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Enhancing Equity in Kidney Allocations



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Mark S. Daskin is the Department Chair of the Industrial and Operations Engineering Department at the University of Michigan. He holds the Clyde W. Johnson Collegiate Professorship in the College of Engineering at Michigan. Prior to joining the Michigan faculty, he held a Walter P. Murphy Professorship in the Department of Industrial Engineering and Management Sciences at Northwestern University. Prior to 1995, he was in the Civil Engineering Department. Before joining the Northwestern faculty in 1980, he was a faculty member at the University of Texas at Austin. Daskin received his Ph.D. from the Civil Engineering Department at M.I.T. in 1978. He also holds a B.S.C.E. degree from that department and a Certificate of Post-Graduate Study in Engineering from the University of Cambridge in England. Daskin's research focuses on the application and development of operations research techniques for the analysis of health care problems, as well as transportation, supply chain, and manufacturing problems. He is the author of over 50 refereed papers and of two books: *Network and Discrete Location: Models, Algorithms and Applications* (John Wiley, 1995) and *Service Science* (John Wiley, 2010). *Service Science* was awarded the Institute of Industrial Engineers Joint Publishers Book of the Year Award in 2011.

Dr. Robert M. Merion, MD, FACS is a Professor of Surgery in the Section of Transplantation at the University of Michigan and the President of Arbor Research Collaborative for Health, both in Ann Arbor, Michigan. Dr. Merion is a past president of the American Society of Transplant Surgeons. Dr. Merion's scientific interests are focused on epidemiology and public policy issues in transplantation, particularly related to the allocation of scarce donor organs and the organization and oversight of national organ procurement and transplantation systems. He has been the principal investigator on 22 externally funded research grants. Dr. Merion served as the Clinical Transplant Director of the U.S. Scientific Registry of Transplant Recipients from 2000 to 2010. He is currently the principal investigator of the data coordinating centers for the NIDDK-funded Adult-to-Adult Living Donor Liver Transplantation Cohort Study (A2ALL) and the NIAID-funded Clinical Outcomes of Live Organ Donors network. Dr. Merion has published over 250 peer-reviewed articles, chapters, and books.

End stage renal disease affects nearly 700,000 people in the United States. Of these individuals, approximately 90,000 are waiting for a kidney transplant. Waiting times vary significantly by region of the country from a low of 1 year (on average) to a high of approximately 4.25 years. Also, access to kidney transplant centers varies significantly across the country. In New York state, patients are an average of 9 miles from a center, while the average is over 75 miles in western states. The goals of this project are (1) to quantify these geographic disparities in more detail, (2) to identify locations for additional transplant centers or satellite programs to reduce the disparities in access to transplant facilities and (3) to outline alternative allocation schemes to promote greater equity in waiting times for transplanted kidneys. Several optimization-based models will be discussed that have been used for these three purposes. Preliminary results will also be outlined.

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