SCENARIO SIMULATION FOR EMERGENCY VACCINATION AGAINST COVID-19

Amanda Caroline da Silva Rívolli¹, Isabela Antunes de Souza Lima², Márcia Marcondes Altimari Samed³

Universidade Estadual de Maringá (UEM)¹,²,³
Email: pg404735@uem.br¹; amanda_rivolli@hotmail.com²; mmasamed@uem.br³

Purpose: The general objective of this research is to evaluate the vaccination processes from the perspective of the preparedness and response stages recommended in Humanitarian Logistics (LH). The developed model contemplates the main logistical processes and stakeholders involved in the emergency vaccination schedule against Covid-19 in Brazil, specifically in a southern Brazilian city.

Research Approach: This research is a simplified model, since the emergency vaccination structure was implemented in different ways in the country, considering the large territorial extension of Brazil and its regional characteristics. Its approach is qualitative and quantitative, structured based on a case study and consisted of collecting data to develop a model using Systems Dynamics to represent the processes of emergency vaccination against Covid-19.

Findings and Originality: The model presented in this research considers only the emergency period, which occurred in 2021, but is sufficiently robust, as it represents the logistical processes as they occurred in a large part of the country and its originality lies in the identification of processes, stakeholders and the relationship between them with Systems Dynamics support. According to a data collection stage, the process variables were identified and, thus, a base model was developed as a reference for the simulation. Next, different scenarios were created, changing the process variables and the results were analyzed and compared with the base model.

Research Impact: This research contributes to filling gaps in the area of preparedness and response in the vaccination distribution process literature. The systemic analysis helped to understand the processes, allowing to identify the decisions that were made and simulate the actions that should have been carried out, proving that the variables that are dependent, providing changes in all processes.

Practical Impact: In the practical context, this article contributes to demonstrate the difficulty of carrying out an emergency vaccination program, in which there was no prior preparedness stage and the response became an urgent need.

Keywords: Humanitarian logistics, Covid-19, Vaccination, System Dynamics.
SCENARIO SIMULATION FOR EMERGENCY VACCINATION AGAINST COVID-19
Amanda Caroline da Silva Rívollí¹, Isabela Antunes de Souza Lima², Márcia Marcondes Altimari Samed³

Universidade Estadual de Maringá (UEM)¹,²,³
Email: pg404735@uem.br¹; amanda_rivolli@hotmail.com²; mmasamed@uem.br³

Purpose: The general objective of this research is to evaluate the vaccination processes from the perspective of the preparedness and response stages recommended in Humanitarian Logistics (LH). The developed model contemplates the main logistical processes and stakeholders involved in the emergency vaccination schedule against Covid-19 in Brazil, specifically in a southern Brazilian city.

Research Approach: This research is a simplified model, since the emergency vaccination structure was implemented in different ways in the country, considering the large territorial extension of Brazil and its regional characteristics. Its approach is qualitative and quantitative, structured based on a case study and consisted of collecting data to develop a model using Systems Dynamics to represent the processes of emergency vaccination against Covid-19.

Findings and Originality: The model presented in this research considers only the emergency period, which occurred in 2021, but is sufficiently robust, as it represents the logistical processes as they occurred in a large part of the country and its originality lies in the identification of processes, stakeholders and the relationship between them with Systems Dynamics support. According to a data collection stage, the process variables were identified and, thus, a base model was developed as a reference for the simulation. Next, different scenarios were created, changing the process variables and the results were analyzed and compared with the base model.

Research Impact: This research contributes to filling gaps in the area of preparedness and response in the vaccination distribution process literature. The systemic analysis helped to understand the processes, allowing to identify the decisions that were made and simulate the actions that should have been carried out, proving that the variables that are dependent, providing changes in all processes.

Practical Impact: In the practical context, this article contributes to demonstrate the difficulty of carrying out an emergency vaccination program, in which there was no prior preparedness stage and the response became an urgent need.

Keywords: Humanitarian logistics, Covid-19, Vaccination, System Dynamics.