Understanding specialist sharing: A mixed-method exploration in an increasingly price-competitive hospital market

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ABSTRACT

Introduction: Medical specialists seem to increasingly work in- and be affiliated to- multiple organizations. We define this phenomenon as specialist sharing. This form of inter-organizational cooperation has received scant scholarly attention. We investigate the extent of- and motives behind- specialist sharing, in the price-competitive hospital market of the Netherlands.
Methods: A mixed-method was adopted. Social network analysis was used to quantitatively examine the extent of the phenomenon. The affiliations of more than 15,000 medical specialists to any Dutch hospital were transformed into 27 inter-hospital networks, one for each medical specialty, in 2013 and in 2015. Between February 2014 and February 2016, 24 semi-structured interviews with 20 specialists from 13 medical specialties and four hospital executives were conducted to provide in-depth qualitative insights regarding the personal and organizational motives behind the phenomenon.
Results: Roughly, 20% of all medical specialists are affiliated to multiple hospitals. The phenomenon occurs in all medical specialties and all Dutch hospitals share medical specialists. Rates of specialist sharing have increased significantly between 2013 and 2015 in 14 of the 27 specialties. Personal motives predominantly include learning, efficiency, and financial benefits. Increased workload and discontinuity of care are perceived as potential drawbacks. Hospitals possess the final authority to decide whether and which specialists are shared. Adhering to volume norms and strategic considerations are seen as their main drivers to share specialists.
Discussion: We conclude that specialist sharing should be interpreted as a form of inter-organizational cooperation between healthcare organizations, facilitating knowledge flow between them. Although quality improvement is an important perceived factor underpinning specialist sharing, evidence of enhanced quality of care is anecdotal. Additionally, the widespread occurrence of the phenomenon and the underlying strategic considerations could pose an antitrust infringement.

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1. Introduction

In an attempt to contain rising healthcare expenditures, policy reforms have altered health care systems in many countries. One such policy intervention is the market based- or competitive reform (Cutler, 2002), of which pros and cons have been debated by scholars and practitioners since the introduction of the concept of 'managed competition' by Enthoven (1988). Such pro-competitive reforms have led to a series of strategic reactions by healthcare organizations and health insurance companies (Luke et al., 1989), one of which is horizontal integration. Research regarding this topic primarily focuses on mergers, which have been a focal point of antitrust cases across the globe (Gaynor and Vogt, 2000; Haas-Wilson and Gaynor, 1998; Varkevisser and Schut, 2009). Despite well-documented market imperfections in the healthcare sector (Arrow, 1963), antitrust scrutiny of horizontal integration is commonly justified by the economic perception that competition maximizes social welfare (Gaynor and Vogt, 2000).

Looser forms of horizontal inter-organizational cooperation, in which organizations uphold their organizational autonomy, have

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received less academic attention however (Büchner et al., 2015). Pioneering studies consider looser forms of horizontal cooperation through patient transfers (Iwashyna et al., 2009a; Lomi et al., 2014; Mascia et al., 2015; Mascia et al., 2012). Mascia et al. (2012) for example, found a positive association between inter-hospital (quality) competition and cooperation through patient transfers in Italy. Furthermore, Mascia et al. (2015) highlight that central hospitals in well-structured patient referral networks display lower readmission rates, indicating an association between horizontal cooperation and increased quality of care, in line with previous research (Iwashyna et al., 2009b).

In this paper, we focus on a previously uninvestigated form of horizontal cooperation between healthcare organizations, namely sharing medical specialists (i.e. human resources). Consistent with the terminology of nascent research regarding patient sharing, we refer to this phenomenon as 'specialist sharing'. We define a specialist as shared between two organizations when he or she is physically present in, and uses the resources of, both organizations to treat patients. A specialist who, for example, works a few days per week in hospital A and a few days per week in hospital B is considered shared. A specialist who works in hospital A and occasionally (e.g. once every two weeks) works in hospital B is also considered shared. However, a specialist who works in hospital A and is consulted by colleagues of hospital B (e.g. by mail, phone, or face to face) or to whom colleagues of hospital B refer patients is not considered shared because the specialist in question does not personally treat patients in hospital A and B.

Contrary to previous research, we investigate horizontal cooperation in an increasingly price competitive hospital market, namely in the Netherlands, where price-competition has become increasingly prevalent since its introduction in 2006 (Maarse and Paulus, 2011; Schut and Van de Ven, 2011). In the Netherlands medical specialists are either tenured by a hospital or independent (i.e. self-employed entrepreneurs organized in per-specialty partnerships called 'maatschappen') and can join a hospital's medical staff upon acceptance by incumbent specialists and hospital management (Varkevisser et al., 2008). Sharing specialists has furthermore been identified as a form of horizontal cooperation which potentially undermines effective competition in this setting (Varkevisser et al., 2013b), due to the economic perception that the optimal form of competition occurs between independent players in a market (Lipczynski et al., 2005). Subsequently, the Dutch government has explicitly discouraged these strategies in its most recent Coalition Agreement (Rutte and Samsom, 2012).

Although research suggests that Dutch hospital managers are "reluctant to share talented employees because of the competitive pressure they experience." (van den Broek, 2014), anecdotal evidence suggests that sharing medical specialists has become increasingly common in the Netherlands, especially in the form of merging specialty partnerships. Yet, this form of horizontal cooperation and its implications for competitive dynamics in healthcare markets have remained ill-investigated. This study intends to fill this gap using a mixed-method approach aimed to i) explore the extent of specialist sharing in a price competitive healthcare sector and ii) asses the motives underpinning specialist sharing.

2. Methods

We used a mixed-method approach to examine the extent and interpretation of- specialist sharing between hospitals in the Netherlands. A quantitative exploration based on social network analysis (SNA) measured the extent of the phenomenon in 2013 and 2015 after which we analyzed whether there were significant differences in the extent at both time points. To ensure correct interpretation of the quantitative findings we explored the motives

behind these inter-organizational ties through semi-structured interviews with experts (i.e. medical specialists and executives of several hospitals) in the country. The project within which this study was conducted has been approved by the Maastricht University Medical Center ethics committee under application number 14-5-028, based on the fact that it is not subject to the Dutch 'Medical Research involving Human Subjects Act'.

2.1. Quantitative stage

2.1.1. Data

Quantitative exploration of the extent of specialist sharing was conducted using health insurance data of Vektis, the Dutch insurance companies' center for information and standardization in health care. Specifically, we used the '*Algemeen Gegevensbeheer Code*' (AGB-code) data, which is used to handle claims and analyze health consumption (de Rouw, 2015). Dutch health professionals and healthcare organizations are required to possess a unique AGB-code to bill their services. An AGB-code is granted when certain requirements are met. For example, specialists have to be listed in the country's medical (BIG) registry, whilst hospitals need to be registered with the chamber of commerce and possess governmental admission to the hospital market (de Rouw, 2015). Claims submitted without a valid combination of a personal and an organizational AGB-code are not reimbursed by health insurers (de Rouw, 2015). According to the reasoning of Smeets et al. (2011), this serves as a strong incentive for professionals and organizations to keep the database up to date, making it an adequate source to quantitatively explore the occurrence of specialist sharing.

2.1.2. Sample

Our sample included all independent Dutch academic and non-academic hospitals, which are all private, non-profit organizations. Specialized hospitals and independent treatment centers were excluded due to their often narrow range of services (Nza, 2012). In 2013, 89 hospitals met the inclusion criteria, 8 academic- and 81 general hospitals. Between 2013 and 2015 several hospitals merged and altered their AGB-code. Hence, 83 hospitals were included in our sample in 2015. In both years we selected all medical specialists with an active affiliation to at least one of the included hospitals for 6 months or longer. 15,615 and 15,980 medical specialists were included in 2013 and 2015, respectively. The specialists were divided across 27 medical specialties. Although the database distinguished 30 medical specialties, we excluded 'nerve diseases' because it contained no active specialists, 'allergology' because specialists could no longer register as allergologist, and 'clinical chemistry' because the specialty could include chemists as well as medical doctors.

2.1.3. Data analysis

Using social network analysis (SNA) we built 27 (i.e. one per medical specialty) networks of shared specialists between hospitals. In each network all hospitals to which at least one specialist of the respective specialty had an active affiliation were included. The affiliations between medical specialists and hospitals served as 2-mode edge lists (Borgatti and Everett, 1997) which were projected to weighted inter-hospital networks using the Statnet package (Handcock et al., 2014) in R version 3.1.0 'Spring Dance'. Specialists were considered shared when they had an active affiliation to two or more hospitals, at which point the hospitals were connected in the network. The weight of their connection is relative to the number of specialists shared. For each network we calculated the density by dividing the sum of all tie values by the number of possible ties in the network (Wasserman and Faust, 1994). The 27 inter-organizational networks were visualized using Visone version