

Patients and Physicians Faced to New Healthcare Technologies

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INTRODUCTION

It is increasingly recognized that, by introducing healthcare information systems, it may be possible to improve healthcare delivery. Yet, insufficient attention has been paid, in the context of the introduction and implementation of new technologies, to examine the issues concerning the reduction of the astonishing variations in medical (and surgical) practices across seemingly similar areas. This article studies the causes of the differences in healthcare practices by examining the agency relationship where the patients delegate decision making to the physicians. To do this, it first presents the consequences of two main informational issues: the asymmetric information, and the imperfect information. Under such informational inadequacies, practitioners could not act in the best interests of their patients, and unnecessary and inappropriate cares could appear. Second, this article derives from such informational problems the necessity of information and coordination systems to ensure a better healthcare delivery.

BACKGROUND

Health researchers identify amazing variations in medical and surgical practices across otherwise-similar market areas (Phelps, 1997, *Darmouth Atlas of Healthcare*, cited by Dranove, 2000). Small Area Variations (SAVs), defined as wide variations in per-capita rates of healthcare procedures among seemingly similar areas, have many sources. The reasons for these variations, as well as their magnitude, remain controversial. Possible sources of the variations, besides demographics and insurance coverage, are patient preferences, the demand inducement, as well as the role of the differences in the practice style of physicians.

1. A first explanation of SAVs is attributed to the *patient preference*; that is, to their power to in-

crease the healthcare demand (Folland, Goodman, & Stano, 2001, pp. 219, 222; Phelps & Mooney, 1992).

2. A second explanation of such differences rests on the existence of an *informational problem* due to the “supplier-induced demand” (SID) (Pauly, 1988; Phelps, 1986). This phenomenon is a problem of *asymmetric information* occurring when physicians use their influence to make treatment recommendations and other clinical decisions that rise the costs, and are not in the best interest of their patients. In that case, *patient ignorance* provides physician financial incentives to increase healthcare supply, and to generate unnecessary or inappropriate care. There is thus a specific informational asymmetry, called “moral hazard,” revealing the postcontractual opportunism that occurs when a party takes an inappropriate action or provides distorted information (Arrow, 1963; Milgrom & Roberts, 1992). In this context, the role of physicians’ payments (in particular under their three major forms) can be examined. (i) Under fee-for-service (FFS) basis, each physician has a schedule of fees and is reimbursed for each unit of service. Benefit schedules indicate the maximum levels reimbursed by insurers for a specific service. However, given this reimbursement, physicians could prescribe inadequate services in order to increase their own incomes. FFS compensation provides no financial incentives for health suppliers to mitigate moral hazard. (ii) Physicians can receive salaries/fixed fees (i.e., capitation for each patient assigned). This capitation (fee per capita and per year) limits repetitive visits, testing, and referrals; moral hazard can be reduced. Physicians have no incentives to provide unnecessary care given that they will not receive any additional payment for any additional care. However, if capitation induces physicians to rein in the utilization of their own services, this prepayment system does not prevent moral hazard, in particular the

overuse of specialists. Nevertheless, this problem is reduced if capitation fee increases when primary care physicians bear the costs of their referrals (see e.g., Dranove, 2000, pp. 75–76). (iii) Other physicians gain a fixed salary: a prepaid fee whatever the inputs provided. Through such a prefixed remuneration (i.e., a salary whatever the number of patients—moral hazard can be avoided).

3. Yet, most of controversy has focused on a third explanation: the differences in the *practice style of physicians* and the question of unnecessary or inappropriate care, due to *imperfect information* (Folland et al., 2001). Practice styles often differ across markets but also within communities. Where Green and Becker (1994) argued that SAVs are not necessarily due to the practice style hypothesis, most researchers find that many SAVs are closely related to the degree of physician uncertainty concerning the diagnosis and treatment (Wennberg, 1984). Corroborating this idea of physicians' uncertainty, healthcare researchers showed that the practice styles of physicians underline their imperfect information about the technology of producing health (Folland & Stano, 1989). In other terms, physicians could be misinformed (Folland et al., 2001). Consequently, physicians' decision making is not always optimal even if they act as "perfect agents" (i.e., without voluntary misbehaviors). Finally, such informational problems create substantial quality losses and wastes through overuse, underuse, and misuse.

Faced to such problems, the growing recognition of a need for better data and understanding led to various efforts to improve the healthcare system. Most of these actions developed evidence-based medicine, and recommended the collection and evaluation of administrative data in clinical and surgical services. In order to implement a variety of practices to identify information about cost and quality based on evaluations of outcomes research, a new tool emerged in the United States, the so-called "utilization review." Utilization review agencies usually approve the proposed treatment plans, but also recommend lower cost alternatives and sometimes recommend more costly interventions (Dranove, 2000, pp. 82). Detractors argue that such practices reduce costs at the expense of quality and they accuse the utilization review agencies of using

"simplified treatment criteria that ignore patients' idiosyncratic needs" (Dranove, 2000, pp. 82). Due to contested practice guidelines and standards to assess and assure the healthcare quality, utilization review was eliminated in late 1999.

REDUCING SAVs

How can one provide a better way to avoid the part of SAVs due to informational inadequacies? The first way is accurately to identify the patients' and physicians' lack of information, and then to eliminate or reduce them by appropriate incentives and tools. Let us examine the challenges information systems face to reduce SAVs. One do not forget that the physician-patient transaction is an agency relationship where one party (here the patient) relies on another party (here the physician) to make decisions. Physician-patient transaction reveals a complicated relationship where the emergence of contingencies leads the parties to find adaptations. Consequently, this introduces the possibility of opportunistic behaviors leading to inefficiency.

Reducing SAVs in the Case of Asymmetric Information

Two types of *asymmetric information* can cause SAVs.

1. An important type of informational inefficiency leading to SAVs is due to the so-called "*adverse selection*" problem. Adverse selection refers to the *precontractual opportunism* due to the fact that one party has a private (i.e., unverifiable) information before getting engaged in a contractual relationship, this information affecting outcomes (Milgrom & Roberts, 1992). For example, patients may have private information about other symptoms; physicians may have private information about the available treatments, the efficiency of alternative medicines.

To reduce the problem of asymmetric information relative to the physicians, it is necessary to develop systems of coordination displaying *common knowledge* about the availability of treatments and the capacity of therapies or alternative medicines, among others. In order to deal with the

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