The Geneva Papers on Risk and Insurance Vol. 26 No. 3 (July 2001) 459–466

The Economics of Innovation in Health and Insurance Markets

by J.-François Outreville*

1. Introduction

Insurance against the risks of accident or illness is offered either by publicly regulated private insurers or by state-run social security systems. This is only one area of social security in its broader sense, which encompasses old-age insurance (the pension system), health, unemployment and work-related accident insurance.

Health insurance schemes are being dragged into increasing expenditure by demographic changes and improvements in medical treatment. A growing interest in the economics of health care is parallelled by a desire to arrive at an acceptable compromise between equity and efficiency, between meeting individual needs and controlling collective expenditure.[1]

Controlling health costs is currently a major concern of all governments and all private insurers. "Managed care" has led, in the United States and, recently, in Europe, to the development of health networks that seek to limit system-induced costs by bringing together service providers, policyholder and insurers.[2]

Competition on price and quality of service may in the medium term help to open up the market for health care to services beyond a country's borders. At present, the localization of risk is an important factor in the insurance business that limits "trans-border" services. The "non-portable" nature of insurance is said to be a barrier to trade in health services.

Innovations and new technologies could have a broad impact on the overall efficiency of the health-care markets. Implications of national and transnational teleworking or e-commerce extend beyond resource allocation. More analysis and research are needed to understand the behaviour of market participants, the impact on organizations, the role of regulation and the kind of policies needed in the development context.

This paper sets out to examine the status of and possible developments in the health insurance market. The following section details the functioning of the health-care market. Section 3 will explore the possible consequences of the opening of information channels through electronic technologies. The limits of this analysis are spelt out at the end.

---

* Executive Secretary, United Nations Staff Mutual Insurance Society, Geneva. The opinions expressed in this paper are those of the author and do not necessarily reflect the views of the Organization.

[1] Vladek, B.C., Miller, N.A. and S.B. Clauser, "The Changing Face of Long-Term Care", *Health Care Financing Review*, 14, summer 1993.

[2] Swiss Health Insurance Act of 1 January 1996. Article 41 Lamal: "The insured may, by agreement with the insurer, limit his choice to service-providers designated by the insurer on the strength of their more advantageous services."

2. Insurance and the health care market

Tracking changes in health costs reveals that steady and rapid rises increase the risk of budgetary imbalance in health insurance schemes and may damage their very underpinnings. The most commonly quoted example is overconsumption of medical care, especially pharmaceutical products. In fact, one of the main reasons for rising costs is the increasing expense of diagnostic procedures and treatments due to highly specialized exploratory techniques.

When insurance covers costs in the health sector new alternative therapies can be developed. Hence insurance helps to boost health-care costs. Besides, since the marginal costs of more expensive treatment will be borne not by the individual policyholder but by policyholders at large, the health-care provider will tend to increase the number of services performed and propose the most expensive treatment, in a process known as supply-led demand.[3]

To slow the upward spiral in expenditure and contributions, the insurance market increasingly tries to find ways of bringing the medical services available on the health care market into line with what insurance schemes can afford. All too often, the action taken is piecemeal instead of forming part of an overall plan that makes allowance for all the parties involved: (a) health-care purchasers (policyholders); (b) health-care providers; and (c) the entities that finance all or part of the care, the insurance schemes.

2.1. The insurer/policyholder relationship (A)

If an insurance scheme meets all the costs of health care, care is perceived as a free resource and there is a tendency to overconsume. Overconsumption of medical care in itself leads to increased dependence on the health-care system, and hence a diminution in personal responsibility.

The simple idea of making the consumer aware of costs, or of making those who incur avoidable costs bear the consequences of their behaviour, is hard to put into practice. The "bonus-malus" systems being tested in some countries where policyholders wish to pay in accordance with their needs represent a retreat from the principle of solidarity. Besides, a progressive reduction in premium (bonus) provided no claim is submitted probably has a pernicious effect on health in the longer term, since people will wait longer before seeking treatment.

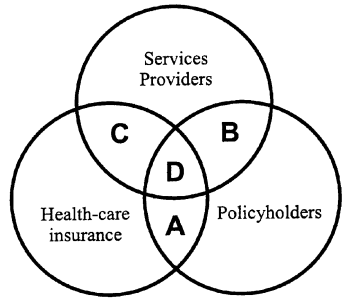

Figure 1: The health-care market

Co-insurance, whereby the policyholder has to pay a certain percentage of the costs (an arrangement known as the "ticket modérateur" in some countries), has proved universally ineffective as a means of controlling health expenditure. Still, making the policyholder pay a real percentage of the costs is customarily regarded as more effective than applying a deductible.[4] On the other hand, a high co-insurance factor is inimical to social justice for people on low incomes, the elderly and the chronically ill.

Ceilings (annual, per service, per type of care) betoken a desire not to mutualize certain kinds of expenditure, whether considered too trivial or, on the contrary, too extravagant or unnecessary. They also serve to restrict the range of spending that is subject to slippage. The kind of ceiling imposed often depends on the degree of mutuality or solidarity accepted by the insurance scheme. A yearly ceiling for each beneficiary, for instance, discriminates against the elderly.

Supplementary insurance at the policyholder's option is becoming the accepted way of making the insured aware of the costs of certain services. Experience shows that raising the ceilings for coverage by insurance schemes induces an immediate rise in the cost of the services offered by service providers – a phenomenon very similar to what economists refer to as the "liquidity trap".

2.2. The policyholder/service-provider relationship (B)

Holding down costs on the supply side begins with price regulation. The perverse incentives that payment-per service creates are well known. The service provider has an incentive to increase the number of services performed. Competition and the market economy may help to boost some service providers' turnover, but this is not necessarily desirable or helpful in the health field.

Consumers do not generally have the means to influence supply. Their power lies in the quality and quantity of information at their disposal on the health-care system, since service providers operate on the premise that patients do not have perfect information. The relationship of personal trust between the consumer and the service provider skews too simplistic an economic analysis.

2.3. The insurer/service-provider relationship (C)

It seems to be increasingly accepted that influencing supply rather than demand controls costs more effectively.[5] Paying service providers per service is generally associated with rising costs. Abel-Smith (1992) has shown that health expenditure can be kept down by regulating the supply of services rather than demand for them.[6] This has led some health insurance schemes to ask not only how much they pay but also why, and to whom.

---

[3] Arrow, K.J., "Uncertainty and the Welfare Economics of Medical Care", *American Economic Review*, 53, 1963, pp. 941–973.

[4] Manning, W.G., Newhouse, J.P., Duan, N., Keeler, E.B., Liebowitz, A. and Marquis, M.S.,"Health Insurance and the Demand for Health Care: Evidence from a Randomized Experiment", *American Economic Review*, 77, l987, pp. 251–277.

[5] Ellis, R.P. and T.G. McGuire, "Supply-Side and Demand-Side Cost Sharing in Health Care", *Journal of Economic Perspectives*, 7, Fall 1993, pp. 135–l51.

[6] Abel-Smith, B., "Cost Containment and New Priorities in the European Community", *The Millbank Quarterly*, 70, 1992, pp. 393–416.

Categorizing diagnoses by groups ("Diagnosis-Related Groups", DRG) in order to finance hospitals according to the kind of medical care they offer has been practised in the United States since 1984. It encourages hospitals to choose the most efficient method of treatment, to reduce the length of hospital stays, and to make maximum use of health care personnel other than doctors. If there is a choice between two therapeutic methods, both of which would suit the patient's requirements, the insurance scheme can limit coverage to the costs of the less expensive one. There are, however, some unintended effects such as encouraging hospitals to refuse admission to patients they regard *a priori* as poor commercial prospects.

Experiments in co-operation between hospitals and insurance schemes are under way in Canada and Austria. The potential importance of prevention should also be considered, and it is now recognized that research into anticipated costs would help to increase the effectiveness of preventive measures.[7]

2.4. Health-care networks (D)

The upshot of these relationships between the players in the health sector is that insurance schemes are anxious to hold a leading role in guaranteeing high-quality care at a cost that all policyholders can afford, while keeping check of where the payments for services go.

Health Maintenance Organization (HMO)-type health networks seek to bring together service providers, policyholders and insurers, thereby stifling service-provider-led demand while guaranteeing a viable volume of business and turnover.

The two main types of HMO draw on service providers as a group or individually. In the former case, a group of service providers operate at a specific location. In the latter type, a policyholder chooses a general practitioner belonging to the organization who then provides services at his own surgery or office, referring the patient to another provider within the organization when necessary. Treatment by providers who do not belong to the network is not covered by the insurance.

Preferred Provider Organization (PPO)-type health-care networks are less rigid, allowing policyholders a greater choice of doctor. The insurer negotiates preferential contracts with a group of service providers (hospitals, laboratories, and paramedics). More generous coverage gives policyholders an incentive to use providers within the system.

Other forms of managed-care organizations have developed in the recent past such as Physician-Hospital Organizations (PHO) and Point-of-Service Plans (POS) which combine HMO-like systems with indemnity systems, allowing individual members to choose which systems they wish to access at the time they need medical service.[8]

---

[7] Van Vliet, R.C., "Predictability of Individual Health Care Expenditures", *Journal of Risk and Insurance*, 59, September 1992, pp. 443–461.

[8] Eric R.Wagner, "Types of Managed Care Organizations", in P. Kongstvedt (ed.), *The Managed Health Care Handbook*, 3rd edn. Aspen, 1996.

3. E-commerce, e-markets and networks

It has not been recognized that a health-care system left to function according to market forces alone will not result in a socially optimal quantity or quality of health care or cost.[9] However, policies to encourage the development of expanded insurance options for the population are becoming today an important component of most national scheme efficiency efforts.

At present, regional and international trade and competition for professional services in the health-care business are extremely limited and are confined to services related to tourism services and activities or cross-border services. Barriers to trade are not different in developing countries than in any other country (except perhaps in emphasis) when considering the following list:

– Immigration-related restrictions are a barrier for the movement of service suppliers as well as for professional regulation based on academic qualification, experience, nationality, residency, membership in a professional association (cartel);
– Lack of insurance coverage (non-portability or limited portability) is a disincentive for the movement of patients, as are emotional barriers such as language, local knowledge and cultural difference, which inevitably reduce competition even within the territories of a country.

The business behaviour of health practitioners, including corporatist practices, also tends to perpetuate the segmented market structure. It is exacerbated by the lack of proper information on health services available in other regions or even in other territories of a country. The location of a service can sometimes seriously affect its competitiveness and its ability to attract patients or providers.

The computerization of organization-to-organization and consumer-to-organization transactions and communications, called electronic commerce (e-commerce or e-business), will obviously affect marketing, distribution channels, and transaction costs but also product development and market-structure consideration. It is today viewed as one of several tools that can enhance the efficiency and quality of services.

E-commerce will create e-markets and will force organizations and regulators to develop new strategies to integrate the use of information technology for many functions and not only the interface with consumers. Current geographical and temporal boundaries may become entirely meaningless.

3.1. The insurer/policyholder relationship (A)

Insurance firms operate in an environment with inherent information problems and respond to the adverse selection externalities through screening, categorizing and sorting. Asymmetric information arises in insurance markets both for the insurer and the policyholder. The health insurance market is characterized by private information, i.e. the individual health risk is only known by the individuals themselves and it is impossible for the insurers to discriminate *ex ante* except at very high diagnostic costs.

---

[9] Hsiao, W., "Abnormal Economics in the Health Sector", in Berman, *Health Sector Reform in Developing Countries: Making Health Development Sustainable*. Cambridge, MA: Harvard University Press, 1995. See also Rosenthal, G. and Newbrander, W., "Public Policy and Private Sector Provision of Health Services", in Newbrander, W. (ed.), *Private Health Sector Growth in Asia*. New York: J. Wiley, 1997.

Individuals will have an incentive to signal their desired quality to insurance companies by selecting their insurance contract in a menu of contracts offered by insurance companies. Specifically, high-risk individuals will choose contracts with more comprehensive coverage and will be charged higher premiums. Low-risk individuals will be indicated by their selection of high deductibles. If the insurers are free to set premiums in a competitive market, the result is premium differentiation rather than risk selection.[10]

Information technology is changing the way the market operates by providing faster and more symmetrical information between the insurer and the policyholder. Electronic commerce will not be suitable for all insurance products but the nature of the transaction is changing and opportunities to shape new markets increase. Not only have firms established Internet sites where information is available on products and services, but there is also considerable interest in developing e-markets for insurance firms where consumers can easily compare prices and products and transact business with insurers they choose.[11]

3.2. The policyholder/service-provider relationship (B)

The provision of health care requires, and generates, a wide variety of data and information between a patient, a physician and/or a health-care provider, and also between health-care providers. Telemedicine is an important and growing field and is expected to change many of the traditional approaches in health care.[12] Until recently, medical informatics has had only a limited impact on the day-to-day practice of medicine. The great promise of telemedicine is that it has the capacity to enhance productivity and directly engage patients in the management of their own health care, leading to market improvement and cost-effectiveness of medicine.[13]

The identification of "optimal" treatments requires the capture of patient data, innovative methods to measure the benefits and costs of treatment options, and the feedback of this information to the providers of care. Computerized medical records may also minimize diagnostic and treatment errors and facilitate communications between providers for the referral of a patient. The medical-privacy debate has arisen over the past few years as a natural consequence of the growing openness of medical information systems.

The industrialization of medical care delivery has given rise to a commercial health information technology investing heavily to produce the "paperless clinical enterprise" that will link the participants and professionals of the health-care market and focus on patients' needs and preferences.

---

[10] According to Pauly (Pauly, M.V., 1984, "Is Cream-Skimming a problem for a competitive Market?", *Journal of Health Economics*, 3, pp. 87–95. and Pauly, M.V., 1986, "Taxation, Health Insurance and Market Failure in the Medical Economy", *Journal of Economic Literature*, 24, pp. 629–675.) risk selection (cream skimming) is the result of regulated markets. To eliminate risk selection, governmental compensatory systems have been introduced in some countries: in Switzerland and Germany (Beck, K. and Zweifel, P., 1995, "Cream-Skimming in deregulated social health insurance: evidence from Switzerland", Paper Presented at the 3rd European Conference on Health Economics, Stockholm.) and in the Netherlands (Van de Ven, W.P.M. and Van Vliet, R.C.J., 1992, "How can we prevent cream-skimming in a competitive health insurance market", in P. Zweifel and H.E. Frech (eds) *Health Economics Worldwide*. Boston: Kluwer Academic Publishing.).

[11] Online insurance markets are in the development stage. See, for example, www.Quicken.com or www.insweb.com

[12] R.L. Bashur *et al*., *Telemedicine: Theory and Practice*. Springfield, Illinois: C. Thomas, 1995.

[13] Donald W. Moran, "Health Information Policy: On Preparing for the next War", *Health Affairs*, Nov/Dec. 1998, pp. 9–22.

3.3. The insurer/service-provider relationship (C)

Measuring the performance of health plans and health-care providers has rapidly emerged as an important issue in the relationship between insurers and providers. Performance measurement is still limited by the inadequacies of information systems and the lack of a standardized set of measures (core measurement set). Benchmarking is appearing as the most effective business tool to identify "best" practices. The Benchmarking Exchange (TBE) reports online on information collected from thousands of members.[14]

The Association for Benchmarking Health Care (ABHC) links the needs of health-care management and health plans to identify processes and techniques through the exchange of data gathered in benchmarking surveys among members.[15]

The use of computer-assisted communication between health-care providers and the insurance sector has been limited to some exchange of information, and it is expected that, by 2001–02, many barriers, such as questions of security and reliability which now limit the extension of electronic communications, will have been overcome.[16] As a result, there will be a significant increase in business-to-business e-commerce between insurance companies and health-care providers.

3.4. Health and insurance information networks (D)

"Managed care" is the generic term referring to systems which integrate the funding and the delivery of health-care through contracts with selected physicians and hospitals, linked with health insurance companies to provide health care to enrolled participants. Among the most noticeable of market trends is the growth of managed care and the expansion of information available for professionals involved with managed care.[17]

The policy and strategy papers of WHO at the end of the 1970s concerning health information systems noted that the needs were for "health information systems that would provide the right information to the right person, in the right place, at the right time and in the right format".[18] Integrated Delivery Systems (IDS) are management information systems that are capable of measuring provider performance and collecting vital patient information.

A health info-structure may be defined as the infrastructure (economic and legal) that supports people and institutions (health-care providers), management (protocols and financing), technical support and information and knowledge. The growth in the use of health info-structure is closely tied to the promotion of cross-border trade in health care and insurance services and is a means of developing an integrated network providing high-quality and cost-competitive health-care services.[19]

Health and insurance information networks are similar to the Global Trade Point Network developed by UNCTAD since 1994 to reduce trade transaction costs and provide a

---

[14] See the following Internet sites for more information on benchmarking: www.aqc.org, www.pasba.com and www.benchnet.com

[15] www.abhc.org current membership includes more than 80 health-care providers and health insurance plans.

[16] OECD, *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*, Paris, 1999, p. 37.

[17] See the Internet site www.mcol.com

[18] WHO/ISS, *Towards Principles for National Health Information Systems*, Geneva: WHO/ISD/78/13, 1978.

[19] OECD, op. cit., p.147.

better access to information. Policies to standardize the infrastructure for e-commerce and protocols for facilitating interaction between a wider group of actors will need to be made.

Regulatory oversight of areas such as licensing, prices, products, unfair trade practices and solvency will have to evolve to facilitate the efficient use of information technology in health insurance markets.

4. Conclusion

Controlling health-care expenditure is nowadays a major concern of all governments and all private insurers. Co-operation between the health-care sector and the insurance sector is crucial to the provision of high-quality services at a cost that reflects the conditions obtaining on a competitive market with perfect information.

The interlinkages among service sectors have been recognized as playing an important role in the development process. The strategic importance of insurance services in the development of health services and competition is quite obvious and follows the development of managed-care activities in this sector. Health financing through insurance is not a goal; it is a means to an end, facilitating the provision of the types, quantities, and qualities of health services that are consistent with managed-care activities.

The importance of the access to information networks to expand services is also recognized here. The expectation that a general process of trade liberalization will provide benefits for all participants is based on the view that some countries will be able to offer services in which they possess a comparative advantage. Information is a key factor and the development of trade points in health services is a practical support to the actors in the health-care market: insurers, providers and consumers. Regulators will be compelled to organize or facilitate network structures that will satisfy these objectives.

The development of health-care networks bringing together insurers and service providers serves to limit market imperfections due to information asymmetries among the various players on the market. This kind of contractual relationship should also encourage the growth of parallel health-care markets. In actual fact, insurance companies themselves do not seem to wish to develop this kind of operation and position themselves as supplementary participants whose intervention is implicitly shaped by what the basic welfare system covers.[20]

If the price of health care is a major determinant of the demand for health care and the consumer's choice of provider, then insurance may promote a better allocation of resources by monitoring the services purchased for their clients. On the other hand, the quality of care delivered lies at the heart of the effectiveness of the provision of services. Regardless of the segmentation of the market, both public and private sectors must work together to deliver a level of quality that is acceptable to consumers.[21]

---

[20] Lewalle, H., "L'assurance maladie privée, perspectives couvertes par la nouvelle réglementation européenne", *Solidarité Santé*, 2, April–June 1993, pp. 39–43.

[21] Rosenthal and Newbrander, op. cit.