

## “PROCESS REENGINEERING AND OPTIMIZATION FOR TREATING THE UNINSURED & CHRONICALLY-ILL”

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### Abstract

Uninsured patients suffering from chronic diseases may have access to medical treatment under federal law, EMTALA, only after being evaluated as in ‘emergent, life-threatening condition’ in the emergency room (ER). These patients seek regular treatment at the ER of county hospitals throughout the nation. In the case of End Stage Renal Disease (ESRD), the uninsured patients needing regular dialysis receive the treatment conditional on a screening assessment in the ER. Unfortunately, depending on the outcome of screening assessment, some of these patients do not qualify for immediate care delivery, and hence, are rejected service under the existing treatment protocol. This practice is known as “compassionate dialysis”, and it is aimed at relieving overcrowding in the dialysis unit of county hospitals. However, due to the chronic nature of ESRD, all rejected (and treated) patients eventually return to ER for their recurring dialysis needs. Hence, the screening assessment itself may lead to (i) severe congestion in the ER and (ii) significant treatment delays for patients. In this talk, we present a broad research agenda developed in collaboration with Parkland Memorial Hospital and UT Southwestern Medical Center and aimed at reengineering the compassionate dialysis process by proposing systemic changes to the existing care delivery process and treatment protocol. To this end, we model the underlying process as a queueing network, and we propose new (i) queueing-theoretic and (ii) simulation-optimization models contributing to the literature on stochastic modeling and informing the practice and policy for healthcare delivery.

### Biography

**Sila Çetinkaya** is Chair and Professor of EMIS in the SMU Lyle School of Engineering. She holds courtesy appointments with ITOM in the SMU Cox School of Business and with Internal Medicine in the UT Southwestern Medical Center. She joined SMU in 2014 from TAMU—after 17 years of service—where she was Professor of Industrial and Systems Engineering (ISE). Çetinkaya’s research interests include supply chain and healthcare operations, stochastic optimal control theory, and applied probability. Her publications appeared in the most reputable outlets of industrial engineering and operations research including *Operations Research*, *Management Science*, *Production and Operations Management*, *IIE Transactions*, *Interfaces*, and *Naval Research Logistics*, among many others. Her research and teaching activities have been funded by multiple government and industry grants. Her early career accomplishments were recognized by NSF CAREER Award in 2001, IIE Outstanding Young Industrial Engineer Award in 2003, and NAE Frontiers of Engineering Alumni in 2005. Çetinkaya was named IIE Fellow in 2012 for professional leadership and outstanding contributions to industrial engineering.

Hosted by: Giulia Pedrielli