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Performance of phenomenological models for real-time forecasting the COVID-19 epidemic

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Performance of phenomenological models for real-time forecasting the COVID-19 epidemic

The ongoing COVID-19 epidemic continues to spread within and outside of China, despite implementation of several social distancing measures. Limited epidemiological data and changes in case definition and reporting further complicated the epidemic trajectory. We employed previously validated phenomenological models to generate short-term forecasts of cumulative reported cases during the ongoing COVID-19 epidemic in China. We collected daily reported cumulative case data from the National Health Commission of China and generated 5- and 10-day ahead forecasts with quantified uncertainty using a generalized logistic growth model, the Richards growth model, and a sub-epidemic wave model, which have each been used to forecast a range of infectious diseases. We retrospectively assess the performance of our forecasts using various metrics.