

Author's Accepted Manuscript

A hybrid genetic approach for solving an integrated multi-objective operating room planning and scheduling problem

Rosita Guido, Domenico Conforti



www.elsevier.com/locate/caor

PII: S0305-0548(16)30268-4
DOI: <http://dx.doi.org/10.1016/j.cor.2016.11.009>
Reference: CAOR4122

To appear in: *Computers and Operation Research*

Received date: 12 June 2015
Revised date: 3 August 2016
Accepted date: 7 November 2016

Cite this article as: Rosita Guido and Domenico Conforti, A hybrid genetic approach for solving an integrated multi-objective operating room planning and scheduling problem, *Computers and Operation Research* <http://dx.doi.org/10.1016/j.cor.2016.11.009>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

A hybrid genetic approach for solving an integrated multi-objective operating room planning and scheduling problem

Rosita Guido*, Domenico Conforti*

*de-Health Lab - Laboratory of Decision Engineering for Healthcare Services
Department of Mechanical, Energy and Management Engineering
Ponte Pietro Bucci 41C - University of Calabria
87036 Rende (Cosenza), Italy*

Abstract

In this paper, we propose a multi-objective integer linear programming model aiming at efficiently planning and managing hospital operating room suites. By effectively exploiting a novel hybrid genetic solution approach, the devised optimization model is able to determine, in an integrated way, (i) the operating room time assigned to each surgical specialty, (ii) the operating room time assigned to each surgical team, (iii) the surgery admission planning and (iv) the surgery scheduling. The resulting Pareto frontiers provide a set of “optimal” solutions able to support hospital managers in efficiently orchestrating the involved resources and planning surgeons and surgeries. On this basis, the proposed solution framework could represent a suitable engine for the development of advanced and effective health care management decision support systems.

Keywords: Multicriteria Optimization, Integer Linear Programming, Genetic Algorithms, Optimization in Healthcare Services

1. Introduction

In the wide context of hospital healthcare activities, complex decision making processes strongly affect operating theatre (OT) organization and management, high dynamic environments where the first priority is to ensure a safe and efficient surgery scheduling. It is well known that

*Corresponding author

Email addresses: rosita.guido@unical.it (Rosita Guido), mimmo.conforti@unical.it (Domenico Conforti)

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات