

One of main operations management challenges of hospitals is to take into account the many uncertainties that arise during the delivery of care. This is especially prevalent when providing care for non-elective patients who require treatment with some urgency. Clearly, there is less margin for error when managing non-elective care, as consequences of tardy treatment may be serious. The question then is how to efficiently and effectively organize healthcare processes that are able to properly adapt to the specific needs and characteristics of non-elective patient demand.

Accommodating the uncertainty inherent to non-elective care requires an increased flexibility in planning and control. This thesis proposes new planning approaches developed using Operations Research and Management Science techniques for hospital processes with both elective and non-elective patients.