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Professional Physicians Networks and the Use of Clinical Guidelines

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1. Introduction

Healthcare organizations are typically knowledge-intensive '*professional bureaucracies*' (Mintzberg, 1979) where knowledge management is a particularly major and problematic issue (Profili, 2004). Actually these organizations comprise a wide variety of highly specialized professionals (physicians and nurses) and non-professionals (healthcare managers and staff) providing several different types of knowledge. On the other hand, with an ageing population and the ensuing greater demand for complex care, healthcare organizations find it necessary to integrate this specialized knowledge to ensure efficacy and continuity of treatment. Such integration, as pointed out by Nicolini et al. (2008) in their review on knowledge management in healthcare, is greatly hampered by the separation and boundaries between medical specialties.

Furthermore, besides comprising different fields, clinical knowledge grows rapidly and hence the professionals need to be constantly updated. New scientific discoveries are made every day and innovations are constantly being developed in therapies, drugs and biomedical technology. Heathfield and Louw (1999) have estimated that medical knowledge increases fourfold during the professional lifetime of a doctor. Doctors and healthcare organizations should therefore update their competencies and ensure that innovations are adopted, but the superabundance of medical knowledge makes it impossible for any doctor to be thoroughly updated.

Failure to manage effectively knowledge in healthcare settings may produce catastrophic results. According to the World Health Organization (WHO 2005), for

instance, every year 7 million children die for preventable causes. The so called “know-do gap”, that is the incapacity of bringing the last research results to the patient bed, makes ineffective most of the efforts of producing new knowledge.

Moreover there are some types of clinical knowledge that can be codified in books, guidelines and protocols, while this cannot be done for other types of knowledge such as the identification of symptoms on the basis of experience and of the information provided by the patient (at times confused and fragmented), or the identification of the best therapeutic course in relation to the history, needs and expectations of individual patients.

According to Morris (1999) only 10-20% of the cases encountered by a typical doctor can be handled by having recourse only to theory (guidelines). For all the other cases, the doctor must rely on his practical experience and not on scientific knowledge. Similarly, Glouberman and Mintzberg (2001) stated that the standardization of capabilities is not enough for coordinating work in healthcare organizations, otherwise a doctor’s work would only be a question of pigeonholing – placing the case in a category and thus depersonalizing the patient (“the heart in Room 5”). Often, as the authors point out, when unpredictable problems arise, doctors solve them through mutual adaptation which implies peer collaboration, informal communication, teamwork and the integration of different capabilities.

This study focuses on this very problem: given that only a short part of clinical knowledge may be codified into documents, to what extent doctors adopt and use clinical guidelines in their practices and/or rely on the clinical expertise of other doctors?

The goals of this analysis are therefore to:

1. Summarizing the theories on the management and exchange of knowledge and adoption of innovations in healthcare.
2. Applying these theories in the context of primary care physicians adopting and using clinical guidelines
3. Analyse the applications of the communities-of-practice approach in the health sector
4. Identifying research and management implications for fostering the adoption of clinical guidelines thus reducing the know-do gap.

2. Background

In this paper we identified two main perspectives explaining the frequency of use of clinical guidelines, a network-based approach and a knowledge management approach:

Network approach: contagion theory. In their famous article on the diffusion of medical innovation, Coleman, Katz and Menzel (1966) found that social relations

underlie the choice as to whether a new drug will be adopted or not. In substance, contagion occurs through cohesion: if individuals A and B are related professionally or through friendship, A will copy B's behavior more readily (for instance adopt a technology or a drug). Another explanation to contagion is offered by Burt (1987) in his reanalysis of the results of Coleman et al.: the adoption of an innovation may depend also on the structural equivalence of the two players. A and B are not connected to each other but they are connected to the same clients. They compete against each other. It will therefore be probable that A may adopt an innovation being used by B as soon as he finds out (through a common client) that B has adopted that innovation.

Knowledge management approach: community of practice theory. Though an ethnographic study of British primary care units, Gabbay and LeMay (2004, 2008) derived the following results: (i) Mindlines vs. guidelines: physicians in their everyday's work do not rely much on documents like guidelines. They rather use "mindlines", that is internalized and tacit guidelines they developed through the years using their experience; (ii) mindlines cope with all the cases that cannot easily be included in explicit guidelines; (iii) mindlines are shaped and reinforced through communications with colleagues. In this sense they talk of collective mindlines, that is internal guidelines that are shared by groups of physicians.

The two approaches have different perceptions of the role of the professional network in the adoption and use of guidelines. The network approach stresses the fact that direct or indirect relationships influence positively the use of guidelines. The more a physician is central or embedded in a network of relationships, the more his/her behaviour is influenced by the group. The community of practice approach instead assumes that the network has a negative influence on the use of guidelines, since the network itself is a substitute of clinical guidelines.

3. Methodology

In the present study we collected primary data on a population of paediatricians in the Italian National Health Service (I-NHS). The I-NHS is a publicly funded health system that provides universal coverage through a single payer. With this system, the 21 regions (similar to states in the US) allocate resources to approximately 249 Local Health Authorities (LHAs) that cover well-defined territories and are responsible for the provision of community health care service to a target population (France, Taroni & Donatini, 2005). The majority of hospitals in Italy are publicly owned, but a significant number of investor-owned and not-for-profit organizations also receive public funds through a contract system with the I-NHS. The Italian NHS is statutorily required to guarantee uniform provision of comprehensive care throughout the

country. Government at the central level has responsibility for defining the core benefits packages and ensuring that basic coverage is provided to the entire population, whereas responsibility for the organization and delivery of health services is almost totally devolved to the regions. The organization of paediatric care in the I-NHS is peculiar. As general practitioners, paediatricians work at the territorial level in LHAs structures. Paediatricians providing specialized consultative care are instead staffed in hospital trusts.

An online questionnaire survey was administered to all physicians affiliated with three Local Health Authorities (LHAs) of the I-NHS. Surveyed LHAs are located in three different Italian regions. Participation was voluntary, and respondents were assured that their responses would be confidential and used for research purposes only. Six months after the questionnaire was activated and made available online, a total of 112 self-reported questionnaires were completed. The response rate was of 89% for LHA1, 25% for LHA2, and 65% for LHA3.

The questionnaire was divided in three sections. The first section collected clinician attributional data, including age, gender, tenure, prior experience in the NHS. The second section collected data on the professional relationships between paediatricians (*horizontal integration*), and between paediatricians and their colleagues working in hospital settings (*vertical integration*). Each physician was asked to name colleagues both in and outside of his or her hospital organization with whom they had consulted about a patient or discussed professional matters concerning three different kinds of pathologies: asthmatic, gastroenterological and urinary diseases. The third section of the questionnaire addressed the frequency of each paediatrician to adopt EBM. This section included questions examining their perception of the availability of information and of the possibility of accessing scientific evidence. Responses were rated on a 5-point Likert scale.

We conducted a regression analysis to explore the impact of professional networks on the frequency to adopt EBM. We assumed the physicians' self-reported frequency to adopt EBM as dependent variable. Independent variables included in our models are prior clinical experience, perception of the availability of information, number of journal subscriptions, as well as network indicators proxying the propensity of clinicians to integrate their professional work with other colleagues, both within and across levels of care. We computed degree (in-degree and out-degree) as main centrality indicators in the present study (Wasseman and Faust, 1994). Due to the distinctive nature of the dependent variable, we used an ordinal logistic regression model with maximum likelihood estimates (Scott-Long & Freese, 2006)

4. Preliminary results

Our findings indicate that, among all of the structural and characteristic variables included, the self-reported frequency of EBM adoption was associated with tenure, and the paediatrician's perception of the accessibility of information resources.

Whereas the variable “Tenure” was negatively associated with the self-reported use of EBM, the variable “Availability of Information” result revealed that the perception of greater accessibility to evidence was positively associated with the clinician’s frequency of EBM utilization. Our results also documented that the centrality measures characterizing the physicians’ professional networks were significantly associated to the dependent variable. Specifically, we found that the variables “in-degree” (for LHAs 1 and 2) and “out-degree” (for LHA2) measured on inter-physicians network within primary care were positively associated to the frequency of EBM adoption, and that the variable “out-degree” (for LHAs 2 and 3) between paediatricians within primary care and paediatricians working in hospital settings was positively associated to the frequency of EBM adoption. Overall, these results seem to suggest that the propensity of paediatricians to integrate their work both *horizontally* and *vertically* significantly affect the frequency with which they make use of EBM into daily medical practice.

5. Conclusions

Our preliminary results show that the professional network has an impact on the frequency of use of clinical guidelines among pediatricians. Health administrators aiming at increasing clinical guideline use may need to develop new strategies for fostering communications and collaborations among physicians.

When the professional network includes hospitals, clinical guidelines are more used. This is another confirmation of the importance of the integration between hospitals and primary care physicians.

From the pediatrician point of view, using more frequently clinical guidelines is associated to network centrality, that is reputation.

This study will be expanded by April through the collection of data from three additional Local Health Authorities. ù

6. References

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