

NORTH CAROLINA STATE UNIVERSITY

**OPERATIONS RESEARCH PROGRAM
SEMINAR SERIES**

**February 12, 2024
4:30PM-5:45PM**

In-Person: 4290 Fitts-Woolard Hall

[Zoom](#) details – bottom of page

Dr. Sommer Gentry

Professor,

**Department of Surgery at NYU Grossman School of Medicine
Department of Population Health at NYU Grossman School of Medicine**

Sommer.Gentry@nyulangone.org

Title

Multiobjective Optimization for Allocating Livers for Transplantation

Abstract

Organ allocation is a complex system in which every factor prioritized affects how other factors are prioritized, and this talk will examine several different perspectives on multiobjective optimization as they relate to transplantation policy. The Organ Procurement and Transplantation Network is eliminating a hierarchical category-based priority system in favor of a weighted combination of multiple objectives, but designing the weights by committee vote might fail to converge on an acceptable system. We can use simulation optimization to maximize the survival benefit of transplantation while ensuring equity by making transplant rates similar among populations that differ by race, gender, et cetera. Using simulation optimization, we explore alternative designs to choose an allocation score that, for example, could minimize waitlist deaths while assuring comparable transplant rates for relevant subgroups (e.g. by age, race, ABO blood type, urban/rural). Our findings are directly applicable to liver allocation policymaking, using an approach that optimizes outcomes and supports transparency, an ethical cornerstone in transplantation.

Biography



Dr. Sommer Gentry

Sommer Gentry, PhD, is a Professor of Surgery and a Professor of Population Health at the New York University Grossman School of Medicine, and Co-Director of the Center for Surgical and Transplant Applied Research. She is a senior investigator with the Scientific Registry for Transplant Recipients. She designed matching optimization methods used for nationwide kidney paired donation registries in both the United States and Canada, and helped pass a law legalizing paired donation in the United States. Her redistricting work was also instrumental in pushing the Organ Procurement and Transplantation Network to make major policy changes that reduced geographic disparities in transplantation. Her work has attracted the attention of major media outlets including Time Magazine, Reader's Digest, Science, the Discovery Channel, and National Public Radio. She was formerly a Professor of Mathematics at the US Naval Academy, and in that role received the MAA's Henry L. Alder award for distinguished teaching by a beginning mathematics faculty member, was a finalist for the INFORMS Daniel H. Wagner prize for excellence in operations research practice, and received the US Naval Academy's 2021 Civilian Faculty Excellence in Research award.

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