

Supporting Information Appendix

Part 1

SARFIMA model applied in hemorrhagic fever with renal syndrome (HFRS)

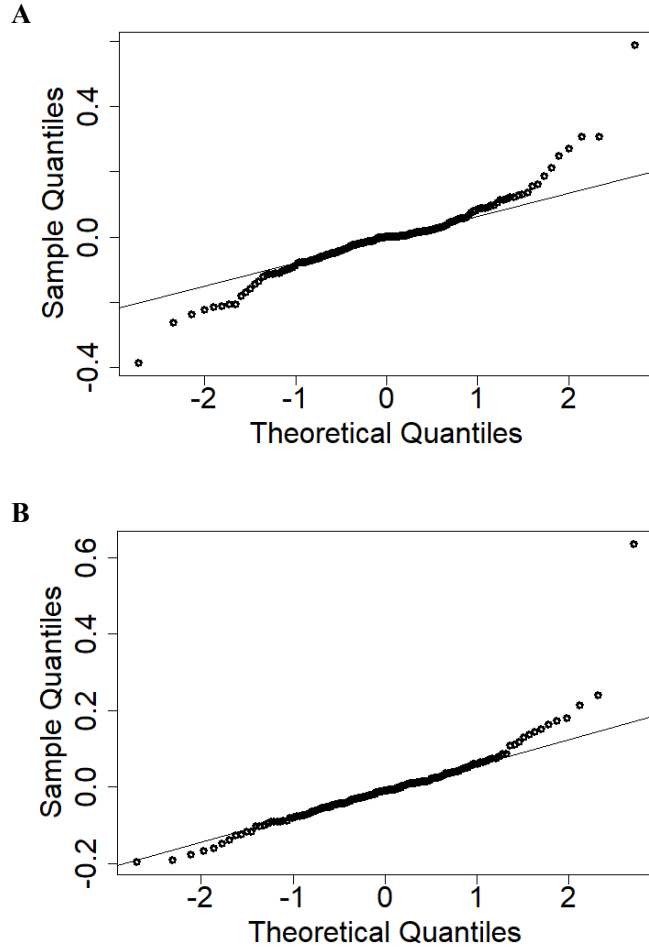


Fig. S1 The residual plots of SARIMA model (A) and SARFIMA model (B)

Table S1 The selected optimal SARIMA and SARFIMA models and the Ljung-Box test results

Model	χ^2	<i>P</i> value
SARIMA(2, 0, 2)(1, 1, 0) ₁₂	7.966×10^{-4}	0.978
SARFIMA(2, 0.15, 2)(1, 0, 0) ₁₂	5.916×10^{-3}	0.939

The Ljung-Box test is defined as follows: H_0 : The data are random; H_1 : The data are not random.

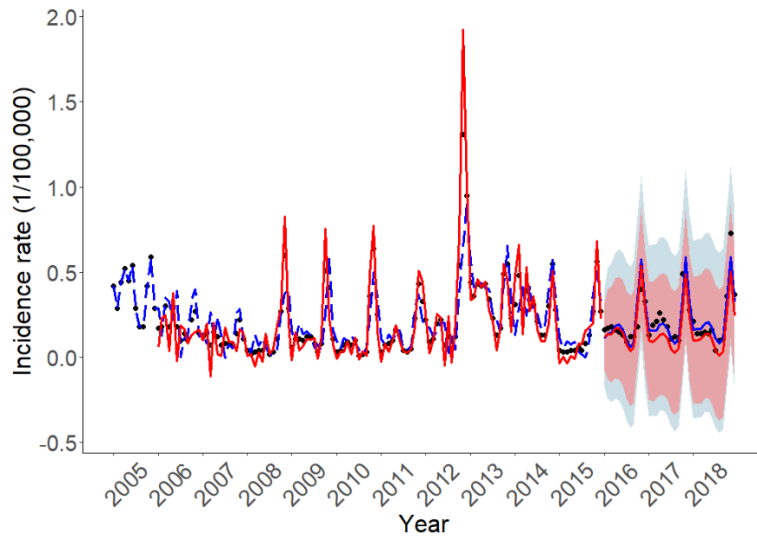
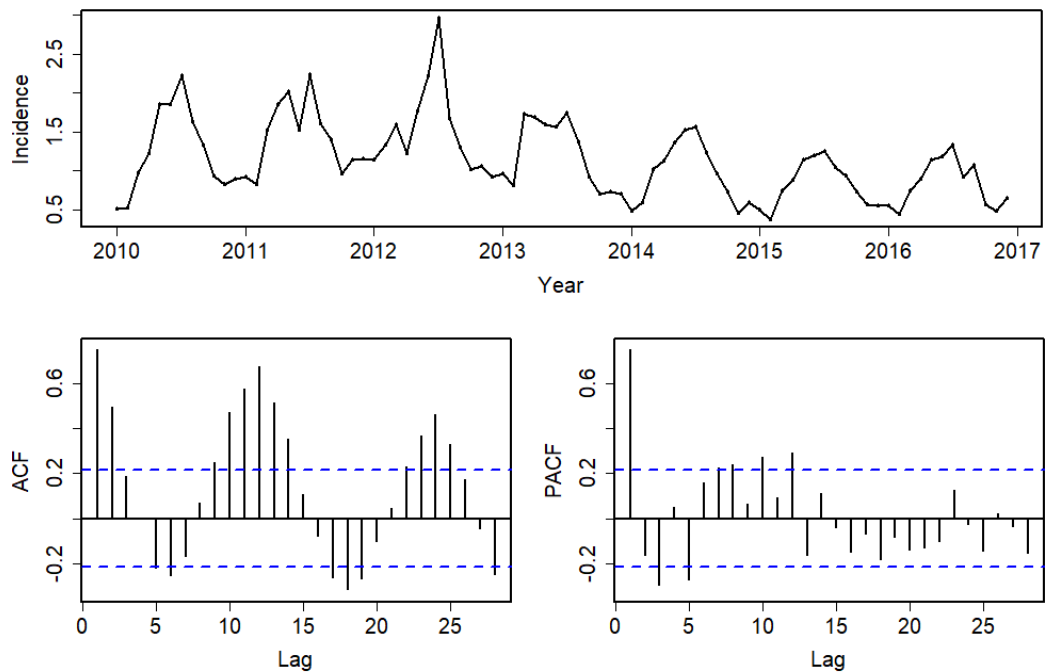


Fig. S2 3-year forecast for HFRS of SARFIMA and SARIMA. Black points indicate the real observations and lines indicate the simulated time series (SARFIMA: red solid line; SARIMA: blue dotted line). The shaded regions indicate the 95% credible interval

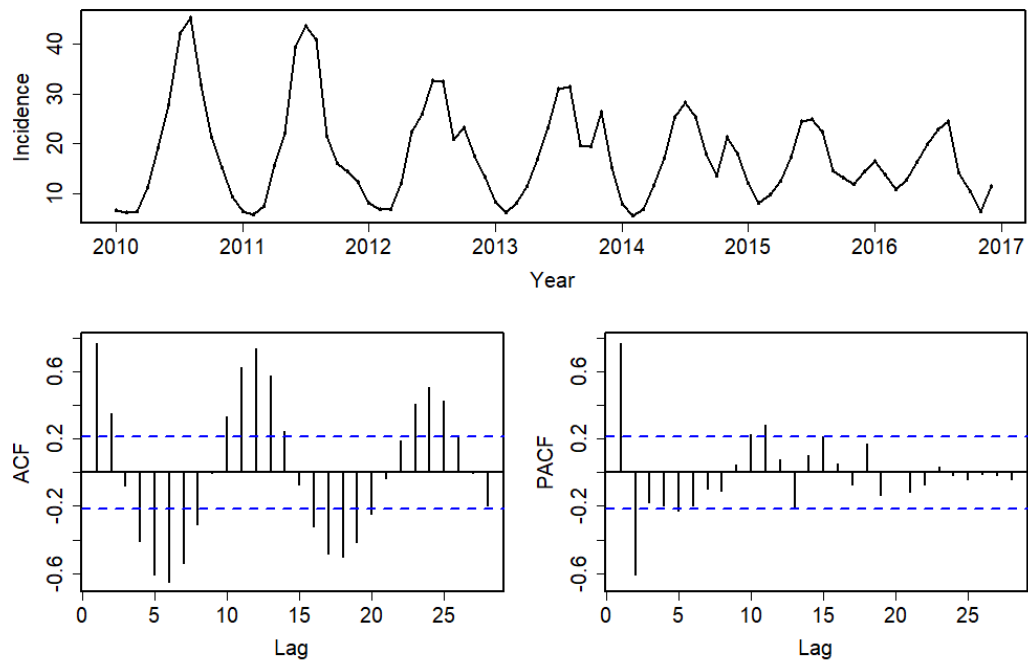
Part 2

SARFIMA model applied in other infectious diseases

A



B



C

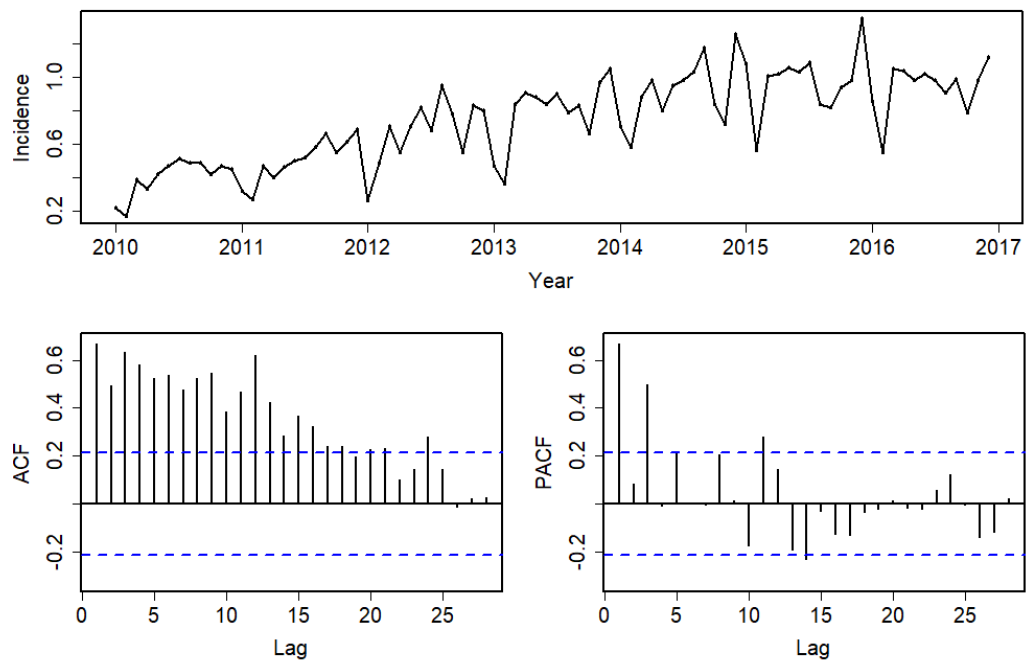


Fig. S3 Time series along with ACF and PACF plots. A. The other infectious diarrhea. B. Mumps. C. Human immunodeficiency virus (HIV). The other infectious diarrhea refers to one of notifiable infectious diseases in China, excepting cholera, bacterial and amoebic dysentery, and typhoid and paratyphoid fever. The monthly reported data for the other infectious diarrhea, mumps and HIV from 2010 to 2016 in Beijing were public data accessible from the web-based reporting system for notifiable infectious diseases.

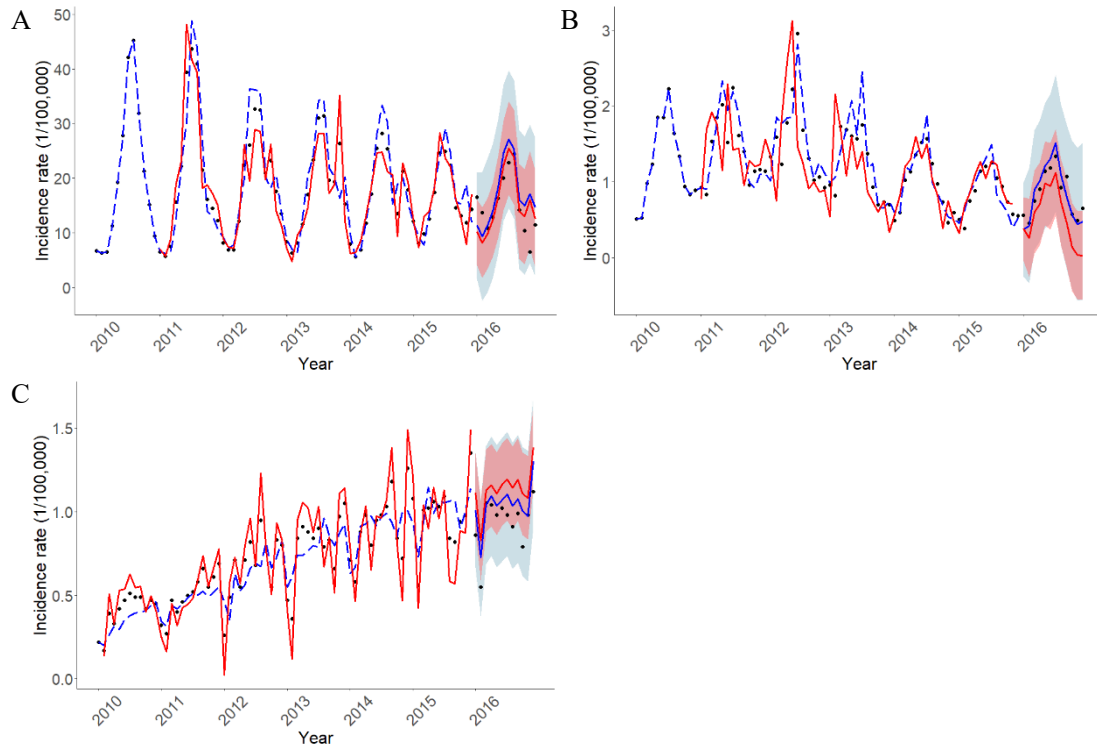


Fig. S4 Fitting and forecast results of models. A. Infectious diarrhea. B. Mumps. C. Human immunodeficiency virus (HIV). Black points indicate the real observations and lines indicate the simulated time series (SARFIMA: red line; SARIMA: blue line). The shaded regions indicate the 95% credible interval.