Nowcasting COVID-19 deaths and hospitalized cases in Brazil: A Bayesian approach

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Abstract:

The coronavirus disease (COVID-19) pandemic continues to cause a massive burden in the world, especially in countries such as Brazil, with poor implementation of strategies to mitigate the transmission of SARS-CoV-2. The number of cases, severe cases, and deaths by COVID-19 are important indicators of how the COVID-19 epidemic is affecting a particular region and can be used by decision-makers to act in order to reduce morbidity and mortality. However, a common problem with surveillance data is reporting delays, whereby cases and deaths are recorded in the surveillance system days or even weeks after they occurred. Statistical models can estimate the actual number of cases, severe cases, and deaths by COVID-19 accounting for the delays (nowcasting). We proposed a Bayesian hierarchical model to nowcast deaths and hospitalised cases for Brazil and also for the 27 federal units. Finally, we provide some general discussion about the COVID-19 situation in Brazil.

Keywords:
COVID-19; Nowcasting; Bayesian modelling