

A piecewise growth model for modeling the accumulated number of COVID-19 cases in the city of Campo Grande

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Resumo

In December of 2019, a new coronavirus was discovered in the city of Wuhan, China. The World Health Organization officially named this coronavirus as COVID-19. Since its discovery, the virus has spread rapidly around the world and is currently one of the main health problems, causing an enormous social and economic burden. Due to this, there is a great interest in mathematical models capable of projecting the evolution of the disease in countries, states and/or cities. This interest is mainly due to the fact that the projections may help the government agents in making decisions in relation to the prevention of the disease. By using this argument, the health department of the city (HDC) of Campo Grande asked the UFMS for the development of a mathematical study to project the evolution of the disease in the city. In this paper, we describe a modeling procedure used to fit a piecewise growth model for the accumulated number of cases recorded in the city. From the fitted model, we estimate the date in which the pandemic peak is reached and project the number of patients who will need treatment in intensive care units. Weekly, was sent to HDC a technical report describing the main results.