AGENT-BASED MODELING OF THE SPREAD OF THE 1918-19 SPANISH FLU IN THREE CANADIAN FUR TRADING COMMUNITIES

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ABSTRACT

In this project, an agent-based computer simulation was developed to model the spread of the 1918-1919 influenza pandemic within and among three Aboriginal communities in central Manitoba. Data from model simulations indicate that social organization and mobility patterns help to explain the different epidemic experiences in the three communities, that outcomes other than that observed in the historic record would have been improbable, and that the epidemic would have been more severe if it had occurred in the summer, rather than in the winter. These findings are contrasted with those of an earlier population-based model, providing an important comparison of the two modeling techniques that illustrates the advantages of agent-based models for the study of small populations. They also provide insights into this historical pandemic that could prove useful in preparing for or controlling future outbreaks of influenza.