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Modeling for a purpose: influenza outbreak in a boarding school revisited.

Assessment of models should depend on the modeling objectives. Models that incorporate more realistic mechanisms are more suitable for providing insights. To produce reliable and accurate predictions and inform public health decision making, parsimoneous models are more appropriate and the modeling needs to respect the data. Most of all, model calibration results should be validated by data that is independent of the calibration data, before scenario analysis is make to inform policy. As a case study, we revisit the classical example of a 1978 influenza outbreak in a boarding school in England. We demonstrate that a parsimonious SIR model with data informed time-dependent parameters can produce both accurate fitting to the time series data and validation by the final size of the epidemic. Furthermore, modeling results also provide evidence of the likely epidemic control measures implemented at the school.