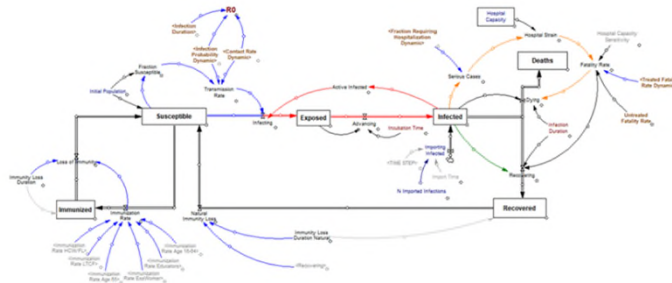




May 27, 2021 Atlanta Chapter Meeting

“Simulation-based What-if Analysis for Georgia Vaccination Distribution Policy”

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Abstract

Simulation-based What-if Analysis for Georgia Vaccination Distribution Policy

The global pandemic of COVID-19 has exposed how under-prepared healthcare systems and their interconnected systems are to deal with such an event. Due to regional differences in level of community spread and capacity of healthcare systems, each region is presented with their own unique challenges when it comes to responding to the outbreak and as we begin down the road of vaccine distribution new demands on these systems arise. Our focus in this study is to implement system dynamic modeling to assess policies aimed to prevent the transmission of the virus and to save lives in the state of Georgia. In our scenario analysis, we utilize SEIRD-based model and connect it to a vaccine distribution model composed of multiple variables that account for timing, efficiency, willingness, and prioritization of different population categories. The hypotheses that we tested in our connected model are: (1) distribution of vaccine solely based on age will result to lower death rate, but it might increase the community spread within the first months and (2) distribution of first doses of vaccine to a wider population while postponing the second dose, will result in lower death rates and lower community spread. While we examine the accuracy of these hypotheses, we model different scenarios to change the priorities of population categories (e.g. healthcare and frontline workers, teachers, essential workers, resident of long term care facilities, etc.) in order to investigate the impact that these scenarios have on the total number of COVID-19 related deaths in Georgia.

Speaker Bios

Dr. Esmaeili is an Assistant Professor of Systems Engineering at Kennesaw State University – Marietta. Melanie Cardenas is a student at KSU Marietta and the Winner of this Semester’s Systems Engineering Senior Project. This presentation is an overview of her work. The INCOSE Atlanta Chapter has made a monetary award to Ms Cardenas for her achievement.

Schedule / Virtual Login

5:15 – 5:30 pm

President’s Remarks

5:30 – 6:30 pm

Program

Join Zoom Meeting

<https://incose-org.zoom.us/j/91562624849?pwd=dFpYaWtUZFNld3N2MmJyTnZxdUFUdz09>

Meeting ID: 915 6262 4849

Passcode: 680244