

# An exact approach for relating recovering surgical patient workload to the master surgical schedule

Vanberkel, P.T.<sup>1</sup>; Boucherie, R.J.<sup>1</sup>; Hans, E.W.<sup>1</sup>; Hurink, J.L.<sup>1</sup>;  
van Lent, W.A.M.<sup>2</sup>; van Harten, W.H.<sup>2</sup>

<sup>1</sup> University of Twente, Enschede, The Netherlands

<sup>2</sup> Netherlands Cancer Institute-Antoni van Leeuwenhoek Hospital, The Netherlands

05 January 2010

## Abstract

No other department influences the workload of a hospital more than the Department of Surgery and in particular, the activities in the operating room. These activities are governed by the master surgical schedule (MSS), which states which patient types receive surgery on which day. In this paper we describe an analytical approach to project the workload for downstream departments based on this MSS. Specifically the ward occupancy distributions, patient admission/discharge distributions, and the distributions for ongoing interventions/treatments is computed. Recovering after surgery requires the support of multiple departments, such as nursing, physiotherapy, rehabilitation and long term care. With our model, managers from these departments can determine their workload by aggregating tasks associated with recovering surgical patients. The model, which supported the development of a new MSS at the Netherlands Cancer Institute-Antoni van Leeuwenhoek Hospital, provides the foundation for a decision support tool to relate downstream hospital departments to the operating room.