Kartikey Sharma

Dynamic Capacity Management for Deferred Surgeries (AA1)

Abstract:

The COVID-19 pandemic necessitated sweeping deferrals of elective surgeries. These deferrals led to deterioration of patients’ conditions due to delayed procedures and potential departures. Current policies are ad-hoc, i.e., either all surgeries are deferred or capacities are extended by pre-determined factors. We develop an optimization framework to optimally manage the expansion of surgical capacity under uncertain backlog. Given that the model contains nonlinear products of uncertainties, we provide tractable policies for realistic problems. Numerical experiments on claims data from a large fraction of US hernia patients demonstrate sizable improvements over competing methods.