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Marketing and pricing strategies of online pharmacies

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ABSTRACT

Internet and e-commerce have profoundly changed society, the economy, and the world of health care. The web offers opportunities to improve health, but it may also represent a big health hazard since it is a basically unregulated market with very low consumer protection. In this paper we analyze marketing and pricing strategies of online pharmacies (OPs). Our analysis shows that OPs use strategies that would be more suitable for a commodity market than for drugs. These strategies differentiate according to variety (brand or generic), quality, quantity, and target group. OPs are well aware that the vacuum in the legislation allows them to reach a target of consumers that pharmacies cannot normally reach, such as those who would like to use the drug without consulting a physician (or, even worse, against the physician's advice). In this case, they usually charge a higher price, reassure the users by minimizing on the side effects, and induce them to bulk purchase through sensible price discounts.

This analysis suggests that the selling of drugs via the Internet can turn into a "public health risk", as has been pointed out by the US Food and Drug Administration.

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1. Introduction

Internet and e-commerce have profoundly changed society, the economy and the world of health care, not without ethical and legal consequences. Information about health care is widespread, and a considerable number of patients regularly use this tool before consulting a physician and during treatment. The web increases the opportunity for patients to acquire information that may be used either to form an opinion on their health status or to reduce anxiety [1]. A US survey found that 64% of the online population had searched for health information at least once in the previous 12 months, and a European sur-

vey found 71% of Internet users had accessed it for health purposes [2,3]. "Drugs" (requiring prescription or over the counter) was the fifth health topic searched for in the Internet, in 37% of cases [4]. Internet has also increased the opportunity for patients to purchase drugs on line [5]. In the nineties, several pharmacies began to operate over the Internet selling drugs without virtually any control, even for active principles requiring a prescription. According to the US Food and Drug Administration (FDA) there are at least 400 websites that both dispense and offer prescribing services and half of these sites are located outside the US. As reported on the FDA website, it has been estimated that the number of websites selling prescription drugs may now be closer to 1000. The number of websites, however, fluctuates from day to day and seems to be growing [6]. A recent survey of online pharmacies (OPs) found that their domain of registration was in 51% of the sample in the USA, and in 22% in Europe [7].

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It is very difficult to estimate the number of people buying online, the volume of drugs traded and the economic extent of this business. A survey conducted in the US by means of telephone interviews found that 4% of Americans had purchased prescription drugs on the Internet [8]. Back in 2000 the National Association of Boards of Pharmacy estimated that total sales of prescription-only medicines on the Internet in the USA was \$100 million, with an estimated increase in all pharmaceutical sales to \$1 billion by 2003 [9].

Moreover, the web has no geographical barriers and its global dimension makes it difficult to control virtual pharmacies since there is no international legislation regulating this complex issue [10–16]. The growth of an unregulated global drugs market may increase the risk of the spread of counterfeit medicines, coming from countries where drug production is not subject to the same quality control as in the US, Canada and Europe [17]. The World Health Organization has declared that “medicines purchased over the Internet from sites that conceal their physical address are counterfeit in over 50% of cases” [18]. In addition, many online pharmacies offer the consumer drugs without medical prescription and this can expose people to the risks associated with the intake of inappropriate drugs and can harm the patient–doctor relationship, transforming patients into consumers [19,20]. In fact, the prescription requirement aims to safeguard patients from risks associated with unnecessary drugs, and it assigns responsibility for cost/benefit assessment to the doctor, the professional who has the knowledge to make this decision.

This rapid development of online pharmacies is related to several factors. Internet allows to reach suppliers worldwide at any hour without having to visit shops and it may allow to get commodities at a lower price. For online pharmacies there is another important factor related to the controversial theme of direct-to-consumer advertising (DTCA) of prescription drugs, where proponents highlight the potential in terms of patient empowerment, while opponents claim that DTCA distorts the patient–doctor relationship, generating demand without evidence of health benefits [21,22]. In recent years patients have increased their involvement in the decision-making process concerning their health, a process that in the past was entirely in the hands of the physician, leading to general concern about the effect of such strategy on patient health [23].

In a world where even the concept of health has changed, shifting from the absence of disease to well-being and wellness, pharmaceutical product promotional strategies may be aimed at creating a demand for drugs, generating consumers/patients. This is a very serious hazard which may be exacerbated by the sale of drugs via the Internet. The sale online of drugs is open to everybody who has an Internet access and online pharmacies sell all types of drugs, including prescription drugs.

To our knowledge, the only cost analysis of online drugs was performed in the US, in a comparison between traditional pharmacies and OPs which found no economic advantage in buying online, both in year 1999 and in 2006 [24,25].

In our study we investigate the economic features of online drug sales, analyzing marketing and pricing strategies by online pharmacies for some “marker drugs” that were chosen either because of their high intrinsic risk if used inappropriately or because of their widespread use. To our knowledge, this is the first study which focuses on the relationship between OP features and the pricing patterns. Marketing and price strategies are studied using descriptive and econometric tools.

2. Methods

The study was conducted in May 2007 by the University of Brescia, as a collaboration between the Institute of Hygiene, Epidemiology and Public Health and the Department of Economics. It belongs to the *Internhe@lth* Study, a wider project aimed to investigate the impact of Internet on the world of health.¹ Using the information of the database of an analysis of online pharmacies [7] belonging to the *Internhe@lth* Study, we investigated the selling characteristics of four active principles which we selected as “marker drugs” because of their high intrinsic risk if used without medical control. The risk may derive from an excessive dosage or because of the interactions with other medications the patient has been prescribed, but it can be even due to individual susceptibility. Two of them act on the nervous system: amitriptyline (an old generation antidepressant) and fluoxetine (a new generation antidepressant). Sildenafil is the best-known and most widespread active principle in erectile dysfunction therapy and tramadol is an atypical opioid painkiller.

For each active principle we searched for their availability in all the OPs selling the four drugs that we found with the “Google” search engine using as keywords the following combinations: “online pharmacies”, “online drugstore”, “drugs online” and “medicines online”, as described in Orizio et al. [7].

We analyzed their general characteristics using an ad hoc Codebook, according to the Content Analysis method [26] and for each pharmacy we recorded the characteristics that were relevant for our analysis. One of the most controversial areas for e-commerce is what legislation should be applied to these transactions. For this reason, we investigated whether the OPs declared a physical location (state, town, street and number) or whether they presented themselves only as a virtual interface. We recorded data on the type of drug sold (brand or generic) and on the declared shipping location. The first variable should capture the market segment chosen by the online pharmacy while the second may be interpreted as a proxy of the production site, and therefore of the quality of the product.² To ana-

¹ The first result of the *Internhe@lth* Study have been presented at several Scientific Conferences, as the 6th Interdisciplinary Conference on Communication, Medicine and Ethics “COMET 2008” (Cape Town, South Africa, 2–4 July 2008) and the 16th European Conference on Public Health of the European Public Health Association, EUPHA (Lisbon, 6–8 November 2008).

² According to the most recent literature on the matter, the majority of counterfeit medicines are produced in developing countries such as China, India, Russia and the Philippines [30].

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