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Modeling the COVID-19 incorporating variants and vaccines

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Since the new coronavirus SARS-CoV-2 was detected in China in 2019, many mathematical models have been developed to study the possible evolution of the COVID-19 disease [1, 2]. By the end of 2020, with the supply of the different vaccines and the appearance of new more contagious variants, we presented a model that took into account these two determining facts, showing its performance with real data from Italy [3]. In this talk, we will summarize the proposed models. The modeling framework can incorporate new variants as they emerge to give critical insights into the new cases and guide public policy decision-making concerning vaccine roll-outs and reopening strategies.

Keywords: θ-SIR type model, COVID-19 vaccines, SARS-CoV-2 variants

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