

The Connected Patient

August 2009

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To appear in:

The Connected Customer: The Changing Nature of Consumer and Business Markets. Wuyts, Stefan, Marnik Dekimpe, Els Gijbrecchts and F.G.M. (Rik) Pieters (eds.). Routledge Academic. ISBN 978-1-84872-837-0

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Introduction

When in 1992 Laura Landro, a journalist at *The Wall Street Journal*, was diagnosed with chronic myelogenous leukemia she decided to gather as much information as possible about her disease and to become an *informed patient*. At this time, the use of the Internet was still not sufficiently widespread, and physicians were not accustomed to patients bringing documents and medical data to the medical encounter. As a result, challenging doctors “was no picnic” and, in order to find the “accessible, wonderful, caring doctors” she deserved, Laura had to sever ties with a few more “impersonal physicians and medical workers who were simply annoyed at a patient who was trying to be her own best advocate” (Landro 1999, p.56).

At the same time pharmaceutical companies, perceiving changes in the role of patients in medical decision-making, initiated a trend that would soon become controversial. The amount invested in direct-to-consumer advertising (DTCA) by the American pharmaceutical industry rose steadily from the mid-1990’s onwards. Indicative of recent changes in the health care systems, DTCA expenditures reached, in 2006, \$4.8 billion (Pharmaceutical Research and Manufacturers of America 2008).

In this chapter, we review evidence supporting the claim that a fundamental shift in the role of the patient (and, consequently, of the physician) in medical decision-making is taking place. There is a trend toward more participatory decision-making in which doctors and patients *together* bear responsibility for medical decisions. This change has implications for patient welfare and for firms operating in the life sciences industry¹.

¹ Throughout the chapter we adopt Stremersch and Van Dyck’s (2008) definition of the life sciences industry as an industry that develops science-based knowledge and improves consumers’ quality of life. When we refer to life sciences firms we refer to pharmaceutical, biotechnology and therapeutic medical devices companies.

In this new paradigm, physicians are expected to establish a dialogue with their patients and apply their medical knowledge in order to connect scientific evidence to patient needs and preferences (Emanuel and Emanuel 1992; Epstein, Alper, and Quill 2004; Morgan 2003). Despite its renewed appeal, this idea of reaping benefits from a strong collaboration between patient and physician has a very long tradition in medicine. For example, in an influential paper about patient-physician relationships, Emanuel and Emanuel (1992) quoted Plato who, more than 2,000 years ago, wrote:

The free practitioner, who, for the most part, attends free men, treats their diseases by going into things thoroughly from the beginning in a scientific way... He does not give his prescriptions until he has won the patient's support, and when he has done so, he steadily aims at producing complete restoration to health by persuading the sufferer into compliance.

Until recently, however, the relationship between patients and doctors could still, by and large, be characterized by a *white-coat model*, according to which the physician uses her or his knowledge to prescribe treatments in a paternalistic way (Charles, Gafni, and Whelan 1999). Limited patient participation in medical decisions was generally accepted because (i) the utility of different health outcomes was considered objective and independent of the subjective thoughts of doctors and/or patients, and (ii) society at large empowered physicians to use their knowledge to decide, on behalf of the patient, what treatment and tests were the most appropriate given her or his condition (Emanuel and Emanuel 1992).

Today, the expectations and views of both physicians and patients regarding medical encounters are changing, and a trend toward *shared decision-making* is emerging. These changes are a natural consequence of the significant links found between patient participation in medical decisions and desirable health consequences. For instance, patient participation in medical decisions has been linked to improvements in adherence to treatment plans (Golin, DiMatteo, and Gelberg 1996; Horne 2006), patient satisfaction, perceived improvement in symptoms, and general improvement in health condition (Brody et al. 1989; Lerman et al. 1990; Little et al. 2001). Yet, the transition toward a more active participation of patients in medical decision-making requires a transformation of the tie between patient and doctor, which may entail changes in the amount, content and directionality of information flow and in the level of reciprocity in the relationship. Neither all doctors nor all patients are equally prepared or motivated for this change.

In this chapter, we review antecedents and consequences of the trend toward increased patient participation in medical decisions. A better understanding of patient needs and preferences will help us uncover how patient satisfaction, health outcomes, effective health care delivery and life sciences firms' marketing strategies can be improved. This understanding will also provide insights on several open research topics.

Figure 1 illustrates a conceptual overview of this chapter.

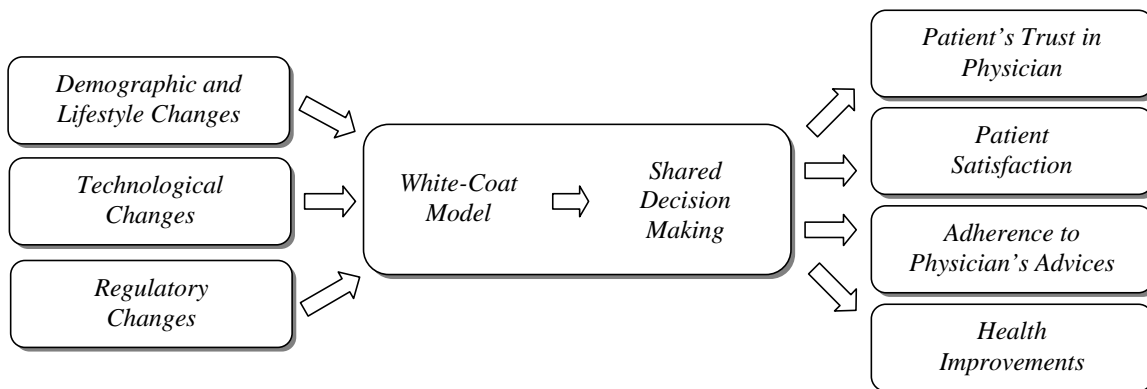


Figure 1 - Antecedents and Consequences of Increased Patient Connectedness

As can be seen from Figure 1, the primary focus in this chapter is the dyadic connectivity between patients and their physicians. However, in order to develop a more comprehensive understanding of the underlying processes in these relations, we consider – in an admittedly cursory manner – the broader context of these relations and investigate other types of ties in medical decision-making. Such “surrounding connections” may be among patients, among physicians, or between health-related entities (e.g., pharmaceutical companies, health insurance companies) and patients or physicians.

From a White-Coat Model to Shared Decision-Making

Figure 2 presents a typology for possible models for the patient-physician relationship according to the dual power structure within this relationship. The **white-coat model** on the lower right part of Figure 2 was the mainstream approach until the 1980’s and is characterized by a relationship in which the physician takes a paternalistic role and acts as a guardian of the patient and his or her health. Under the white-coat model, the final goal of improving the patient’s health status is treated as an objective goal that has priority over both patients’ autonomy and personal choices (Emanuel and Emanuel 1992). In such a model, the patient is expected to cooperate and *comply* with the physicians’ orders and recommendations. The relationship usually assumes a biomedical tone, with the emotional and psychosocial components of medical care garnering relatively less importance (Morgan 2003).

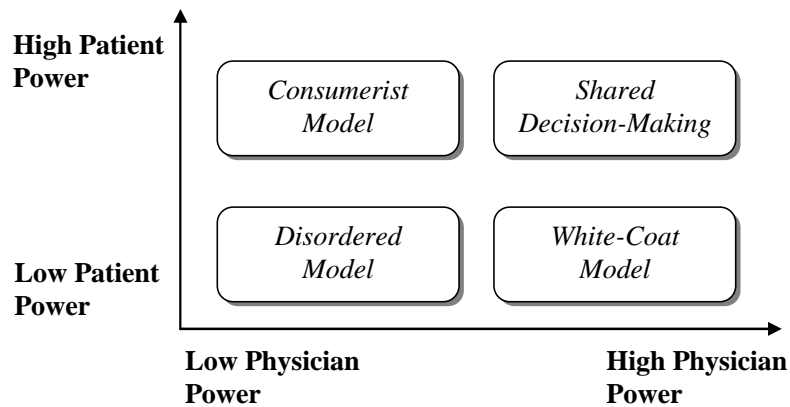


Figure 2 - Models of Patient-Physician Relationships
 Adapted from Roter (2000), © 2000, with permission from Elsevier.

Moving away from the white-coat model, however, is neither easy nor consensual. Different physicians react differently to patient participation in medical decisions. Some argue that there is a lack of practical guidelines to guide physicians in the process of adapting their behavior to the new reality of patient empowerment (Taylor 2007). Others fear that physicians might start interpreting their role solely as providers of important information to the patient rather than as influencers of patient decisions. In such cases, a **consumerist model** would be established and patients would turn to physicians for medical information but assume the control of their medical decisions (upper left part of Figure 2). Many physicians feel uncomfortable with these challenges, which might explain why today, despite the increasing agreement on the need for more patient participation, many physicians still adopt a white-coat approach to medical care (Young et al. 2008).

In fact, a risk entailed in the process of empowering patients is that physicians might practice reactive, rather than proactive, medicine. Reactive medical care - a tendency to offer only the advice and information requested by patients - can be particularly undesirable when patients are not able or willing to take the lead in making medical decisions. In effect, if the physician assumes erroneously that the patient wants to make his or her own decisions and prematurely

hands over relational power and control to the patient, the patient-physician relationship can suffer from lack of direction. We labeled such situations as a **disordered model**².

This discussion suggests that it is important (i) to distinguish shared decision-making from other alternative models of the patient-physician relationship, (ii) to better understand how shared decision-making can be promoted and (iii) to understand the role of patient expectations in shaping patient-physician relationships. In essence, the **shared decision-making model** entails a *mutual* involvement of patients and physicians in clinical decisions and is increasingly seen as the ideal standard for patient-physician relationships. According to Charles, Gafni, and Whelan (1999; 1997), four necessary conditions must be met in order for a relationship to be classified as *shared decision-making*:

(1) *Mutual participation* - both the physician and the patient participate in the decision-making process³;

(2) *Mutual sharing of information* – the physician shares information about existing treatment alternatives and listens to information the patient might have gathered from other sources;

(3) *Value-sharing* - the patient expresses his or her preferences, and the physician shares his or her knowledge-based values about the best course of action;

(4) *Mutual agreement* – this last condition, which focuses on the outcome rather than the decision process, claims that more than mutual participation, the physician and the patient need to reach mutual agreement about the best course of action.

² Roter (2000) suggested that in such cases, the relationship can be transformed into a *dysfunctional standstill* in which misunderstandings and frustrations can be frequent and often lead to a breach in the relationship.

³ In some cases, other participants, such as relatives, might also play an important role in a medical encounter. These triadic relationships are frequent in the case of elderly and adolescent patients (Charles, Gafni, and Whelan 1997).

In sum, there is an increased agreement that shared decision-making is the ideal model for patient-physician relationships in the 21st century⁴. This paradigm change entails opportunities and challenges for all stakeholders involved in health care. In particular, for life sciences firms, this new model suggests the need to invest in marketing strategies that address the increasingly active role of patients in treatment decisions.

Antecedents of the Evolution to Shared Decision-Making

Now we turn to the antecedents of the trend from a *white-coat model* toward a *shared decision-making* model and address the magnitude of this trend. An insightful way to analyze these antecedents is by broadening the focus of analysis from a dyadic perspective of the patient-physician relationship to a *network perspective* of the social system consisting of physicians and patients.

Taking a network perspective here is consistent with recent calls by marketing scholars to implement a network perspective in the analysis of social systems in knowledge-rich environments (Manchanda et al. 2005; Wathne and Heide 2004). The network perspective allows us to expand our analysis beyond the patient-physician relationship and also consider social ties among physicians and among patients. Moreover, by using this framework, we can explore the effect of external drivers on the network structure as well as on the nature of ties in the social system.

⁴ See also the conclusions of a John Hopkins and American Healthways' Outcomes Summit 2003 where more than 200 patients and physicians discussed the ideal patient-physician relationship for the 21st century.

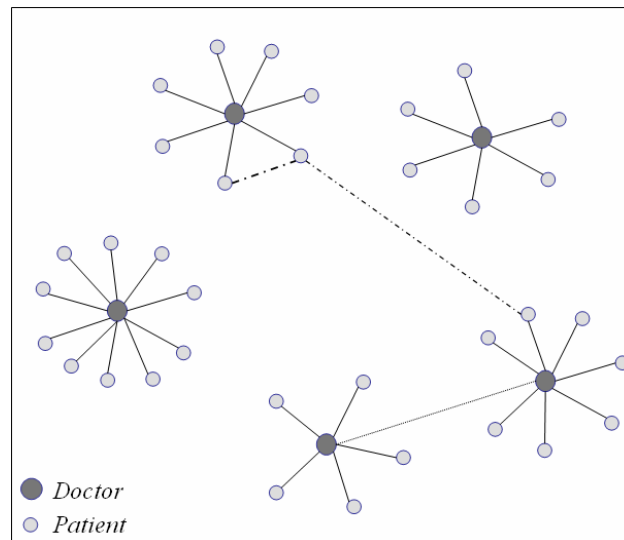


Figure 3 - The Health System - A Network of Patient-Physician Relationships

Figure 3 presents a network representation of a basic social system consisting of doctors and patients. Interpersonal networks of physicians and patients have already attracted the attention of scholars in sociology, medicine and marketing. Existing studies have focused on the influence of interpersonal networks of physicians on their prescription choices (Coleman, Katz and Menzel 1966; Nair, Manchanda and Bhatia 2006) as well as on interpersonal relations among patients and their role, for example, in the spread of infectious diseases (Rothenberg et al. 1998). However, many questions remain unanswered, particularly in terms of the ties between **physicians and patients**, which is the main focus of this chapter.

Patient-physician ties are based on the flow of information between these two actors and are, therefore, directional. That is, one can ask whether the information flows from Actor A to Actor B, or vice versa. This directionality allows us to look at levels of *reciprocity* or *symmetry* in the patient-physician relationship⁵. Reciprocity can serve as a ‘starting mechanism’ in early

⁵ In our context, reciprocity or symmetry refer to a directed and bi-directional tie between a physician and a patient, i.e. a tie that is directed and flows from the physician to the patient as well as from the patient to the physician (Van den Bulte and Wuyts 2007).

relational phases to induce higher levels of cooperation (Gouldner 1960). Symmetry can also be used to capture the trend towards shared decision-making, that is, the extent to which one observes a shift away from a sole focus on the “voice of medicine” to an increasing emphasis on the “voice of the patient” (Morgan 2003, p.55).

We can identify three major drivers triggering the move toward more patient autonomy and participation in medical care: (i) demographic changes, (ii) technological advances, and (iii) changes in the regulatory environment.

Demographic and Lifestyle Changes

Demographic and lifestyle changes are important contributors to the trend toward more patient participation in medical decisions. Ongoing shifts in demography (for example, an aging population) and lifestyle (such as increased urbanization, exposure to pollutants, or stress) contribute to an increased focus on chronic conditions worldwide (Murray and Lopez 1996). Leading public health concerns include ischemic heart disease, the continued spread of HIV/AIDS, and several forms of cancer (see Figure 4, adapted from Mathers and Loncar 2006).

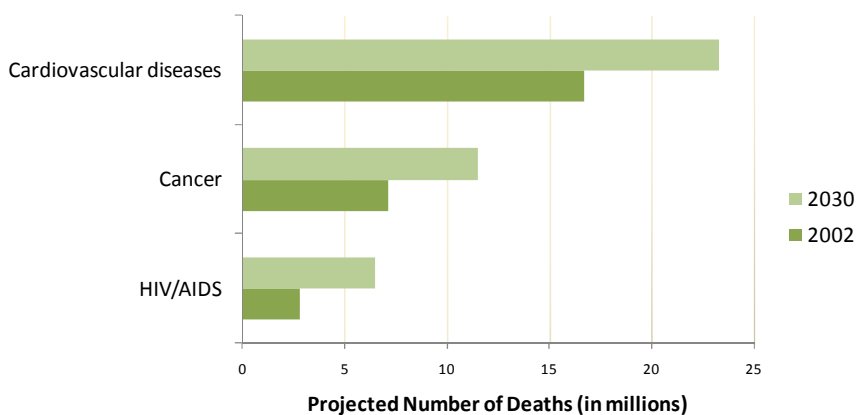


Figure 4 - Projections for Major Causes of Death Globally 2002-2030

Source: Mathers and Loncar (2006)

The increase in the prevalence and importance of chronic diseases creates two forces that encourage more informed and more connected patients, that is, shared decision-making. First, chronic patients have a strong incentive to collect information and discuss their health with friends or through patient support groups; hence, they will typically be more knowledgeable about their diseases than patients suffering from acute diseases. The increased knowledge possessed by chronically ill patients equips such patients with a greater ability to participate in their own medical care. Second, public health initiatives increasingly promote the need for lifestyle changes like smoking prevention and cessation (Pauwels et al. 2001) and eating a well-balanced diet (Grundy et al. 2004). This need to persuade healthy consumers to make lifestyle changes (with the objective of avoiding future health hazards) is facilitated by more patient involvement, and thus by a shared decision-making approach (Roter and Hall 2006; Sheridan, Harris, and Woolf 2004).

Technological Changes

Technological advances also contribute to the obsolescence of the white-coat model. Specifically, two major technological shifts have facilitated the transition toward shared decision-making: (i) the advent of the Internet and the consequent democratization of access to medical information, and (ii) the sequencing of the human genome, which triggered the emergence of personalized medicine.

The Rise of the Internet and E-health

The first important technological development that impacts patient-physician relationships involves the advent of the Internet and the consequent consumer access to health information. A recent survey conducted by iCrossing (2008), which is a research firm specialized in digital

marketing, found that 59% of all American adults look for health information on the Internet. This makes the Internet the most popular source of health information, as 55% stated that they look for health information by visiting their physicians and only 29% acknowledged looking for such information by talking with friends, relatives or co-workers. Scholars in medicine indeed recognize that the massive accessibility of online health information has contributed to the “most important techno-cultural medical revolution of the past century” (Ferguson and Frydman 2004, p.1149).

In fact, the Internet affects the structure of the patient-physician network in two ways: it lowers the access barriers to medical information, and it facilitates the connection and sharing of information among actors (i.e. among patients, among physicians, between physicians and patients and between firms and the other stakeholders). The first effect – easier access to medical information – directly facilitates patient empowerment, because patients can now easily collect information that they can later discuss with their physicians. The second effect – increased connection among actors – also operates by increasing patients’ knowledge but it typically interferes with the patient-physician relationship in an indirect manner. Virtual networking among patients, for example, facilitates the sharing of experiences, information and support that can help in medical diagnosis and treatment (Mukherjee and McGinnis 2007). Thus, virtual networking can facilitate patients’ input during medical encounters. On the physician side, the advent of e-healthcare is also strengthening social networks by facilitating the establishment of new ties among physicians and health professionals, allowing for more information to flow directly in the system. The increased importance of such virtual communities of physicians has the potential to improve the lives of many patients (Mukherjee and McGinnis 2007).

It is important for all stakeholders in the healthcare industry to understand the implications of these changes and to learn how to leverage the potential of the Internet in general, and social media in particular. Marketers, for example, can serve an important role in convincing both patients and physicians to use these new tools to improve the quality of their mutual relationship and promote shared decision-making.

Genomics and Personalized Medicine

A second critical technological development in the life sciences has been the sequencing of the human genome and the ensuing rise of *genomics* as a revolution in medicine and drug discovery (Zerhouni 2003). Genomics is the study of the genetic material of an organism. Launched in 1990 by the U.S. government, the *Human Genome Project* (HGP) was a large research project involving more than 350 laboratories from several countries in order to study human genetic material (Enriquez and Goldberg 2000). In 2003, the HGP completed the mapping of the human genome, which opened a vast array of new possibilities in tailoring medicine to the needs of individual patients.

A good example of the impact of genomics on the prescription drug market is the growth of the biotechnology sector as compared to the pharmaceutical industry overall. Table 1 shows the largest 25 companies in the world in terms of sales of human prescription drugs and vaccines. The table shows that companies like *Amgen* and *Genentech* have grown faster than the market and thus have climbed up in ranking. Between 2005 and 2006, for example, the biologics sector grew 17.1% and reached sales figures above \$52 billion, while the pharmaceutical market as a whole only grew 7% (Pharmaceutical Executive 2006).

Rank	2001	2002	2003	2004	2005	2006	2007
1	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer
2	GlaxoSmithKline	GlaxoSmithKline	GlaxoSmithKline	GlaxoSmithKline	GlaxoSmithKline	GlaxoSmithKline	GlaxoSmithKline
3	Merck	Merck	Merck	Sanofi-Aventis	Sanofi-Aventis	Sanofi-Aventis	Sanofi-Aventis
4	AstraZenca	AstraZeneca	Johnson & Johnson	Johnson & Johnson	Novartis	Novartis	Novartis
5	Bristol-Myers Squibb	Aventis	Aventis	Merck	AstraZeneca	AstraZeneca	AstraZeneca
6	Aventis	Johnson & Johnson	AstraZeneca	AstraZeneca	Johnson & Johnson	Johnson & Johnson	Johnson & Johnson
7	Johnson & Johnson	Novartis	Novartis	Novartis	Merck	Merck	Merck
8	Novartis	Bristol-Myers Squibb	Bristol-Myers Squibb	Bristol-Myers Squibb	Wyeth	Roche	Roche
9	Pharmacia	Pharmacia	Wyeth	Wyeth	Bristol-Myers Squibb	Eli Lilly	Wyeth
10	Lilly	Wyeth	EliLilly	Abbott Labs	Eli Lilly	Wyeth	Eli Lilly
11	Wyeth	Eli Lilly	AbbottLabs	Eli Lilly	Abbott Labs	Bristol-Myers Squibb	Bristol-Myers Squibb
12	Roche	Roche	Roche	Roche	Roche	Amgen	Bayer
13	Schering-Plough	Abbott Labs	Sanofi-Synthelabo	Amgen	Amgen	Abbott	Abbott
14	Abbott Laboratories	Schering-Plough	Boehringer-Ingelheim	Boehringer-Ingelheim	Boehringer-Ingelheim	Boehringer-Ingelheim	Amgen
15	Takeda	Sanofi-Synthelabo	Amgen	Takeda	Takeda	Bayer	Boehringer-Ingelheim
16	Sanofi-Synthelabo	Boehringer Ingelheim	Takeda	Schering Plough	Astellas	Takeda	Schering-Plough
17	Boehringer Ingelheim	Takeda	Schering-Plough	Schering AG	Schering-Plough	Schering-Plough	Takeda
18	Bayer	Schering AG	ScheringAG	Bayer	Bayer	Teva	Genentech
19	Schering AG	Bayer	Bayer	Eisai	Schering AG	Genentech	Teva
20	Akzo Nobel	Amgen	Sankyo	Teva	Genentech	Schering AG	Novo Nordisk
21	Amgen	Sankyo	Eisai	Merck KGaA	Novo Nordisk	Astellas Pharma	Astellas
22	Sankyo	Akzo Nobel	Yamanouchi	Genentech	Eisai	Novo Nordisk	Daichi Sankyo
23	Merck KGaA	Eisai	NovoNordisk	Yamanouchi	Teva	Merck KGaA	Merck KGaA
24	Novo Nordisk	Yamanouchi	MerckKGaA	Otsuka	Merck KGaA	Eisai	Eisai
25	Shionogi	Merck KGaA	Teva	Novo Nordisk	Sankyo	Otsuka	Otsuka

Table 1 - Top 25 Companies in Terms of Prescription Drug Sales

Source: Pharm Exec 50 - <http://www.pharmexec.com/>

Although the rise of personalized medicine cannot be considered an antecedent of the recent trend toward patient empowerment, we can certainly expect it to reinforce such a trend. Developments in genetics and biotechnology will boost personalized medicine, which requires detailed information flows between patients and their physicians for both diagnosis and treatment decisions. Therefore, we expect the rise of personalized medicine to accelerate the trend toward

shared decision-making by enhancing the volume and frequency of information flow between patients and physicians.

Regulatory Changes

Increases in patient-physician connectedness have also been triggered by changes in existing regulations. Examples of such changes include greater flexibility in DTCA regulation, especially in the United States and New Zealand, and the increased use of malpractice suits by patients against physicians.

Regulation of Direct-to-Consumer Advertising

DTCA contributes, at least in the U.S. and New Zealand, to an increased participation of patients in medical decision-making. In the U.S., from the mid-1990s, the increase in DTCA expenditures became quite evident (see Figure 5).

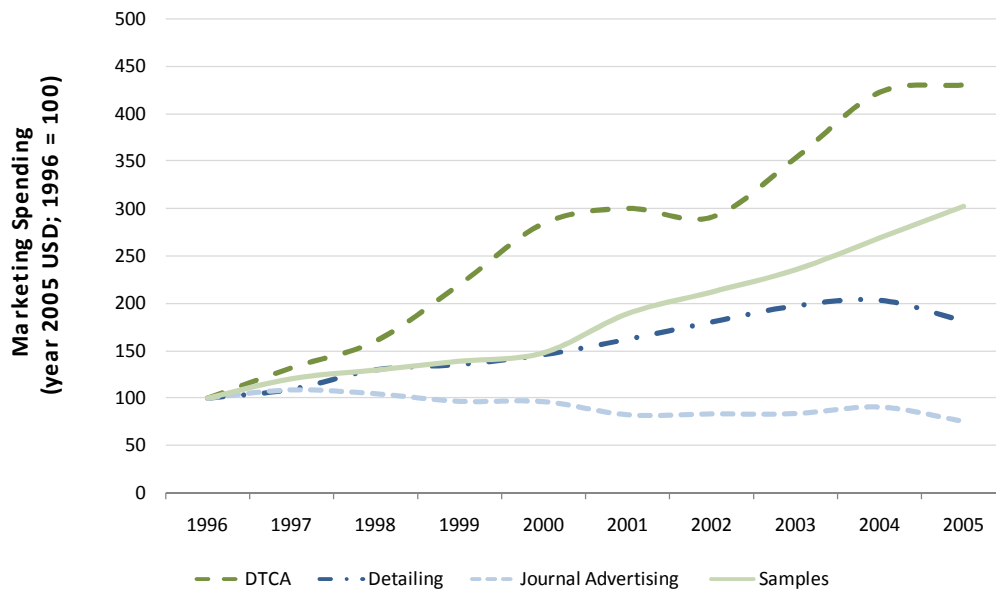


Figure 5 - Growth in Annual Spending per type of Marketing (1996-2005)

Source: Donohue, Cevalasco and Rosenthal (2007)

There exists strong controversy about DTCA and the need for stricter regulation. On the one hand, some authors defend DTCA as a means to educate and empower patients to take a more active role in their treatment (Holmer 1999). On the other hand, other authors suggest that such efforts mainly boost consumer demand and distort the role of patients in the (traditional) relationship with their physicians (Hollon 1999; Moynihan, Heath, and Henry 2002), which may result in a consumerist or, even worse, a disordered model (see Figure 2).

Still, everyone agrees that the main effects of DTCA are to prompt patients to visit their physicians, possibly in order to request a specific drug (Bell, Wilkes, and Kravitz 1999). Recent evidence from medicine suggests that patient requests stimulate more shared decision-making behaviors from physicians (Young et al. 2008). Along similar lines, Venkataraman and Stremersch (2007) have found that patient requests for a certain drug increases physicians' prescriptions of that drug. Moreover, physicians' refusals to accommodate such requests have been associated with patient dissatisfaction and even with intentions of switching physicians (Bell, Wilkes, and Kravitz 1999). Thus, DTCA might contribute to an increase in patient power in medical decisions, leading some scholars to recognize that "DTC advertising has the potential to fundamentally alter the roles of doctor and patient" (Wilkes, Bell, and Kravitz 2000, p.122).

A network perspective can help uncover important consequences of DTCA. For instance, social network theory suggests that different network properties, and different positions in a network, can make some actors more or less influential in marketing events (Van den Bulte and Wuyts 2007). Physician and patient beliefs can be influenced by the decisions of (i) those who are close to them (that is, contagion by direct contact, which is promoted by cohesion), (ii) those who are similar to them (that is, contagion by structural equivalence) or (iii) those who are particularly respected by them (Burt 1987; Nair, Manchanda, and Bhatia 2006). Both the Internet

and DTCA can contribute to changes in these properties. In particular, from a social network perspective, we can see the entities behind both DTCA and Internet websites targeting patients as additional “actors” who provide patients with information regarding their health conditions.

Thus, DTCA can influence patient power in medical decisions by increasing their *degree centrality* and *closeness centrality* in the social network and, consequently, lowering the informational advantages of physicians⁶. In fact, on top of their specialized training and knowledge, physicians used to monopolize the brokering of information across patients. That is, their contact with many patients gave them yet another informational advantage, that of building knowledge from learning about the experiences of different patients. These bridge positions – that is, network locations that span structural holes in the network – are a typical source of informational advantages (Burt 1992). However, DTCA (and the Internet) contributes to a new network structure that has fewer structural holes and, as a result, fewer actors occupying bridge positions in the network.

Previous literature has connected informational advantages with power (Brass et al. 2004; Podolny, Stuart, and Hannan 1996). In the patient-physician context, this implies that physicians in the new network structure have less ‘power’ in their relationship with patients than before. This leads us back to Figure 2 and to the general trend toward relationships that are characterized by shared decision-making (see also Figure 1). Nonetheless, physicians are still expected to keep their role as major players in patient-physician relationships. Their specialized training is not replaceable by either DTCA or by health information available on the Internet. An ideal patient-physician relationship should be characterized by good interaction between two experts: the physician, who is an expert on diagnoses and treatments and the patient, who is the expert on his

⁶ Degree centrality reflects the number of ties an actor has in the system. Closeness centrality measures how close the actor is to each of the other actors in the social system (Van Den Bulte and Wuyts 2007).

or her values, preferences and on how the disease interferes with his or her life (Roter and Hall 2006). Thus, we anticipate a trend toward shared decision-making involving the mutual participation of more informed patients with more facilitative, less authoritative physicians, rather than a shift toward a consumerist model.

Frequency and Severity of Malpractice Suits against physicians

Another regulatory factor that may promote patient involvement in medical decisions involves the climate created by increases in the frequency and severity of malpractice claims. In the U.S., there are on average 15 claims per 100 physicians per year (Danzon 2000). Physicians practicing in high-risk specialties, such as surgery or obstetrics, can expect to be sued once every six years, and although the vast majority of suits are either dropped or won by physicians, legal defense is still very expensive (Danzon 2000; Gawande 2005). This liability climate impacts patient-physician relationships.

First, appropriate involvement of a patient in medical decisions might help the physician share the responsibility of the decisions made with patients and, thus, reduce the likelihood of being sued. Failure to obtain *informed consent*⁷ from patients, for example, is treated as medical negligence and can be used in court as equivalent to careless medical practice (Faden and Beauchamp 1986). Second, a way to reduce the threat of litigation is to promote open communication between the patient and the physician. In fact, when they proposed the National Medical Error Disclosure and Compensation Bill, Senators Hillary Clinton and Barack Obama

⁷ Informed consent implies that the physician has a duty to provide information to his or her patients. If harm results from a certain medical treatment, and the patient is able to show in court that he or she would have opposed that medical decision, then the doctor runs a high risk of being found negligent (Faden and Beauchamp 1986).

believed in open communication within the patient-physician relationship as a way to reduce litigation (Clinton and Obama 2006).

In sum, technological, demographic and regulatory changes affect the structure of the social system of patients and physicians and contribute to increased connectedness in this network. We now turn to the consequences of shared decision-making.

Clinical and Relational Consequences

Increased patient connectedness entails structural changes in patient-physician relationships and in the health system that are capable of affecting the performance, productivity or innovativeness of existing ties. Cohesion in social networks, for instance, can be translated into performance improvements because of the increased capacity of such a network to encourage knowledge transfer, enhanced collaboration and learning. In a study of the performance of corporate R&D teams, Reagans and Zuckerman (2001) show that both cohesion and diversity among actors contribute to team productivity. We expect stronger ties between physicians and patients to contribute to improvements in clinical and relational outcomes, including patient trust in physicians, patient satisfaction, adherence to physician recommendations and general health outcomes.

Trust

In medicine, trust is typically considered to be the cornerstone of the patient-physician relationship (Kao et al. 1998). It is also a core construct in relationship marketing, and it can be defined as “a willingness to rely on an exchange partner in whom one has confidence” (Moorman, Zaltman, and Deshpande 1992, p.315). The current trend toward more patient

involvement has consequences for patient trust in physicians. Partnership-building efforts from physicians, for instance, facilitate the transfer of important information between the patient and the physician, reinforcing the patient's trust in his or her physician (Epstein, Alper, and Quill 2004). Patients also are more likely to trust physicians who explore their disease and illness experience and provide longer consultations (Fiscella et al. 2004). Thus, we expect the trend toward shared decision-making to foster patients' trust in their physicians.

Trust has important health, social and economic consequences. In Kao et al.'s (1998) study, patients with lower trust levels are more than twice as likely to have considered changing physicians. This may have direct implications for managers in the health care industry looking to foster patient loyalty. Patients with a low level of trust are also more likely to report a lower satisfaction with care, weaker intentions to adhere to their physician's recommendations and lower improvements in health (Thom et al. 2002). Finally, patient trust in physicians promotes the spread of positive word-of-mouth, reduces conflicts between patient and physician and encourages perceived effectiveness of care (Hall et al. 2001).

Patient Satisfaction

Increased patient connectedness can also affect a second important health-related outcome, patient satisfaction. Research in medicine suggests a clear link between a physician's practice style and patient satisfaction. Flocke, Miller and Crabtree (2002) conducted a study based on 2,881 patients and 138 family physicians to quantify the extent to which the style of interaction between patients and physicians influences patient satisfaction. They classified physicians into four mutually exclusive categories: (i) *person-focused* physicians (49%) were personable, friendly and more focused on the patient than on the disease; (ii) *biomedical* physicians (20%) focused on the disease and were unlikely to invest time exploring bio-psychosocial information;

(iii) *bio-psychosocial* physicians (16%) elicited some psychosocial clinical information, such as information on social and psychological issues, but overall were more focused on the disease; and (iv) *high-physician-control* physicians (15%) dominated the clinical encounter and disregarded the patient's agenda. They found that patients visiting person-focused physicians were significantly more satisfied with the care they received (Flocke, Miller and Crabtree 2002). Therefore, in general, we expect the trend toward shared decision-making to lead to higher levels of patient satisfaction.

Adherence to Treatment Plan and Preventive Behaviors

Adherence to treatment plans is a very important health issue for all stakeholders in the medical care system. We adopt the definition of adherence provided by the World Health Organization: "the extent to which a person's behavior – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider" (2003, p.3). Scholars in medicine have suggested that adherence might be the key mediator between medical practice and health outcomes (Kravitz and Melnikow 2004). Increased adherence has also been linked to higher patient satisfaction (Dellande, Gilly, and Graham 2004). Hence, improving patient adherence has the potential to improve societal welfare.

A better understanding of patients, physicians and the relationships they establish should help in designing better, perhaps branded adherence programs for patients. Facilitating shared decision-making is an important step in this direction. For example, several authors defend the need to replace terms like *compliance*, which suggests a passive role for the patient, with the term *adherence*, which implies patient involvement and mutual decision-making (Osterberg and Blaschke 2005). The suggested positive link between shared decision-making and adherence to

treatment recommendations is supported by medical evidence (Golin, DiMatteo and Gelberg 1996; Horne 2006).

Furthermore, the economic costs of *nonadherence* are very high. In the United States alone, nonadherence causes 33 to 69 percent of all medication-related hospital admissions and an overall economic burden in excess of \$100 billion a year (Dunbar-Jacob and Mortimer-Stephens 2001). Moreover, lost sales due to nonadherence cost the pharmaceutical between 15 and 20 billion annually (Wosinska 2005). Thus, adherence is an important topic for many stakeholders in the health system, like pharmaceutical firms and insurance companies. Therefore, programs aimed at improving patient adherence, even when promoted by pharmaceutical companies, should be well received by other players in the health system (namely physicians and regulators). Ongoing regulatory changes in Europe, for example, should facilitate direct targeting of adherence-related information to patients (European Commission 2008). As such, future research should strive to better understand nonadherence from a social network perspective and to clarify strategies that marketers can use to promote adherence.

Health Improvements

Finally, shared decision-making may translate into better health outcomes, such as less patient discomfort, greater alleviation of symptoms and better general health condition (Brody et al. 1989). Di Blasi et al. (2001) reviewed the results of 25 randomized controlled studies and concluded that there is consistent evidence that physicians who adopt a warm, friendly and reassuring approach are associated with better patient outcomes - for example, less pain and improved speed of recovery - than physicians who adopt a more formal and less reassuring approach. Still, the authors acknowledge that more evidence is needed to confirm the robustness of these findings.

Indeed, in another review, Guadagnoli and Ward (1998) concluded that although many studies find that shared decision-making yields positive consequences, other studies offer conflicting results. These conflicting results might be a reflection of patient heterogeneity. Not all patients seem to be willing to participate in their medical decisions. So, it is important to understand what type of patient-physician relationship is most suitable for different types of patients. We will now use existing evidence to suggest new ways of understanding different segments of the patient population.

Considering Patient Types in Patient-Centered Marketing

We define *patient-centered marketing* as a strategic orientation whereby life sciences firms aim their marketing efforts at holistically targeting both patients and physicians in order to: (i) provide treatment solutions that match the specific needs of distinctive patient niches; (ii) offer objective, unbiased, transparent and up-to-date information about available treatments; and (iii) stimulate patient empowerment. These patient-centered marketing principles should lead to marketing strategies that contribute to improved interactions between patients and their physicians and, ultimately, to improvements in treatment effectiveness and desirable patient behaviors, such as adherence to medical treatment. We argue that the current trend toward shared decision-making will accelerate the importance of patient-centered marketing for life sciences firms and influence the ongoing transformation of their business models. To more fully understand these trends, we now analyze market segmentation.

Market segmentation entails the development of specific marketing activities for homogenous sub-groups in the consumer population that exhibit significant differences in their consumption patterns (Kamakura and Russell 1989). Note that in the specific case of prescription drugs, the “consumer” is both the patient and the physician. Traditionally, the pharmaceutical

industry has focused on segmentation strategies for the physician side of the market. This focus is coherent with the typical pattern of allocation of marketing resources in the pharmaceutical industry. Despite the significant rise in DTCA expenditures in recent decades, in 2005, DTCA still represented only 14.2% of total industry expenditures in the promotion of prescription drugs in the United States; direct-to-physician efforts like detailing, journal advertising and drug samples represented the bulk of pharmaceutical marketing expenditures (Donohue, Cevalco and Rosenthal 2007). In most other countries in which DTCA is typically not allowed, direct-to-physician efforts are even stronger.

Pharmaceutical marketers tend to focus on direct communication to physicians, with resource allocation being determined by physician characteristics, such as market potential, prescription volume, responsiveness to marketing, or capacity to influence other physicians. The models used for segmentation in the pharmaceutical industry also tend to be disease-focused, with the nature and severity of illnesses together with the nature of third-party payment agreements assuming key roles (Smith et al. 2002). In fact, for a certain *disease category*, the focus of most firms has been to *convince physicians* that they are capable of offering the best-in-class treatment, i.e., a treatment alternative that offers superior value for the *average patient* when compared with competing alternatives. We call this type of approach a *mass therapy marketing approach*; it is depicted in Figure 6.

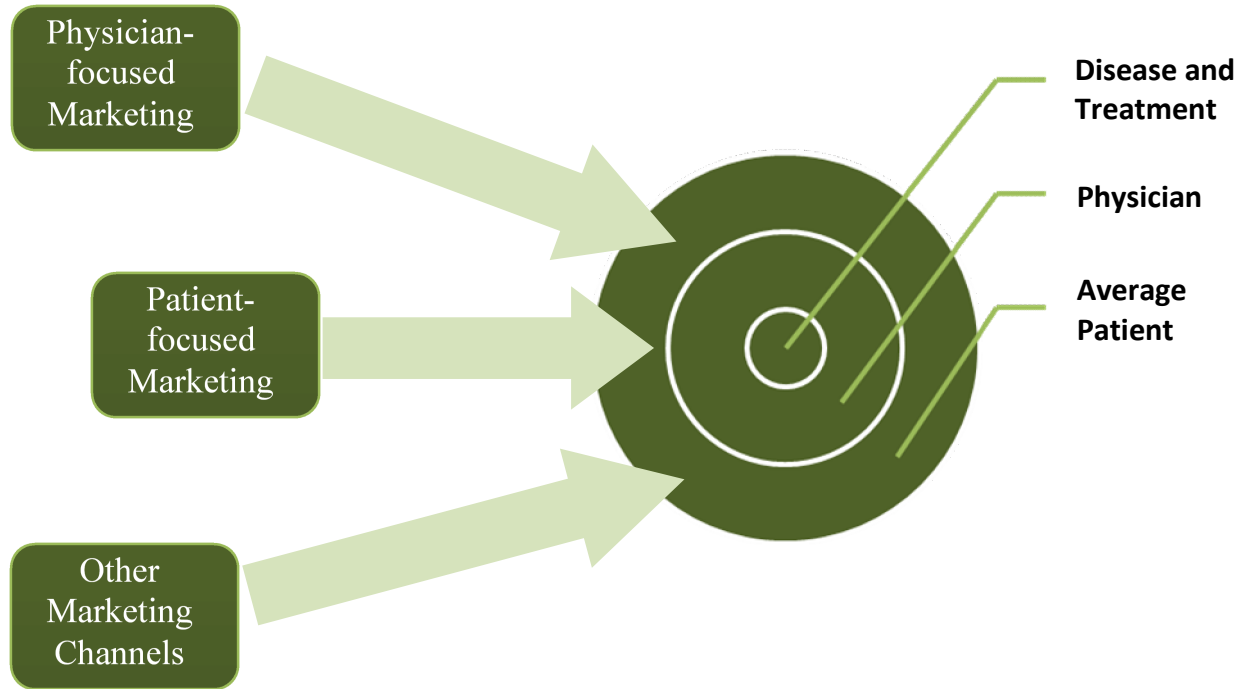


Figure 6 - Mass-therapy Marketing Approach

This traditional mass-therapy approach is closely related with the prevailing ‘blockbuster’ model in the pharmaceutical industry; this business model focuses on finding innovative drugs, which are then converted into brands capable of generating annual revenues in excess of US\$1,000,000,000. Despite its popularity during the last decades, the blockbuster model seems to be losing its appeal. Recent evidence suggests that life science firms need to shift away from blockbuster drugs to niche remedies and personalized medicine (The Economist 2007).

The current trend toward higher patient connectedness suggests that firms need to segment patients and address each patient niche with customized marketing strategies. There are two particular dimensions of patient heterogeneity worth discussing here: (i) heterogeneity in patient preferences for involvement; and (ii) heterogeneity in patient goals and expectations from medical treatment. We explore these in order to suggest how firms can understand underlying patient segments and improve the effectiveness of their marketing activities targeted at patients.

Patient-Level Segmentation based on the Desired Level of Involvement in Health Care Decisions

Not all patients are moving toward shared decision-making at the same rate. Some patients seek higher involvement in their health decisions, while others prefer to maintain a traditional paternalistic relationship with their physicians. Different preferences for involvement translate into differences in patient trust in their physician's capability of making the right choice, patient health information needs, and patient adherence to recommended treatment plans. Thus, segmenting patients according to their desired level of involvement in health care decisions is of great value to marketers. Such an approach can help determine which patients are more responsive to information provided through DTCA or other direct-to-patient channels such as websites with health information.

Prior research has already shown that for some segments of patients, DTCA has positive effects, while for others it has negative effects (Bowman, Heilman and Seetharaman 2004). One important implication for the life sciences industry is that patients who wish to have an active role in medical decisions are the most valuable targets of DTCA. These patients want to play an active role in their own care and, therefore, are more likely to decide to visit their physician after seeing an advertisement. Ironically, however, patients who are more in control of and involved in health decisions are also more likely to actively decide to not fill a prescription or adhere to a treatment regimen (Roselund et al. 2004). Therefore, firms need to understand the needs of different patient segments in order to leverage on their unique opportunities while addressing their specific threats.

In order to segment patients based on involvement, it is important to pinpoint what drives involvement preferences. Once such drivers are recognized, pharmaceutical firms can fine-tune

their marketing activities in order to effectively and profitably influence these patient segments. Some demographic characteristics, for instance, have been found to affect the level of patient participation and interest in medical decisions. For example, someone who is white, female, relatively educated and enjoys a relatively high level of health is likely to have a higher preference for involvement in medical decisions (Flynn, Smith and Vanness 2006; Street 2005). Age also plays a role, with younger patients desiring more active participation in their medical decisions (Cassileth et al. 1980; Rotter and Hall 2006). This correlation between age and participation might be explained by physician stereotypes about older patients, their weaker health status, the presence of a visit companion during medical encounters (which is common among older patients), and an unwillingness to challenge the authority of physicians (Roter and Hall 2006).

Consistent with the importance of various patient characteristics, Stremersch, Landsman and Venkataraman (2008) found that physician responsiveness to patient requests is correlated with the demographic composition of the area in which the physician's practice is located⁸. This finding suggests that physicians do not treat all patient requests equally. A recent study using unannounced actors posing as patients showed that primary care physicians engaged in more shared decision-making behaviors in response to patient requests (Young et al. 2008). The authors suggest that this observation is a consequence of a tendency of physicians to interpret overt participatory behaviors on behalf of patients, such as medication requests, as an expression of their preference for involvement and to adapt their interaction style accordingly. Combining these results with Stremersch, Landsman and Venkataraman (2008), we suggest that patient

⁸ We cannot directly infer participatory style from a physician's response to patient requests. Responsiveness to patient requests may occur even if participation is low (such as automatic accommodation of requests in the case of a consumerist relationship) and low responsiveness can also occur under participatory encounters (for example, a physician may persuade a patient against a certain medicine).

demographic characteristics (e.g., education, ethnicity, income) can moderate how physicians interpret and respond to patient requests.

Other, less explored patient characteristics that could lead to different preferences for involvement include differences in attitudes toward health and health providers as well as cultural or individual values. All of these characteristics may vary among people, regions and countries. Contextual effects, such as the specific condition suffered by a patient, can also trigger higher or lower levels of desired involvement (Cassileth et al. 1980). Under some circumstances, patients might prefer to discuss treatment alternatives and illness-related information but still delegate final medical decisions to the physician.

Patient-Level Segmentation Based on Needs and Expectations

Apart from a patient's desire for involvement, patient health needs and expectations about treatment can distinguish different niches of patients that subsequently can be addressed by distinct marketing strategies. We define patient *needs* as a feeling of dissatisfaction that motivates the patient to set specific goals to be achieved through medical treatment; patient *expectations* comprise the information the patient expects to receive about the treatment, the risks he or she is willing to incur and the effort he or she is willing to invest in reaching these predefined health goals.

The different psychological reactions of patients to disease, including stress, emotional arousal and distress, have been related to different health behaviors and distinct ways of coping with disease (Baum and Posluszny 1999). Similarly, we argue that patients with different lifestyles, family and personal needs, pain tolerance and risk attitudes will require different types of information and treatment approaches. In terms of marketing strategy, a deeper

acknowledgement and integration of this distinction should engender better ways of conveying information and even treatment solutions to different niches of patients.

Towards a Patient-Centered Marketing Approach

The critical and defining characteristic of the patient-centered philosophy is its focus on the patient, rather than on the patient's disease or the physician. Yet, by considering the pivotal role of the patient-physician relationship, and of mutual participation in treatment decisions, our call for more patient-centered marketing should not be confused with a call for more DTCA or for a more consumerist view of health care. Rather, in order to adopt a patient-centered marketing philosophy, firms should focus their strategies, including those directed at physicians, on (i) offering the best treatment for each *patient niche*; (ii) promoting more productive *patient-physician relationships*; and (iii) achieving more *desirable patient behaviors*, for example, greater adherence to medical recommendations. We depict this approach in Figure 7, which summarizes the ideas developed in prior sections.

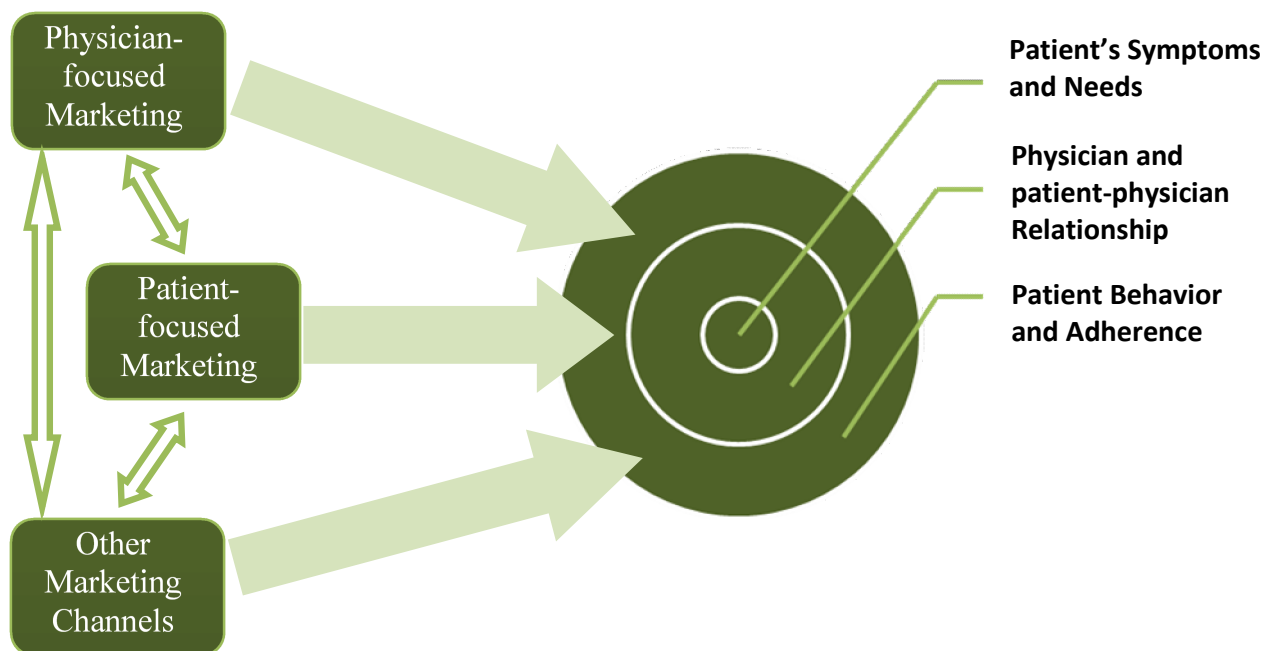


Figure 7 - Patient-Centered Marketing Approach

The challenge for firms is to find creative ways to address both the opportunities as well as the threats (including regulation, potential for physician backlash and public backlash) that a patient-centered approach makes possible. The Internet, for example, might still provide many new opportunities for firms to interact with patients and their physicians (Lerer 2002). AstraZeneca's *MySymbicort.com* is a good example of how a pharmaceutical company can develop a channel to directly communicate with patients, share information about a specific brand and promote tips and ideas aimed at increasing patient quality of life and adherence to medical treatment. Life science firms are becoming more alert to these challenges. Consulting companies like *DKI Direct* and *The Patient Practice*⁹, for example, are offering services aimed at

⁹ *DKI Direct* (<http://www.dkidirect.com/>) works with pharmaceutical companies to elaborate profitable patient relationship marketing strategies. *The Patient Practice* (<http://www.thepatientpractice.com/>) is a consulting firm specialized in providing advice on how firms and organizations can interact with patients. It was founded by Di Stafford, former head of patient-focused marketing at Pfizer UK.

improving the effectiveness of direct-to-patient marketing efforts. As this trend develops, there are many opportunities for scholarly research to positively impact the transition from a mass-therapy to a patient-centered marketing approach. Firms would certainly benefit from new tools and answers to the many open questions.

Limitations of the Patient-Centered Approach

There are three major barriers that may slow down the transition from a mass-therapy to a patient-centered marketing approach. First, there exists a “clash of mentalities.” Sales and marketing managers have developed very high levels of expertise in steering marketing efforts toward physicians; they thus may be reluctant to adopt a patient-centered view. Second, regulators, physicians and the general population are not used to seeing pharmaceutical companies communicate directly with patients. This is especially true outside the U.S. and New Zealand. Third, a reinforced focus on the patient suggests that pharmaceutical firms may need to develop new skills and use new, potentially costly, consumer channels to promote their products.

The arguments we have presented suggest that the change toward patient-centered medicine is already in progress. Failure to adapt marketing strategies to this new paradigm for medical practice will be even costlier than investing in these new skills. Therefore, firms should look for opportunities, rather than ruminate on the threats, in these trends. Some opportunities may even help ameliorate the three major barriers just discussed.

First, it is important to integrate patient-directed efforts with existing marketing actions directed at physicians and other stakeholders. Investing in a patient-centered marketing approach should not be seen as a replacement for other marketing channels. On the contrary, the objectives defined above for patient-centered marketing can only be achieved by promoting a greater

integration between marketing and sales as well as among the different existing channels, which include patients, physicians, hospitals, pharmacies and wholesalers, regulators, and insurers.

Second, marketing researchers in life sciences firms will need to gather information about patient treatment goals and expectations as well as in-depth knowledge about the meanings that patients attach to the biomedical aspects of their diseases. The knowledge they obtain from these research efforts should be used to craft valuable information that is not only targeted at the patient but also coordinated with physicians and the views of other stakeholders. This will help guarantee that the life sciences industry is perceived as a “life saving” rather than “sickness selling” industry.

Third, in order to gather such information, firms may need to develop further patient-focused market research competencies and invest resources in new marketing and communication channels. However, some reallocation of resources from physician channels to patient channels seems appropriate and might appease potential cost concerns that arise with increased patient-level segmentation. The rationale for this substitution lies in the recognition that the law of diminishing returns might already be affecting direct-to-physician marketing. Evidence shows that nowadays, direct-to-physician marketing is not as effective as firms would expect and desire (Kremer et al. 2008; Venkataraman and Stremersch 2007). Therefore, reallocating marketing resources from direct-to-physician channels to less saturated marketing channels, such as direct-to-patient channels, should bring new profit-improving opportunities for firms. We now conclude with a summary of the key strategic implications of patient connectedness.

Strategic Implications of Patient Connectedness

The discussion above highlights several important research topics that may be of interest to life sciences firms, patients, physicians and policy makers, as is synthesized in Figure 8.

First, more effort needs to be devoted to motivate physicians to encourage patient participation in medical decisions. Most physicians do not initiate shared decision-making; rather, patients still play a pivotal role in triggering shared decision-making behaviors (Street et al. 2005; Young et al. 2008). Many physicians may still feel uncomfortable with patient empowerment, and so firms, patients and policy makers should persuade physicians of the importance of shared decision-making. Other stakeholders such as payers (insurance companies, or governments), financial intermediaries, and pharmaceutical firms¹⁰ will indirectly benefit from increased patient participation in medical decisions.

¹⁰ See the value chain in the pharmaceutical industry in Stremersch and Van Dyck (2008).

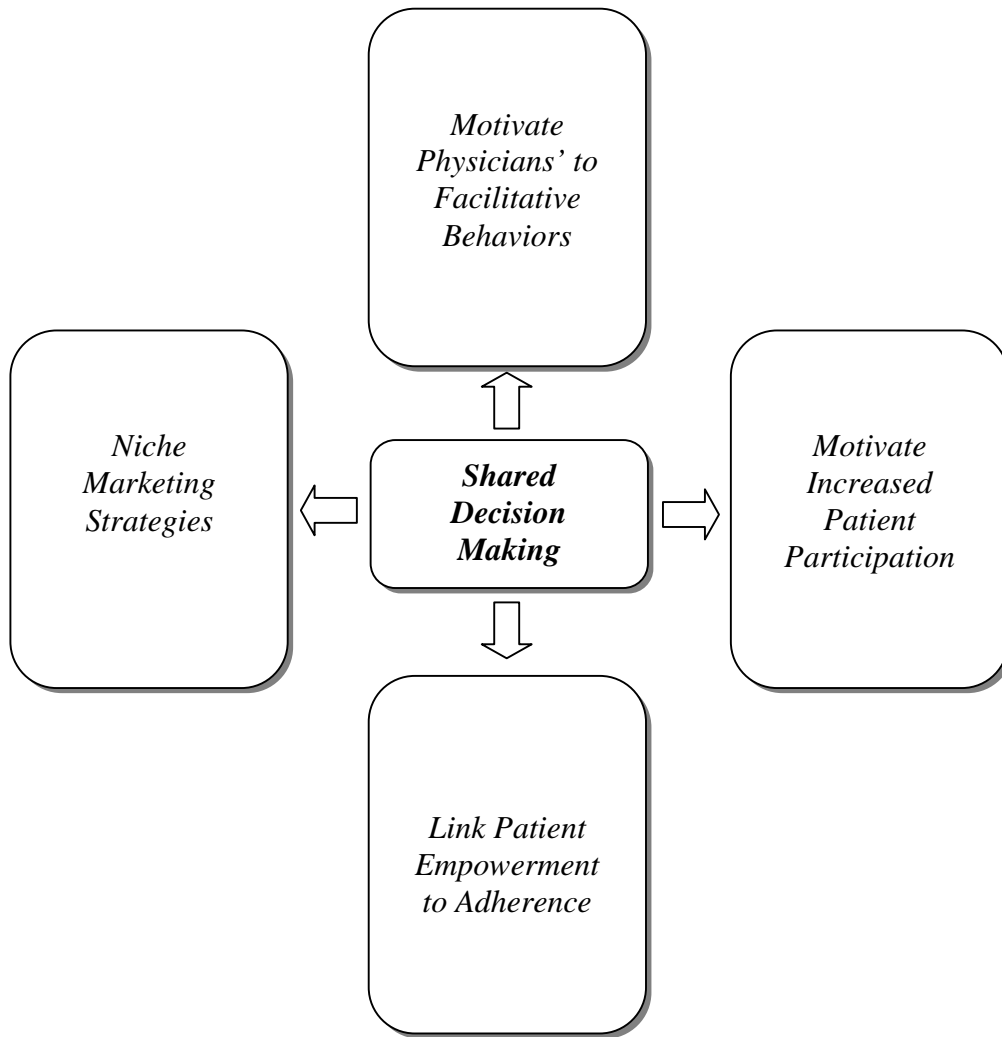


Figure 8 - Policy Recommendations to Leverage the Trend toward Shared Decision-Making

Second, firms should strive to understand patient needs and preferences regarding participation in medical decisions. Whenever deemed possible and desirable, firms can provide more information to patients in order to motivate patient participation in medical decisions. This can be accomplished through DTCA, by supporting patient organizations, or promoting websites directed to patients. However, if firms are too forthright in motivating patients to participate in treatment decisions without also persuading physicians regarding the usefulness of such an approach, they may be accused of interfering in undesirable ways with the patient-physician relationship (Hollon 1999; Moynihan, Heath, and Henry 2002; Wilkes, Bell, and Kravitz 2000).

Therefore, it is important to consider all the direct and indirect effects of marketing actions on the health system. Especially during the first trials of new patient-centered marketing strategies, pre-testing the proposed marketing actions in limited geographic areas or therapeutic markets may be wise.

Third, firms can use these reinforced patient-physician relationships to promote adherence to treatment and medical advice. This objective is desirable from the perspective of all involved stakeholders (Wosinska 2005; World Health Organization 2003). Thus, it is a particularly useful objective to pursue, since more collaboration among all agents involved in the health value chain can be expected as a result. In fact, according to Stremersch and Van Dyck (2008), stimulating patient adherence is one of the research topics with the most potential impact on most impactful research topics in life sciences marketing.

Fourth, given the above analysis, firms may choose to focus more on smaller patient niches. Life science firms should complement their business model, which still is very dependent on the blockbuster model discussed above, with niche-marketing strategies. This can be achieved through careful patient segmentation in which segments are defined using traditional demographic and health status variables as well as through more psychological constructs like patient beliefs, expectations, needs and their level of involvement in their health in general.

Future research in marketing should address the challenges and opportunities that increases in patient connectedness create to life science firms. We hope this chapter has at least achieved the following two goals: (i) to stimulate interest among social network scholars to examine patient-physician relationships; and (ii) to emphasize the role of the patient as increasingly central in medical decision-making research.

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