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Professional networks and EBM use: A study of inter-physician interaction across levels of care☆

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ABSTRACT

Physicians around the globe are increasingly encouraged to adopt guidelines, protocols and other scientific material when making clinical decisions. Extant research suggests that the clinicians' propensity to use evidence-based medicine (EBM) is strongly associated with the professional collaborative networks they establish and maintain with peers. In this paper we explore whether and how the connectedness of primary care physicians with colleagues working in hospital settings is related to their frequency of EBM use in clinical practice. We used survey data from 104 pediatricians working in five local health authorities in the Italian NHS. Social network and attributional data concerning single physicians, as well as their self-reported frequency of EBM use, were collected for three major pathologies in pediatric care: asthmatic, gastro-enteric and urinary pathologies. Ordered regression analysis was employed. Our findings documented a positive association between the number of physicians' relationships with hospital colleagues and the frequency of use EBM. Results also indicated that physicians' organizational affiliations influence the frequency of EBM use. Finally, contrary to our expectations, it was found that clinicians' affiliation to formal collaborative arrangements is at odds with the likelihood of reporting higher frequency of EBM use.

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1. Introduction

Modern medicine is innovating at an increasingly faster rate, and it is impossible for health professionals to constantly monitor and understand all of the relevant information in any domain. For many physicians, seeking clinical information, and in particular, seeking information about evidence-based medicine (EBM), is a daunting task. There are at least three reasons that can explain this.

Firstly, there is too much information to scan. Heathfield and Louw [1] estimated that medical knowledge increases fourfold during the professional lifetime of a physician. The superabundance of medical knowledge production makes it impossible for any one doctor to maintain a versed and up-to-date knowledge base of the vast medical field.

Secondly, due to population aging trends, today's health needs are increasingly complex, because of the spread of co-morbidities. Medicine and the medical education, at the opposite, are increasingly specialized, thus requiring a higher need for a difficult integration [2]. The time when health professional bureaucracies [3] could be coordinated simply through standardized capabilities has ended. In 2001, Mintzberg himself (with Glouberman) [4] reshaped his model by considering that a doctor's work cannot be just a question of pigeonholing–placing the case in a category and thus depersonalizing the patient ("*the heart in Room 5*"). Only mutual adaptation could cope with the unpredictable problems that arise in healthcare, the authors pointed out. This implies that healthcare also requires peer collaboration, informal communication, and teamwork beyond merely integrating different capabilities (p. 75). Physicians must exchange information among themselves, but to what extent?

Thirdly, it is increasingly difficult to standardize a care path through some clinical guidelines. Every patient has a clinical history that must be taken into account. Treating patients therefore would mostly require what Wenger [5] named situated intelligence: the ability to match the cognition processes with the contextual situation. According to Morris [6], only 10–20% of the cases encountered by a typical doctor can be handled by employing a recourse exclusively based on theory. For all the other cases, the doctor must rely on his/her (or others') practical experience and not on scientific knowledge.

As a result, EBM is not widely adopted in clinical practices. For instance, in pediatric care, Flores et al. [7] found that practice guidelines are used by 35% of pediatricians, only partially by 44%, and not at all by 21%. The consequences of doctors' unfulfilled information needs are intolerable. According to the World Health Organization [8], seven million children die every year from preventable deaths. The "know-do gap", that is the inability to translate clinical research results to patient bed treatments, costs too much in human and social terms.

A recent stream of research focuses on the role of social relationships in satisfying physician's clinical information needs [9–13]. Social relationships are considered to play a pivotal role in influencing healthcare professionals' information seeking and learning behavior [14,15].

The general understanding from this literature is that social relationships are used by clinicians in combination with, or *in substitution* of, evidence-based information sources, such as clinical guidelines and Cochrane Collaboration Reviews. Rarely physicians seek clinical information through formal sources; on the contrary, for the most part they rely on their colleagues' experience [16]. Personal contacts among colleagues are the main enablers of knowledge exchange [9] and source of learning [16]. Physicians ask for advice, especially to reduce uncertainty in the diagnostic phase, and to select the right treatment [17]. In an ethnographic study, Gabbay and LeMay [10] confirmed that, rather than on guidelines, physicians largely rely on *mindlines*, i.e. internalized and tacit guidelines developed on the basis of experience by clinicians.

Another point of view is that social relationships actually *strengthen* the adoption and use of EBM guidelines. Colleagues act as supporters in the implementation of EBM. Chou et al. [18] have documented that GPs adherence to evidence-based guidelines is higher when they have more opportunities to discuss and share protocols, for example, and when they are located in the same ambulatory facility. In other words, collaboration through team work increases the likelihood of adopting EBM.

Despite the general acceptance that inter-physician relationships are important for developing information seeking behavior, there remains a dearth of necessary studies to explore the role of collaborative relationships across different healthcare sectors. Particularly lacking is an understanding of whether the individual propensity toward EBM is correlated with professional ties that a primary care clinician has established with his or her hospital colleagues. This topic is important in light of the different propensities to use EBM that prior research has documented in these two different health settings [19].

This paper intends to fill this gap by exploring whether an association exists between primary care physicians' connectedness with hospital colleagues and contagious effects in terms of EBM use.

We seek empirical evidence in support of our theoretical conjecture by surveying a sample of pediatricians working within five Local Health Authorities in the Italian National Health Services (I-NHS). The institutional framework according to which pediatric health services are organized in the I-NHS is unique and makes the Italian health system an ideal context for our research. Differently from the majority of other health systems around the world, pediatric services are delivered at the local level by two distinct classes of physicians. On one hand there are primary care pediatricians, who are very similar to general practitioners but with a specialization on a population of patients whose age ranges from 0 to 14 years (so-called pediatric patients). On the other, there are hospital pediatricians who are in charge of acute cases and provide specialized care to pediatric patients. The coordination and integration among physicians across levels of care is of quintessential importance for the system to provide timely and effective responses to patients' needs.

The rest of the paper is structured as follows. The first section provides the theoretical background. Then, the research setting and methodology are discussed. The subsequent section is dedicated to the presentation of our main