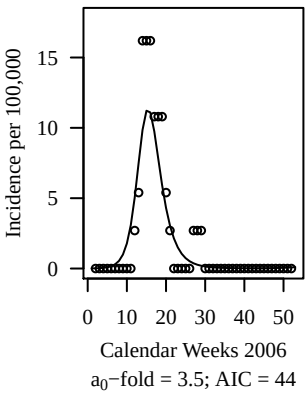
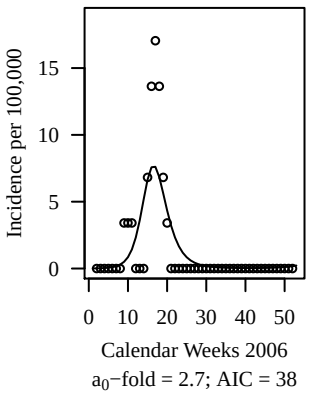
Results of model estimations using a poisson maximum likelihood approach.

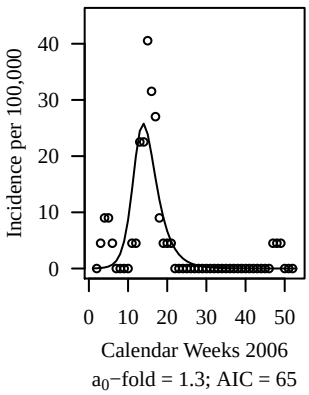
Figure 1. Model1−"inv" trajectories matching plots of simulated and observed (weekly) data, for 64 health center−years with complete data, across four health distrits of Burkina faso (2004−2010).



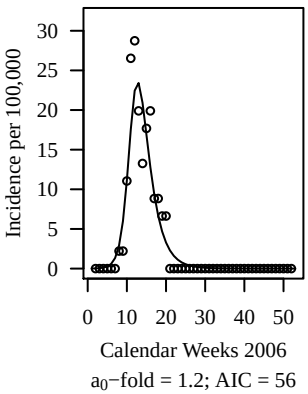
a_0−fold = 3.5; AIC = 44



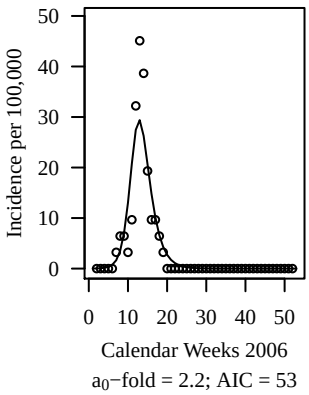
a_0−fold = 2.7; AIC = 38



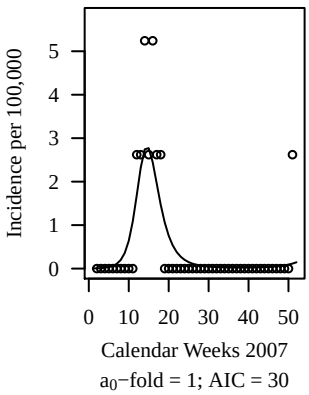
a_0−fold = 1.3; AIC = 65



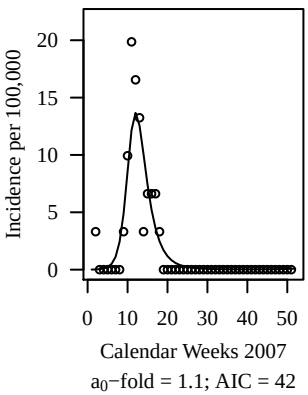
a_0−fold = 1.2; AIC = 56



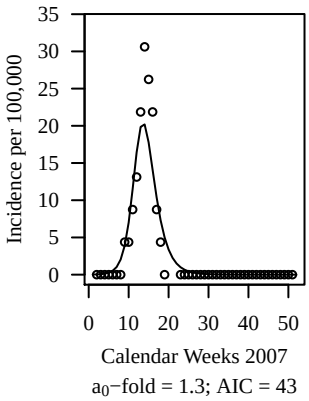
a_0−fold = 2.2; AIC = 53



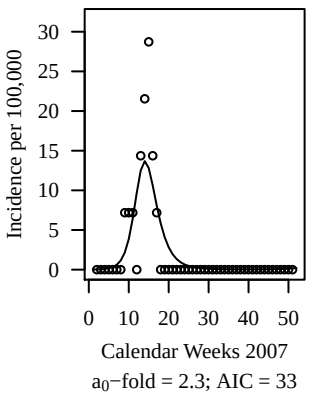
a_0−fold = 1; AIC = 30



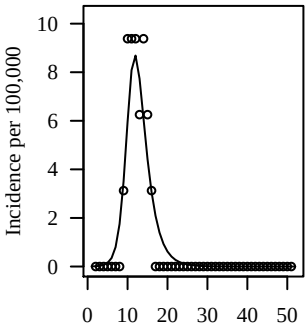
a_0−fold = 1.1; AIC = 42



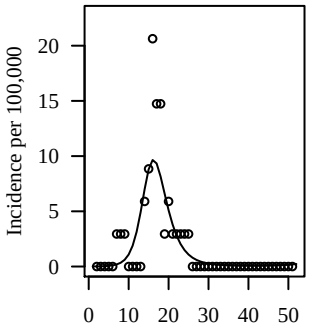
a_0−fold = 1.3; AIC = 43



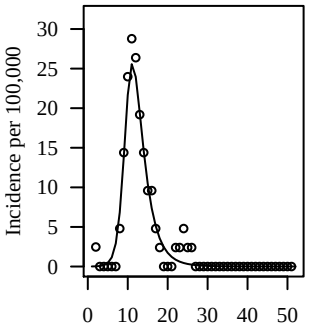
a_0−fold = 2.3; AIC = 33



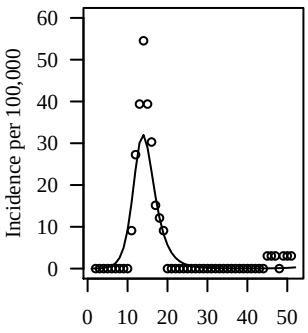
a_0−fold = 1.5; AIC = 36



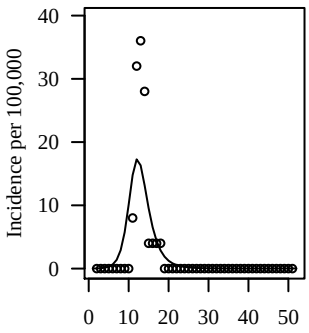
a_0−fold = 2.2; AIC = 44



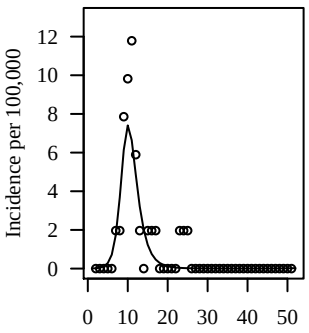
a_0−fold = 1.2; AIC = 56



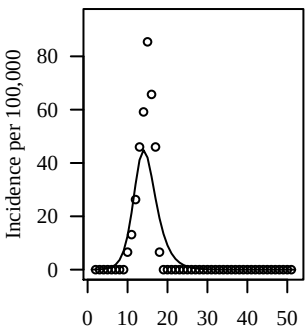
a_0−fold = 3.5; AIC = 55



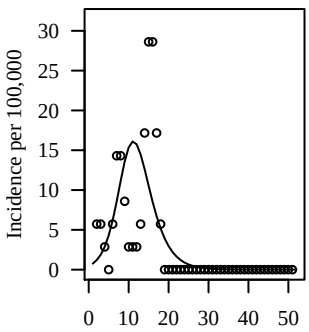
a_0−fold = 1.3; AIC = 42



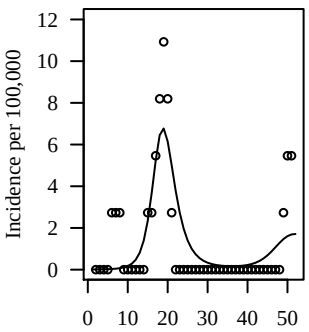
a_0−fold = 1; AIC = 35



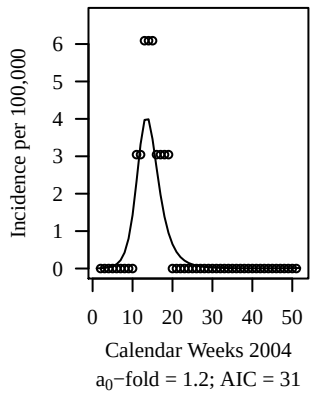
a_0−fold = 2.1; AIC = 49



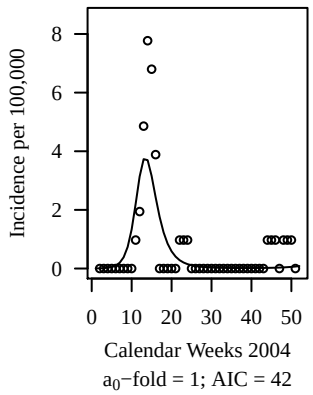
a_0−fold = 3.4; AIC = 76



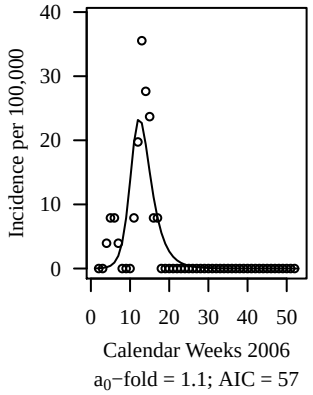
a_0−fold = 3.7; AIC = 44



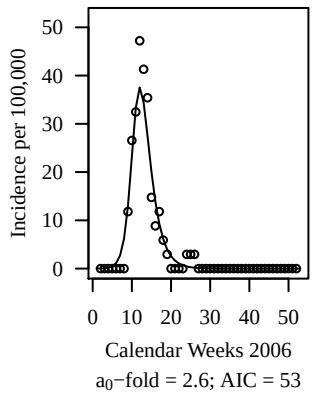
a_0−fold = 1.2; AIC = 31



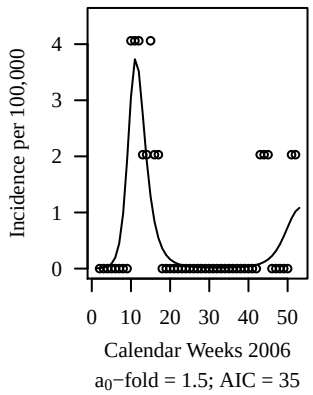
a_0−fold = 1; AIC = 42



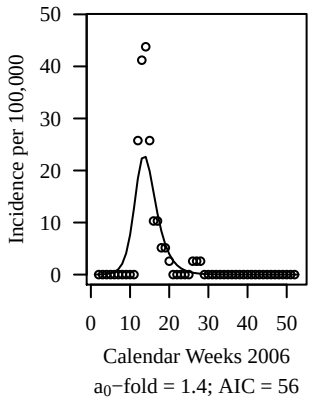
a_0−fold = 1.1; AIC = 57



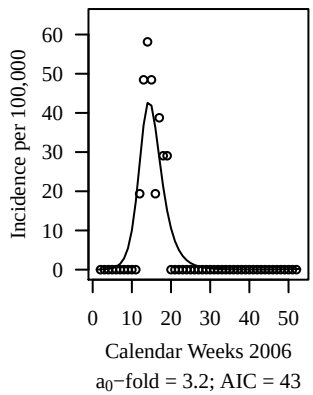
a_0−fold = 2.6; AIC = 53



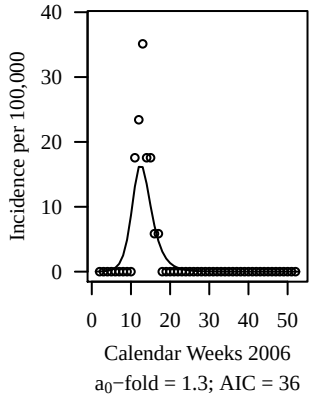
a_0−fold = 1.5; AIC = 35



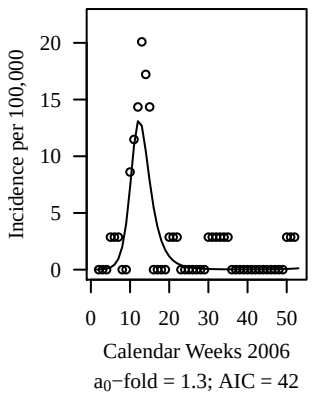
a_0−fold = 1.4; AIC = 56



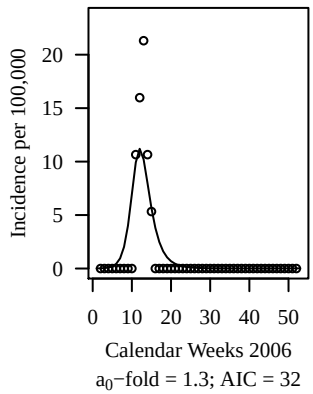
a_0−fold = 3.2; AIC = 43



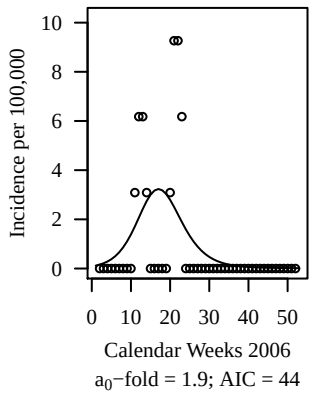
a_0−fold = 1.3; AIC = 36



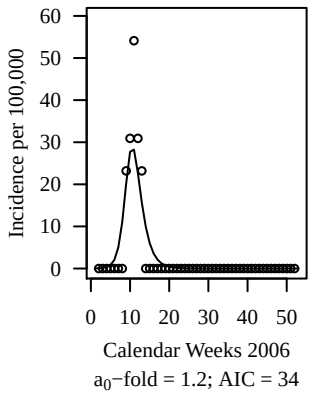
a_0−fold = 1.3; AIC = 42



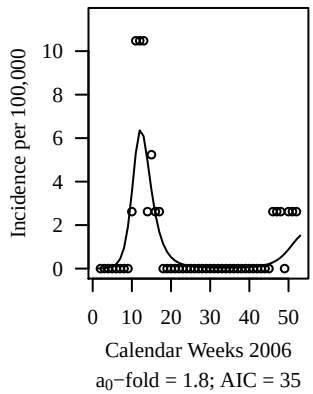
a_0−fold = 1.3; AIC = 32



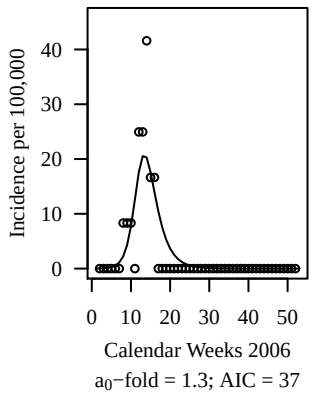
a_0−fold = 1.9; AIC = 44



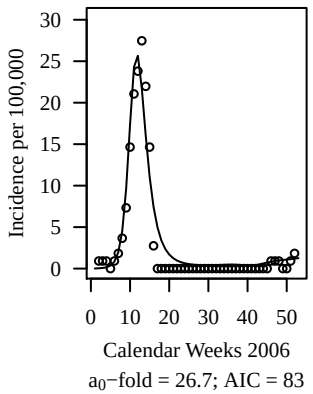
a_0−fold = 1.2; AIC = 34



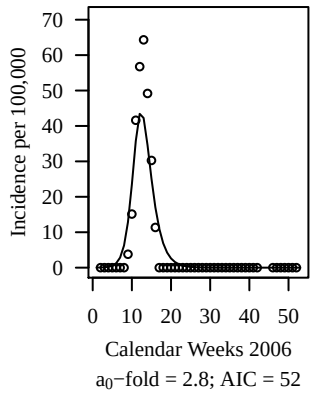
a_0−fold = 1.8; AIC = 35



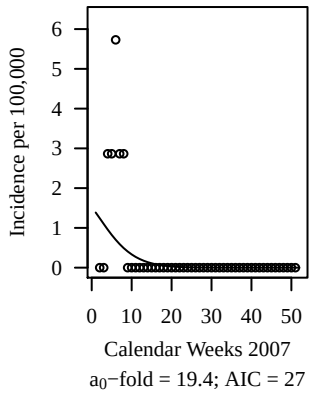
a_0−fold = 1.3; AIC = 37



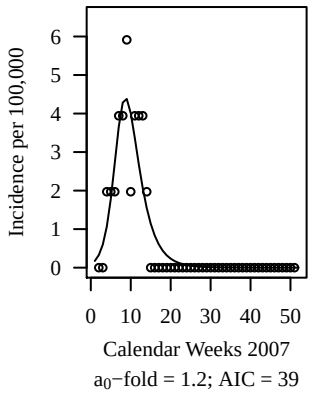
a_0−fold = 26.7; AIC = 83



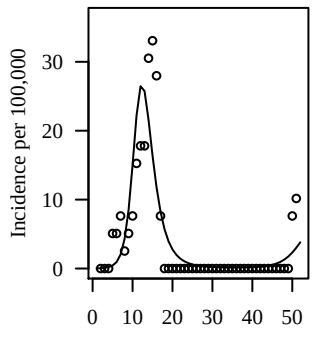
a_0−fold = 2.8; AIC = 52



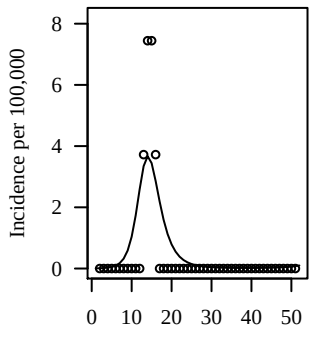
a_0−fold = 19.4; AIC = 27



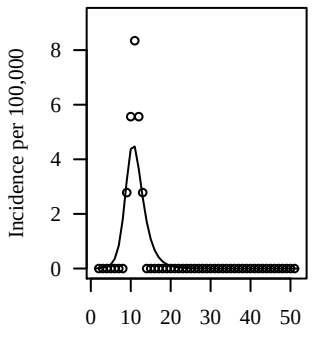
a_0−fold = 1.2; AIC = 39



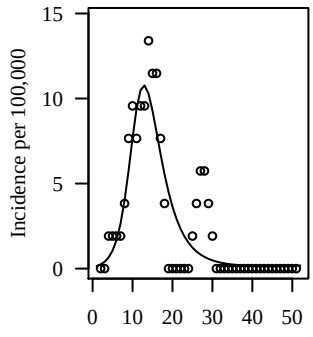
a_0−fold = 3; AIC = 78



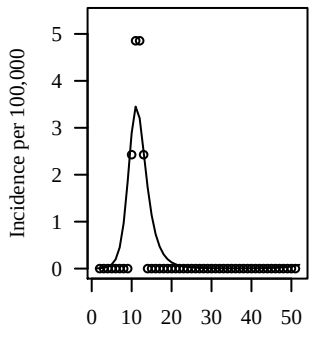
a_0−fold = 1.1; AIC = 29



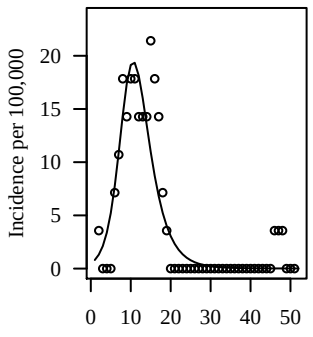
a_0−fold = 1; AIC = 30



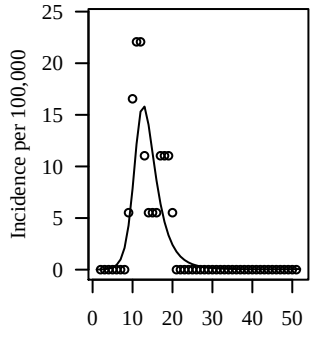
a_0−fold = 1.2; AIC = 74



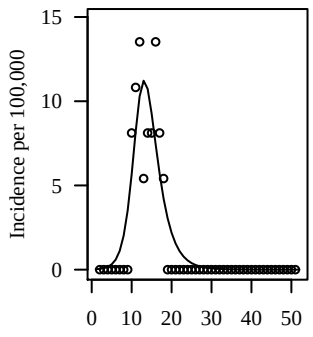
a_0−fold = 1; AIC = 28



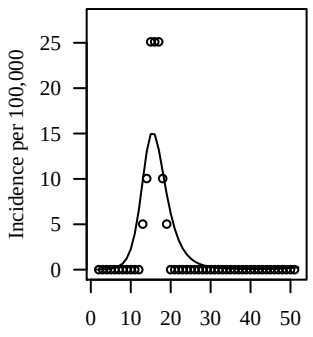
a_0−fold = 1.5; AIC = 58



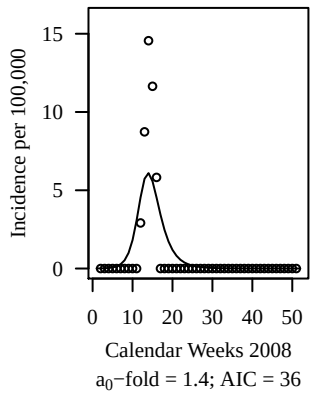
a_0−fold = 1.1; AIC = 44



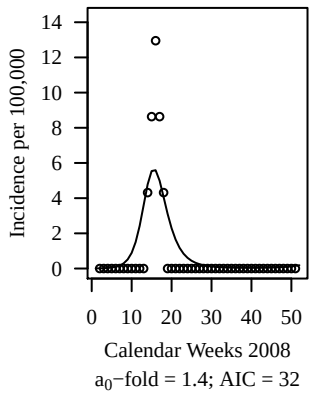
a_0−fold = 1.5; AIC = 45



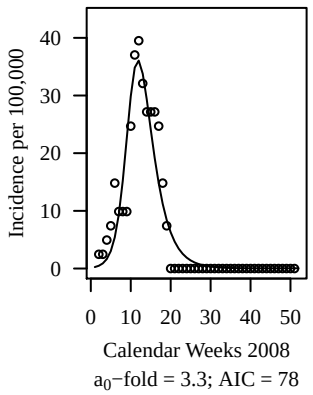
a_0−fold = 2.2; AIC = 42



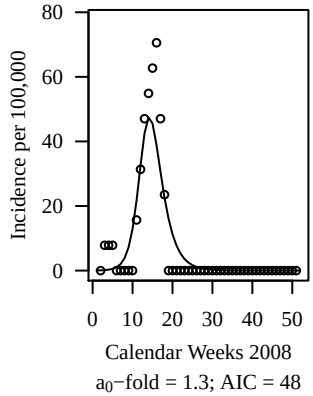
a_0−fold = 1.4; AIC = 36



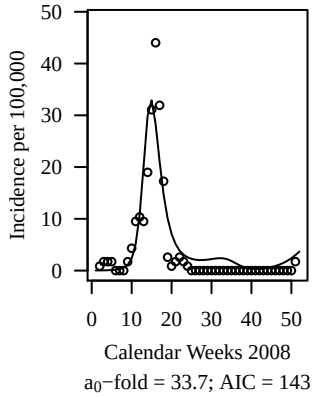
a_0−fold = 1.4; AIC = 32



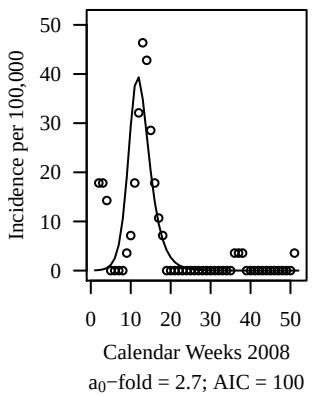
a_0−fold = 3.3; AIC = 78



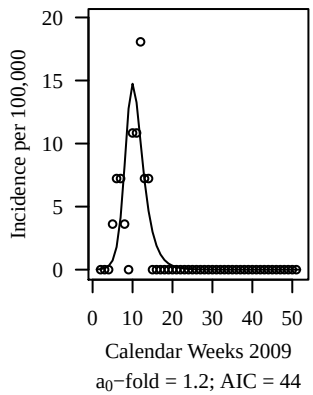
a_0−fold = 1.3; AIC = 48



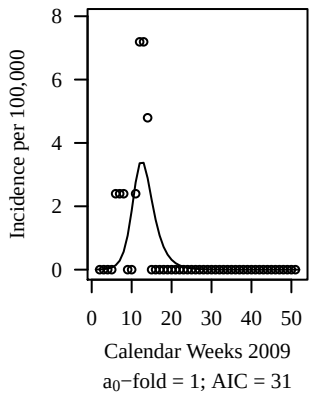
a_0−fold = 33.7; AIC = 143



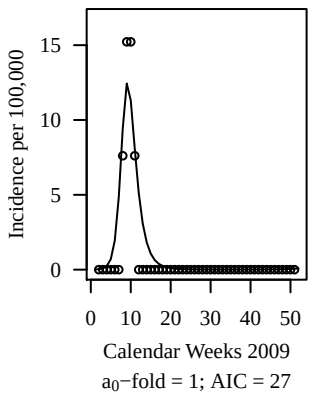
a_0−fold = 2.7; AIC = 100



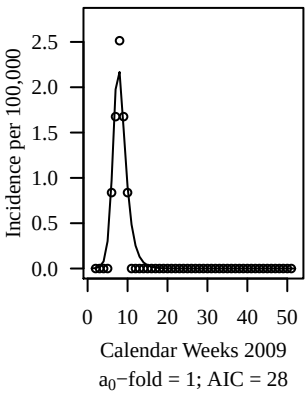
a_0−fold = 1.2; AIC = 44



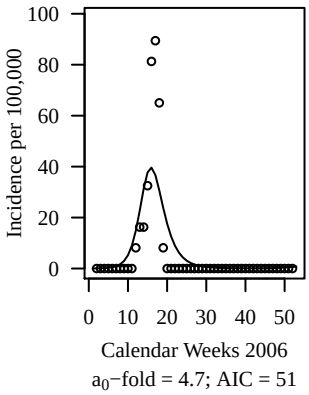
a_0−fold = 1; AIC = 31



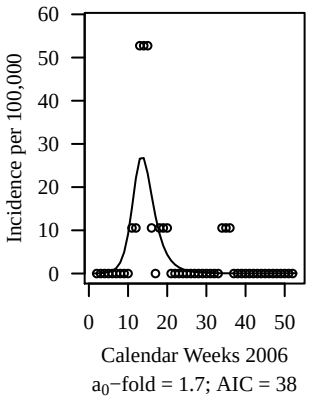
a_0−fold = 1; AIC = 27



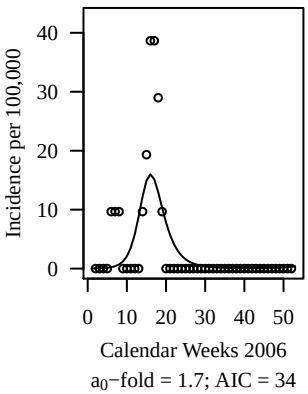
a_0−fold = 1; AIC = 28



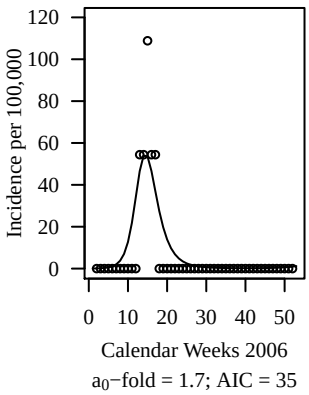
a_0−fold = 4.7; AIC = 51



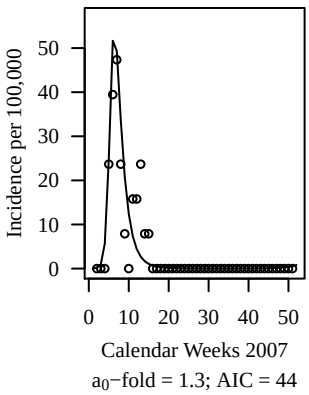
a_0−fold = 1.7; AIC = 38



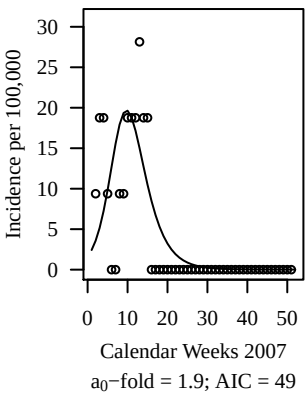
a_0−fold = 1.7; AIC = 34



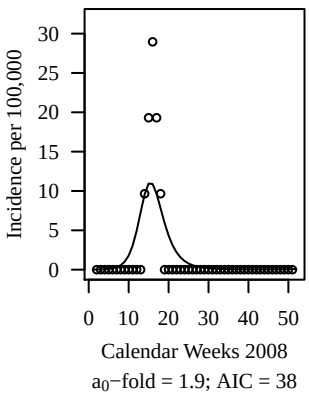
a_0−fold = 1.7; AIC = 35



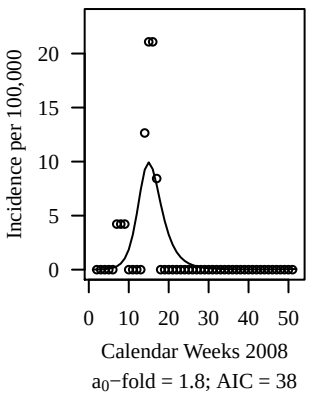
a_0−fold = 1.3; AIC = 44



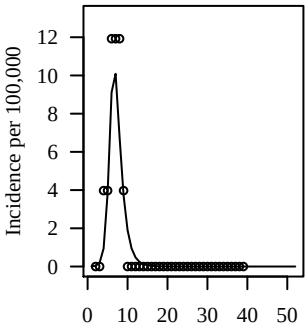
a_0−fold = 1.9; AIC = 49



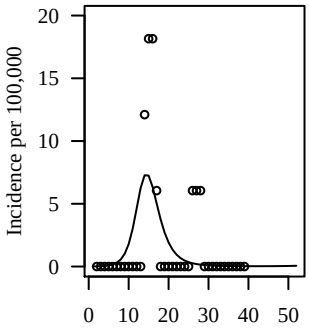
a_0−fold = 1.9; AIC = 38



a_0−fold = 1.8; AIC = 38

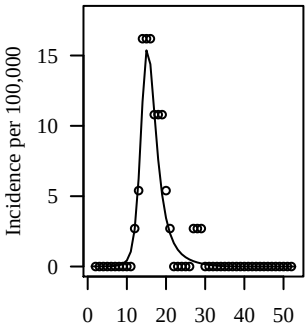


a_0−fold = 1; AIC = 28

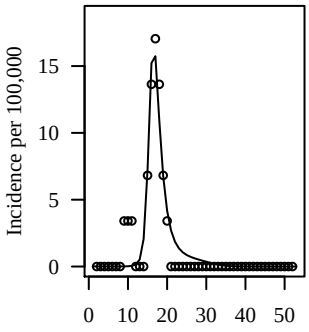


a_0−fold = 1; AIC = 31

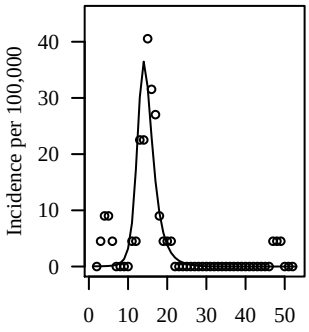
Figure 2. Model2−"transm" trajectories matching plots of simulated and observed (weekly) data, for 64 health center−years with complete data, across four health distrits of Burkina faso (2004−2010).



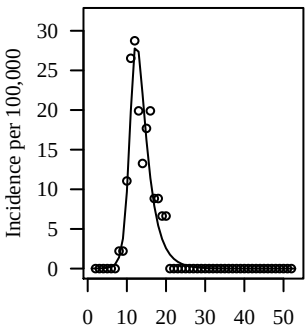
β_0−fold = 1.4; AIC = 42



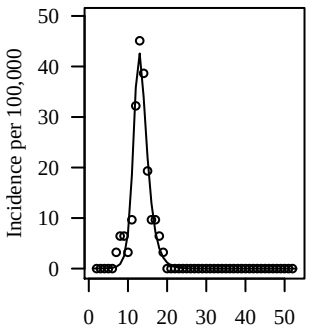
β_0−fold = 1.7; AIC = 34



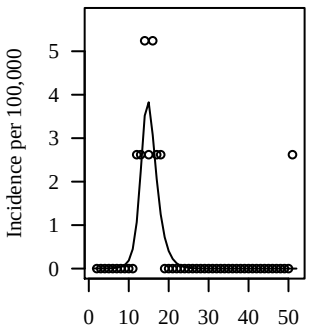
β_0−fold = 1.7; AIC = 63



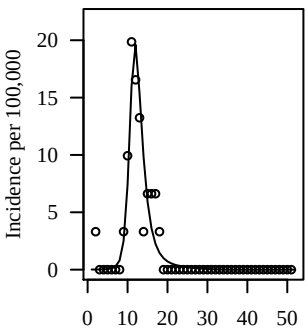
β_0−fold = 1.5; AIC = 55



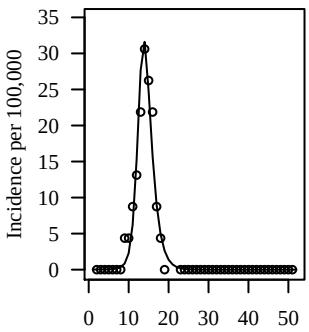
β_0−fold = 2; AIC = 52



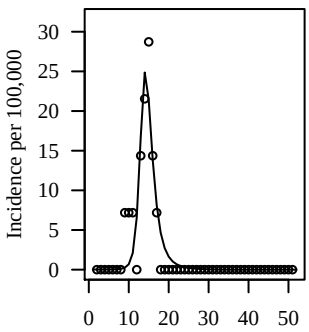
β_0−fold = 2; AIC = 28



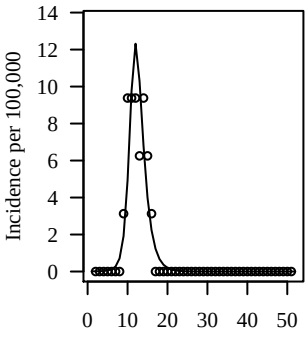
β_0−fold = 1.8; AIC = 41



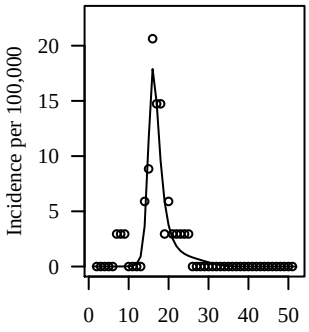
β_0−fold = 2; AIC = 39



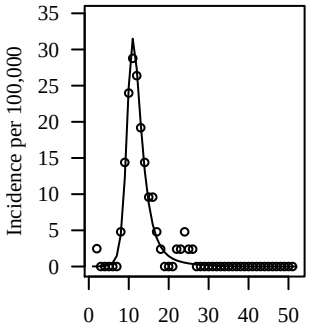
β_0−fold = 2; AIC = 30



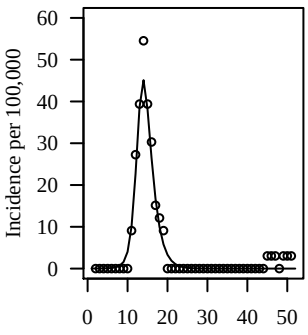
β_0−fold = 1.6; AIC = 34



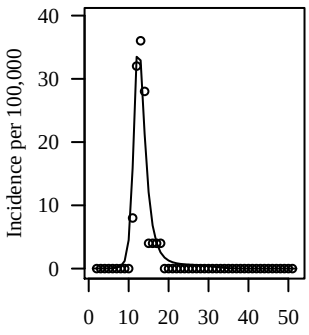
β_0−fold = 1.9; AIC = 39



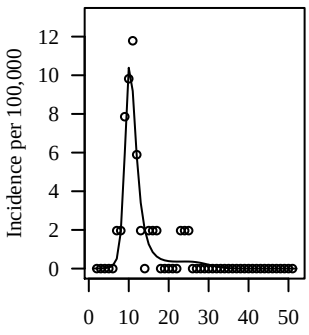
β_0−fold = 1.3; AIC = 55



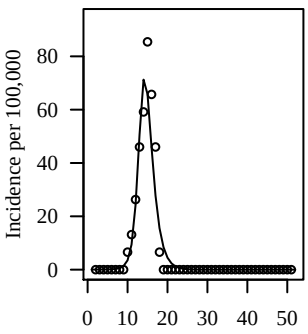
β_0−fold = 1.7; AIC = 48



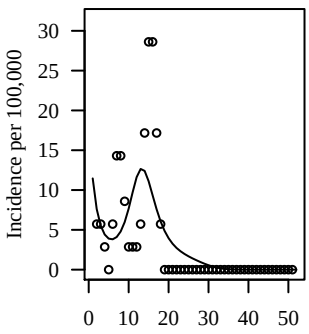
β_0−fold = 2; AIC = 37



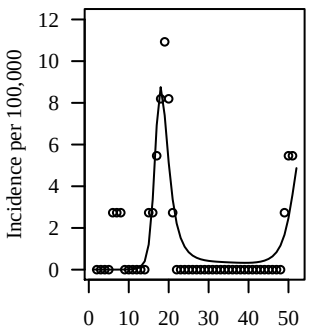
β_0−fold = 1.8; AIC = 34



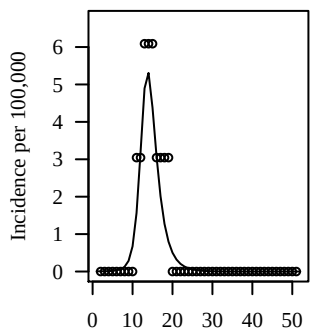
β_0−fold = 2; AIC = 43



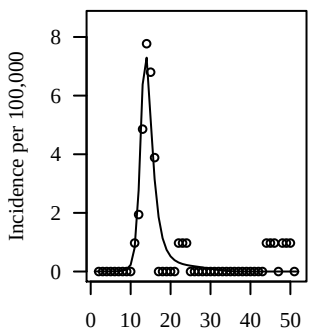
β_0−fold = 2; AIC = 76



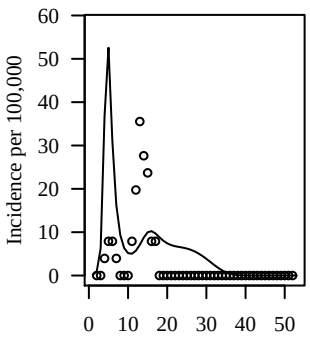
β_0−fold = 0.7; AIC = 41



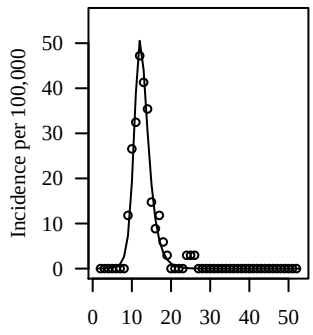
β_0−fold = 1.3; AIC = 30



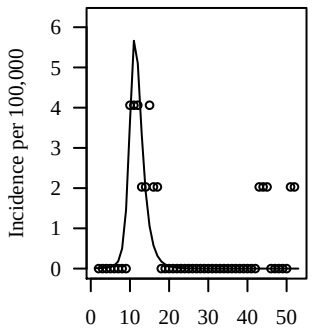
β_0−fold = 2; AIC = 37



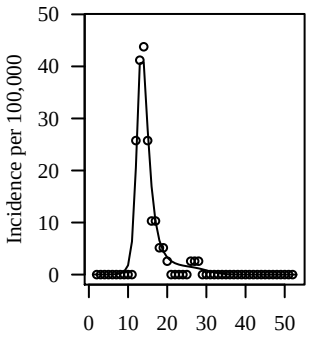
β_0−fold = 2; AIC = 85



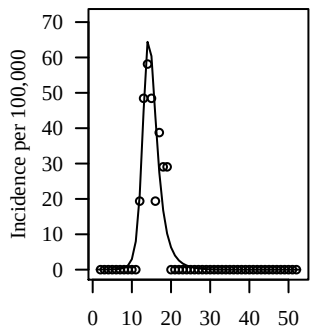
β_0−fold = 1.5; AIC = 50



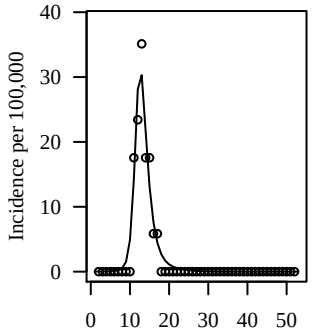
β_0−fold = 2; AIC = 32



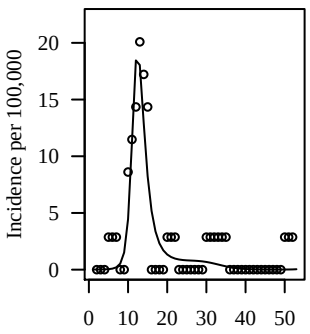
β_0−fold = 2; AIC = 50



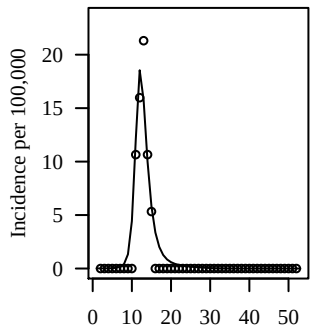
β_0−fold = 1.7; AIC = 41



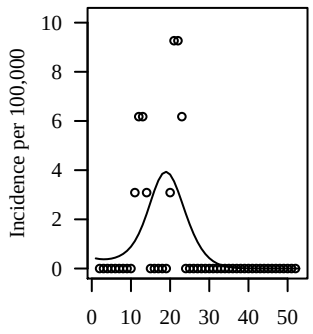
β_0−fold = 2; AIC = 34



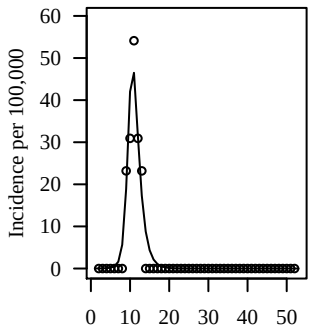
β_0−fold = 1.1; AIC = 42



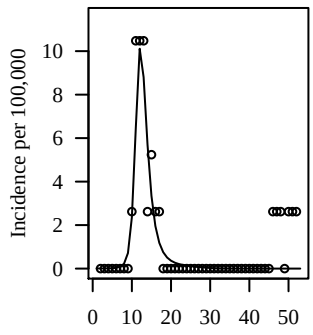
β_0−fold = 2; AIC = 30



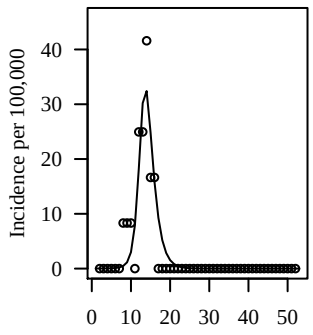
β_0−fold = 1.1; AIC = 44



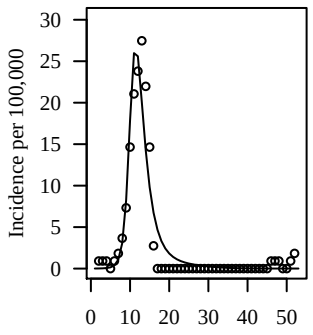
β_0−fold = 2; AIC = 33



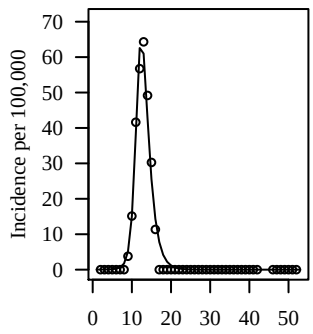
β_0−fold = 2; AIC = 32



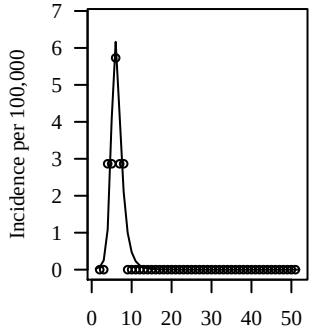
β_0−fold = 1.7; AIC = 33



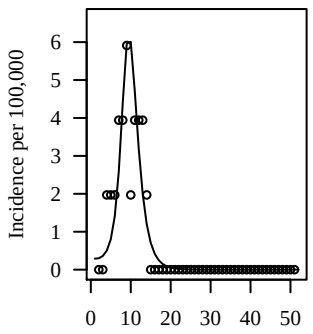
β_0−fold = 1.1; AIC = 84



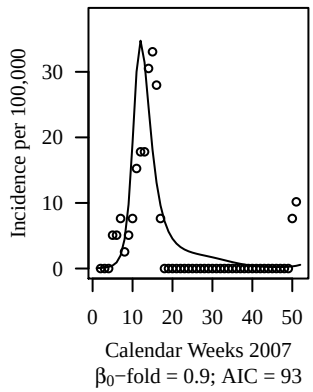
β_0−fold = 1.9; AIC = 45



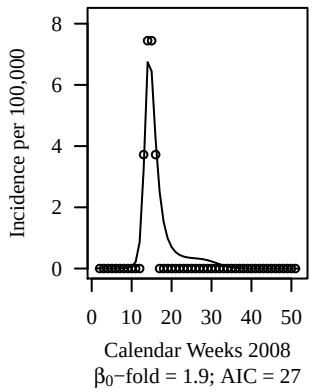
β_0−fold = 2; AIC = 25



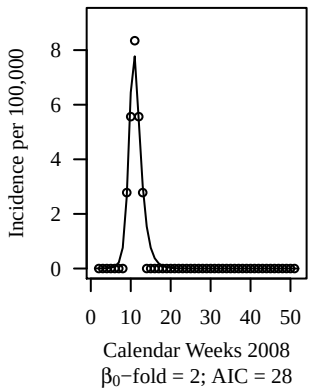
β_0−fold = 2; AIC = 37



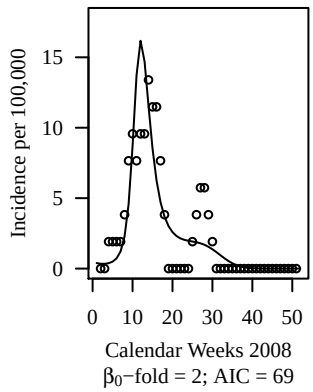
β_0−fold = 0.9; AIC = 93



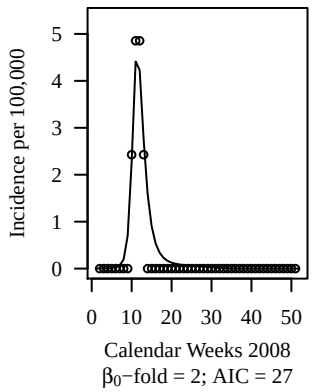
β_0−fold = 1.9; AIC = 27



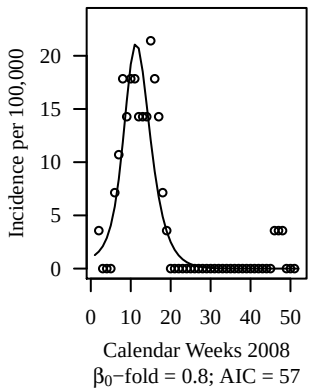
β_0−fold = 2; AIC = 28



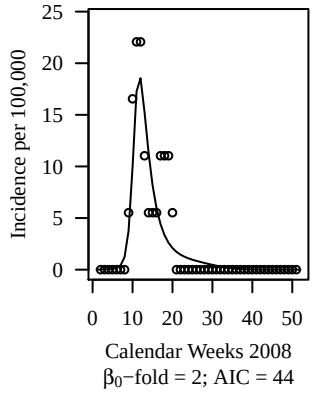
β_0−fold = 2; AIC = 69



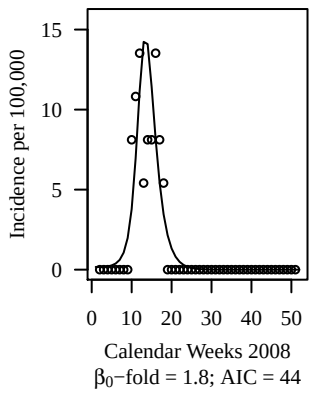
β_0−fold = 2; AIC = 27



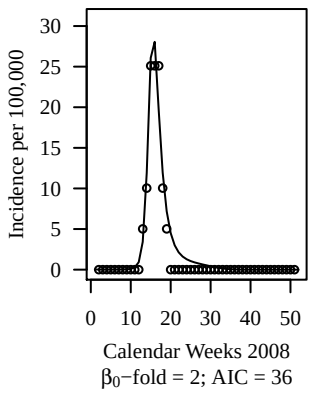
β_0−fold = 0.8; AIC = 57



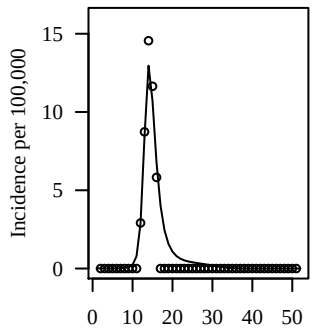
β_0−fold = 2; AIC = 44



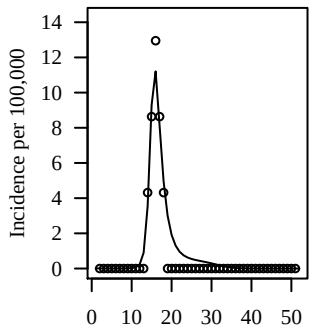
β_0−fold = 1.8; AIC = 44



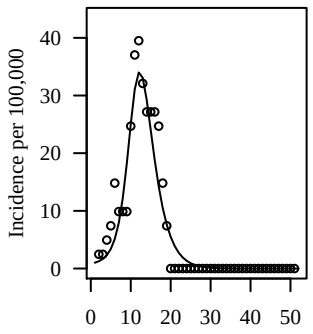
β_0−fold = 2; AIC = 36



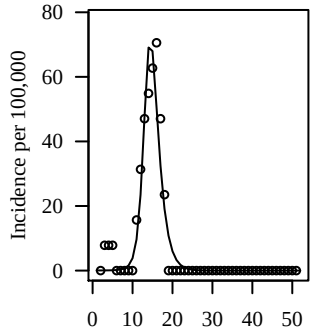
β_0−fold = 2; AIC = 32



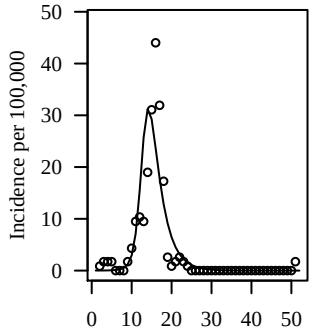
β_0−fold = 1.8; AIC = 29



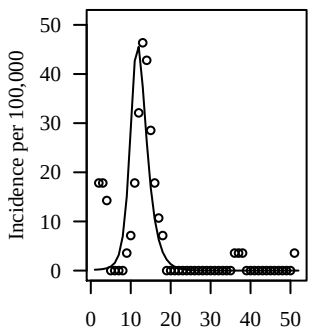
β_0−fold = 1.3; AIC = 75



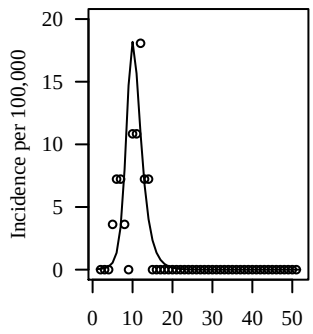
β_0−fold = 1.8; AIC = 43



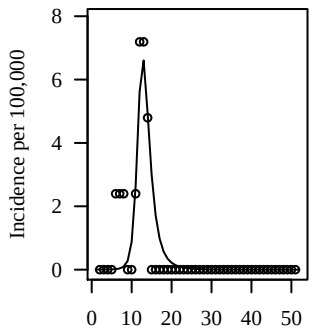
β_0−fold = 2; AIC = 143



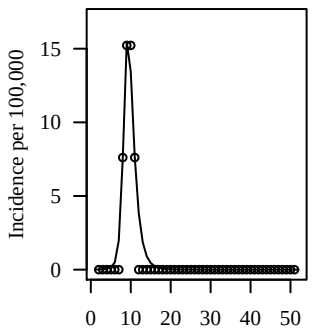
β_0−fold = 1.6; AIC = 95



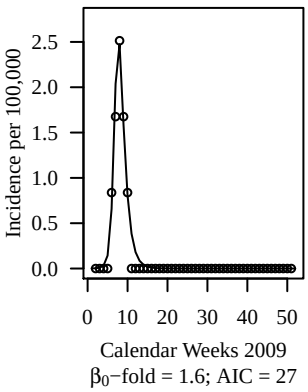
β_0−fold = 1.2; AIC = 45



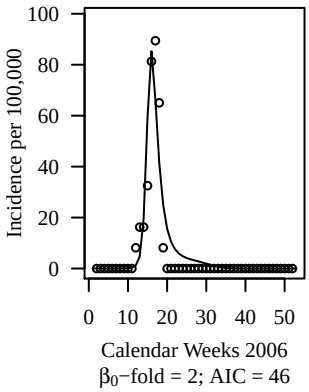
β_0−fold = 2; AIC = 29



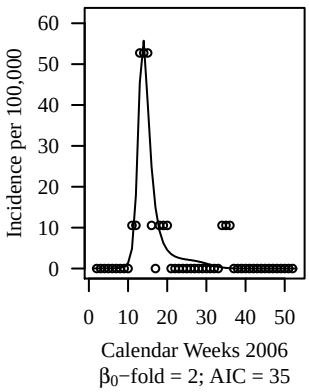
β_0−fold = 2; AIC = 26



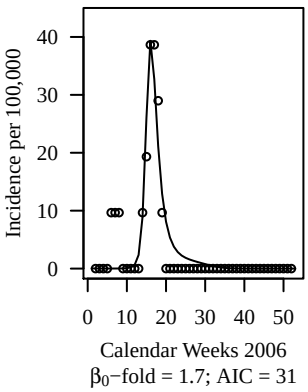
β_0−fold = 1.6; AIC = 27



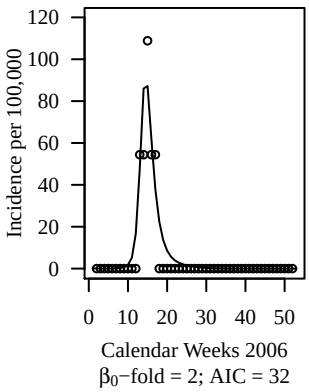
β_0−fold = 2; AIC = 46



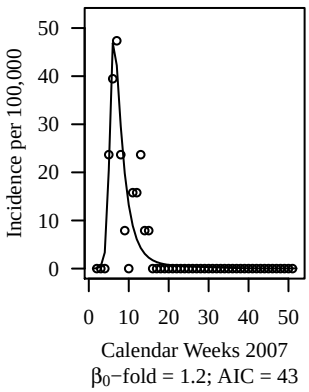
β_0−fold = 2; AIC = 35



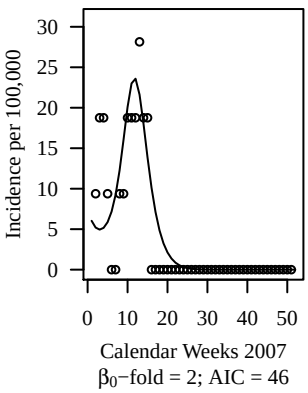
β_0−fold = 1.7; AIC = 31



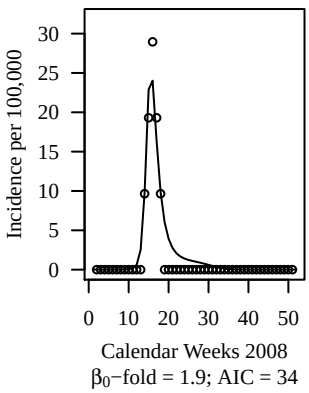
β_0−fold = 2; AIC = 32



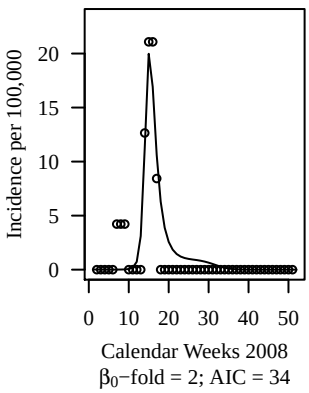
β_0−fold = 1.2; AIC = 43



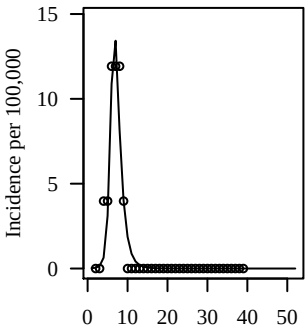
β_0−fold = 2; AIC = 46



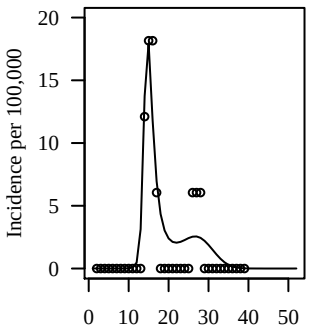
β_0−fold = 1.9; AIC = 34



β_0−fold = 2; AIC = 34

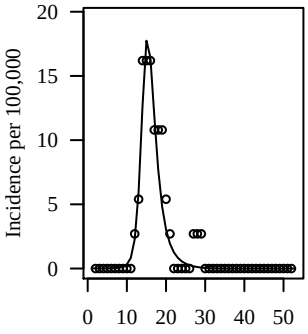


β_0−fold = 2; AIC = 27

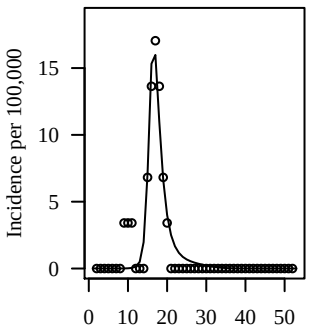


β_0−fold = 1.9; AIC = 31

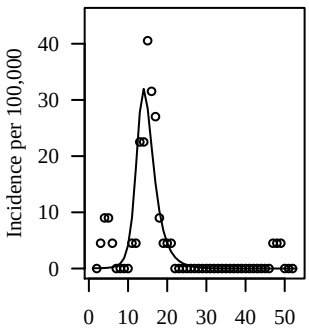
Figure 3. Model3−"inv−transm" trajectories matching plots of simulated and observed (weekly) data, for 64 health center−years with complete data, across four health distrits of Burkina faso (2004−2010).



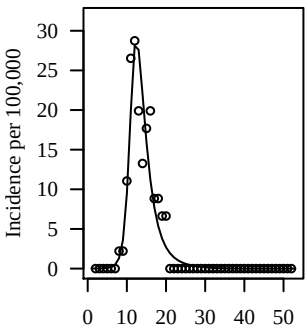
a_0−fold = 1.3; β_0−fold = 1.9; AIC = 44



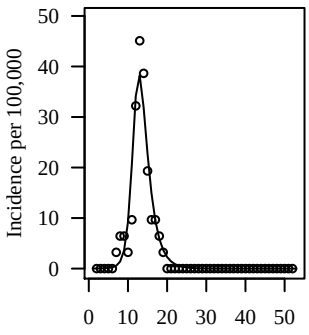
a_0−fold = 3.1; β_0−fold = 1.6; AIC = 37



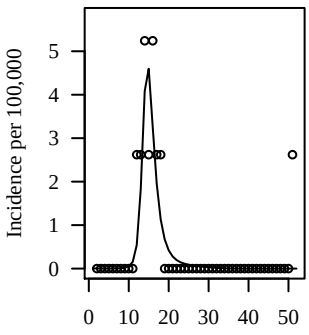
a_0−fold = 1.8; β_0−fold = 1.6; AIC = 66



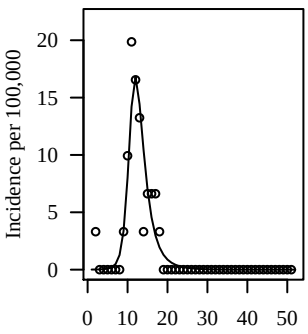
a_0−fold = 1.5; β_0−fold = 1.4; AIC = 58



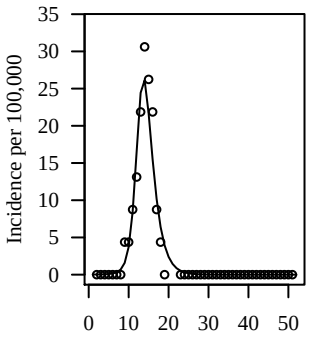
a_0−fold = 1.5; β_0−fold = 1.6; AIC = 55



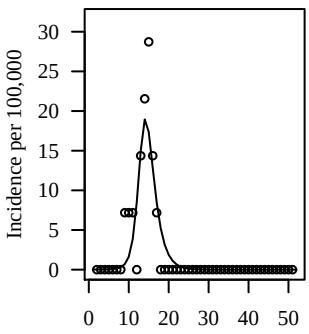
a_0−fold = 1; β_0−fold = 2; AIC = 30



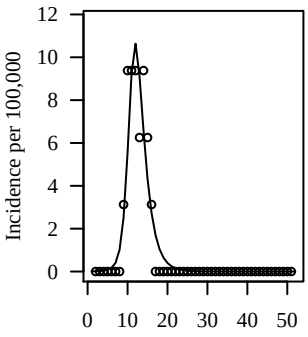
a_0−fold = 1.3; β_0−fold = 1.1; AIC = 44



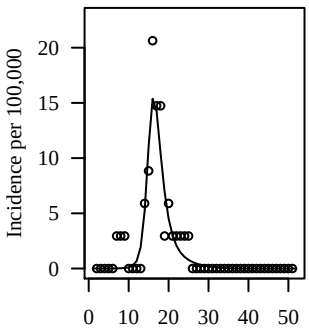
a_0−fold = 1.4; β_0−fold = 1.4; AIC = 43



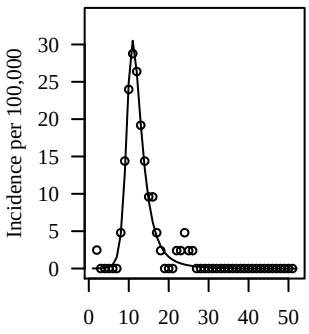
a_0−fold = 1.5; β_0−fold = 1.4; AIC = 34



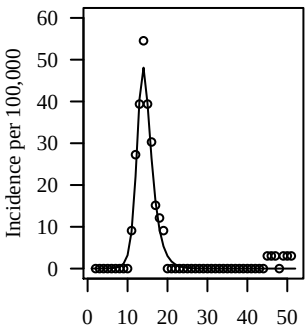
a_0−fold = 1.2; β_0−fold = 1.1; AIC = 38



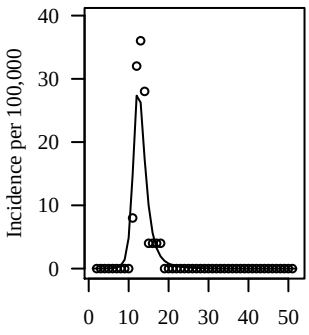
a_0−fold = 1.8; β_0−fold = 1.5; AIC = 42



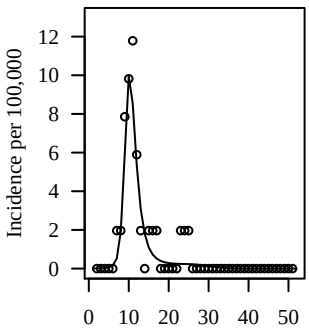
a_0−fold = 1; β_0−fold = 1.4; AIC = 58



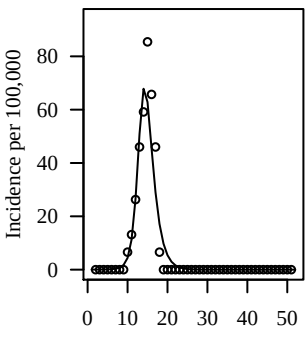
a_0−fold = 4; β_0−fold = 1.9; AIC = 50



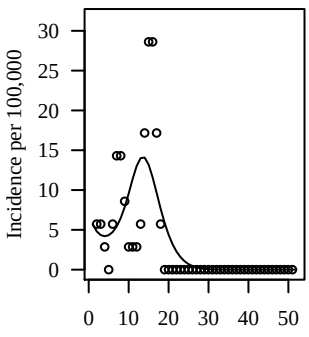
a_0−fold = 1.2; β_0−fold = 2; AIC = 39



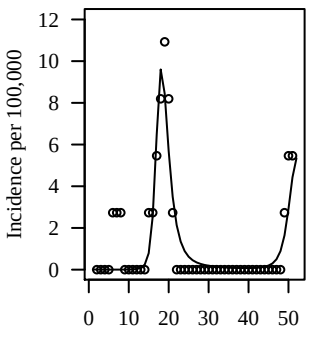
a_0−fold = 1; β_0−fold = 1.7; AIC = 36



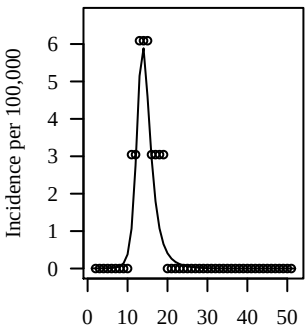
a_0−fold = 2.6; β_0−fold = 2; AIC = 47



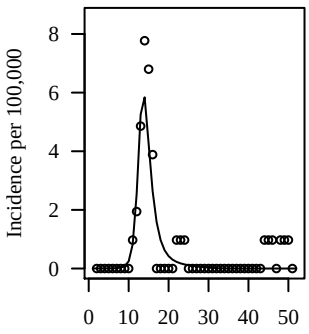
a_0−fold = 3.6; β_0−fold = 1.7; AIC = 74



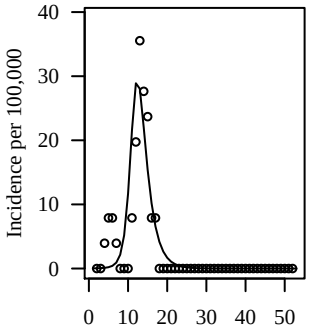
a_0−fold = 3.2; β_0−fold = 0.8; AIC = 41



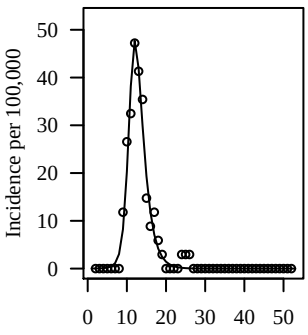
a_0−fold = 1.1; β_0−fold = 1.6; AIC = 32



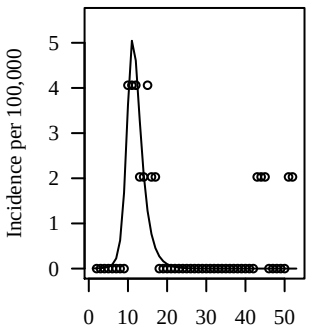
a_0−fold = 1.4; β_0−fold = 2; AIC = 39



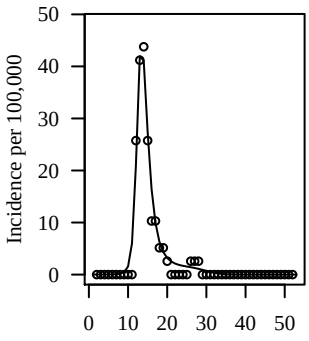
a_0−fold = 1.3; β_0−fold = 1.3; AIC = 61



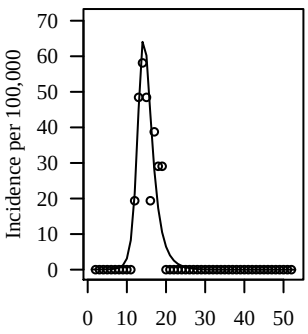
a_0−fold = 2.1; β_0−fold = 1.3; AIC = 53



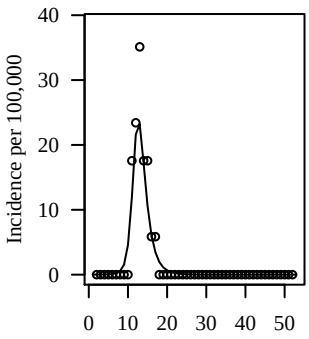
a_0−fold = 1.2; β_0−fold = 1.7; AIC = 35



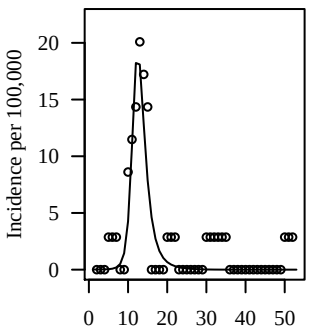
a_0−fold = 3.7; β_0−fold = 1.9; AIC = 52



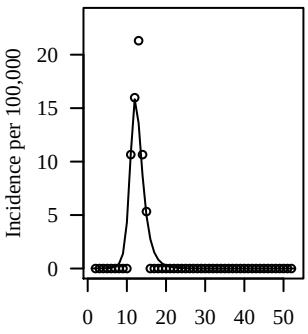
a_0−fold = 1; β_0−fold = 2; AIC = 44



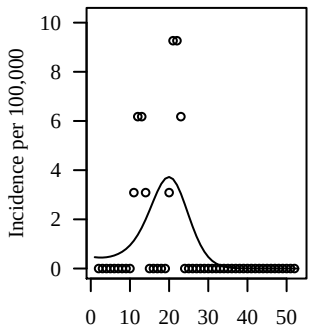
a_0−fold = 1.5; β_0−fold = 1.8; AIC = 36



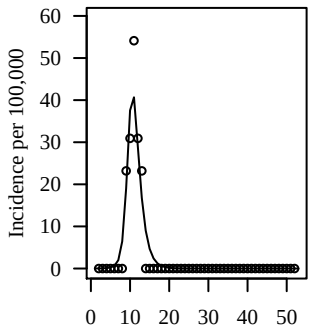
a_0−fold = 1.3; β_0−fold = 1.6; AIC = 42



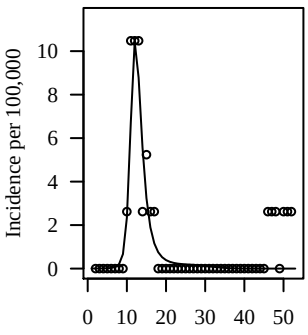
a_0−fold = 1.2; β_0−fold = 2; AIC = 33



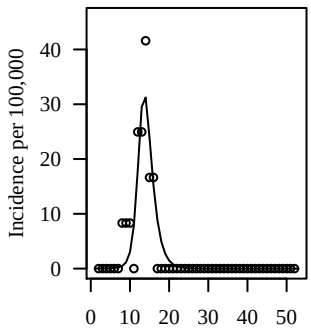
a_0−fold = 4.9; β_0−fold = 1.1; AIC = 47



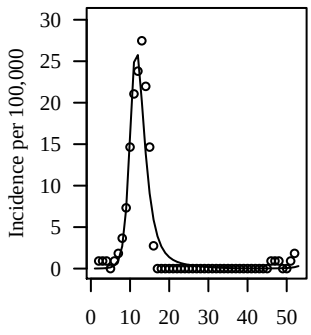
a_0−fold = 1.8; β_0−fold = 1.7; AIC = 36



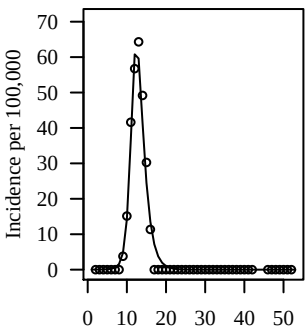
a_0−fold = 2.1; β_0−fold = 1.6; AIC = 35



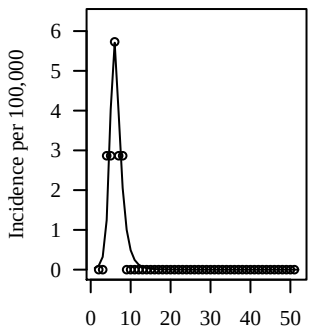
a_0−fold = 1.9; β_0−fold = 1.9; AIC = 36



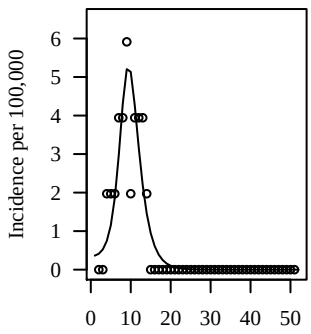
a_0−fold = 4.6; β_0−fold = 0.7; AIC = 77



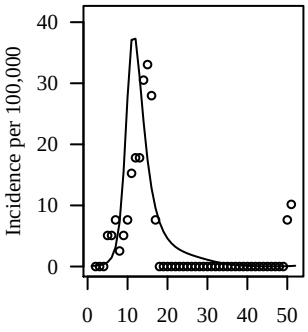
a_0−fold = 2.6; β_0−fold = 2; AIC = 47



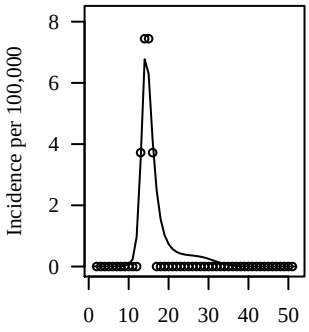
a_0−fold = 1; β_0−fold = 2; AIC = 28



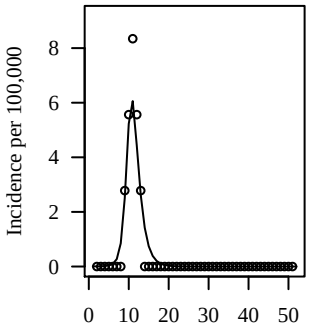
a_0−fold = 1.5; β_0−fold = 2; AIC = 41



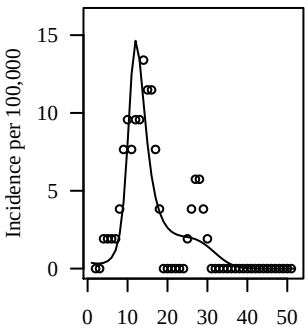
a_0−fold = 2.4; β_0−fold = 1.2; AIC = 102



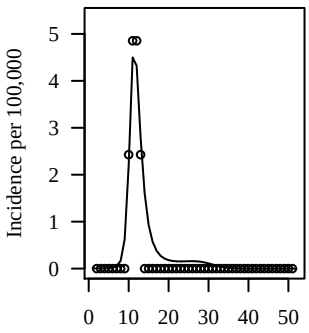
a_0−fold = 1.3; β_0−fold = 1.7; AIC = 30



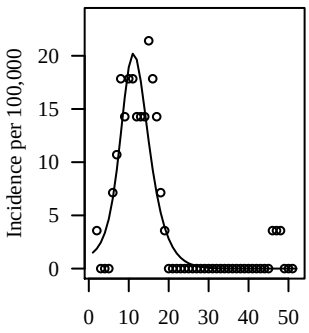
a_0−fold = 1.1; β_0−fold = 1.9; AIC = 31



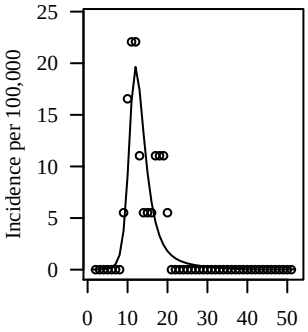
a_0−fold = 1.1; β_0−fold = 1.9; AIC = 72



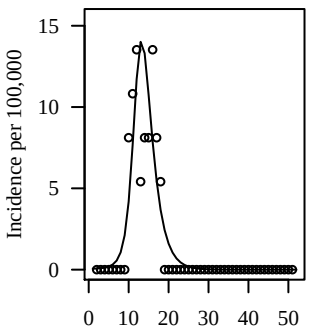
a_0−fold = 1.1; β_0−fold = 2; AIC = 30



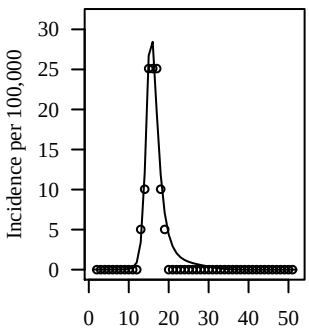
a_0−fold = 1.6; β_0−fold = 1.1; AIC = 60



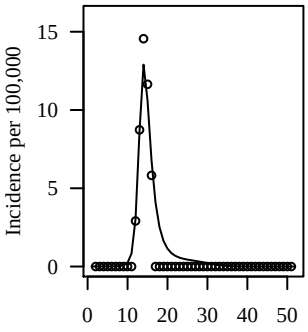
a_0−fold = 1.2; β_0−fold = 1.1; AIC = 47



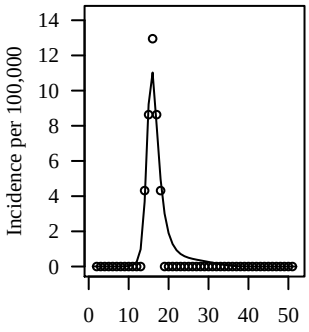
a_0−fold = 1.3; β_0−fold = 1.4; AIC = 47



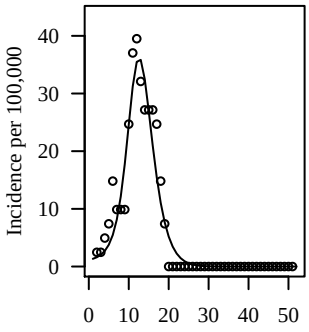
a_0−fold = 3.7; β_0−fold = 1.7; AIC = 38



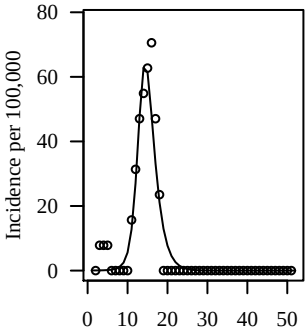
a_0−fold = 2.4; β_0−fold = 1.7; AIC = 35



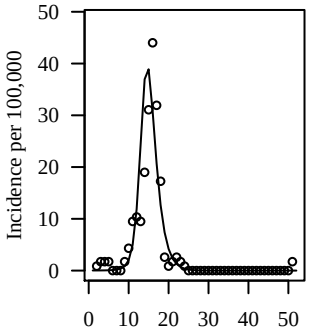
a_0−fold = 1.6; β_0−fold = 1.5; AIC = 32



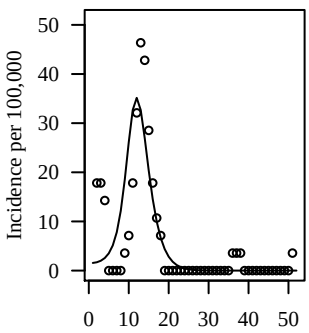
a_0−fold = 5.4; β_0−fold = 1.2; AIC = 76



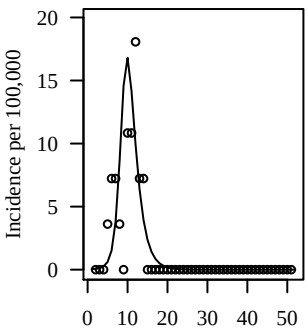
a_0−fold = 2.1; β_0−fold = 1.5; AIC = 47



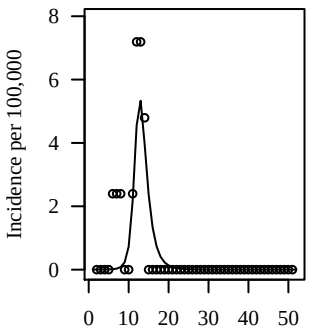
a_0−fold = 6.8; β_0−fold = 1.9; AIC = 162



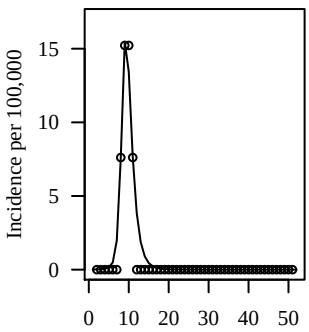
a_0−fold = 3; β_0−fold = 1.5; AIC = 82



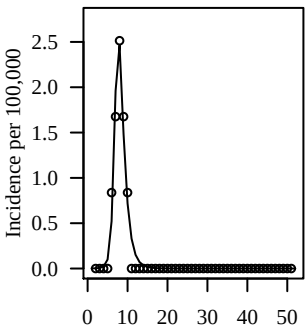
a_0−fold = 1.6; β_0−fold = 1.2; AIC = 48



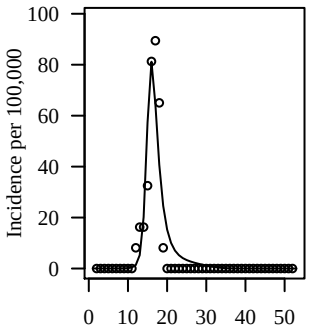
a_0−fold = 1; β_0−fold = 2; AIC = 31



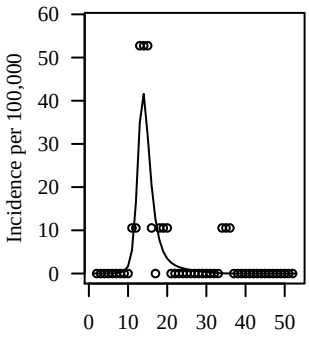
a_0−fold = 1; β_0−fold = 2; AIC = 29



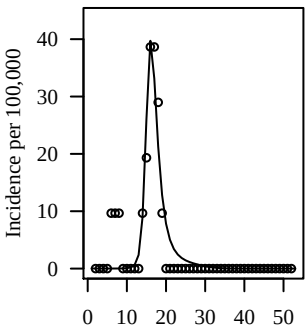
a_0−fold = 1; β_0−fold = 2; AIC = 30



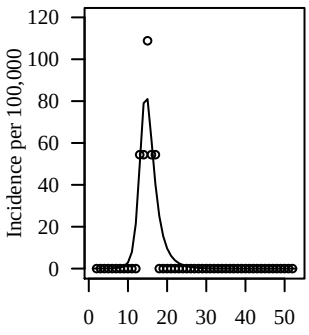
a_0−fold = 2.6; β_0−fold = 1.7; AIC = 48



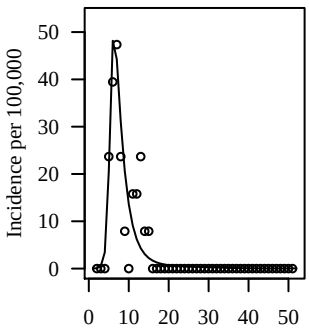
a_0−fold = 1.5; β_0−fold = 1.7; AIC = 37



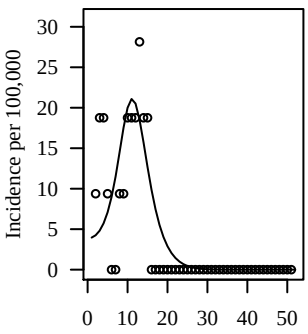
a_0−fold = 2.3; β_0−fold = 1.8; AIC = 34



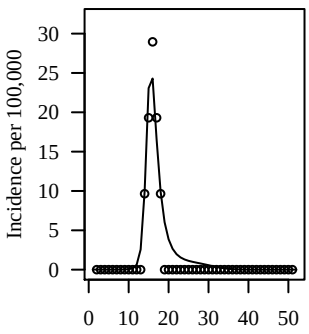
a_0−fold = 1.3; β_0−fold = 2; AIC = 35



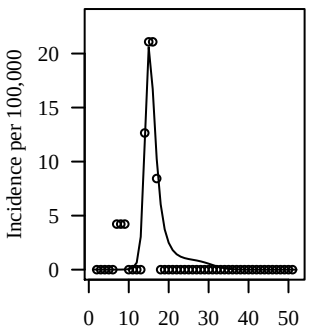
a_0−fold = 1.3; β_0−fold = 1.2; AIC = 46



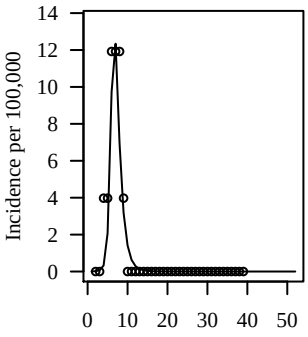
a_0−fold = 1.2; β_0−fold = 1.3; AIC = 50



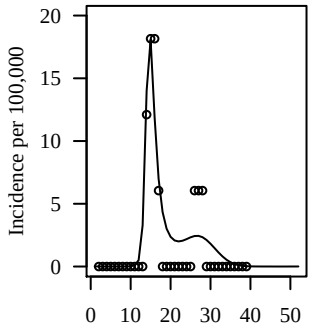
a_0−fold = 3.1; β_0−fold = 1.6; AIC = 37



a_0−fold = 3.1; β_0−fold = 1.9; AIC = 36

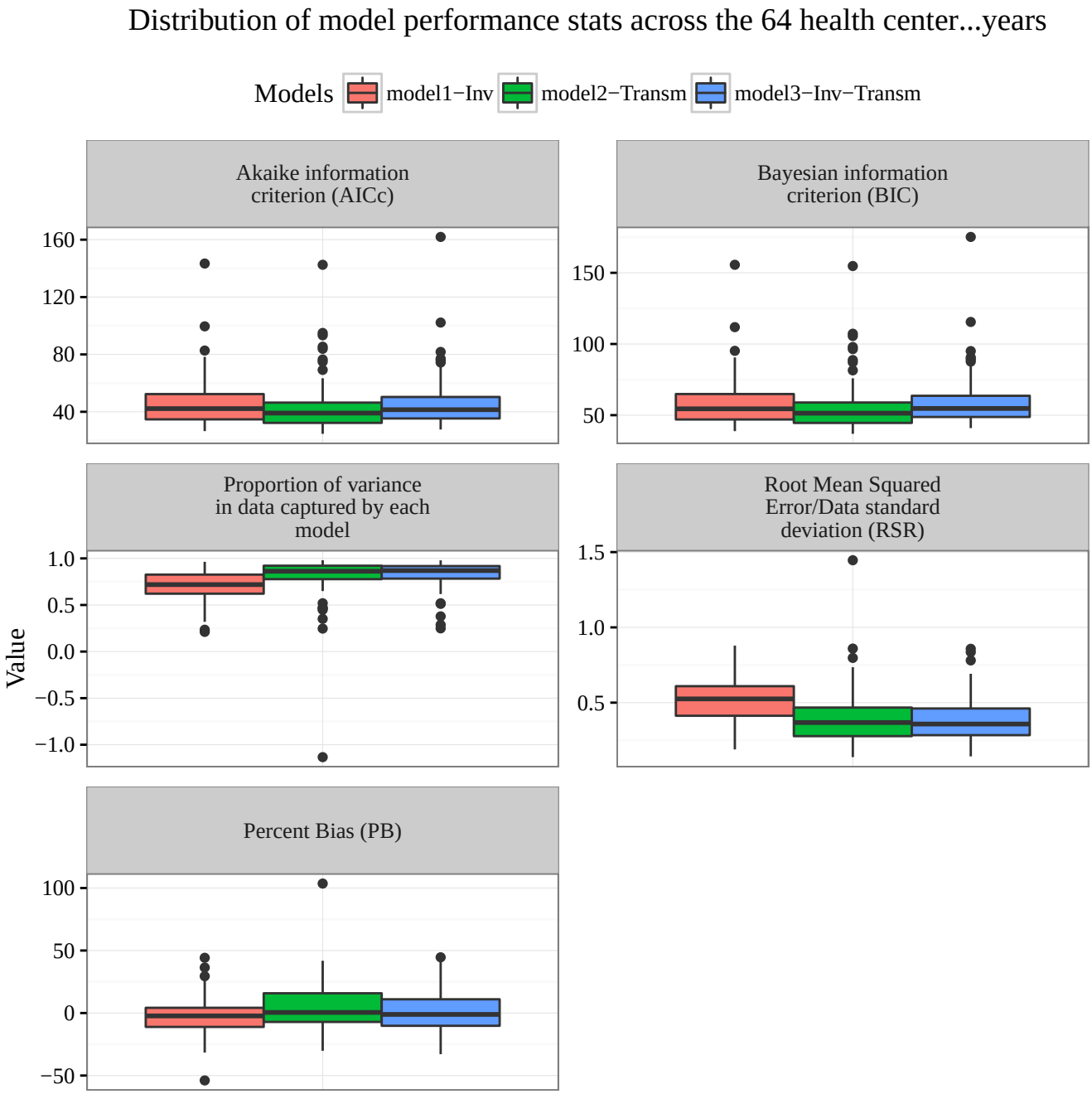
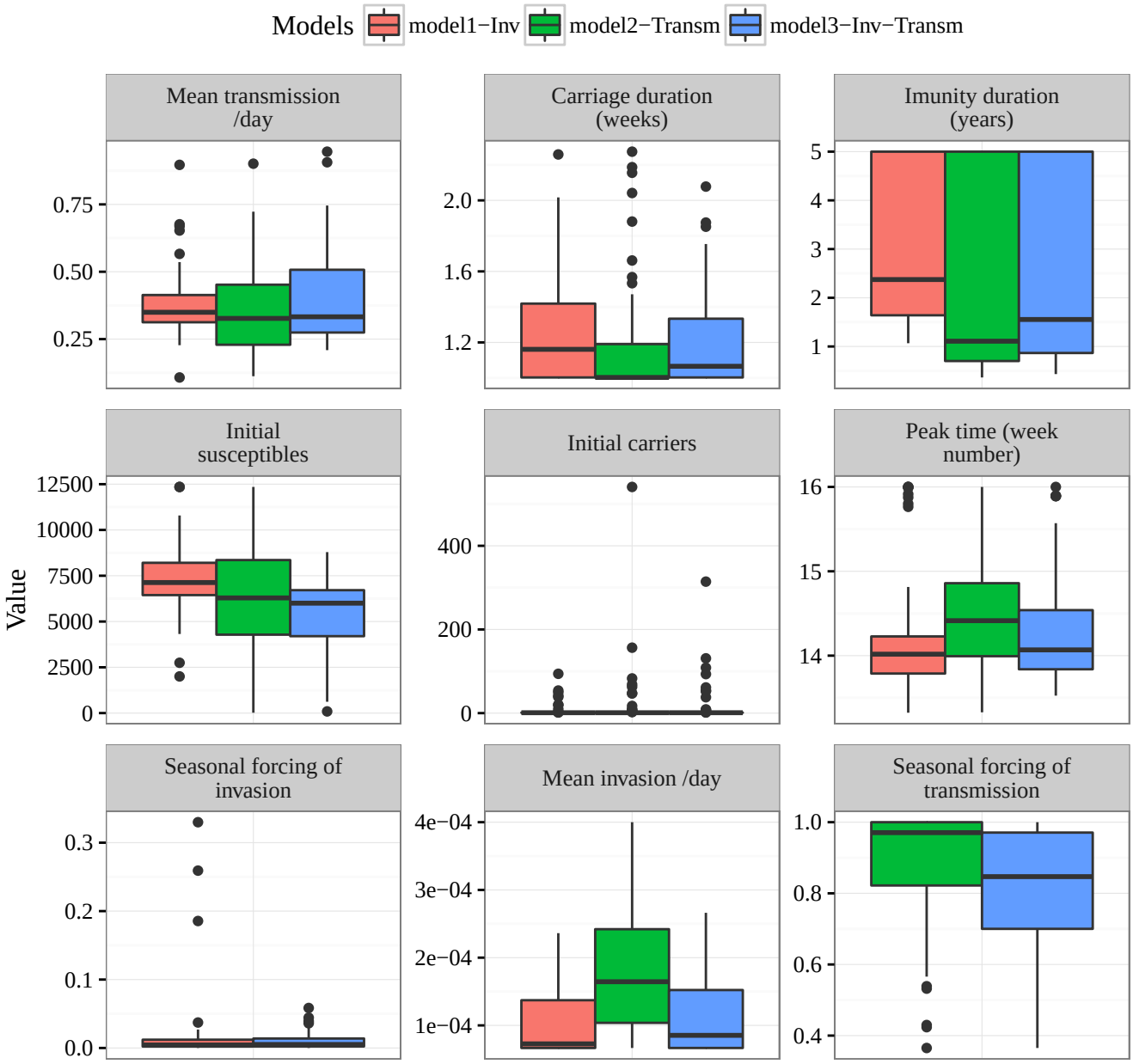


a_0−fold = 1; β_0−fold = 2; AIC = 30



a_0−fold = 1.3; β_0−fold = 1.8; AIC = 34

Figure 4. Distribution of parameters estimates and models performance stats, for 64 health center−years with complete data, across four health distrits of Burkina faso (2004−2010).


Distribution of model performance stats across the 64 health center...years
Models
model1−Inv
model2−Transm
model3−Inv−Transm
Akaike information criterion (AICc)
Bayesian information criterion (BIC)
Proportion of variance in data captured by each model
Root Mean Squared Error/Data standard deviation (RSR)
Percent Bias (PB)
Value
160
120
80
40
150
100
50
1.0
0.5
0.0
−0.5
−1.0
1.5
1.0
0.5
100
50
0
−50

Distribution of parameters estimates across the 64 health center...years