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**„Capacity Planning and Scheduling for Semi-Urgent Surgeries at a  
Neurosurgery Department“**

**Abstract:**

We consider a neurosurgical department. Patients with a semi-urgent status arrive according to a random process, and need to be operated within either one or two weeks. The neurosurgical department feared that dedicating (scarce) OR time to the uncertain stream of semi-urgent patients would lead to an excessive amount of unused OR capacity, and therefore planned only elective patients in the available OR time. As a consequence, in daily operation, a large portion of elective surgeries is cancelled in order to accommodate semi-urgent surgeries.

In this study we develop a mathematical model that enables a cost trade-off between the cancellation rate of elective surgeries and unused OR time, compute the OR capacity needed to accommodate all incoming semi-urgent surgeries, and provide a reservation mechanism for semiurgent surgeries. We conclude with a tool that supports the scheduling process.