

Do managerial incentives matter?

The effect on hip fracture surgery delays and outcomes

Abstract

Background and objectives There is considerable consensus that early surgical interventions for hip fractures can reduce the risk of complications and potentially lead to better patient outcomes. In most OECD countries, the waiting time for surgery has become a process indicator of the quality of care for hip fracture patients, and international clinical guidelines recommend hip fracture surgery to be provided within 2 days of hospitalisation. To help achieve this target, in year 2011 the Italy's Emilia-Romagna region has implemented a policy which consisted of introducing managerial incentives for increasing the proportion of hip fracture patients operated on within 2 days of hospital admission. In this paper, we empirically test the effect of the policy on shortening waiting times for hip fracture surgery, and evaluate whether the beneficial effect from reducing hip fracture surgery delays translated into better patient outcomes as measured in terms of 30-day mortality.

Methodology To identify the effect of the policy on hip fracture surgery delays, we perform a difference-in-differences analysis by comparing pre-surgery waiting times for hip fracture patients prior to and after policy implementation with tibia fracture patients before and after. Tibia fracture patients can be conveniently exploited as control group since they were not included in the incentive scheme and satisfy the assumption of common pre-treatment trend. As measures of waiting times for surgery, we use both a dummy for patients undergoing surgery within 2 days from admission and a continuous variable for the time taken to surgical intervention. We then apply a multivariate regression analysis with a large set of covariates to control for potential confounders, in order to evaluate to what extent the large decrease in pre-operative waiting times following policy implementation was associated with significant reductions of 30-day mortality rates.

Data The data we use are drawn from a sample of emergency patients admitted to publicly funded hospitals in the Italy's Emilia-Romagna region over the period between 2005 and 2016. Our primary data sources include individual patient records drawn from the administrative hospital discharge dataset complemented by the regional mortality register data. Hip fracture patients are identified using the International Classification of Diseases version 9 (ICD-9 CM) codes 820.0-820.9. Patients with primary or secondary diagnoses of tibia fracture (the control group) are selected using the ICD-9 CM codes 823.0-823.9.

Main results Our findings suggest the following. The introduction of managerial incentives shortens waiting times for hip fracture surgery. The effect is statistically significant from year 2012 onwards and cumulates over time. We also find that the policy induced a shift in the overall distribution of waiting times and not only of the cases near the incentive threshold of two days. Moreover, our results indicate that the large decrease in pre-operative waiting times is associated with a significant reduction in 30-day mortality. Given the increasing political interest in reducing waiting times for hip fracture surgeries, such findings may provide useful insights to develop targeted policy interventions in the public health care sector.

Key terms: surgery delays, mortality rates, managerial incentives, hip fractures.

Topic of the paper: Quality and efficiency of health care services.

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