Health Policy 111 (2013) 273–289

Contents lists available at SciVerse ScienceDirect

Health Policy

journal homepage: www.elsevier.com/locate/healthpol

Reimbursement systems and quality of hospital care: An empirical analysis for Italy

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ARTICLE INFO

Article history:
Received 16 August 2012
Received in revised form 15 May 2013
Accepted 25 May 2013

Keywords:
DRG
Quality of hospital care
Prospective payment systems
Decentralization

ABSTRACT

There is an ongoing debate about the effect of different reimbursement systems on hospital performance and quality of care. The present paper aims at contributing to this literature by analysing the impact of different hospital payment schemes on patients' outcomes in Italy.

The Italian National Health Service is, indeed, a particularly interesting case since it has been subject to a considerable decentralization process with wider responsibilities devolved to regional governments. Therefore, great variability exists in the way tariffs are used, as Regions have settled them in accordance with the characteristics of health care providers.

An empirical analysis of the Italian hospital system is carried out using data from the National Program for Outcome Assessment on mortality and readmissions for Acute Myocardial Infarction (AMI), Congestive Heart Failure (CHF), stroke and Chronic Obstructive Pulmonary Diseases (COPD) in the years 2009–2010. The results show that hospitals operating in Regions where prospective payments are used more extensively are generally associated with better quality of care.

1. Introduction

The widespread adoption of hospital prospective payment systems (PPSs) in European countries and the US has provoked an intense theoretical debate on their advantages and adverse effects. The potential trade-offs between efficiency and risks of opportunistic behaviour by providers, which may erode quality of care, have been especially analysed.

During the last years, numerous research projects have focused on quality assessment, though there is no general consensus on which indicators to employ [1,2]. Given that quality cannot be observed directly and defined through only one indicator, several aspects and outcome measures have been proposed, such as Acute Myocardial Infarction (AMI) mortality, Congestive Heart Failure (CHF) mortality and 30-day readmissions for certain diagnoses.

This paper aims at contributing to the existing literature by investigating the role played by the prevailing regional payment systems in explaining the differences in quality outcome data across Italian hospitals.

The Italian National Health Service (*Servizio Sanitario Nazionale* – SSN) is a particularly interesting case, when considering the effect of hospital reimbursement mechanisms, since it has been subject to a considerable decentralization process, characterized by devolution of responsibilities for health care provision to regional governments.

In particular, great variability exists in the way hospital tariffs are adopted at a regional level, as Regions have

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http://dx.doi.org/10.1016/j.healthpol.2013.05.014

chosen and used their tariff schemes in accordance with the specificities of their health care context. Moreover, other differences occur across regional health care systems, in terms of health care supply mix, demand characteristics and ability to manage the overall system.

The remainder of the paper is organized as follows. Section 2 briefly reviews the most relevant literature on the effects of hospital payment systems on quality and effectiveness of health care. The financing of hospital care provision in Italy is described in Section 3. Section 4 presents the dataset used for the empirical analysis, defines the variables employed and discusses the estimation strategy. Results are reported in Section 5. Finally, conclusions and some policy implications are drawn.

2. Previous studies

Literature studies have analysed the incentives for efficiency and quality arising from different reimbursement schemes. The majority of OECD countries finance hospital activity by employing DRG-based PPS [3], which are expected to increase the efficiency of hospital services, compared to other mechanisms such as global budget systems.

However, under PPS schemes, policy makers have raised concerns that providers might reduce quality to keep costs below tariffs [7].[1]

The relationship between outcomes and payment schemes can be investigated by identifying appropriate indicators for quality and its variations. In the literature, effects on quality resulting from a change in the payment system have been analysed by looking at health outcomes (such as morbidity and mortality), adherence to nationally established guidelines and quality standards, equity issues or patient experience.

A first indication coming from the literature is that there is little or no significant correlation between these aspects. Rather, payment systems appear to impact more on efficiency, costs and levels of utilization. Case payments reduce costs by approximately 6–10% relative to fee for service (FFS) arrangements [4], although it may take many years for this effect on costs to become visible, depending on how high payment levels are initially set under a newly-introduced case payment system [5].

The correlation between quality and reimbursement schemes has been examined by using, as quality indicator, variations in mortality rate. Mortality was considered especially in some US studies since the end of the 1980s. The compared payment methods included FFS, case payments, global budgets, capitation, pay for performance, all-payer rate setting and competitive bidding. The datasets ranged in sample size from hundreds to millions of patients. The largest sample sizes were from analyses in which national discharge or outcome rates were collected [6–9]. Overall, no significant or little changes (no more than 5%) were observed in in-hospital mortality.

The measurement of quality through mortality indicators is often combined with morbidity ones, such as hospitalization for specific events (heart attack, pneumonia, stroke, etc.) or readmission rates after inpatient treatments: although some readmissions cannot be avoided, low readmission rates are often used as a proxy measure for good inpatient quality of care [10].

Measurement of quality based on both mortality and morbidity data has been the object of the US Medicare-Premiere Inc. pay for performance demonstration, implemented in 2003. Findings from studies of the Medicare-Premiere demonstration show that pay for performance's overall impact on quality was little to modest [11–13]: under the new scheme, processes improved and mortality decreased but the amount of change did not differ between the two groups. A similar analysis on a sample of English hospitals studied the shift from global budget to case payment and examined whether the introduction of payment by results (a fixed tariff case mix based payment system) was associated with changes in key outcome variables measuring volume, costs, and quality of care [14]. Inpatient hospital mortality, 30 day post-surgical mortality and emergency readmissions after treatment for hip fracture did not change significantly over the study period.

In two Swedish studies [15,16] morbidity was the parameter to measure quality outcomes through self-reported quality of life assessment after surgery. Quality as reported by patients' experience has been considered as well in a study from Norway [17], analysing the effects of a reimbursement reform aimed at replacing a capitation-based block grant system with an activity-based system. Efficiency and quality measures are derived from surveys focusing on four dimensions of patient experiences: general satisfaction (the patient's overall confidence and satisfaction with hospital stays); information provided by hospital staff and communication with physicians; nursing services (experiences with nurses' care and professional competence); doctor services (patient experiences with doctors' care and competence). University, central, local and county hospitals have been considered in the analysis: a higher efficiency was found for local and county hospitals, probably explained by differences in teaching load and research activities carried out at these hospitals, or in the volume of acute episodes. The authors did not find any direct effect of the introduction of the activity-based funding on patients' satisfaction. However, an indirect positive effect was obtained through the reduction of waiting times, which, in their turn, were strongly affected by the introduction of the new financing scheme.

Under an alternative scheme, an experiment involving physicians in thirty Philippine hospitals was carried out [18]: hospitals in randomly selected districts were either eligible for an "expanded insurance intervention", covering 100% of the cost of common children infections such as pneumonia and diarrhea, or for a "bonus intervention", where physicians' salary increased by 5% for reaching quality benchmarks, or assigned to a "control group". The measurement of doctors' performance was done through standardized clinical vignettes, although this is a very

[1] To overcome the potential trade-off between efficiency and quality, many reforms have stimulated providers' competition within a hospital market with either negotiated or fixed (as DRG-based PPS) prices. Looking at the effects of competition the general conclusion in the literature is that quality increases where prices are fixed, but might decline where they are not [37].