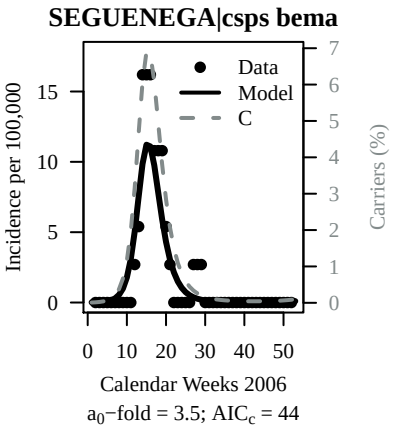
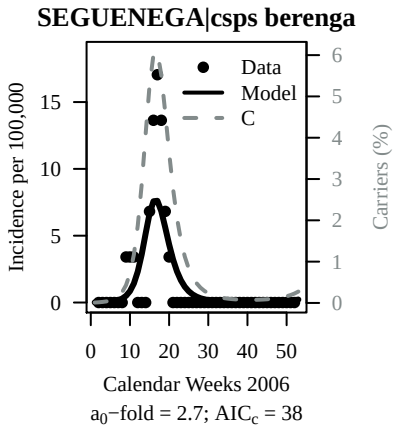
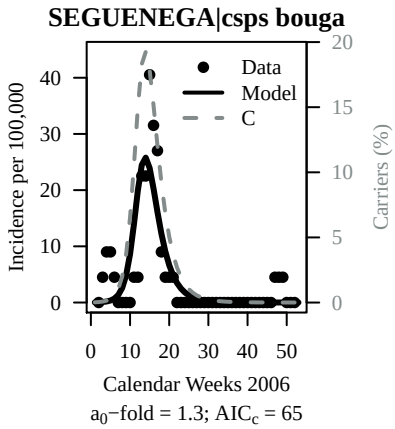
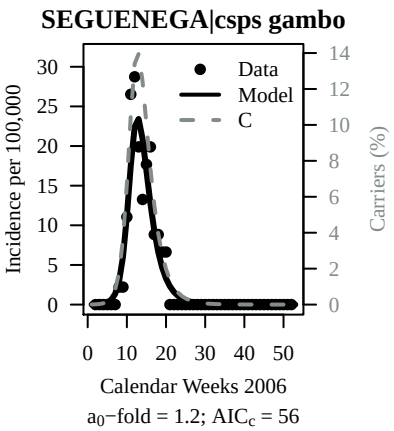
Results of model estimations using a poisson maximum likelihood approach.

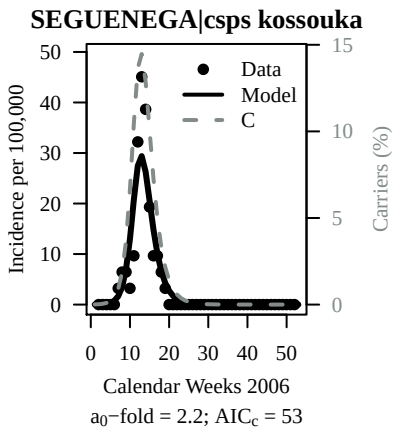
Figure 1. Model1−"inv" trajectories matching plots of simulated and observed (weekly) data, for 64 health center−years with complete data, across four health distrits of Burkina faso (2004−2010).

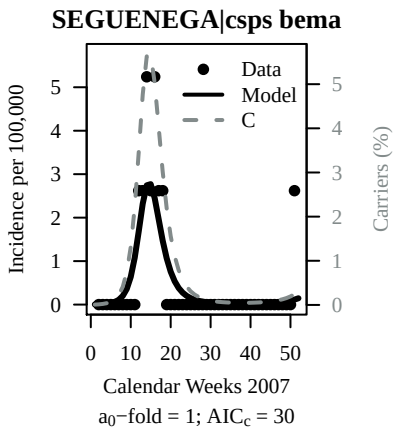

SEGUENEGA|csps bema
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
a0−fold = 3.5; AICc = 44

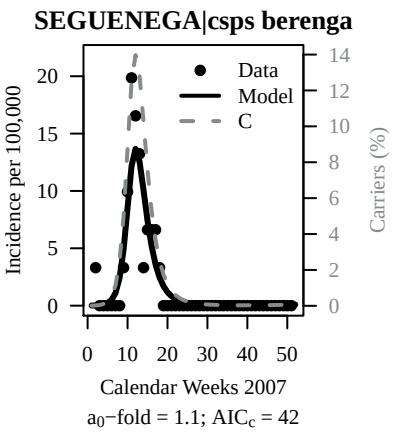

SEGUENEGA|csps berenga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
a0−fold = 2.7; AICc = 38

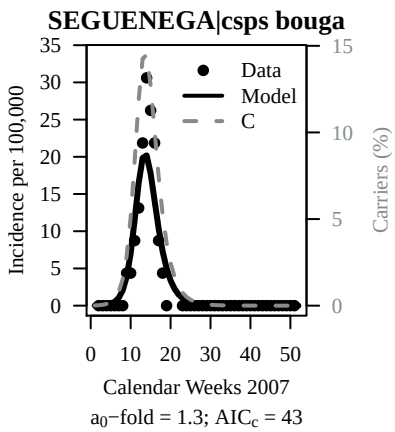

SEGUENEGA|csps bouga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
a0−fold = 1.3; AICc = 65

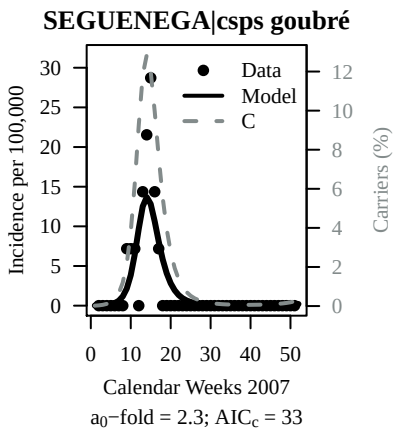

SEGUENEGA|csps gambo
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
a0−fold = 1.2; AICc = 56

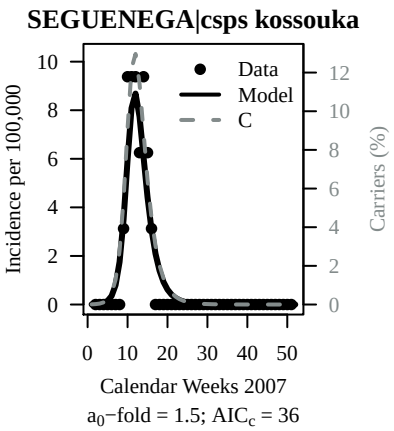

SEGUENEGA|csps kossouka
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
a0−fold = 2.2; AICc = 53


SEGUENEGA|csps bema
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
a0−fold = 1; AICc = 30

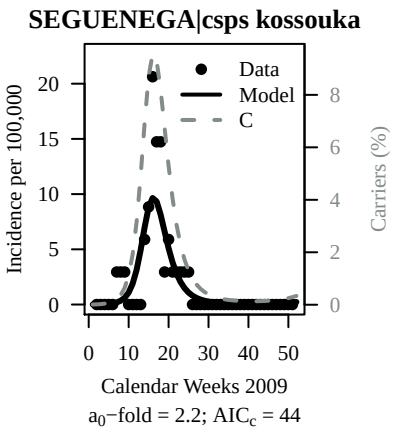

SEGUENEGA|csps berenga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
a0−fold = 1.1; AICc = 42


SEGUENEGA|csps bouga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
a0−fold = 1.3; AICc = 43

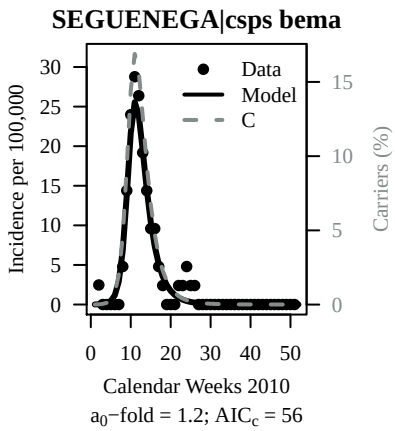

SEGUENEGA|csps goubré
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
a0−fold = 2.3; AICc = 33



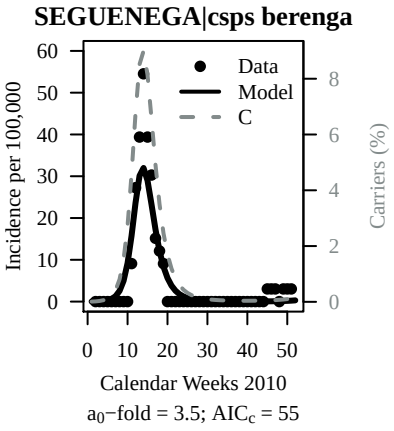
a_0−fold = 1.5; AIC_c = 36



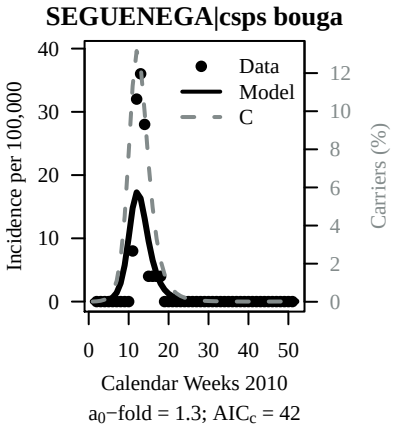
a_0−fold = 2.2; AIC_c = 44



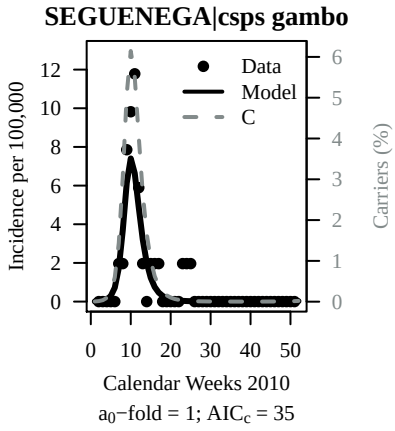
a_0−fold = 1.2; AIC_c = 56



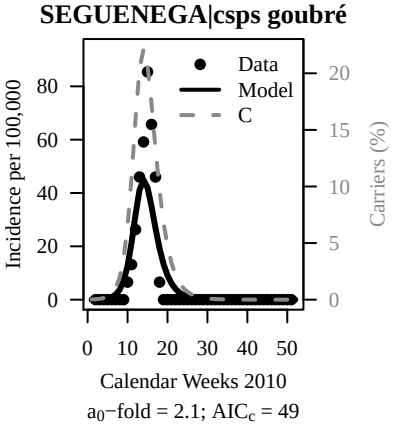
a_0−fold = 3.5; AIC_c = 55



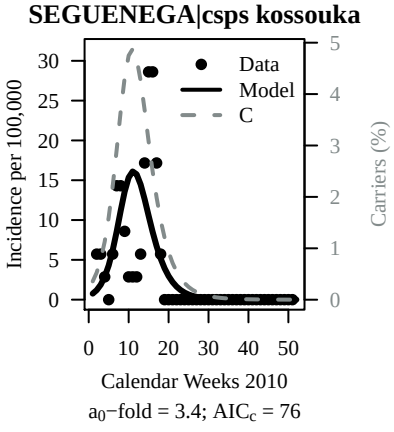
a_0−fold = 1.3; AIC_c = 42



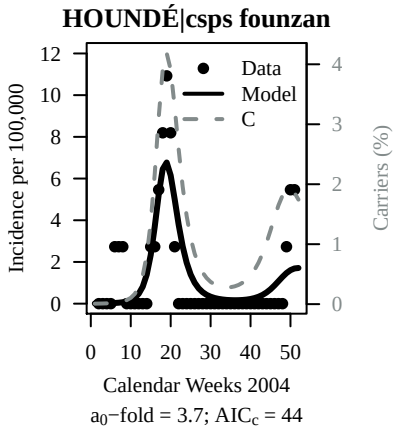
a_0−fold = 1; AIC_c = 35



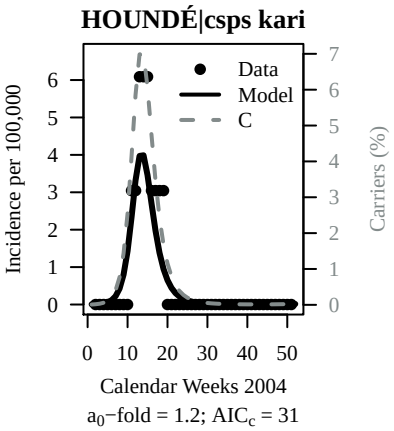
a_0−fold = 2.1; AIC_c = 49



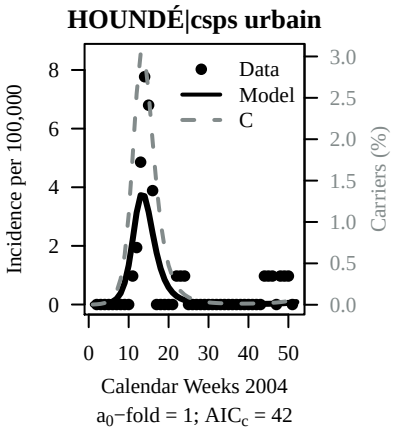
a_0−fold = 3.4; AIC_c = 76



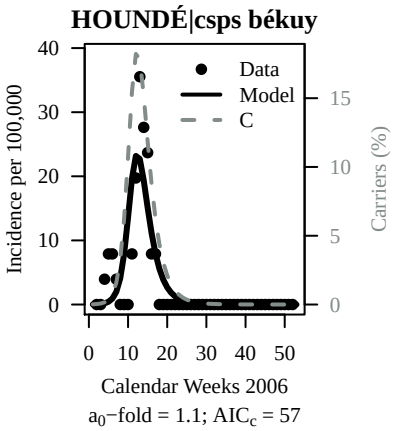
a_0−fold = 3.7; AIC_c = 44



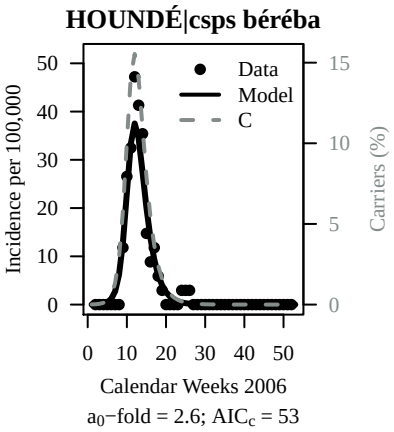
a_0−fold = 1.2; AIC_c = 31



a_0−fold = 1; AIC_c = 42



a_0−fold = 1.1; AIC_c = 57



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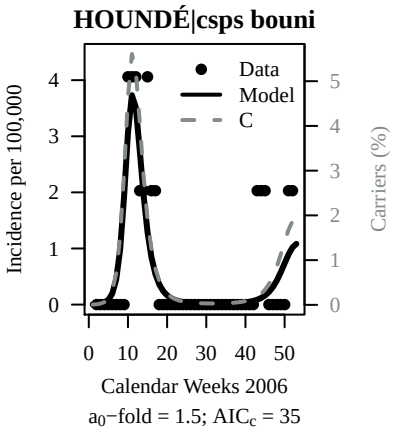
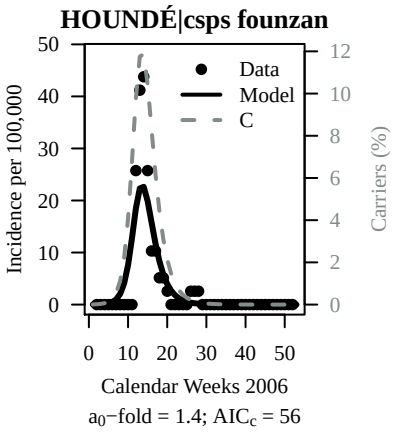
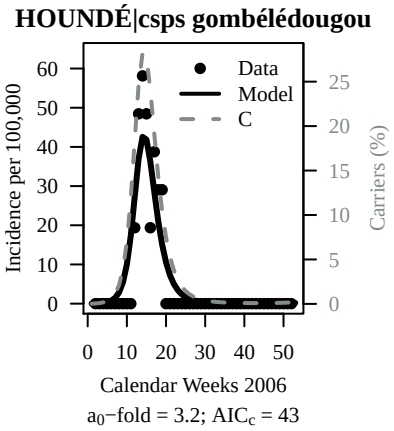


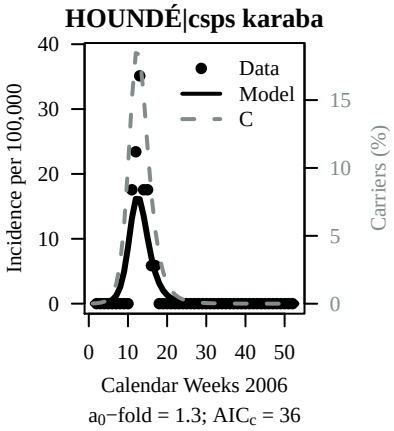
a_0−fold = 1.5; AIC_c = 35



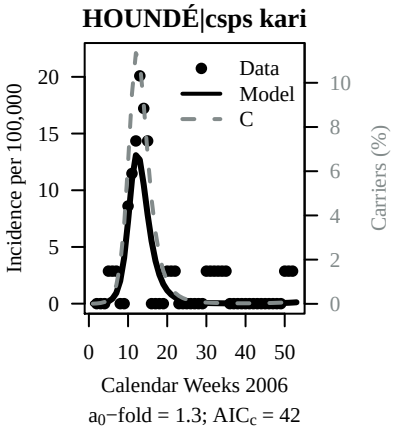
a_0−fold = 1.4; AIC_c = 56



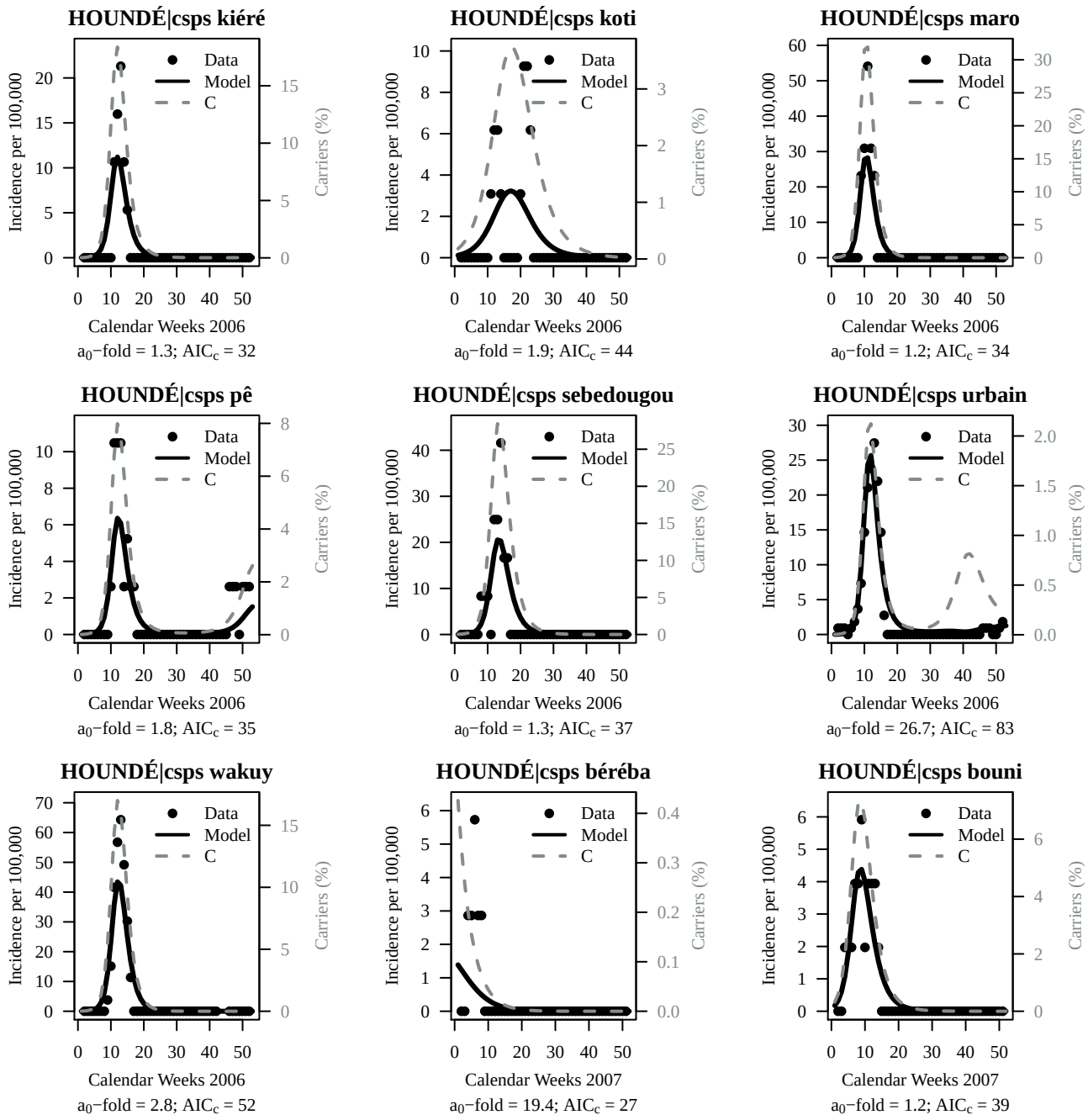
a_0−fold = 3.2; AIC_c = 43

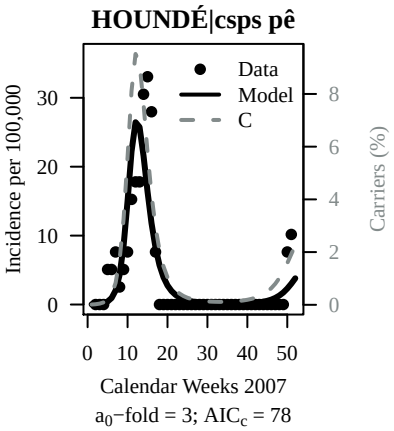


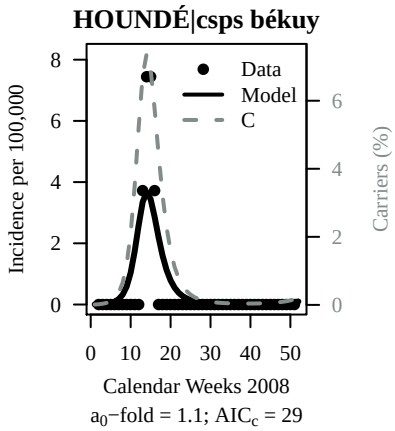
a_0−fold = 1.3; AIC_c = 36

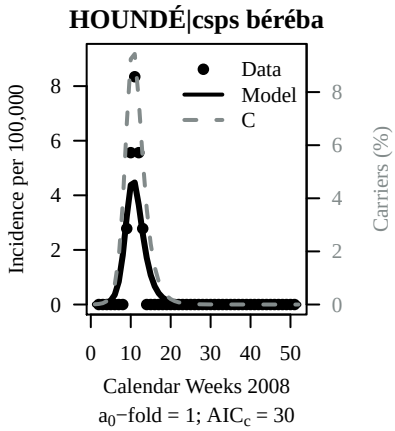


a_0−fold = 1.3; AIC_c = 42


HOUNDÉ|csps kiéré
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
a0−fold = 1.3; AICc = 32
HOUNDÉ|csps koti
Calendar Weeks 2006
a0−fold = 1.9; AICc = 44
HOUNDÉ|csps maro
Calendar Weeks 2006
a0−fold = 1.2; AICc = 34
HOUNDÉ|csps pê
Calendar Weeks 2006
a0−fold = 1.8; AICc = 35
HOUNDÉ|csps sebedougou
Calendar Weeks 2006
a0−fold = 1.3; AICc = 37
HOUNDÉ|csps urbain
Calendar Weeks 2006
a0−fold = 26.7; AICc = 83
HOUNDÉ|csps wakuy
Calendar Weeks 2006
a0−fold = 2.8; AICc = 52
HOUNDÉ|csps béréba
Calendar Weeks 2007
a0−fold = 19.4; AICc = 27
HOUNDÉ|csps bouni
Calendar Weeks 2007
a0−fold = 1.2; AICc = 39


HOUNDÉ|csps pê
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
a0−fold = 3; AICc = 78


HOUNDÉ|csps békuy
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.1; AICc = 29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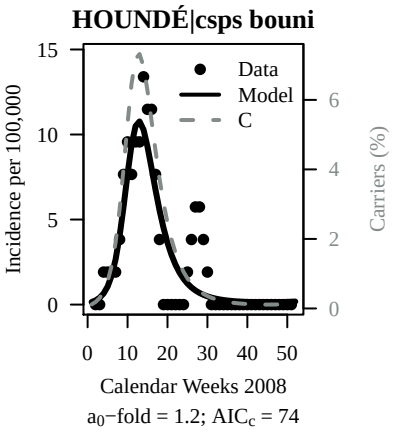
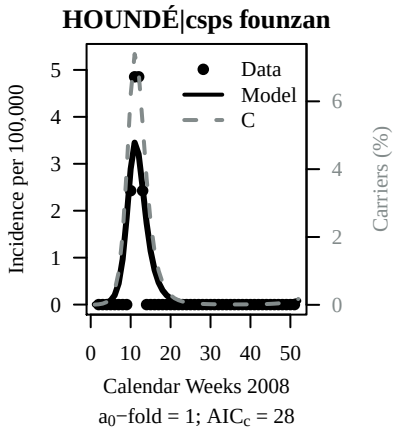
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1; AICc = 30


HOUNDÉ|csps bouni
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.2; AICc = 74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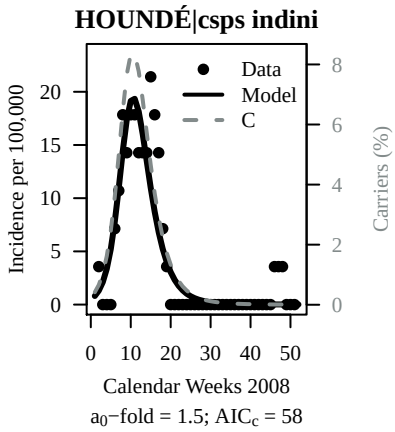
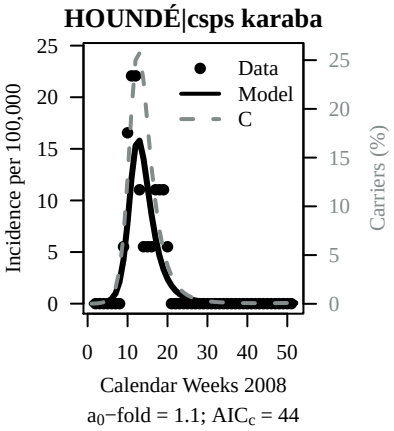
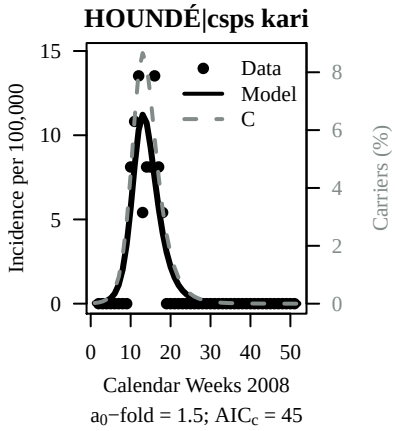
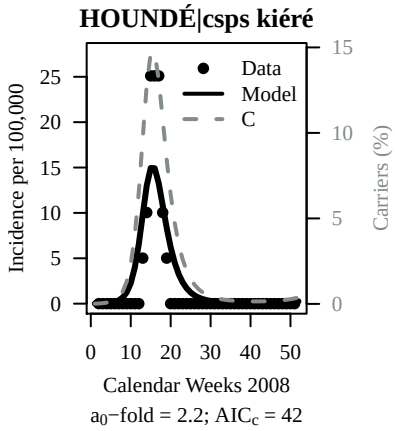
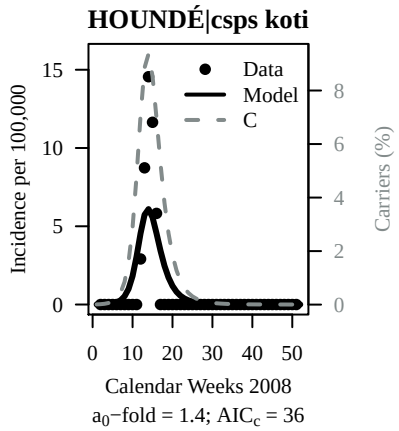
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1; AICc = 28


HOUNDÉ|csps indini
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.5; AICc = 58


HOUNDÉ|csps karaba
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.1; AICc = 44


HOUNDÉ|csps kari
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.5; AICc = 45


HOUNDÉ|csps kiéré
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 2.2; AICc = 42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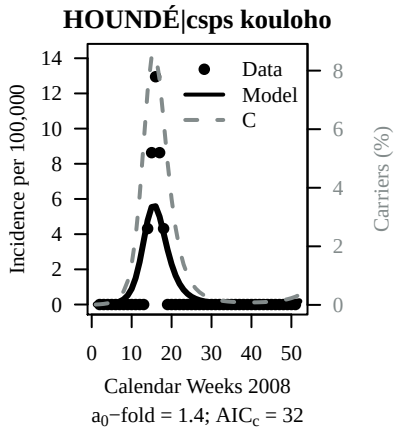
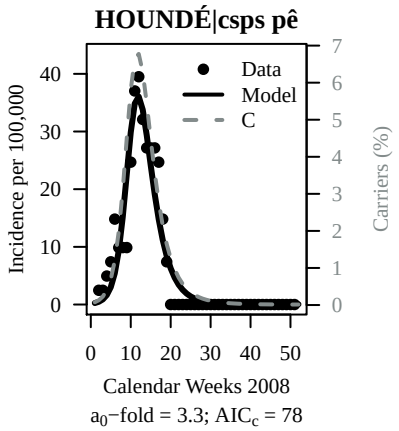
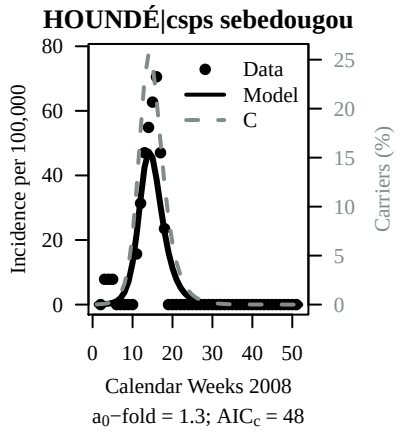
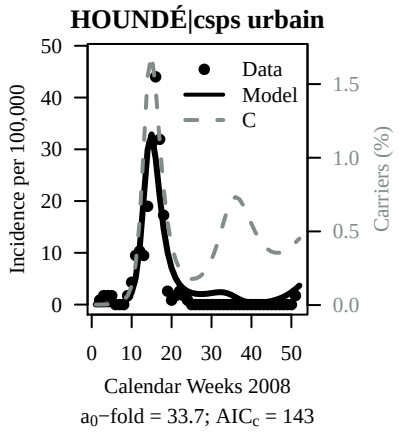
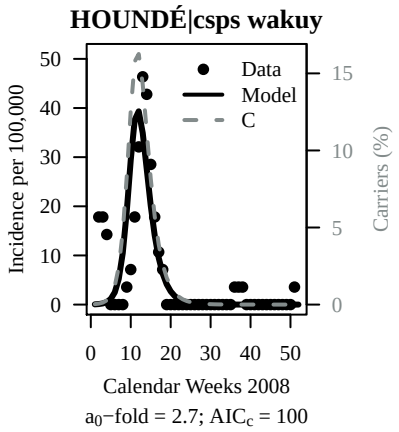
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.4; AICc = 36

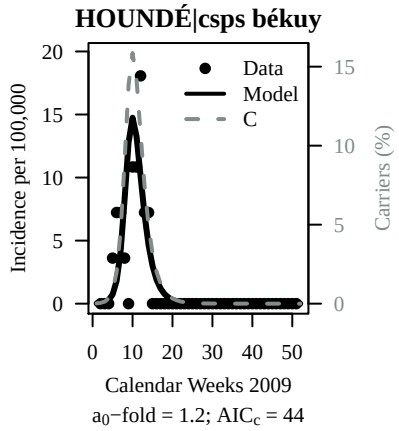

HOUNDÉ|csps kouloho
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.4; AICc = 32

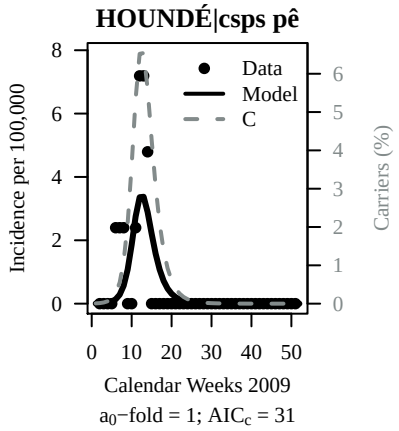

HOUNDÉ|csps pê
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 3.3; AICc = 78

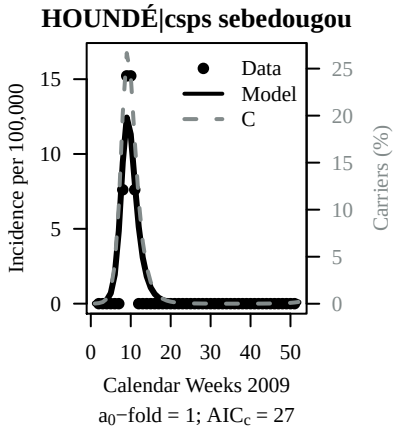

HOUNDÉ|csps sebedougou
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 1.3; AICc = 48

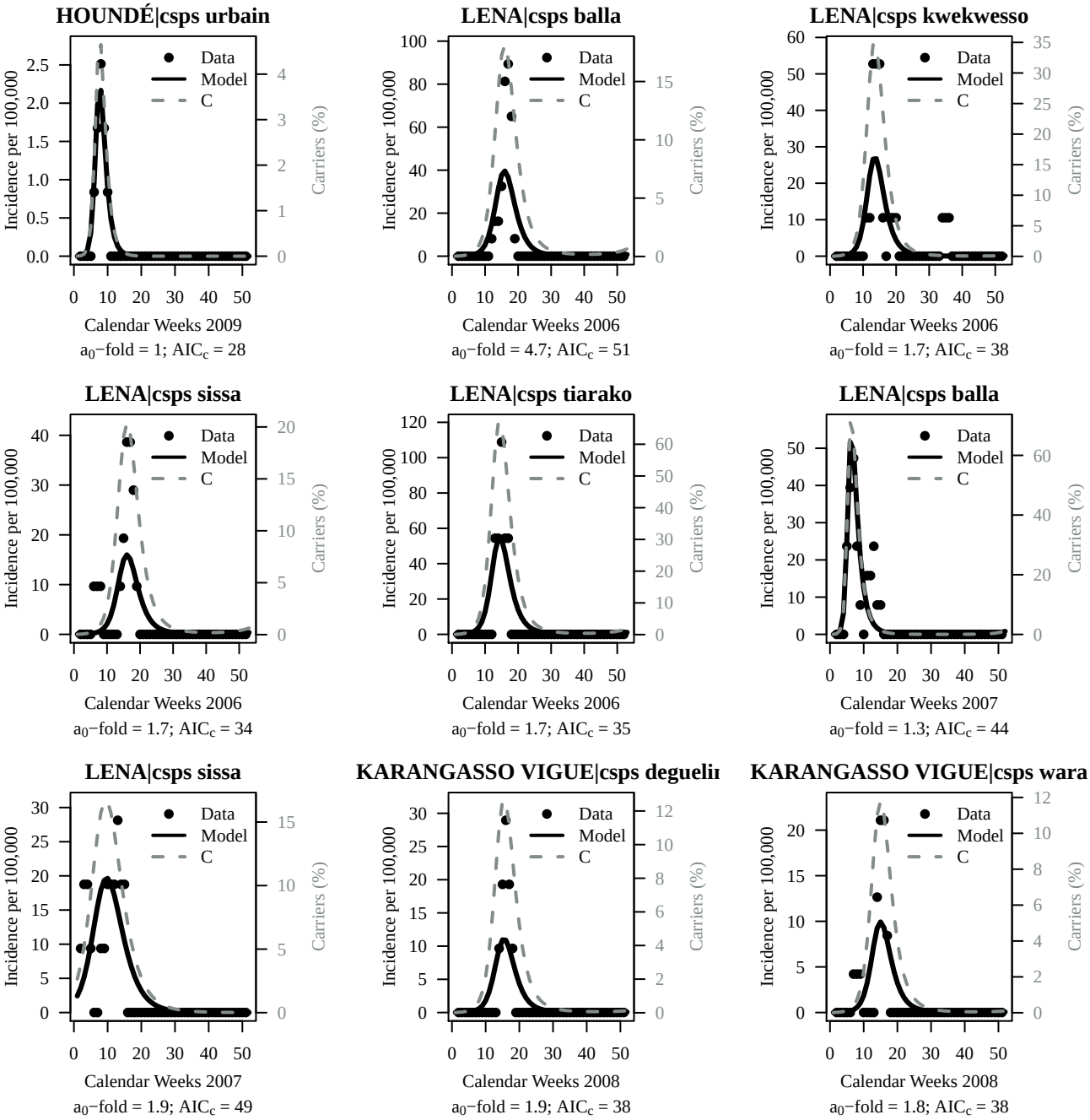

HOUNDÉ|csps urbain
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 33.7; AICc = 143


HOUNDÉ|csps wakuy
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
a0−fold = 2.7; AICc = 100

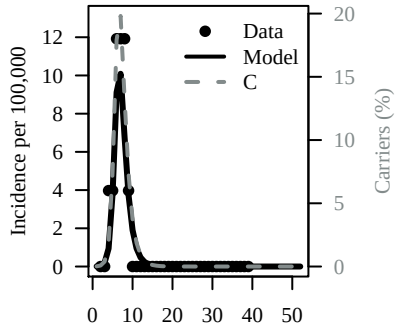

HOUNDÉ|csps békuy
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
a0−fold = 1.2; AICc = 44


HOUNDÉ|csps pê
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
a0−fold = 1; AICc = 31


HOUNDÉ|csps sebedougou
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
a0−fold = 1; AICc = 27

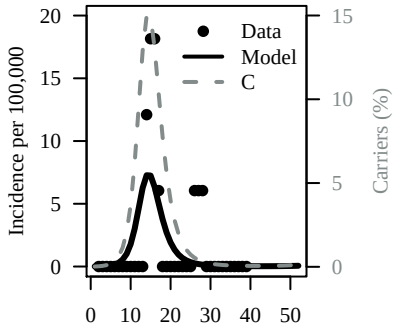

HOUNDÉ|csps urbain
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
a0−fold = 1; AICc = 28
LENA|csps balla
Calendar Weeks 2006
a0−fold = 4.7; AICc = 51
LENA|csps kwekwesso
Calendar Weeks 2006
a0−fold = 1.7; AICc = 38
LENA|csps sissa
Calendar Weeks 2006
a0−fold = 1.7; AICc = 34
LENA|csps tiarako
Calendar Weeks 2006
a0−fold = 1.7; AICc = 35
LENA|csps balla
Calendar Weeks 2007
a0−fold = 1.3; AICc = 44
LENA|csps sissa
Calendar Weeks 2007
a0−fold = 1.9; AICc = 49
KARANGASSO VIGUE|csps degueli
Calendar Weeks 2008
a0−fold = 1.9; AICc = 38
KARANGASSO VIGUE|csps wara
Calendar Weeks 2008
a0−fold = 1.8; AICc = 38

KARANGASSO VIGUE|csps wara



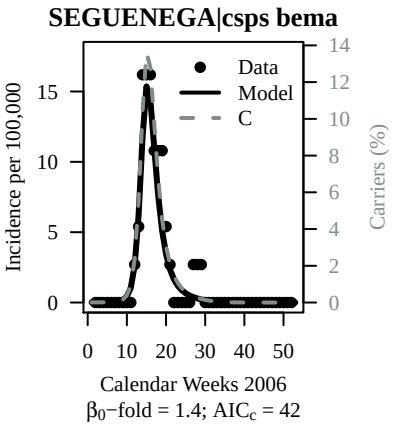
a_0−fold = 1; AIC_c = 28

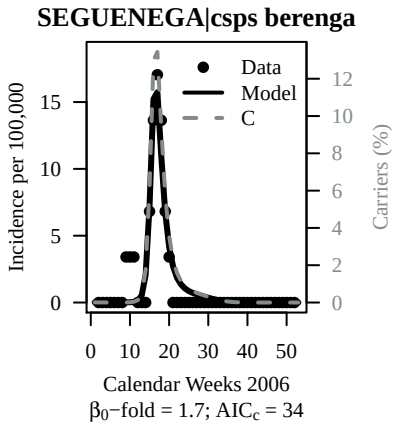
KARANGASSO VIGUE|dispe diosso

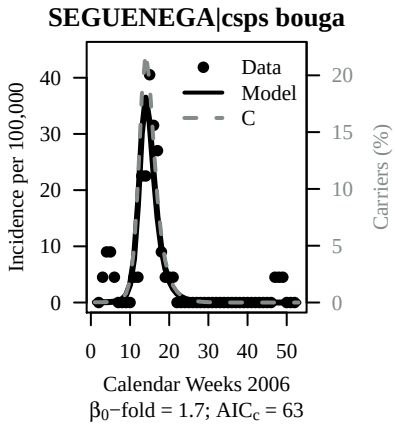


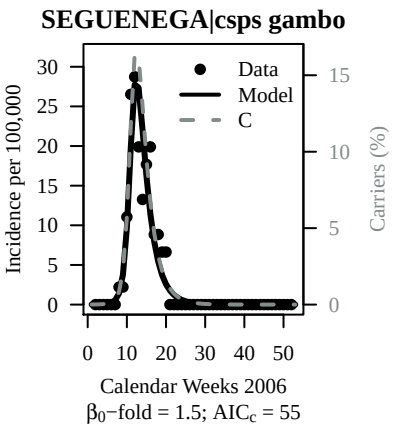
a_0−fold = 1; AIC_c = 31

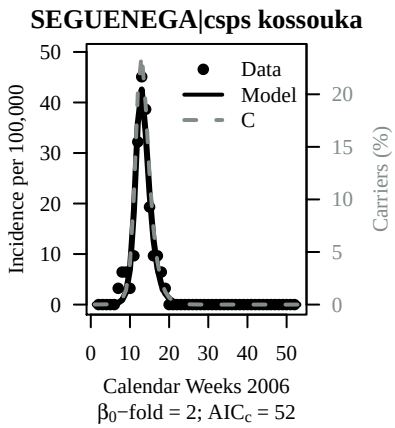
Figure 2. Model2−"transm" trajectories matching plots of simulated and observed (weekly) data, for 64 health center−years with complete data, across four health distrits of Burkina faso (2004−2010).

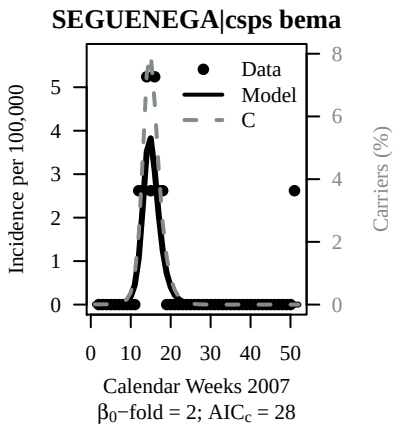

SEGUENEGA|csps bema
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.4; AICc = 42

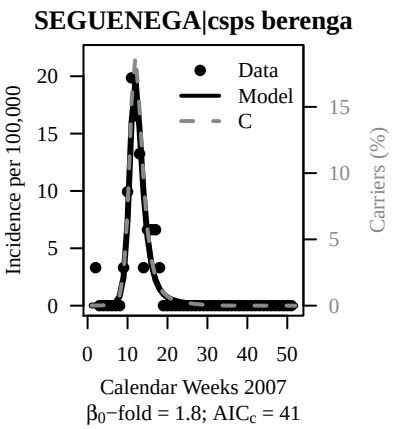

SEGUENEGA|csps berenga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.7; AICc = 34

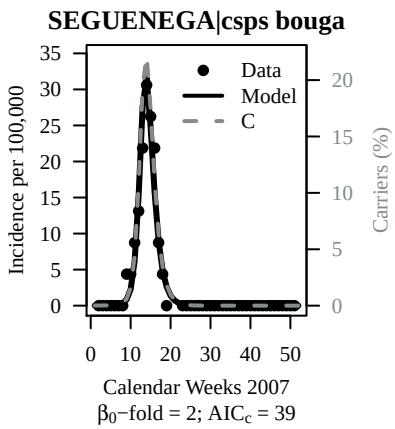

SEGUENEGA|csps bouga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.7; AICc = 63

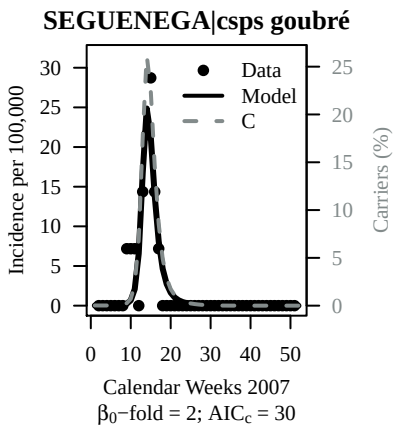

SEGUENEGA|csps gambo
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.5; AICc = 55

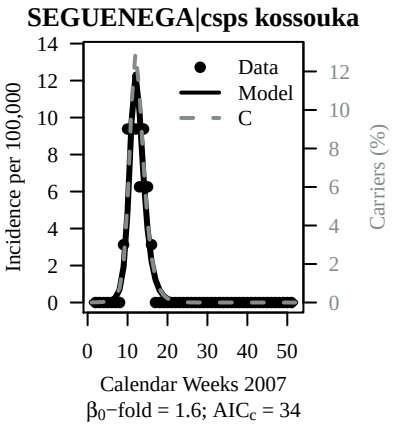

SEGUENEGA|csps kossouka
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 52

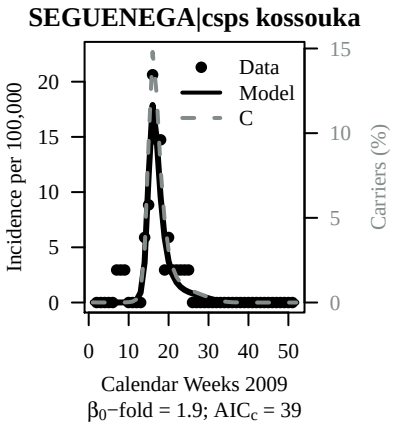

SEGUENEGA|csps bema
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 2; AICc = 28

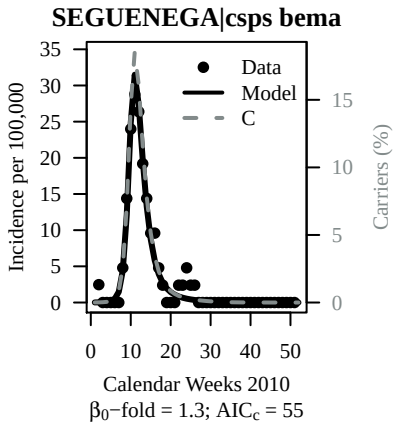

SEGUENEGA|csps berenga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 1.8; AICc = 41

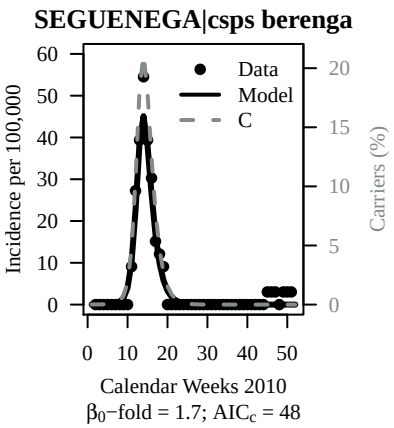

SEGUENEGA|csps bouga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 2; AICc = 39

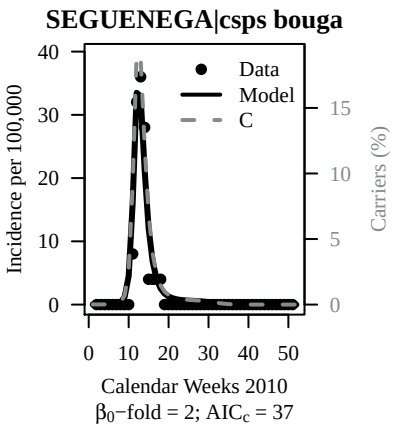

SEGUENEGA|csps goubré
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 2; AICc = 30

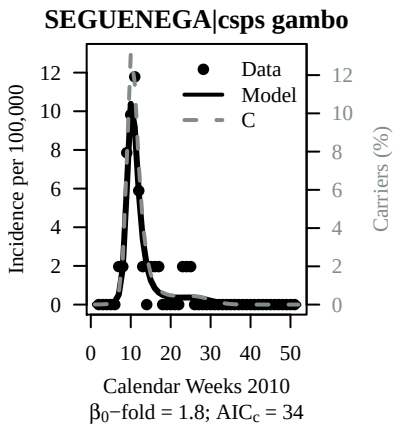

SEGUENEGA|csps kossouka
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 1.6; AICc = 34

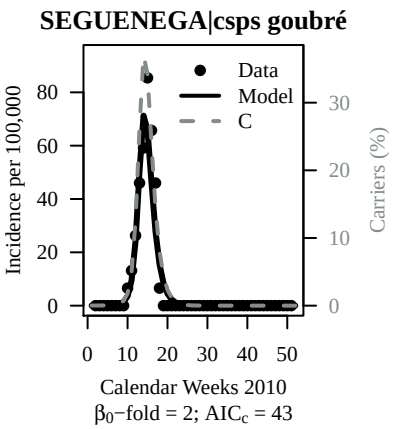

SEGUENEGA|csps kossouka
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
β0−fold = 1.9; AICc = 39

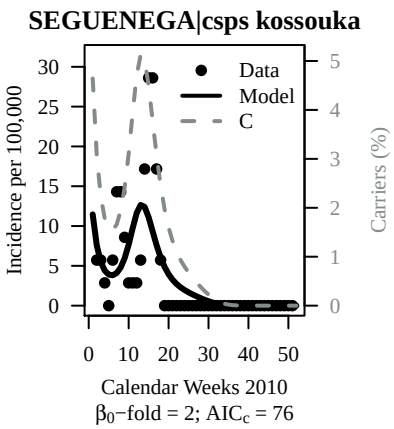

SEGUENEGA|csps bema
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2010
β0−fold = 1.3; AICc = 55

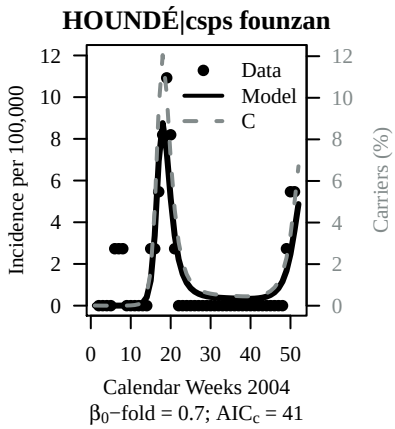

SEGUENEGA|csps berenga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2010
β0−fold = 1.7; AICc = 48

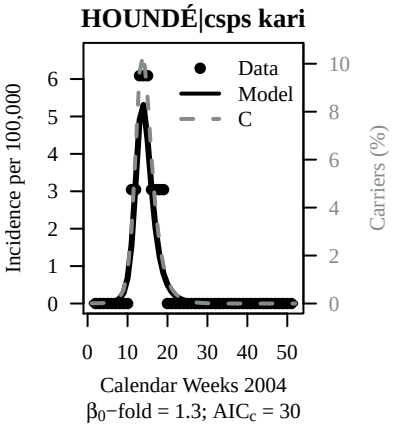

SEGUENEGA|csps bouga
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2010
β0−fold = 2; AICc = 37

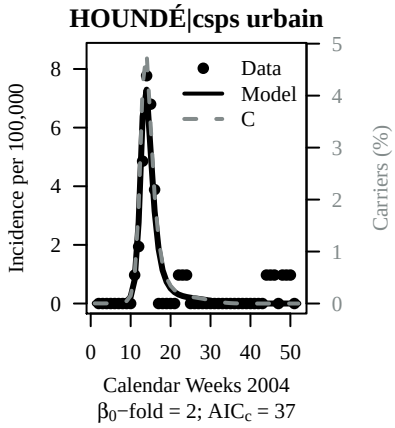

SEGUENEGA|csps gambo
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2010
β0−fold = 1.8; AICc = 34


SEGUENEGA|csps goubré
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2010
β0−fold = 2; AICc = 43


SEGUENEGA|csps kossouka
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2010
β0−fold = 2; AICc = 76


HOUNDÉ|csps founzan
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2004
β0−fold = 0.7; AICc = 41


HOUNDÉ|csps kari
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2004
β0−fold = 1.3; AICc = 30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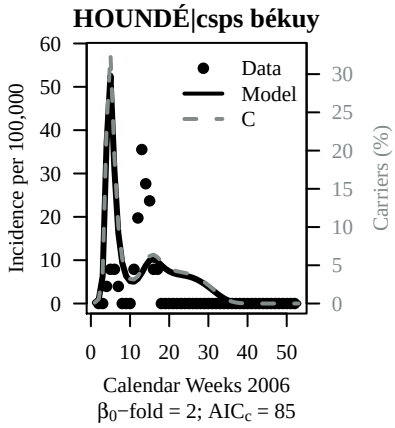
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2004
β0−fold = 2; AICc = 37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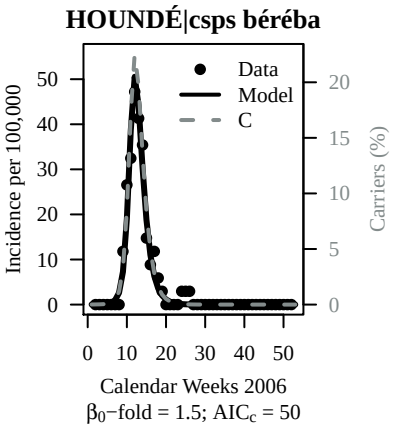
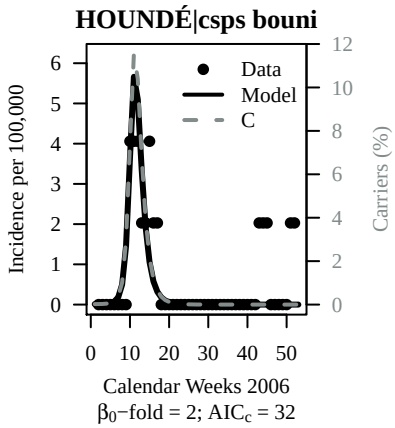
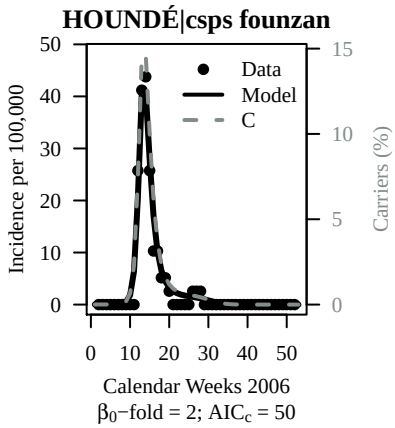
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 85


HOUNDÉ|csps béréba
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.5; AICc = 50


HOUNDÉ|csps bouni
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 32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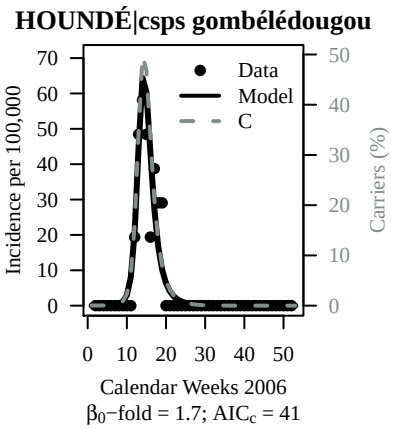
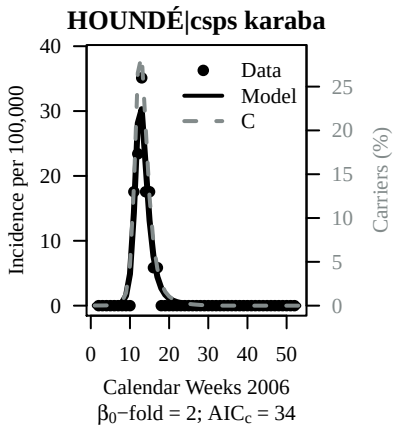
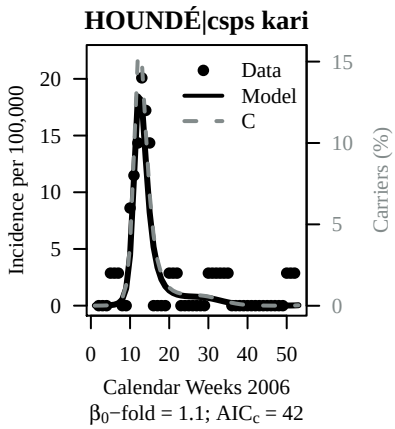
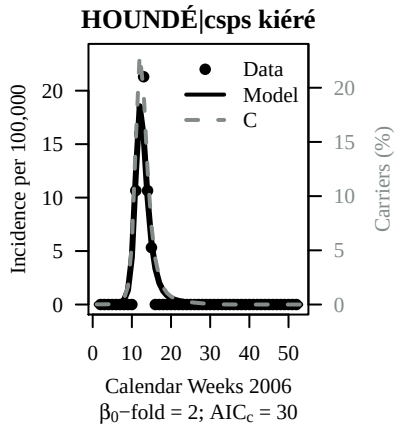
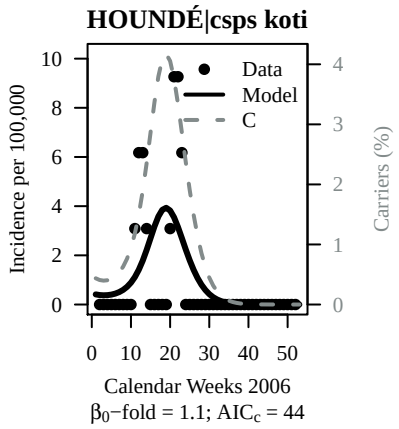
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 50


HOUNDÉ|csps gombélédougou
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.7; AICc = 41


HOUNDÉ|csps karaba
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 34


HOUNDÉ|csps kari
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.1; AICc = 42


HOUNDÉ|csps kiéré
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 30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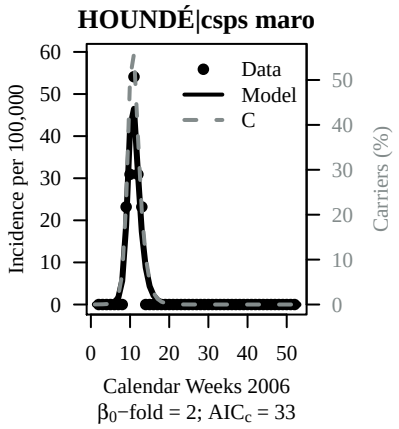
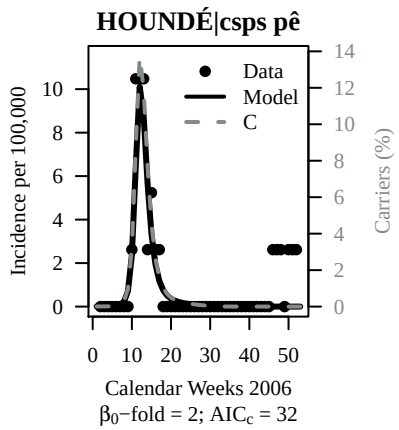
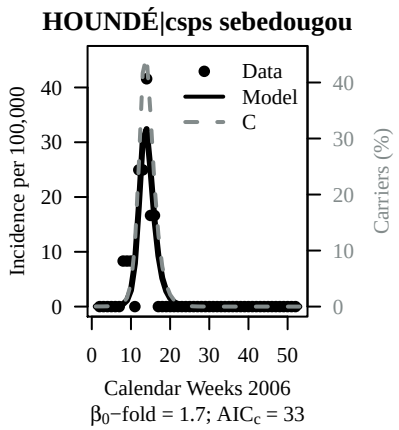
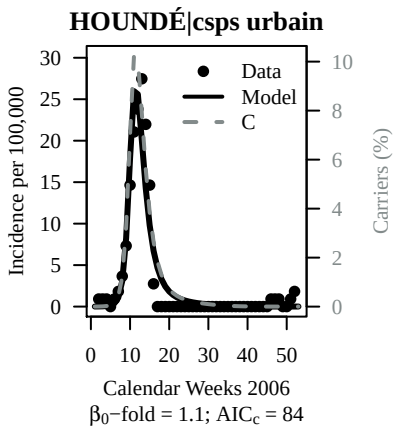
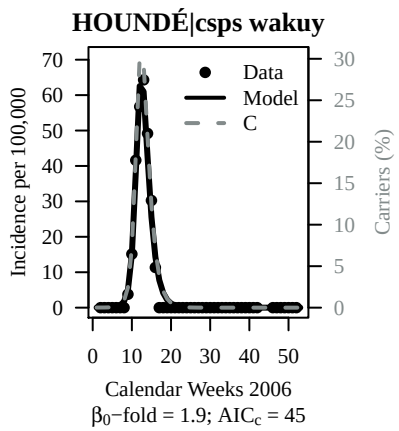
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.1; AICc = 44

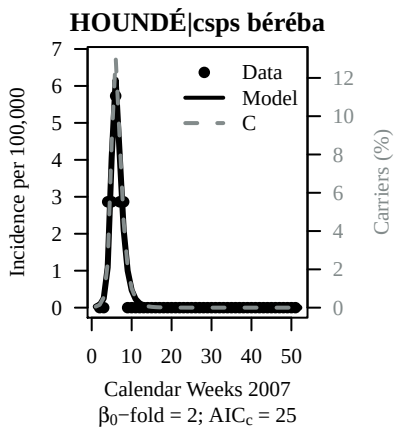

HOUNDÉ|csps maro
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 33

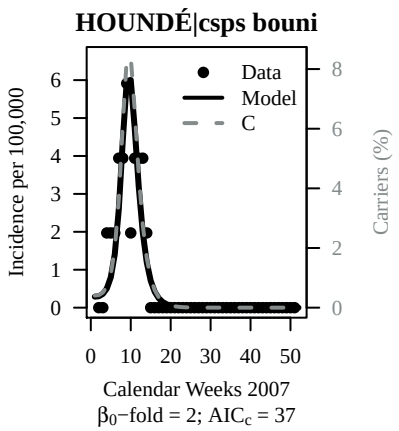

HOUNDÉ|csps pê
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 2; AICc = 32

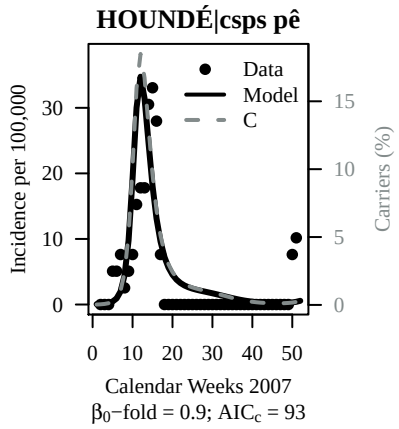

HOUNDÉ|csps sebedougou
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.7; AICc = 33

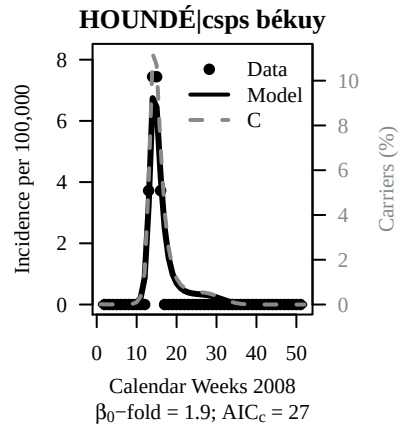

HOUNDÉ|csps urbain
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.1; AICc = 84

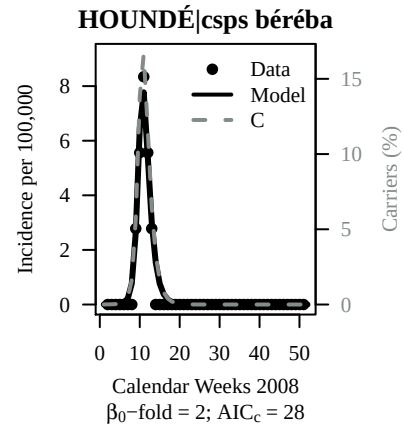

HOUNDÉ|csps wakuy
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2006
β0−fold = 1.9; AICc = 45

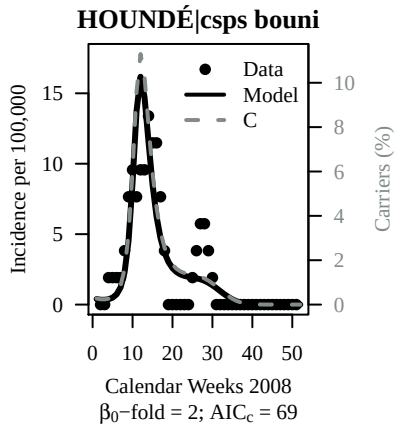

HOUNDÉ|csps béréba
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 2; AICc = 25


HOUNDÉ|csps bouni
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 2; AICc = 37


HOUNDÉ|csps pê
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2007
β0−fold = 0.9; AICc = 93


HOUNDÉ|csps békuy
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 1.9; AICc = 27


HOUNDÉ|csps béréba
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 2; AICc = 28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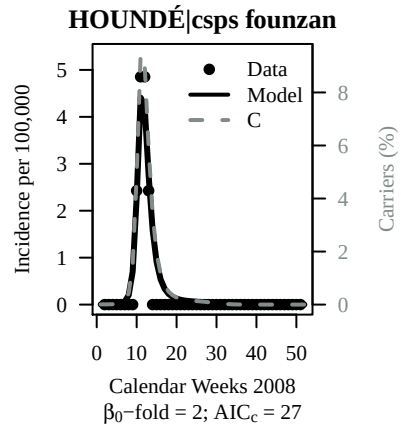
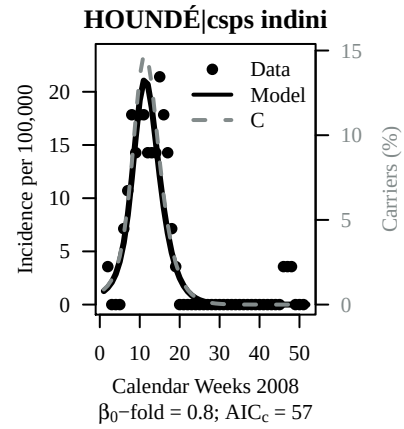
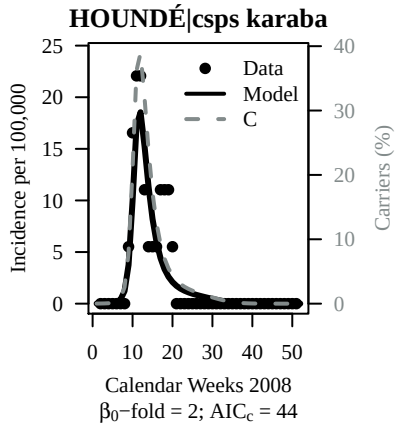
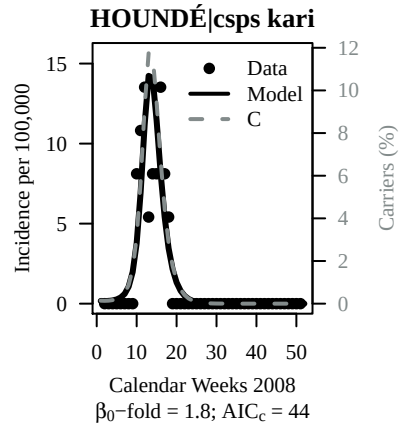
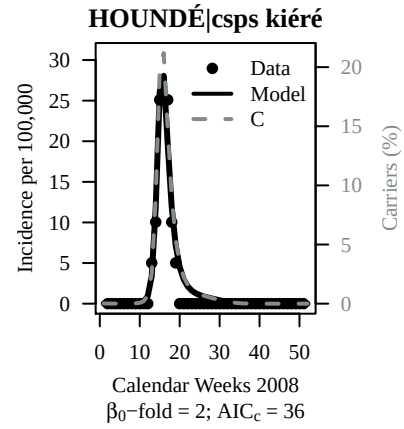
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 2; AICc = 69

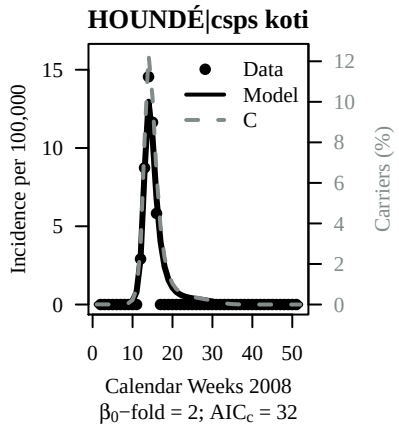

HOUNDÉ|csps founzan
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 2; AICc = 27

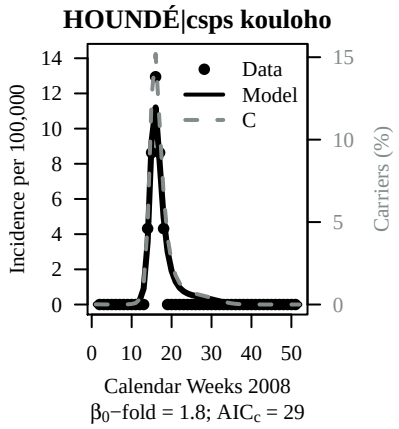

HOUNDÉ|csps indini
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 0.8; AICc = 57

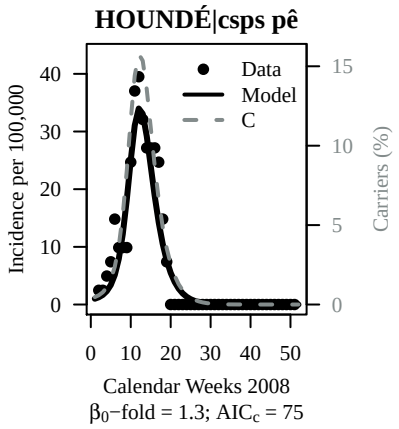

HOUNDÉ|csps karaba
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 2; AICc = 44

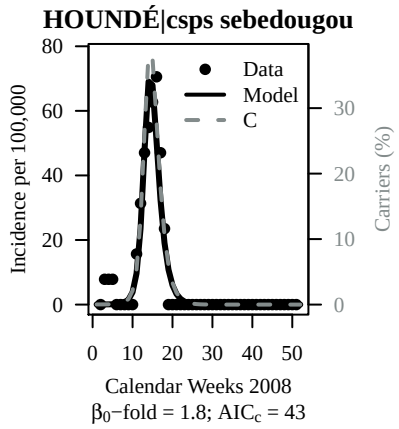

HOUNDÉ|csps kari
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 1.8; AICc = 44

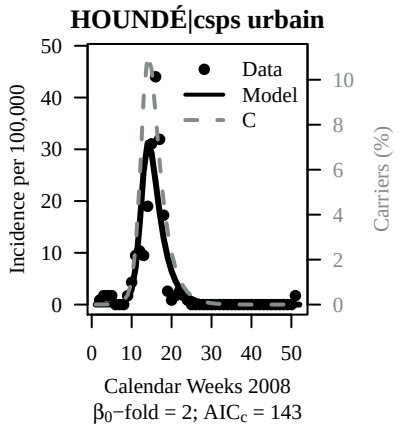

HOUNDÉ|csps kiéré
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 2; AICc = 36

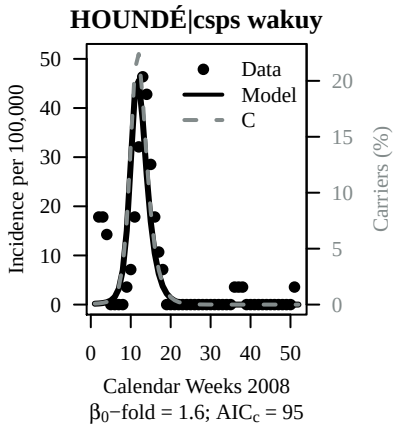

HOUNDÉ|csps koti
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 2; AICc = 32

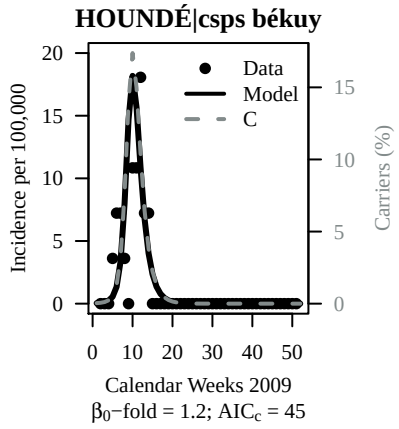

HOUNDÉ|csps kouloho
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 1.8; AICc = 29

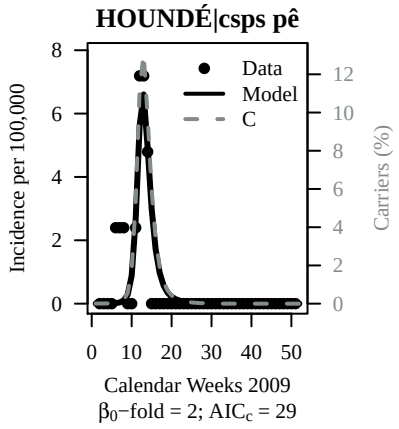

HOUNDÉ|csps pê
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 1.3; AICc = 75

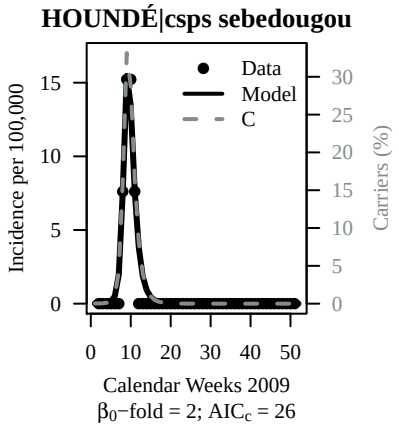

HOUNDÉ|csps sebedougou
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 1.8; AICc = 43

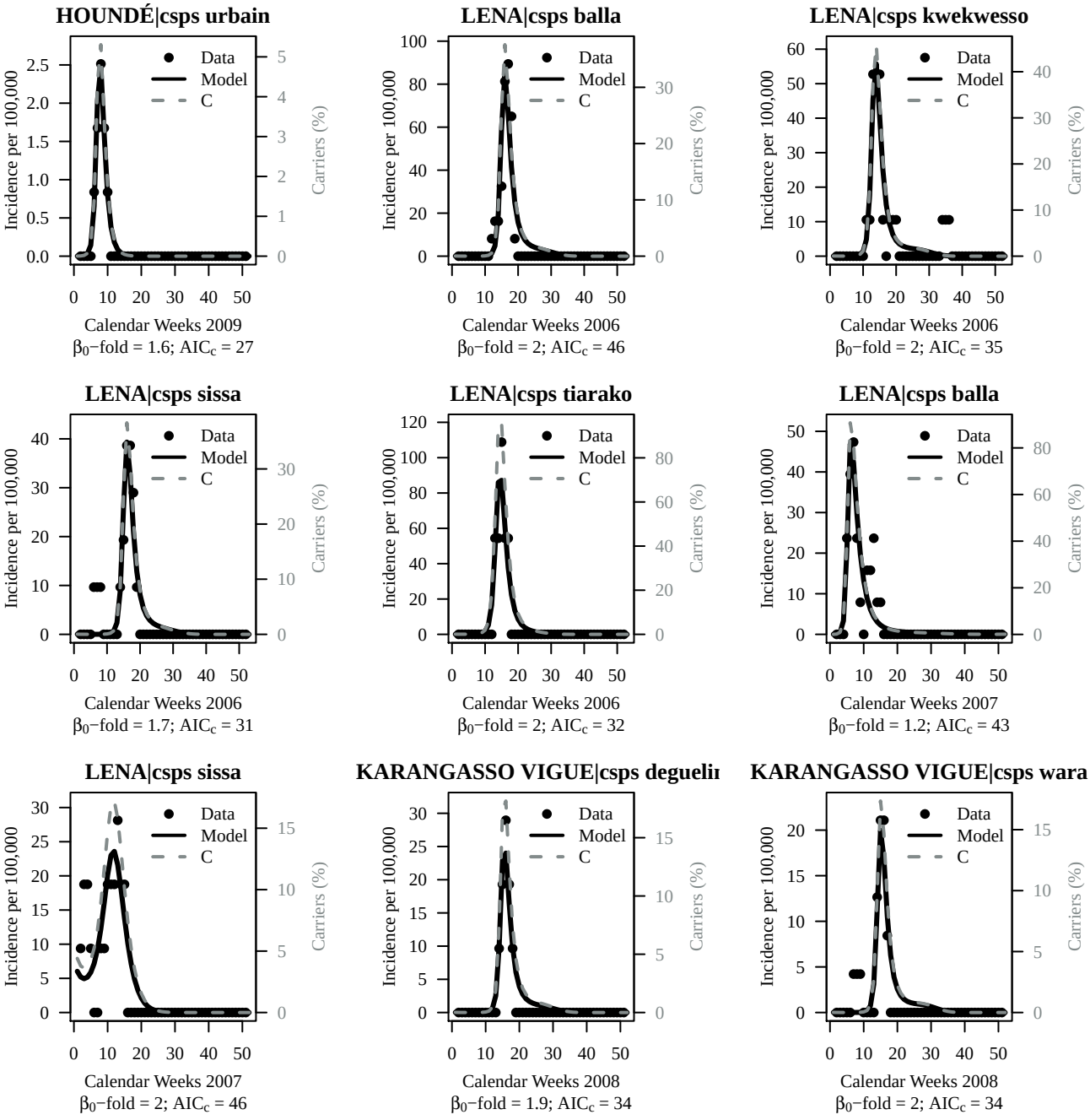

HOUNDÉ|csps urbain
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 2; AICc = 143


HOUNDÉ|csps wakuy
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2008
β0−fold = 1.6; AICc = 95

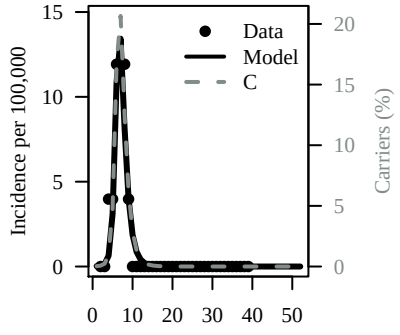

HOUNDÉ|csps békuy
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
β0−fold = 1.2; AICc = 45


HOUNDÉ|csps pê
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
β0−fold = 2; AICc = 29


HOUNDÉ|csps sebedougou
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
β0−fold = 2; AICc = 26

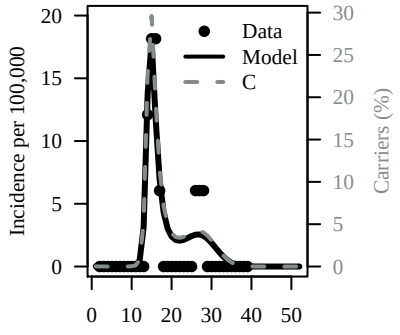

HOUNDÉ|csps urbain
LENA|csps balla
LENA|csps kwekwesso
LENA|csps sissa
LENA|csps tiarako
LENA|csps balla
LENA|csps sissa
KARANGASSO VIGUE|csps degueli
KARANGASSO VIGUE|csps wara
Data
Model
C
Incidence per 100,000
Carriers (%)
Calendar Weeks 2009
β0−fold = 1.6; AICc = 27
Calendar Weeks 2006
β0−fold = 2; AICc = 46
Calendar Weeks 2006
β0−fold = 2; AICc = 35
Calendar Weeks 2006
β0−fold = 1.7; AICc = 31
Calendar Weeks 2006
β0−fold = 2; AICc = 32
Calendar Weeks 2007
β0−fold = 1.2; AICc = 43
Calendar Weeks 2007
β0−fold = 2; AICc = 46
Calendar Weeks 2008
β0−fold = 1.9; AICc = 34
Calendar Weeks 2008
β0−fold = 2; AICc = 34

KARANGASSO VIGUE|csps wara



β_0−fold = 2; AIC_c = 27

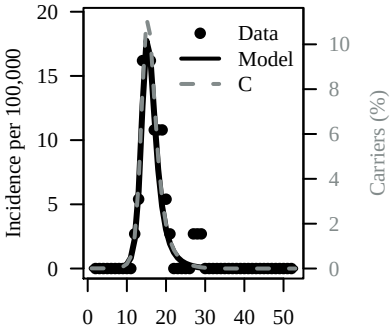
KARANGASSO VIGUE|dispe diosso



β_0−fold = 1.9; AIC_c = 31

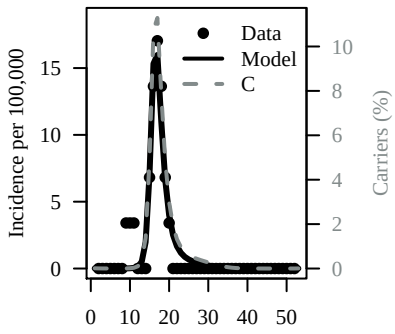
Figure 3. Model3−"inv−transm" trajectories matching plots of simulated and observed (weekly) data, for 64 health center−years with complete data, across four health distrits of Burkina faso (2004−2010).

SEGUENEGA|csps bema



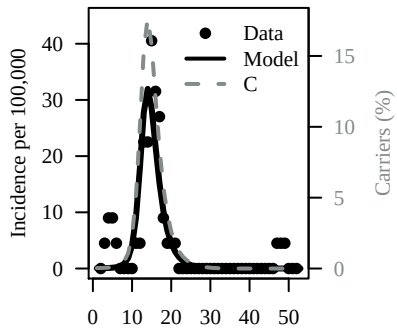
a_0−fold = 1.3; β_0−fold = 1.9; AIC_c = 44

SEGUENEGA|csps berenga



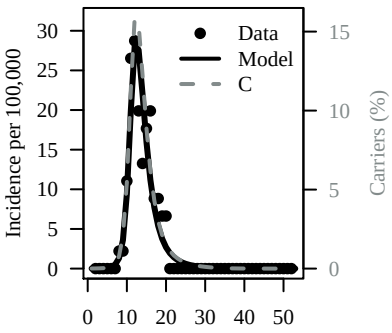
a_0−fold = 3.1; β_0−fold = 1.6; AIC_c = 37

SEGUENEGA|csps bouga



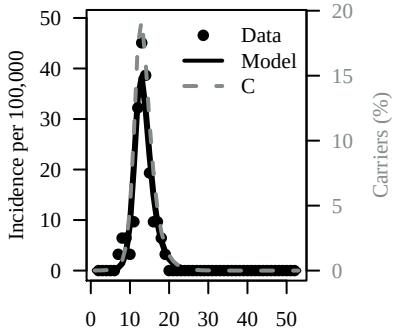
a_0−fold = 1.8; β_0−fold = 1.6; AIC_c = 66

SEGUENEGA|csps gambo



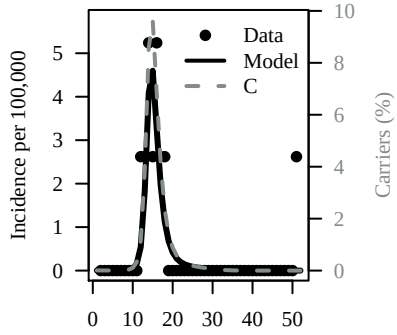
a_0−fold = 1.5; β_0−fold = 1.4; AIC_c = 58

SEGUENEGA|csps kossouka



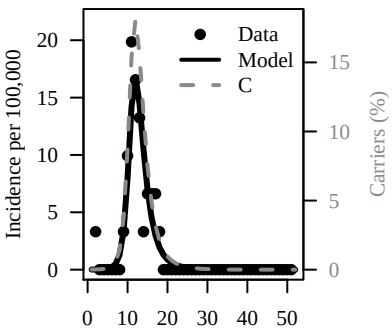
a_0−fold = 1.5; β_0−fold = 1.6; AIC_c = 55

SEGUENEGA|csps bema



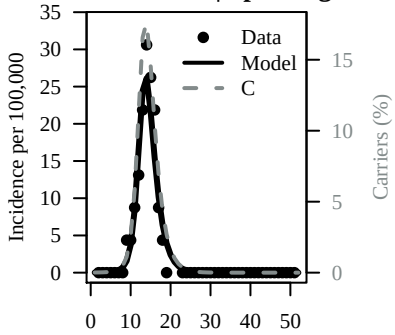
a_0−fold = 1; β_0−fold = 2; AIC_c = 30

SEGUENEGA|csps berenga



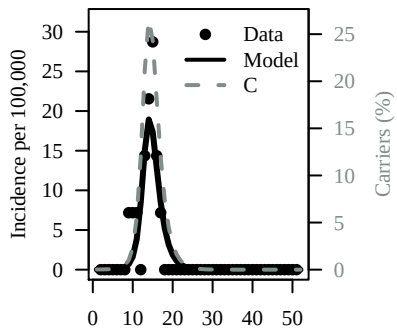
a_0−fold = 1.3; β_0−fold = 1.1; AIC_c = 44

SEGUENEGA|csps bouga



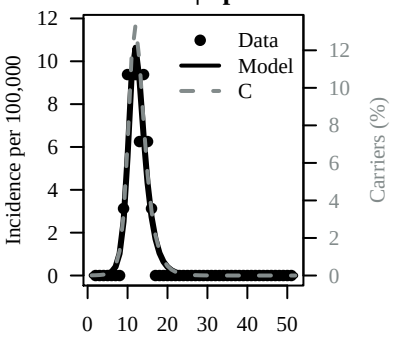
a_0−fold = 1.4; β_0−fold = 1.4; AIC_c = 43

SEGUENEGA|csps goubré



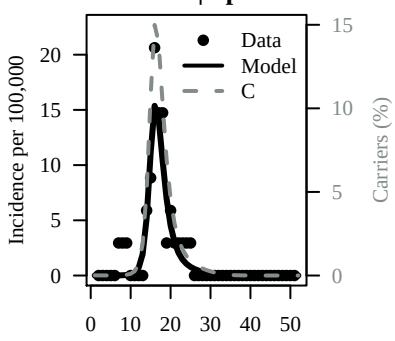
a_0−fold = 1.5; β_0−fold = 1.4; AIC_c = 34

SEGUENEGA|csps kossouka



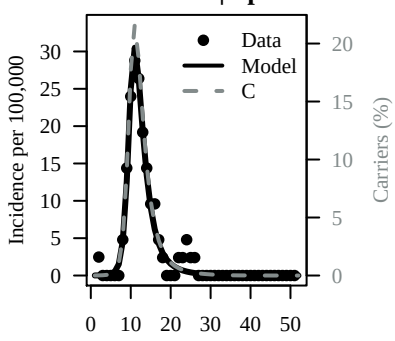
a_0−fold = 1.2; β_0−fold = 1.1; AIC_c = 38

SEGUENEGA|csps kossouka



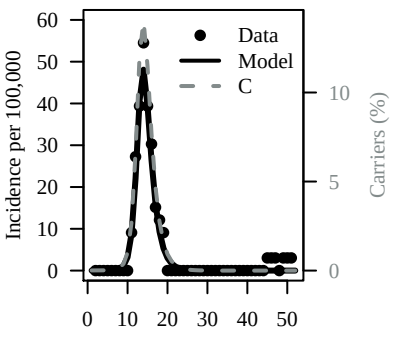
a_0−fold = 1.8; β_0−fold = 1.5; AIC_c = 42

SEGUENEGA|csps bema



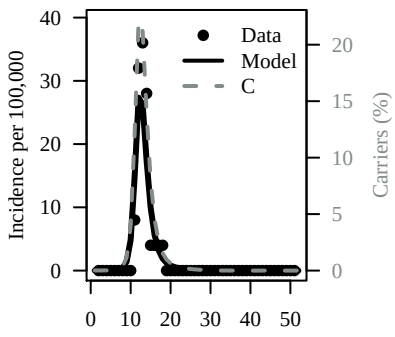
a_0−fold = 1; β_0−fold = 1.4; AIC_c = 58

SEGUENEGA|csps berenga



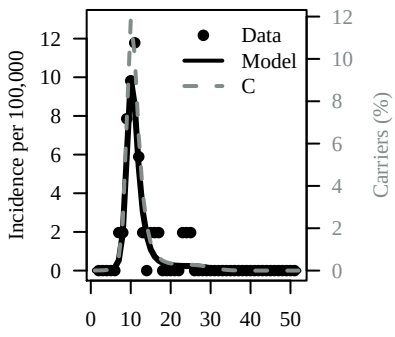
a_0−fold = 4; β_0−fold = 1.9; AIC_c = 50

SEGUENEGA|csps bouga



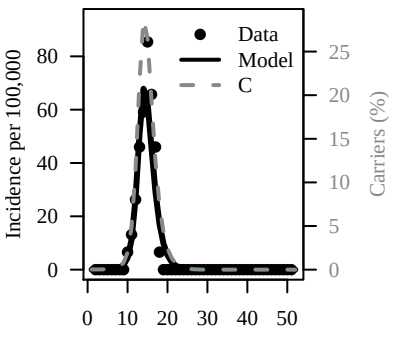
a_0−fold = 1.2; β_0−fold = 2; AIC_c = 39

SEGUENEGA|csps gambo



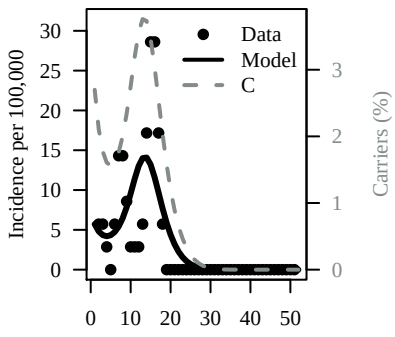
a_0−fold = 1; β_0−fold = 1.7; AIC_c = 36

SEGUENEGA|csps goubré



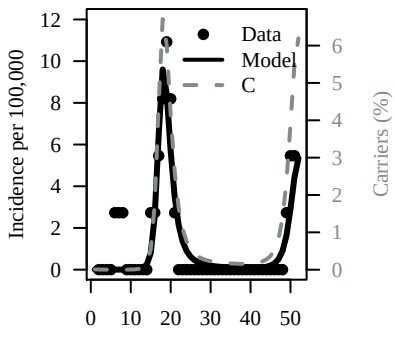
a_0−fold = 2.6; β_0−fold = 2; AIC_c = 47

SEGUENEGA|csps kossouka

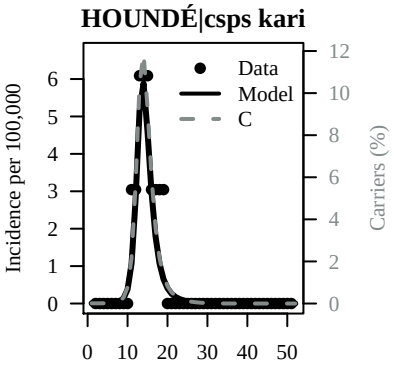


a_0−fold = 3.6; β_0−fold = 1.7; AIC_c = 74

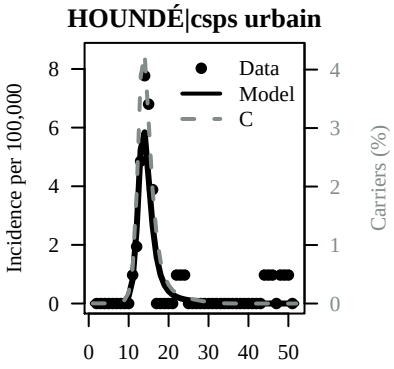
HOUNDÉ|csps founzan



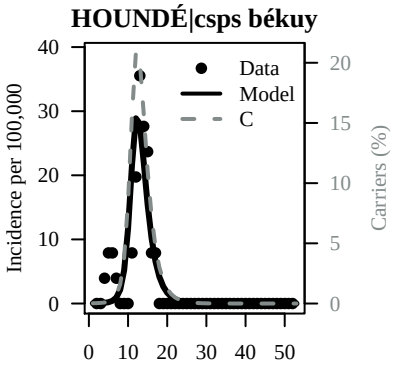
a_0−fold = 3.2; β_0−fold = 0.8; AIC_c = 41



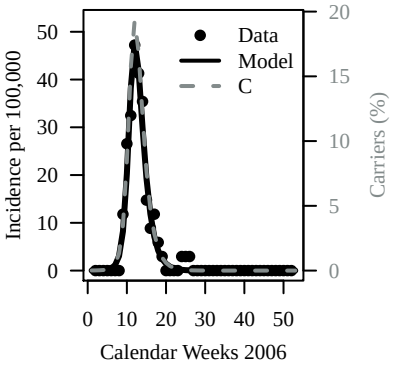
a_0−fold = 1.1; β_0−fold = 1.6; AIC_c = 32



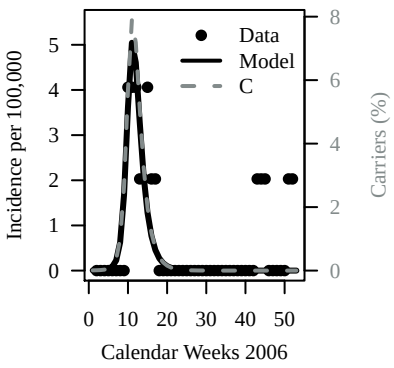
a_0−fold = 1.4; β_0−fold = 2; AIC_c = 39



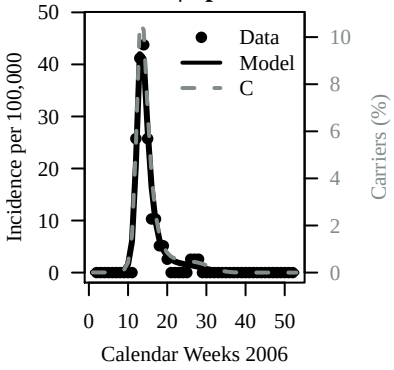
a_0−fold = 1.3; β_0−fold = 1.3; AIC_c = 61



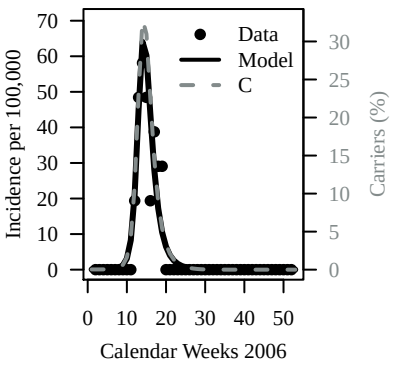
a_0−fold = 2.1; β_0−fold = 1.3; AIC_c = 53



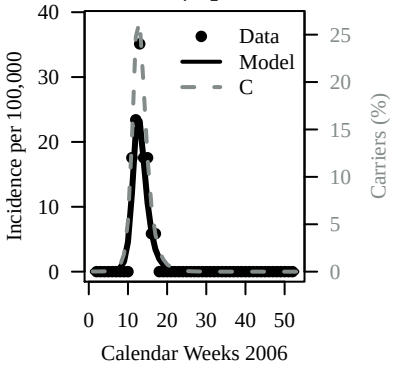
a_0−fold = 1.2; β_0−fold = 1.7; AIC_c = 35



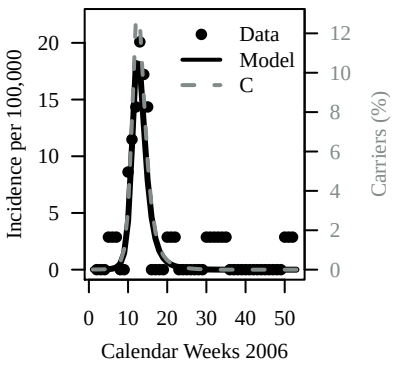
a_0−fold = 3.7; β_0−fold = 1.9; AIC_c = 52



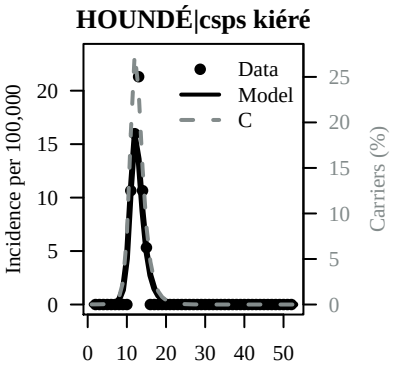
a_0−fold = 1; β_0−fold = 2; AIC_c = 44



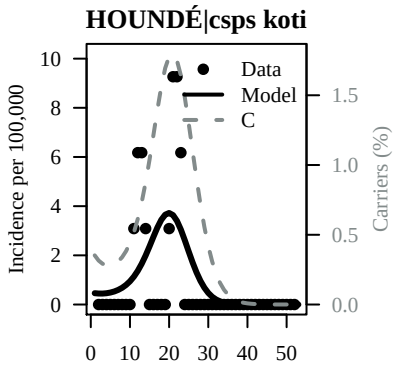
a_0−fold = 1.5; β_0−fold = 1.8; AIC_c = 36



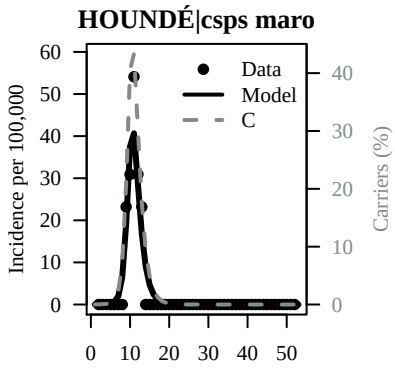
a_0−fold = 1.3; β_0−fold = 1.6; AIC_c = 42



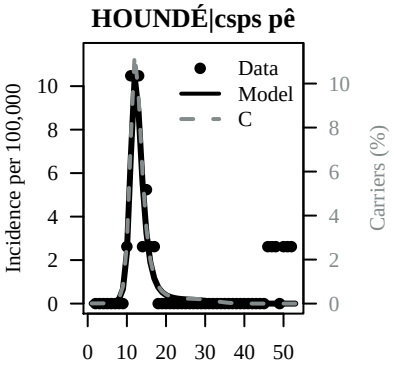
a_0−fold = 1.2; β_0−fold = 2; AIC_c = 33



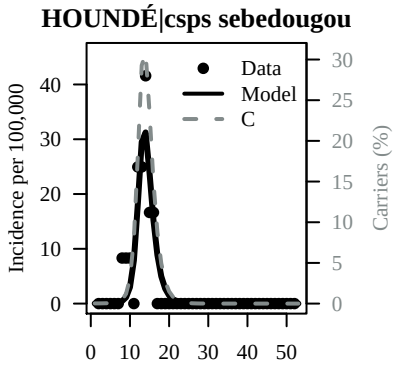
a_0−fold = 4.9; β_0−fold = 1.1; AIC_c = 47



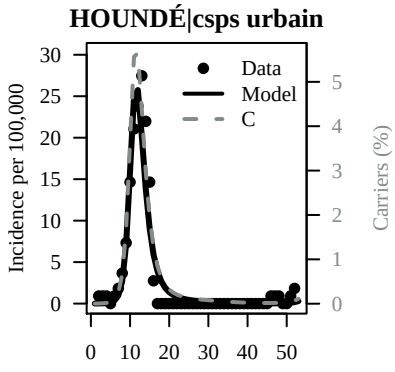
a_0−fold = 1.8; β_0−fold = 1.7; AIC_c = 36



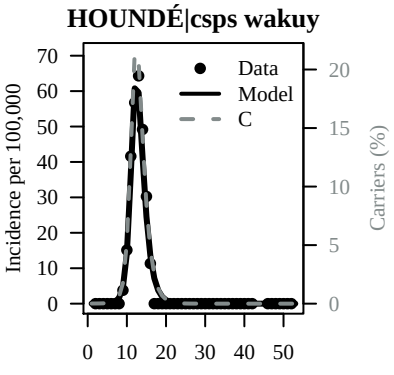
a_0−fold = 2.1; β_0−fold = 1.6; AIC_c = 35



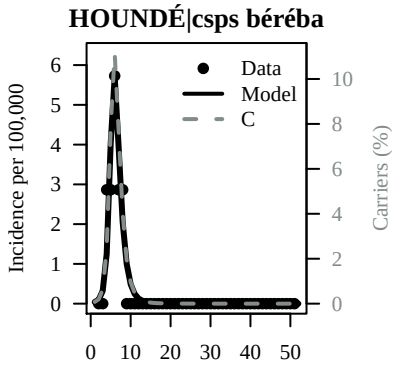
a_0−fold = 1.9; β_0−fold = 1.9; AIC_c = 36



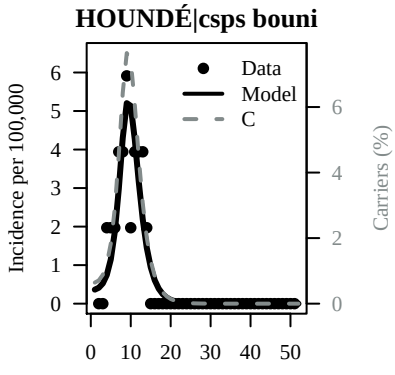
a_0−fold = 4.6; β_0−fold = 0.7; AIC_c = 77



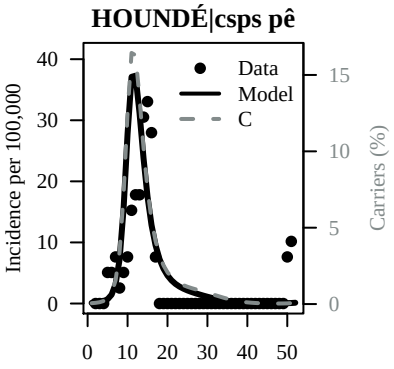
a_0−fold = 2.6; β_0−fold = 2; AIC_c = 47



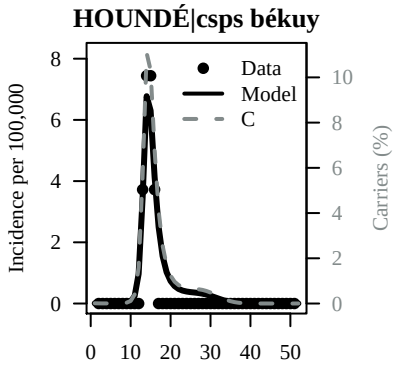
a_0−fold = 1; β_0−fold = 2; AIC_c = 28



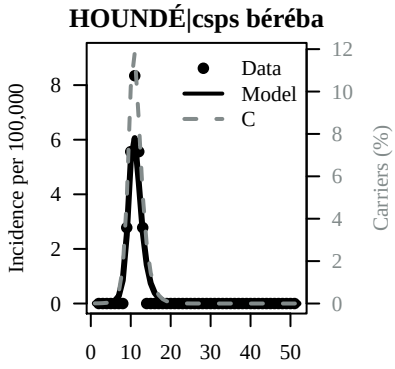
a_0−fold = 1.5; β_0−fold = 2; AIC_c = 41



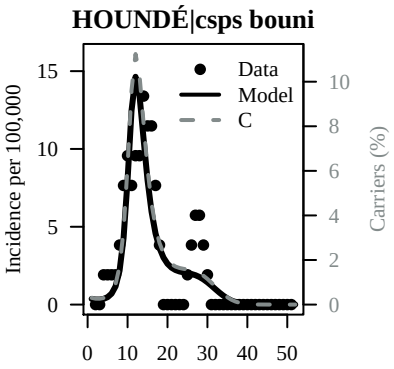
a_0−fold = 2.4; β_0−fold = 1.2; AIC_c = 102



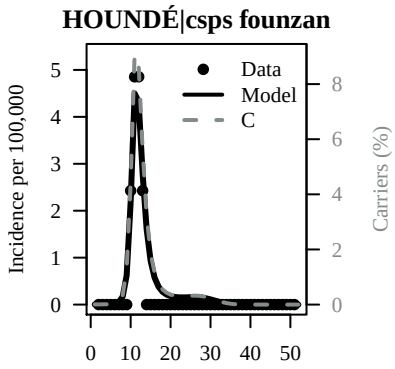
a_0−fold = 1.3; β_0−fold = 1.7; AIC_c = 30



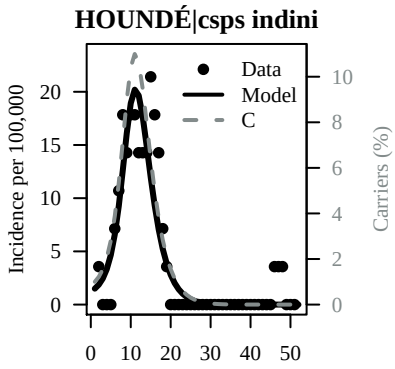
a_0−fold = 1.1; β_0−fold = 1.9; AIC_c = 31



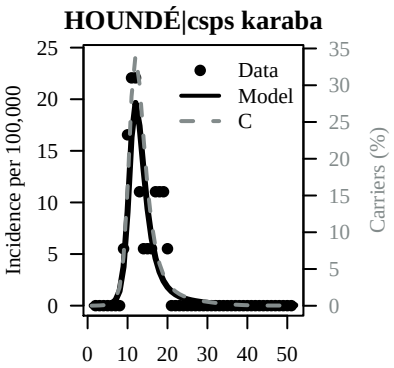
a_0−fold = 1.1; β_0−fold = 1.9; AIC_c = 72



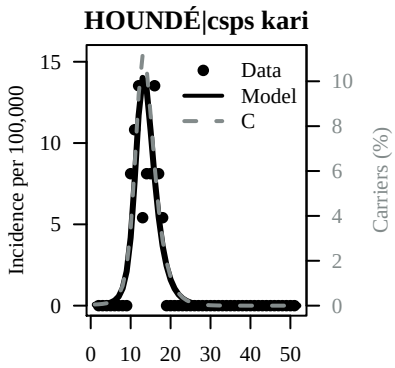
a_0−fold = 1.1; β_0−fold = 2; AIC_c = 30



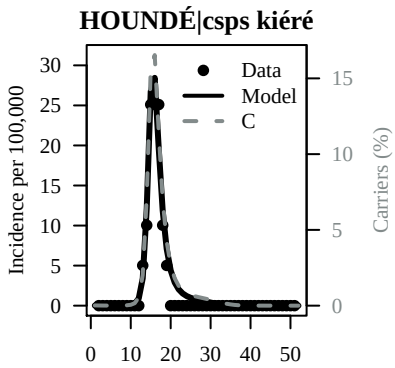
a_0−fold = 1.6; β_0−fold = 1.1; AIC_c = 60



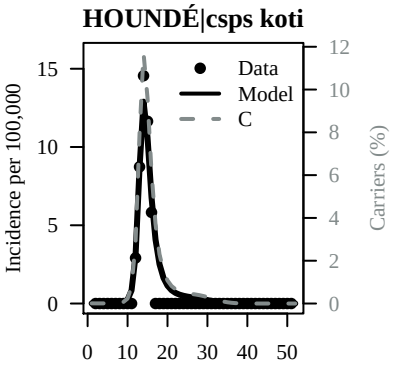
a_0−fold = 1.2; β_0−fold = 1.1; AIC_c = 47



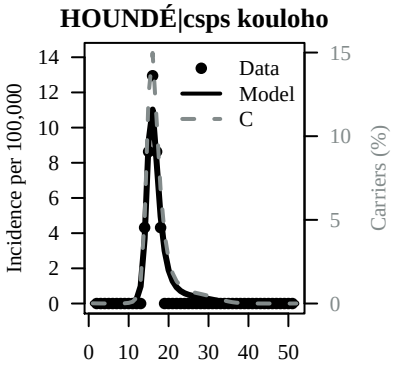
a_0−fold = 1.3; β_0−fold = 1.4; AIC_c = 47



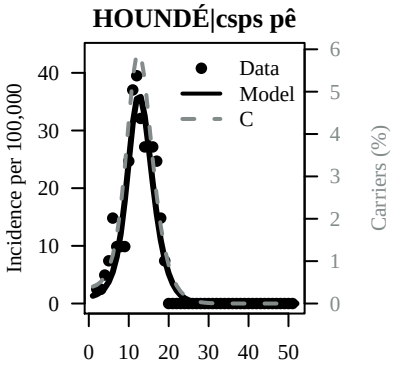
a_0−fold = 3.7; β_0−fold = 1.7; AIC_c = 38



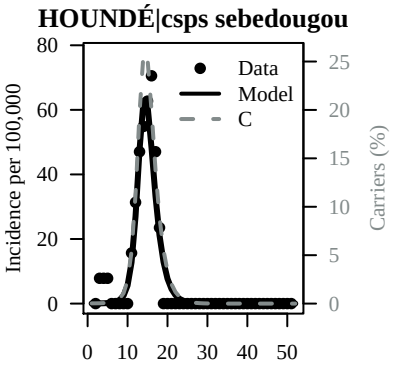
a_0−fold = 2.4; β_0−fold = 1.7; AIC_c = 35



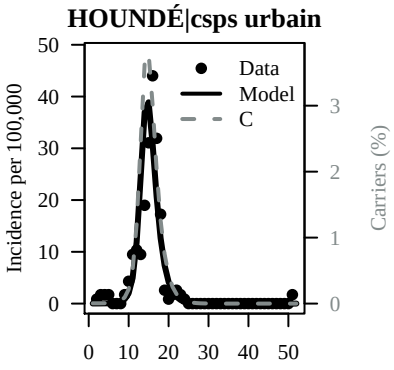
a_0−fold = 1.6; β_0−fold = 1.5; AIC_c = 32



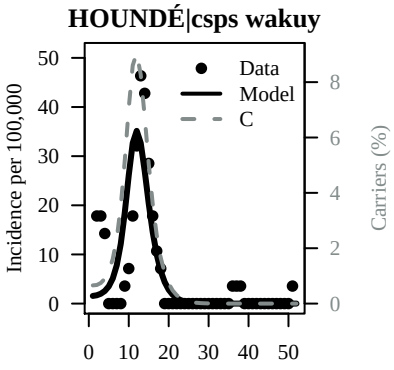
a_0−fold = 5.4; β_0−fold = 1.2; AIC_c = 76



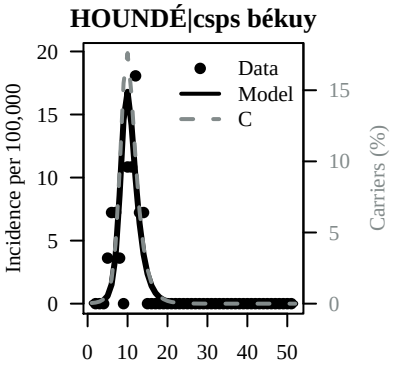
a_0−fold = 2.1; β_0−fold = 1.5; AIC_c = 47



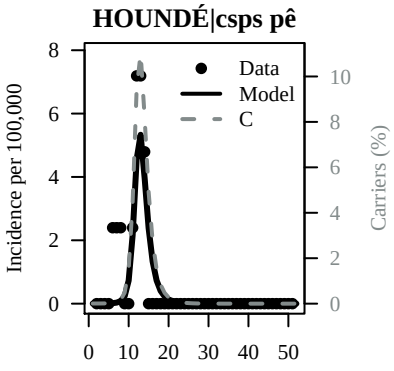
a_0−fold = 6.8; β_0−fold = 1.9; AIC_c = 162



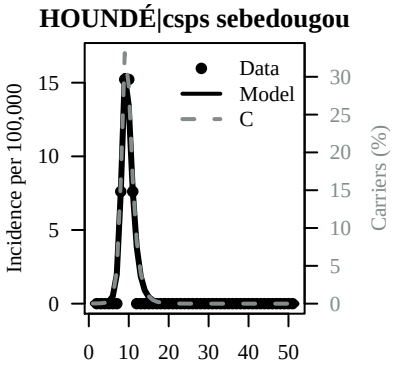
a_0−fold = 3; β_0−fold = 1.5; AIC_c = 82



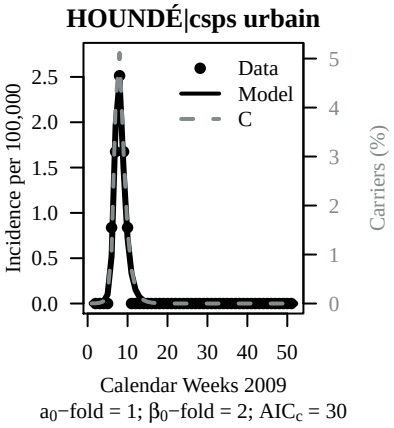
a_0−fold = 1.6; β_0−fold = 1.2; AIC_c = 48



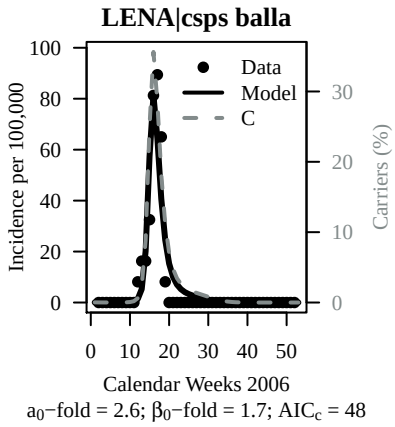
a_0−fold = 1; β_0−fold = 2; AIC_c = 31



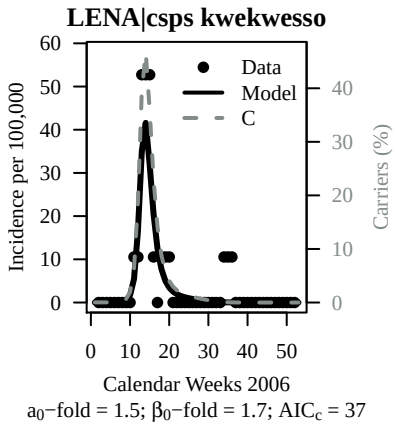
a_0−fold = 1; β_0−fold = 2; AIC_c = 29



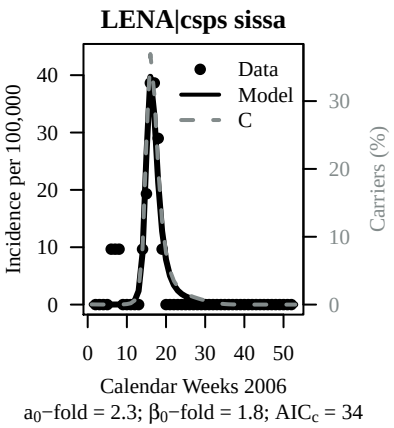
a_0−fold = 1; β_0−fold = 2; AIC_c = 30



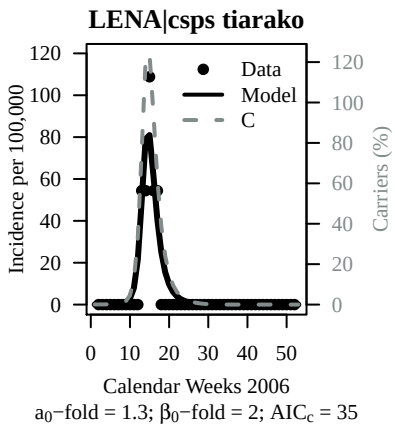
a_0−fold = 2.6; β_0−fold = 1.7; AIC_c = 48



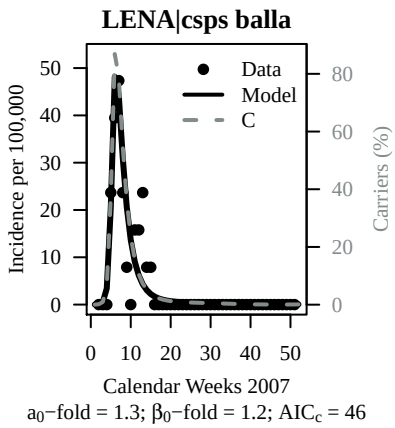
a_0−fold = 1.5; β_0−fold = 1.7; AIC_c = 37



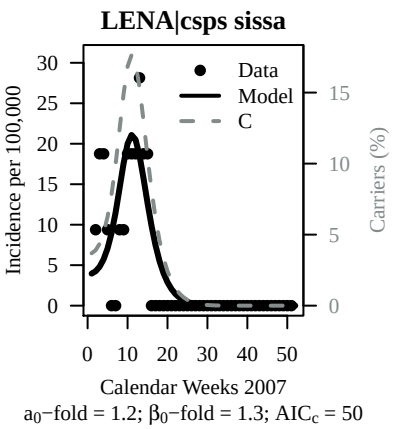
a_0−fold = 2.3; β_0−fold = 1.8; AIC_c = 34



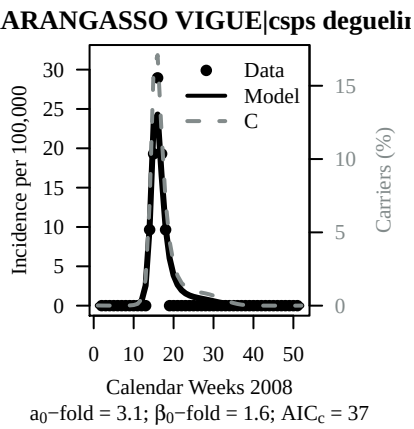
a_0−fold = 1.3; β_0−fold = 2; AIC_c = 35



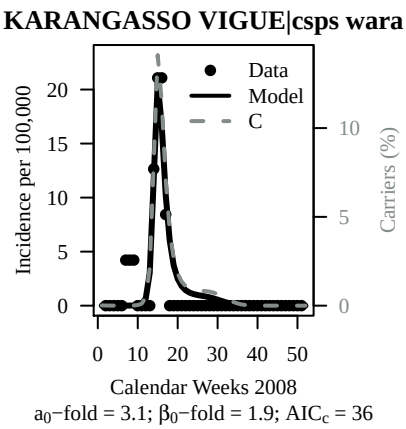
a_0−fold = 1.3; β_0−fold = 1.2; AIC_c = 46



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

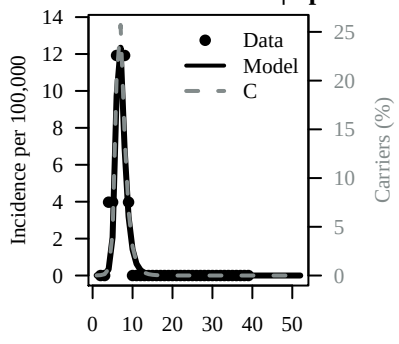


a_0−fold = 3.1; β_0−fold = 1.6; AIC_c = 37



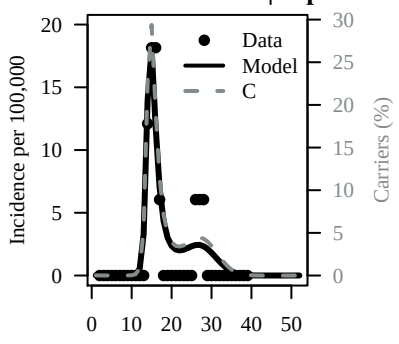
a_0−fold = 3.1; β_0−fold = 1.9; AIC_c = 36

KARANGASSO VIGUE|csps wara



a_0−fold = 1; β_0−fold = 2; AIC_c = 30

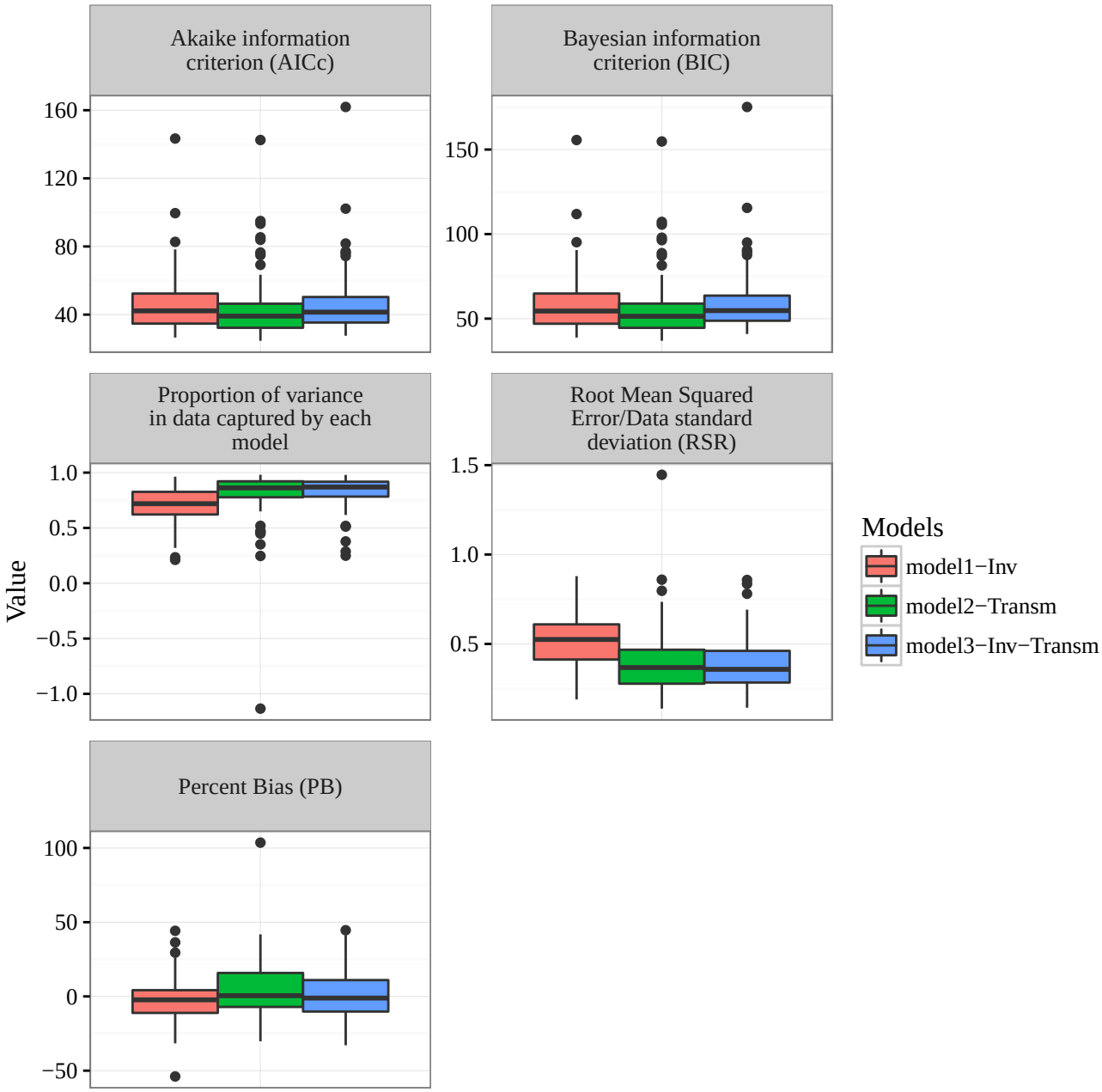
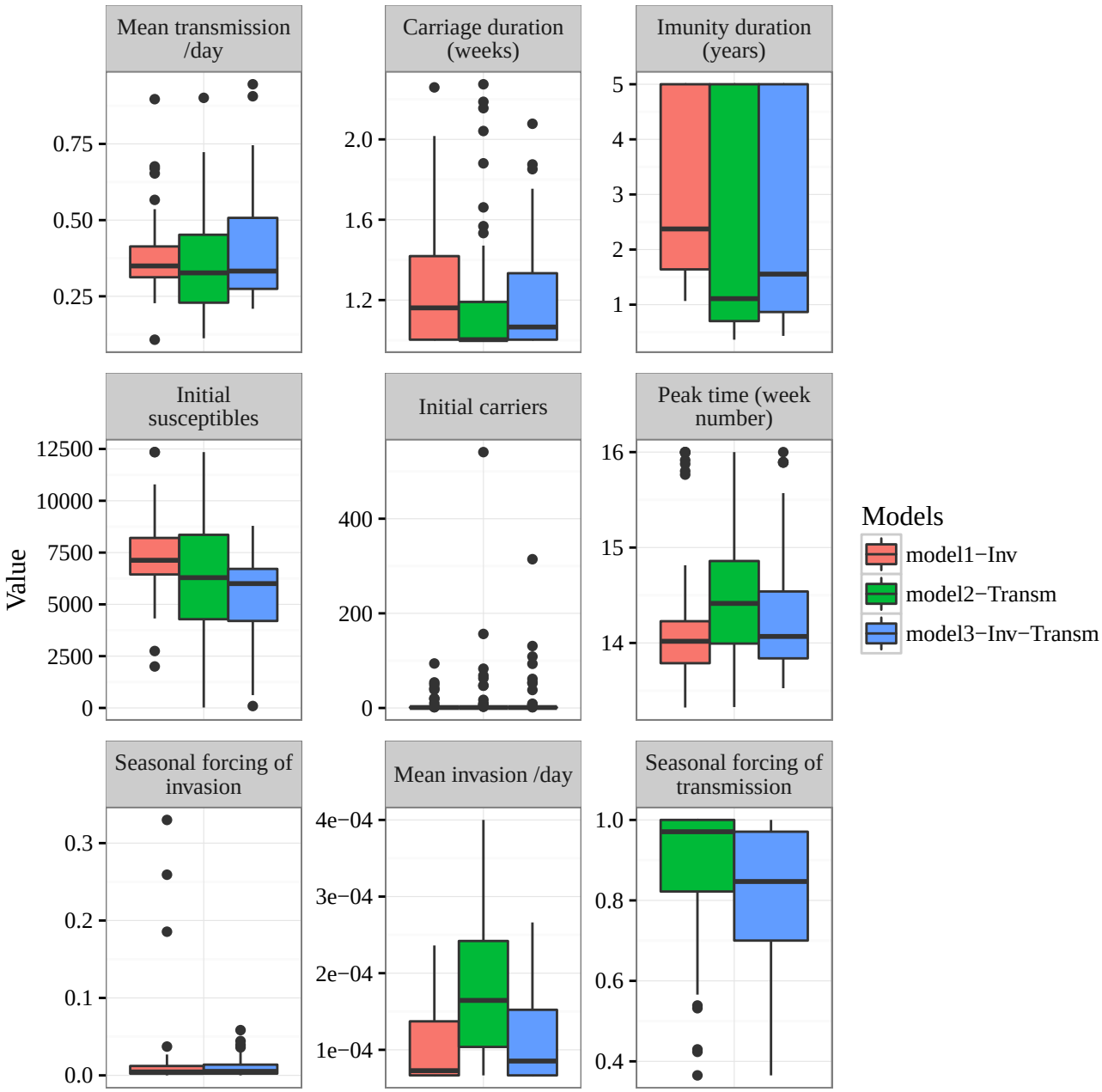
KARANGASSO VIGUE|dispe diosso



a_0−fold = 1.3; β_0−fold = 1.8; AIC_c = 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



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