270750	0.000332	0.995722
R aghq	0.279726	0.008766	0.995510

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c043: Variability

Clearance IOV: CV 59.8%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

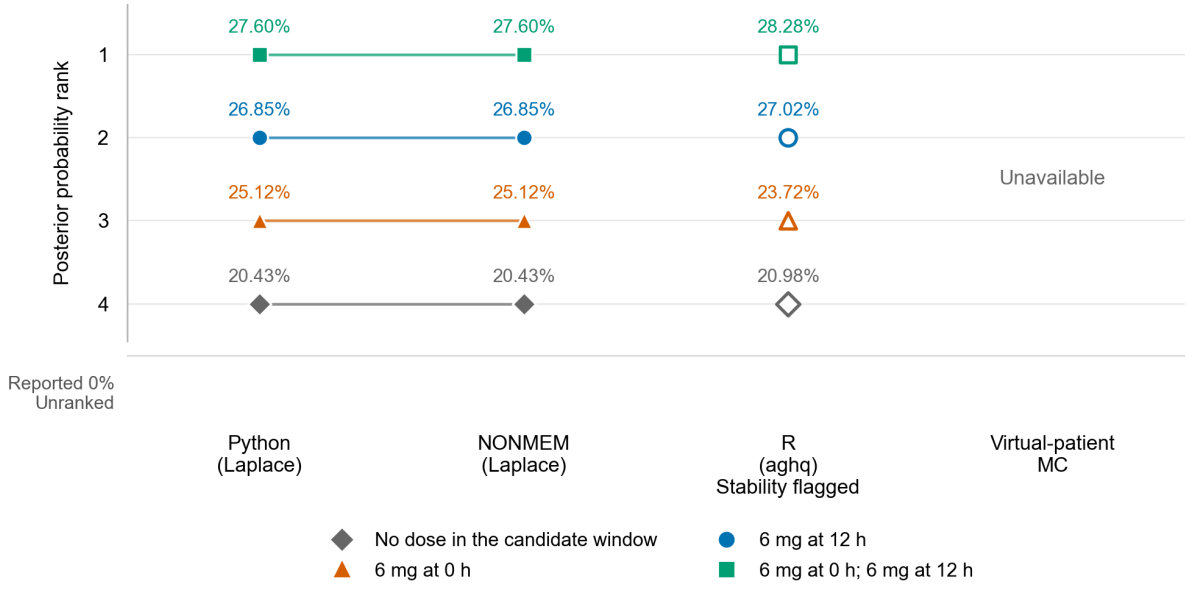
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.01422×10^{-8}	1.63561×10^{-8}	1.67747×10^{-8}	1.17036×10^{-8}
Python vs R aghq	0.013949	0.013949	0.016529	0.011816
NONMEM vs R aghq	0.013949	0.013949	0.016529	0.011816

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20430613	0.20430612	0.20983189
ω_{01}: 6 mg at 0 h	0.25	0.25119057	0.25119058	0.23724155
ω_{10}: 6 mg at 12 h	0.25	0.26847092	0.26847091	0.27017010
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27603238	0.27603239	0.28275646

Method	P_{max}	G	H_N
Python Laplace	0.276032	0.007561	0.995357
NONMEM Laplace	0.276032	0.007561	0.995357
R aghq	0.282756	0.012586	0.995241

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c044: Variability

Clearance IOV: CV 89.7%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

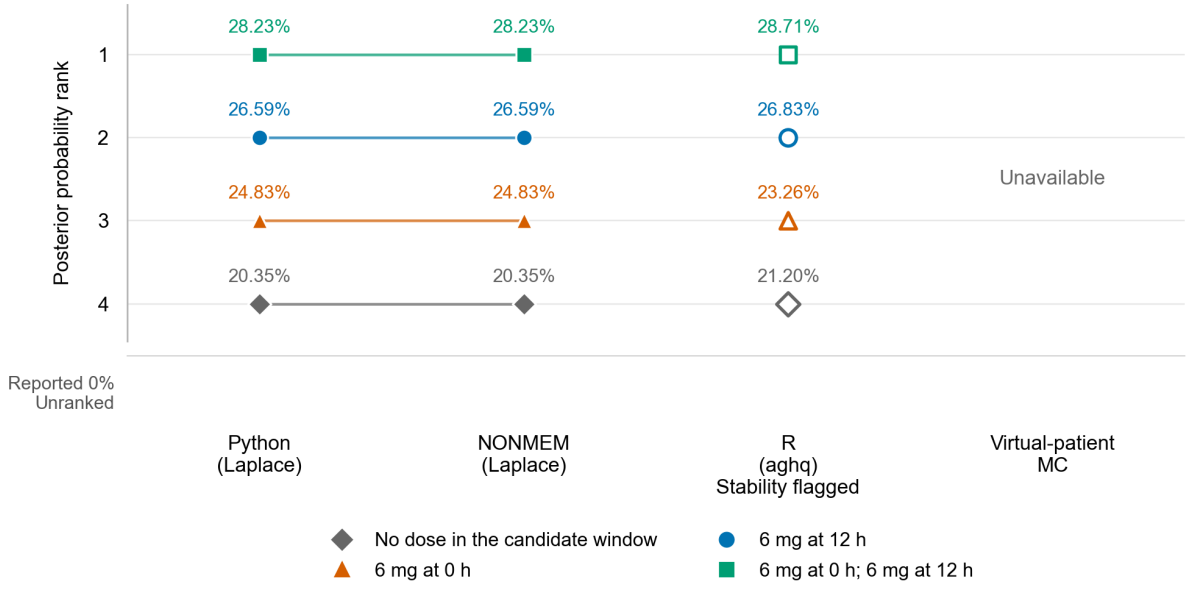
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.62215×10^{-8}	1.62215×10^{-8}	2.18616×10^{-8}	1.64222×10^{-8}
Python vs R aghq	0.015726	0.015726	0.018653	0.013586
NONMEM vs R aghq	0.015726	0.015726	0.018653	0.013586

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20351974	0.20351972	0.21197152
ω_{01}: 6 mg at 0 h	0.25	0.24829952	0.24829954	0.23257329
ω_{10}: 6 mg at 12 h	0.25	0.26587559	0.26587559	0.26834752
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.28230515	0.28230515	0.28710767

Method	P_{max}	G	H_N
Python Laplace	0.282305	0.016430	0.994865
NONMEM Laplace	0.282305	0.016430	0.994865
R aghq	0.287108	0.018760	0.994981

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c045: Variability

Clearance IOV: CV 119.6%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

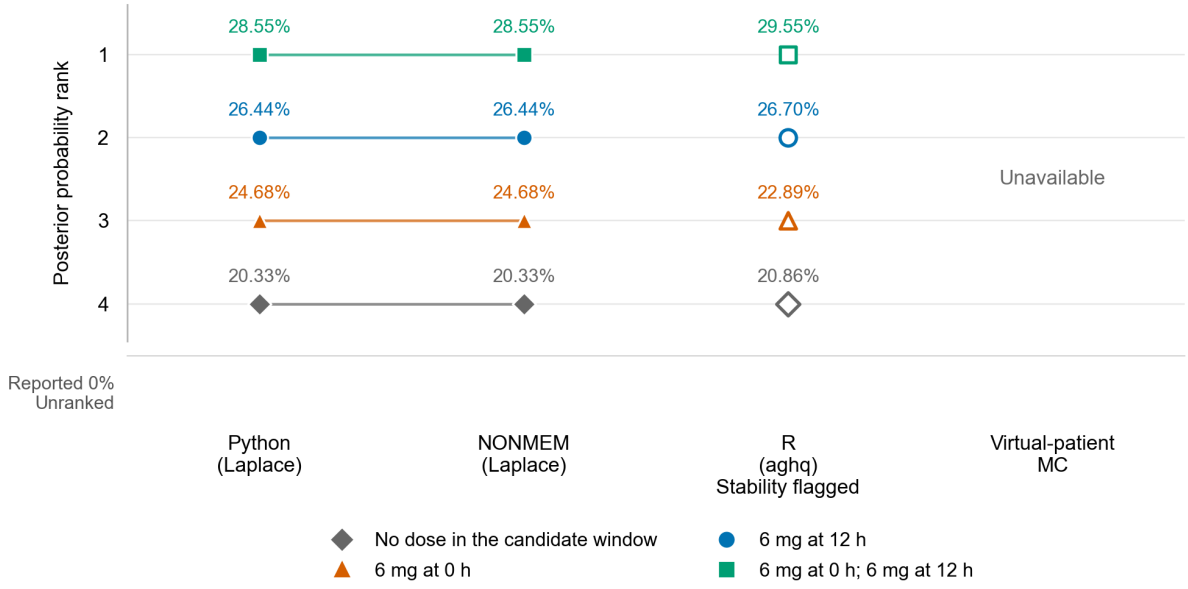
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.51666×10^{-8}	3.51666×10^{-8}	4.19808×10^{-8}	2.98661×10^{-8}
Python vs R aghq	0.017904	0.017904	0.021362	0.015239
NONMEM vs R aghq	0.017904	0.017904	0.021362	0.015239

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20330127	0.20330125	0.20862667
ω_{01}: 6 mg at 0 h	0.25	0.24677857	0.24677861	0.22887471
ω_{10}: 6 mg at 12 h	0.25	0.26444145	0.26444145	0.26696804
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.28547871	0.28547869	0.29553057

Method	P_{max}	G	H_N
Python Laplace	0.285479	0.021037	0.994591
NONMEM Laplace	0.285479	0.021037	0.994591
R aghq	0.295531	0.028563	0.993489

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c046: Variability

Central-volume IIV: CV 0.01000000002%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

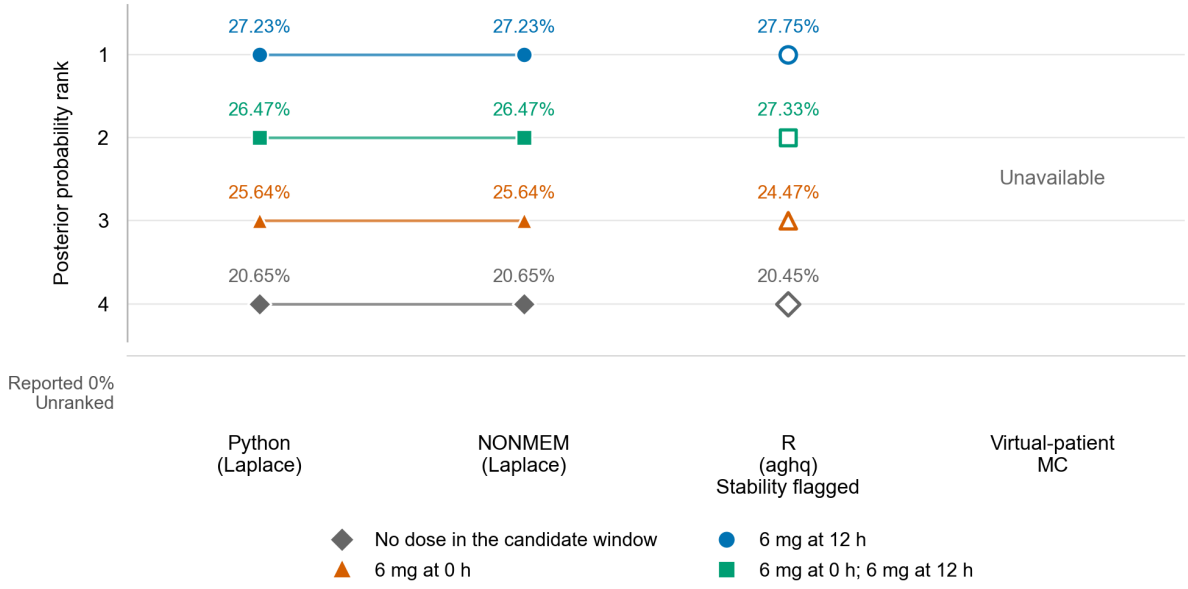
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.43635×10^{-9}	4.69906×10^{-9}	6.21289×10^{-9}	4.30479×10^{-9}
Python vs R aghq	0.011712	0.013746	0.015547	0.010833
NONMEM vs R aghq	0.011712	0.013746	0.015547	0.010833

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20654735	0.20654735	0.20451289
ω_{01}: 6 mg at 0 h	0.25	0.25643386	0.25643386	0.24472200
ω_{10}: 6 mg at 12 h	0.25	0.27233487	0.27233487	0.27748789
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26468392	0.26468392	0.27327722

Method	P_{max}	G	H_N
Python Laplace	0.272335	0.007651	0.996039
NONMEM Laplace	0.272335	0.007651	0.996039
R aghq	0.277488	0.004211	0.994964

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c047: Variability

Central-volume IIV: CV 11.7%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

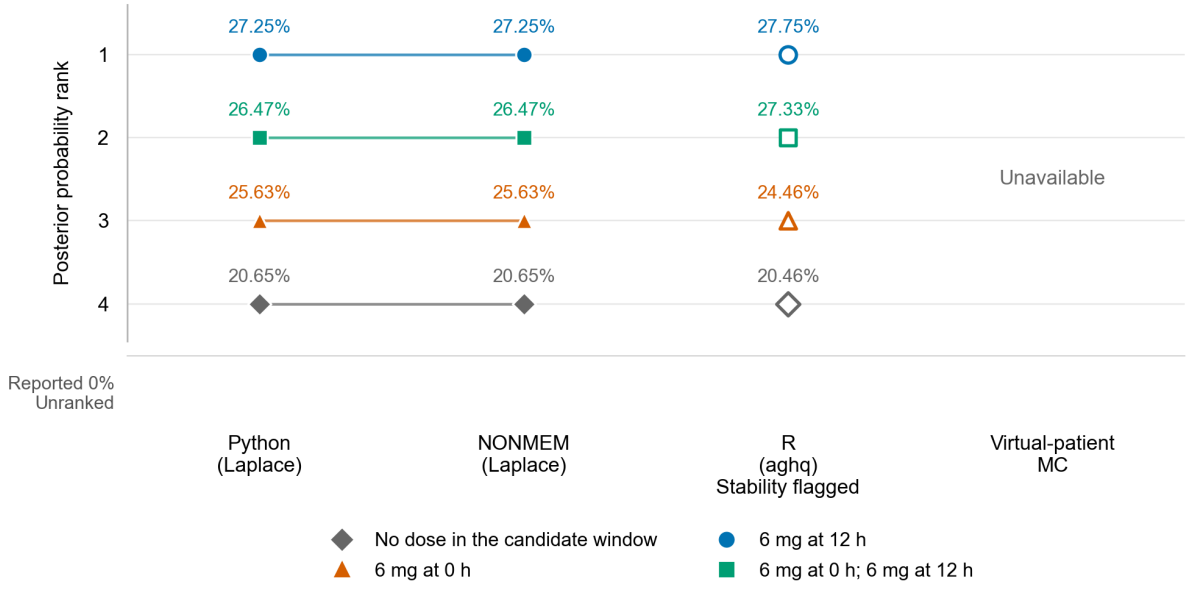
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.01933×10^{-8}	2.01933×10^{-8}	2.35080×10^{-8}	1.65261×10^{-8}
Python vs R aghq	0.011768	0.013622	0.015537	0.010825
NONMEM vs R aghq	0.011767	0.013622	0.015537	0.010825

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20649377	0.20649377	0.20463921
ω_{01}: 6 mg at 0 h	0.25	0.25634341	0.25634339	0.24457589
ω_{10}: 6 mg at 12 h	0.25	0.27248578	0.27248579	0.27746674
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26467704	0.26467705	0.27331815

Method	P_{max}	G	H_N
Python Laplace	0.272486	0.007809	0.996025
NONMEM Laplace	0.272486	0.007809	0.996025
R aghq	0.277467	0.004149	0.994979

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c048: Variability

Central-volume IIV: CV 23.4%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

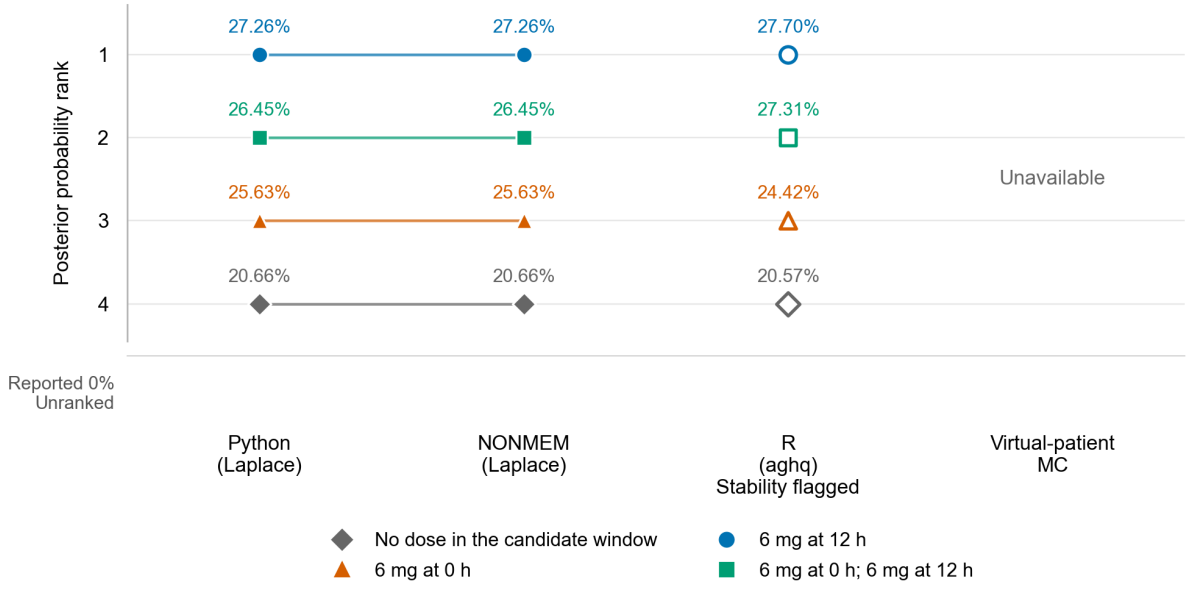
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.45668×10^{-8}	1.45668×10^{-8}	1.76483×10^{-8}	1.23435×10^{-8}
Python vs R aghq	0.012097	0.012996	0.015494	0.010798
NONMEM vs R aghq	0.012097	0.012996	0.015494	0.010798

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20658039	0.20658039	0.20568135
ω_{01}: 6 mg at 0 h	0.25	0.25632609	0.25632608	0.24422867
ω_{10}: 6 mg at 12 h	0.25	0.27259247	0.27259248	0.27703550
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26450105	0.26450105	0.27305448

Method	P_{max}	G	H_N
Python Laplace	0.272592	0.008091	0.996037
NONMEM Laplace	0.272592	0.008091	0.996037
R aghq	0.277036	0.003981	0.995171

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c049: Variability

Central-volume IIV: CV 35.1%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

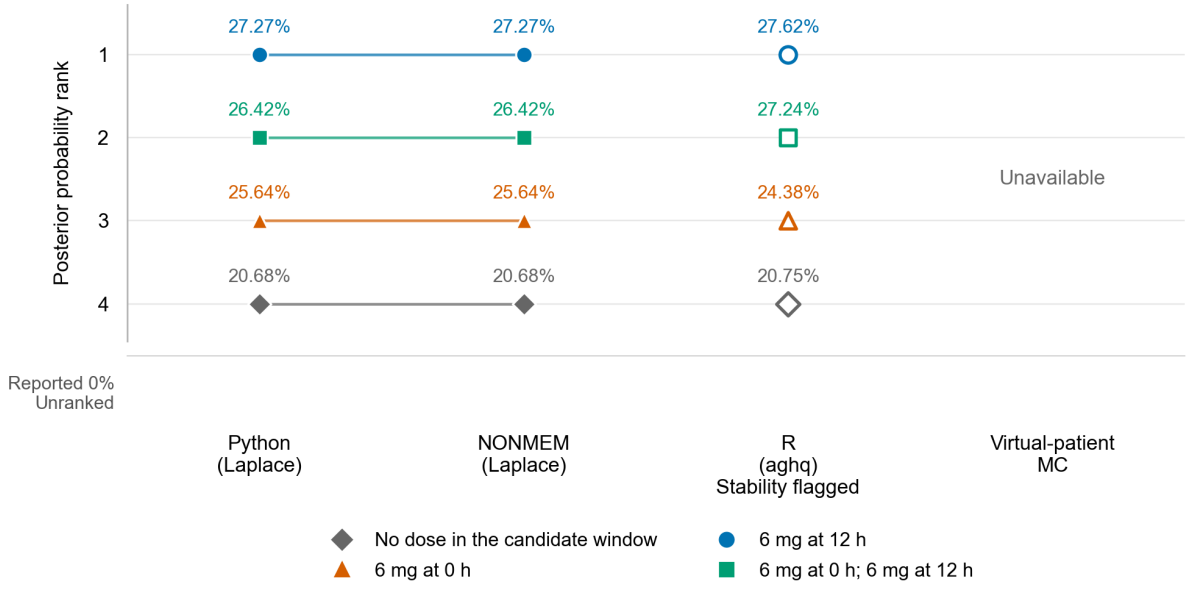
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.22284×10^{-9}	2.22284×10^{-9}	2.80790×10^{-9}	2.09170×10^{-9}
Python vs R aghq	0.012541	0.012541	0.015441	0.010787
NONMEM vs R aghq	0.012541	0.012541	0.015441	0.010787

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20679529	0.20679529	0.20753372
ω_{01}: 6 mg at 0 h	0.25	0.25637702	0.25637702	0.24383615
ω_{10}: 6 mg at 12 h	0.25	0.27265563	0.27265563	0.27621691
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26417206	0.26417206	0.27241322

Method	P_{max}	G	H_N
Python Laplace	0.272656	0.008484	0.996075
NONMEM Laplace	0.272656	0.008484	0.996075
R aghq	0.276217	0.003804	0.995519

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c050: Variability

Central-volume IIV: CV 70.2%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

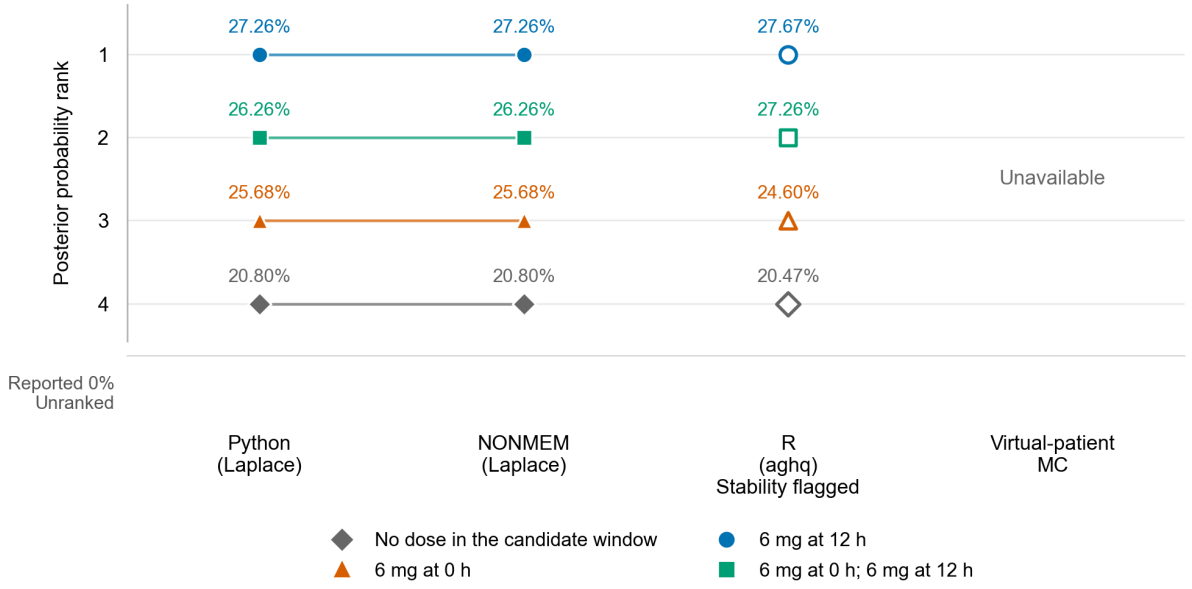
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.42611×10^{-8}	1.46385×10^{-8}	1.82242×10^{-8}	1.27404×10^{-8}
Python vs R aghq	0.010837	0.014104	0.015666	0.010931
NONMEM vs R aghq	0.010837	0.014104	0.015666	0.010931

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20799043	0.20799043	0.20472323
ω_{01}: 6 mg at 0 h	0.25	0.25682046	0.25682048	0.24598334
ω_{10}: 6 mg at 12 h	0.25	0.27262182	0.27262182	0.27668627
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26256728	0.26256727	0.27260716

Method	P_{max}	G	H_N
Python Laplace	0.272622	0.010055	0.996290
NONMEM Laplace	0.272622	0.010055	0.996290
R aghq	0.276686	0.004079	0.995114

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c051: Variability

Central-volume IIV: CV 93.6%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

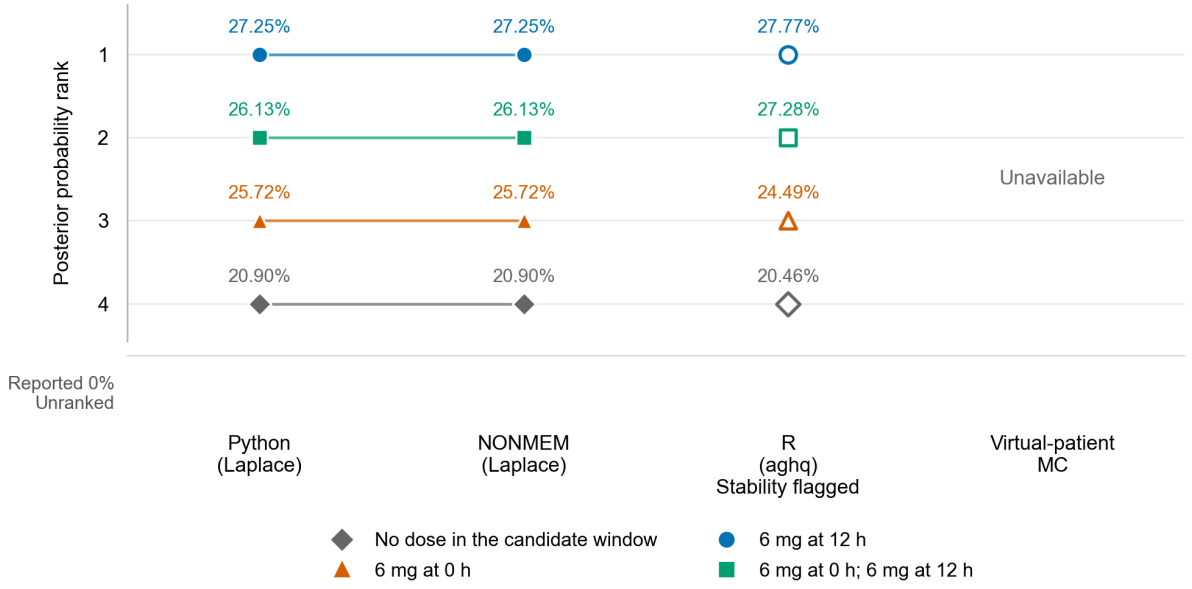
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.60231×10^{-8}	1.92519×10^{-8}	2.17956×10^{-8}	1.52871×10^{-8}
Python vs R aghq	0.012292	0.016758	0.018204	0.012727
NONMEM vs R aghq	0.012292	0.016758	0.018205	0.012727

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20902157	0.20902156	0.20455533
ω_{01}: 6 mg at 0 h	0.25	0.25723162	0.25723164	0.24493990
ω_{10}: 6 mg at 12 h	0.25	0.27246569	0.27246570	0.27768594
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26128111	0.26128110	0.27281882

Method	P_{max}	G	H_N
Python Laplace	0.272466	0.011185	0.996470
NONMEM Laplace	0.272466	0.011185	0.996470
R aghq	0.277686	0.004867	0.994988

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c052: Variability

Central-volume IIV: CV 140.4%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

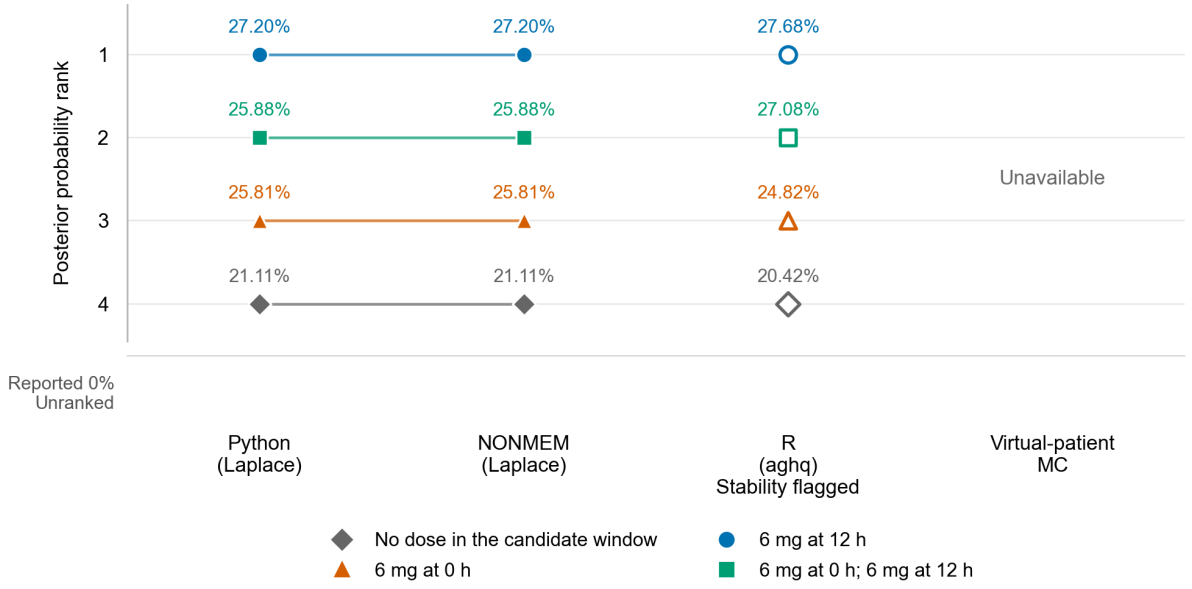
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.43907×10^{-8}	2.23310×10^{-8}	2.31256×10^{-8}	1.62727×10^{-8}
Python vs R aghq	0.012021	0.016789	0.017670	0.012467
NONMEM vs R aghq	0.012021	0.016789	0.017670	0.012467

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21113485	0.21113485	0.20416681
ω_{01}: 6 mg at 0 h	0.25	0.25805110	0.25805111	0.24823061
ω_{10}: 6 mg at 12 h	0.25	0.27199981	0.27199981	0.27676688
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25881424	0.25881423	0.27083569

Method	P_{max}	G	H_N
Python Laplace	0.272000	0.013186	0.996816
NONMEM Laplace	0.272000	0.013186	0.996816
R aghq	0.276767	0.005931	0.995152

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c053: Variability

Central-volume IIV: CV 187.2%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

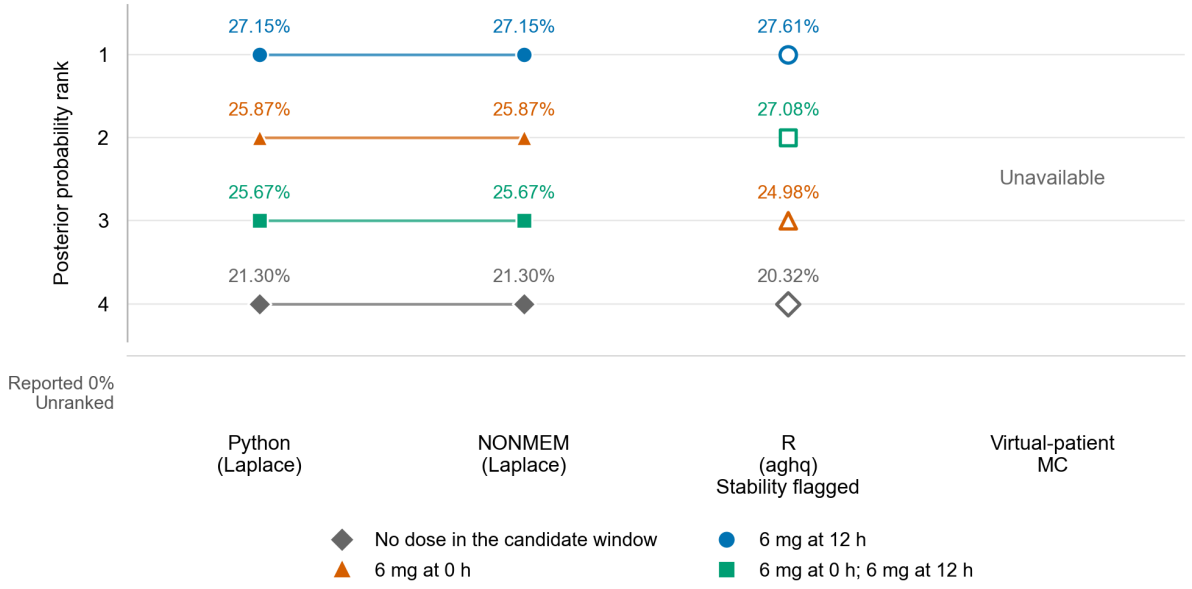
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.43718×10^{-8}	2.43718×10^{-8}	2.90244×10^{-8}	1.98924×10^{-8}
Python vs R aghq	0.014056	0.018730	0.019880	0.014161
NONMEM vs R aghq	0.014056	0.018730	0.019880	0.014161

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21304647	0.21304647	0.20323878
ω_{01}: 6 mg at 0 h	0.25	0.25873906	0.25873906	0.24981684
ω_{10}: 6 mg at 12 h	0.25	0.27147138	0.27147140	0.27614483
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25674309	0.25674307	0.27079955

Method	P_{max}	G	H_N
Python Laplace	0.271471	0.012732	0.997104
NONMEM Laplace	0.271471	0.012732	0.997104
R aghq	0.276145	0.005345	0.995067

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c054: Variability

Central-volume IOV: CV 0.01000000002%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

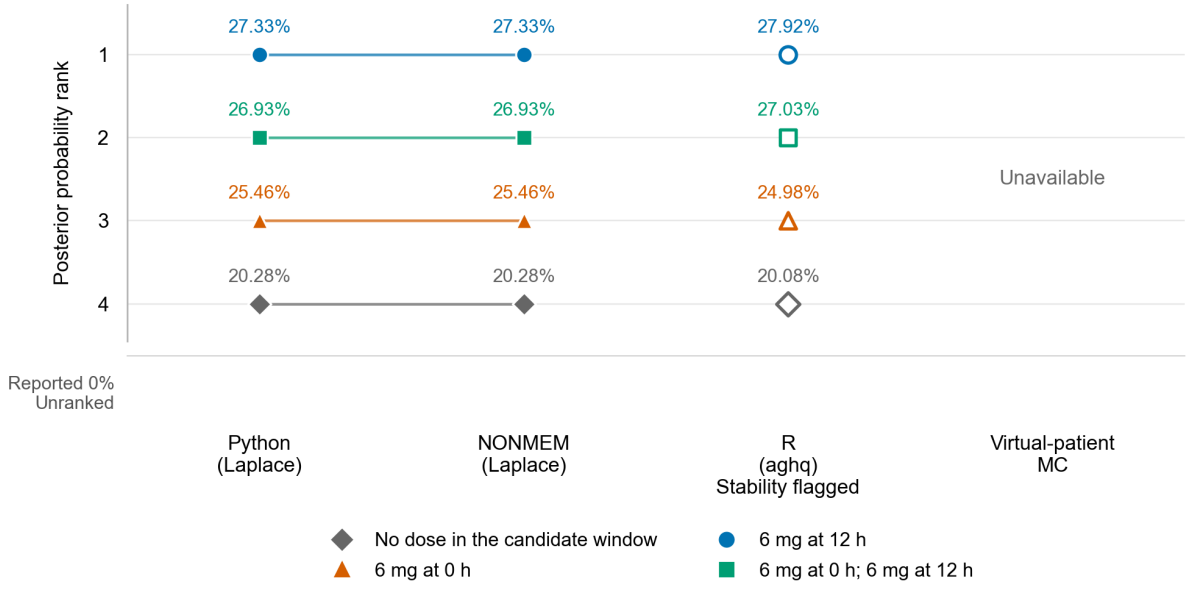
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.87867×10^{-8}	2.07246×10^{-8}	2.45373×10^{-8}	1.71433×10^{-8}
Python vs R aghq	5.92496×10^{-3}	6.86411×10^{-3}	7.95069×10^{-3}	5.50682×10^{-3}
NONMEM vs R aghq	5.92498×10^{-3}	6.86412×10^{-3}	7.95071×10^{-3}	5.50683×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20284556	0.20284555	0.20076782
ω_{01}: 6 mg at 0 h	0.25	0.25457704	0.25457706	0.24979066
ω_{10}: 6 mg at 12 h	0.25	0.27326177	0.27326175	0.27918673
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26931564	0.26931564	0.27025479

Method	P_{max}	G	H_N
Python Laplace	0.273262	0.003946	0.995256
NONMEM Laplace	0.273262	0.003946	0.995256
R aghq	0.279187	0.008932	0.994488

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c055: Variability

Central-volume IOV: CV 31.625%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

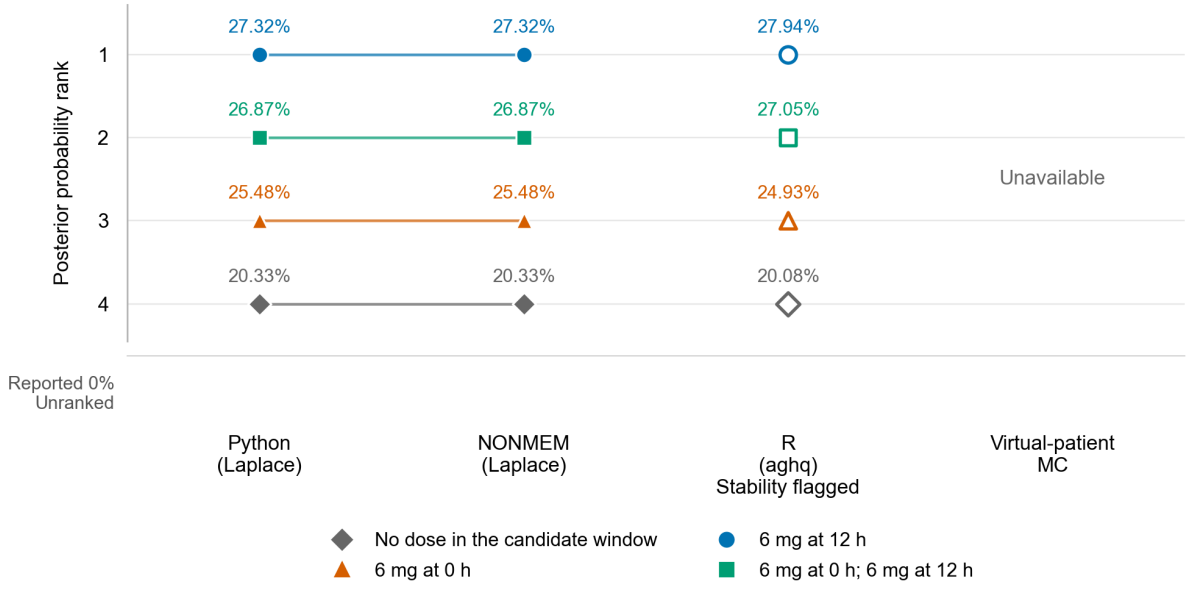
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	8.86698×10^{-9}	1.09592×10^{-8}	1.19745×10^{-8}	8.21021×10^{-9}
Python vs R aghq	6.18715×10^{-3}	7.96379×10^{-3}	8.82103×10^{-3}	6.12880×10^{-3}
NONMEM vs R aghq	6.18716×10^{-3}	7.96380×10^{-3}	8.82104×10^{-3}	6.12880×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20327835	0.20327835	0.20082326
ω_{01}: 6 mg at 0 h	0.25	0.25478649	0.25478649	0.24927778
ω_{10}: 6 mg at 12 h	0.25	0.27321092	0.27321092	0.27939807
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26872423	0.26872424	0.27050088

Method	P_{max}	G	H_N
Python Laplace	0.273211	0.004487	0.995353
NONMEM Laplace	0.273211	0.004487	0.995353
R aghq	0.279398	0.008897	0.994465

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c056: Variability

Central-volume IOV: CV 63.25%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

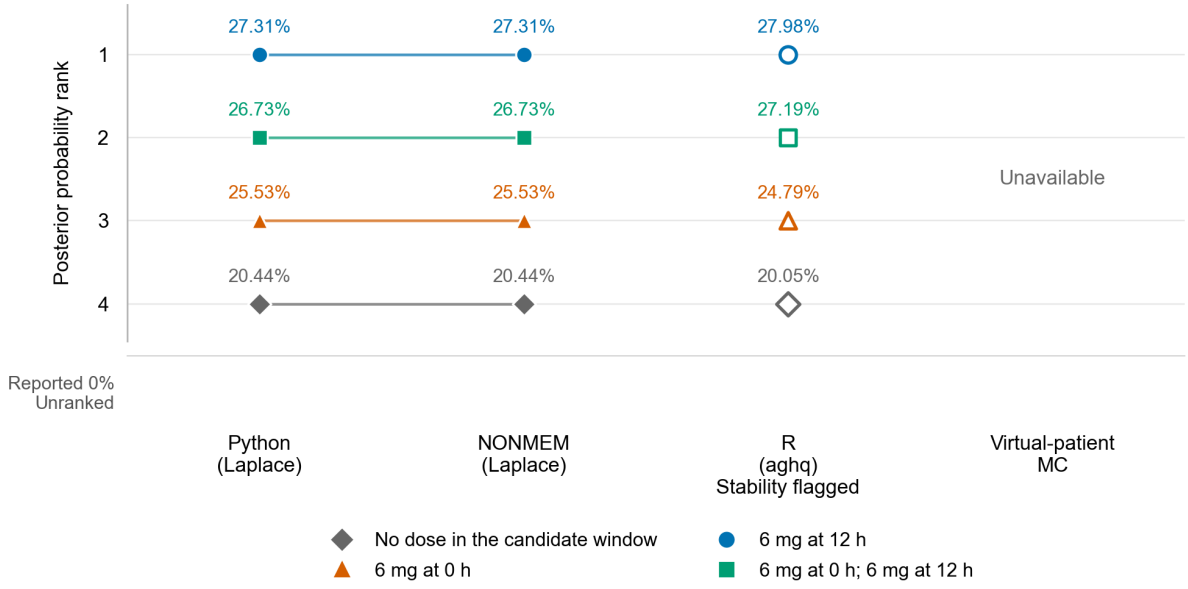
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.83644×10^{-8}	1.83644×10^{-8}	2.15601×10^{-8}	1.50571×10^{-8}
Python vs R aghq	7.42007×10^{-3}	0.011316	0.011677	8.17778×10^{-3}
NONMEM vs R aghq	7.42005×10^{-3}	0.011316	0.011677	8.17777×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20436651	0.20436651	0.20047013
ω_{01}: 6 mg at 0 h	0.25	0.25529660	0.25529658	0.24787653
ω_{10}: 6 mg at 12 h	0.25	0.27307434	0.27307435	0.27975224
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26726255	0.26726256	0.27190109

Method	P_{max}	G	H_N
Python Laplace	0.273074	0.005812	0.995588
NONMEM Laplace	0.273074	0.005812	0.995588
R aghq	0.279752	0.007851	0.994292

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c057: Variability

Central-volume IOV: CV 94.875%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

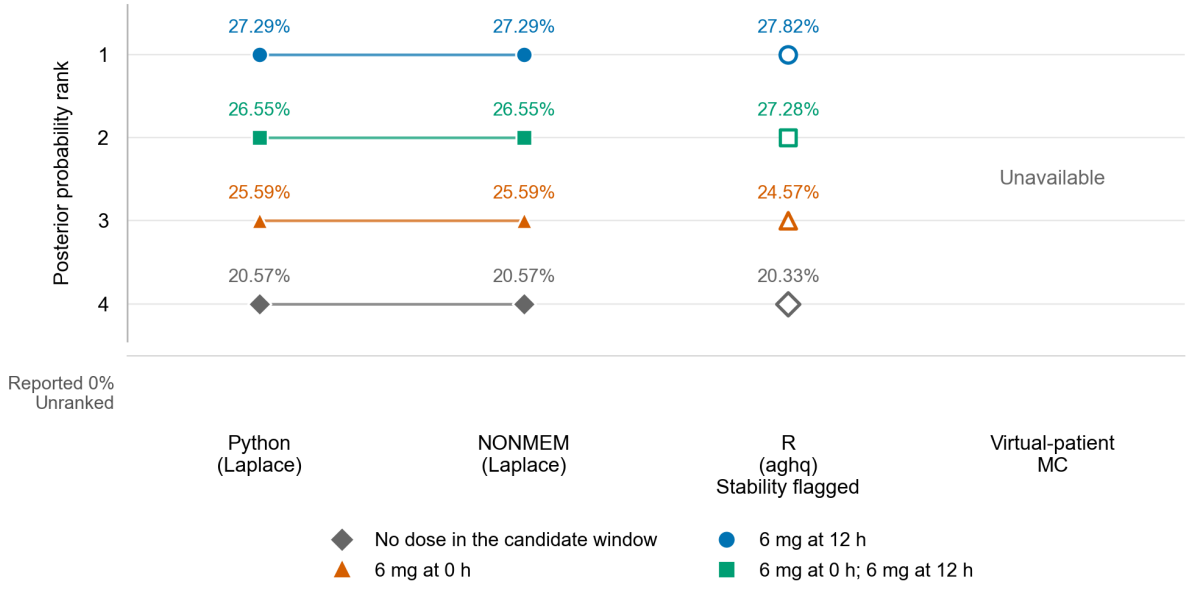
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.03239×10^{-8}	2.03239×10^{-8}	2.40884×10^{-8}	1.72423×10^{-8}
Python vs R aghq	0.010199	0.012582	0.013814	9.62790×10^{-3}
NONMEM vs R aghq	0.010199	0.012582	0.013814	9.62791×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20573102	0.20573101	0.20334772
ω_{01}: 6 mg at 0 h	0.25	0.25590381	0.25590383	0.24570490
ω_{10}: 6 mg at 12 h	0.25	0.27288652	0.27288651	0.27818583
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26547864	0.26547864	0.27276155

Method	P_{max}	G	H_N
Python Laplace	0.272887	0.007408	0.995867
NONMEM Laplace	0.272887	0.007408	0.995867
R aghq	0.278186	0.005424	0.994786

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c058: Variability

Central-volume IOV: CV 189.75%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

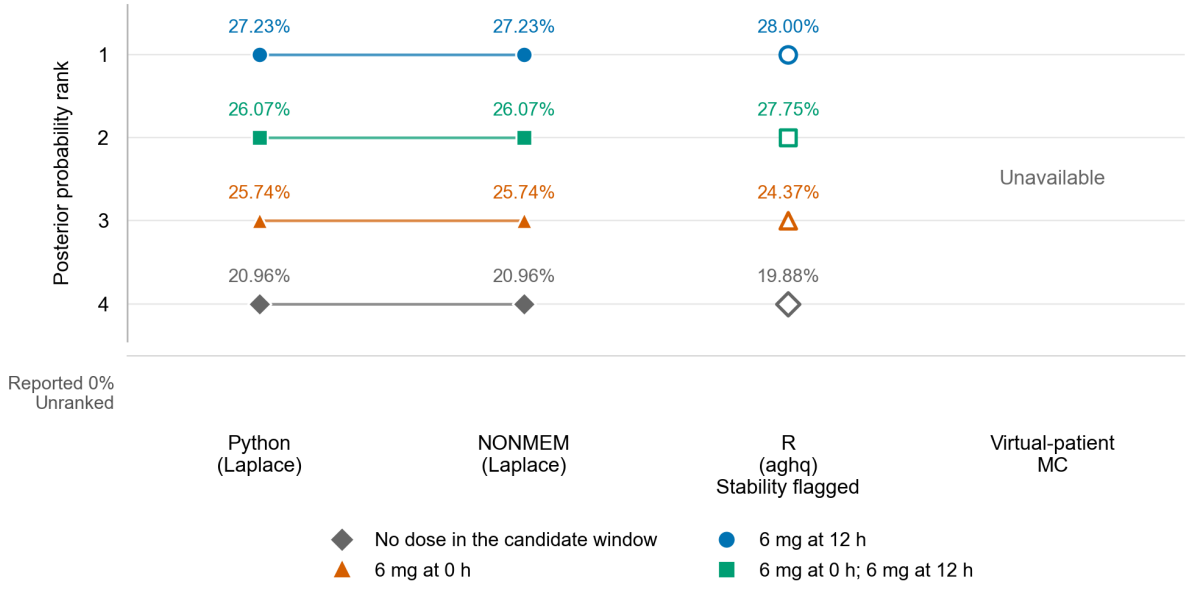
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.32927×10^{-8}	2.88200×10^{-8}	3.26950×10^{-8}	2.37818×10^{-8}
Python vs R aghq	0.016791	0.024526	0.025433	0.017987
NONMEM vs R aghq	0.016791	0.024526	0.025433	0.017987

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20960622	0.20960620	0.19880601
ω_{01}: 6 mg at 0 h	0.25	0.25744389	0.25744391	0.24371762
ω_{10}: 6 mg at 12 h	0.25	0.27226644	0.27226644	0.28000157
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26068346	0.26068345	0.27747480

Method	P_{max}	G	H_N
Python Laplace	0.272266	0.011583	0.996571
NONMEM Laplace	0.272266	0.011583	0.996571
R aghq	0.280002	0.002527	0.993573

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c059: Variability

Central-volume IOV: CV 253%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

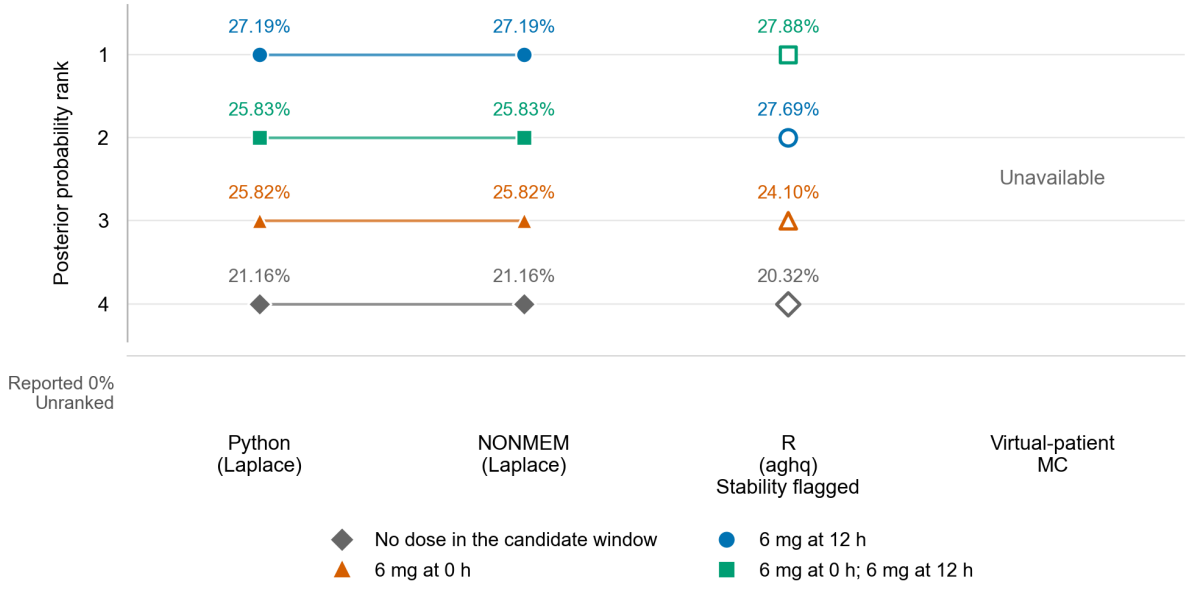
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.24111×10^{-8}	2.24111×10^{-8}	2.69172×10^{-8}	1.84248×10^{-8}
Python vs R aghq	0.020546	0.025582	0.028510	0.019959
NONMEM vs R aghq	0.020546	0.025582	0.028510	0.019959

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21164710	0.21164710	0.20322325
ω_{01}: 6 mg at 0 h	0.25	0.25815421	0.25815420	0.24099654
ω_{10}: 6 mg at 12 h	0.25	0.27189664	0.27189666	0.27693209
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25830205	0.25830204	0.27884812

Method	P_{max}	G	H_N
Python Laplace	0.271897	0.013595	0.996895
NONMEM Laplace	0.271897	0.013595	0.996895
R aghq	0.278848	0.001916	0.994340

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c060: Variability

Central-volume IOV: CV 379.5%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

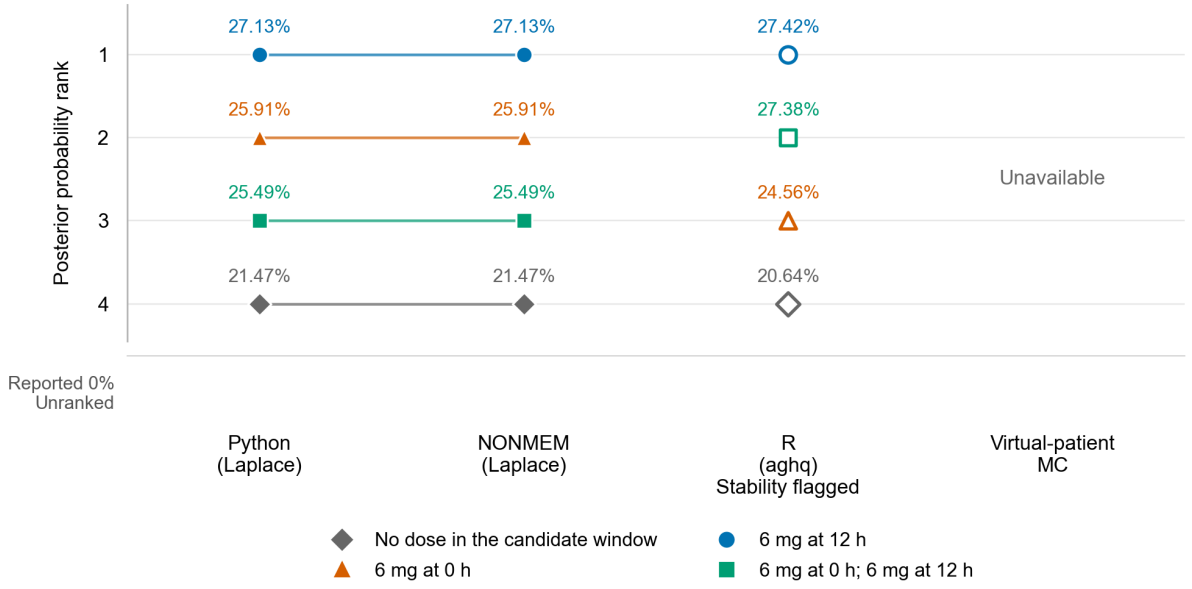
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.00401×10^{-8}	1.00401×10^{-8}	1.18798×10^{-8}	8.25709×10^{-9}
Python vs R aghq	0.018958	0.021904	0.024929	0.017504
NONMEM vs R aghq	0.018958	0.021904	0.024929	0.017504

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21473595	0.21473595	0.20637856
ω_{01}: 6 mg at 0 h	0.25	0.25911211	0.25911212	0.24556506
ω_{10}: 6 mg at 12 h	0.25	0.27129178	0.27129178	0.27423816
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25486016	0.25486015	0.27381822

Method	P_{max}	G	H_N
Python Laplace	0.271292	0.012180	0.997327
NONMEM Laplace	0.271292	0.012180	0.997327
R aghq	0.274238	0.000420	0.995436

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c061: Variability

Central-volume IOV: CV 506%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

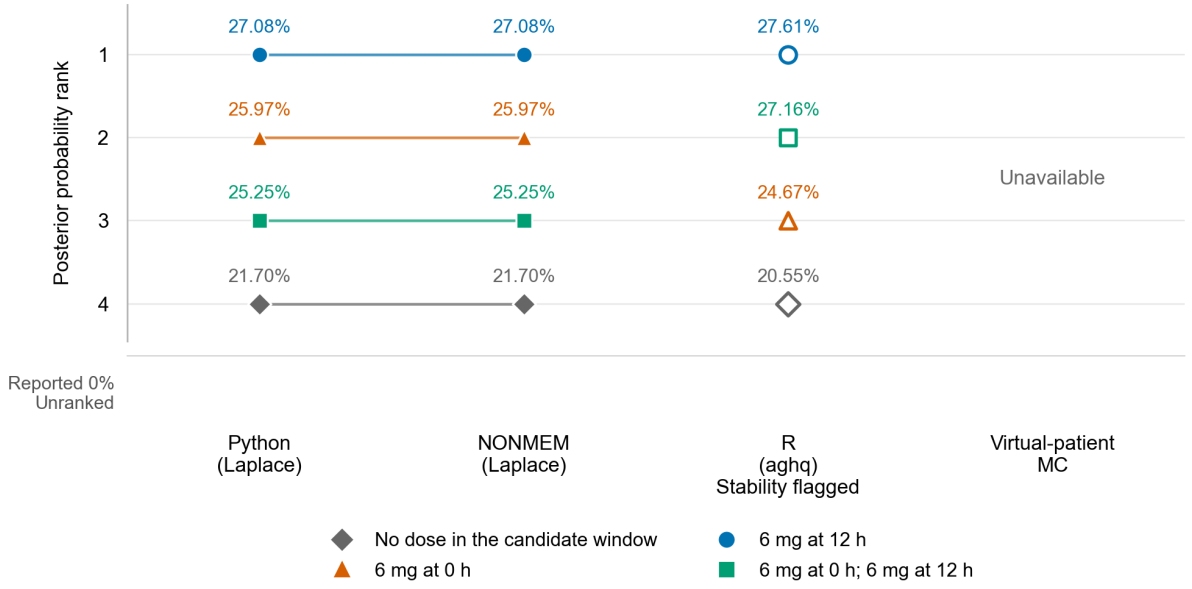
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.20901×10^{-9}	3.20901×10^{-9}	4.10207×10^{-9}	2.94825×10^{-9}
Python vs R aghq	0.019177	0.024467	0.026385	0.018696
NONMEM vs R aghq	0.019177	0.024467	0.026385	0.018696

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21699167	0.21699167	0.20551114
ω_{01}: 6 mg at 0 h	0.25	0.25973236	0.25973236	0.24674623
ω_{10}: 6 mg at 12 h	0.25	0.27082180	0.27082180	0.27611121
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25245416	0.25245416	0.27163143

Method	P_{max}	G	H_N
Python Laplace	0.270822	0.011089	0.997602
NONMEM Laplace	0.270822	0.011089	0.997602
R aghq	0.276111	0.004480	0.995335

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c062: Variability

Peripheral-volume IIV: CV 0.01000000002%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

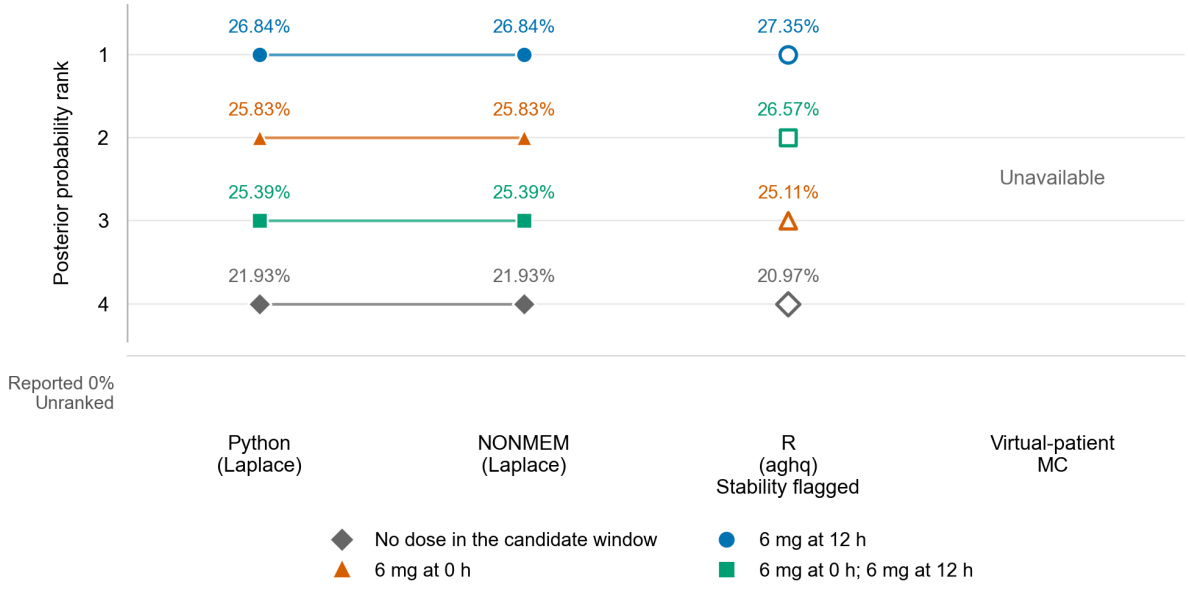
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	7.09827×10^{-9}	7.09827×10^{-9}	8.80072×10^{-9}	6.09026×10^{-9}
Python vs R aghq	0.011744	0.016812	0.017548	0.012553
NONMEM vs R aghq	0.011744	0.016812	0.017548	0.012553

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21934673	0.21934673	0.20971518
ω_{01}: 6 mg at 0 h	0.25	0.25831038	0.25831037	0.25112958
ω_{10}: 6 mg at 12 h	0.25	0.26839459	0.26839460	0.27346264
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25394830	0.25394830	0.26569260

Method	P_{max}	G	H_N
Python Laplace	0.268395	0.010084	0.997988
NONMEM Laplace	0.268395	0.010084	0.997988
R aghq	0.273463	0.007770	0.996401

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c063: Variability

Peripheral-volume IIV: CV 22.35%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

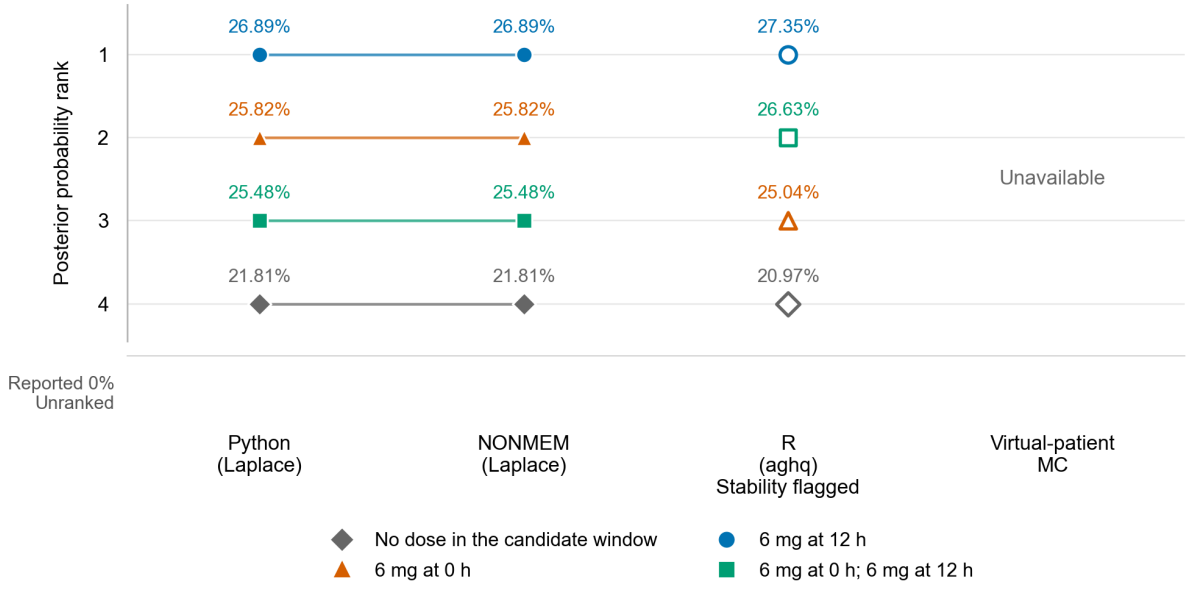
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.95467×10^{-9}	9.95467×10^{-9}	1.19264×10^{-8}	8.27983×10^{-9}
Python vs R aghq	0.011529	0.016199	0.016914	0.012037
NONMEM vs R aghq	0.011529	0.016199	0.016914	0.012037

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21807701	0.21807701	0.20971491
ω_{01}: 6 mg at 0 h	0.25	0.25824690	0.25824689	0.25040999
ω_{10}: 6 mg at 12 h	0.25	0.26885842	0.26885842	0.27352814
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25481768	0.25481768	0.26634696

Method	P_{max}	G	H_N
Python Laplace	0.268858	0.010612	0.997832
NONMEM Laplace	0.268858	0.010612	0.997832
R aghq	0.273528	0.007181	0.996369

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c064: Variability

Peripheral-volume IIV: CV 44.7%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

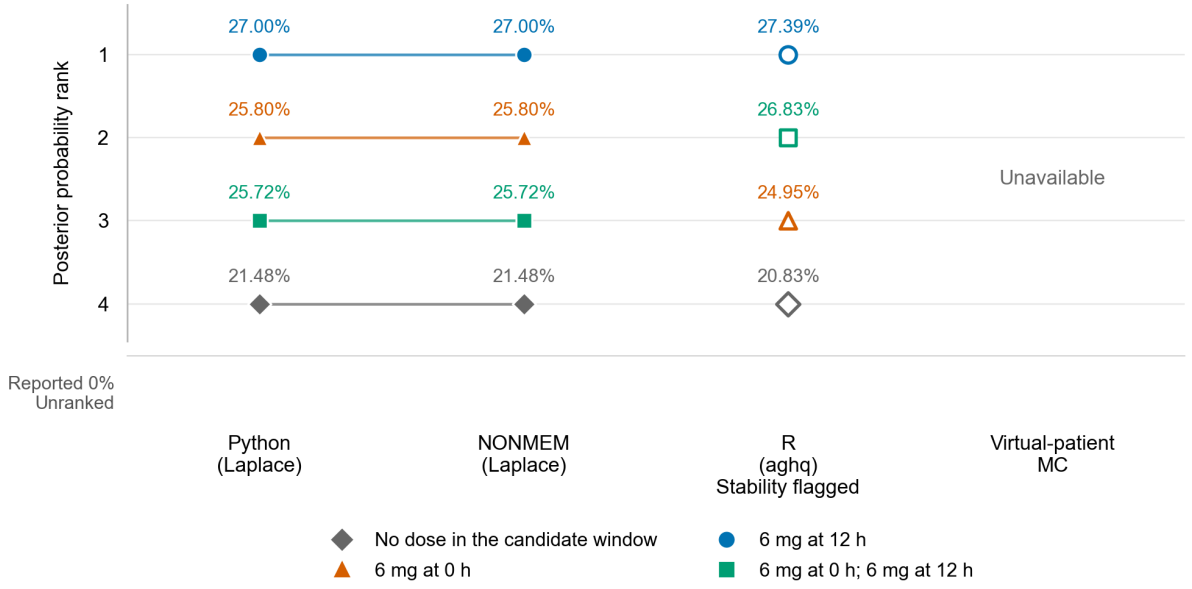
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.77176×10^{-8}	2.77176×10^{-8}	3.21722×10^{-8}	2.26378×10^{-8}
Python vs R aghq	0.011124	0.014994	0.015901	0.011235
NONMEM vs R aghq	0.011124	0.014994	0.015901	0.011235

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21482411	0.21482410	0.20825648
ω_{01}: 6 mg at 0 h	0.25	0.25796483	0.25796486	0.24953863
ω_{10}: 6 mg at 12 h	0.25	0.27003073	0.27003072	0.27390086
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25718033	0.25718032	0.26830403

Method	P_{max}	G	H_N
Python Laplace	0.270031	0.012066	0.997396
NONMEM Laplace	0.270031	0.012066	0.997396
R aghq	0.273901	0.005597	0.996062

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c065: Variability

Peripheral-volume IIV: CV 67.05%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

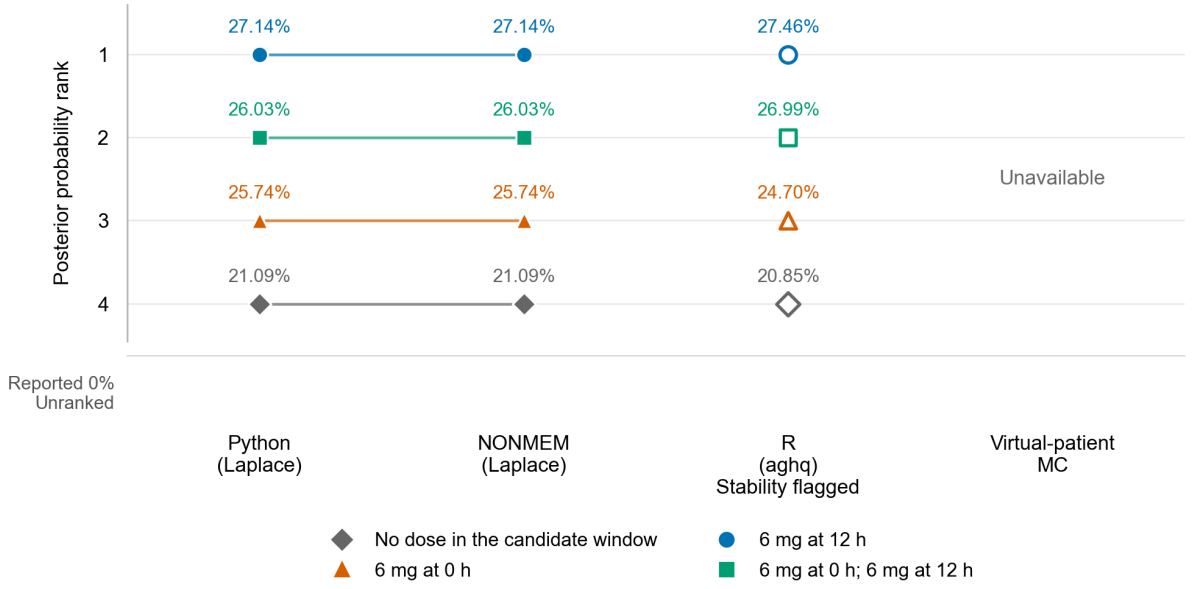
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.69625×10^{-8}	2.69625×10^{-8}	3.16944×10^{-8}	2.20939×10^{-8}
Python vs R aghq	0.010362	0.012758	0.014676	0.010234
NONMEM vs R aghq	0.010362	0.012758	0.014676	0.010234

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21088258	0.21088259	0.20848694
ω_{01}: 6 mg at 0 h	0.25	0.25736643	0.25736640	0.24700394
ω_{10}: 6 mg at 12 h	0.25	0.27141533	0.27141534	0.27456376
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26033566	0.26033567	0.26994537

Method	P_{max}	G	H_N
Python Laplace	0.271415	0.011080	0.996794
NONMEM Laplace	0.271415	0.011080	0.996794
R aghq	0.274564	0.004618	0.995948

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c066: Variability

Peripheral-volume IIV: CV 134.1%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

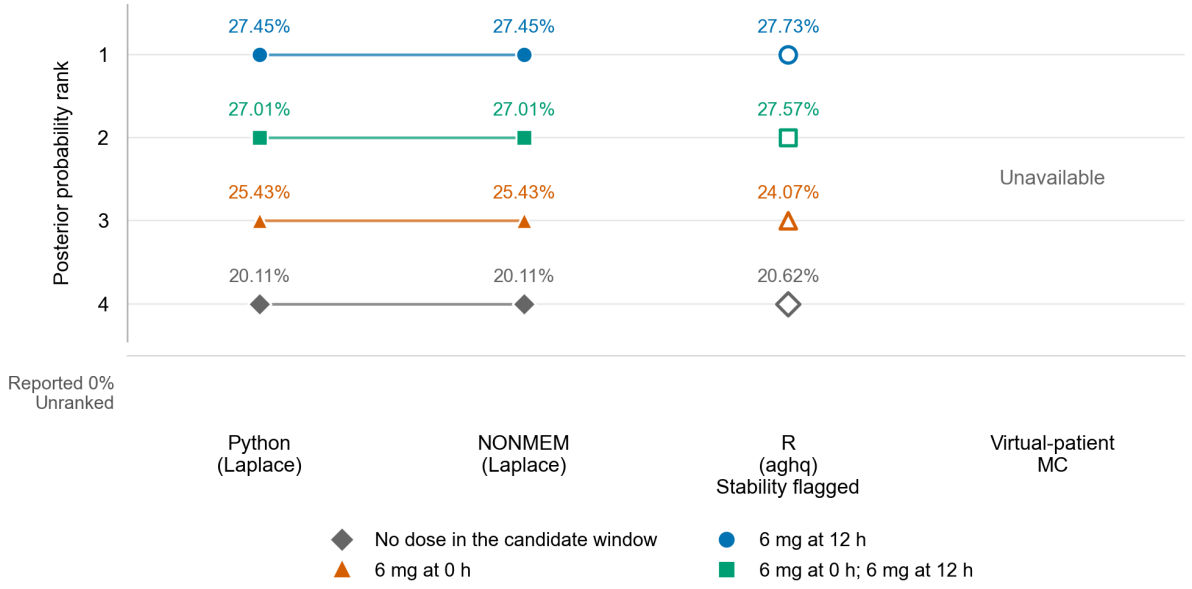
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.85823×10^{-8}	1.85823×10^{-8}	2.26839×10^{-8}	1.71013×10^{-8}
Python vs R aghq	0.013592	0.013592	0.015834	0.011298
NONMEM vs R aghq	0.013592	0.013592	0.015834	0.011298

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20109340	0.20109338	0.20624650
ω_{01}: 6 mg at 0 h	0.25	0.25430164	0.25430164	0.24071013
ω_{10}: 6 mg at 12 h	0.25	0.27448339	0.27448340	0.27731801
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27012157	0.27012158	0.27572536

Method	P_{max}	G	H_N
Python Laplace	0.274483	0.004362	0.994866
NONMEM Laplace	0.274483	0.004362	0.994866
R aghq	0.277318	0.001593	0.994972

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c067: Variability

Peripheral-volume IIV: CV 178.8%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

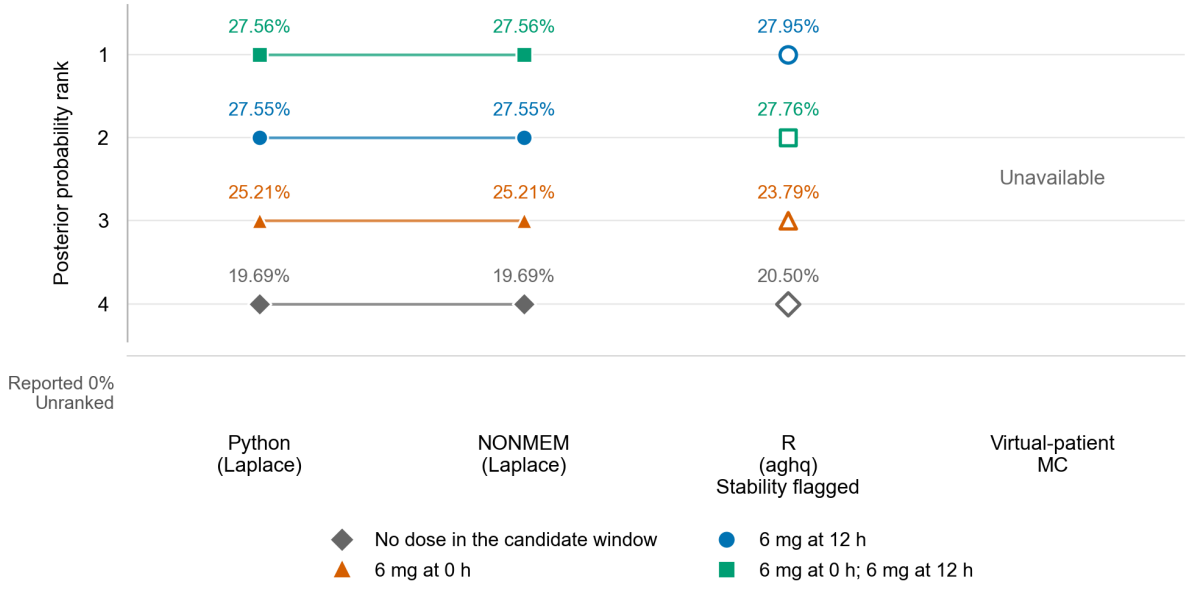
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.86610×10^{-8}	3.02686×10^{-8}	3.07570×10^{-8}	2.23159×10^{-8}
Python vs R aghq	0.014121	0.014121	0.016901	0.012330
NONMEM vs R aghq	0.014121	0.014121	0.016901	0.012330

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19685535	0.19685537	0.20500556
ω_{01}: 6 mg at 0 h	0.25	0.25206465	0.25206466	0.23794414
ω_{10}: 6 mg at 12 h	0.25	0.27547651	0.27547649	0.27946514
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27560349	0.27560348	0.27758516

Method	P_{max}	G	H_N
Python Laplace	0.275603	0.000127	0.993774
NONMEM Laplace	0.275603	0.000127	0.993774
R aghq	0.279465	0.001880	0.994408

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c068: Variability

Peripheral-volume IIV: CV 268.2%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

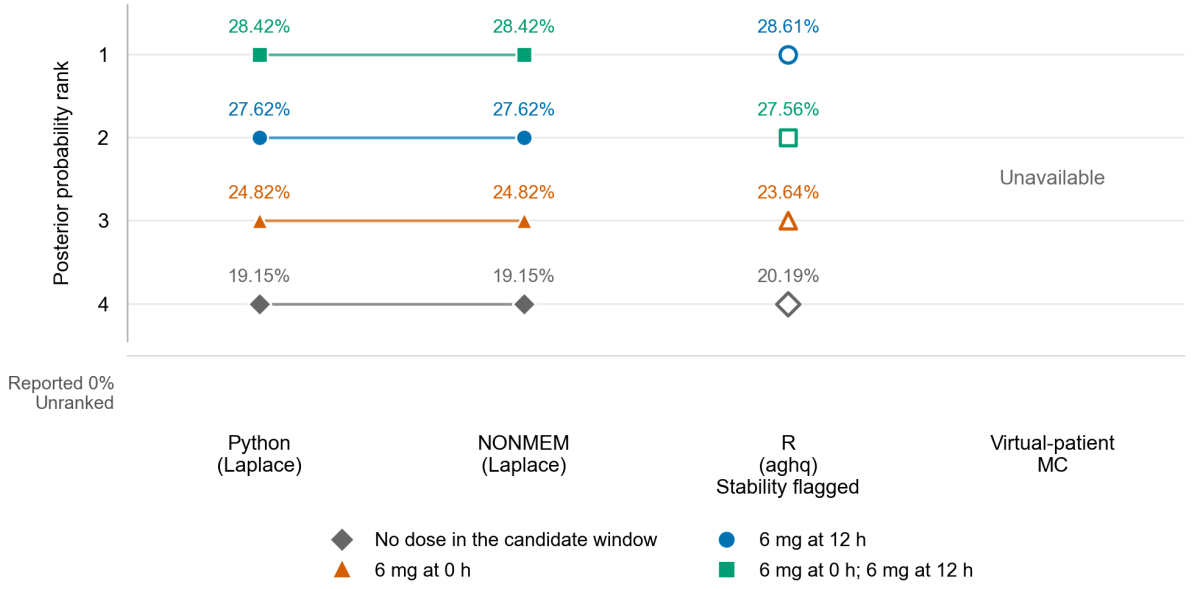
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.10110×10^{-8}	4.10110×10^{-8}	4.90919×10^{-8}	3.77294×10^{-8}
Python vs R aghq	0.011821	0.020371	0.020505	0.014759
NONMEM vs R aghq	0.011821	0.020371	0.020505	0.014759

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19148758	0.19148754	0.20191458
ω_{01}: 6 mg at 0 h	0.25	0.24820342	0.24820342	0.23638270
ω_{10}: 6 mg at 12 h	0.25	0.27615262	0.27615263	0.28609707
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.28415639	0.28415641	0.27560565

Method	P_{max}	G	H_N
Python Laplace	0.284156	0.008004	0.992053
NONMEM Laplace	0.284156	0.008004	0.992053
R aghq	0.286097	0.010491	0.993444

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c069: Variability

Peripheral-volume IIV: CV 357.6%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

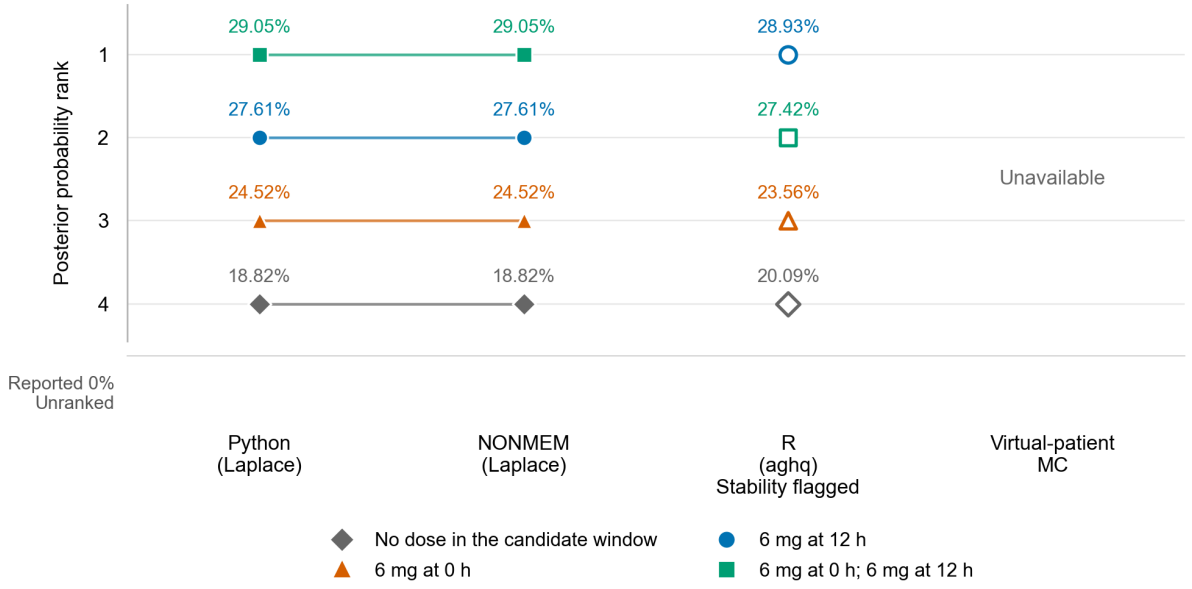
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.45311×10^{-8}	1.55970×10^{-8}	2.02809×10^{-8}	1.40582×10^{-8}
Python vs R aghq	0.016367	0.025943	0.026387	0.018638
NONMEM vs R aghq	0.016367	0.025943	0.026387	0.018638

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18820102	0.18820102	0.20087254
ω_{01}: 6 mg at 0 h	0.25	0.24518107	0.24518106	0.23560552
ω_{10}: 6 mg at 12 h	0.25	0.27607043	0.27607044	0.28934187
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.29054748	0.29054748	0.27418007

Method	P_{max}	G	H_N
Python Laplace	0.290547	0.014477	0.990735
NONMEM Laplace	0.290547	0.014477	0.990735
R aghq	0.289342	0.015162	0.993018

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c070: Variability

Absorption-rate IIV: CV 0.01000000002%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

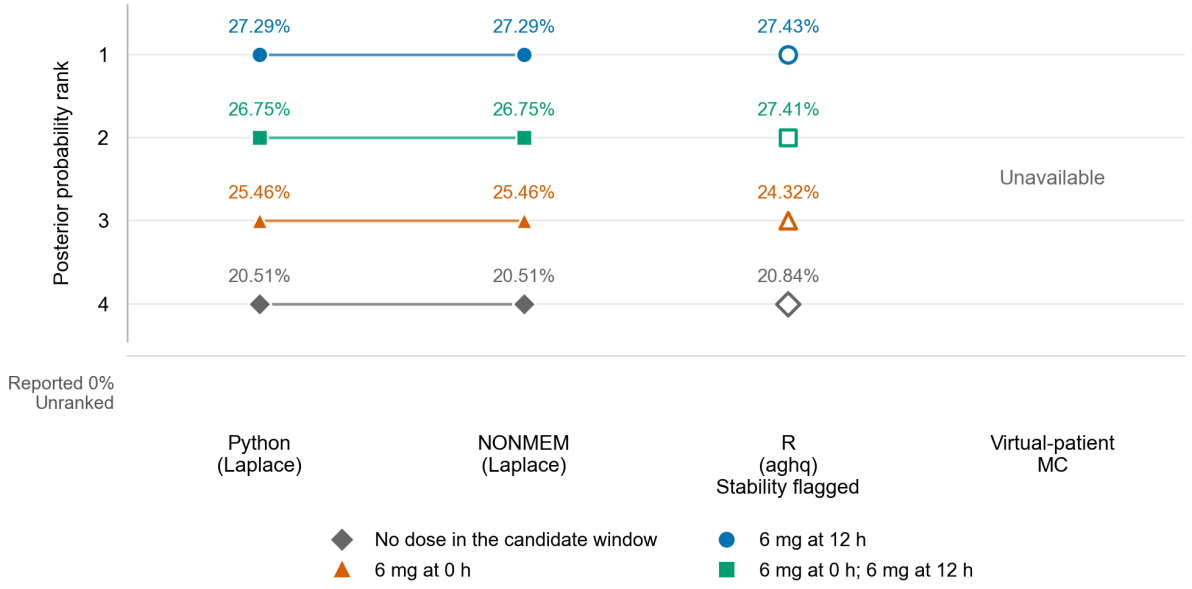
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.84869×10^{-8}	3.84869×10^{-8}	4.46036×10^{-8}	3.12521×10^{-8}
Python vs R aghq	0.011347	0.011347	0.013619	9.61415×10^{-3}
NONMEM vs R aghq	0.011347	0.011347	0.013619	9.61418×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20508639	0.20508638	0.20841088
ω_{01}: 6 mg at 0 h	0.25	0.25455824	0.25455828	0.24321165
ω_{10}: 6 mg at 12 h	0.25	0.27285526	0.27285525	0.27426725
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26750010	0.26750009	0.27411022

Method	P_{max}	G	H_N
Python Laplace	0.272855	0.005355	0.995705
NONMEM Laplace	0.272855	0.005355	0.995705
R aghq	0.274267	0.000157	0.995650

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c071: Variability

Absorption-rate IIV: CV 11.9%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

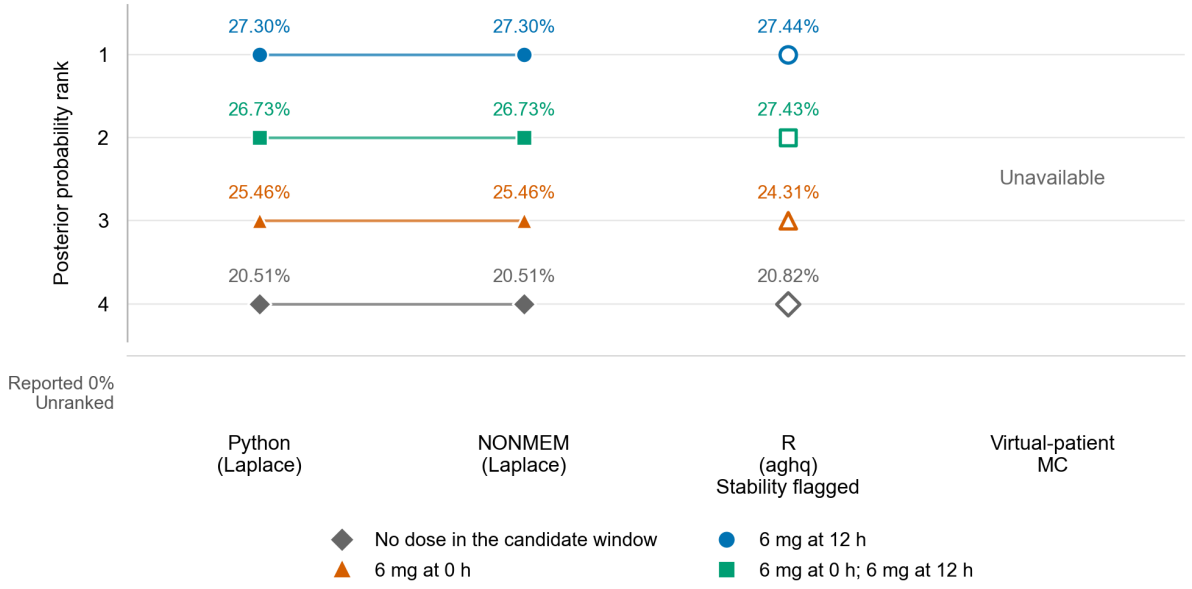
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.21968×10^{-8}	1.21968×10^{-8}	1.41304×10^{-8}	9.90423×10^{-9}
Python vs R aghq	0.011492	0.011492	0.013852	9.76461×10^{-3}
NONMEM vs R aghq	0.011492	0.011492	0.013851	9.76460×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20511337	0.20511337	0.20824532
ω_{01}: 6 mg at 0 h	0.25	0.25458870	0.25458869	0.24309660
ω_{10}: 6 mg at 12 h	0.25	0.27296279	0.27296279	0.27440054
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26733514	0.26733515	0.27425753

Method	P_{max}	G	H_N
Python Laplace	0.272963	0.005628	0.995709
NONMEM Laplace	0.272963	0.005628	0.995709
R aghq	0.274401	0.000143	0.995607

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c072: Variability

Absorption-rate IIV: CV 23.8%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

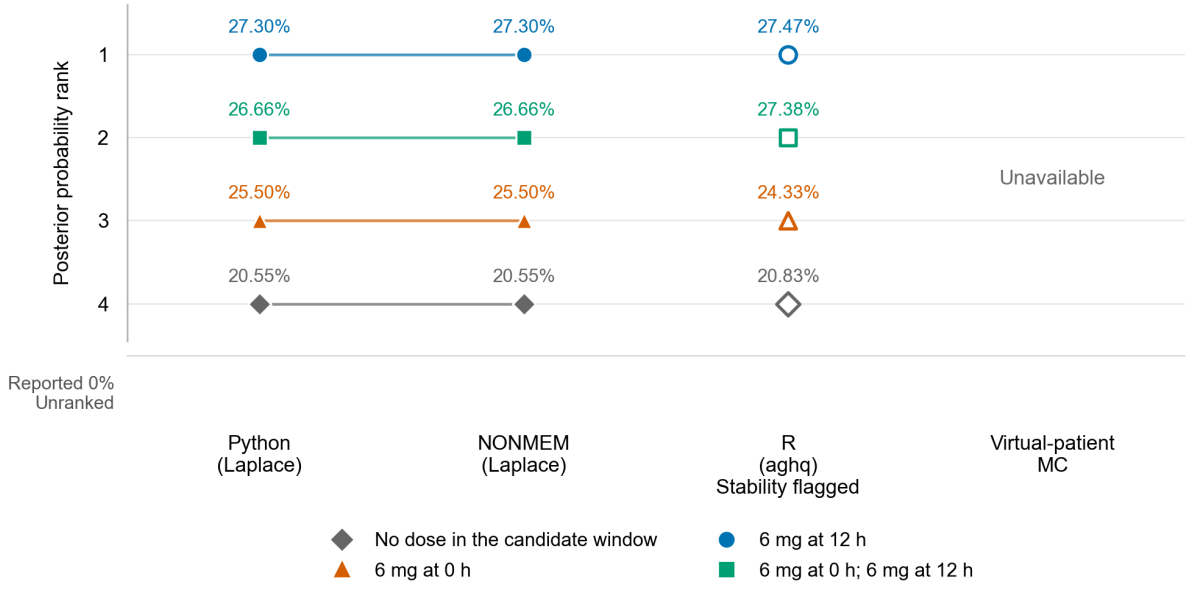
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	7.00615×10^{-9}	7.00615×10^{-9}	8.81969×10^{-9}	6.12328×10^{-9}
Python vs R aghq	0.011702	0.011702	0.014130	9.94046×10^{-3}
NONMEM vs R aghq	0.011702	0.011702	0.014130	9.94046×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20549536	0.20549536	0.20826092
ω_{01}: 6 mg at 0 h	0.25	0.25495548	0.25495548	0.24325318
ω_{10}: 6 mg at 12 h	0.25	0.27296704	0.27296704	0.27468358
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26658212	0.26658211	0.27380232

Method	P_{max}	G	H_N
Python Laplace	0.272967	0.006385	0.995794
NONMEM Laplace	0.272967	0.006385	0.995794
R aghq	0.274684	0.000881	0.995623

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c073: Variability

Absorption-rate IIV: CV 35.7%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

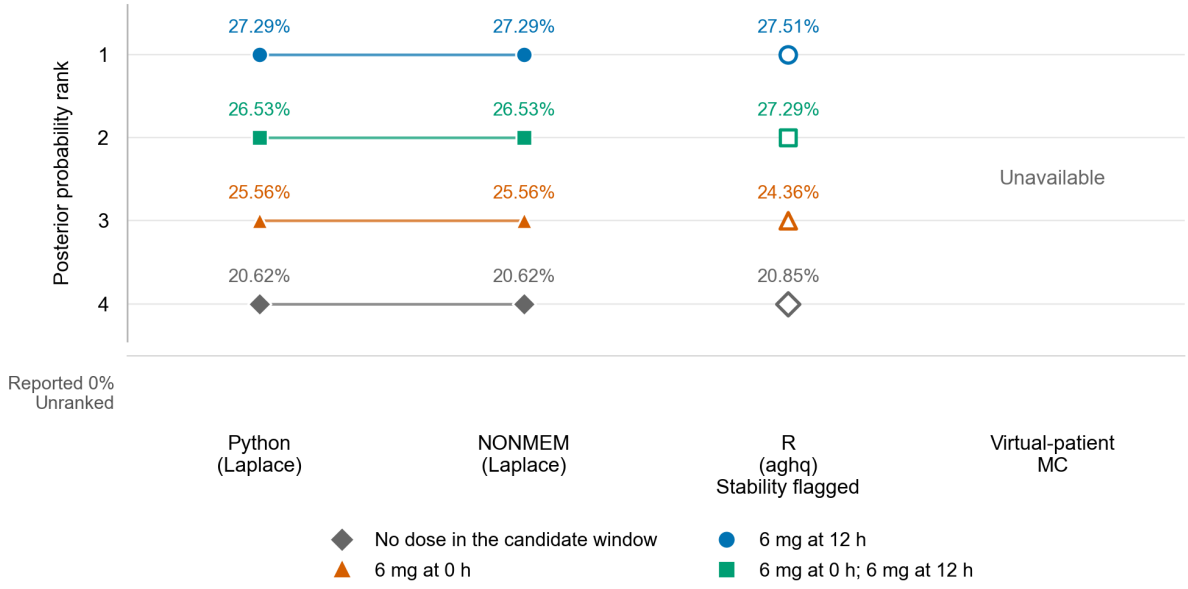
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.15080×10^{-8}	2.15080×10^{-8}	2.50517×10^{-8}	1.75120×10^{-8}
Python vs R aghq	0.012042	0.012042	0.014566	0.010223
NONMEM vs R aghq	0.012042	0.012042	0.014566	0.010223

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20618605	0.20618606	0.20845046
ω_{01}: 6 mg at 0 h	0.25	0.25561082	0.25561080	0.24356916
ω_{10}: 6 mg at 12 h	0.25	0.27286998	0.27286999	0.27508963
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26533315	0.26533315	0.27289075

Method	P_{max}	G	H_N
Python Laplace	0.272870	0.007537	0.995943
NONMEM Laplace	0.272870	0.007537	0.995943
R aghq	0.275090	0.002199	0.995685

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c074: Variability

Absorption-rate IIV: CV 71.4%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

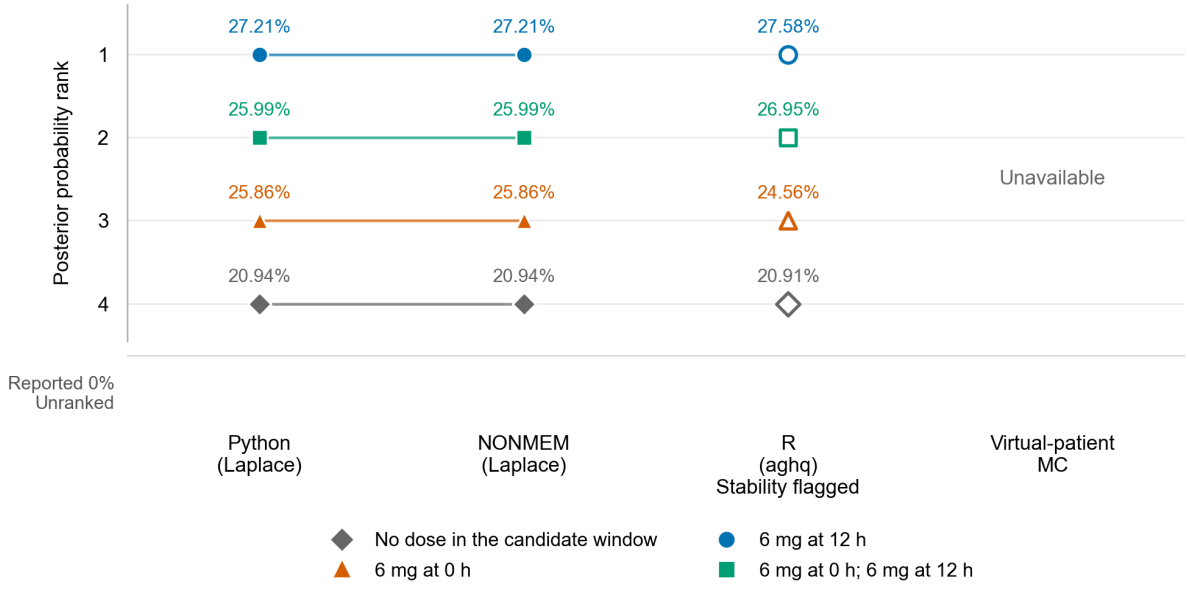
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.12854×10^{-8}	1.15792×10^{-8}	1.41904×10^{-8}	9.94720×10^{-9}
Python vs R aghq	0.013020	0.013296	0.016578	0.011558
NONMEM vs R aghq	0.013020	0.013296	0.016578	0.011558

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20942057	0.20942056	0.20914467
ω_{01}: 6 mg at 0 h	0.25	0.25860323	0.25860324	0.24558279
ω_{10}: 6 mg at 12 h	0.25	0.27205766	0.27205766	0.27580541
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25991854	0.25991854	0.26946712

Method	P_{max}	G	H_N
Python Laplace	0.272058	0.012139	0.996556
NONMEM Laplace	0.272058	0.012139	0.996556
R aghq	0.275805	0.006338	0.995958

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c075: Variability

Absorption-rate IIV: CV 95.2%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

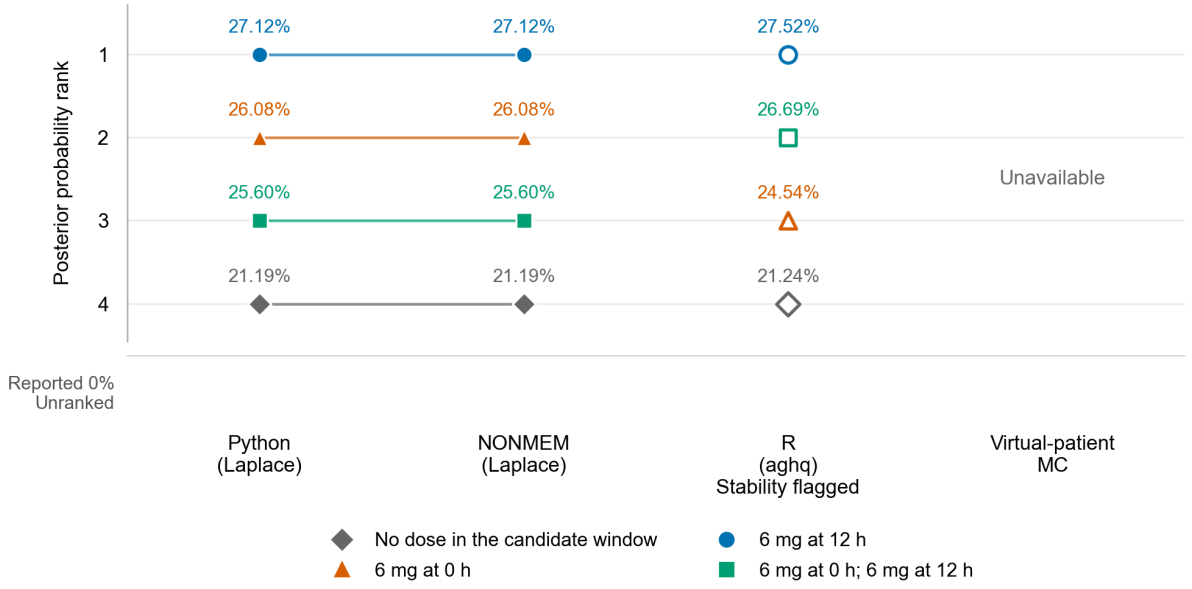
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.41475×10^{-8}	1.41475×10^{-8}	1.71809×10^{-8}	1.17625×10^{-8}
Python vs R aghq	0.015394	0.015394	0.019280	0.013459
NONMEM vs R aghq	0.015394	0.015394	0.019280	0.013459

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21192892	0.21192892	0.21242856
ω_{01}: 6 mg at 0 h	0.25	0.26083949	0.26083949	0.24544568
ω_{10}: 6 mg at 12 h	0.25	0.27121585	0.27121586	0.27523035
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25601574	0.25601573	0.26689540

Method	P_{max}	G	H_N
Python Laplace	0.271216	0.010376	0.996943
NONMEM Laplace	0.271216	0.010376	0.996943
R aghq	0.275230	0.008335	0.996531

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c076: Variability

Absorption-rate IIV: CV 142.8%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

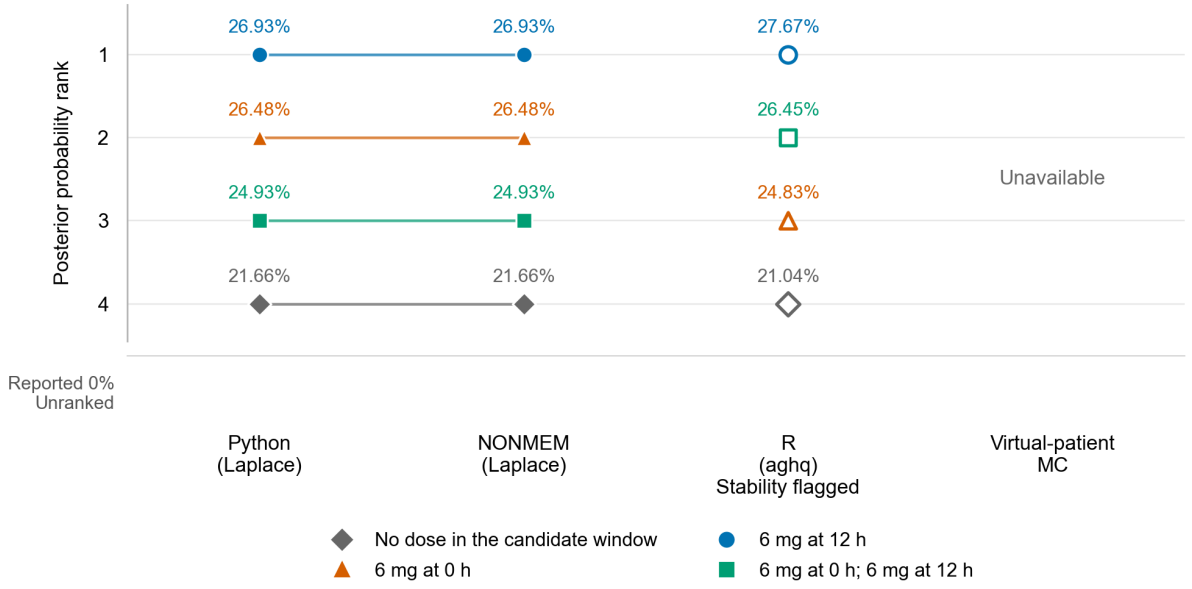
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.25424×10^{-8}	4.22214×10^{-8}	4.52111×10^{-8}	3.16606×10^{-8}
Python vs R aghq	0.016489	0.022681	0.024447	0.017124
NONMEM vs R aghq	0.016489	0.022681	0.024447	0.017124

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21663080	0.21663079	0.21043855
ω_{01}: 6 mg at 0 h	0.25	0.26481701	0.26481704	0.24832804
ω_{10}: 6 mg at 12 h	0.25	0.26927145	0.26927147	0.27672529
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.24928074	0.24928071	0.26450812

Method	P_{max}	G	H_N
Python Laplace	0.269271	0.004454	0.997483
NONMEM Laplace	0.269271	0.004454	0.997483
R aghq	0.276725	0.012217	0.996315

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c077: Variability

Absorption-rate IIV: CV 190.4%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

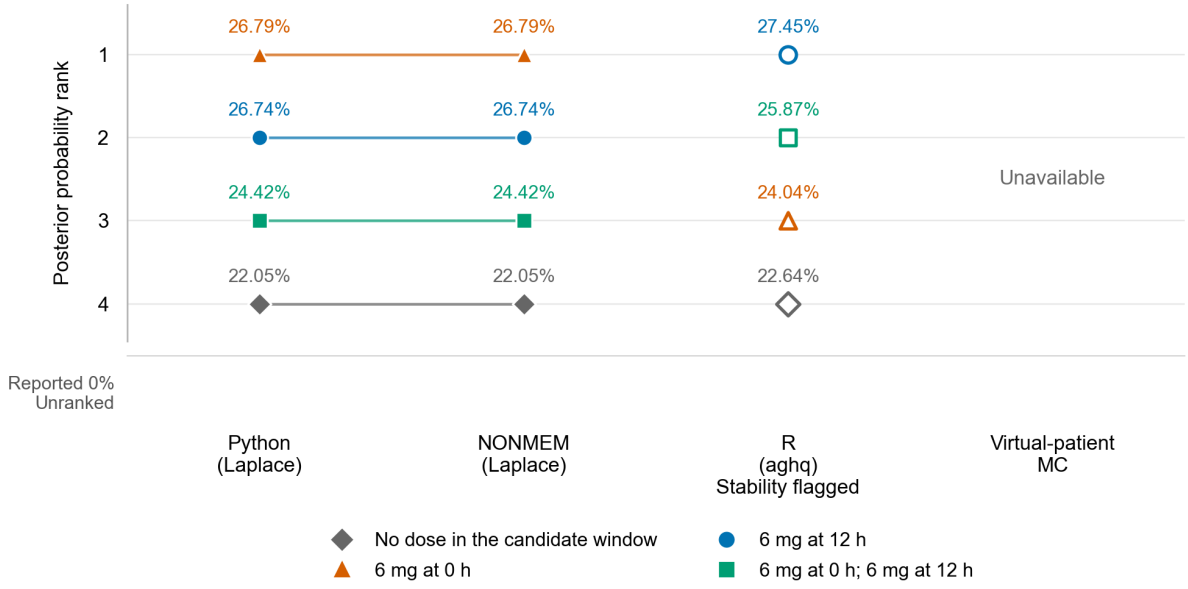
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.63973×10^{-8}	3.63973×10^{-8}	4.76120×10^{-8}	3.25746×10^{-8}
Python vs R aghq	0.027501	0.027501	0.032426	0.022790
NONMEM vs R aghq	0.027501	0.027501	0.032426	0.022790

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.22052667	0.22052667	0.22641771
ω_{01}: 6 mg at 0 h	0.25	0.26788162	0.26788158	0.24038091
ω_{10}: 6 mg at 12 h	0.25	0.26735889	0.26735892	0.27449053
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.24423283	0.24423283	0.25871086

Method	P_{max}	G	H_N
Python Laplace	0.267882	0.000523	0.997770
NONMEM Laplace	0.267882	0.000523	0.997770
R aghq	0.274491	0.015780	0.998089

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c078: Variability

Proportional residual coefficient SD: 6.11631016e-06%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	0/5	Unavailable
NONMEM Laplace	0/5	Unavailable
R aghq	0/5	Unavailable

Repeatability

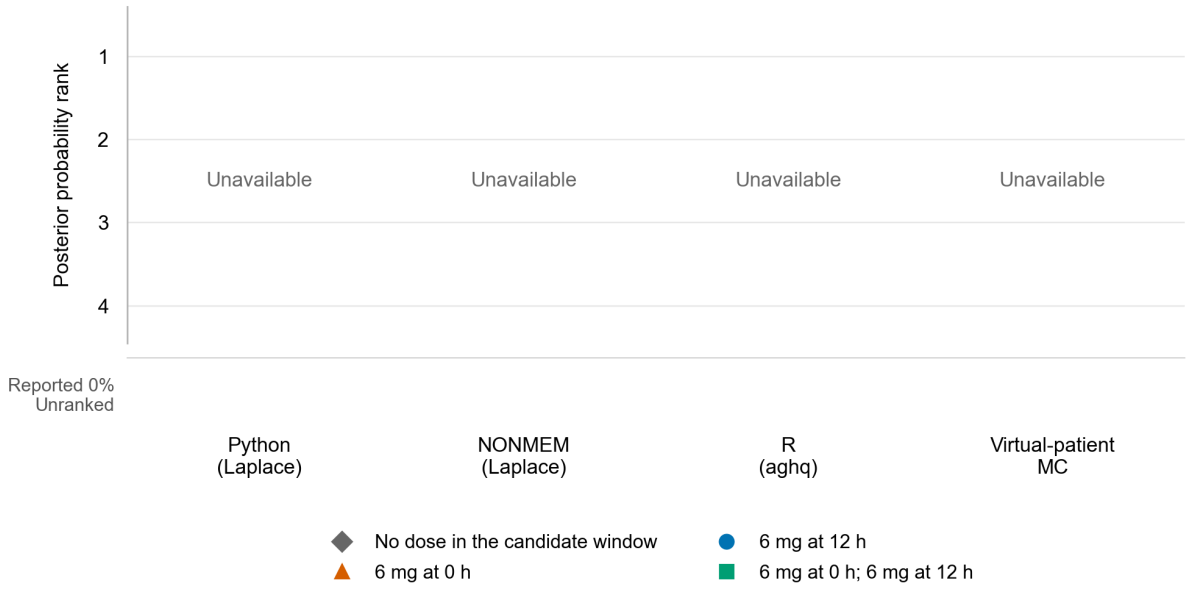
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	Unavailable	Unavailable	Unavailable	Unavailable
NONMEM Laplace	Unavailable	Unavailable	Unavailable	Unavailable
R aghq	Unavailable	Unavailable	Unavailable	Unavailable

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	Unavailable	Unavailable	Unavailable	Unavailable
Python vs R aghq	Unavailable	Unavailable	Unavailable	Unavailable
NONMEM vs R aghq	Unavailable	Unavailable	Unavailable	Unavailable

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	Unavailable	Unavailable	Unavailable
ω_{01}: 6 mg at 0 h	0.25	Unavailable	Unavailable	Unavailable
ω_{10}: 6 mg at 12 h	0.25	Unavailable	Unavailable	Unavailable
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	Unavailable	Unavailable	Unavailable

Method	P_{max}	G	H_N
Python Laplace	Unavailable	Unavailable	Unavailable
NONMEM Laplace	Unavailable	Unavailable	Unavailable
R aghq	Unavailable	Unavailable	Unavailable

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c079: Variability

Proportional residual coefficient SD: 4.575%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

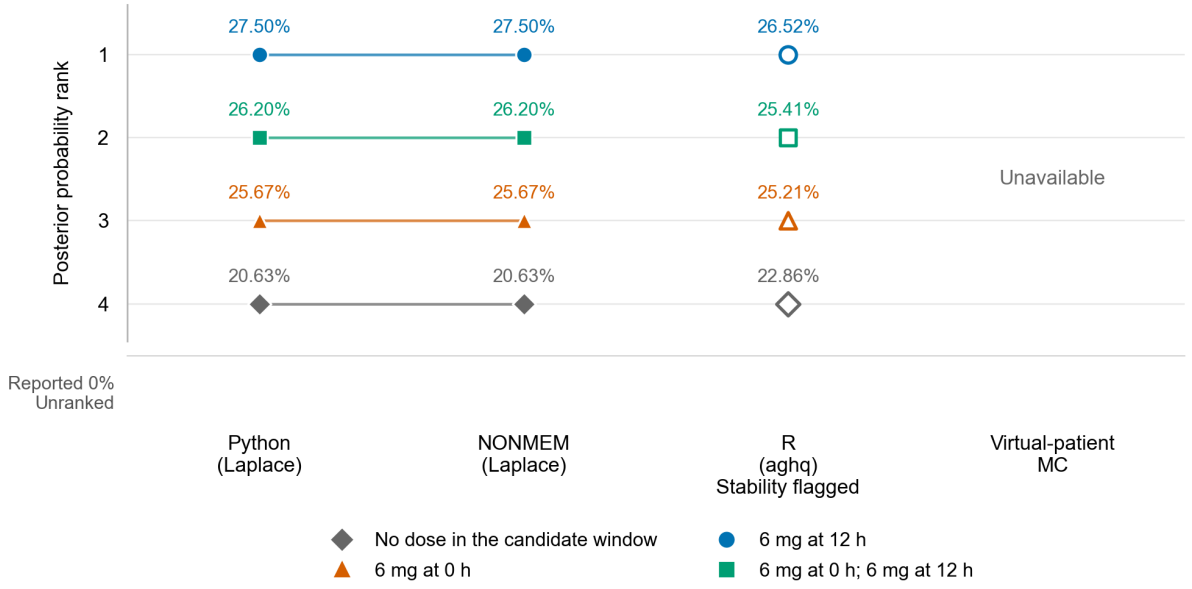
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.48304×10^{-8}	9.48304×10^{-8}	1.09529×10^{-7}	8.28704×10^{-8}
Python vs R aghq	0.022293	0.022293	0.026000	0.019254
NONMEM vs R aghq	0.022293	0.022293	0.026000	0.019254

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20628959	0.20628969	0.22858241
ω_{01}: 6 mg at 0 h	0.25	0.25672507	0.25672504	0.25208335
ω_{10}: 6 mg at 12 h	0.25	0.27497807	0.27497803	0.26522675
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26200727	0.26200724	0.25410749

Method	P_{max}	G	H_N
Python Laplace	0.274978	0.012971	0.995926
NONMEM Laplace	0.274978	0.012971	0.995926
R aghq	0.265227	0.011119	0.998960

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c080: Variability

Proportional residual coefficient SD: 9.15%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

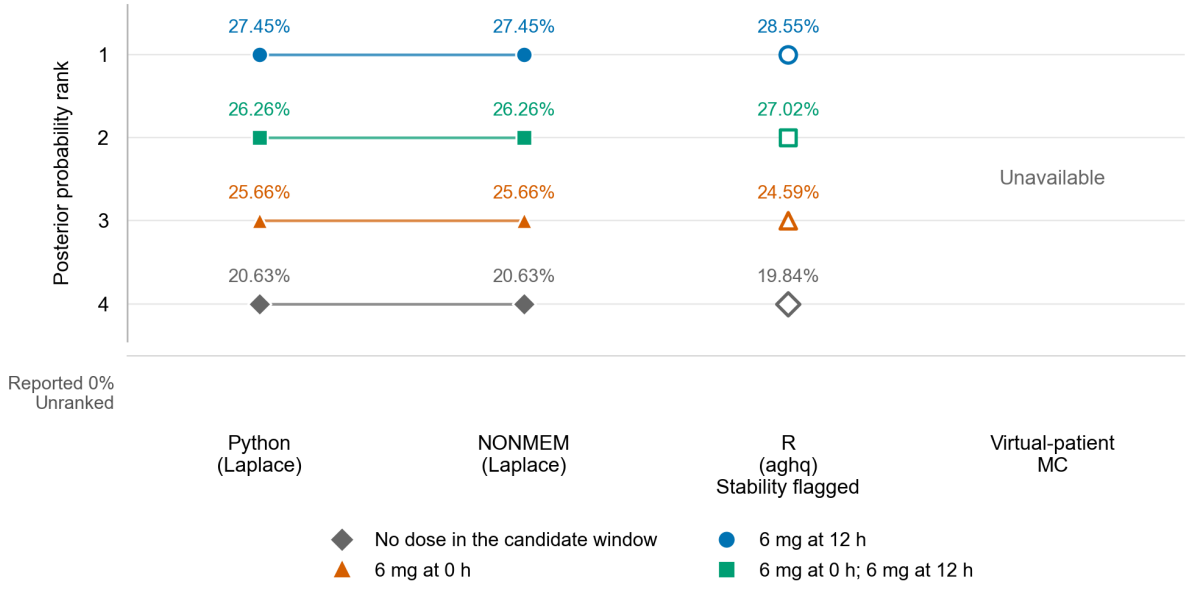
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	8.09239×10^{-9}	9.02448×10^{-9}	1.04621×10^{-8}	7.79165×10^{-9}
Python vs R aghq	0.010988	0.018644	0.018889	0.013317
NONMEM vs R aghq	0.010988	0.018644	0.018889	0.013317

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20633710	0.20633710	0.19836385
ω_{01}: 6 mg at 0 h	0.25	0.25660448	0.25660448	0.24593404
ω_{10}: 6 mg at 12 h	0.25	0.27446701	0.27446701	0.28545499
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26259141	0.26259141	0.27024712

Method	P_{max}	G	H_N
Python Laplace	0.274467	0.011876	0.995950
NONMEM Laplace	0.274467	0.011876	0.995950
R aghq	0.285455	0.015208	0.993524

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c081: Variability

Proportional residual coefficient SD: 13.725%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

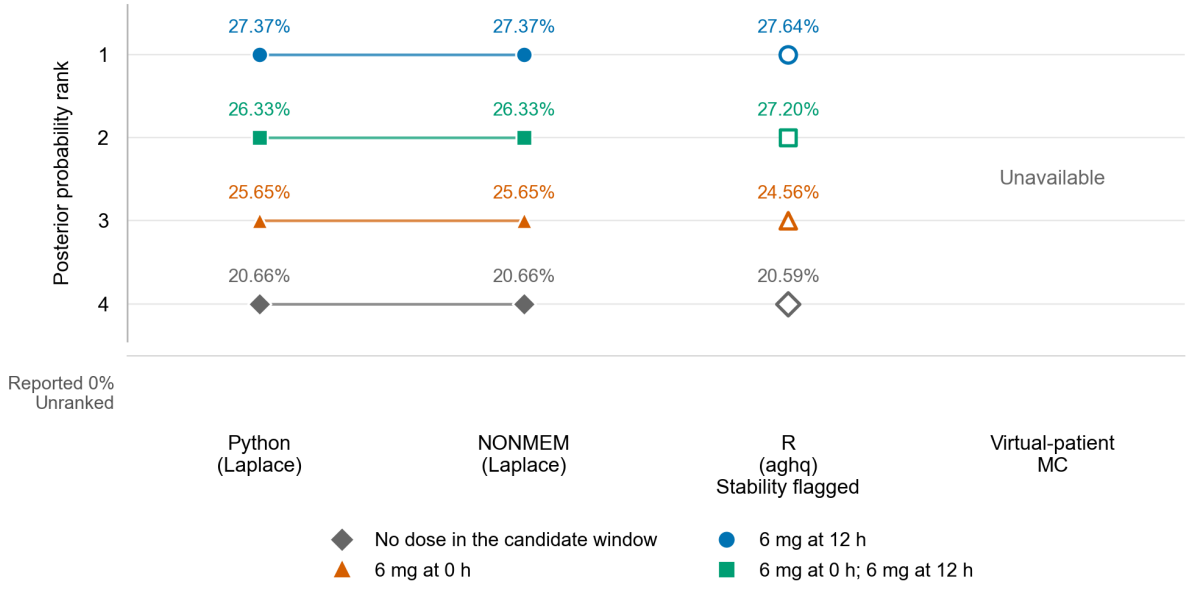
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.04343×10^{-8}	2.04343×10^{-8}	2.43295×10^{-8}	1.82562×10^{-8}
Python vs R aghq	0.010865	0.011488	0.014231	9.90948×10^{-3}
NONMEM vs R aghq	0.010865	0.011488	0.014231	9.90948×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20656936	0.20656934	0.20594685
ω_{01}: 6 mg at 0 h	0.25	0.25649498	0.25649499	0.24562996
ω_{10}: 6 mg at 12 h	0.25	0.27367511	0.27367513	0.27641004
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26326055	0.26326055	0.27201315

Method	P_{max}	G	H_N
Python Laplace	0.273675	0.010415	0.996012
NONMEM Laplace	0.273675	0.010415	0.996012
R aghq	0.276410	0.004397	0.995340

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c082: Variability

Proportional residual coefficient SD: 27.45%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

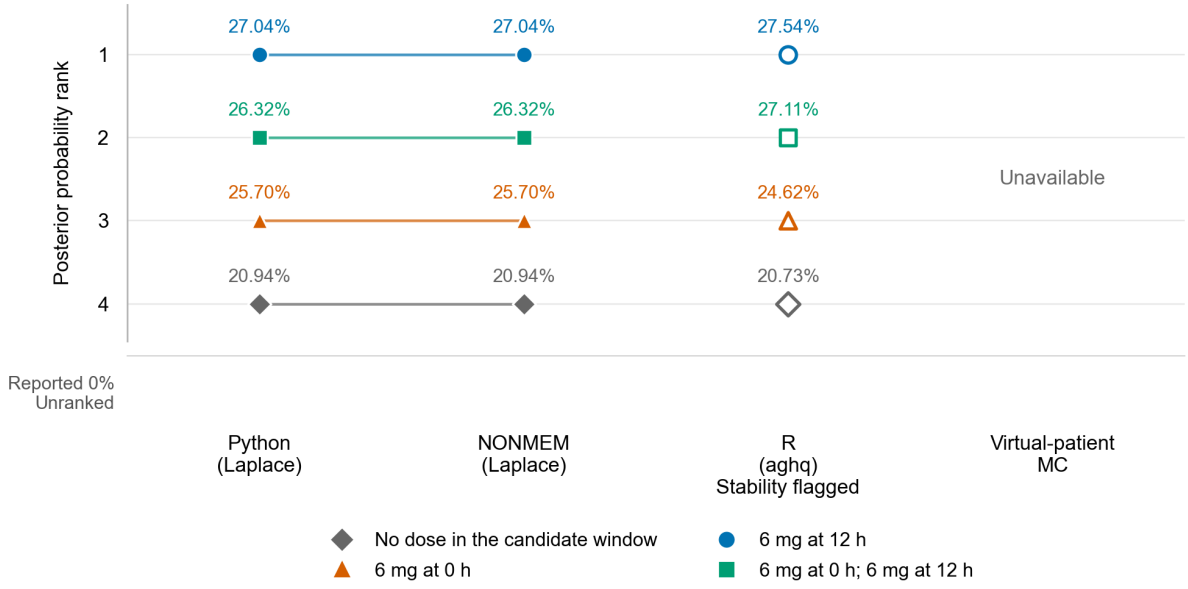
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.19470×10^{-8}	2.19470×10^{-8}	2.98652×10^{-8}	2.19618×10^{-8}
Python vs R aghq	0.010763	0.012901	0.014411	0.010044
NONMEM vs R aghq	0.010763	0.012901	0.014411	0.010044

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20940728	0.20940726	0.20727004
ω_{01}: 6 mg at 0 h	0.25	0.25698311	0.25698311	0.24621979
ω_{10}: 6 mg at 12 h	0.25	0.27037100	0.27037100	0.27539883
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26323861	0.26323863	0.27111135

Method	P_{max}	G	H_N
Python Laplace	0.270371	0.007132	0.996581
NONMEM Laplace	0.270371	0.007132	0.996581
R aghq	0.275399	0.004287	0.995654

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c083: Variability

Proportional residual coefficient SD: 36.6%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

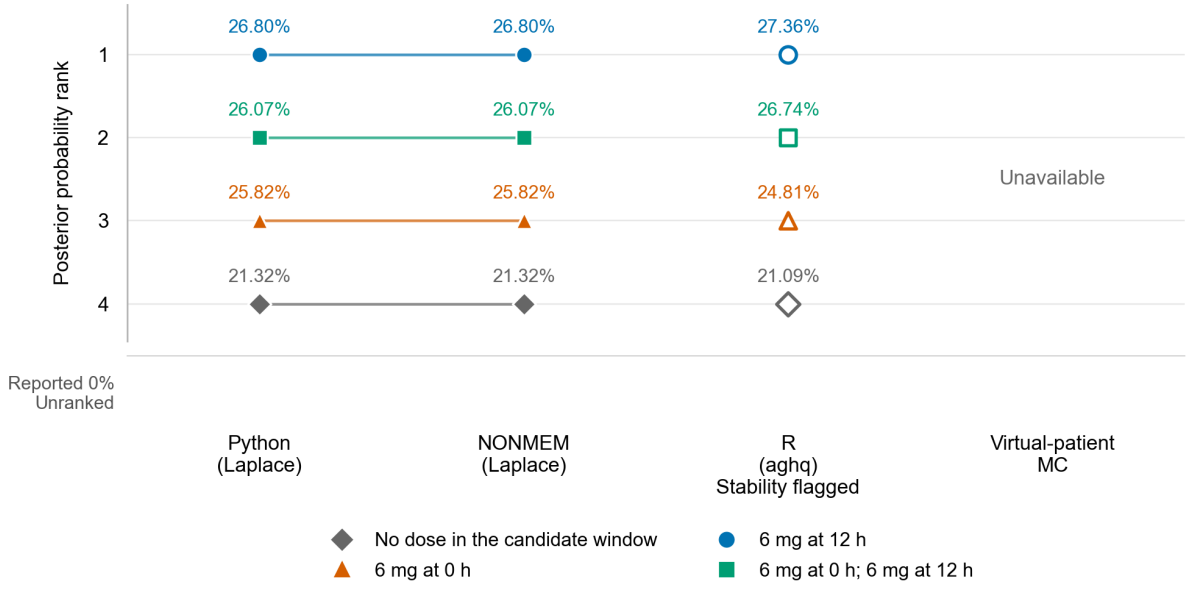
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.19511×10^{-8}	1.19511×10^{-8}	1.52883×10^{-8}	1.10174×10^{-8}
Python vs R aghq	0.010079	0.012365	0.013559	9.45172×10^{-3}
NONMEM vs R aghq	0.010079	0.012365	0.013559	9.45172×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21316339	0.21316338	0.21087717
ω_{01}: 6 mg at 0 h	0.25	0.25818867	0.25818867	0.24810972
ω_{10}: 6 mg at 12 h	0.25	0.26796920	0.26796920	0.27361679
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26067873	0.26067874	0.26739632

Method	P_{max}	G	H_N
Python Laplace	0.267969	0.007290	0.997225
NONMEM Laplace	0.267969	0.007290	0.997225
R aghq	0.273617	0.006220	0.996454

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c084: Variability

Proportional residual coefficient SD: 54.9%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

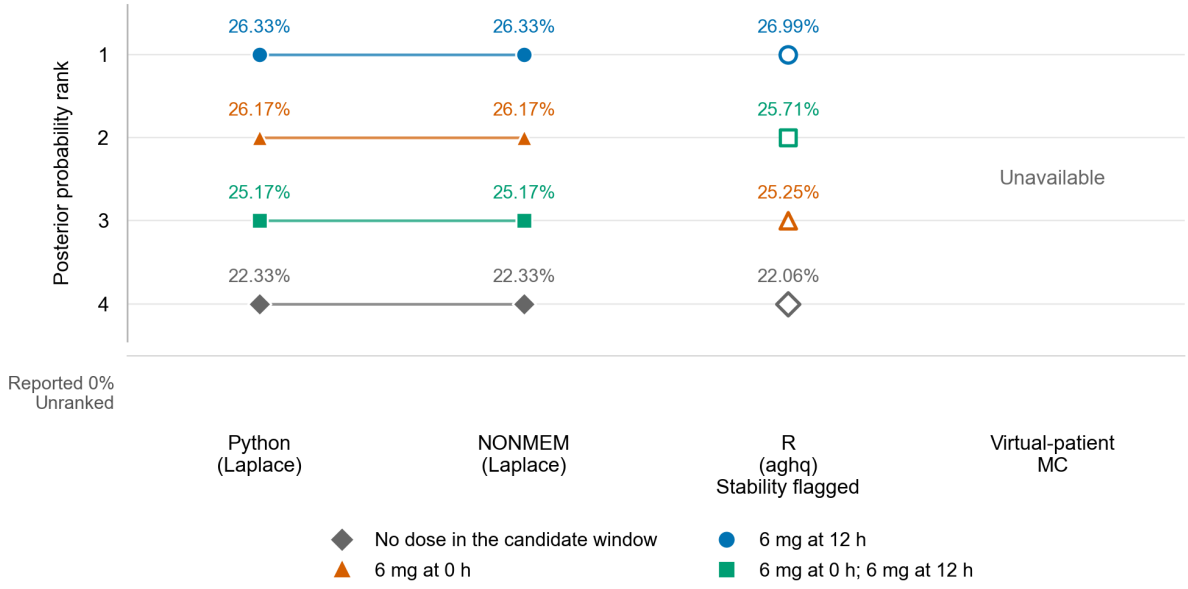
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.56406×10^{-8}	1.56406×10^{-8}	1.93908×10^{-8}	1.42108×10^{-8}
Python vs R aghq	9.22829×10^{-3}	0.011912	0.012809	8.92917×10^{-3}
NONMEM vs R aghq	9.22830×10^{-3}	0.011912	0.012809	8.92916×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.22325617	0.22325616	0.22057283
ω_{01}: 6 mg at 0 h	0.25	0.26170626	0.26170626	0.25247797
ω_{10}: 6 mg at 12 h	0.25	0.26330648	0.26330648	0.26988166
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25173109	0.25173110	0.25706754

Method	P_{max}	G	H_N
Python Laplace	0.263306	0.001600	0.998479
NONMEM Laplace	0.263306	0.001600	0.998479
R aghq	0.269882	0.012814	0.998063

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c085: Variability

Proportional residual coefficient SD: 73.2%.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

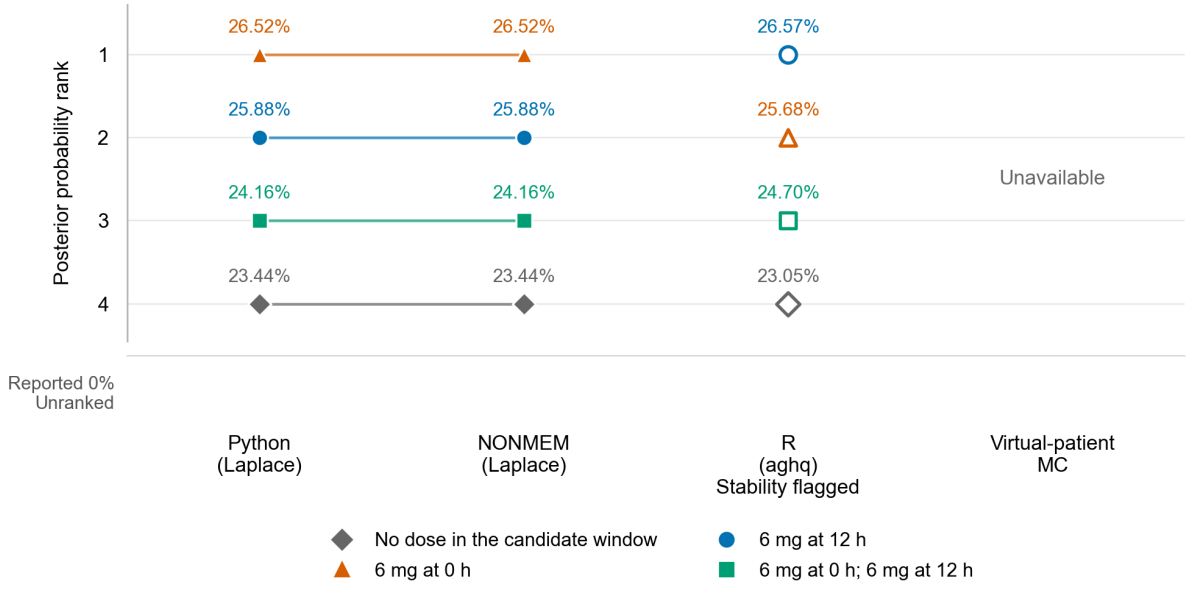
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.86413×10^{-8}	2.15715×10^{-8}	2.62154×10^{-8}	1.84177×10^{-8}
Python vs R aghq	8.35690×10^{-3}	0.012268	0.012708	8.89316×10^{-3}
NONMEM vs R aghq	8.35688×10^{-3}	0.012267	0.012708	8.89314×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.23441851	0.23441850	0.23050789
ω_{01}: 6 mg at 0 h	0.25	0.26518082	0.26518080	0.25682392
ω_{10}: 6 mg at 12 h	0.25	0.25877072	0.25877073	0.26565023
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.24162995	0.24162997	0.24701796

Method	P_{max}	G	H_N
Python Laplace	0.265181	0.006410	0.999104
NONMEM Laplace	0.265181	0.006410	0.999104
R aghq	0.265650	0.008826	0.999011

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c086: Actual dosing histories

Observation generated from 6 mg at 0 h and 6 mg at 12 h; candidate histories unchanged.

Observations: 14.70966673 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

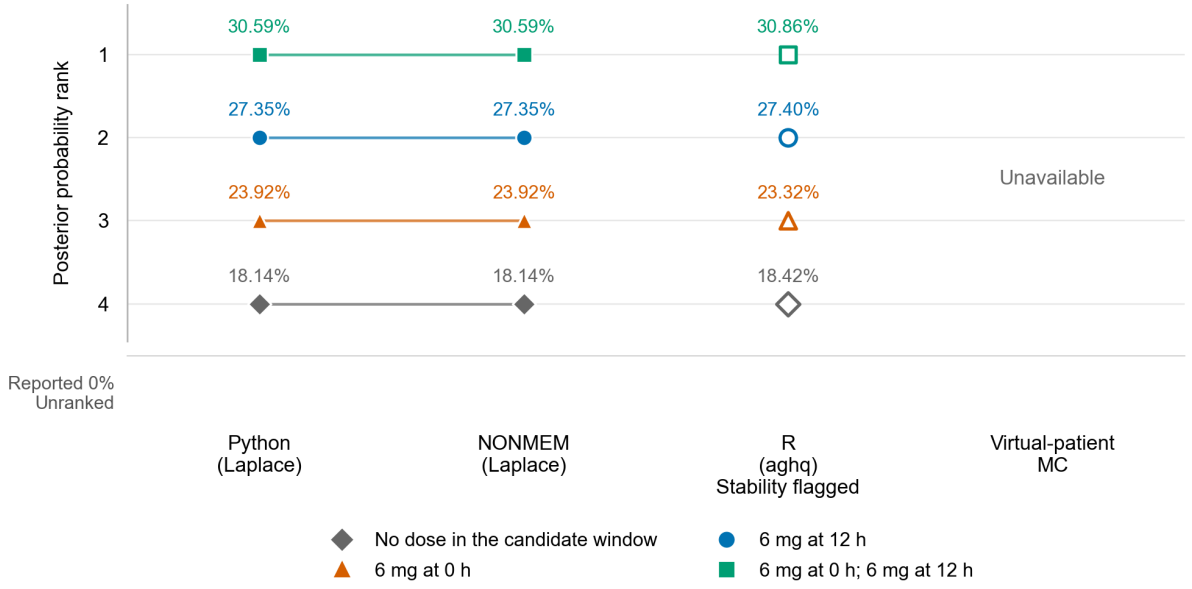
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.16739×10^{-8}	2.16739×10^{-8}	2.54481×10^{-8}	1.80395×10^{-8}
Python vs R aghq	6.00846×10^{-3}	6.00846×10^{-3}	7.18071×10^{-3}	5.24774×10^{-3}
NONMEM vs R aghq	6.00844×10^{-3}	6.00844×10^{-3}	7.18068×10^{-3}	5.24773×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18140199	0.18140199	0.18417506
ω_{01}: 6 mg at 0 h	0.25	0.23920144	0.23920141	0.23319298
ω_{10}: 6 mg at 12 h	0.25	0.27351932	0.27351933	0.27401070
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.30587725	0.30587726	0.30862126

Method	P_{max}	G	H_N
Python Laplace	0.305877	0.032358	0.987341
NONMEM Laplace	0.305877	0.032358	0.987341
R aghq	0.308621	0.034611	0.987281

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c087: Actual dosing histories

Observation generated from 3 mg at 0 h and 6 mg at 12 h; candidate histories unchanged.

Observations: 13.65984112 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

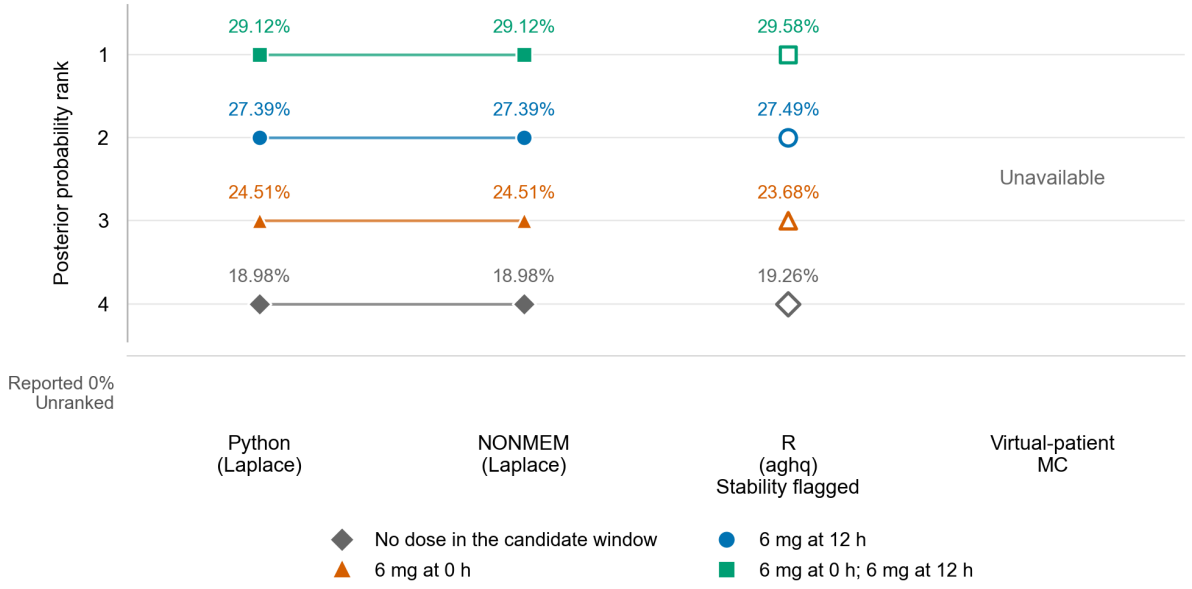
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.63697×10^{-8}	4.93627×10^{-8}	5.81258×10^{-8}	4.05137×10^{-8}
Python vs R aghq	8.32949×10^{-3}	8.32949×10^{-3}	9.93445×10^{-3}	7.09042×10^{-3}
NONMEM vs R aghq	8.32953×10^{-3}	8.32953×10^{-3}	9.93451×10^{-3}	7.09045×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18979033	0.18979033	0.19257262
ω_{01}: 6 mg at 0 h	0.25	0.24512554	0.24512558	0.23679605
ω_{10}: 6 mg at 12 h	0.25	0.27385976	0.27385974	0.27487464
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.29122437	0.29122435	0.29575669

Method	P_{max}	G	H_N
Python Laplace	0.291224	0.017365	0.991133
NONMEM Laplace	0.291224	0.017365	0.991133
R aghq	0.295757	0.020882	0.990857

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c088: Actual dosing histories

Observation generated from 12 mg at 0 h and 6 mg at 12 h; candidate histories unchanged.

Observations: 16.80931795 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

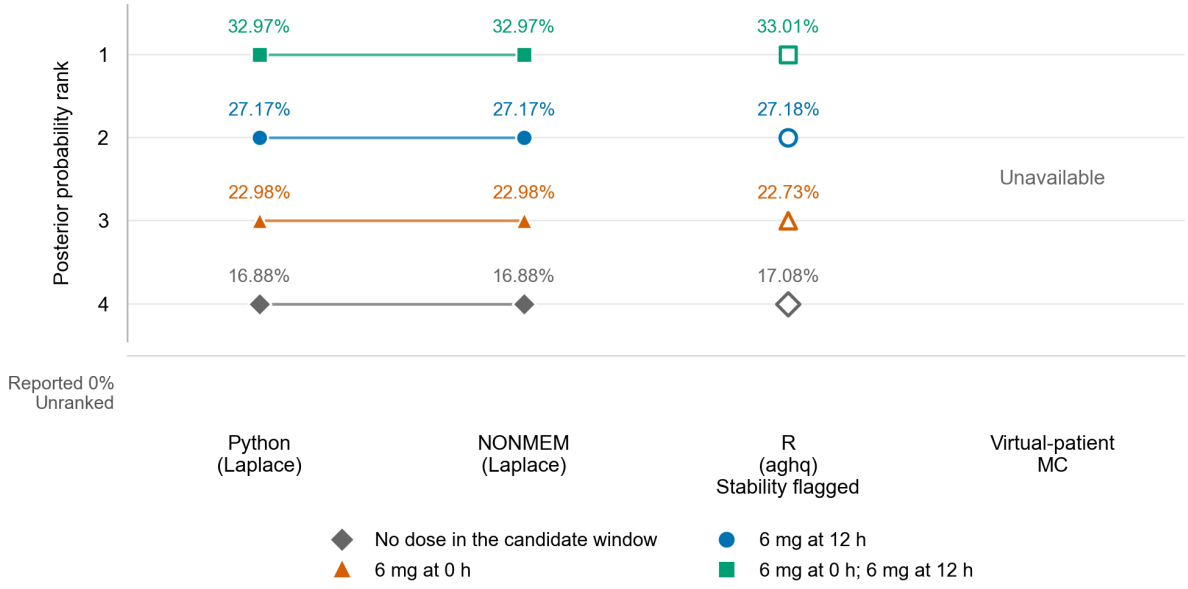
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	7.01739×10^{-9}	1.23424×10^{-8}	1.24355×10^{-8}	9.09925×10^{-9}
Python vs R aghq	2.52443×10^{-3}	2.52443×10^{-3}	3.21757×10^{-3}	2.51888×10^{-3}
NONMEM vs R aghq	2.52444×10^{-3}	2.52444×10^{-3}	3.21757×10^{-3}	2.51888×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.16881714	0.16881715	0.17076035
ω_{01}: 6 mg at 0 h	0.25	0.22981095	0.22981095	0.22728652
ω_{10}: 6 mg at 12 h	0.25	0.27168447	0.27168446	0.27184274
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.32968744	0.32968744	0.33011040

Method	P_{max}	G	H_N
Python Laplace	0.329687	0.058003	0.979671
NONMEM Laplace	0.329687	0.058003	0.979671
R aghq	0.330110	0.058268	0.979956

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c089: Actual dosing histories

Observation generated from 6 mg at 0 h and 3 mg at 12 h; candidate histories unchanged.

Observations: 13.1689839 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

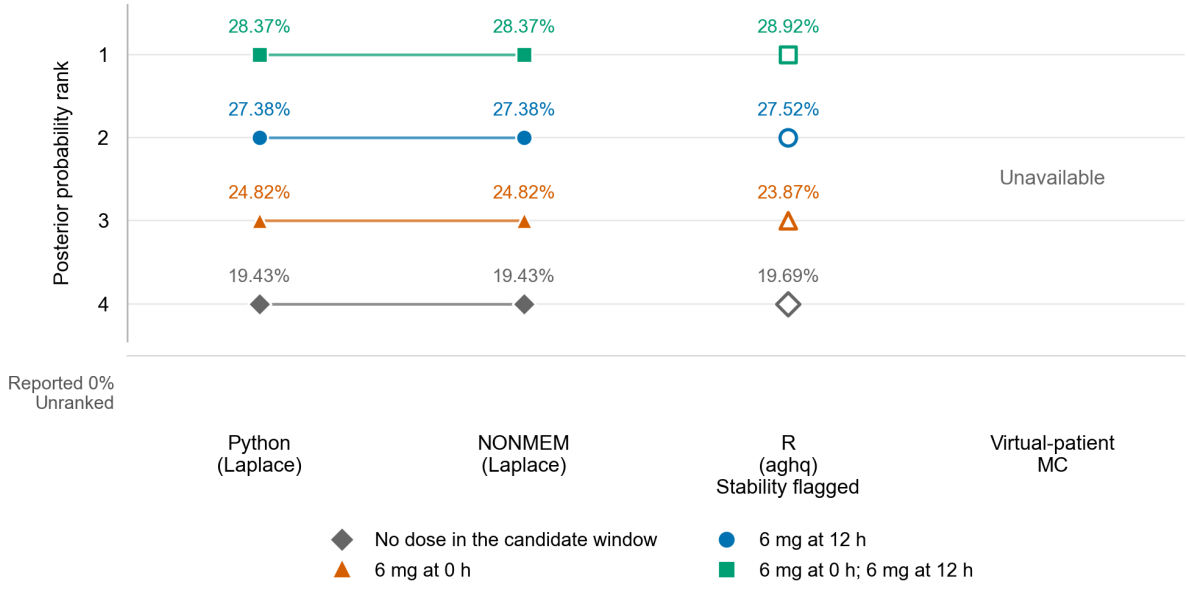
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.68955×10^{-8}	1.82688×10^{-8}	2.35500×10^{-8}	1.75118×10^{-8}
Python vs R aghq	9.51405×10^{-3}	9.51405×10^{-3}	0.011385	8.05903×10^{-3}
NONMEM vs R aghq	9.51405×10^{-3}	9.51405×10^{-3}	0.011385	8.05902×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19433357	0.19433358	0.19693615
ω_{01}: 6 mg at 0 h	0.25	0.24821866	0.24821865	0.23870460
ω_{10}: 6 mg at 12 h	0.25	0.27378200	0.27378198	0.27518434
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.28366578	0.28366578	0.28917491

Method	P_{max}	G	H_N
Python Laplace	0.283666	0.009884	0.992793
NONMEM Laplace	0.283666	0.009884	0.992793
R aghq	0.289175	0.013991	0.992436

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c090: Actual dosing histories

Observation generated from 6 mg at 0 h and 12 mg at 12 h; candidate histories unchanged.

Observations: 17.79103238 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

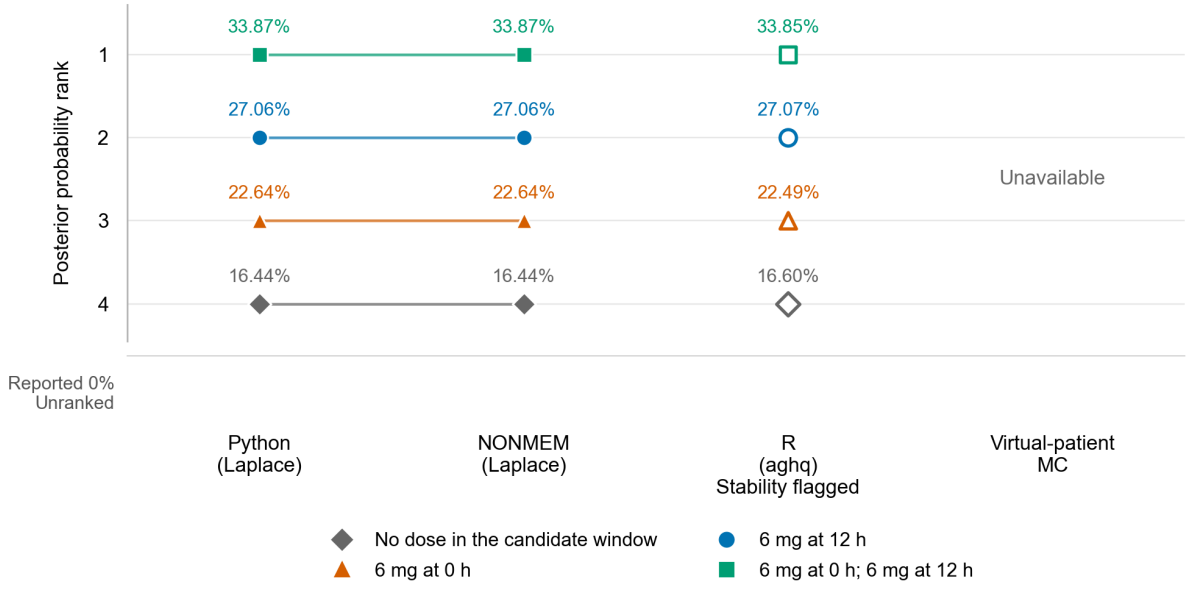
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.50737×10^{-8}	1.50737×10^{-8}	1.75648×10^{-8}	1.43972×10^{-8}
Python vs R aghq	1.60510×10^{-3}	1.69343×10^{-3}	2.21204×10^{-3}	1.79621×10^{-3}
NONMEM vs R aghq	1.60509×10^{-3}	1.69342×10^{-3}	2.21203×10^{-3}	1.79620×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.16436784	0.16436785	0.16597294
ω_{01}: 6 mg at 0 h	0.25	0.22635820	0.22635820	0.22485001
ω_{10}: 6 mg at 12 h	0.25	0.27060289	0.27060289	0.27069122
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.33867107	0.33867106	0.33848583

Method	P_{max}	G	H_N
Python Laplace	0.338671	0.068068	0.976322
NONMEM Laplace	0.338671	0.068068	0.976322
R aghq	0.338486	0.067795	0.976726

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c091: Actual dosing histories

Observation generated from 6 mg at -4 h and 6 mg at 12 h; candidate histories unchanged.

Observations: 14.56976707 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

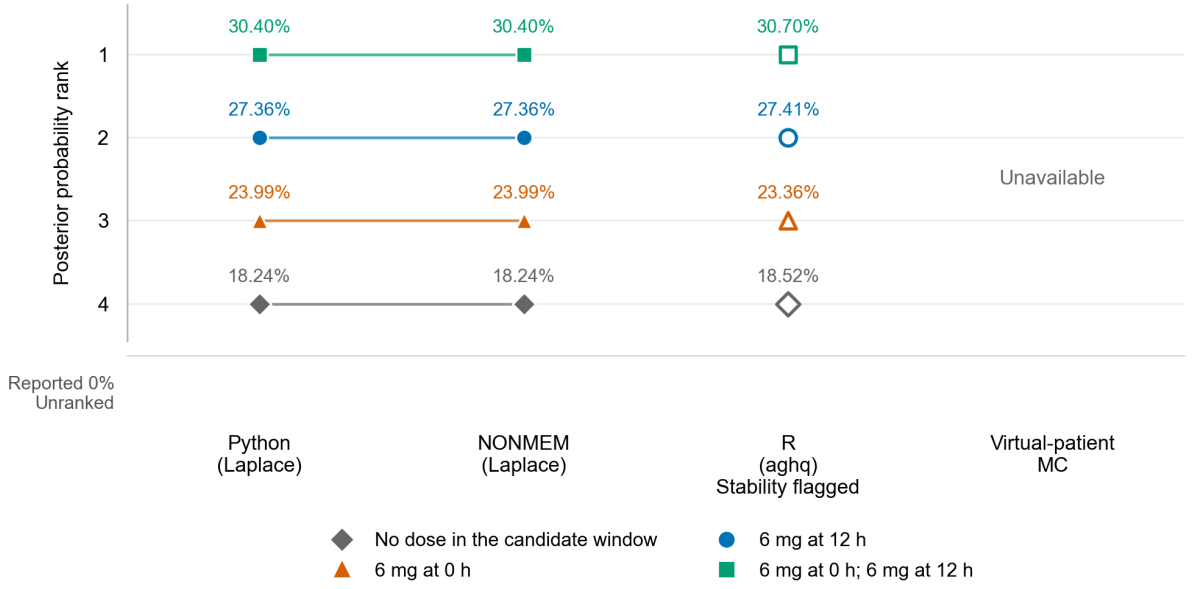
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	5.96456×10^{-9}	6.95937×10^{-9}	7.85710×10^{-9}	5.64641×10^{-9}
Python vs R aghq	6.29877×10^{-3}	6.29877×10^{-3}	7.52022×10^{-3}	5.47619×10^{-3}
NONMEM vs R aghq	6.29877×10^{-3}	6.29877×10^{-3}	7.52022×10^{-3}	5.47619×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18242578	0.18242579	0.18522605
ω_{01}: 6 mg at 0 h	0.25	0.23993914	0.23993914	0.23364038
ω_{10}: 6 mg at 12 h	0.25	0.27359633	0.27359632	0.27413769
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.30403875	0.30403875	0.30699589

Method	P_{max}	G	H_N
Python Laplace	0.304039	0.030442	0.987857
NONMEM Laplace	0.304039	0.030442	0.987857
R aghq	0.306996	0.032858	0.987768

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c092: Actual dosing histories

Observation generated from 6 mg at -2 h and 6 mg at 12 h; candidate histories unchanged.

Observations: 14.63759919 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

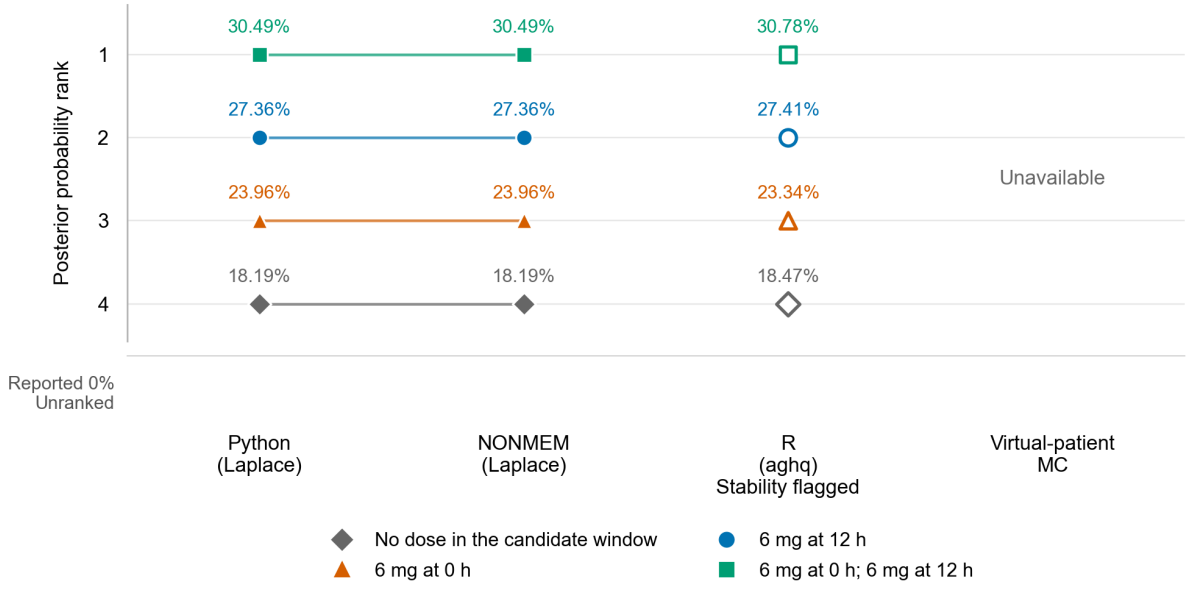
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.34227×10^{-9}	1.32177×10^{-8}	1.39219×10^{-8}	9.62435×10^{-9}
Python vs R aghq	6.15721×10^{-3}	6.15721×10^{-3}	7.35453×10^{-3}	5.36477×10^{-3}
NONMEM vs R aghq	6.15721×10^{-3}	6.15721×10^{-3}	7.35453×10^{-3}	5.36477×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18192603	0.18192603	0.18471394
ω_{01}: 6 mg at 0 h	0.25	0.23957954	0.23957954	0.23342233
ω_{10}: 6 mg at 12 h	0.25	0.27356002	0.27356001	0.27407649
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.30493441	0.30493442	0.30778724

Method	P_{max}	G	H_N
Python Laplace	0.304934	0.031374	0.987607
NONMEM Laplace	0.304934	0.031374	0.987607
R aghq	0.307787	0.033711	0.987532

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c093: Actual dosing histories

Observation generated from 6 mg at 2 h and 6 mg at 12 h; candidate histories unchanged.

Observations: 14.78809319 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

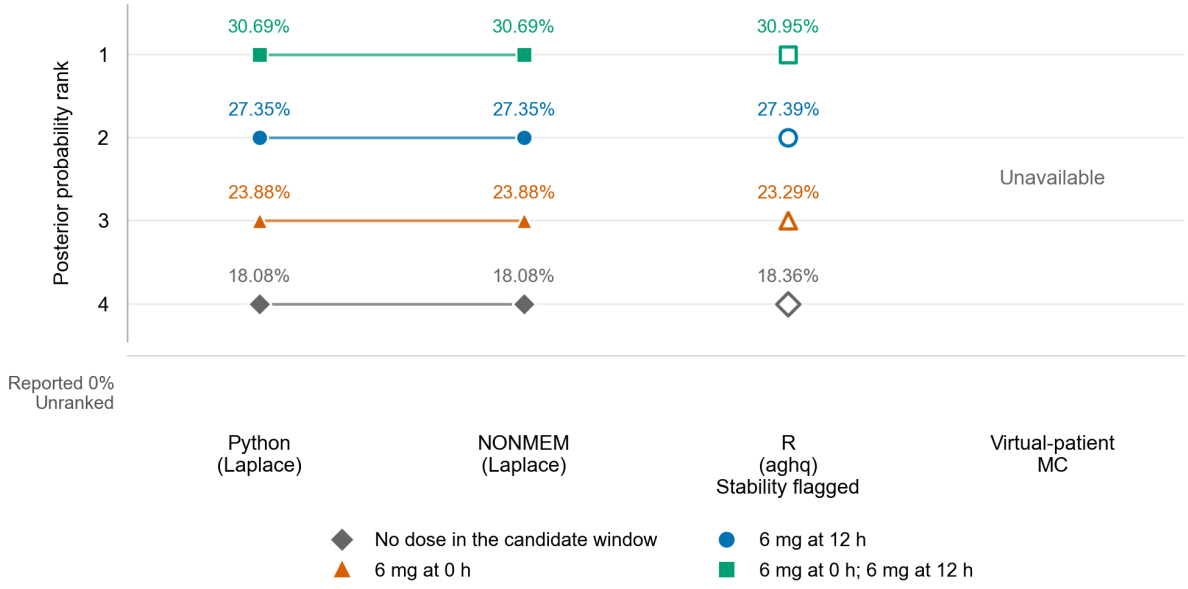
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.96764×10^{-8}	2.21411×10^{-8}	2.52664×10^{-8}	1.86181×10^{-8}
Python vs R aghq	5.84798×10^{-3}	5.84798×10^{-3}	6.99330×10^{-3}	5.12149×10^{-3}
NONMEM vs R aghq	5.84796×10^{-3}	5.84796×10^{-3}	6.99328×10^{-3}	5.12147×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18083969	0.18083970	0.18359511
ω_{01}: 6 mg at 0 h	0.25	0.23879453	0.23879451	0.23294655
ω_{10}: 6 mg at 12 h	0.25	0.27347268	0.27347269	0.27393888
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.30689311	0.30689311	0.30951946

Method	P_{max}	G	H_N
Python Laplace	0.306893	0.033420	0.987051
NONMEM Laplace	0.306893	0.033420	0.987051
R aghq	0.309519	0.035581	0.987007

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c094: Actual dosing histories

Observation generated from 6 mg at 4 h and 6 mg at 12 h; candidate histories unchanged.

Observations: 14.87708135 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

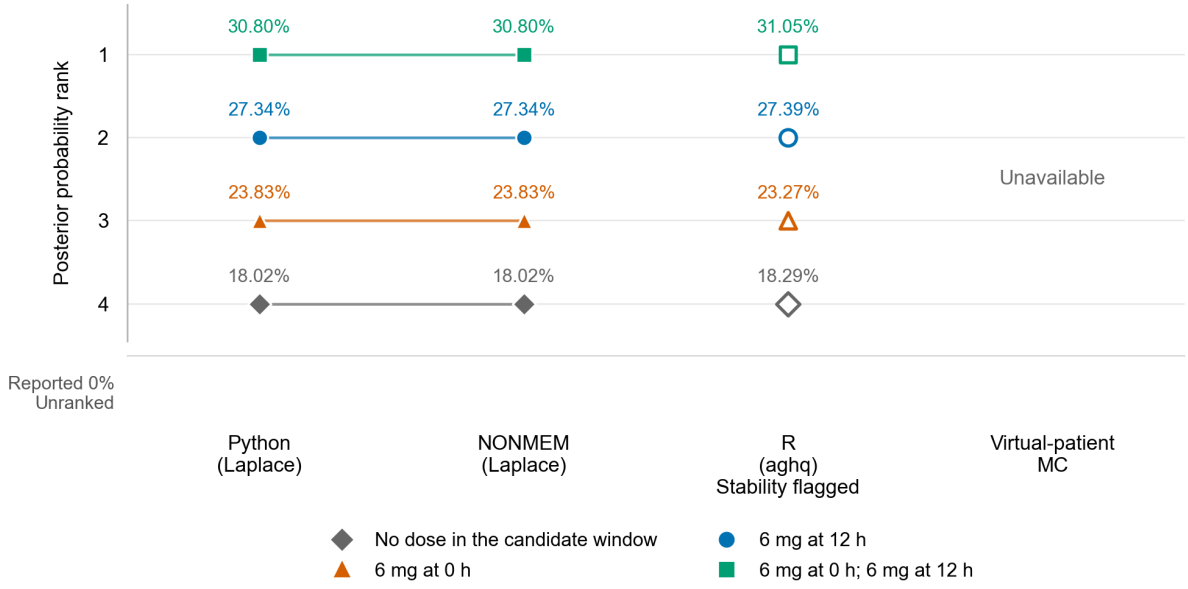
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.77986×10^{-8}	1.77986×10^{-8}	2.05631×10^{-8}	1.48819×10^{-8}
Python vs R aghq	5.66922×10^{-3}	5.66922×10^{-3}	6.78527×10^{-3}	4.98097×10^{-3}
NONMEM vs R aghq	5.66920×10^{-3}	5.66920×10^{-3}	6.78525×10^{-3}	4.98096×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18021156	0.18021157	0.18294401
ω_{01}: 6 mg at 0 h	0.25	0.23833854	0.23833852	0.23266932
ω_{10}: 6 mg at 12 h	0.25	0.27341688	0.27341688	0.27385539
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.30803302	0.30803303	0.31053128

Method	P_{max}	G	H_N
Python Laplace	0.308033	0.034616	0.986722
NONMEM Laplace	0.308033	0.034616	0.986722
R aghq	0.310531	0.036676	0.986695

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c095: Actual dosing histories

Observation generated from 6 mg at 0 h and 6 mg at 8 h; candidate histories unchanged.

Observations: 14.14697695 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

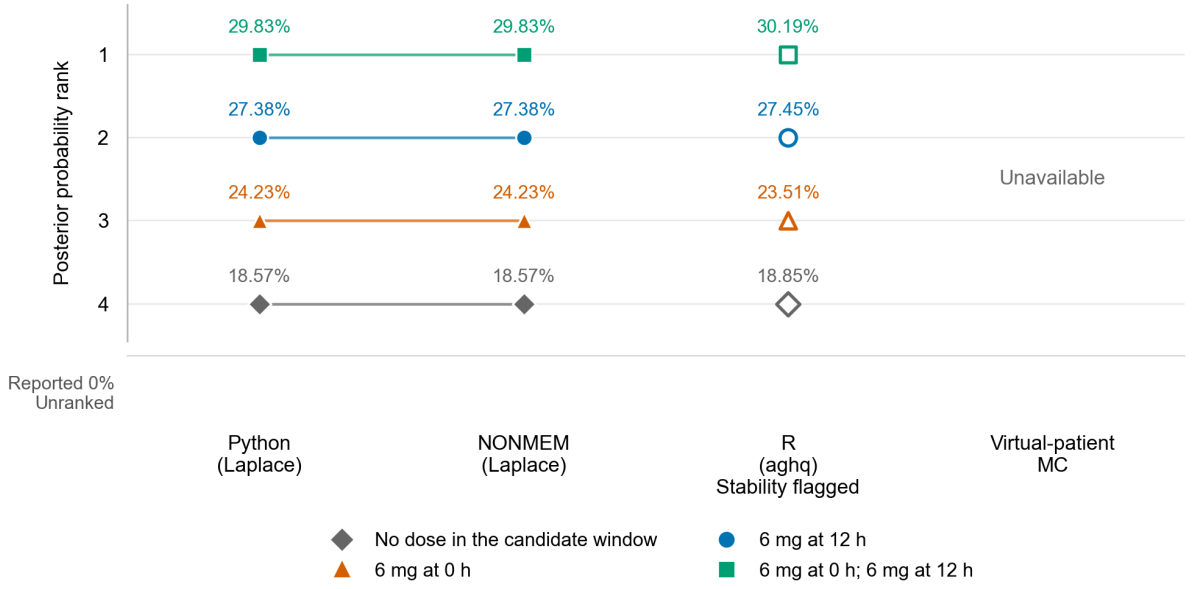
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.05508×10^{-7}	2.05508×10^{-7}	2.38302×10^{-7}	1.59593×10^{-7}
Python vs R aghq	7.21319×10^{-3}	7.21319×10^{-3}	8.59792×10^{-3}	6.19834×10^{-3}
NONMEM vs R aghq	7.21324×10^{-3}	7.21324×10^{-3}	8.59803×10^{-3}	6.19839×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18568913	0.18568919	0.18852700
ω_{01}: 6 mg at 0 h	0.25	0.24226351	0.24226357	0.23505032
ω_{10}: 6 mg at 12 h	0.25	0.27377476	0.27377484	0.27450143
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.29827260	0.29827240	0.30192125

Method	P_{max}	G	H_N
Python Laplace	0.298273	0.024498	0.989401
NONMEM Laplace	0.298272	0.024498	0.989401
R aghq	0.301921	0.027420	0.989224

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c096: Actual dosing histories

Observation generated from 6 mg at 0 h and 6 mg at 10 h; candidate histories unchanged.

Observations: 14.36004008 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

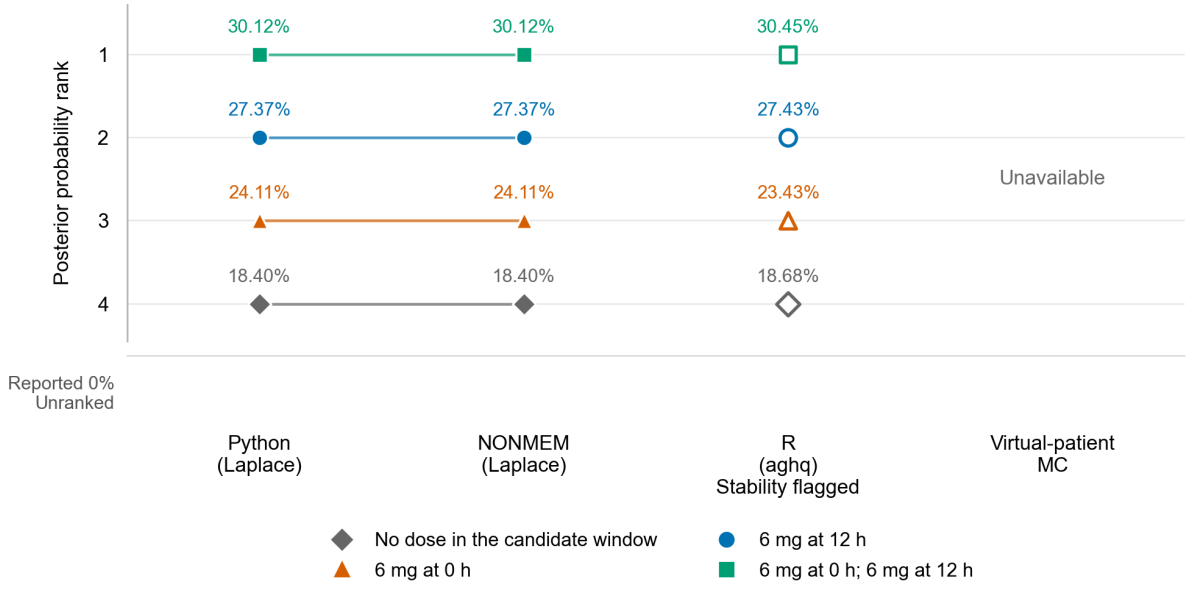
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.38738×10^{-8}	1.59302×10^{-8}	1.95293×10^{-8}	1.34014×10^{-8}
Python vs R aghq	6.74580×10^{-3}	6.74580×10^{-3}	8.04544×10^{-3}	5.82869×10^{-3}
NONMEM vs R aghq	6.74581×10^{-3}	6.74581×10^{-3}	8.04546×10^{-3}	5.82870×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18401195	0.18401195	0.18684036
ω_{01}: 6 mg at 0 h	0.25	0.24107409	0.24107410	0.23432829
ω_{10}: 6 mg at 12 h	0.25	0.27369564	0.27369564	0.27432196
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.30121832	0.30121831	0.30450939

Method	P_{max}	G	H_N
Python Laplace	0.301218	0.027523	0.988626
NONMEM Laplace	0.301218	0.027523	0.988626
R aghq	0.304509	0.030187	0.988494

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c097: Actual dosing histories

Observation generated from 6 mg at 0 h and 6 mg at 14 h; candidate histories unchanged.

Observations: 15.32816576 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

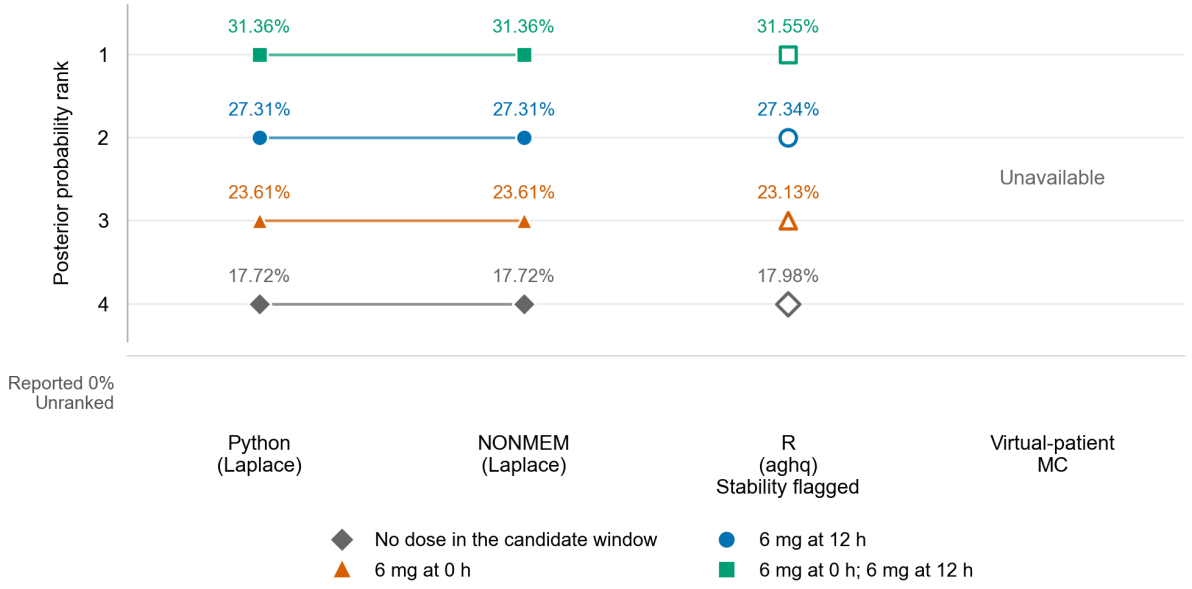
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.32331×10^{-8}	1.56078×10^{-8}	1.84872×10^{-8}	1.30251×10^{-8}
Python vs R aghq	4.80433×10^{-3}	4.80433×10^{-3}	5.78421×10^{-3}	4.30118×10^{-3}
NONMEM vs R aghq	4.80434×10^{-3}	4.80434×10^{-3}	5.78422×10^{-3}	4.30119×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.17718231	0.17718232	0.17976782
ω_{01}: 6 mg at 0 h	0.25	0.23611830	0.23611831	0.23131398
ω_{10}: 6 mg at 12 h	0.25	0.27309194	0.27309192	0.27341742
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.31360745	0.31360745	0.31550079

Method	P_{max}	G	H_N
Python Laplace	0.313607	0.040516	0.985049
NONMEM Laplace	0.313607	0.040516	0.985049
R aghq	0.315501	0.042083	0.985110

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c098: Actual dosing histories

Observation generated from 6 mg at 0 h and 6 mg at 16 h; candidate histories unchanged.

Observations: 16.46534677 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

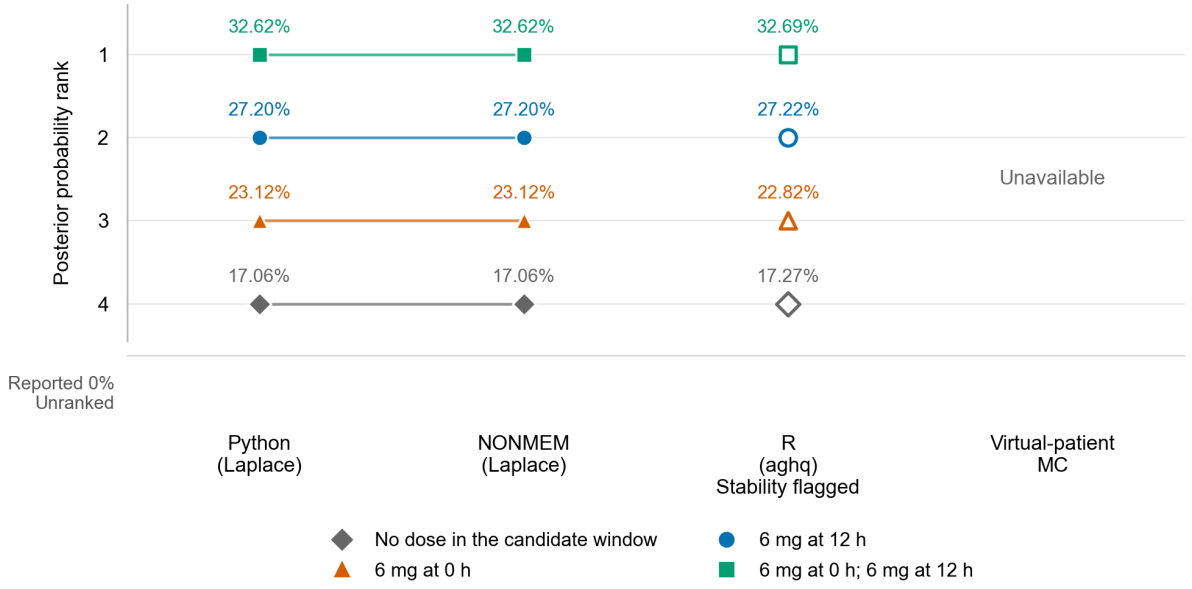
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.44668×10^{-8}	1.55029×10^{-8}	1.84623×10^{-8}	1.44431×10^{-8}
Python vs R aghq	2.97488×10^{-3}	2.97488×10^{-3}	3.71042×10^{-3}	2.86731×10^{-3}
NONMEM vs R aghq	2.97488×10^{-3}	2.97488×10^{-3}	3.71041×10^{-3}	2.86730×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.17056656	0.17056657	0.17266367
ω_{01}: 6 mg at 0 h	0.25	0.23115069	0.23115068	0.22817581
ω_{10}: 6 mg at 12 h	0.25	0.27204393	0.27204393	0.27222380
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.32623882	0.32623881	0.32693673

Method	P_{max}	G	H_N
Python Laplace	0.326239	0.054195	0.980892
NONMEM Laplace	0.326239	0.054195	0.980892
R aghq	0.326937	0.054713	0.981134

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c099: Observation records

Observation times: 16 h.

Observations: 20.02744197 ng/mL at 16 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

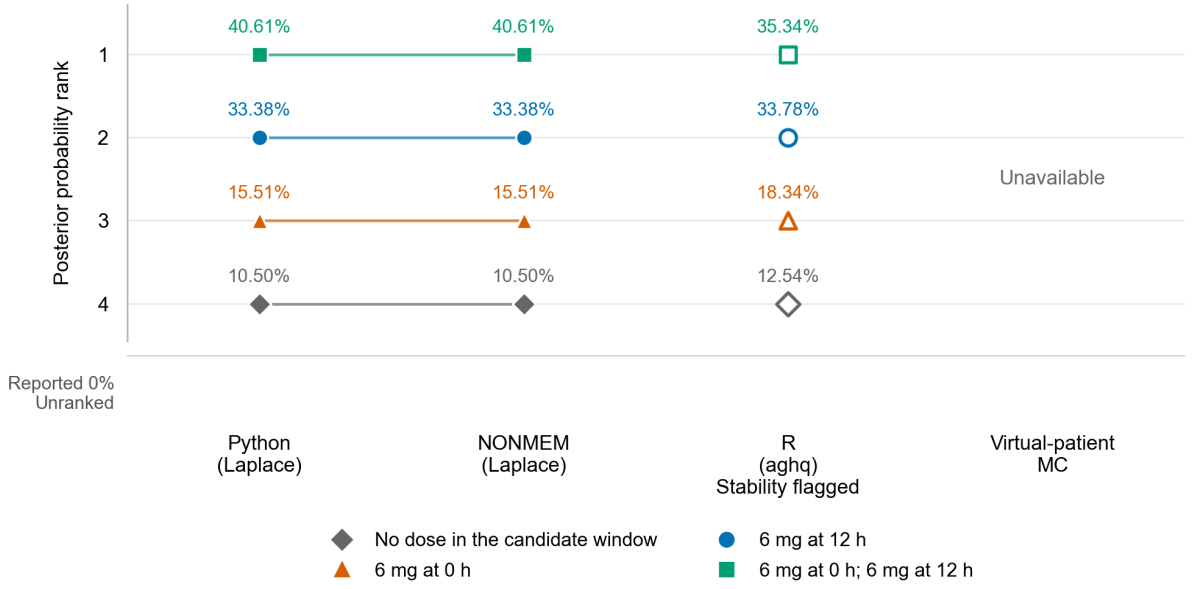
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	8.09017×10^{-9}	9.38377×10^{-9}	1.14445×10^{-8}	1.01675×10^{-8}
Python vs R aghq	0.052634	0.052634	0.063263	0.044318
NONMEM vs R aghq	0.052634	0.052634	0.063263	0.044318

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.10498876	0.10498876	0.12544675
ω_{01}: 6 mg at 0 h	0.25	0.15510308	0.15510308	0.18335056
ω_{10}: 6 mg at 12 h	0.25	0.33383871	0.33383871	0.33776681
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.40606945	0.40606945	0.35343588

Method	P_{max}	G	H_N
Python Laplace	0.406069	0.072231	0.907391
NONMEM Laplace	0.406069	0.072231	0.907391
R aghq	0.353436	0.015669	0.941823

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c100: Observation records

Observation times: 18 h.

Observations: 16.58147401 ng/mL at 18 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

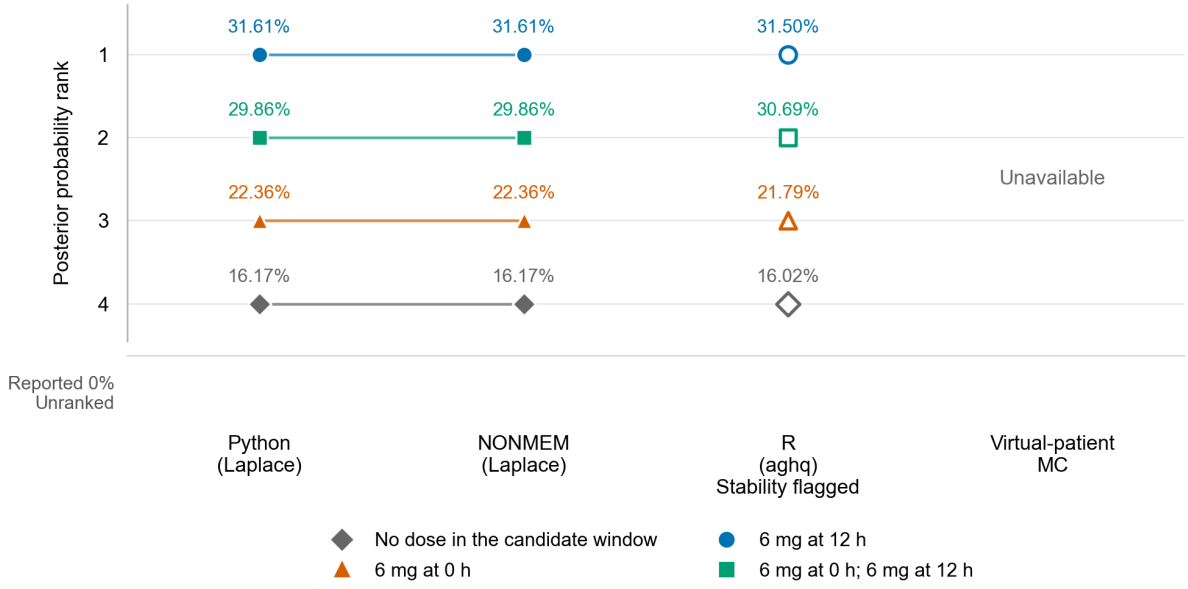
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.78467×10^{-8}	1.78467×10^{-8}	2.15075×10^{-8}	1.40006×10^{-8}
Python vs R aghq	8.29979×10^{-3}	8.29979×10^{-3}	0.010234	7.00209×10^{-3}
NONMEM vs R aghq	8.29977×10^{-3}	8.29977×10^{-3}	0.010234	7.00208×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.16171727	0.16171727	0.16019857
ω_{01}: 6 mg at 0 h	0.25	0.22356273	0.22356272	0.21787530
ω_{10}: 6 mg at 12 h	0.25	0.31613291	0.31613290	0.31503924
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.29858709	0.29858711	0.30688689

Method	P_{max}	G	H_N
Python Laplace	0.316133	0.017546	0.977066
NONMEM Laplace	0.316133	0.017546	0.977066
R aghq	0.315039	0.008152	0.975111

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c101: Observation records

Observation times: 20 h.

Observations: 14.29122163 ng/mL at 20 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

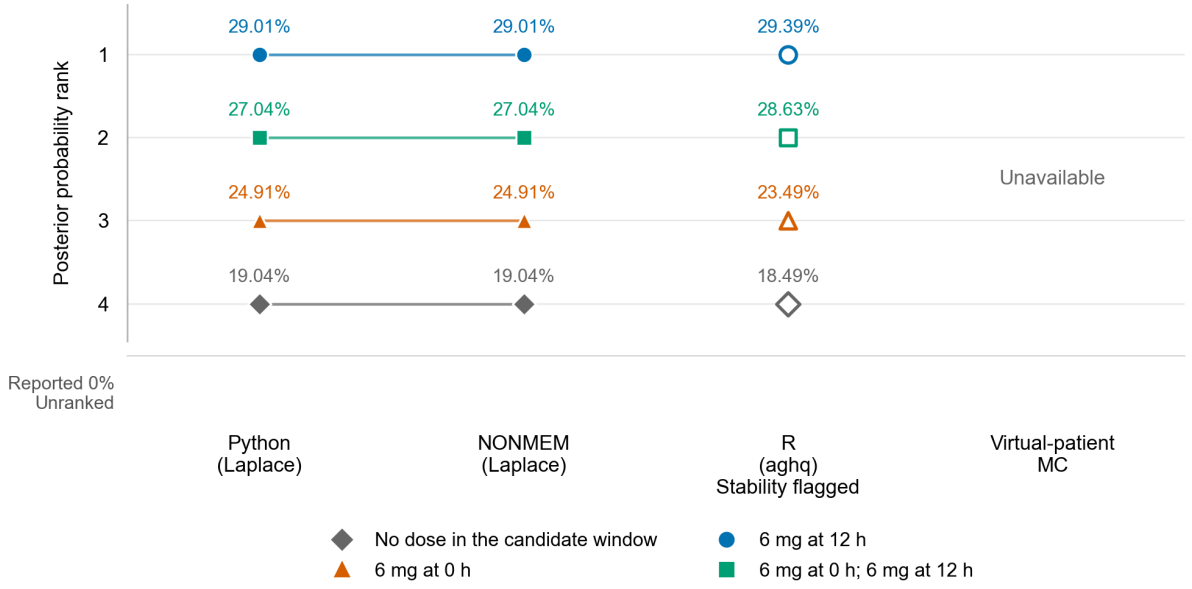
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	5.29017×10^{-9}	6.06276×10^{-9}	7.03285×10^{-9}	4.83499×10^{-9}
Python vs R aghq	0.015929	0.019716	0.022361	0.015637
NONMEM vs R aghq	0.015929	0.019716	0.022361	0.015637

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.19044469	0.19044468	0.18492073
ω_{01}: 6 mg at 0 h	0.25	0.24907476	0.24907476	0.23488286
ω_{10}: 6 mg at 12 h	0.25	0.29012609	0.29012610	0.29391277
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27035446	0.27035446	0.28628364

Method	P_{max}	G	H_N
Python Laplace	0.290126	0.019772	0.991629
NONMEM Laplace	0.290126	0.019772	0.991629
R aghq	0.293913	0.007629	0.988495

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c102: Observation records

Observation times: 22 h.

Observations: 12.89362891 ng/mL at 22 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

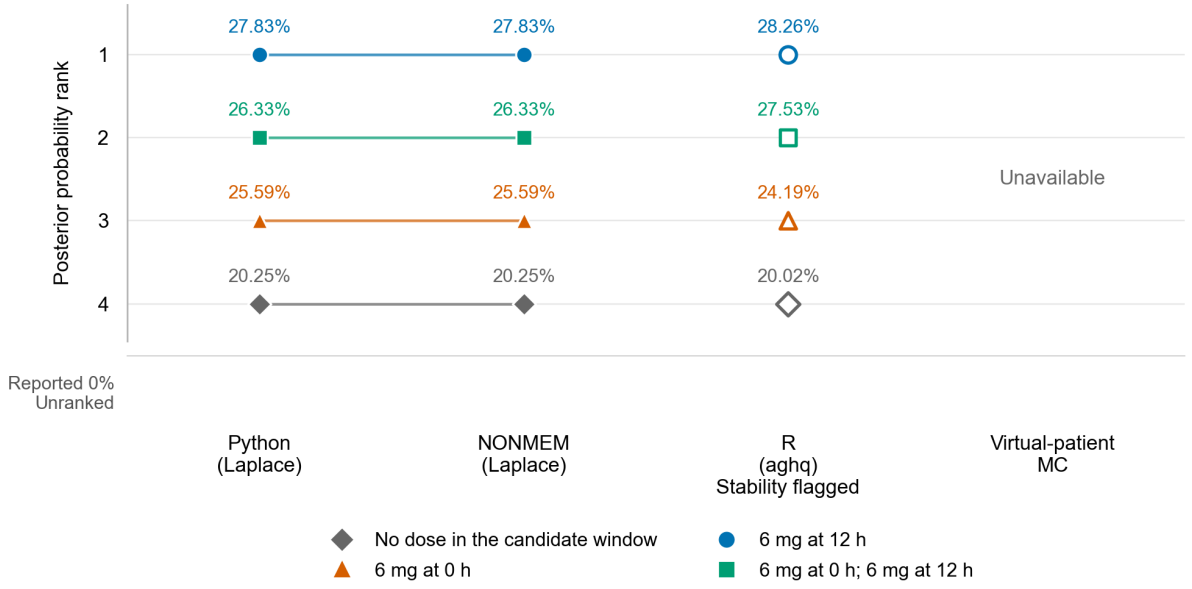
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.24362×10^{-8}	1.24362×10^{-8}	1.46015×10^{-8}	1.10940×10^{-8}
Python vs R aghq	0.014011	0.016315	0.019106	0.013321
NONMEM vs R aghq	0.014011	0.016315	0.019106	0.013321

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20248641	0.20248643	0.20018286
ω_{01}: 6 mg at 0 h	0.25	0.25590614	0.25590613	0.24189513
ω_{10}: 6 mg at 12 h	0.25	0.27834277	0.27834277	0.28260398
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26326468	0.26326467	0.27531803

Method	P_{max}	G	H_N
Python Laplace	0.278343	0.015078	0.995098
NONMEM Laplace	0.278343	0.015078	0.995098
R aghq	0.282604	0.007286	0.993693

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c103: Observation records

Observation times: 26 h.

Observations: 11.37221655 ng/mL at 26 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

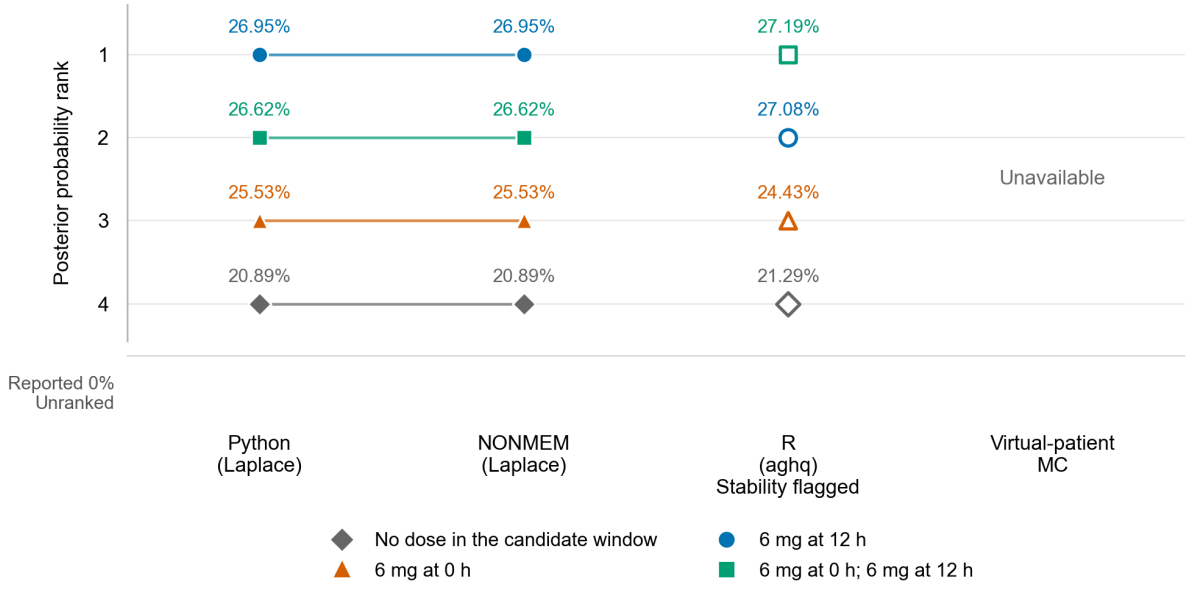
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	5.11019×10^{-9}	7.76638×10^{-9}	7.96341×10^{-9}	5.67126×10^{-9}
Python vs R aghq	0.010957	0.010957	0.013044	9.24156×10^{-3}
NONMEM vs R aghq	0.010957	0.010957	0.013044	9.24155×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20890944	0.20890943	0.21292224
ω_{01}: 6 mg at 0 h	0.25	0.25530436	0.25530436	0.24434737
ω_{10}: 6 mg at 12 h	0.25	0.26954257	0.26954257	0.27079235
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26624364	0.26624364	0.27193804

Method	P_{max}	G	H_N
Python Laplace	0.269543	0.003299	0.996468
NONMEM Laplace	0.269543	0.003299	0.996468
R aghq	0.271938	0.001146	0.996582

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c104: Observation records

Observation times: 28 h.

Observations: 10.88401772 ng/mL at 28 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

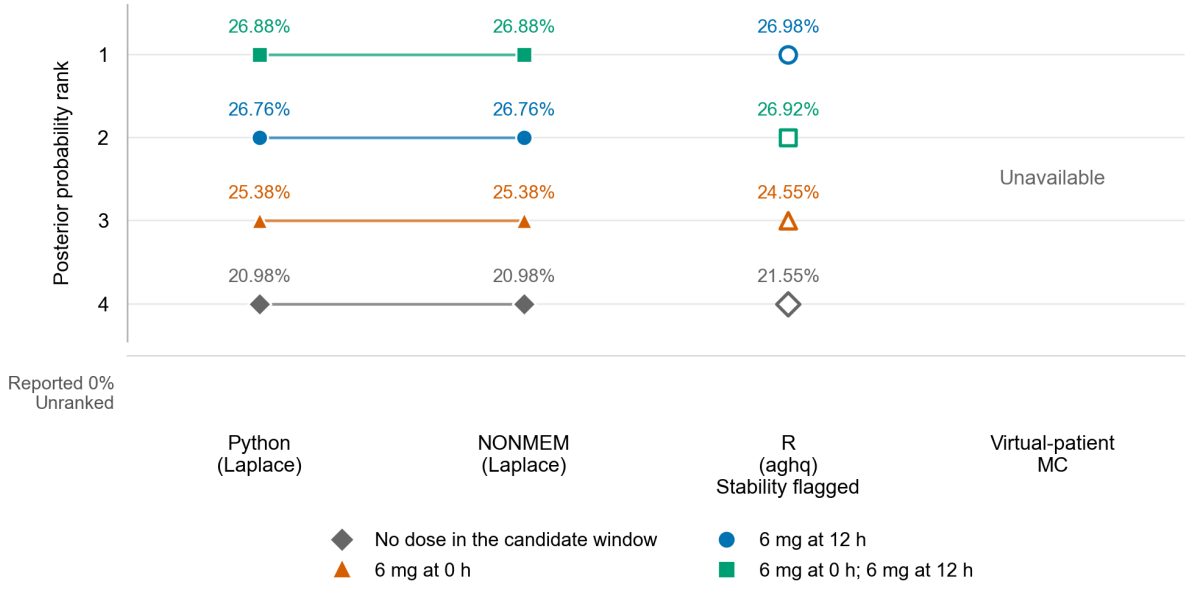
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.41781×10^{-9}	6.93439×10^{-9}	7.13386×10^{-9}	5.11544×10^{-9}
Python vs R aghq	8.30071×10^{-3}	8.30071×10^{-3}	0.010334	7.49430×10^{-3}
NONMEM vs R aghq	8.30071×10^{-3}	8.30071×10^{-3}	0.010334	7.49430×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20978225	0.20978225	0.21552473
ω_{01}: 6 mg at 0 h	0.25	0.25383446	0.25383446	0.24553375
ω_{10}: 6 mg at 12 h	0.25	0.26757936	0.26757936	0.26976267
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26880393	0.26880393	0.26917885

Method	P_{max}	G	H_N
Python Laplace	0.268804	0.001225	0.996576
NONMEM Laplace	0.268804	0.001225	0.996576
R aghq	0.269763	0.000584	0.997105

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c105: Observation records

Observation times: 30 h.

Observations: 10.47115089 ng/mL at 30 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

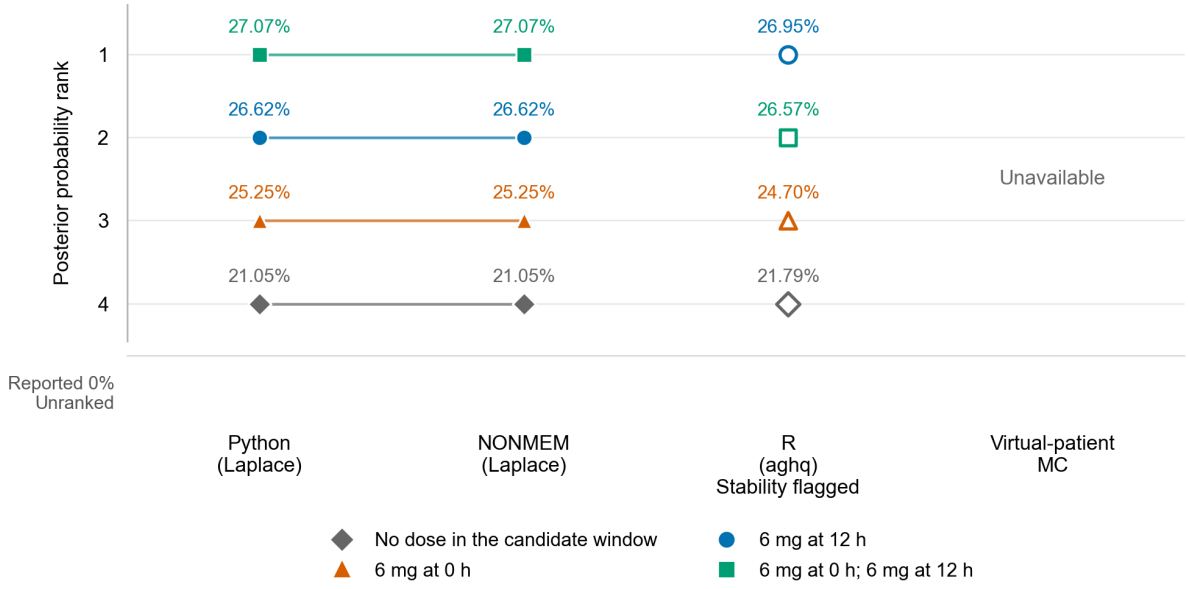
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.57456×10^{-8}	1.57456×10^{-8}	1.92350×10^{-8}	1.36089×10^{-8}
Python vs R aghq	7.37029×10^{-3}	0.010649	0.011041	8.01755×10^{-3}
NONMEM vs R aghq	7.37030×10^{-3}	0.010649	0.011041	8.01756×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21049522	0.21049521	0.21786551
ω_{01}: 6 mg at 0 h	0.25	0.25253382	0.25253381	0.24695402
ω_{10}: 6 mg at 12 h	0.25	0.26624194	0.26624194	0.26952054
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27072902	0.27072903	0.26565994

Method	P_{max}	G	H_N
Python Laplace	0.270729	0.004487	0.996634
NONMEM Laplace	0.270729	0.004487	0.996634
R aghq	0.269521	0.003861	0.997546

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c106: Observation records

Observation times: 32 h.

Observations: 10.10128585 ng/mL at 32 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

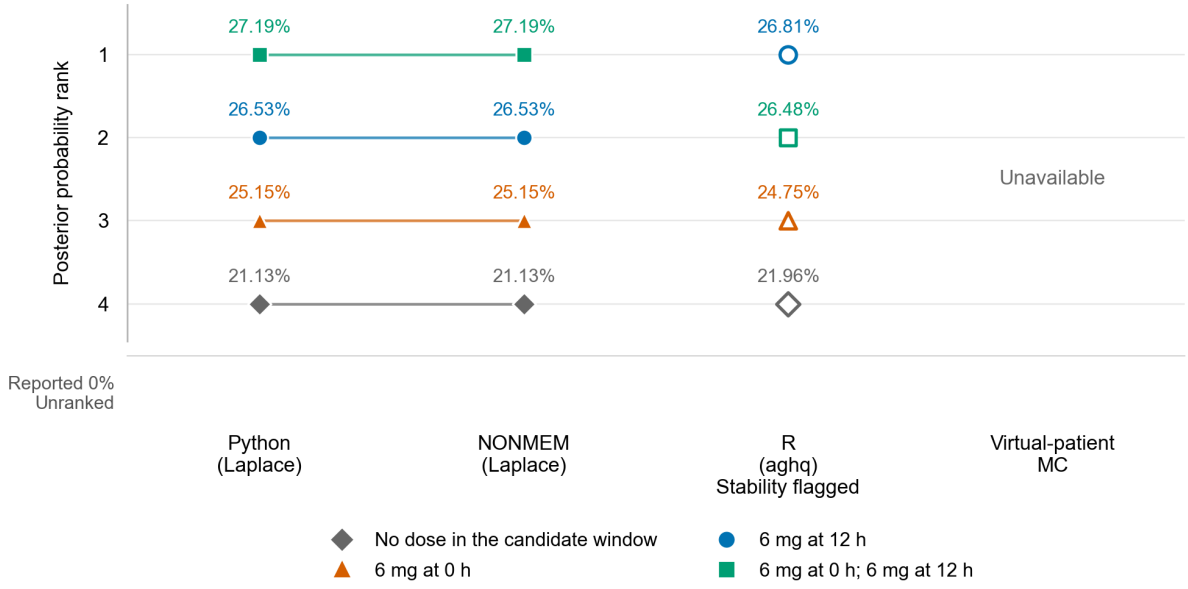
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.16866×10^{-8}	1.21508×10^{-8}	1.45865×10^{-8}	1.07756×10^{-8}
Python vs R aghq	8.27601×10^{-3}	0.011122	0.011962	8.66537×10^{-3}
NONMEM vs R aghq	8.27602×10^{-3}	0.011122	0.011962	8.66538×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21132903	0.21132902	0.21960504
ω_{01}: 6 mg at 0 h	0.25	0.25152567	0.25152567	0.24749019
ω_{10}: 6 mg at 12 h	0.25	0.26528273	0.26528274	0.26812864
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.27186256	0.27186257	0.26477613

Method	P_{max}	G	H_N
Python Laplace	0.271863	0.006580	0.996718
NONMEM Laplace	0.271863	0.006580	0.996718
R aghq	0.268129	0.003353	0.997828

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c107: Observation records

Observation times: 0, 24 h.

Observations: 13.9980796 ng/mL at 0 h; 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

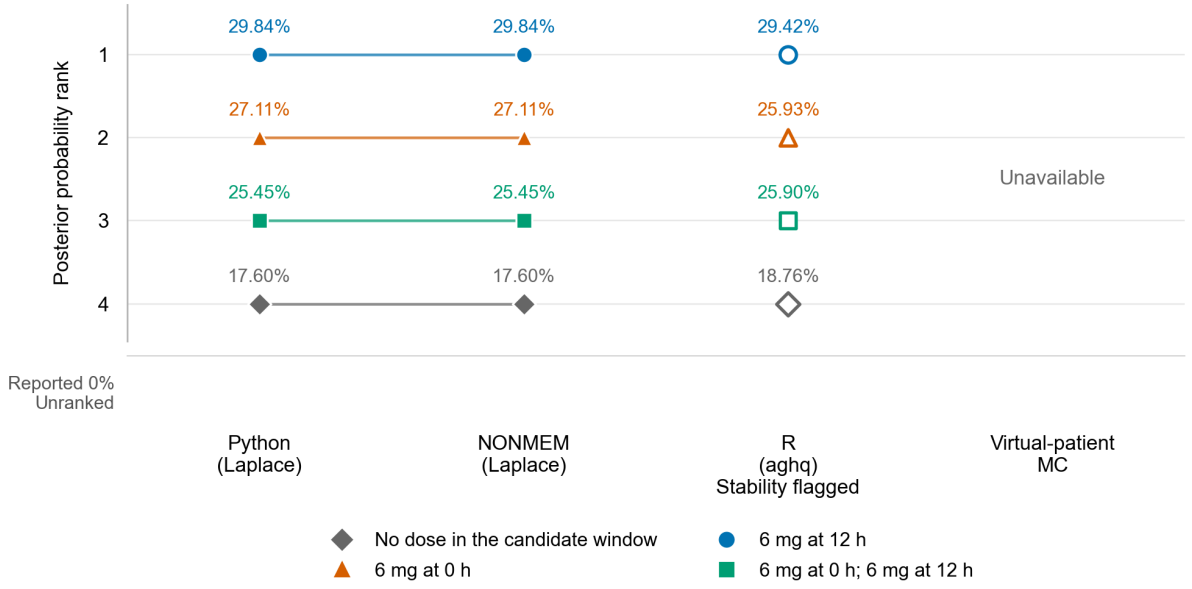
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	6.29495×10^{-9}	7.89083×10^{-9}	8.72517×10^{-9}	5.98474×10^{-9}
Python vs R aghq	0.011799	0.016074	0.017655	0.013242
NONMEM vs R aghq	0.011799	0.016074	0.017655	0.013242

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.17601483	0.17601483	0.18758985
ω_{01}: 6 mg at 0 h	0.25	0.27106683	0.27106684	0.25926776
ω_{10}: 6 mg at 12 h	0.25	0.29844614	0.29844615	0.29417128
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.25447219	0.25447219	0.25897111

Method	P_{max}	G	H_N
Python Laplace	0.298446	0.027379	0.987345
NONMEM Laplace	0.298446	0.027379	0.987345
R aghq	0.294171	0.034904	0.990945

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c108: Observation records

Observation times: 18, 24 h.

Observations: 16.58147401 ng/mL at 18 h; 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

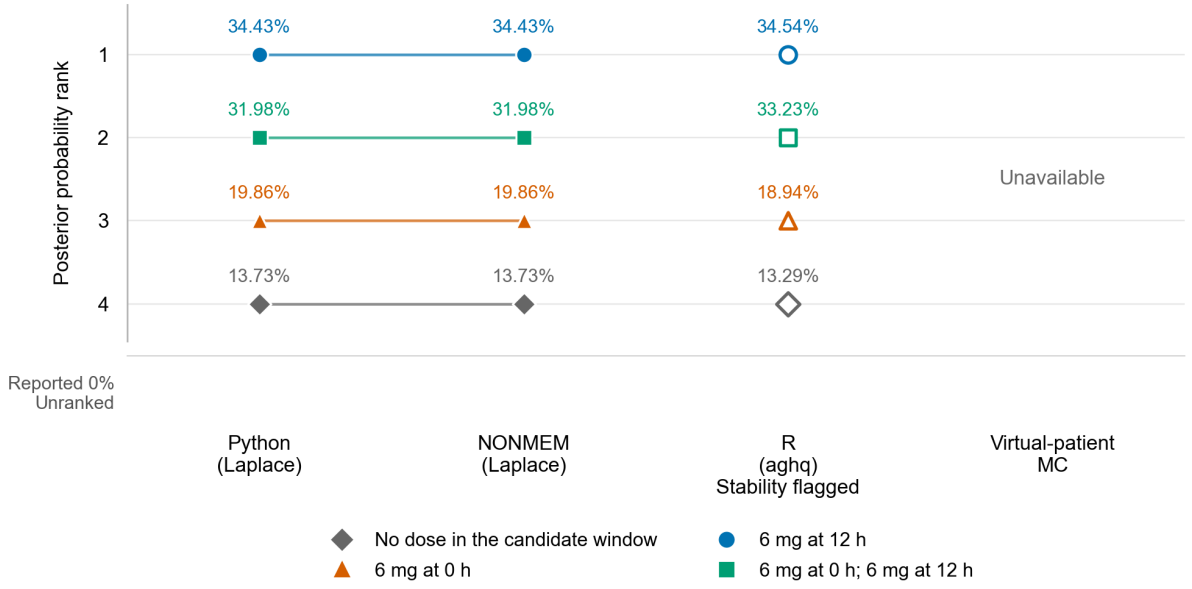
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	8.25950×10^{-9}	9.63652×10^{-9}	1.11344×10^{-8}	7.74997×10^{-9}
Python vs R aghq	0.012522	0.013590	0.016186	0.011531
NONMEM vs R aghq	0.012522	0.013590	0.016186	0.011531

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.13727669	0.13727669	0.13289891
ω_{01}: 6 mg at 0 h	0.25	0.19859786	0.19859785	0.18938560
ω_{10}: 6 mg at 12 h	0.25	0.34430039	0.34430038	0.34536826
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.31982506	0.31982507	0.33234723

Method	P_{max}	G	H_N
Python Laplace	0.344300	0.024475	0.956022
NONMEM Laplace	0.344300	0.024475	0.956022
R aghq	0.345368	0.013021	0.949745

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c109: Observation records

Observation times: 24, 30 h.

Observations: 12 ng/mL at 24 h; 10.47115089 ng/mL at 30 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

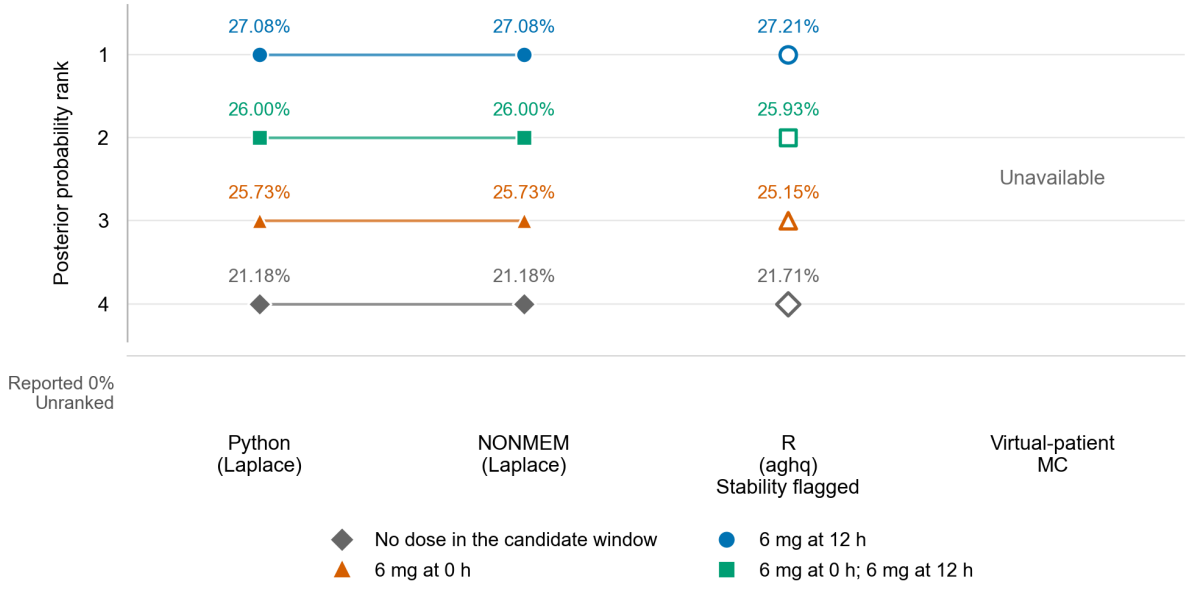
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.07098×10^{-8}	2.14121×10^{-8}	2.58706×10^{-8}	1.78579×10^{-8}
Python vs R aghq	5.83263×10^{-3}	6.62117×10^{-3}	8.01966×10^{-3}	5.83845×10^{-3}
NONMEM vs R aghq	5.83263×10^{-3}	6.62118×10^{-3}	8.01966×10^{-3}	5.83845×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21184431	0.21184431	0.21712385
ω_{01}: 6 mg at 0 h	0.25	0.25734778	0.25734777	0.25151514
ω_{10}: 6 mg at 12 h	0.25	0.27076527	0.27076526	0.27210690
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.26004264	0.26004266	0.25925410

Method	P_{max}	G	H_N
Python Laplace	0.270765	0.010723	0.996958
NONMEM Laplace	0.270765	0.010723	0.996958
R aghq	0.272107	0.012853	0.997557

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c110: Observation records

Observation times: 0, 24, 30 h.

Observations: 13.9980796 ng/mL at 0 h; 12 ng/mL at 24 h; 10.47115089 ng/mL at 30 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

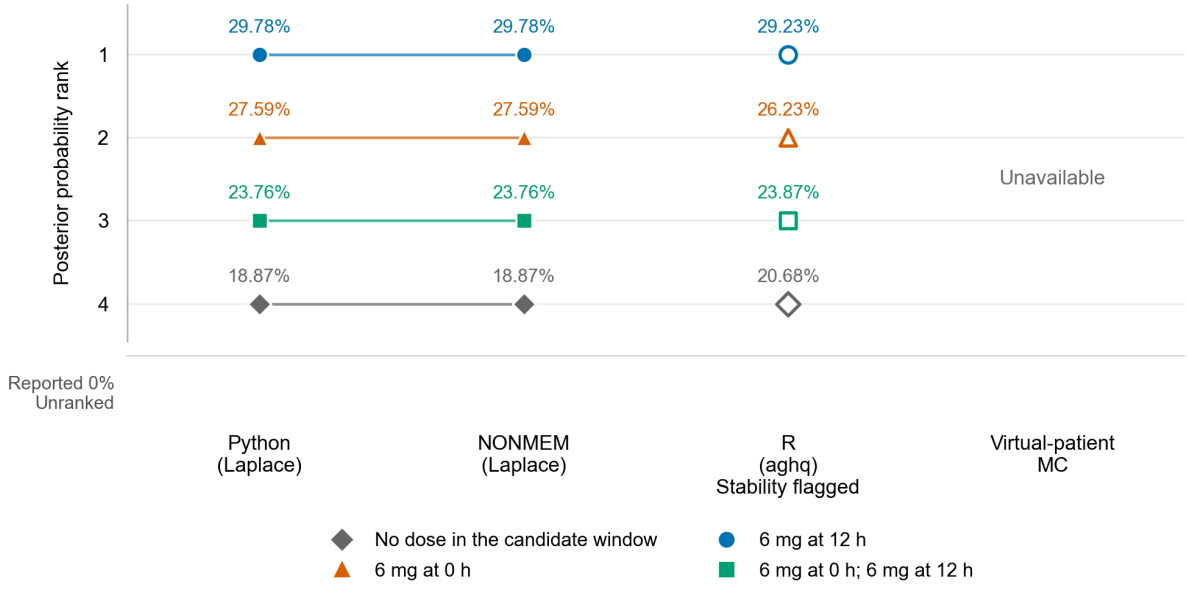
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	3.47408×10^{-9}	4.25250×10^{-9}	4.90684×10^{-9}	3.76201×10^{-9}
Python vs R aghq	0.018052	0.019134	0.023300	0.017486
NONMEM vs R aghq	0.018052	0.019134	0.023300	0.017486

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.18871562	0.18871563	0.20676774
ω_{01}: 6 mg at 0 h	0.25	0.27588309	0.27588309	0.26226750
ω_{10}: 6 mg at 12 h	0.25	0.29781898	0.29781898	0.29230087
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.23758231	0.23758231	0.23866389

Method	P_{max}	G	H_N
Python Laplace	0.297819	0.021936	0.989807
NONMEM Laplace	0.297819	0.021936	0.989807
R aghq	0.292301	0.030033	0.994284

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c111: Observation records

Observation times: 18, 24, 30 h.

Observations: 16.58147401 ng/mL at 18 h; 12 ng/mL at 24 h; 10.47115089 ng/mL at 30 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

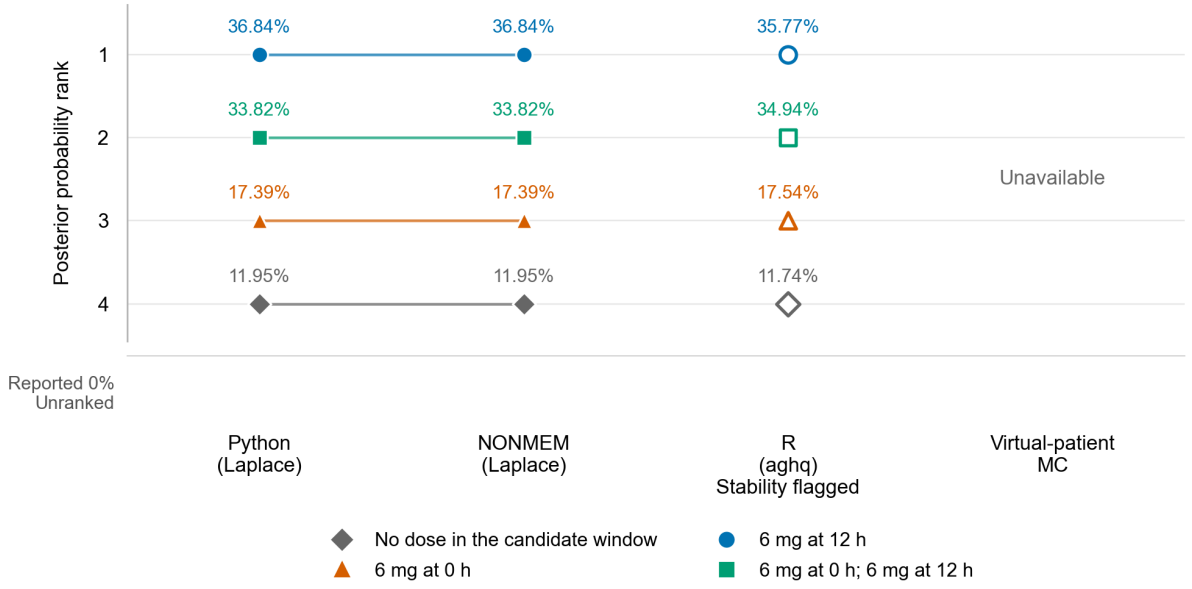
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.83404×10^{-8}	2.83404×10^{-8}	3.75031×10^{-8}	2.25117×10^{-8}
Python vs R aghq	0.011208	0.012753	0.015670	9.54216×10^{-3}
NONMEM vs R aghq	0.011208	0.012753	0.015670	9.54214×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.11954980	0.11954979	0.11742915
ω_{01}: 6 mg at 0 h	0.25	0.17386310	0.17386310	0.17540894
ω_{10}: 6 mg at 12 h	0.25	0.36836822	0.36836820	0.35773540
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.25	0.33821888	0.33821891	0.34942651

Method	P_{max}	G	H_N
Python Laplace	0.368368	0.030149	0.932433
NONMEM Laplace	0.368368	0.030149	0.932433
R aghq	0.357735	0.008309	0.931977

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c112: Prior probabilities

Independent per-dose prior probability: 0.1.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

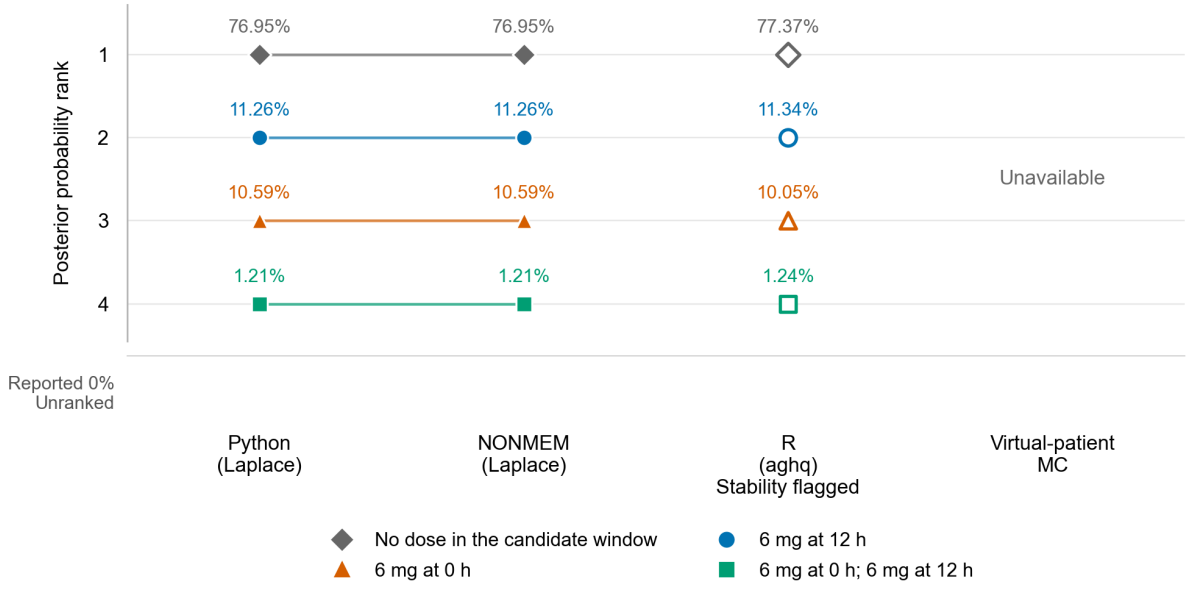
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.41884×10^{-8}	1.41884×10^{-8}	1.87830×10^{-8}	1.46125×10^{-8}
Python vs R aghq	5.42410×10^{-3}	5.42410×10^{-3}	6.92967×10^{-3}	6.36723×10^{-3}
NONMEM vs R aghq	5.42409×10^{-3}	5.42409×10^{-3}	6.92965×10^{-3}	6.36722×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.81	0.76946983	0.76946985	0.77367892
ω_{01}: 6 mg at 0 h	0.09	0.10587511	0.10587510	0.10045101
ω_{10}: 6 mg at 12 h	0.09	0.11255942	0.11255942	0.11343613
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.01	0.01209564	0.01209564	0.01243395

Method	P_{max}	G	H_N
Python Laplace	0.769470	0.656910	0.532821
NONMEM Laplace	0.769470	0.656910	0.532821
R aghq	0.773679	0.660243	0.527173

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c113: Prior probabilities

Independent per-dose prior probability: 0.3.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

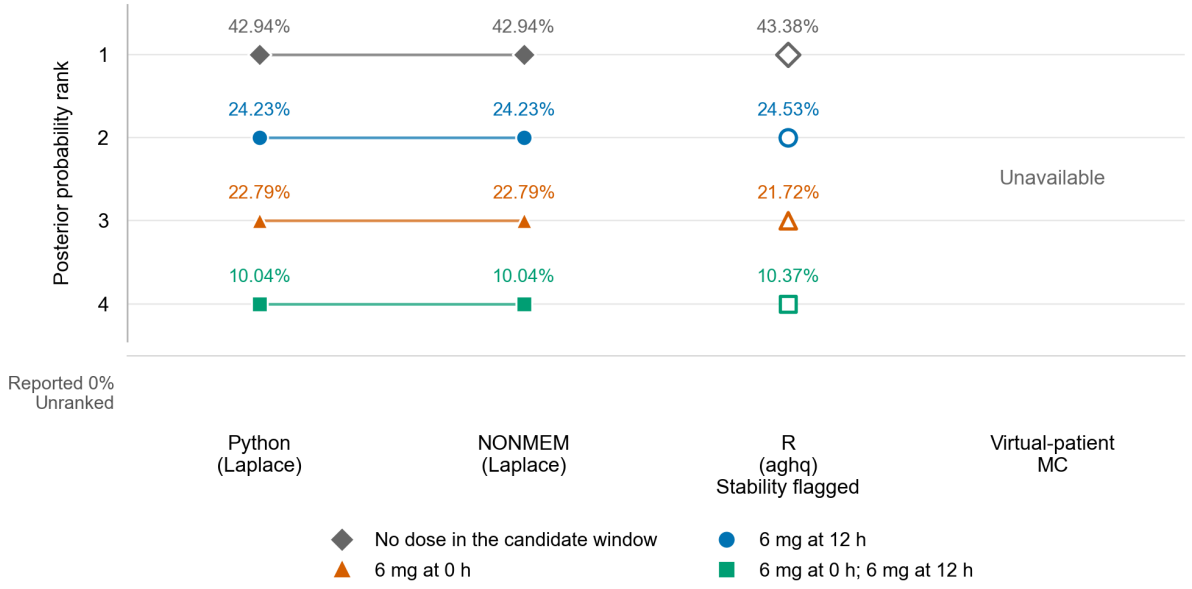
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.04446×10^{-8}	2.18742×10^{-8}	2.80394×10^{-8}	1.84496×10^{-8}
Python vs R aghq	0.010669	0.010669	0.012360	9.34766×10^{-3}
NONMEM vs R aghq	0.010669	0.010669	0.012360	9.34765×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.49	0.42940208	0.42940210	0.43375948
ω_{01}: 6 mg at 0 h	0.21	0.22789361	0.22789359	0.21722422
ω_{10}: 6 mg at 12 h	0.21	0.24228141	0.24228142	0.24530439
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.09	0.10042289	0.10042289	0.10371190

Method	P_{max}	G	H_N
Python Laplace	0.429402	0.187121	0.919218
NONMEM Laplace	0.429402	0.187121	0.919218
R aghq	0.433759	0.188455	0.918786

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c114: Prior probabilities

Independent per-dose prior probability: 0.7.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

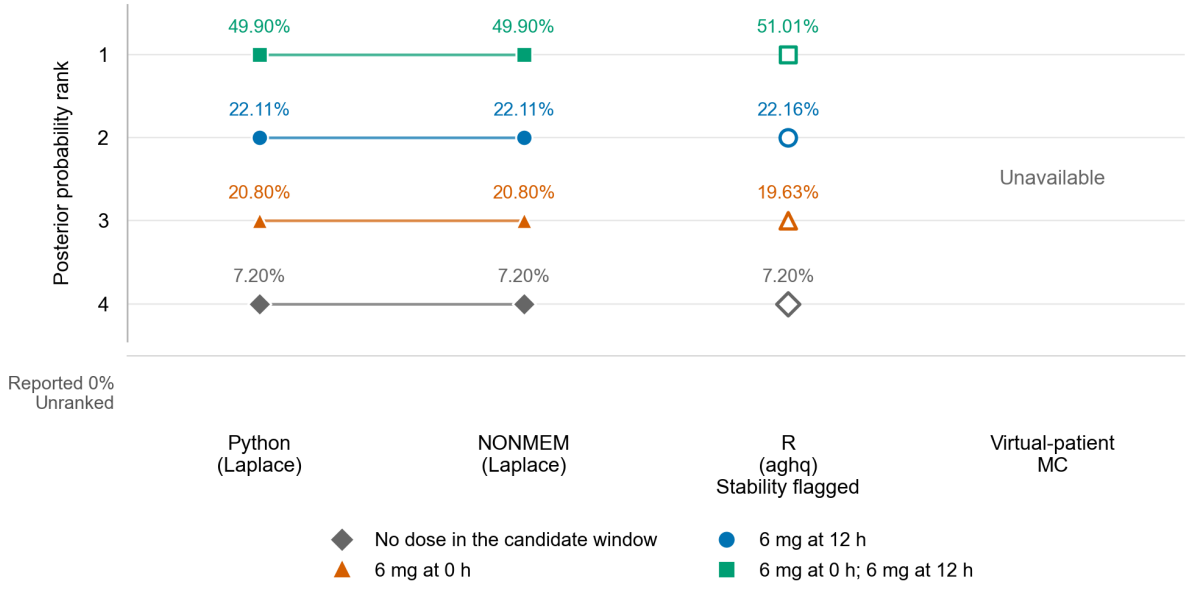
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.45227×10^{-8}	1.45227×10^{-8}	1.70440×10^{-8}	1.39300×10^{-8}
Python vs R aghq	0.011718	0.011718	0.016212	0.010776
NONMEM vs R aghq	0.011718	0.011718	0.016212	0.010776

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.09	0.07197515	0.07197515	0.07197898
ω_{01}: 6 mg at 0 h	0.21	0.20797166	0.20797165	0.19625401
ω_{10}: 6 mg at 12 h	0.21	0.22110171	0.22110172	0.22162340
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.49	0.49895148	0.49895148	0.51014362

Method	P_{max}	G	H_N
Python Laplace	0.498951	0.277850	0.863130
NONMEM Laplace	0.498951	0.277850	0.863130
R aghq	0.510144	0.288520	0.855712

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c115: Prior probabilities

Independent per-dose prior probability: 0.8.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

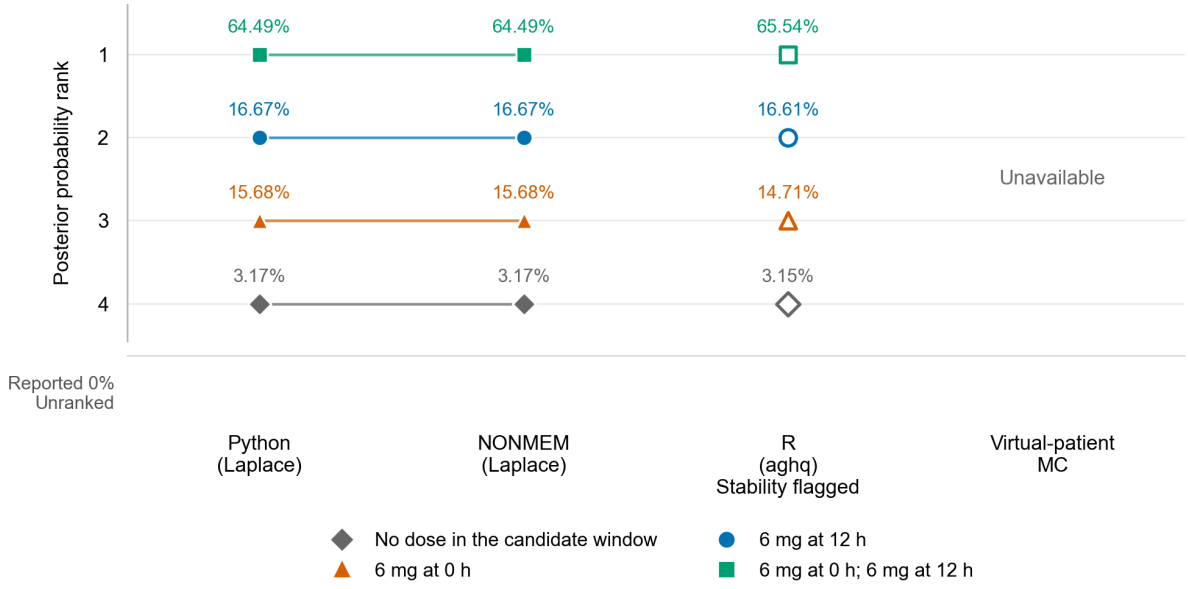
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.09602×10^{-8}	1.09602×10^{-8}	1.28725×10^{-8}	1.16543×10^{-8}
Python vs R aghq	0.010516	0.010516	0.014334	9.97176×10^{-3}
NONMEM vs R aghq	0.010516	0.010516	0.014334	9.97175×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.04	0.03165363	0.03165363	0.03146570
ω_{01}: 6 mg at 0 h	0.16	0.15679357	0.15679356	0.14707317
ω_{10}: 6 mg at 12 h	0.16	0.16669255	0.16669256	0.16608505
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.64	0.64486025	0.64486025	0.65537608

Method	P_{max}	G	H_N
Python Laplace	0.644860	0.478168	0.707908
NONMEM Laplace	0.644860	0.478168	0.707908
R aghq	0.655376	0.489291	0.696707

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c116: Prior probabilities

Independent per-dose prior probability: 0.9.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

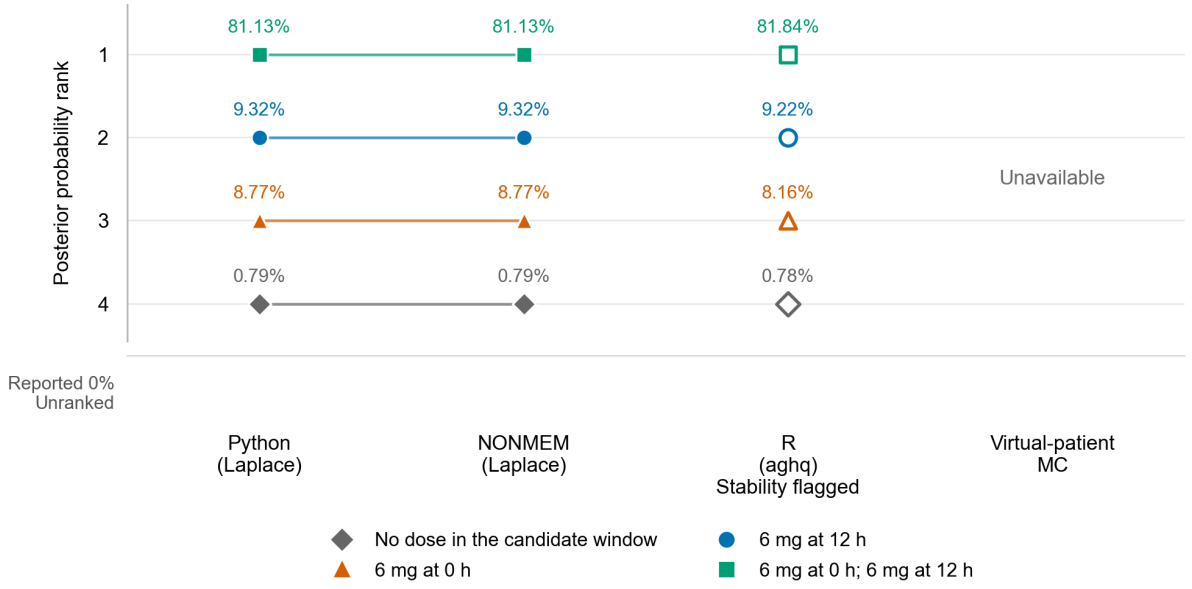
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	6.29336×10^{-9}	6.29336×10^{-9}	7.53095×10^{-9}	8.49944×10^{-9}
Python vs R aghq	7.16643×10^{-3}	7.16643×10^{-3}	9.42826×10^{-3}	7.95902×10^{-3}
NONMEM vs R aghq	7.16643×10^{-3}	7.16643×10^{-3}	9.42825×10^{-3}	7.95902×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.01	0.00786601	0.00786601	0.00776181
ω_{01}: 6 mg at 0 h	0.09	0.08766813	0.08766812	0.08162845
ω_{10}: 6 mg at 12 h	0.09	0.09320296	0.09320296	0.09218041
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.81	0.81126290	0.81126291	0.81842934

Method	P_{max}	G	H_N
Python Laplace	0.811263	0.718060	0.463371
NONMEM Laplace	0.811263	0.718060	0.463371
R aghq	0.818429	0.726249	0.451552

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c117: Candidate states

Remove state omega_00.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	3
NONMEM Laplace	5/5	3
R aghq	5/5	3

Repeatability

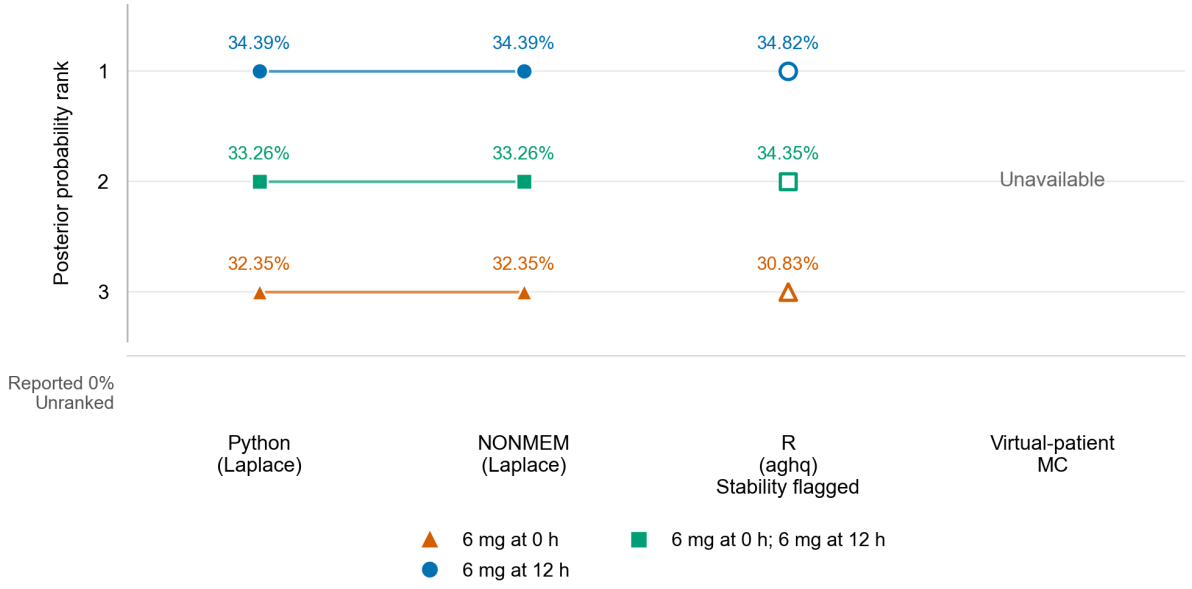
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.94648×10^{-8}	1.94648×10^{-8}	2.47270×10^{-8}	1.52069×10^{-8}
Python vs R aghq	0.015157	0.015157	0.019142	0.011887
NONMEM vs R aghq	0.015157	0.015157	0.019141	0.011887

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{01}: 6 mg at 0 h	0.3333333333	0.32348502	0.32348500	0.30832805
ω_{10}: 6 mg at 12 h	0.3333333333	0.34390787	0.34390789	0.34818505
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.3333333333	0.33260711	0.33260712	0.34348690

Method	P_{max}	G	H_N
Python Laplace	0.343908	0.011301	0.999714
NONMEM Laplace	0.343908	0.011301	0.999714
R aghq	0.348185	0.004698	0.998688

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c118: Candidate states

Remove state omega_01.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	3
NONMEM Laplace	5/5	3
R aghq	5/5	3

Repeatability

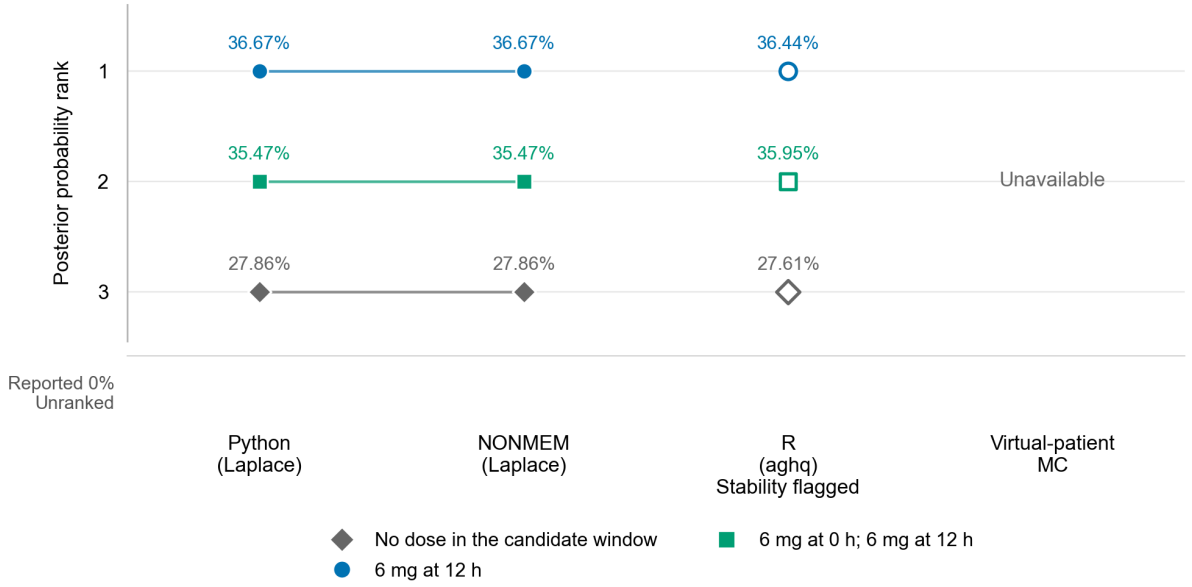
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.20295×10^{-9}	9.20295×10^{-9}	1.28748×10^{-8}	8.13757×10^{-9}
Python vs R aghq	4.77979×10^{-3}	4.77979×10^{-3}	5.85423×10^{-3}	3.54178×10^{-3}
NONMEM vs R aghq	4.77980×10^{-3}	4.77980×10^{-3}	5.85425×10^{-3}	3.54179×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.3333333333	0.27856621	0.27856622	0.27614096
ω_{10}: 6 mg at 12 h	0.3333333333	0.36674245	0.36674245	0.36438791
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.3333333333	0.35469135	0.35469134	0.35947113

Method	P_{max}	G	H_N
Python Laplace	0.366742	0.012051	0.993575
NONMEM Laplace	0.366742	0.012051	0.993575
R aghq	0.364388	0.004917	0.993067

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c119: Candidate states

Remove state omega_10.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	3
NONMEM Laplace	5/5	3
R aghq	5/5	3

Repeatability

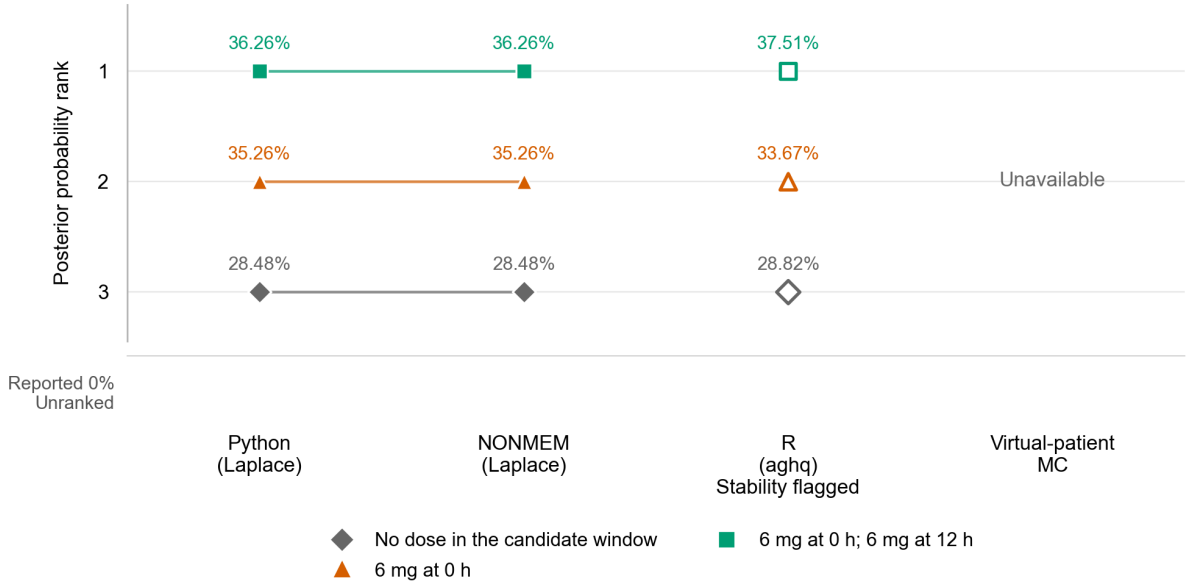
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.30805×10^{-8}	2.30805×10^{-8}	3.03981×10^{-8}	1.89568×10^{-8}
Python vs R aghq	0.015922	0.015922	0.020543	0.012255
NONMEM vs R aghq	0.015922	0.015922	0.020543	0.012255

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.3333333333	0.28476814	0.28476816	0.28816064
ω_{01}: 6 mg at 0 h	0.3333333333	0.35264375	0.35264373	0.33672140
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.3333333333	0.36258811	0.36258811	0.37511796

Method	P_{max}	G	H_N
Python Laplace	0.362588	0.009944	0.994975
NONMEM Laplace	0.362588	0.009944	0.994975
R aghq	0.375118	0.038397	0.994773

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c120: Candidate states

Remove state omega_11.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	3
NONMEM Laplace	5/5	3
R aghq	5/5	3

Repeatability

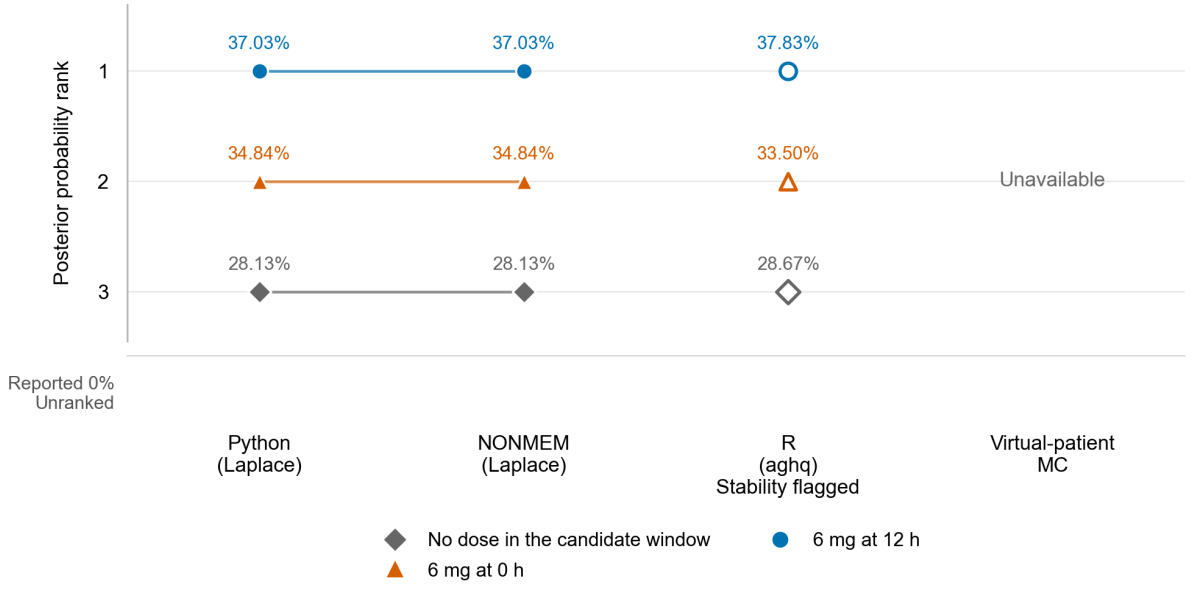
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.62604×10^{-8}	2.62604×10^{-8}	3.24958×10^{-8}	1.99974×10^{-8}
Python vs R aghq	0.013350	0.013350	0.016451	9.95747×10^{-3}
NONMEM vs R aghq	0.013350	0.013350	0.016451	9.95745×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.3333333333	0.28130266	0.28130267	0.28668970
ω_{01}: 6 mg at 0 h	0.3333333333	0.34835226	0.34835223	0.33500257
ω_{10}: 6 mg at 12 h	0.3333333333	0.37034508	0.37034509	0.37830773

Method	P_{max}	G	H_N
Python Laplace	0.370345	0.021993	0.993987
NONMEM Laplace	0.370345	0.021993	0.993987
R aghq	0.378308	0.043305	0.994231

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c121: Candidate states

Add one candidate history.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	5
NONMEM Laplace	5/5	5
R aghq	5/5	5

Repeatability

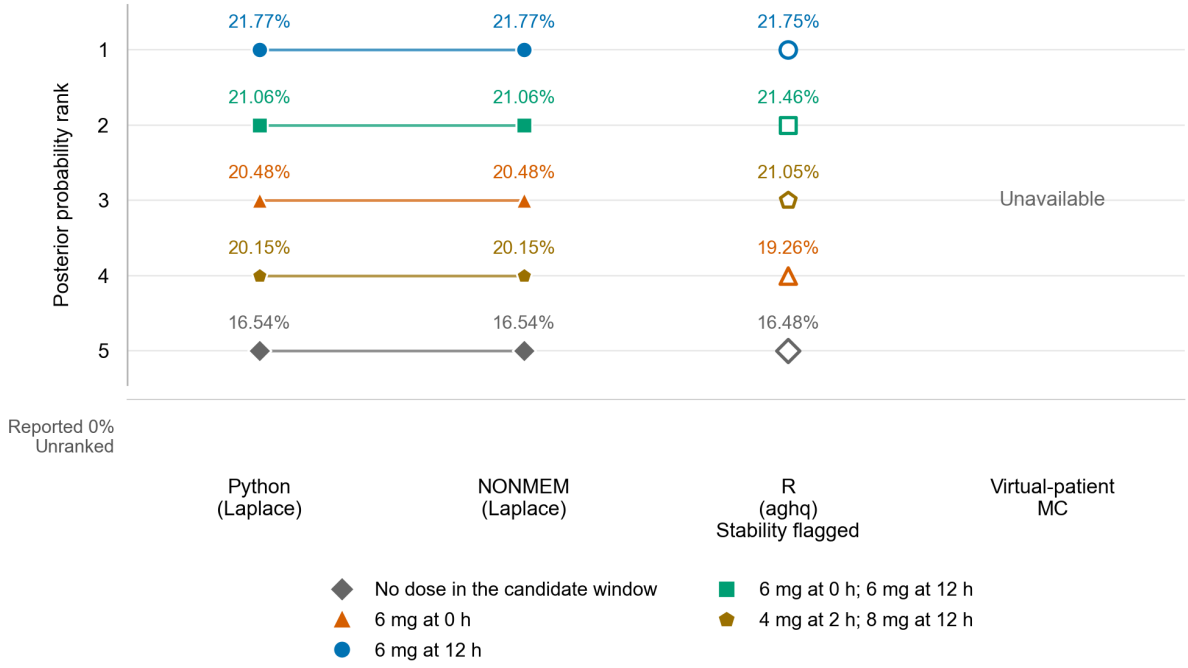
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.18129×10^{-8}	1.19113×10^{-8}	1.42148×10^{-8}	1.13699×10^{-8}
Python vs R aghq	0.012213	0.013028	0.015726	0.012376
NONMEM vs R aghq	0.012213	0.013028	0.015726	0.012376

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.2	0.16539048	0.16539049	0.16482280
ω_{01}: 6 mg at 0 h	0.2	0.20481196	0.20481195	0.19259869
ω_{10}: 6 mg at 12 h	0.2	0.21774253	0.21774253	0.21749557
ω_{11}: 6 mg at 0 h; 6 mg at 12 h	0.2	0.21058754	0.21058754	0.21456085
omega_add: 4 mg at 2 h; 8 mg at 12 h	0.2	0.20146749	0.20146749	0.21052210

Method	P_{max}	G	H_N
Python Laplace	0.217743	0.007155	0.997336
NONMEM Laplace	0.217743	0.007155	0.997336
R aghq	0.217496	0.002935	0.996915

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c122: Candidate states

Candidate dose events: 3 mg at 0 h; 6 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

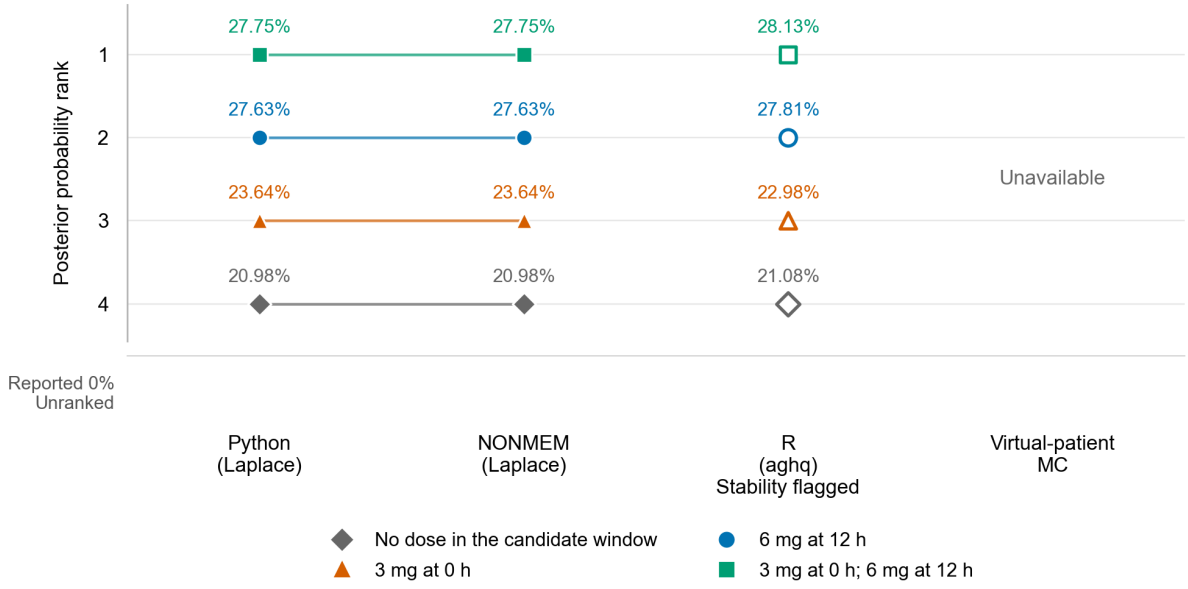
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.08512×10^{-8}	1.15251×10^{-8}	1.42347×10^{-8}	1.05671×10^{-8}
Python vs R aghq	6.62566×10^{-3}	6.62566×10^{-3}	7.93540×10^{-3}	5.67581×10^{-3}
NONMEM vs R aghq	6.62565×10^{-3}	6.62565×10^{-3}	7.93539×10^{-3}	5.67580×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20984938	0.20984939	0.21077471
ω_{01}: 3 mg at 0 h	0.25	0.23638899	0.23638898	0.22976333
ω_{10}: 6 mg at 12 h	0.25	0.27627427	0.27627428	0.27813244
ω_{11}: 3 mg at 0 h; 6 mg at 12 h	0.25	0.27748735	0.27748735	0.28132951

Method	P_{max}	G	H_N
Python Laplace	0.277487	0.001213	0.995252
NONMEM Laplace	0.277487	0.001213	0.995252
R aghq	0.281330	0.003197	0.994585

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c123: Candidate states

Candidate dose events: 12 mg at 0 h; 6 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

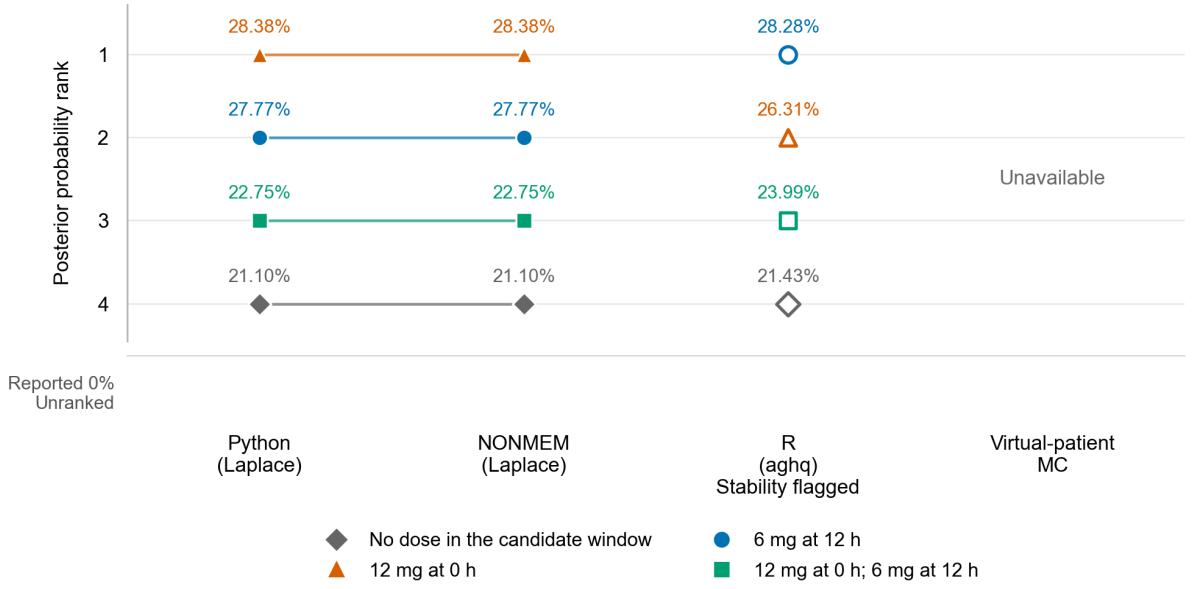
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	5.67700×10^{-9}	6.78681×10^{-9}	8.05362×10^{-9}	6.05898×10^{-9}
Python vs R aghq	0.020748	0.020748	0.024908	0.017228
NONMEM vs R aghq	0.020748	0.020748	0.024908	0.017228

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21095106	0.21095107	0.21427777
ω_{01}: 12 mg at 0 h	0.25	0.28381108	0.28381108	0.26306262
ω_{10}: 6 mg at 12 h	0.25	0.27772467	0.27772467	0.28275498
ω_{11}: 12 mg at 0 h; 6 mg at 12 h	0.25	0.22751319	0.22751319	0.23990463

Method	P_{max}	G	H_N
Python Laplace	0.283811	0.006086	0.994274
NONMEM Laplace	0.283811	0.006086	0.994274
R aghq	0.282755	0.019692	0.996189

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c124: Candidate states

Candidate dose events: 6 mg at 0 h; 3 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

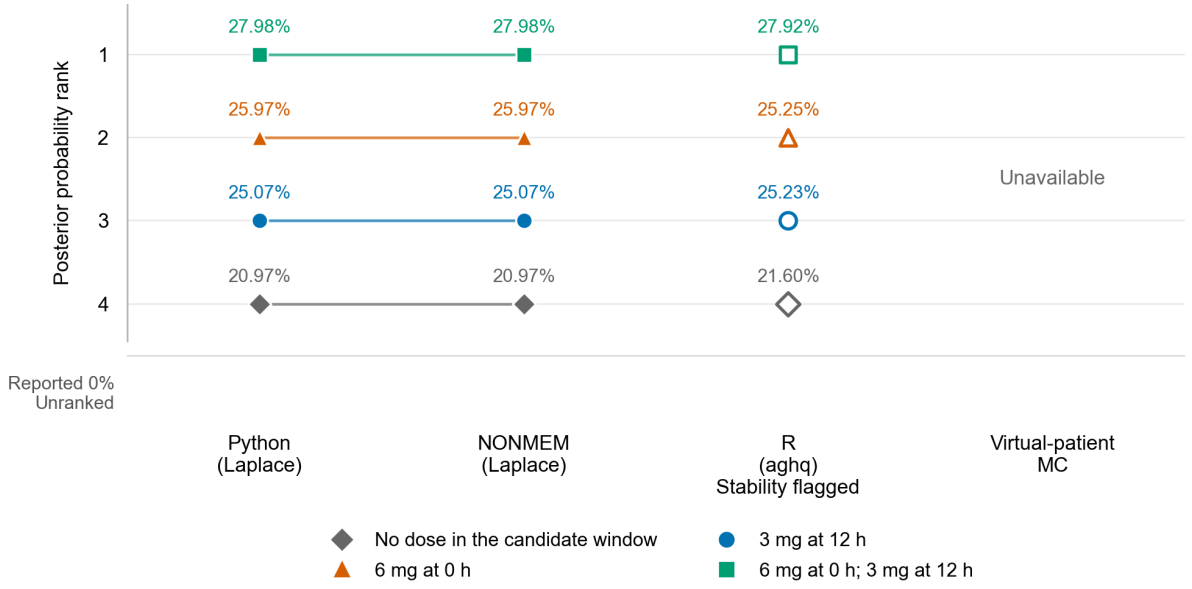
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.95014×10^{-8}	1.95014×10^{-8}	2.37033×10^{-8}	1.69394×10^{-8}
Python vs R aghq	7.29277×10^{-3}	7.96147×10^{-3}	9.79941×10^{-3}	7.12769×10^{-3}
NONMEM vs R aghq	7.29275×10^{-3}	7.96145×10^{-3}	9.79939×10^{-3}	7.12768×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20974926	0.20974927	0.21604347
ω_{01}: 6 mg at 0 h	0.25	0.25974383	0.25974381	0.25245106
ω_{10}: 3 mg at 12 h	0.25	0.25066899	0.25066899	0.25233625
ω_{11}: 6 mg at 0 h; 3 mg at 12 h	0.25	0.27983792	0.27983793	0.27916922

Method	P_{max}	G	H_N
Python Laplace	0.279838	0.020094	0.996154
NONMEM Laplace	0.279838	0.020094	0.996154
R aghq	0.279169	0.026718	0.997057

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c125: Candidate states

Candidate dose events: 6 mg at 0 h; 12 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

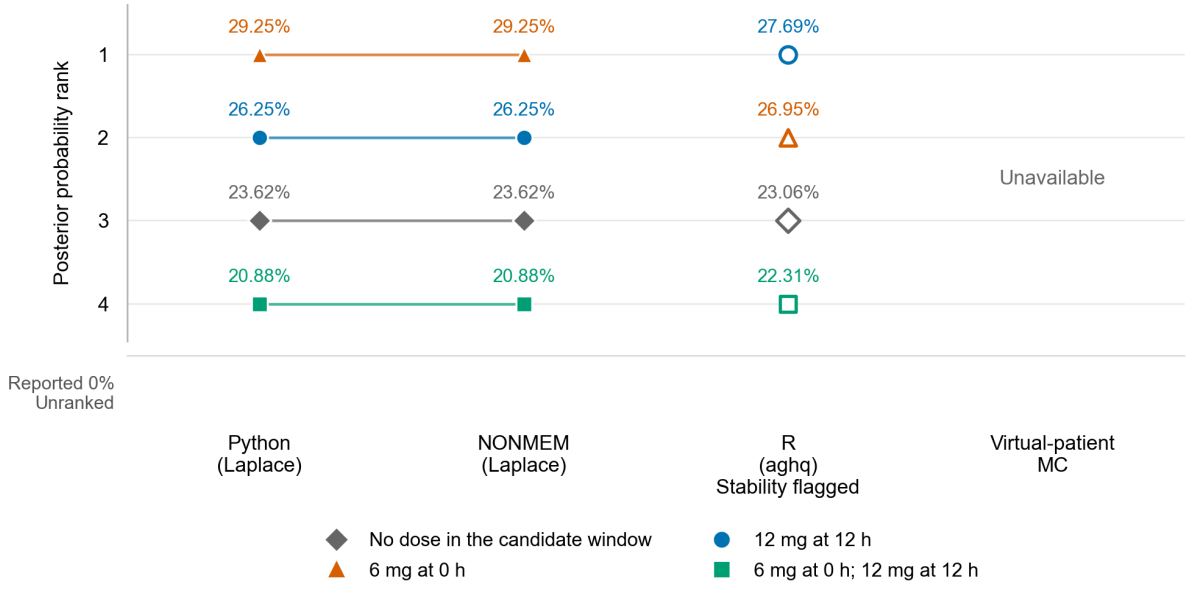
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.05642×10^{-8}	2.05642×10^{-8}	2.57756×10^{-8}	1.75525×10^{-8}
Python vs R aghq	0.023027	0.028618	0.031161	0.021590
NONMEM vs R aghq	0.023027	0.028618	0.031161	0.021590

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.23618447	0.23618448	0.23059335
ω_{01}: 6 mg at 0 h	0.25	0.29247997	0.29247995	0.26945289
ω_{10}: 12 mg at 12 h	0.25	0.26252292	0.26252293	0.27685561
ω_{11}: 6 mg at 0 h; 12 mg at 12 h	0.25	0.20881264	0.20881264	0.22309815

Method	P_{max}	G	H_N
Python Laplace	0.292480	0.029957	0.994435
NONMEM Laplace	0.292480	0.029957	0.994435
R aghq	0.276856	0.007403	0.996821

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c126: Candidate states

Candidate dose events: 6 mg at -4 h; 6 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

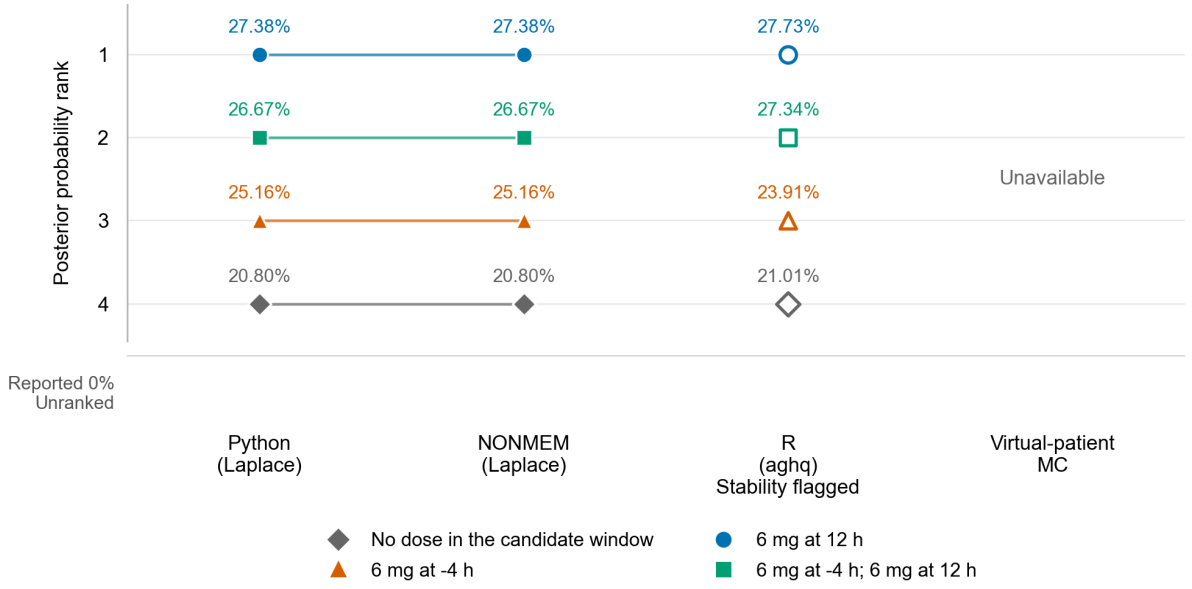
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	5.79823×10^{-9}	6.18539×10^{-9}	7.41399×10^{-9}	5.50757×10^{-9}
Python vs R aghq	0.012444	0.012444	0.014750	0.010414
NONMEM vs R aghq	0.012444	0.012444	0.014750	0.010414

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20796708	0.20796708	0.21014813
ω_{01}: 6 mg at -4 h	0.25	0.25156748	0.25156747	0.23912304
ω_{10}: 6 mg at 12 h	0.25	0.27379614	0.27379615	0.27730562
ω_{11}: 6 mg at -4 h; 6 mg at 12 h	0.25	0.26666930	0.26666930	0.27342321

Method	P_{max}	G	H_N
Python Laplace	0.273796	0.007127	0.996107
NONMEM Laplace	0.273796	0.007127	0.996107
R aghq	0.277306	0.003882	0.995597

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c127: Candidate states

Candidate dose events: 6 mg at -2 h; 6 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

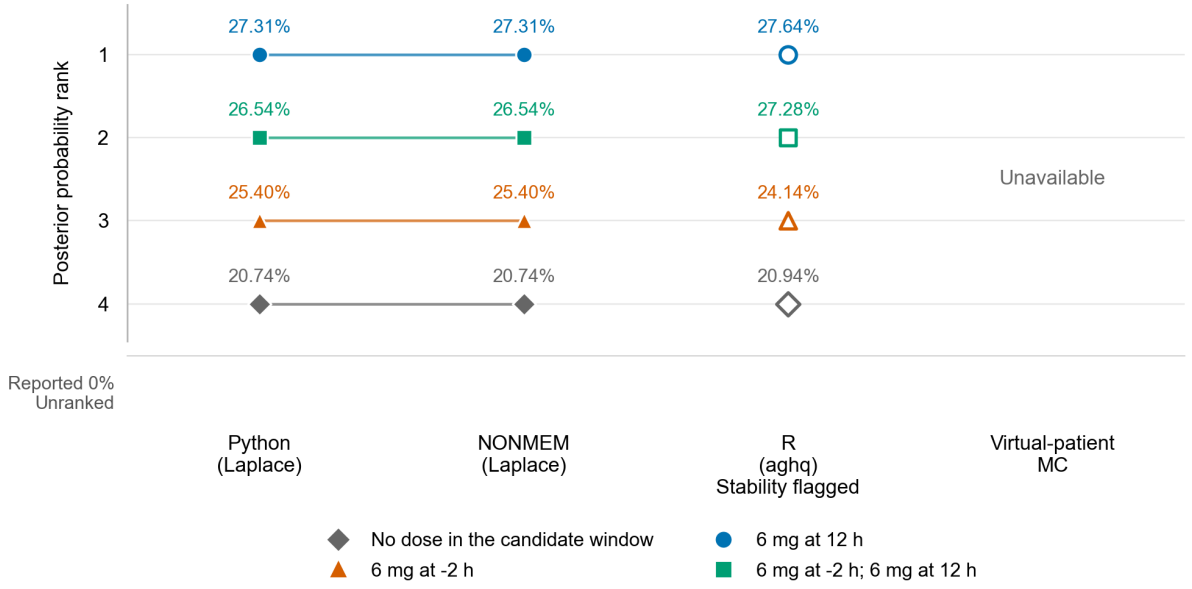
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	6.42016×10^{-9}	6.42016×10^{-9}	8.97060×10^{-9}	6.18458×10^{-9}
Python vs R aghq	0.012657	0.012657	0.015151	0.010654
NONMEM vs R aghq	0.012657	0.012657	0.015151	0.010654

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20744150	0.20744150	0.20943810
ω_{01}: 6 mg at -2 h	0.25	0.25402849	0.25402848	0.24137147
ω_{10}: 6 mg at 12 h	0.25	0.27310420	0.27310421	0.27636867
ω_{11}: 6 mg at -2 h; 6 mg at 12 h	0.25	0.26542581	0.26542581	0.27282176

Method	P_{max}	G	H_N
Python Laplace	0.273104	0.007678	0.996117
NONMEM Laplace	0.273104	0.007678	0.996117
R aghq	0.276369	0.003547	0.995679

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c128: Candidate states

Candidate dose events: 6 mg at 2 h; 6 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

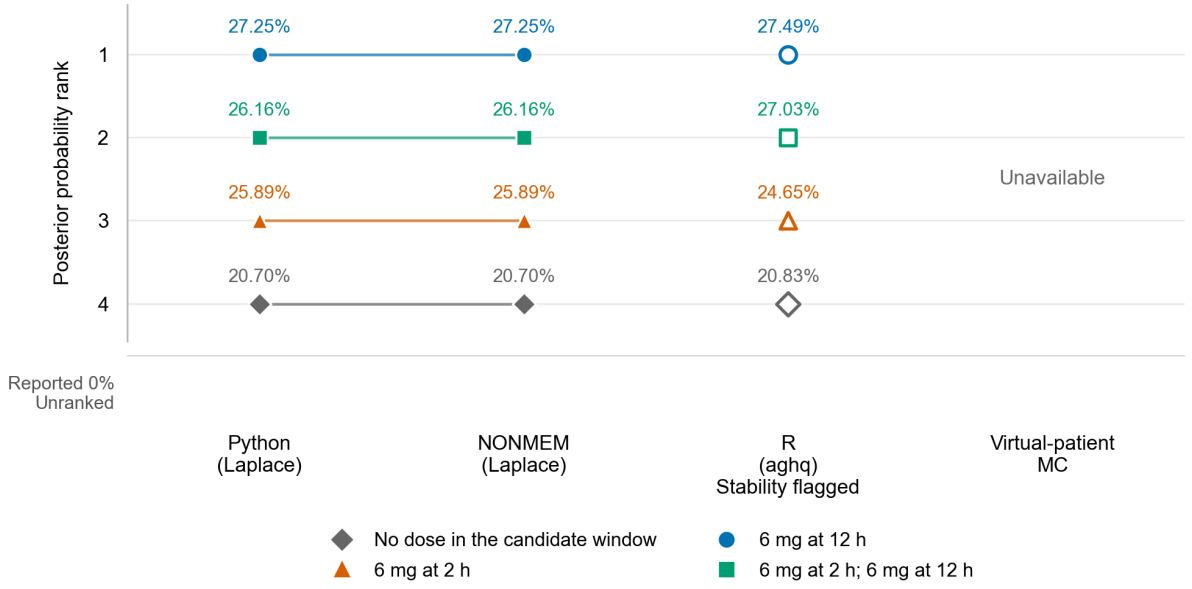
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	9.53874×10^{-9}	9.53874×10^{-9}	1.15345×10^{-8}	8.65737×10^{-9}
Python vs R aghq	0.012389	0.012389	0.015380	0.010730
NONMEM vs R aghq	0.012389	0.012389	0.015380	0.010730

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20701145	0.20701146	0.20833060
ω_{01}: 6 mg at 2 h	0.25	0.25885934	0.25885934	0.24647052
ω_{10}: 6 mg at 12 h	0.25	0.27253803	0.27253803	0.27490725
ω_{11}: 6 mg at 2 h; 6 mg at 12 h	0.25	0.26159118	0.26159118	0.27029163

Method	P_{max}	G	H_N
Python Laplace	0.272538	0.010947	0.996152
NONMEM Laplace	0.272538	0.010947	0.996152
R aghq	0.274907	0.004616	0.995880

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c129: Candidate states

Candidate dose events: 6 mg at 4 h; 6 mg at 12 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

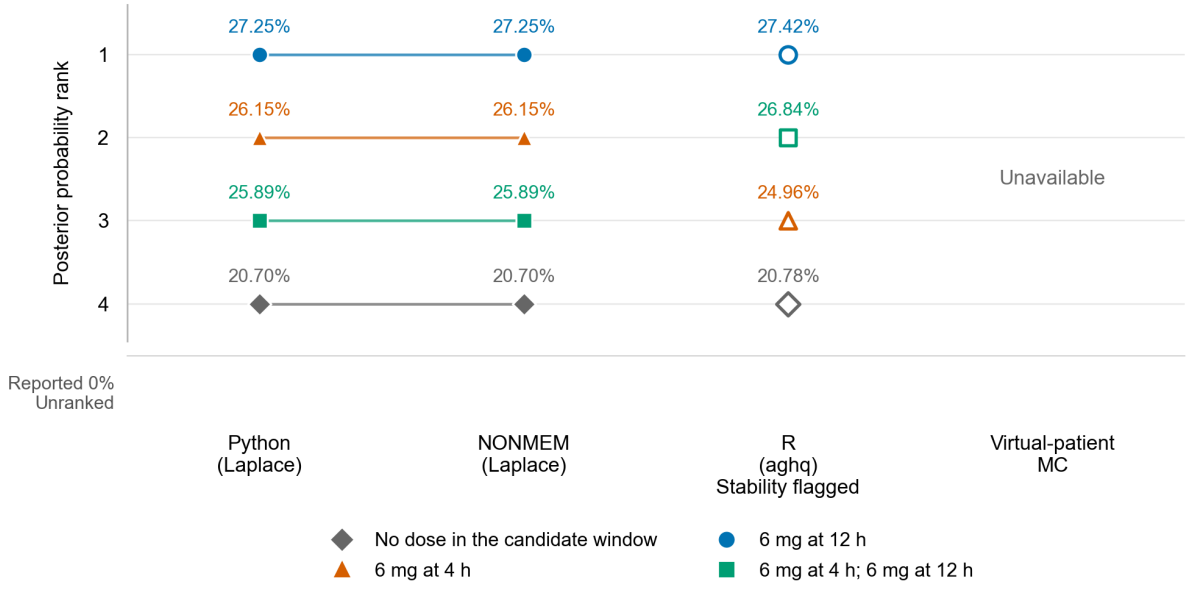
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.88327×10^{-9}	3.94937×10^{-9}	4.15324×10^{-9}	2.87161×10^{-9}
Python vs R aghq	0.011894	0.011894	0.015283	0.010626
NONMEM vs R aghq	0.011894	0.011894	0.015283	0.010626

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20701910	0.20701910	0.20781660
ω_{01}: 6 mg at 4 h	0.25	0.26149242	0.26149242	0.24959854
ω_{10}: 6 mg at 12 h	0.25	0.27254810	0.27254810	0.27422900
ω_{11}: 6 mg at 4 h; 6 mg at 12 h	0.25	0.25894038	0.25894038	0.26835586

Method	P_{max}	G	H_N
Python Laplace	0.272548	0.011056	0.996153
NONMEM Laplace	0.272548	0.011056	0.996153
R aghq	0.274229	0.005873	0.995979

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c130: Candidate states

Candidate dose events: 6 mg at 0 h; 6 mg at 8 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

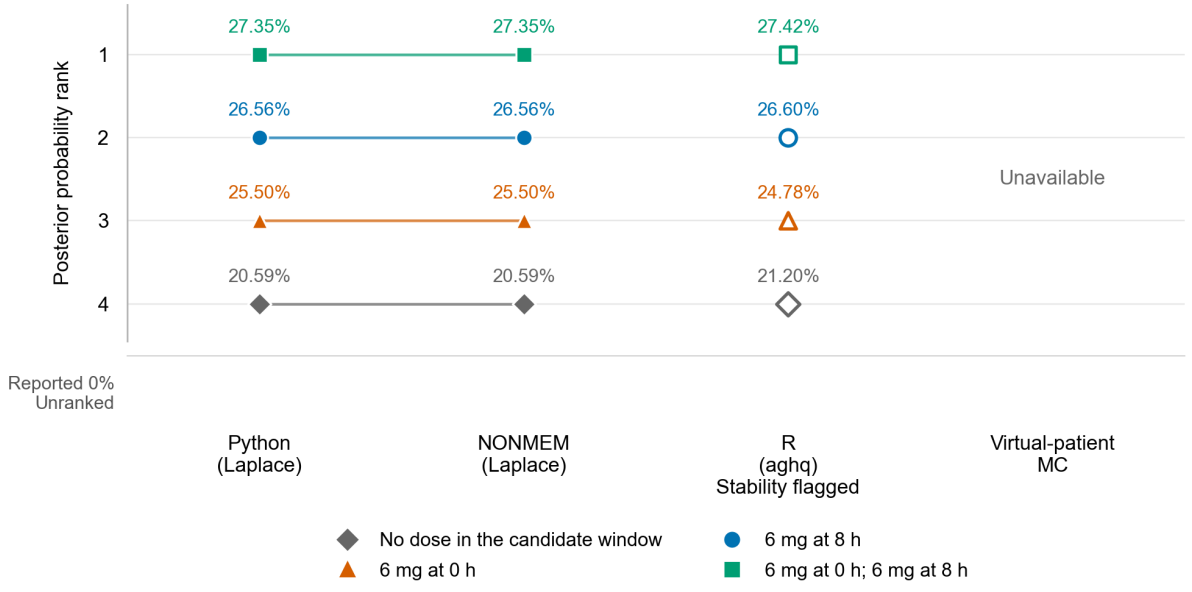
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.31024×10^{-8}	2.01698×10^{-8}	2.06390×10^{-8}	1.44595×10^{-8}
Python vs R aghq	7.20847×10^{-3}	7.20847×10^{-3}	9.50180×10^{-3}	6.97656×10^{-3}
NONMEM vs R aghq	7.20848×10^{-3}	7.20848×10^{-3}	9.50181×10^{-3}	6.97656×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20589603	0.20589603	0.21203209
ω_{01}: 6 mg at 0 h	0.25	0.25497216	0.25497217	0.24776369
ω_{10}: 6 mg at 8 h	0.25	0.26564180	0.26564179	0.26595908
ω_{11}: 6 mg at 0 h; 6 mg at 8 h	0.25	0.27349002	0.27349001	0.27424514

Method	P_{max}	G	H_N
Python Laplace	0.273490	0.007848	0.995859
NONMEM Laplace	0.273490	0.007848	0.995859
R aghq	0.274245	0.008286	0.996617

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c131: Candidate states

Candidate dose events: 6 mg at 0 h; 6 mg at 10 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

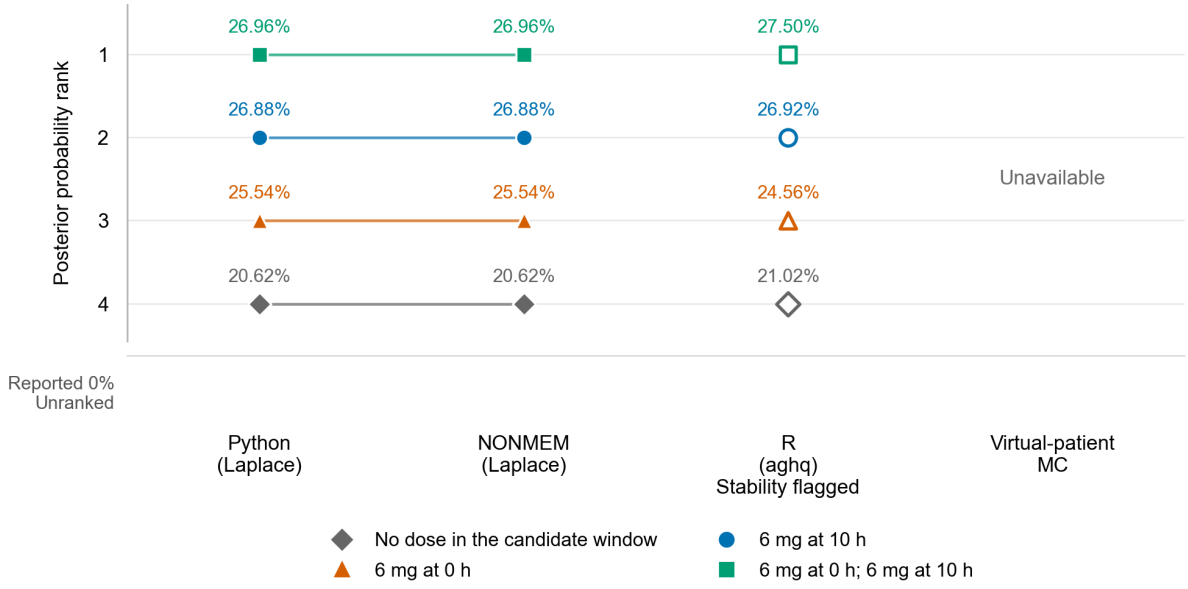
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.60754×10^{-8}	2.60754×10^{-8}	3.05186×10^{-8}	2.17060×10^{-8}
Python vs R aghq	9.75204×10^{-3}	9.75204×10^{-3}	0.011820	8.37726×10^{-3}
NONMEM vs R aghq	9.75202×10^{-3}	9.75202×10^{-3}	0.011820	8.37723×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20620639	0.20620641	0.21018426
ω_{01}: 6 mg at 0 h	0.25	0.25535650	0.25535648	0.24560446
ω_{10}: 6 mg at 10 h	0.25	0.26881161	0.26881162	0.26923796
ω_{11}: 6 mg at 0 h; 6 mg at 10 h	0.25	0.26962550	0.26962550	0.27497332

Method	P_{max}	G	H_N
Python Laplace	0.269625	0.000814	0.995975
NONMEM Laplace	0.269626	0.000814	0.995975
R aghq	0.274973	0.005735	0.996161

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c132: Candidate states

Candidate dose events: 6 mg at 0 h; 6 mg at 14 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

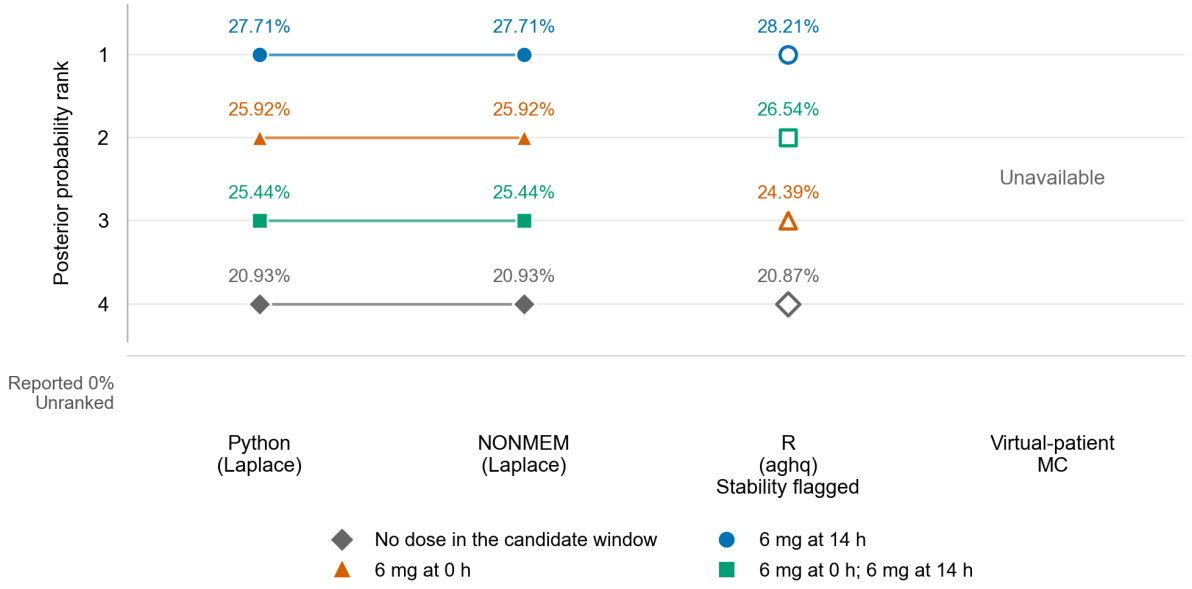
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	2.20826×10^{-8}	2.20826×10^{-8}	2.56956×10^{-8}	1.78638×10^{-8}
Python vs R aghq	0.015368	0.016009	0.019554	0.013671
NONMEM vs R aghq	0.015368	0.016009	0.019554	0.013672

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.20932654	0.20932653	0.20868506
ω_{01}: 6 mg at 0 h	0.25	0.25922035	0.25922037	0.24385262
ω_{10}: 6 mg at 14 h	0.25	0.27706134	0.27706133	0.28209550
ω_{11}: 6 mg at 0 h; 6 mg at 14 h	0.25	0.25439177	0.25439176	0.26536682

Method	P_{max}	G	H_N
Python Laplace	0.277061	0.017841	0.996303
NONMEM Laplace	0.277061	0.017841	0.996303
R aghq	0.282095	0.016729	0.995574

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c133: Candidate states

Candidate dose events: 6 mg at 0 h; 6 mg at 16 h.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	4
NONMEM Laplace	5/5	4
R aghq	5/5	4

Repeatability

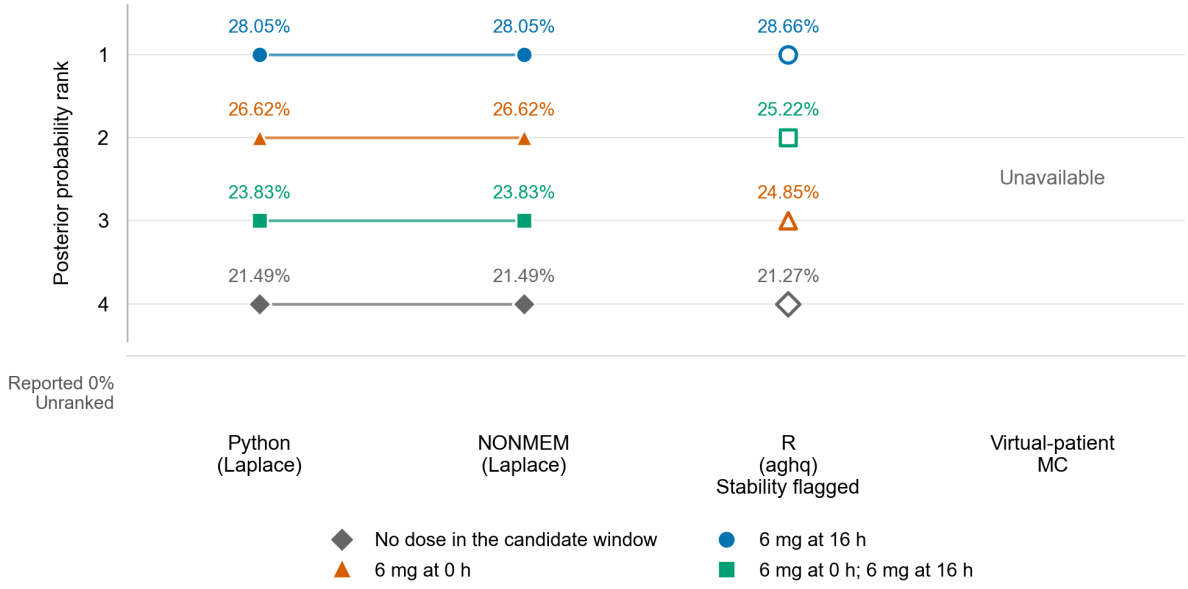
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	8.62017×10^{-9}	8.62017×10^{-9}	1.12062×10^{-8}	7.57038×10^{-9}
Python vs R aghq	0.017674	0.019952	0.023396	0.016414
NONMEM vs R aghq	0.017674	0.019952	0.023396	0.016414

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{00}: No dose in the candidate window	0.25	0.21494953	0.21494953	0.21267072
ω_{01}: 6 mg at 0 h	0.25	0.26618360	0.26618359	0.24850993
ω_{10}: 6 mg at 16 h	0.25	0.28053486	0.28053487	0.28658962
ω_{11}: 6 mg at 0 h; 6 mg at 16 h	0.25	0.23833201	0.23833201	0.25222973

Method	P_{max}	G	H_N
Python Laplace	0.280535	0.014351	0.996275
NONMEM Laplace	0.280535	0.014351	0.996275
R aghq	0.286590	0.034360	0.996027

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c134: Candidate states

Candidate dose times: 12 h; 2 candidate states.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	2
NONMEM Laplace	5/5	2
R aghq	5/5	2

Repeatability

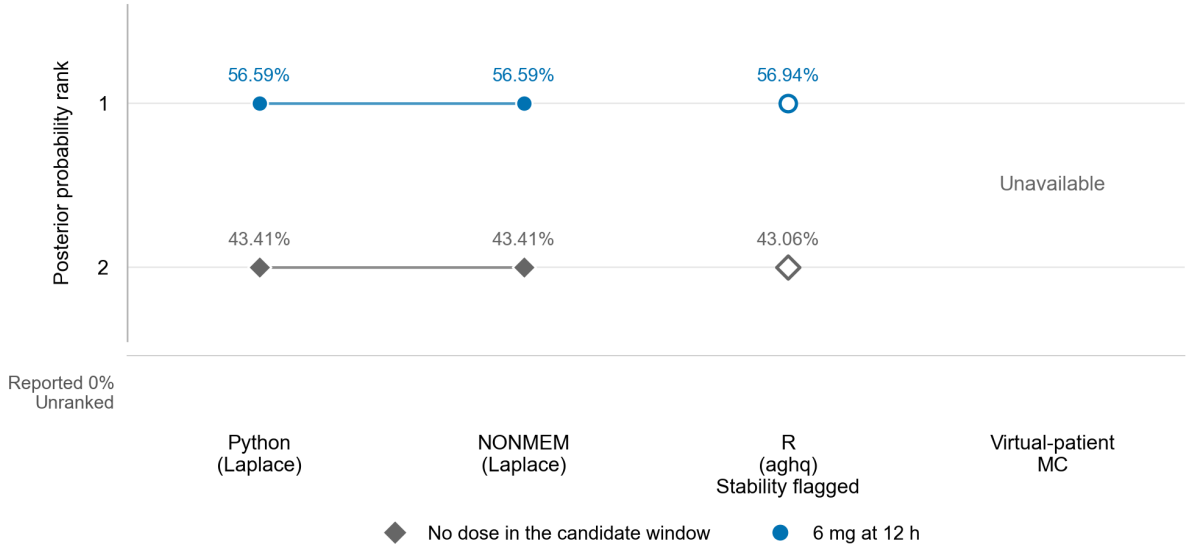
Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	4.55410×10^{-9}	4.55410×10^{-9}	6.44046×10^{-9}	3.24856×10^{-9}
Python vs R aghq	3.51949×10^{-3}	3.51949×10^{-3}	4.97731×10^{-3}	2.51175×10^{-3}
NONMEM vs R aghq	3.51949×10^{-3}	3.51949×10^{-3}	4.97731×10^{-3}	2.51176×10^{-3}

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_0: No dose in the candidate window	0.5	0.43411130	0.43411130	0.43059181
ω_1: 6 mg at 12 h	0.5	0.56588870	0.56588870	0.56940819

Method	P_{max}	G	H_N
Python Laplace	0.565889	0.131777	0.987437
NONMEM Laplace	0.565889	0.131777	0.987437
R aghq	0.569408	0.138816	0.986055

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

TAC c135: Candidate states

Candidate dose times: -12, 0, 12 h; 8 candidate states.

Observations: 12 ng/mL at 24 h.

Output availability

Computational route	Valid outputs/runs	States/run
Python Laplace	5/5	8
NONMEM Laplace	5/5	8
R aghq	5/5	8

Repeatability

Method	Max SD (raw)	Max range (raw)	Max SD (norm.)	Max range (norm.)
Python Laplace	0	0	0	0
NONMEM Laplace	0	0	0	0
R aghq	0	0	0	0

SD, sample standard deviation; raw, before normalization; norm., after normalization. Maxima are taken across candidate states.

Cross-method agreement

Method pair	d_∞	TV	d_2	d_H
Python vs NONMEM	1.24889×10^{-8}	1.50851×10^{-8}	1.52766×10^{-8}	1.57066×10^{-8}
Python vs R aghq	7.89686×10^{-3}	0.014097	0.011249	0.011268
NONMEM vs R aghq	7.89687×10^{-3}	0.014097	0.011249	0.011268

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.



Candidate-state rankings. Slashed circles denote reported zeros, shown without ranks. Hollow R markers denote outputs with unmet quadrature stability checks.

Posterior probability summaries

Candidate state and dosing history	Prior	Python Laplace	NONMEM Laplace	R aghq
ω_{000}: No dose in the candidate window	0.125	0.08578153	0.08578153	0.08886936
ω_{001}: 6 mg at -12 h	0.125	0.10768421	0.10768421	0.10415724
ω_{010}: 6 mg at 0 h	0.125	0.11526556	0.11526555	0.11259249
ω_{011}: 6 mg at -12 h; 6 mg at 0 h	0.125	0.13460358	0.13460359	0.12670672
ω_{100}: 6 mg at 12 h	0.125	0.13201188	0.13201188	0.13400931
ω_{101}: 6 mg at -12 h; 6 mg at 12 h	0.125	0.14300188	0.14300188	0.14445474
ω_{110}: 6 mg at 0 h; 6 mg at 12 h	0.125	0.14495536	0.14495536	0.14829407
ω_{111}: 6 mg at -12 h; 6 mg at 0 h; 6 mg at 12 h	0.125	0.13669600	0.13669600	0.14091606

Method	P_{max}	G	H_N
Python Laplace	0.144955	0.001953	0.994034
NONMEM Laplace	0.144955	0.001953	0.994034
R aghq	0.148294	0.003839	0.993708

P_{max}, maximum probability; G, top-two probability gap; H_N, normalized entropy.

Run times and numerical checks

Run times and numerical checks

Times are wall-clock times. Formal, pilot and historical runs retain their recorded status.

TAC c003

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	74.344
Python-Laplace	Formal 2	valid	61.188
Python-Laplace	Formal 3	valid	56.031
Python-Laplace	Formal 4	valid	59.906
Python-Laplace	Formal 5	valid	57.047
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.579
NONMEM-Laplace	Formal 3	valid	1.562
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.562
R aghq	Formal 1	qualified	64.125
R aghq	Formal 2	qualified	64.594
R aghq	Formal 3	qualified	63.156
R aghq	Formal 4	qualified	63.391
R aghq	Formal 5	qualified	121.344
R aghq	History 1: native_crash_0xC0000005	failed	62.61
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c001

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	78.219
Python-Laplace	Formal 2	valid	65.187
Python-Laplace	Formal 3	valid	63.578
Python-Laplace	Formal 4	valid	61.25
Python-Laplace	Formal 5	valid	61.188
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.657
R aghq	Formal 1	qualified	71.344
R aghq	Formal 2	qualified	72.938
R aghq	Formal 3	qualified	70.312
R aghq	Formal 4	qualified	70
R aghq	Formal 5	qualified	137.797
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c002

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	69.562
Python-Laplace	Formal 2	valid	56.656
Python-Laplace	Formal 3	valid	56.171
Python-Laplace	Formal 4	valid	55.954
Python-Laplace	Formal 5	valid	53.688
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.531
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	67.297
R aghq	Formal 2	qualified	67.64
R aghq	Formal 3	qualified	67.203
R aghq	Formal 4	qualified	65.375
R aghq	Formal 5	qualified	127.484
R aghq	History 2: user_interrupted_not_numerical_failure	not_assessed	Unavailable
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c004

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	70.765
Python-Laplace	Formal 2	valid	64.047
Python-Laplace	Formal 3	valid	59.375
Python-Laplace	Formal 4	valid	58.188
Python-Laplace	Formal 5	valid	58.687
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.593
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.562
R aghq	Formal 1	qualified	64.062
R aghq	Formal 2	qualified	65.984
R aghq	Formal 3	qualified	64.562
R aghq	Formal 4	qualified	64.562
R aghq	Formal 5	qualified	124.422
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c005

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	81.547
Python-Laplace	Formal 2	valid	76.625
Python-Laplace	Formal 3	valid	71.625
Python-Laplace	Formal 4	valid	69.797
Python-Laplace	Formal 5	valid	69.172
NONMEM-Laplace	Formal 1	valid	1.61
NONMEM-Laplace	Formal 2	valid	1.593
NONMEM-Laplace	Formal 3	valid	1.609
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	73.203
R aghq	Formal 2	qualified	72.219
R aghq	Formal 3	qualified	70.86
R aghq	Formal 4	qualified	71.578
R aghq	Formal 5	qualified	138.359
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c006

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.375
Python-Laplace	Formal 2	valid	60.625
Python-Laplace	Formal 3	valid	57.734
Python-Laplace	Formal 4	valid	53.907
Python-Laplace	Formal 5	valid	53.656
NONMEM-Laplace	Formal 1	valid	1.562
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.625
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	65.282
R aghq	Formal 2	qualified	64.125
R aghq	Formal 3	qualified	63.36
R aghq	Formal 4	qualified	63.657
R aghq	Formal 5	qualified	118.375
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c007

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.985
Python-Laplace	Formal 2	valid	62.11
Python-Laplace	Formal 3	valid	57.156
Python-Laplace	Formal 4	valid	52.484
Python-Laplace	Formal 5	valid	53.422
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.688
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	63.75
R aghq	Formal 2	qualified	64.265
R aghq	Formal 3	qualified	63.032
R aghq	Formal 4	qualified	62.766
R aghq	Formal 5	qualified	121.422
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c008

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.61
Python-Laplace	Formal 2	valid	63.016
Python-Laplace	Formal 3	valid	56.5
Python-Laplace	Formal 4	valid	53.657
Python-Laplace	Formal 5	valid	53.109
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.672
NONMEM-Laplace	Formal 3	valid	1.562
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	63.719
R aghq	Formal 2	qualified	64.875
R aghq	Formal 3	qualified	62.875
R aghq	Formal 4	qualified	62.765
R aghq	Formal 5	qualified	125.141
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c009

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	83.281
Python-Laplace	Formal 2	valid	67.953
Python-Laplace	Formal 3	valid	59.969
Python-Laplace	Formal 4	valid	57.281
Python-Laplace	Formal 5	valid	55.828
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.61
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	64.672
R aghq	Formal 2	qualified	65.672
R aghq	Formal 3	qualified	63.734
R aghq	Formal 4	qualified	62.766
R aghq	Formal 5	qualified	121.484
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c010

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	133.859
Python-Laplace	Formal 2	valid	71.875
Python-Laplace	Formal 3	valid	64.453
Python-Laplace	Formal 4	valid	63.578
Python-Laplace	Formal 5	valid	61.266
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.593
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.546
R aghq	Formal 1	qualified	64.594
R aghq	Formal 2	qualified	65.016
R aghq	Formal 3	qualified	63.437
R aghq	Formal 4	qualified	62.484
R aghq	Formal 5	qualified	122.063
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c011

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	110.938
Python-Laplace	Formal 2	valid	64.953
Python-Laplace	Formal 3	valid	58.718
Python-Laplace	Formal 4	valid	57.281
Python-Laplace	Formal 5	valid	55.609
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	62.953
R aghq	Formal 2	qualified	64.313
R aghq	Formal 3	qualified	63.328
R aghq	Formal 4	qualified	63.281
R aghq	Formal 5	qualified	123.391
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c012

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.062
Python-Laplace	Formal 2	valid	59.875
Python-Laplace	Formal 3	valid	55.781
Python-Laplace	Formal 4	valid	54.391
Python-Laplace	Formal 5	valid	53.578
NONMEM-Laplace	Formal 1	valid	1.546
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.563
R aghq	Formal 1	qualified	63.14
R aghq	Formal 2	qualified	64.218
R aghq	Formal 3	qualified	63.656
R aghq	Formal 4	qualified	62.218
R aghq	Formal 5	qualified	117.922
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c013

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.093
Python-Laplace	Formal 2	valid	61.328
Python-Laplace	Formal 3	valid	55.922
Python-Laplace	Formal 4	valid	55.219
Python-Laplace	Formal 5	valid	54.187
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	72.438
R aghq	Formal 2	qualified	66.469
R aghq	Formal 3	qualified	65.125
R aghq	Formal 4	qualified	64.141
R aghq	Formal 5	qualified	125.938
R aghq	History 1: native_crash_0xC0000005	failed	27.344
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c014

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.281
Python-Laplace	Formal 2	valid	62.156
Python-Laplace	Formal 3	valid	55.344
Python-Laplace	Formal 4	valid	54.953
Python-Laplace	Formal 5	valid	53.781
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.625
NONMEM-Laplace	Formal 4	valid	1.469
NONMEM-Laplace	Formal 5	valid	1.593
R aghq	Formal 1	qualified	66.671
R aghq	Formal 2	qualified	66.719
R aghq	Formal 3	qualified	65.437
R aghq	Formal 4	qualified	64.344
R aghq	Formal 5	qualified	125.594
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c015

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.609
Python-Laplace	Formal 2	valid	60.344
Python-Laplace	Formal 3	valid	55.703
Python-Laplace	Formal 4	valid	56.75
Python-Laplace	Formal 5	valid	53.859
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.64
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	65.922
R aghq	Formal 2	qualified	65.562
R aghq	Formal 3	qualified	64.094
R aghq	Formal 4	qualified	62.797
R aghq	Formal 5	qualified	123.907
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c016

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.172
Python-Laplace	Formal 2	valid	63.938
Python-Laplace	Formal 3	valid	57.844
Python-Laplace	Formal 4	valid	55.625
Python-Laplace	Formal 5	valid	55.047
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.593
NONMEM-Laplace	Formal 4	valid	1.579
NONMEM-Laplace	Formal 5	valid	1.688
R aghq	Formal 1	qualified	64.922
R aghq	Formal 2	qualified	65.14
R aghq	Formal 3	qualified	63.156
R aghq	Formal 4	qualified	63.172
R aghq	Formal 5	qualified	121.594
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c017

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.203
Python-Laplace	Formal 2	valid	62.5
Python-Laplace	Formal 3	valid	57.89
Python-Laplace	Formal 4	valid	55.891
Python-Laplace	Formal 5	valid	54.657
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.64
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	65.11
R aghq	Formal 2	qualified	63.891
R aghq	Formal 3	qualified	63.421
R aghq	Formal 4	qualified	62.312
R aghq	Formal 5	qualified	121.25
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c018

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.734
Python-Laplace	Formal 2	valid	56.375
Python-Laplace	Formal 3	valid	55
Python-Laplace	Formal 4	valid	53.266
Python-Laplace	Formal 5	valid	52.61
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.593
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	67
R aghq	Formal 2	qualified	65.641
R aghq	Formal 3	qualified	64.735
R aghq	Formal 4	qualified	64.454
R aghq	Formal 5	qualified	124.328
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c019

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.484
Python-Laplace	Formal 2	valid	56.766
Python-Laplace	Formal 3	valid	53.828
Python-Laplace	Formal 4	valid	52.313
Python-Laplace	Formal 5	valid	51.157
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	64.531
R aghq	Formal 2	qualified	64.156
R aghq	Formal 3	qualified	62.922
R aghq	Formal 4	qualified	62.422
R aghq	Formal 5	qualified	122.281
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c020

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.656
Python-Laplace	Formal 2	valid	62.609
Python-Laplace	Formal 3	valid	60.188
Python-Laplace	Formal 4	valid	56.453
Python-Laplace	Formal 5	valid	55.485
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.61
NONMEM-Laplace	Formal 3	valid	1.672
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	64.422
R aghq	Formal 2	qualified	64.969
R aghq	Formal 3	qualified	63.437
R aghq	Formal 4	qualified	62.266
R aghq	Formal 5	qualified	121.422
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c021

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.438
Python-Laplace	Formal 2	valid	62.219
Python-Laplace	Formal 3	valid	61.234
Python-Laplace	Formal 4	valid	58.344
Python-Laplace	Formal 5	valid	56.594
NONMEM-Laplace	Formal 1	valid	1.562
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	63.828
R aghq	Formal 2	qualified	64.719
R aghq	Formal 3	qualified	63
R aghq	Formal 4	qualified	62.032
R aghq	Formal 5	qualified	123.594
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c022

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.391
Python-Laplace	Formal 2	valid	58.953
Python-Laplace	Formal 3	valid	59.563
Python-Laplace	Formal 4	valid	57.641
Python-Laplace	Formal 5	valid	55.718
NONMEM-Laplace	Formal 1	valid	1.562
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.641
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	65.047
R aghq	Formal 2	qualified	64.188
R aghq	Formal 3	qualified	63.516
R aghq	Formal 4	qualified	62.563
R aghq	Formal 5	qualified	121.953
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c023

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.406
Python-Laplace	Formal 2	valid	59.235
Python-Laplace	Formal 3	valid	60.657
Python-Laplace	Formal 4	valid	56.844
Python-Laplace	Formal 5	valid	56.094
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.593
NONMEM-Laplace	Formal 3	valid	1.593
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	64.625
R aghq	Formal 2	qualified	64.015
R aghq	Formal 3	qualified	63.453
R aghq	Formal 4	qualified	62.875
R aghq	Formal 5	qualified	121.734
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c024

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.641
Python-Laplace	Formal 2	valid	59.171
Python-Laplace	Formal 3	valid	58.422
Python-Laplace	Formal 4	valid	57.531
Python-Laplace	Formal 5	valid	55.515
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	65.5
R aghq	Formal 2	qualified	63.579
R aghq	Formal 3	qualified	63.156
R aghq	Formal 4	qualified	62.312
R aghq	Formal 5	qualified	118.875
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c025

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.015
Python-Laplace	Formal 2	valid	53.688
Python-Laplace	Formal 3	valid	55.453
Python-Laplace	Formal 4	valid	52.688
Python-Laplace	Formal 5	valid	51.219
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.812
NONMEM-Laplace	Formal 3	valid	1.64
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	65.703
R aghq	Formal 2	qualified	64.406
R aghq	Formal 3	qualified	62.703
R aghq	Formal 4	qualified	62.688
R aghq	Formal 5	qualified	121.297
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c026

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.641
Python-Laplace	Formal 2	valid	57.672
Python-Laplace	Formal 3	valid	66.532
Python-Laplace	Formal 4	valid	56.578
Python-Laplace	Formal 5	valid	55.61
NONMEM-Laplace	Formal 1	valid	1.593
NONMEM-Laplace	Formal 2	valid	1.75
NONMEM-Laplace	Formal 3	valid	1.625
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	73.188
R aghq	Formal 2	qualified	72.125
R aghq	Formal 3	qualified	69.984
R aghq	Formal 4	qualified	69.844
R aghq	Formal 5	qualified	137.719
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c027

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.36
Python-Laplace	Formal 2	valid	53.797
Python-Laplace	Formal 3	valid	61.89
Python-Laplace	Formal 4	valid	52.781
Python-Laplace	Formal 5	valid	51.907
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.579
NONMEM-Laplace	Formal 3	valid	1.609
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	77.5
R aghq	Formal 2	qualified	67.547
R aghq	Formal 3	qualified	65.921
R aghq	Formal 4	qualified	65.047
R aghq	Formal 5	qualified	127.922
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c028

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.203
Python-Laplace	Formal 2	valid	59.125
Python-Laplace	Formal 3	valid	61.234
Python-Laplace	Formal 4	valid	58.469
Python-Laplace	Formal 5	valid	56.453
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.579
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.609
R aghq	Formal 1	qualified	137.562
R aghq	Formal 2	qualified	65.625
R aghq	Formal 3	qualified	64.812
R aghq	Formal 4	qualified	63.656
R aghq	Formal 5	qualified	120.531
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c029

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	66.453
Python-Laplace	Formal 2	valid	63.438
Python-Laplace	Formal 3	valid	65.531
Python-Laplace	Formal 4	valid	64.282
Python-Laplace	Formal 5	valid	62.328
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.625
NONMEM-Laplace	Formal 4	valid	1.734
NONMEM-Laplace	Formal 5	valid	1.64
R aghq	Formal 1	qualified	145.547
R aghq	Formal 2	qualified	70.36
R aghq	Formal 3	qualified	69.218
R aghq	Formal 4	qualified	68.36
R aghq	Formal 5	qualified	131.032
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c030

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.328
Python-Laplace	Formal 2	valid	54.437
Python-Laplace	Formal 3	valid	60.453
Python-Laplace	Formal 4	valid	54.562
Python-Laplace	Formal 5	valid	52.781
NONMEM-Laplace	Formal 1	valid	1.719
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.688
R aghq	Formal 1	qualified	65.562
R aghq	Formal 2	qualified	65.594
R aghq	Formal 3	qualified	64.172
R aghq	Formal 4	qualified	62.719
R aghq	Formal 5	qualified	122.907
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c031

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.562
Python-Laplace	Formal 2	valid	54.187
Python-Laplace	Formal 3	valid	60.344
Python-Laplace	Formal 4	valid	53.656
Python-Laplace	Formal 5	valid	52.578
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.593
NONMEM-Laplace	Formal 3	valid	1.5
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.687
R aghq	Formal 1	qualified	65.391
R aghq	Formal 2	qualified	65.156
R aghq	Formal 3	qualified	63.812
R aghq	Formal 4	qualified	62.672
R aghq	Formal 5	qualified	119.047
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c032

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	56.125
Python-Laplace	Formal 2	valid	53.203
Python-Laplace	Formal 3	valid	62.063
Python-Laplace	Formal 4	valid	53.843
Python-Laplace	Formal 5	valid	52.468
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.734
R aghq	Formal 1	qualified	66.078
R aghq	Formal 2	qualified	65.031
R aghq	Formal 3	qualified	63.687
R aghq	Formal 4	qualified	62.375
R aghq	Formal 5	qualified	121.984
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c033

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.515
Python-Laplace	Formal 2	valid	53.14
Python-Laplace	Formal 3	valid	61.829
Python-Laplace	Formal 4	valid	55.031
Python-Laplace	Formal 5	valid	52.406
NONMEM-Laplace	Formal 1	valid	1.64
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.516
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	66.906
R aghq	Formal 2	qualified	64.859
R aghq	Formal 3	qualified	63.828
R aghq	Formal 4	qualified	62.969
R aghq	Formal 5	qualified	123.078
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c034

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.672
Python-Laplace	Formal 2	valid	57.094
Python-Laplace	Formal 3	valid	80.594
Python-Laplace	Formal 4	valid	58.031
Python-Laplace	Formal 5	valid	57.015
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.641
NONMEM-Laplace	Formal 3	valid	1.516
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.657
R aghq	Formal 1	qualified	65.297
R aghq	Formal 2	qualified	63.64
R aghq	Formal 3	qualified	63.219
R aghq	Formal 4	qualified	62.078
R aghq	Formal 5	qualified	120.641
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c035

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	63.187
Python-Laplace	Formal 2	valid	59.141
Python-Laplace	Formal 3	valid	82.578
Python-Laplace	Formal 4	valid	60.109
Python-Laplace	Formal 5	valid	59.359
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.61
R aghq	Formal 1	qualified	64.015
R aghq	Formal 2	qualified	64.016
R aghq	Formal 3	qualified	63.047
R aghq	Formal 4	qualified	62.063
R aghq	Formal 5	qualified	120.625
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c036

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	67.438
Python-Laplace	Formal 2	valid	64.937
Python-Laplace	Formal 3	valid	74.593
Python-Laplace	Formal 4	valid	64.39
Python-Laplace	Formal 5	valid	63.578
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	63.843
R aghq	Formal 2	qualified	63.766
R aghq	Formal 3	qualified	62.938
R aghq	Formal 4	qualified	61.469
R aghq	Formal 5	qualified	119.985
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c037

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	77.547
Python-Laplace	Formal 2	valid	74.828
Python-Laplace	Formal 3	valid	87.187
Python-Laplace	Formal 4	valid	73.406
Python-Laplace	Formal 5	valid	72.906
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.64
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.593
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	65.391
R aghq	Formal 2	qualified	63.64
R aghq	Formal 3	qualified	62.422
R aghq	Formal 4	qualified	61.61
R aghq	Formal 5	qualified	120.704
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c038

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.219
Python-Laplace	Formal 2	valid	56
Python-Laplace	Formal 3	valid	62.141
Python-Laplace	Formal 4	valid	57.968
Python-Laplace	Formal 5	valid	54.391
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.61
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	65.328
R aghq	Formal 2	qualified	64.36
R aghq	Formal 3	qualified	63.047
R aghq	Formal 4	qualified	62.421
R aghq	Formal 5	qualified	122.656
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c039

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	56.984
Python-Laplace	Formal 2	valid	56.266
Python-Laplace	Formal 3	valid	60.282
Python-Laplace	Formal 4	valid	56.422
Python-Laplace	Formal 5	valid	53.781
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.687
NONMEM-Laplace	Formal 4	valid	1.593
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	64.797
R aghq	Formal 2	qualified	64.703
R aghq	Formal 3	qualified	63.485
R aghq	Formal 4	qualified	62.36
R aghq	Formal 5	qualified	121.547
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c040

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	56.016
Python-Laplace	Formal 2	valid	55.672
Python-Laplace	Formal 3	valid	62.859
Python-Laplace	Formal 4	valid	55.266
Python-Laplace	Formal 5	valid	54.187
NONMEM-Laplace	Formal 1	valid	1.656
NONMEM-Laplace	Formal 2	valid	1.641
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.671
NONMEM-Laplace	Formal 5	valid	1.64
R aghq	Formal 1	qualified	65.844
R aghq	Formal 2	qualified	64.484
R aghq	Formal 3	qualified	63.703
R aghq	Formal 4	qualified	63.344
R aghq	Formal 5	qualified	121.454
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c041

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.469
Python-Laplace	Formal 2	valid	56.984
Python-Laplace	Formal 3	valid	68.328
Python-Laplace	Formal 4	valid	57.828
Python-Laplace	Formal 5	valid	55.906
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.656
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.547
R aghq	Formal 1	qualified	65.953
R aghq	Formal 2	qualified	64.797
R aghq	Formal 3	qualified	63.329
R aghq	Formal 4	qualified	62.734
R aghq	Formal 5	qualified	121.735
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c042

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.25
Python-Laplace	Formal 2	valid	56.734
Python-Laplace	Formal 3	valid	68.532
Python-Laplace	Formal 4	valid	62
Python-Laplace	Formal 5	valid	55.671
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	66
R aghq	Formal 2	qualified	64.218
R aghq	Formal 3	qualified	62.594
R aghq	Formal 4	qualified	61.937
R aghq	Formal 5	qualified	120.11
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c043

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.578
Python-Laplace	Formal 2	valid	58.203
Python-Laplace	Formal 3 (replacement; original preserved)	valid	58.515
Python-Laplace	Formal 4	valid	61.906
Python-Laplace	Formal 5	valid	56.063
Python-Laplace	Superseded formal r03: user_interruption	incomplete	Unavailable
NONMEM-Laplace	Formal 1	valid	1.61
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.656
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	66.297
R aghq	Formal 2	qualified	64.328
R aghq	Formal 3	qualified	63.094
R aghq	Formal 4	qualified	61.547
R aghq	Formal 5	qualified	117.563
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c044

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.438
Python-Laplace	Formal 2	valid	57.157
Python-Laplace	Formal 3 (replacement; original preserved)	valid	59.078
Python-Laplace	Formal 4	valid	61.375
Python-Laplace	Formal 5	valid	56.985
Python-Laplace	Superseded formal r03: user_interruption	incomplete	Unavailable
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.61
R aghq	Formal 1	qualified	64.781
R aghq	Formal 2	qualified	63.921
R aghq	Formal 3	qualified	62.36
R aghq	Formal 4	qualified	61.797
R aghq	Formal 5	qualified	117
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c045

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.391
Python-Laplace	Formal 2	valid	58.563
Python-Laplace	Formal 3	valid	58.297
Python-Laplace	Formal 4	valid	66.828
Python-Laplace	Formal 5	valid	58.609
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	64.109
R aghq	Formal 2	qualified	63.375
R aghq	Formal 3	qualified	62.813
R aghq	Formal 4	qualified	61.922
R aghq	Formal 5	qualified	120.859
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c046

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	56.468
Python-Laplace	Formal 2	valid	55.984
Python-Laplace	Formal 3	valid	55.25
Python-Laplace	Formal 4	valid	61.469
Python-Laplace	Formal 5	valid	55.562
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.687
R aghq	Formal 1	qualified	64.89
R aghq	Formal 2	qualified	63.281
R aghq	Formal 3	qualified	63.344
R aghq	Formal 4	qualified	62.282
R aghq	Formal 5	qualified	117.359
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c047

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	56.578
Python-Laplace	Formal 2	valid	58.938
Python-Laplace	Formal 3	valid	55.656
Python-Laplace	Formal 4	valid	59.156
Python-Laplace	Formal 5	valid	55.406
NONMEM-Laplace	Formal 1	valid	1.656
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.657
R aghq	Formal 1	qualified	64.359
R aghq	Formal 2	qualified	64.156
R aghq	Formal 3	qualified	63.093
R aghq	Formal 4	qualified	62.266
R aghq	Formal 5	qualified	120.843
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c048

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.922
Python-Laplace	Formal 2	valid	61.578
Python-Laplace	Formal 3	valid	55.391
Python-Laplace	Formal 4	valid	59.375
Python-Laplace	Formal 5	valid	55.735
NONMEM-Laplace	Formal 1	valid	1.61
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	63.968
R aghq	Formal 2	qualified	64.015
R aghq	Formal 3	qualified	62.938
R aghq	Formal 4	qualified	62.125
R aghq	Formal 5	qualified	121.141
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c049

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.625
Python-Laplace	Formal 2	valid	59.672
Python-Laplace	Formal 3	valid	55.063
Python-Laplace	Formal 4	valid	59.703
Python-Laplace	Formal 5	valid	55.875
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.532
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	63.813
R aghq	Formal 2	qualified	64.844
R aghq	Formal 3	qualified	62.984
R aghq	Formal 4	qualified	61.797
R aghq	Formal 5	qualified	118.234
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c050

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.125
Python-Laplace	Formal 2	valid	55.891
Python-Laplace	Formal 3	valid	54.937
Python-Laplace	Formal 4	valid	62.875
Python-Laplace	Formal 5	valid	55.797
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.562
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	65.063
R aghq	Formal 2	qualified	63.64
R aghq	Formal 3	qualified	63.297
R aghq	Formal 4	qualified	62.609
R aghq	Formal 5	qualified	118.031
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c051

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.188
Python-Laplace	Formal 2	valid	55.265
Python-Laplace	Formal 3	valid	55.078
Python-Laplace	Formal 4	valid	57.359
Python-Laplace	Formal 5	valid	55.469
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	63.703
R aghq	Formal 2	qualified	63
R aghq	Formal 3	qualified	63.047
R aghq	Formal 4	qualified	62.719
R aghq	Formal 5	qualified	119
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c052

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.875
Python-Laplace	Formal 2	valid	57.641
Python-Laplace	Formal 3	valid	56.14
Python-Laplace	Formal 4	valid	63.234
Python-Laplace	Formal 5	valid	57
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.641
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.657
R aghq	Formal 1	qualified	63.609
R aghq	Formal 2	qualified	63.735
R aghq	Formal 3	qualified	63.484
R aghq	Formal 4	qualified	62.671
R aghq	Formal 5	qualified	118.953
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c053

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	62.39
Python-Laplace	Formal 2	valid	61.11
Python-Laplace	Formal 3	valid	58.093
Python-Laplace	Formal 4	valid	63.297
Python-Laplace	Formal 5	valid	58.562
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.64
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	62.469
R aghq	Formal 2	qualified	63.187
R aghq	Formal 3	qualified	63.563
R aghq	Formal 4	qualified	62.234
R aghq	Formal 5	qualified	121.578
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c054

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.562
Python-Laplace	Formal 2	valid	53.063
Python-Laplace	Formal 3	valid	50.844
Python-Laplace	Formal 4	valid	53.172
Python-Laplace	Formal 5	valid	51.938
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.562
NONMEM-Laplace	Formal 4	valid	1.593
NONMEM-Laplace	Formal 5	valid	1.64
R aghq	Formal 1	qualified	62.641
R aghq	Formal 2	qualified	64.032
R aghq	Formal 3	qualified	62.938
R aghq	Formal 4	qualified	61.703
R aghq	Formal 5	qualified	120.922
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c055

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.703
Python-Laplace	Formal 2	valid	51.219
Python-Laplace	Formal 3	valid	51.297
Python-Laplace	Formal 4	valid	52.953
Python-Laplace	Formal 5	valid	52.281
NONMEM-Laplace	Formal 1	valid	1.61
NONMEM-Laplace	Formal 2	valid	1.64
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	64.844
R aghq	Formal 2	qualified	63.188
R aghq	Formal 3	qualified	62.625
R aghq	Formal 4	qualified	61.829
R aghq	Formal 5	qualified	120.875
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c056

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.312
Python-Laplace	Formal 2	valid	51.562
Python-Laplace	Formal 3	valid	51.39
Python-Laplace	Formal 4	valid	54.094
Python-Laplace	Formal 5	valid	52.25
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	64.234
R aghq	Formal 2	qualified	63.11
R aghq	Formal 3	qualified	62.891
R aghq	Formal 4	qualified	62.063
R aghq	Formal 5	qualified	122.829
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c057

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.985
Python-Laplace	Formal 2	valid	51.61
Python-Laplace	Formal 3	valid	52.422
Python-Laplace	Formal 4	valid	54.531
Python-Laplace	Formal 5	valid	52.25
NONMEM-Laplace	Formal 1	valid	1.656
NONMEM-Laplace	Formal 2	valid	1.656
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.64
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	64.578
R aghq	Formal 2	qualified	63.235
R aghq	Formal 3	qualified	63.047
R aghq	Formal 4	qualified	62.156
R aghq	Formal 5	qualified	119.281
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c058

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	63.235
Python-Laplace	Formal 2	valid	60.188
Python-Laplace	Formal 3	valid	60.031
Python-Laplace	Formal 4	valid	61.469
Python-Laplace	Formal 5	valid	60.516
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.656
NONMEM-Laplace	Formal 3	valid	1.546
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	64.391
R aghq	Formal 2	qualified	63.187
R aghq	Formal 3	qualified	63.875
R aghq	Formal 4	qualified	62.734
R aghq	Formal 5	qualified	122.921
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c059

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	63.203
Python-Laplace	Formal 2	valid	61.5
Python-Laplace	Formal 3	valid	59.156
Python-Laplace	Formal 4	valid	60.641
Python-Laplace	Formal 5	valid	60
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.61
NONMEM-Laplace	Formal 3	valid	1.532
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	64.39
R aghq	Formal 2	qualified	63.516
R aghq	Formal 3	qualified	63.89
R aghq	Formal 4	qualified	62.484
R aghq	Formal 5	qualified	125.282
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c060

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	70.469
Python-Laplace	Formal 2	valid	66.344
Python-Laplace	Formal 3	valid	65
Python-Laplace	Formal 4	valid	67.203
Python-Laplace	Formal 5	valid	66.344
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.515
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.657
R aghq	Formal 1	qualified	65.734
R aghq	Formal 2	qualified	64.89
R aghq	Formal 3	qualified	64.375
R aghq	Formal 4	qualified	63.125
R aghq	Formal 5	qualified	120.75
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c061

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	80.453
Python-Laplace	Formal 2	valid	75.297
Python-Laplace	Formal 3	valid	72.719
Python-Laplace	Formal 4	valid	79.687
Python-Laplace	Formal 5	valid	75.078
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.563
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	65.687
R aghq	Formal 2	qualified	64.703
R aghq	Formal 3	qualified	64.469
R aghq	Formal 4	qualified	63.594
R aghq	Formal 5	qualified	126.281
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c062

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.437
Python-Laplace	Formal 2	valid	53.75
Python-Laplace	Formal 3	valid	52.375
Python-Laplace	Formal 4	valid	55.922
Python-Laplace	Formal 5	valid	53.625
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.593
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	64.047
R aghq	Formal 2	qualified	63.218
R aghq	Formal 3	qualified	63.125
R aghq	Formal 4	qualified	62.282
R aghq	Formal 5	qualified	120.719
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c063

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.266
Python-Laplace	Formal 2	valid	54.672
Python-Laplace	Formal 3	valid	52.859
Python-Laplace	Formal 4	valid	57.094
Python-Laplace	Formal 5	valid	53.734
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.656
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	63.828
R aghq	Formal 2	qualified	63.25
R aghq	Formal 3	qualified	63.453
R aghq	Formal 4	qualified	62.125
R aghq	Formal 5	qualified	117.547
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c064

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.922
Python-Laplace	Formal 2	valid	54.359
Python-Laplace	Formal 3	valid	53.141
Python-Laplace	Formal 4	valid	55.313
Python-Laplace	Formal 5	valid	53.75
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.61
NONMEM-Laplace	Formal 3	valid	1.625
NONMEM-Laplace	Formal 4	valid	1.703
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	64.562
R aghq	Formal 2	qualified	63.062
R aghq	Formal 3	qualified	63.157
R aghq	Formal 4	qualified	61.703
R aghq	Formal 5	qualified	119.875
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c065

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.657
Python-Laplace	Formal 2	valid	54.297
Python-Laplace	Formal 3	valid	53.406
Python-Laplace	Formal 4	valid	56.672
Python-Laplace	Formal 5	valid	54
NONMEM-Laplace	Formal 1	valid	1.656
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.546
NONMEM-Laplace	Formal 4	valid	1.719
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	64.406
R aghq	Formal 2	qualified	63.703
R aghq	Formal 3	qualified	63.203
R aghq	Formal 4	qualified	62.172
R aghq	Formal 5	qualified	123.218
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c066

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	62.703
Python-Laplace	Formal 2	valid	57.063
Python-Laplace	Formal 3	valid	55.735
Python-Laplace	Formal 4	valid	58.032
Python-Laplace	Formal 5	valid	57.453
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.828
NONMEM-Laplace	Formal 4	valid	1.781
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	64.343
R aghq	Formal 2	qualified	62.968
R aghq	Formal 3	qualified	62.954
R aghq	Formal 4	qualified	62.359
R aghq	Formal 5	qualified	121.234
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c067

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	67.703
Python-Laplace	Formal 2	valid	62.109
Python-Laplace	Formal 3	valid	60.454
Python-Laplace	Formal 4	valid	63.484
Python-Laplace	Formal 5	valid	61.64
NONMEM-Laplace	Formal 1	valid	1.672
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	65.266
R aghq	Formal 2	qualified	63.14
R aghq	Formal 3	qualified	63.172
R aghq	Formal 4	qualified	62.375
R aghq	Formal 5	qualified	120.578
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c068

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	69.047
Python-Laplace	Formal 2	valid	65.406
Python-Laplace	Formal 3	valid	63.188
Python-Laplace	Formal 4	valid	65.719
Python-Laplace	Formal 5	valid	63.875
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	64.516
R aghq	Formal 2	qualified	63.016
R aghq	Formal 3	qualified	63.64
R aghq	Formal 4	qualified	62.344
R aghq	Formal 5	qualified	120.828
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c069

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	69.859
Python-Laplace	Formal 2	valid	67.765
Python-Laplace	Formal 3	valid	65
Python-Laplace	Formal 4	valid	67.625
Python-Laplace	Formal 5	valid	65.328
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.562
NONMEM-Laplace	Formal 4	valid	1.735
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	63.672
R aghq	Formal 2	qualified	63.344
R aghq	Formal 3	qualified	63.781
R aghq	Formal 4	qualified	62.593
R aghq	Formal 5	qualified	13601.594
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c070

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.125
Python-Laplace	Formal 2	valid	59.5
Python-Laplace	Formal 3	valid	55.61
Python-Laplace	Formal 4	valid	57.453
Python-Laplace	Formal 5	valid	55.375
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.562
NONMEM-Laplace	Formal 4	valid	1.641
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	63.171
R aghq	Formal 2	qualified	63.469
R aghq	Formal 3	qualified	63.093
R aghq	Formal 4	qualified	62.297
R aghq	Formal 5	qualified	73.672
R aghq	History 5: unexpected_process_disappearance_cause_unconfirmed	not_assessed	Unavailable
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c071

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	62.016
Python-Laplace	Formal 2	valid	60.343
Python-Laplace	Formal 3	valid	55.469
Python-Laplace	Formal 4	valid	58.359
Python-Laplace	Formal 5	valid	55.625
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.657
NONMEM-Laplace	Formal 5	valid	1.734
R aghq	Formal 1	qualified	62.359
R aghq	Formal 2	qualified	63.531
R aghq	Formal 3	qualified	63.406
R aghq	Formal 4	qualified	62.047
R aghq	Formal 5	qualified	66.5
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c072

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.984
Python-Laplace	Formal 2	valid	59.469
Python-Laplace	Formal 3	valid	55.344
Python-Laplace	Formal 4	valid	61.14
Python-Laplace	Formal 5	valid	55.313
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.61
NONMEM-Laplace	Formal 3	valid	1.532
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	62.594
R aghq	Formal 2	qualified	63.188
R aghq	Formal 3	qualified	63.078
R aghq	Formal 4	qualified	62.609
R aghq	Formal 5	qualified	99.641
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c073

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.344
Python-Laplace	Formal 2	valid	58.891
Python-Laplace	Formal 3	valid	54.579
Python-Laplace	Formal 4	valid	58.406
Python-Laplace	Formal 5	valid	56.954
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	63.984
R aghq	Formal 2	qualified	62.906
R aghq	Formal 3	qualified	63.14
R aghq	Formal 4	qualified	61.625
R aghq	Formal 5	qualified	76.109
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c074

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	62.187
Python-Laplace	Formal 2	valid	57.11
Python-Laplace	Formal 3	valid	54.594
Python-Laplace	Formal 4	valid	57.5
Python-Laplace	Formal 5	valid	55.36
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	64.406
R aghq	Formal 2	qualified	62.937
R aghq	Formal 3	qualified	62.359
R aghq	Formal 4	qualified	61.718
R aghq	Formal 5	qualified	68.25
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c075

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	62.469
Python-Laplace	Formal 2	valid	55.781
Python-Laplace	Formal 3	valid	54.625
Python-Laplace	Formal 4	valid	57
Python-Laplace	Formal 5	valid	56.188
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	63.156
R aghq	Formal 2	qualified	62.484
R aghq	Formal 3	qualified	62.687
R aghq	Formal 4	qualified	129.484
R aghq	Formal 5	qualified	68.5
R aghq	History 4: unexpected_system_reboot_and_unverifiable_output	not_assessed	Unavailable
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c076

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.781
Python-Laplace	Formal 2	valid	56.172
Python-Laplace	Formal 3	valid	55.406
Python-Laplace	Formal 4	valid	57.266
Python-Laplace	Formal 5	valid	56.156
NONMEM-Laplace	Formal 1	valid	1.64
NONMEM-Laplace	Formal 2	valid	1.61
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	63.312
R aghq	Formal 2	qualified	63.844
R aghq	Formal 3	qualified	63.687
R aghq	Formal 4	qualified	122.906
R aghq	Formal 5	qualified	78.531
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c077

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	62.828
Python-Laplace	Formal 2	valid	55.875
Python-Laplace	Formal 3	valid	55.203
Python-Laplace	Formal 4	valid	57.11
Python-Laplace	Formal 5	valid	55.844
NONMEM-Laplace	Formal 1	valid	1.64
NONMEM-Laplace	Formal 2	valid	1.704
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.64
R aghq	Formal 1	qualified	63.422
R aghq	Formal 2	qualified	63.579
R aghq	Formal 3	qualified	63.265
R aghq	Formal 4	qualified	125.078
R aghq	Formal 5	qualified	126.875
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: covariance-roundoff warnings (<=2 ULP) were recorded.

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c078

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	failed	3.985
Python-Laplace	Formal 2	failed	3.735
Python-Laplace	Formal 3	failed	3.625
Python-Laplace	Formal 4	failed	3.594
Python-Laplace	Formal 5	failed	3.734
NONMEM-Laplace	Formal 1	failed	1.656
NONMEM-Laplace	Formal 2	failed	1.594
NONMEM-Laplace	Formal 3	failed	1.563
NONMEM-Laplace	Formal 4	failed	1.594
NONMEM-Laplace	Formal 5	failed	1.656
R aghq	Formal 1	failed	2.234
R aghq	Formal 2	failed	2.203
R aghq	Formal 3	failed	2.172
R aghq	Formal 4	failed	2.078
R aghq	Formal 5	failed	2.265
Virtual-patient MC	Unavailable	Unavailable	Unavailable

Python-Laplace: the periodic-state solve was ill-conditioned; no posterior vector was returned.

NONMEM: all five attempts failed with conditional-Hessian errors; no posterior vector was available.

All five R aghq attempts failed during candidate evaluation; no probability vector was returned. Failure evidence is retained.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
Python-Laplace	python_laplace/TAC/c078/formal/r01; python_laplace/TAC/c078/formal/r02; python_laplace/TAC/c078/formal_resume_20261021/r03; python_laplace/TAC/c078/formal_parallel_20261022/r04; python_laplace/TAC/c078/formal_resume_laplace_20261022/r05	omega_00	candidate_execution_success	failed		Source candidate status is success
Python-Laplace	python_laplace/TAC/c078/formal/r01; python_laplace/TAC/c078/formal/r02; python_laplace/TAC/c078/formal_resume_20261021/r03; python_laplace/TAC/c078/formal_parallel_20261022/r04; python_laplace/TAC/c078/formal_resume_laplace_20261022/r05	omega_01	candidate_execution_success	failed		Source candidate status is success
Python-Laplace	python_laplace/TAC/c078/formal/r01; python_laplace/TAC/c078/formal/r02; python_laplace/TAC/c078/formal_resume_20261021/r03; python_laplace/TAC/c078/formal_parallel_20261022/r04; python_laplace/TAC/c078/formal_resume_laplace_20261022/r05	omega_10	candidate_execution_success	failed		Source candidate status is success
Python-Laplace	python_laplace/TAC/c078/formal/r01; python_laplace/TAC/c078/formal/r02; python_laplace/TAC/c078/formal_resume_20261021/r03; python_laplace/TAC/c078/formal_parallel_20261022/r04; python_laplace/TAC/c078/formal_resume_laplace_20261022/r05	omega_11	candidate_execution_success	failed		Source candidate status is success
Python-Laplace	python_laplace/TAC/c078/formal/r01; python_laplace/TAC/c078/formal/r02; python_laplace/TAC/c078/formal_resume_20261021/r03; python_laplace/TAC/c078/formal_parallel_20261022/r04; python_laplace/TAC/c078/formal_resume_laplace_20261022/r05	All states	output_available	No		Complete posterior returned

Method	Run	State	Check	Value	Unit	Criterion
NONMEM-Laplace	new_nonmem_tac_c078_r01; new_nonmem_tac_c078_r02; new_nonmem_tac_c078_r03; new_nonmem_tac_c078_r04; new_nonmem_tac_c078_r05	All states	native_posterior_available	No		A complete valid native PHM/SHM vector is required

Statewise repeatability and numerical-check records.

TAC c079

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	69.25
Python-Laplace	Formal 2	valid	61.907
Python-Laplace	Formal 3	valid	61.266
Python-Laplace	Formal 4	valid	63.828
Python-Laplace	Formal 5	valid	61.953
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.531
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	64.265
R aghq	Formal 2	qualified	64.797
R aghq	Formal 3	qualified	63.938
R aghq	Formal 4	qualified	126.969
R aghq	Formal 5	qualified	137.61
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c080

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	66.61
Python-Laplace	Formal 2	valid	59.579
Python-Laplace	Formal 3	valid	58.469
Python-Laplace	Formal 4	valid	60.484
Python-Laplace	Formal 5	valid	60.296
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.562
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	63.625
R aghq	Formal 2	qualified	63.734
R aghq	Formal 3	qualified	63.781
R aghq	Formal 4	qualified	119.391
R aghq	Formal 5	qualified	135.547
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c081

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.812
Python-Laplace	Formal 2	valid	56.062
Python-Laplace	Formal 3	valid	55.36
Python-Laplace	Formal 4	valid	56.656
Python-Laplace	Formal 5	valid	56.531
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.563
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.578
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	63.703
R aghq	Formal 2	qualified	63.468
R aghq	Formal 3	qualified	64.14
R aghq	Formal 4	qualified	119.766
R aghq	Formal 5	qualified	134.687
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c082

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	53.219
Python-Laplace	Formal 2	valid	51.484
Python-Laplace	Formal 3	valid	50.735
Python-Laplace	Formal 4	valid	51.594
Python-Laplace	Formal 5	valid	51.156
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.563
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	64.328
R aghq	Formal 2	qualified	63.578
R aghq	Formal 3	qualified	64.234
R aghq	Formal 4	qualified	122.828
R aghq	Formal 5	qualified	134.844
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c083

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	53.656
Python-Laplace	Formal 2	valid	51.5
Python-Laplace	Formal 3	valid	50.407
Python-Laplace	Formal 4	valid	52.25
Python-Laplace	Formal 5	valid	50.312
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.64
NONMEM-Laplace	Formal 4	valid	1.688
NONMEM-Laplace	Formal 5	valid	1.64
R aghq	Formal 1	qualified	64.187
R aghq	Formal 2	qualified	63.984
R aghq	Formal 3	qualified	63.657
R aghq	Formal 4	qualified	123.781
R aghq	Formal 5	qualified	132.828
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c084

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	53.781
Python-Laplace	Formal 2	valid	51.375
Python-Laplace	Formal 3	valid	49.391
Python-Laplace	Formal 4	valid	51.907
Python-Laplace	Formal 5	valid	50.312
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.531
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.64
NONMEM-Laplace	Formal 5	valid	1.641
R aghq	Formal 1	qualified	63.672
R aghq	Formal 2	qualified	63.531
R aghq	Formal 3	qualified	63.172
R aghq	Formal 4	qualified	122.656
R aghq	Formal 5	qualified	134.578
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c085

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	53.25
Python-Laplace	Formal 2	valid	49.969
Python-Laplace	Formal 3	valid	49.578
Python-Laplace	Formal 4	valid	52.312
Python-Laplace	Formal 5	valid	50.765
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.579
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.687
NONMEM-Laplace	Formal 5	valid	1.672
R aghq	Formal 1	qualified	65.344
R aghq	Formal 2	qualified	65.015
R aghq	Formal 3	qualified	64.859
R aghq	Formal 4	qualified	126.094
R aghq	Formal 5	qualified	71.266
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c086

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.813
Python-Laplace	Formal 2	valid	52.906
Python-Laplace	Formal 3	valid	50.578
Python-Laplace	Formal 4	valid	52.344
Python-Laplace	Formal 5	valid	51.562
NONMEM-Laplace	Formal 1	valid	1.656
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.688
NONMEM-Laplace	Formal 5	valid	1.531
R aghq	Formal 1	qualified	65.36
R aghq	Formal 2	qualified	63.89
R aghq	Formal 3	qualified	64.735
R aghq	Formal 4	qualified	121.532
R aghq	Formal 5	qualified	131.719
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c087

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.625
Python-Laplace	Formal 2	valid	52.594
Python-Laplace	Formal 3	valid	50.719
Python-Laplace	Formal 4	valid	51.344
Python-Laplace	Formal 5	valid	51.407
NONMEM-Laplace	Formal 1	valid	1.64
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.563
R aghq	Formal 1	qualified	66.906
R aghq	Formal 2	qualified	63.734
R aghq	Formal 3	qualified	63.688
R aghq	Formal 4	qualified	121.922
R aghq	Formal 5	qualified	133.281
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c088

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	56.157
Python-Laplace	Formal 2	valid	51.953
Python-Laplace	Formal 3	valid	51.391
Python-Laplace	Formal 4	valid	52.531
Python-Laplace	Formal 5	valid	52.938
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.593
NONMEM-Laplace	Formal 4	valid	1.5
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	67.234
R aghq	Formal 2	qualified	66.687
R aghq	Formal 3	qualified	66.812
R aghq	Formal 4	qualified	129.125
R aghq	Formal 5	qualified	140
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c089

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.312
Python-Laplace	Formal 2	valid	53.953
Python-Laplace	Formal 3	valid	52.703
Python-Laplace	Formal 4	valid	53.282
Python-Laplace	Formal 5	valid	53.703
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.625
NONMEM-Laplace	Formal 5	valid	1.532
R aghq	Formal 1	qualified	63.812
R aghq	Formal 2	qualified	64.109
R aghq	Formal 3	qualified	63.109
R aghq	Formal 4	qualified	120.219
R aghq	Formal 5	qualified	133.484
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c090

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.953
Python-Laplace	Formal 2	valid	55.61
Python-Laplace	Formal 3	valid	51.141
Python-Laplace	Formal 4	valid	52.797
Python-Laplace	Formal 5	valid	52.578
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.546
R aghq	Formal 1	qualified	67.406
R aghq	Formal 2	qualified	67.515
R aghq	Formal 3	qualified	67.781
R aghq	Formal 4	qualified	132.14
R aghq	Formal 5	qualified	112.203
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c091

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.734
Python-Laplace	Formal 2	valid	53.968
Python-Laplace	Formal 3	valid	50.109
Python-Laplace	Formal 4	valid	51.656
Python-Laplace	Formal 5	valid	51.437
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.547
R aghq	Formal 1	qualified	64.765
R aghq	Formal 2	qualified	64.406
R aghq	Formal 3	qualified	64.563
R aghq	Formal 4	qualified	123.984
R aghq	Formal 5	qualified	106.016
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c092

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	53.687
Python-Laplace	Formal 2	valid	52.766
Python-Laplace	Formal 3	valid	50.688
Python-Laplace	Formal 4	valid	51.734
Python-Laplace	Formal 5	valid	51.312
NONMEM-Laplace	Formal 1	valid	1.61
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.516
R aghq	Formal 1	qualified	64.297
R aghq	Formal 2	qualified	64.219
R aghq	Formal 3	qualified	64.359
R aghq	Formal 4	qualified	125.703
R aghq	Formal 5	qualified	133.657
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c093

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.094
Python-Laplace	Formal 2	valid	53.578
Python-Laplace	Formal 3	valid	50.484
Python-Laplace	Formal 4	valid	51.375
Python-Laplace	Formal 5	valid	51
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.515
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.531
R aghq	Formal 1	qualified	64.094
R aghq	Formal 2	qualified	64.125
R aghq	Formal 3	qualified	63.984
R aghq	Formal 4	qualified	122.219
R aghq	Formal 5	qualified	133.843
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c094

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.453
Python-Laplace	Formal 2	valid	53.641
Python-Laplace	Formal 3	valid	50.907
Python-Laplace	Formal 4	valid	51.704
Python-Laplace	Formal 5	valid	52.203
NONMEM-Laplace	Formal 1	valid	1.797
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.531
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	65.39
R aghq	Formal 2	qualified	64.593
R aghq	Formal 3	qualified	63.953
R aghq	Formal 4	qualified	122.906
R aghq	Formal 5	qualified	132.703
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c095

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	54.11
Python-Laplace	Formal 2	valid	54.312
Python-Laplace	Formal 3	valid	51.172
Python-Laplace	Formal 4	valid	51.547
Python-Laplace	Formal 5	valid	51.219
NONMEM-Laplace	Formal 1	valid	1.672
NONMEM-Laplace	Formal 2	valid	1.515
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.546
R aghq	Formal 1	qualified	65.421
R aghq	Formal 2	qualified	64.563
R aghq	Formal 3	qualified	63.125
R aghq	Formal 4	qualified	125.016
R aghq	Formal 5	qualified	134.766
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c096

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.375
Python-Laplace	Formal 2	valid	54.532
Python-Laplace	Formal 3	valid	50.875
Python-Laplace	Formal 4	valid	51.234
Python-Laplace	Formal 5	valid	51.797
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.531
NONMEM-Laplace	Formal 5	valid	1.531
R aghq	Formal 1	qualified	65.641
R aghq	Formal 2	qualified	64
R aghq	Formal 3	qualified	63.984
R aghq	Formal 4	qualified	122.797
R aghq	Formal 5	qualified	134.015
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c097

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	55.438
Python-Laplace	Formal 2	valid	54.313
Python-Laplace	Formal 3	valid	50.562
Python-Laplace	Formal 4	valid	50.734
Python-Laplace	Formal 5	valid	51.765
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.563
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.546
R aghq	Formal 1	qualified	66.875
R aghq	Formal 2	qualified	63.984
R aghq	Formal 3	qualified	64.656
R aghq	Formal 4	qualified	123.343
R aghq	Formal 5	qualified	134.906
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c098

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.625
Python-Laplace	Formal 2 (replacement; original preserved)	valid	51.922
Python-Laplace	Formal 3	valid	50.938
Python-Laplace	Formal 4	valid	51.625
Python-Laplace	Formal 5	valid	51.765
Python-Laplace	Superseded formal r02: native_crash	failed	9.609
NONMEM-Laplace	Formal 1	valid	1.641
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	68.062
R aghq	Formal 2	qualified	65.75
R aghq	Formal 3	qualified	67.625
R aghq	Formal 4	qualified	125.11
R aghq	Formal 5	qualified	137.813
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
Python-Laplace	python_laplace/TAC/c098/formal/r02	All states	output_available	No		Complete posterior returned
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c099

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	75.422
Python-Laplace	Formal 2	valid	66.735
Python-Laplace	Formal 3	valid	61.391
Python-Laplace	Formal 4	valid	62.016
Python-Laplace	Formal 5	valid	62.187
NONMEM-Laplace	Formal 1	valid	3.406
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.532
NONMEM-Laplace	Formal 4	valid	1.532
NONMEM-Laplace	Formal 5	valid	1.547
R aghq	Formal 1	qualified	67.719
R aghq	Formal 2	qualified	66.578
R aghq	Formal 3	qualified	69.5
R aghq	Formal 4	qualified	131.703
R aghq	Formal 5	qualified	139.781
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c100

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	65.781
Python-Laplace	Formal 2	valid	61.156
Python-Laplace	Formal 3	valid	55.922
Python-Laplace	Formal 4	valid	57.141
Python-Laplace	Formal 5	valid	57.172
NONMEM-Laplace	Formal 1	valid	1.531
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.625
NONMEM-Laplace	Formal 4	valid	1.562
NONMEM-Laplace	Formal 5	valid	1.625
R aghq	Formal 1	qualified	68.25
R aghq	Formal 2	qualified	65.375
R aghq	Formal 3	qualified	66.625
R aghq	Formal 4	qualified	122.672
R aghq	Formal 5	qualified	135.906
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c101

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	68.703
Python-Laplace	Formal 2	valid	63.063
Python-Laplace	Formal 3	valid	58.562
Python-Laplace	Formal 4	valid	59.844
Python-Laplace	Formal 5	valid	59.985
NONMEM-Laplace	Formal 1	valid	1.562
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.625
NONMEM-Laplace	Formal 4	valid	1.532
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	65.36
R aghq	Formal 2	qualified	64.235
R aghq	Formal 3	qualified	66.203
R aghq	Formal 4	qualified	124.079
R aghq	Formal 5	qualified	134.906
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c102

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.703
Python-Laplace	Formal 2	valid	58.344
Python-Laplace	Formal 3	valid	54.734
Python-Laplace	Formal 4	valid	55.578
Python-Laplace	Formal 5	valid	55.36
NONMEM-Laplace	Formal 1	valid	1.562
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.563
NONMEM-Laplace	Formal 5	valid	1.515
R aghq	Formal 1	qualified	63.907
R aghq	Formal 2	qualified	63.797
R aghq	Formal 3	qualified	66.641
R aghq	Formal 4	qualified	124.531
R aghq	Formal 5	qualified	133.844
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c103

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.609
Python-Laplace	Formal 2	valid	57.531
Python-Laplace	Formal 3	valid	53.64
Python-Laplace	Formal 4	valid	53.953
Python-Laplace	Formal 5	valid	54.344
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.531
NONMEM-Laplace	Formal 3	valid	1.578
NONMEM-Laplace	Formal 4	valid	1.64
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	64.391
R aghq	Formal 2	qualified	62.75
R aghq	Formal 3	qualified	67.235
R aghq	Formal 4	qualified	120.703
R aghq	Formal 5	qualified	133.39
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c104

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.484
Python-Laplace	Formal 2	valid	55.969
Python-Laplace	Formal 3	valid	52.125
Python-Laplace	Formal 4	valid	52.891
Python-Laplace	Formal 5	valid	53.282
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.484
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.563
R aghq	Formal 1	qualified	65.204
R aghq	Formal 2	qualified	63.515
R aghq	Formal 3	qualified	65.953
R aghq	Formal 4	qualified	123.922
R aghq	Formal 5	qualified	135.281
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c105

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.875
Python-Laplace	Formal 2	valid	54.719
Python-Laplace	Formal 3	valid	51.875
Python-Laplace	Formal 4	valid	53.093
Python-Laplace	Formal 5	valid	52.828
NONMEM-Laplace	Formal 1	valid	1.562
NONMEM-Laplace	Formal 2	valid	1.656
NONMEM-Laplace	Formal 3	valid	1.531
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	65.469
R aghq	Formal 2	qualified	63.406
R aghq	Formal 3	qualified	72.157
R aghq	Formal 4	qualified	122.297
R aghq	Formal 5	qualified	132.812
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c106

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.859
Python-Laplace	Formal 2	valid	54.672
Python-Laplace	Formal 3	valid	52.781
Python-Laplace	Formal 4	valid	53.438
Python-Laplace	Formal 5	valid	53.094
NONMEM-Laplace	Formal 1	valid	1.562
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.5
NONMEM-Laplace	Formal 4	valid	1.531
NONMEM-Laplace	Formal 5	valid	1.547
R aghq	Formal 1	qualified	67.406
R aghq	Formal 2	qualified	64.156
R aghq	Formal 3	qualified	66.656
R aghq	Formal 4	qualified	120.922
R aghq	Formal 5	qualified	134.703
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c107

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1 (replacement; original preserved)	valid	58.609
Python-Laplace	Formal 2 (replacement; original preserved)	valid	59.187
Python-Laplace	Formal 3 (replacement; original preserved)	valid	58.969
Python-Laplace	Formal 4 (replacement; original preserved)	valid	59.141
Python-Laplace	Formal 5 (replacement; original preserved)	valid	58.61
Python-Laplace	Superseded formal 1	valid	69.625
Python-Laplace	Superseded formal 2	valid	66.609
Python-Laplace	Superseded formal 3	valid	66.062
Python-Laplace	Superseded formal 4	valid	66.172
Python-Laplace	Superseded formal 5	valid	67.359
NONMEM-Laplace	Formal 1	valid	1.546
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.563
NONMEM-Laplace	Formal 4	valid	1.532
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	69.984
R aghq	Formal 2	qualified	69.922
R aghq	Formal 3	qualified	71.734
R aghq	Formal 4	qualified	143.641
R aghq	Formal 5	qualified	147.282
R aghq	Superseded 1	qualified	69.234
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5; Superseded 1	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5; Superseded 1	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5; Superseded 1	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c108

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	67.515
Python-Laplace	Formal 2	valid	64.968
Python-Laplace	Formal 3	valid	64.109
Python-Laplace	Formal 4	valid	64.859
Python-Laplace	Formal 5	valid	64.969
NONMEM-Laplace	Formal 1	valid	1.546
NONMEM-Laplace	Formal 2	valid	1.563
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.531
NONMEM-Laplace	Formal 5	valid	1.547
R aghq	Formal 1	qualified	74.406
R aghq	Formal 2	qualified	68.797
R aghq	Formal 3	qualified	71.391
R aghq	Formal 4	qualified	133.641
R aghq	Formal 5	qualified	146.672
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c109

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	64.375
Python-Laplace	Formal 2	valid	60.296
Python-Laplace	Formal 3 (replacement; original preserved)	valid	68.125
Python-Laplace	Formal 4	valid	55.828
Python-Laplace	Formal 5	valid	55.985
Python-Laplace	Superseded formal_resume_20261021 r03: native_crash	failed	46.938
NONMEM-Laplace	Formal 1	valid	1.531
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.532
NONMEM-Laplace	Formal 4	valid	1.531
NONMEM-Laplace	Formal 5	valid	1.531
R aghq	Formal 1	qualified	69.921
R aghq	Formal 2	qualified	66.891
R aghq	Formal 3	qualified	69.203
R aghq	Formal 4	qualified	126.25
R aghq	Formal 5	qualified	144.563
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
Python-Laplace	python_laplace/TAC/c109/formal_resume_20261021/r03	All states	output_available	No		Complete posterior returned
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c110

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1 (replacement; original preserved)	valid	62.141
Python-Laplace	Formal 2 (replacement; original preserved)	valid	62.718
Python-Laplace	Formal 3 (replacement; original preserved)	valid	62.094
Python-Laplace	Formal 4 (replacement; original preserved)	valid	61.329
Python-Laplace	Formal 5 (replacement; original preserved)	valid	63.187
Python-Laplace	Superseded formal 1	valid	78.968
Python-Laplace	Superseded formal 2	valid	74.812
Python-Laplace	Superseded formal 3	valid	79.078
Python-Laplace	Superseded formal 4	valid	70.969
Python-Laplace	Superseded formal 5	valid	70.016
Python-Laplace	Superseded physical 3: controller_cancelled	failed	46.188
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.563
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.516
NONMEM-Laplace	Formal 5	valid	1.532
R aghq	Formal 1	qualified	73.813
R aghq	Formal 2	qualified	72.063
R aghq	Formal 3	qualified	73.968
R aghq	Formal 4	qualified	142.797
R aghq	Formal 5	qualified	151.844
R aghq	Superseded 1	qualified	71.781
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
Python-Laplace	python_laplace/TAC/c110/formal_resume_20261021/r03	All states	output_available	No		Complete posterior returned
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5; Superseded 1	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5; Superseded 1	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5; Superseded 1	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c111

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	69.672
Python-Laplace	Formal 2	valid	74.578
Python-Laplace	Formal 3	valid	75.938
Python-Laplace	Formal 4	valid	70.313
Python-Laplace	Formal 5	valid	69.203
NONMEM-Laplace	Formal 1	valid	1.547
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.547
NONMEM-Laplace	Formal 4	valid	1.547
NONMEM-Laplace	Formal 5	valid	1.563
R aghq	Formal 1	qualified	72.734
R aghq	Formal 2	qualified	71.875
R aghq	Formal 3	qualified	73.562
R aghq	Formal 4	qualified	137.938
R aghq	Formal 5	qualified	152.219
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c112

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.922
Python-Laplace	Formal 2	valid	60.453
Python-Laplace	Formal 3	valid	63.281
Python-Laplace	Formal 4	valid	58.188
Python-Laplace	Formal 5	valid	55.391
NONMEM-Laplace	Formal 1	valid	1.766
NONMEM-Laplace	Formal 2	valid	1.64
NONMEM-Laplace	Formal 3	valid	1.609
NONMEM-Laplace	Formal 4	valid	1.61
NONMEM-Laplace	Formal 5	valid	1.656
R aghq	Formal 1	qualified	64.703
R aghq	Formal 2	qualified	63.031
R aghq	Formal 3	qualified	65.125
R aghq	Formal 4	qualified	124.797
R aghq	Formal 5	qualified	131.875
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c113

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.797
Python-Laplace	Formal 2	valid	60.938
Python-Laplace	Formal 3	valid	62.625
Python-Laplace	Formal 4	valid	56.828
Python-Laplace	Formal 5	valid	54.891
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.625
NONMEM-Laplace	Formal 3	valid	1.609
NONMEM-Laplace	Formal 4	valid	1.593
NONMEM-Laplace	Formal 5	valid	1.578
R aghq	Formal 1	qualified	65
R aghq	Formal 2	qualified	63.39
R aghq	Formal 3	qualified	73.265
R aghq	Formal 4	qualified	118.125
R aghq	Formal 5	qualified	133.672
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c114

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.422
Python-Laplace	Formal 2	valid	55.813
Python-Laplace	Formal 3	valid	61.188
Python-Laplace	Formal 4	valid	57.125
Python-Laplace	Formal 5	valid	54.719
NONMEM-Laplace	Formal 1	valid	1.61
NONMEM-Laplace	Formal 2	valid	1.641
NONMEM-Laplace	Formal 3	valid	1.609
NONMEM-Laplace	Formal 4	valid	1.594
NONMEM-Laplace	Formal 5	valid	1.609
R aghq	Formal 1	qualified	64.219
R aghq	Formal 2	qualified	63.187
R aghq	Formal 3	qualified	72.406
R aghq	Formal 4	qualified	118.031
R aghq	Formal 5	qualified	133.688
R aghq	History 3: user_interrupted_not_numerical_failure	not_assessed	Unavailable
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c115

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.671
Python-Laplace	Formal 2	valid	55.984
Python-Laplace	Formal 3	valid	65.016
Python-Laplace	Formal 4	valid	58.765
Python-Laplace	Formal 5	valid	55.031
NONMEM-Laplace	Formal 1	valid	1.609
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.594
NONMEM-Laplace	Formal 4	valid	1.656
NONMEM-Laplace	Formal 5	valid	1.609
R aghq	Formal 1	qualified	65.078
R aghq	Formal 2	qualified	63.391
R aghq	Formal 3	qualified	65.187
R aghq	Formal 4	qualified	122.297
R aghq	Formal 5	qualified	131.641
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c116

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	59.141
Python-Laplace	Formal 2	valid	57.516
Python-Laplace	Formal 3	valid	67.594
Python-Laplace	Formal 4	valid	57.312
Python-Laplace	Formal 5	valid	55.218
NONMEM-Laplace	Formal 1	valid	1.625
NONMEM-Laplace	Formal 2	valid	1.609
NONMEM-Laplace	Formal 3	valid	1.593
NONMEM-Laplace	Formal 4	valid	1.609
NONMEM-Laplace	Formal 5	valid	1.594
R aghq	Formal 1	qualified	64.562
R aghq	Formal 2	qualified	63.344
R aghq	Formal 3	qualified	64.281
R aghq	Formal 4	qualified	117.985
R aghq	Formal 5	qualified	131.125
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c117

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	44.188
Python-Laplace	Formal 2	valid	41.735
Python-Laplace	Formal 3	valid	48.25
Python-Laplace	Formal 4	valid	43.516
Python-Laplace	Formal 5	valid	41.313
NONMEM-Laplace	Formal 1	valid	3
NONMEM-Laplace	Formal 2	valid	1.844
NONMEM-Laplace	Formal 3	valid	1.844
NONMEM-Laplace	Formal 4	valid	1.984
NONMEM-Laplace	Formal 5	valid	2.094
R aghq	Formal 1	qualified	49.672
R aghq	Formal 2	qualified	48.531
R aghq	Formal 3	qualified	48.64
R aghq	Formal 4	qualified	93.875
R aghq	Formal 5	qualified	100.11
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c118

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	45.766
Python-Laplace	Formal 2	valid	43.125
Python-Laplace	Formal 3	valid	49.86
Python-Laplace	Formal 4	valid	45.016
Python-Laplace	Formal 5	valid	43.531
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.781
NONMEM-Laplace	Formal 4	valid	1.782
NONMEM-Laplace	Formal 5	valid	1.906
R aghq	Formal 1	qualified	55.75
R aghq	Formal 2	qualified	48.375
R aghq	Formal 3	qualified	48.828
R aghq	Formal 4	qualified	94.218
R aghq	Formal 5	qualified	100.515
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c119

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	43.578
Python-Laplace	Formal 2	valid	41.688
Python-Laplace	Formal 3	valid	45.875
Python-Laplace	Formal 4	valid	42.938
Python-Laplace	Formal 5	valid	41.094
NONMEM-Laplace	Formal 1	valid	1.844
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.86
NONMEM-Laplace	Formal 4	valid	1.859
NONMEM-Laplace	Formal 5	valid	1.938
R aghq	Formal 1	qualified	48.312
R aghq	Formal 2	qualified	47.625
R aghq	Formal 3	qualified	48.657
R aghq	Formal 4	qualified	92.188
R aghq	Formal 5	qualified	99.015
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c120

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	42.657
Python-Laplace	Formal 2	valid	41.047
Python-Laplace	Formal 3	valid	41.531
Python-Laplace	Formal 4	valid	41.656
Python-Laplace	Formal 5	valid	40.5
NONMEM-Laplace	Formal 1	valid	1.765
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.782
NONMEM-Laplace	Formal 4	valid	1.875
NONMEM-Laplace	Formal 5	valid	1.86
R aghq	Formal 1	qualified	46.578
R aghq	Formal 2	qualified	46.359
R aghq	Formal 3	qualified	47.031
R aghq	Formal 4	qualified	92.078
R aghq	Formal 5	qualified	97.063
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c121

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	74.875
Python-Laplace	Formal 2	valid	70.422
Python-Laplace	Formal 3	valid	72.593
Python-Laplace	Formal 4	valid	73.782
Python-Laplace	Formal 5	valid	71.484
NONMEM-Laplace	Formal 1	valid	1.75
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.875
NONMEM-Laplace	Formal 4	valid	1.844
NONMEM-Laplace	Formal 5	valid	2
R aghq	Formal 1	qualified	80.234
R aghq	Formal 2	qualified	78.937
R aghq	Formal 3	qualified	79.609
R aghq	Formal 4	qualified	155.828
R aghq	Formal 5	qualified	167.64
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c122

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	58.812
Python-Laplace	Formal 2	valid	56.656
Python-Laplace	Formal 3	valid	60.234
Python-Laplace	Formal 4	valid	56.547
Python-Laplace	Formal 5	valid	56.406
NONMEM-Laplace	Formal 1	valid	1.844
NONMEM-Laplace	Formal 2	valid	1.546
NONMEM-Laplace	Formal 3	valid	1.86
NONMEM-Laplace	Formal 4	valid	1.891
NONMEM-Laplace	Formal 5	valid	2.015
R aghq	Formal 1	qualified	64.469
R aghq	Formal 2	qualified	64.14
R aghq	Formal 3	qualified	63.813
R aghq	Formal 4	qualified	122.531
R aghq	Formal 5	qualified	134.36
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c123

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	62.593
Python-Laplace	Formal 2	valid	58.437
Python-Laplace	Formal 3	valid	61.719
Python-Laplace	Formal 4	valid	58.703
Python-Laplace	Formal 5	valid	56.187
NONMEM-Laplace	Formal 1	valid	1.797
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	2.015
NONMEM-Laplace	Formal 4	valid	1.782
NONMEM-Laplace	Formal 5	valid	1.984
R aghq	Formal 1	qualified	66.047
R aghq	Formal 2	qualified	65.422
R aghq	Formal 3	qualified	64.079
R aghq	Formal 4	qualified	124.516
R aghq	Formal 5	qualified	129.157
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c124

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.719
Python-Laplace	Formal 2	valid	54.047
Python-Laplace	Formal 3	valid	62.593
Python-Laplace	Formal 4	valid	52.469
Python-Laplace	Formal 5	valid	51.578
NONMEM-Laplace	Formal 1	valid	1.75
NONMEM-Laplace	Formal 2	valid	1.563
NONMEM-Laplace	Formal 3	valid	1.985
NONMEM-Laplace	Formal 4	valid	1.813
NONMEM-Laplace	Formal 5	valid	1.968
R aghq	Formal 1	qualified	64.312
R aghq	Formal 2	qualified	62.266
R aghq	Formal 3	qualified	61.75
R aghq	Formal 4	qualified	125.375
R aghq	Formal 5	qualified	108.421
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c125

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	64.453
Python-Laplace	Formal 2	valid	59.906
Python-Laplace	Formal 3	valid	73.719
Python-Laplace	Formal 4	valid	57.937
Python-Laplace	Formal 5	valid	57.718
NONMEM-Laplace	Formal 1	valid	1.75
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.781
NONMEM-Laplace	Formal 4	valid	1.86
NONMEM-Laplace	Formal 5	valid	1.859
R aghq	Formal 1	qualified	66.593
R aghq	Formal 2	qualified	65.203
R aghq	Formal 3	qualified	64.797
R aghq	Formal 4	qualified	124.829
R aghq	Formal 5	qualified	137.172
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c126

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	64.032
Python-Laplace	Formal 2	valid	57.704
Python-Laplace	Formal 3	valid	66.781
Python-Laplace	Formal 4	valid	57.953
Python-Laplace	Formal 5	valid	56.453
NONMEM-Laplace	Formal 1	valid	1.86
NONMEM-Laplace	Formal 2	valid	1.562
NONMEM-Laplace	Formal 3	valid	1.781
NONMEM-Laplace	Formal 4	valid	1.828
NONMEM-Laplace	Formal 5	valid	2.078
R aghq	Formal 1	qualified	64.703
R aghq	Formal 2	qualified	62.844
R aghq	Formal 3	qualified	62.343
R aghq	Formal 4	qualified	124.812
R aghq	Formal 5	qualified	132.437
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c127

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	61.485
Python-Laplace	Formal 2	valid	56.688
Python-Laplace	Formal 3	valid	68.391
Python-Laplace	Formal 4	valid	57.375
Python-Laplace	Formal 5	valid	56.047
NONMEM-Laplace	Formal 1	valid	1.75
NONMEM-Laplace	Formal 2	valid	1.594
NONMEM-Laplace	Formal 3	valid	1.718
NONMEM-Laplace	Formal 4	valid	1.766
NONMEM-Laplace	Formal 5	valid	2.016
R aghq	Formal 1	qualified	64.516
R aghq	Formal 2	qualified	63.156
R aghq	Formal 3	qualified	62.75
R aghq	Formal 4	qualified	125.719
R aghq	Formal 5	qualified	133.094
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c128

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.578
Python-Laplace	Formal 2	valid	56.594
Python-Laplace	Formal 3	valid	67.156
Python-Laplace	Formal 4	valid	57.125
Python-Laplace	Formal 5	valid	55.594
NONMEM-Laplace	Formal 1	valid	1.843
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.687
NONMEM-Laplace	Formal 4	valid	1.891
NONMEM-Laplace	Formal 5	valid	1.953
R aghq	Formal 1	qualified	66.109
R aghq	Formal 2	qualified	63.5
R aghq	Formal 3	qualified	62.547
R aghq	Formal 4	qualified	123.953
R aghq	Formal 5	qualified	133.218
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c129

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	60.703
Python-Laplace	Formal 2	valid	58.766
Python-Laplace	Formal 3	valid	66.906
Python-Laplace	Formal 4	valid	57.266
Python-Laplace	Formal 5	valid	55.062
NONMEM-Laplace	Formal 1	valid	1.859
NONMEM-Laplace	Formal 2	valid	1.766
NONMEM-Laplace	Formal 3	valid	2.125
NONMEM-Laplace	Formal 4	valid	1.828
NONMEM-Laplace	Formal 5	valid	1.922
R aghq	Formal 1	qualified	64.656
R aghq	Formal 2	qualified	63.656
R aghq	Formal 3	qualified	62.703
R aghq	Formal 4	qualified	121.765
R aghq	Formal 5	qualified	132.422
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c130

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	57.094
Python-Laplace	Formal 2	valid	55.375
Python-Laplace	Formal 3	valid	65.906
Python-Laplace	Formal 4	valid	52.844
Python-Laplace	Formal 5	valid	51.375
NONMEM-Laplace	Formal 1	valid	1.563
NONMEM-Laplace	Formal 2	valid	1.766
NONMEM-Laplace	Formal 3	valid	2.078
NONMEM-Laplace	Formal 4	valid	1.828
NONMEM-Laplace	Formal 5	valid	1.781
R aghq	Formal 1	qualified	64.812
R aghq	Formal 2	qualified	62.922
R aghq	Formal 3	qualified	62.234
R aghq	Formal 4	qualified	121.719
R aghq	Formal 5	qualified	131.906
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c131

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	64.313
Python-Laplace	Formal 2	valid	59.469
Python-Laplace	Formal 3	valid	65.094
Python-Laplace	Formal 4	valid	57.531
Python-Laplace	Formal 5	valid	55.266
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.578
NONMEM-Laplace	Formal 3	valid	1.828
NONMEM-Laplace	Formal 4	valid	1.844
NONMEM-Laplace	Formal 5	valid	1.891
R aghq	Formal 1	qualified	64.469
R aghq	Formal 2	qualified	62.672
R aghq	Formal 3	qualified	61.797
R aghq	Formal 4	qualified	124.5
R aghq	Formal 5	qualified	130.907
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c132

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	63.297
Python-Laplace	Formal 2	valid	58.438
Python-Laplace	Formal 3	valid	65.75
Python-Laplace	Formal 4	valid	54.625
Python-Laplace	Formal 5	valid	54.375
NONMEM-Laplace	Formal 1	valid	1.594
NONMEM-Laplace	Formal 2	valid	1.531
NONMEM-Laplace	Formal 3	valid	1.797
NONMEM-Laplace	Formal 4	valid	1.844
NONMEM-Laplace	Formal 5	valid	1.828
R aghq	Formal 1	qualified	65.75
R aghq	Formal 2	qualified	63.016
R aghq	Formal 3	qualified	62.047
R aghq	Formal 4	qualified	125.031
R aghq	Formal 5	qualified	112.468
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c133

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	63.671
Python-Laplace	Formal 2	valid	59.891
Python-Laplace	Formal 3	valid	77.672
Python-Laplace	Formal 4	valid	57.828
Python-Laplace	Formal 5	valid	57.453
NONMEM-Laplace	Formal 1	valid	1.578
NONMEM-Laplace	Formal 2	valid	1.547
NONMEM-Laplace	Formal 3	valid	1.954
NONMEM-Laplace	Formal 4	valid	1.875
NONMEM-Laplace	Formal 5	valid	1.906
R aghq	Formal 1	qualified	65.906
R aghq	Formal 2	qualified	64.39
R aghq	Formal 3	qualified	63.797
R aghq	Formal 4	qualified	122.765
R aghq	Formal 5	qualified	66.797
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c134

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	17.812
Python-Laplace	Formal 2	valid	16.563
Python-Laplace	Formal 3	valid	17.984
Python-Laplace	Formal 4	valid	16.468
Python-Laplace	Formal 5	valid	16.078
NONMEM-Laplace	Formal 1	valid	1.5
NONMEM-Laplace	Formal 2	valid	1.5
NONMEM-Laplace	Formal 3	valid	1.859
NONMEM-Laplace	Formal 4	valid	1.875
NONMEM-Laplace	Formal 5	valid	1.813
R aghq	Formal 1	qualified	12.063
R aghq	Formal 2	qualified	11.578
R aghq	Formal 3	qualified	11.531
R aghq	Formal 4	qualified	18.625
R aghq	Formal 5	qualified	11.937
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

TAC c135

Scenario results

Method	Run	Run status	Time (s)
Python-Laplace	Formal 1	valid	195.016
Python-Laplace	Formal 2	valid	189.579
Python-Laplace	Formal 3	valid	211.094
Python-Laplace	Formal 4 (replacement; original preserved)	valid	183.391
Python-Laplace	Formal 5	valid	177.25
Python-Laplace	Superseded formal_parallel_20261022 r04: interrupted_unknown	incomplete	Unavailable
NONMEM-Laplace	Formal 1	valid	1.688
NONMEM-Laplace	Formal 2	valid	1.672
NONMEM-Laplace	Formal 3	valid	2.109
NONMEM-Laplace	Formal 4	valid	2.031
NONMEM-Laplace	Formal 5	valid	2.234
R aghq	Formal 1	qualified	358.125
R aghq	Formal 2	qualified	348.36
R aghq	Formal 3	qualified	343.469
R aghq	Formal 4	qualified	702.547
R aghq	Formal 5	qualified	359.093
Virtual-patient MC	Unavailable	Unavailable	Unavailable

NONMEM: optimizer stationarity was not established. The NM-TRAN population-data warning is retained in the source records.

R aghq returned five probability vectors; stability checks were not met. Comparison records.

Flagged Numerical Checks

The following checks did not meet their stated criteria.

Method	Run	State	Check	Value	Unit	Criterion
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	log_integral_stability_passed	No		All candidates: last two changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	posterior_stability_passed	No		Last two maximum statewise changes <= 1e-6
R aghq	Formal 1; Formal 2; Formal 3; Formal 4; Formal 5	All states	stability_passed	No		Both prescribed stability checks pass

Statewise repeatability and numerical-check records.

R aghq comparison records

R aghq comparisons by scenario. Scope labels are retained; comparison rules are in Online Resource 1, Section 5.

Reference Scenario

Scenario	Compared with R aghq	Scope	d-infinity	TV	d2	dH
c003	Python-Laplace	Included	0.01252839563	0.01252839563	0.01524953835	0.01067691966
c003	NONMEM-Laplace	Included	0.01252837629	0.01252837629	0.0152495198	0.01067690646

Sensitivity Scenarios

Scenario	Compared with R aghq	Scope	d-infinity	TV	d2	dH
c001	Python-Laplace	Included	0.04625888044	0.04884534626	0.0579679469	0.04570915359
c001	NONMEM-Laplace	Included	0.04625889674	0.04884536155	0.05796796635	0.04570916859
c002	Python-Laplace	Included	0.01955956153	0.02165112701	0.0253249943	0.01801650644
c002	NONMEM-Laplace	Included	0.01955956045	0.02165114592	0.02532500361	0.01801651386
c004	Python-Laplace	Included	0.007932250594	0.007932250594	0.00975909781	0.007414686114
c004	NONMEM-Laplace	Included	0.007932233214	0.007932233214	0.009759058371	0.007414648711
c005	Python-Laplace	Included	0.0166286559	0.01861280534	0.02219279499	0.01805703796
c005	NONMEM-Laplace	Included	0.01662868543	0.01861279383	0.02219280789	0.01805703502
c006	Python-Laplace	Included	0.007920591801	0.01158018358	0.01205624687	0.008444410379
c006	NONMEM-Laplace	Included	0.007920624274	0.01158022381	0.01205628845	0.008444439282
c007	Python-Laplace	Included	0.01106762156	0.01152512353	0.01389290768	0.00968444118
c007	NONMEM-Laplace	Included	0.01106763458	0.01152514901	0.01389292372	0.009684452305
c008	Python-Laplace	Included	0.01211675816	0.01609874036	0.01779489384	0.01243457361
c008	NONMEM-Laplace	Included	0.0121167613	0.01609872483	0.01779488708	0.01243456841
c009	Python-Laplace	Included	0.02148523241	0.02432399834	0.02767484796	0.01960067314
c009	NONMEM-Laplace	Included	0.02148523178	0.02432397477	0.02767483523	0.01960066293
c010	Python-Laplace	Included	0.01398881675	0.01620413969	0.01901693279	0.01320043042
c010	NONMEM-Laplace	Included	0.01398878736	0.01620413382	0.01901690468	0.01320041195
c011	Python-Laplace	Included	0.01333619963	0.01464112829	0.01748406272	0.01218862078
c011	NONMEM-Laplace	Included	0.01333619443	0.01464113269	0.01748406081	0.01218861947
c012	Python-Laplace	Included	0.01131316439	0.01131316439	0.01323081744	0.009395829982
c012	NONMEM-Laplace	Included	0.01131316439	0.01131316439	0.01323081743	0.009395830269
c013	Python-Laplace	Included	0.009775503503	0.01114874006	0.01269357922	0.009395521996
c013	NONMEM-Laplace	Included	0.009775509357	0.01114874368	0.01269358617	0.009395527271
c014	Python-Laplace	Included	0.01026865097	0.01026865097	0.01283138641	0.01040255861
c014	NONMEM-Laplace	Included	0.01026864888	0.01026864888	0.01283138304	0.0104025561
c015	Python-Laplace	Included	0.01153056729	0.01153056729	0.01400434274	0.009813460636
c015	NONMEM-Laplace	Included	0.01153056609	0.01153056609	0.01400434275	0.009813460273
c016	Python-Laplace	Included	0.01216220665	0.01363295203	0.01600625351	0.0111780075
c016	NONMEM-Laplace	Included	0.01216220847	0.01363295161	0.01600625435	0.01117800807
c017	Python-Laplace	Included	0.01026316268	0.01653999524	0.01685237634	0.01191118377
c017	NONMEM-Laplace	Included	0.01026315776	0.01653998093	0.01685236172	0.01191117368
c018	Python-Laplace	Included	0.009791127552	0.01009762893	0.01372462284	0.009655688246
c018	NONMEM-Laplace	Included	0.009791124035	0.01009763027	0.01372462274	0.009655688051
c019	Python-Laplace	Included	0.01230202555	0.01230202555	0.01534734094	0.01072965093
c019	NONMEM-Laplace	Included	0.01230202652	0.01230202652	0.01534733651	0.01072964812
c020	Python-Laplace	Included	0.0120714999	0.0120714999	0.01456075928	0.01021740969
c020	NONMEM-Laplace	Included	0.01207151022	0.01207151022	0.01456076683	0.01021741475
c021	Python-Laplace	Included	0.01015270934	0.01015270934	0.01208967358	0.008613779144
c021	NONMEM-Laplace	Included	0.01015273168	0.01015273168	0.012089697	0.008613795417
c022	Python-Laplace	Included	0.01214259254	0.01214259254	0.01470537581	0.01030785307
c022	NONMEM-Laplace	Included	0.01214257949	0.01214257949	0.01470536311	0.01030784406
c023	Python-Laplace	Included	0.01237265148	0.01237265148	0.0150274978	0.01052608293
c023	NONMEM-Laplace	Included	0.01237262107	0.01237262107	0.0150274674	0.01052606131
c024	Python-Laplace	Included	0.01268620689	0.01268620689	0.01547779286	0.01083231667
c024	NONMEM-Laplace	Included	0.01268622054	0.01268622054	0.01547781044	0.01083232882
c025	Python-Laplace	Included	0.0133416773	0.0133416773	0.01646010109	0.0115048322
c025	NONMEM-Laplace	Included	0.01334167328	0.01334167328	0.01646009819	0.01150483014
c026	Python-Laplace	Included	0.03645153349	0.03956763652	0.04622013346	0.03462126558
c026	NONMEM-Laplace	Included	0.0364517326	0.03956799327	0.0462204861	0.03462160306
c027	Python-Laplace	Included	0.0175100397	0.01876032647	0.02244284241	0.01584896425
c027	NONMEM-Laplace	Included	0.01751010643	0.01876042662	0.02244291724	0.01584901197

Scenario	Compared with R aghq	Scope	d-infinity	TV	d2	dH
c028	Python-Laplace	Included	0.009055936661	0.009055936661	0.01082215752	0.007920539496
c028	NONMEM-Laplace	Included	0.009055925772	0.009055925772	0.0108221415	0.007920527244
c029	Python-Laplace	Included	0.01093299308	0.01142708417	0.01447400599	0.0122938937
c029	NONMEM-Laplace	Included	0.01093298771	0.0114270736	0.01447400808	0.01229389002
c030	Python-Laplace	Included	0.01570658799	0.01570658799	0.0190035744	0.01323081455
c030	NONMEM-Laplace	Included	0.01570659198	0.01570659198	0.0190035759	0.01323081558
c031	Python-Laplace	Included	0.01533716492	0.01533716492	0.01851927392	0.01289928413
c031	NONMEM-Laplace	Included	0.01533714914	0.01533714914	0.01851926164	0.01289927476
c032	Python-Laplace	Included	0.01449662159	0.01449662159	0.01749793789	0.01220441786
c032	NONMEM-Laplace	Included	0.01449657417	0.01449657417	0.01749788962	0.01220438349
c033	Python-Laplace	Included	0.01350218269	0.01350218269	0.01635949567	0.01143176388
c033	NONMEM-Laplace	Included	0.01350223203	0.01350223203	0.01635955368	0.01143180399
c034	Python-Laplace	Included	0.01099827342	0.01099827342	0.01346641802	0.009459529159
c034	NONMEM-Laplace	Included	0.01099824515	0.01099824515	0.01346638363	0.009459505235
c035	Python-Laplace	Included	0.0100553962	0.0100553962	0.01233096491	0.008682275388
c035	NONMEM-Laplace	Included	0.01005539281	0.01005539281	0.01233096258	0.008682273633
c036	Python-Laplace	Included	0.009137290329	0.009137290329	0.01118087123	0.007894673619
c036	NONMEM-Laplace	Included	0.009137297507	0.009137297507	0.01118087995	0.007894679749
c037	Python-Laplace	Included	0.00874407778	0.00874407778	0.01067038887	0.007545305424
c037	NONMEM-Laplace	Included	0.008744085452	0.008744085452	0.01067039999	0.007545313126
c038	Python-Laplace	Included	0.01099242448	0.01418537824	0.01553867889	0.01093666051
c038	NONMEM-Laplace	Included	0.01099242579	0.01418538198	0.01553868715	0.01093666537
c039	Python-Laplace	Included	0.01021735602	0.01335112383	0.01480825619	0.01038493787
c039	NONMEM-Laplace	Included	0.01021735035	0.01335111418	0.01480825136	0.01038493389
c040	Python-Laplace	Included	0.01054131134	0.01231596273	0.01452149765	0.01012813886
c040	NONMEM-Laplace	Included	0.01054129901	0.01231595949	0.01452149007	0.01012813379
c041	Python-Laplace	Included	0.01130168037	0.01130168037	0.01421808351	0.009917695377
c041	NONMEM-Laplace	Included	0.0113016723	0.0113016723	0.01421807371	0.009917688594
c042	Python-Laplace	Included	0.01381921734	0.01381921734	0.01703911335	0.01202881033
c042	NONMEM-Laplace	Included	0.01381919675	0.01381919675	0.01703908823	0.01202879358
c043	Python-Laplace	Included	0.01394901979	0.01394901979	0.01652905491	0.011815843
c043	NONMEM-Laplace	Included	0.013949026	0.013949026	0.0165290592	0.01181584659
c044	Python-Laplace	Included	0.01572623185	0.01572623185	0.01865265768	0.01358607531
c044	NONMEM-Laplace	Included	0.01572624646	0.01572624646	0.01865267703	0.01358608991
c045	Python-Laplace	Included	0.01790385913	0.01790385913	0.02136192289	0.01523917673
c045	NONMEM-Laplace	Included	0.01790389429	0.01790389429	0.02136196464	0.01523920641
c046	Python-Laplace	Included	0.01171186336	0.01374631834	0.01554686962	0.01083261138
c046	NONMEM-Laplace	Included	0.01171186768	0.01374632304	0.01554687546	0.01083261543
c047	Python-Laplace	Included	0.01176751804	0.01362207029	0.01553681412	0.01082541065
c047	NONMEM-Laplace	Included	0.01176749785	0.01362205727	0.01553679446	0.01082539711
c048	Python-Laplace	Included	0.01209742667	0.01299646332	0.01549379644	0.01079814237
c048	NONMEM-Laplace	Included	0.0120974121	0.01299645353	0.01549378224	0.01079813251
c049	Python-Laplace	Included	0.01254087334	0.01254087334	0.01544079817	0.01078732055
c049	NONMEM-Laplace	Included	0.01254087328	0.01254087328	0.015440799	0.01078732109
c050	Python-Laplace	Included	0.01083712485	0.01410432689	0.01566642124	0.01093054908
c050	NONMEM-Laplace	Included	0.01083713912	0.01410433711	0.01566643696	0.01093055984
c051	Python-Laplace	Included	0.01229171908	0.0167579534	0.01820448374	0.01272739717
c051	NONMEM-Laplace	Included	0.0122917351	0.01675796316	0.01820450032	0.01272740842
c052	Python-Laplace	Included	0.01202145235	0.01678852635	0.0176701961	0.01246721714
c052	NONMEM-Laplace	Included	0.01202146629	0.01678853234	0.01767020812	0.0124672249
c053	Python-Laplace	Included	0.01405646598	0.01872991517	0.01988019753	0.01416099766
c053	NONMEM-Laplace	Included	0.0140564796	0.01872990442	0.01988019645	0.01416099678
c054	Python-Laplace	Included	0.005924960838	0.006864110244	0.00795069444	0.005506815838
c054	NONMEM-Laplace	Included	0.005924975114	0.006864122582	0.007950714474	0.005506829226

Scenario	Compared with R aghq	Scope	d-infinity	TV	d2	dH
c055	Python-Laplace	Included	0.006187149115	0.007963793007	0.008821029221	0.006128798552
c055	NONMEM-Laplace	Included	0.006187157982	0.007963795984	0.008821036838	0.006128803563
c056	Python-Laplace	Included	0.007420072041	0.0113164462	0.01167688577	0.008177781476
c056	NONMEM-Laplace	Included	0.007420053676	0.01131643174	0.01167686873	0.008177770014
c057	Python-Laplace	Included	0.01019891008	0.01258221647	0.01381380922	0.009627896764
c057	NONMEM-Laplace	Included	0.0101989304	0.01258222561	0.01381382641	0.009627908423
c058	Python-Laplace	Included	0.01679134027	0.02452647612	0.0254329775	0.01798652176
c058	NONMEM-Laplace	Included	0.01679134833	0.02452647866	0.0254329849	0.01798652545
c059	Python-Laplace	Included	0.02054606559	0.02558151768	0.02851040887	0.01995862848
c059	NONMEM-Laplace	Included	0.02054607178	0.02558150146	0.02851040054	0.01995862257
c060	Python-Laplace	Included	0.01895806435	0.02190444669	0.02492906054	0.01750386717
c060	NONMEM-Laplace	Included	0.01895806935	0.02190445535	0.02492906977	0.01750387347
c061	Python-Laplace	Included	0.01917726177	0.02446666509	0.02638536367	0.0186959612
c061	NONMEM-Laplace	Included	0.01917726225	0.02446666581	0.02638536457	0.01869596167
c062	Python-Laplace	Included	0.01174429721	0.0168123454	0.01754833934	0.01255313385
c062	NONMEM-Laplace	Included	0.01174429556	0.01681233884	0.01754833422	0.01255313044
c063	Python-Laplace	Included	0.01152928209	0.01619900087	0.01691367337	0.01203650691
c063	NONMEM-Laplace	Included	0.01152927781	0.01619899166	0.01691366485	0.01203650118
c064	Python-Laplace	Included	0.01112369781	0.01499382851	0.01590123141	0.0112350381
c064	NONMEM-Laplace	Included	0.01112370794	0.01499384525	0.01590125026	0.01123505037
c065	Python-Laplace	Included	0.01036249294	0.01275813923	0.01467581438	0.01023383878
c065	NONMEM-Laplace	Included	0.01036246598	0.01275811928	0.01467578949	0.01023382166
c066	Python-Laplace	Included	0.0135915172	0.0135915172	0.01583418358	0.01129753983
c066	NONMEM-Laplace	Included	0.01359151746	0.01359151746	0.01583418483	0.011297542
c067	Python-Laplace	Included	0.01412050819	0.01412050819	0.01690120876	0.01232957111
c067	NONMEM-Laplace	Included	0.0141205198	0.0141205198	0.01690121499	0.01232957348
c068	Python-Laplace	Included	0.01182071806	0.02037145396	0.02050509582	0.01475914792
c068	NONMEM-Laplace	Included	0.01182072634	0.02037148648	0.02050512744	0.01475917363
c069	Python-Laplace	Included	0.01636740807	0.02594295535	0.02638714783	0.01863837546
c069	NONMEM-Laplace	Included	0.01636740649	0.02594293975	0.02638713394	0.01863836604
c070	Python-Laplace	Included	0.01134659355	0.01134659355	0.01361928066	0.009614147555
c070	NONMEM-Laplace	Included	0.01134663204	0.01134663204	0.0136193232	0.009614177485
c071	Python-Laplace	Included	0.01149210279	0.01149210279	0.01385150603	0.009764610056
c071	NONMEM-Laplace	Included	0.0114920906	0.0114920906	0.01385149237	0.009764600455
c072	Python-Laplace	Included	0.0117022933	0.0117022933	0.01413045464	0.009940455128
c072	NONMEM-Laplace	Included	0.01170230031	0.01170230031	0.01413046328	0.0099404611
c073	Python-Laplace	Included	0.01204165644	0.01204165644	0.01456616756	0.01022260419
c073	NONMEM-Laplace	Included	0.01204163494	0.01204163494	0.01456614418	0.01022258777
c074	Python-Laplace	Included	0.01302043322	0.01329632674	0.01657795997	0.01155818105
c074	NONMEM-Laplace	Included	0.0130204445	0.01329633409	0.01657797311	0.01155819019
c075	Python-Laplace	Included	0.01539381116	0.01539381116	0.01927958581	0.0134594882
c075	NONMEM-Laplace	Included	0.01539380524	0.01539380524	0.01927958251	0.013459486
c076	Python-Laplace	Included	0.01648897153	0.02268121733	0.02444714261	0.01712403597
c076	NONMEM-Laplace	Included	0.01648899277	0.02268122889	0.02444716835	0.01712405382
c077	Python-Laplace	Included	0.02750070255	0.02750070255	0.03242632371	0.02278956789
c077	NONMEM-Laplace	Included	0.02750066615	0.02750066615	0.03242628475	0.02278954133
c079	Python-Laplace	Included	0.02229281643	0.02229281643	0.02600019127	0.0192539148
c079	NONMEM-Laplace	Included	0.0222927216	0.0222927216	0.0260000828	0.01925383265
c080	Python-Laplace	Included	0.01098798139	0.01864369232	0.01888853311	0.0133167607
c080	NONMEM-Laplace	Included	0.01098797797	0.01864368983	0.01888853125	0.01331675893
c081	Python-Laplace	Included	0.01086501696	0.01148752292	0.01423108956	0.009909483555
c081	NONMEM-Laplace	Included	0.01086502161	0.01148750714	0.01423108743	0.009909482102
c082	Python-Laplace	Included	0.01076332429	0.01290056901	0.01441097008	0.01004401977
c082	NONMEM-Laplace	Included	0.0107633249	0.01290054767	0.01441095585	0.01004400957

Scenario	Compared with R aghq	Scope	d-infinity	TV	d2	dH
c083	Python-Laplace	Included	0.01007895362	0.01236517203	0.01355851392	0.009451723796
c083	NONMEM-Laplace	Included	0.01007895262	0.01236516169	0.01355850635	0.009451718345
c084	Python-Laplace	Included	0.009228291742	0.01191163214	0.01280907516	0.008929165425
c084	NONMEM-Laplace	Included	0.009228295096	0.01191161985	0.01280906904	0.008929160755
c085	Python-Laplace	Included	0.008356897957	0.01226751074	0.01270782532	0.008893156705
c085	NONMEM-Laplace	Included	0.008356879316	0.01226748917	0.01270780257	0.008893140744
c086	Python-Laplace	Included	0.006008458768	0.006008458768	0.007180707722	0.005247743599
c086	NONMEM-Laplace	Included	0.006008437094	0.006008437094	0.007180684108	0.005247726941
c087	Python-Laplace	Included	0.008329486821	0.008329486821	0.009934454509	0.007090415861
c087	NONMEM-Laplace	Included	0.008329533191	0.008329533191	0.0099345066	0.007090451623
c088	Python-Laplace	Included	0.002524433934	0.002524433934	0.003217569469	0.002518881785
c088	NONMEM-Laplace	Included	0.002524439444	0.002524439444	0.00321757085	0.002518881506
c089	Python-Laplace	Included	0.00951405265	0.00951405265	0.01138453683	0.00805902532
c089	NONMEM-Laplace	Included	0.0095140506	0.0095140506	0.01138453258	0.008059021467
c090	Python-Laplace	Included	0.001605101444	0.001693431044	0.002212038603	0.001796208233
c090	NONMEM-Laplace	Included	0.00160508637	0.00169342117	0.002212025087	0.00179619636
c091	Python-Laplace	Included	0.0062987678	0.0062987678	0.007520221391	0.005476192964
c091	NONMEM-Laplace	Included	0.006298766805	0.006298766805	0.007520218338	0.00547619056
c092	Python-Laplace	Included	0.006157214195	0.006157214195	0.007354532677	0.00536477462
c092	NONMEM-Laplace	Included	0.00615721032	0.00615721032	0.007354525007	0.005364769107
c093	Python-Laplace	Included	0.005847980084	0.005847980084	0.006993303616	0.005121486369
c093	NONMEM-Laplace	Included	0.005847960408	0.005847960408	0.006993282941	0.005121470441
c094	Python-Laplace	Included	0.005669217855	0.005669217855	0.006785270342	0.004980971714
c094	NONMEM-Laplace	Included	0.005669200056	0.005669200056	0.006785250655	0.004980957407
c095	Python-Laplace	Included	0.007213188996	0.007213188996	0.008597923637	0.006198336079
c095	NONMEM-Laplace	Included	0.00721324332	0.00721324332	0.008598027383	0.006198394607
c096	Python-Laplace	Included	0.006745797606	0.006745797606	0.008045439172	0.005828690008
c096	NONMEM-Laplace	Included	0.00674581148	0.00674581148	0.00804545574	0.005828700962
c097	Python-Laplace	Included	0.004804325783	0.004804325783	0.005784207594	0.004301180955
c097	NONMEM-Laplace	Included	0.004804338015	0.004804338015	0.005784217767	0.004301187673
c098	Python-Laplace	Included	0.002974880673	0.002974880673	0.003710417623	0.002867305512
c098	NONMEM-Laplace	Included	0.002974875194	0.002974875194	0.003710406889	0.002867295602
c099	Python-Laplace	Included	0.0526335713	0.0526335713	0.06326272311	0.04431809162
c099	NONMEM-Laplace	Included	0.05263357001	0.05263357001	0.06326272347	0.04431809436
c100	Python-Laplace	Included	0.008299792599	0.008299792599	0.01023405605	0.007002091491
c100	NONMEM-Laplace	Included	0.008299774752	0.008299774752	0.01023403746	0.007002079486
c101	Python-Laplace	Included	0.01592917957	0.01971585404	0.02236071895	0.01563685405
c101	NONMEM-Laplace	Included	0.0159291788	0.01971584798	0.0223607144	0.01563685077
c102	Python-Laplace	Included	0.01401101145	0.01631456568	0.01910644109	0.01332068771
c102	NONMEM-Laplace	Included	0.0140110087	0.01631457536	0.01910644528	0.01332069076
c103	Python-Laplace	Included	0.01095699276	0.01095699276	0.0130440216	0.009241556399
c103	NONMEM-Laplace	Included	0.01095698909	0.01095698909	0.01304401729	0.009241553665
c104	Python-Laplace	Included	0.008300714235	0.008300714235	0.0103336987	0.007494303257
c104	NONMEM-Laplace	Included	0.008300711474	0.008300711474	0.01033369811	0.007494303187
c105	Python-Laplace	Included	0.007370285841	0.01064887873	0.01104083388	0.008017549711
c105	NONMEM-Laplace	Included	0.007370296097	0.01064889078	0.01104084661	0.00801755894
c106	Python-Laplace	Included	0.008276007152	0.01112191477	0.01196219739	0.008665372592
c106	NONMEM-Laplace	Included	0.008276018838	0.01112192142	0.01196220834	0.008665380937
c107	Python-Laplace	Included	0.01179907762	0.01607394069	0.01765542602	0.01324174169
c107	NONMEM-Laplace	Included	0.01179908038	0.01607394859	0.01765543175	0.01324174555
c108	Python-Laplace	Included	0.01252216608	0.01359004255	0.01618566512	0.01153057144
c108	NONMEM-Laplace	Included	0.01252215782	0.01359003718	0.01618565546	0.01153056511
c109	Python-Laplace	Included	0.005832633951	0.006621171945	0.008019662576	0.005838453156
c109	NONMEM-Laplace	Included	0.005832625553	0.006621184258	0.00801966022	0.00583845141

Scenario	Compared with R aghq	Scope	d-infinity	TV	d2	dH
c110	Python-Laplace	Included	0.01805211661	0.01913370065	0.02329984129	0.01748590055
c110	NONMEM-Laplace	Included	0.01805211313	0.01913370039	0.02329983895	0.01748589847
c111	Python-Laplace	Included	0.01120763329	0.0127534688	0.01567018472	0.009542161999
c111	NONMEM-Laplace	Included	0.01120760495	0.01275344191	0.01567014771	0.009542140091
c112	Python-Laplace	Included	0.005424102161	0.005424102161	0.006929671666	0.006367232359
c112	NONMEM-Laplace	Included	0.005424089954	0.005424089954	0.006929653707	0.00636721889
c113	Python-Laplace	Included	0.01066939062	0.01066939062	0.01236037356	0.009347663835
c113	NONMEM-Laplace	Included	0.01066937018	0.01066937018	0.0123603489	0.009347648451
c114	Python-Laplace	Included	0.01171765515	0.01171765515	0.01621233024	0.01077607678
c114	NONMEM-Laplace	Included	0.01171764062	0.01171764062	0.01621231757	0.01077606622
c115	Python-Laplace	Included	0.01051583234	0.01051583234	0.01433433956	0.009971757838
c115	NONMEM-Laplace	Included	0.01051582874	0.01051582874	0.01433432975	0.009971748847
c116	Python-Laplace	Included	0.007166433461	0.007166433461	0.009428255439	0.007959023832
c116	NONMEM-Laplace	Included	0.007166430468	0.007166430468	0.009428249444	0.007959017074
c117	Python-Laplace	Included	0.0151569635	0.0151569635	0.01914151415	0.01188682042
c117	NONMEM-Laplace	Included	0.01515694404	0.01515694404	0.01914149263	0.0118868071
c118	Python-Laplace	Included	0.004779787842	0.004779787842	0.005854234194	0.00354178427
c118	NONMEM-Laplace	Included	0.004779797045	0.004779797045	0.005854245518	0.00354179145
c119	Python-Laplace	Included	0.01592235268	0.01592235268	0.02054330905	0.0122549105
c119	NONMEM-Laplace	Included	0.0159223296	0.0159223296	0.02054328573	0.01225489612
c120	Python-Laplace	Included	0.01334968865	0.01334968865	0.01645108418	0.009957466532
c120	NONMEM-Laplace	Included	0.01334966239	0.01334966239	0.01645105273	0.009957447205
c121	Python-Laplace	Included	0.01221326537	0.01302790936	0.01572641433	0.01237640899
c121	NONMEM-Laplace	Included	0.01221325356	0.01302790827	0.01572640481	0.01237640153
c122	Python-Laplace	Included	0.006625656349	0.006625656349	0.007935397952	0.005675809675
c122	NONMEM-Laplace	Included	0.006625645498	0.006625645498	0.00793538755	0.005675801876
c123	Python-Laplace	Included	0.0207484606	0.0207484606	0.02490817958	0.01722800873
c123	NONMEM-Laplace	Included	0.02074846171	0.02074846171	0.02490818273	0.01722801098
c124	Python-Laplace	Included	0.007292768133	0.007961466394	0.009799409449	0.007127692285
c124	NONMEM-Laplace	Included	0.007292748632	0.007961451953	0.009799387015	0.007127676151
c125	Python-Laplace	Included	0.02302708278	0.02861819679	0.03116101416	0.02159010343
c125	NONMEM-Laplace	Included	0.02302706222	0.02861819121	0.03116099909	0.02159009404
c126	Python-Laplace	Included	0.01244443671	0.01244443671	0.01474966739	0.01041444691
c126	NONMEM-Laplace	Included	0.01244443463	0.01244443463	0.01474966657	0.01041444612
c127	Python-Laplace	Included	0.01265701661	0.01265701661	0.01515068521	0.01065382773
c127	NONMEM-Laplace	Included	0.01265701019	0.01265701019	0.01515067843	0.01065382301
c128	Python-Laplace	Included	0.01238882415	0.01238882415	0.01537966651	0.01073018097
c128	NONMEM-Laplace	Included	0.01238882279	0.01238882279	0.01537966829	0.010730182
c129	Python-Laplace	Included	0.01189388361	0.01189388361	0.01528323104	0.01062620441
c129	NONMEM-Laplace	Included	0.01189388166	0.01189388166	0.01528323038	0.01062620394
c130	Python-Laplace	Included	0.007208470045	0.007208470045	0.009501802216	0.006976559695
c130	NONMEM-Laplace	Included	0.007208483147	0.007208483147	0.009501808762	0.006976563367
c131	Python-Laplace	Included	0.009752044576	0.009752044576	0.01181976458	0.008377255066
c131	NONMEM-Laplace	Included	0.009752018501	0.009752018501	0.01181973622	0.008377234777
c132	Python-Laplace	Included	0.0153677294	0.01600920411	0.0195543599	0.01367148724
c132	NONMEM-Laplace	Included	0.01536775148	0.01600922137	0.01955438403	0.01367150395
c133	Python-Laplace	Included	0.01767366982	0.01995248391	0.02339569181	0.01641382211
c133	NONMEM-Laplace	Included	0.01767366275	0.01995247587	0.02339568449	0.01641381724
c134	Python-Laplace	Included	0.003519487209	0.003519487209	0.004977306544	0.0025117528
c134	NONMEM-Laplace	Included	0.003519491764	0.003519491764	0.004977312985	0.002511756049
c135	Python-Laplace	Included	0.007896864073	0.01409689916	0.01124883925	0.01126820422
c135	NONMEM-Laplace	Included	0.007896870006	0.01409689288	0.01124883935	0.01126820342

MC comparisons retain the reported web precision and matched visible settings; backend equivalence was not established.

Summary across sensitivity scenarios

Output availability

Method	Scenarios with five valid outputs	No-output scenarios
Python Laplace	133/134	c078
NONMEM Laplace	133/134	c078
R aghq	133/134	c078

Cross-method agreement

NONMEM vs R aghq

Metric	n	Median	P95	Maximum	Scenario
d_∞	133	0.011531	0.021043	0.052634	c099
TV	133	0.012582	0.024948	0.052634	c099
d_2	133	0.015151	0.026902	0.063263	c099
d_H	133	0.010626	0.019393	0.045709	c001

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.

Python vs NONMEM

Metric	n	Median	P95	Maximum	Scenario
d_∞	133	1.50737×10^{-8}	4.67893×10^{-8}	4.50127×10^{-7}	c026
TV	133	1.60231×10^{-8}	4.81845×10^{-8}	4.50127×10^{-7}	c026
d_2	133	1.95293×10^{-8}	5.85664×10^{-8}	5.25194×10^{-7}	c026
d_H	133	1.44431×10^{-8}	4.06783×10^{-8}	4.72107×10^{-7}	c026

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.

Python vs R aghq

Metric	n	Median	P95	Maximum	Scenario
d_∞	133	0.011531	0.021043	0.052634	c099
TV	133	0.012582	0.024948	0.052634	c099
d_2	133	0.015151	0.026902	0.063263	c099
d_H	133	0.010626	0.019393	0.045709	c001

d_∞, maximum absolute probability difference; TV, total variation; d_2, Euclidean distance; d_H, Hellinger distance.

P95 uses linear interpolation (R type 7).