Rocky Mountain INFORMS: Save the Date - September 16, 2021

The Rocky Mountain INFORMS Chapter is pleased to host Professor Dave Morton, who is the David A. and Karen Richards Sachs Professor and Department Chair of Industrial Engineering and Management Sciences at Northwestern University. Prior to joining Northwestern, he was on the faculty at the University of Texas at Austin. His research interests include stochastic and large-scale optimization with applications in security, public health, and energy systems. He has worked as a Fulbright Research Scholar at Charles University in Prague, and was a National Research Council Postdoctoral Fellow in the Operations Research Department at the Naval Postgraduate School.

Title Design of Covid-19 Staged Alert Systems to Ensure Healthcare Capacity with Minimal Closures

Abstract Community mitigation strategies to combat COVID-19, ranging from healthy hygiene to shelter-in-place orders, exact substantial socioeconomic costs. Judicious implementation and relaxation of restrictions amplify their public health benefits while reducing costs. We derive optimal strategies for toggling between mitigation stages using daily COVID-19 hospital admissions. With public compliance, the policy triggers ensure adequate intensive care unit capacity with high probability while minimizing the duration of strict mitigation measures. In comparison, we show that other sensible COVID-19 staging policies, including France's ICU-based thresholds and a widely adopted indicator for reopening schools and businesses, require overly restrictive measures or trigger strict stages too late to avert catastrophic surges. As cities worldwide face future pandemic waves, our findings provide a robust strategy for tracking COVID-19 hospital admissions as an early indicator of hospital surges and enacting staged measures to ensure integrity of the health system, safety of the health workforce, and public confidence.