

Diffusion of innovation in France health sector

France is one of the largest and strongest countries in Europe, member of EU and with 67,000,000 population, present very large health system. In this framework I shall try to present you Diffusion of innovation in France health sector, how much they invest in technology, drugs and genetic innovation and how was that spread and adopted through organizational and individuals. Probably main factor in innovation is available budget and how it is affected. It is well known and accepted that innovation is a major driver of increases in medical spending, but the health benefits to the population are generally considered to outweigh the higher costs.

France allocates 11,1% from GDP for investment in health sector, 20% of budget is spent on medicines, more than in many of the Organization for Economic Co-operation and Development (OECD) countries. The industry has also responded by investing in R&D to improve further. In conclusion, the government plays a significant role in providing health care and regulating the pharmaceutical industry. France pharmaceutical industry is in good health. According to IFA (Invest France Agency): “France has been Europe’s leading producer of medications for nearly 15 years. It’s an enviable position that is due in part to the considerable sum – over €1 billion – that the French pharmaceutical industry invests each year in its production arm. Even more impressive is that the pharmaceutical industry is one of the most research-centric sectors with almost €4.9 billion invested in 2008”.

When resources are abundant, complex and costly innovations will easily find their way into regular health care; and that scarcity of resources leads to the adoption of innovations that enhance efficient healthcare delivery.

I will focus on three elements on diffusion of innovation in France health sector:

1. Innovation – bring something new and insert in system
2. Communication channel – spread information
3. Adoption – on individual and organizational level (patient and hospitals)

Innovation

Innovation in medicine is very important, because by investing on technical, organizational and knowledge level we will have better results in treating patients and finding new drugs for incurable diseases. Medicine constantly evolving. Wave after wave new technologies, information systems, regulatory changes, and institutional arrangements buffet the system and people and institutions, for the most part, do not like change. It is painful, difficult and uncertain. According to Mattijs S. Lambooi, Peter Engelfriet and Gert P. Western: “Diffusion of innovations depends on the characteristics of the “receiving” (social) system. Although awareness of novelties in the healthcare systems of the modern Western world travels fast, important differences between countries can be observed in the degree and manner in which, for instance, new surgical procedures, diagnostic tools, and forms of healthcare organization are adopted.”

In the period between 1994-1997 France public were financed by a global budget, and their budgets increased very slowly. Growth in overall average costs was limited. A deterrent to public sector use of innovative procedures is the financing of supplies from a global budget, which may limit the purchase of expensive devices. Hospitals was implemented new, totally different way for treatment acute myocardial infarction (AMI).

France was invested in treatment angioplasty and for that patients, it was something totally new, but treatment with angioplasty growing rapidly in all developed countries. Together with drug therapy (aspirin, beta blockers, etc.), AMI patients can receive various treatments such as thrombolytic drugs, cardiac catheterization. Innovative procedures can replace more traditional procedures. These procedures are less costly than traditional ones such as bypass surgery and It is unless invasive and more respectful of patients quality of life and angioplasty appeared more recently than bypass surgery. It is an alternative and less invasive procedure.

Communication channels

The terms “communication channels” refers to have the means by which the message about an innovation gets from the source to the receiver. Identification if these channels has been a primary focus of research, particularly relating to physicians adoption of new drugs, although there have also been conceptual attempts, using the notions that a distinct sequence of stage is involved in the decision to adopt something new, differentiate the channels of communication that enter into each stage.

The internet is the single most important new communication channel, e-mail I think have very good feature in doctor-patient relationship, or traditional medical journals is informational base for doctors and patient to find something new. According Carine Vassy, France medical science was researched genetic and biometric innovations for Down`s Syndrome and after some times scientific controversies have been raised by geneticists, biochemists, ultrasonographers and obstetricians, both in France and international medical and scientific journals.

All of this types communications channels plays a very important role in education of patient. “Those with a basic standard of education like to consult the media (television/radio/newspapers and magazines), while those who have completed further vocational education or university studies show a clear preference for the Internet. The latter group is also more likely to consult a medical reference book.”

What is your preferred source of medical information(in %)?

	Basic n=476	Secondary=1040	Higher n=633	University n=359
Internet	18	28	36	41
Med. Ref. Book.	17	21	25	34

Source: The preferences of healthcare customers in Europe - Zoetermeer, 2004

Scientific source become increasingly important in the decision to prescribe a new drug, however, as the condition to be treated becomes more severe or as choice of treatment becomes less clear-cut. Some research shows that 65% of European patient prefer to obtain their medical information from the medical professional (general practitioner or specialist) as the main source of information.

Communication channels as they relate to other types of innovation, particularly in organizations, have received far less attention. Available data, however, strongly support the importance of communications in organizational innovation.

Adoption

The concept of various stages in innovation – e.g. knowledge, persuasion, decision, and confirmation has received implicit recognition in studies of physician drug innovation and in the conceptual literature on organizational innovation. Knowledge of the stage an innovation has reached in a hospital, along with the behavioral or structural correlates associated with that stage, would permit rational deployment of specific intervention strategy. Equally important to the concept of stages, particularly as applied to organizational innovation, is the distinction between implementation within the organization and subsequent attitudinal and behavioral acceptance by relevant organizational personnel.

Early and Late Adoption. The concept of adopter categories (e.g., pioneers, early adopter, middle adopters and laggards) has been a central analytical device in assessing innovations for physicians, organizations and communities. As indicated earlier, use of this concept requires that the newness of the innovative product be measured by the time since its first use or discovery. Substantive finding that differentiate early from late adopters are discussed below in the section on the characteristics of innovation.

According to Brigitte Dormont and Carine Milcent angioplasty was very quickly accepted from hospitals and some research

Rate of Adoption. The general idea in the diffusion literature is that rate of adoption approximates a normal distribution or, if plotted cumulatively, an S-shaped curve. Data on innovation in the health system indicate that this may be true under certain conditions (e.g., diffusion of health services, technical innovation), but not for all adoption units or all innovations.

The proportion of hospitals able to perform innovative procedures is increasing rapidly. The proportion of angioplasty implemented within innovative hospitals is growing even more rapidly. The average length of stay decreases sharply between 1994 and 1997. It does not seem to be influenced by the performance of angioplasty. On the other hand, a stay is much more costly

when angioplasty has been implemented. The average cost per stay increased slightly, from 4,361.7 Euros in 1994 to 4,611.2 Euros in 1997, i.e. an increase in nominal terms of 5.7 %.

Our indicator of the use of innovative procedures is the proportion of patients treated by angioplasty. The table shows that the overall rate of use of this procedure is growing rapidly in France : it went from 4.8 % of stays in 1994 to 15.6 % in 1997.

Performing innovative procedures requires investment in specific training and high-tech equipment. The process of diffusion of technological progress is thus composed of two steps : First, the adoption of new techniques by hospitals ; second, the increase in the use of innovative procedures by hospitals which are able to perform them. We call the First step between hospital diffusion. The second step is linked to a process of learning by doing (Ho (2002)) : we call it within hospital diffusion.

Our descriptive analysis has shown that the patient state is worsening and that the use of innovative procedures, as well as the proportion of innovative hospitals, are increasing rapidly. Therefore, the cost of stays is likely to be subject to strong positive shocks.

Our results are reported in table 3. They show that the rise in the average probability of being assigned to an innovative hospital (+ 6.8 %) is due to shifts in coefficients (+ 2.8 %) and to changes in patient characteristics (+ 4.0 %). By contrast, the dramatic increase (+ 32 %) in the use of angioplasty within innovative hospitals is entirely due to changes in practices.

To sum up, changes in cost determinants follow very different patterns : the length of stays decreases sharply ; the probability of being assigned to an innovative hospital rises ; the probability of being treated by an angioplasty rises. Taken together, these behavior changes result in a negative average effect on cost, equal to - 2.9 %.

increasing adoption of new techniques by hospitals. This between hospital diffusion is linked to a change from B0 to B1 in the coefficients of (1). With given demographical and epidemiological characteristics, a patient has a higher probability of being assigned to an innovative hospital in year

1 than in year 0.

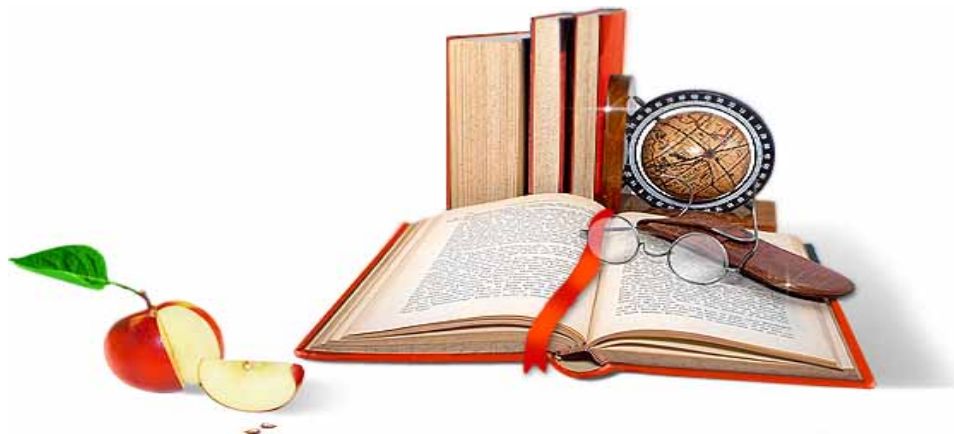
- within hospital diffusion linked to a change from D0 to D1 in the coefficients of (2). With given characteristics, a patient assigned to an innovative hospital has a higher probability of being treated by an angioplasty in year 1 than in year 0.

- changes in patients demographical (age, gender) and epidemiological (secondary diagnoses) characteristics. This population effect is related to changes in observable (x_{0i}) and unobservable

(α_i ; β_i) patient characteristics.

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