Call for Papers


Special Issue: Modeling and Simulation to Enhance and Optimize the DoD’s Medical Readiness and Response Capabilities – a COVID-19 Example (J20-6)

Introduction

The COVID-19 pandemic, occurring with unexpected infection and mortality rates, stressed the International medical community in ways that spanned from policy to technical support. Modeling and simulation was one of the key techniques used to quantify the demands induced by the COVID-19 pandemic, and estimate supply requirements to ensure life-saving materials were provided at the point of need.

This special issue is therefore looking for papers that leverage modeling techniques to support pandemic response. These papers could span from epidemiology, logistics, to the modeling of new techniques to prevent, mitigate, or support post COVID-19 rehabilitation. Example topics include:

- Artificial intelligence approaches to epidemic forecasting
- All-hazards modeling in the light of COVID-19
- Agent-based modeling of outbreak scenarios in confined settings (ships, offices, bases, etc.)
- First responder information assimilation requirements in a pandemic environment
- Real-Time training and use of modeling and simulation to speed up critical care knowledge, skills and abilities (e.g., from first responders to critical care)
- Modeling of personal protective equipment requirements (i.e., “just enough” vs. complete protection and supply-chain repercussions)
- Coordination of civilian and military medical community, from the enlisted ‘medics’ who provide point of injury care to the officer-level nurses, physicians, surgeons, and physicians assistants
• Modeling of social distancing and rates of disease spread, including traditional and novel epidemiological approaches
• 2nd and 3rd order implications of “stay at home” quarantine policies (e.g., inability to receive regular therapies for chronically ill)
• 2nd and 3rd order effects of the outbreak, including social instability, economic distress, and interstate competition
• Use of modeling to forecast the deployment of more complex and sensitive diagnostic and treatment equipment
• Modeling 2nd and 3rd wave pandemic demands
• Recommendations for persistent, strategic, modeling for future pandemics
• Lessons learned from distributed learning during the COVID-19 pandemic
• Novel applications of developing technologies (e.g., virtual reality) to enable health-care personnel to plan, respond, and manage the COVID-19 medical missions
• Methods for the development of global healthcare landscape surveillance to inform future pandemic response strategies
• How M & S tools can provide a significant increase in the ability to forecast potential medical risks in a given area
• Methods for M&S help optimize the acquisition, storage, retrieval, and use of healthcare-related information for each patient to ensure consistent and timely care
• Use of M&S tools to facilitate rapid and accurate pattern classification and hypothesis testing

Due dates

Full papers due February 26, 2021
Expected date of publication Fall 2021

Submissions for full paper review

All manuscripts must be submitted electronically through the paper submission system to the JDMS Manuscript Submission System. In the title page, author(s) must specifically mark that the paper is intended for this special issue as follows: "Submission for the Special Issue of JDMS: Modeling and Simulation to Enhance and Optimize the DoD’s Medical Readiness and Response Capabilities – a COVID-19 Example (J20-6)."
Each final submission must be prepared based on the JDMS journal requirements (see the Author Guidelines for JDMS page).

**Guest editors**

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