

Paradigm Shift in Pharmaceutical Industry: Review of Literature on Changing Online Marketing Practices

*Dr. P.Bharathi , PDF and Prof.P.Vijaya Lakshmi, Ph.D Dept of Communication and Journalism
Sri Padmavati Mahila Visvavidyalayam, Tirupati,*

Purchasing drugs or medicines online is the most recent pattern among the Indian patients and customers. With this expanding pattern of purchasing prescriptions on the web, number of online drug stores likewise increment. The annual Indian pharmaceutical market is measured at around Rs 79,000 crore, growing at around 20%. Most of the pharmaceutical companies are very aggressive in marketing of their products.

The aggregate income created by the online offers of Human services items in India was INR 5,075.9 million in FY'2015 which has expanded from INR 771.0 million in FY'2012 at a CAGR of 87.4 amid the period FY'2012-FY'2015. The Online medicinal services items advertise has displayed an astounding development amid the traverse of most recent five years on the grounds of extension in item extend and also surge in online commercial centers. In accordance with the Business incomes, the normal request estimate has likewise broadly improved which has been enlisted at INR 1,762.0 amid FY'2015. Besides Direct-To Consumer Advertising (DTCA) and other traditional marketing practices, pharmaceutical companies generate revenues through different activities which are complex in nature.

The advent of digital technology has changed the way the information is accessed, processed and used and health information is not an exceptional. The medical community and public started using heavily the Internet for health information. Modern pharmaceutical industry goes beyond the traditional business of marketing and selling of medicines.

The first Internet-pharmacies appeared in the USA at the end of 90s of the last century as the evolved form of medicines order by mail, which had been practiced in this country since 1872.(Carlise Goerge ,2006)

The last few decades have seen a dramatic transformation of the consumer's role in health care. Physicians' authority over the prescribing of drugs has been directly challenged by DTC advertising campaigns urging consumers both to self-diagnose and to demand specific medications from their provider (Donohue,2006). Today, consumers especially youth are informed and aware of the medicines being promoted through different sources including internet and social media and are able to take their own health care decisions. They are determent, aware and well informed that they know longer are scared to question the suggestions of the doctors Gupta and Udupa, 2011).

Pharmaceutical companies have shifted to interactive online platforms like Facebook, Twitter, Google plus, company websites etc. Social networking provides a great opportunity for the pharmaceutical

industry to reach out to new and broader customer base. The online provides an unique experience to consumers as it is direct, interactive and engaging medium (Bhagat and Dutta, 2012).

Online as a new medium for pharmaceutical companies

Physicians and Pharmacists were traditionally viewed as gatekeepers of prescription medicines and a source of health information for the patient. DTCA undermines their traditional gate-keeping role, by usurping their traditional position. Pharma companies adopted different types of media for their DTCA campaigns, as - print advertisements, television and radio advertisements and the online as new media has emerged to provide information on the websites for prescription of drugs (Vigilante Jr. and Wogalter, 2001). Research on pharmaceutical publicizing on the web has been predominantly theoretical. For example, Rosenthal et al. (2002) proposed that the hidden purpose for the development of direct to consumers (DTC) pharmaceutical promoting may have been the "desire of patients to be engaged with choices about their health care driven partially by the plenty of health related information accessible on the Web, may have inspired pharmaceutical companies to connect with consumers"

According to Parakh et al (2006) in recent times due to increase in literacy and health awareness of people, pharmaceutical companies believe the need to come close to a large group of people to notify them about their products and to earn more profits.

The enlarged use of the online and social media technology has also been connected with direct-to-consumer advertising (DTCA) to market health-related products (Liang and Mackey, 2011). The overall DTCA expenditures show declining trend and the Internet-based DTCA (eDTCA) graph increase in investment indicating a paradigm shift in marketing strategies from traditional media (eg, TV, radio, and print) to digital media (Nielsen, 2011). But at the same time, greater than before access and use of unfettered e DTCA by illicit actors, specifically online drug sellers, is especially disturbing. This includes social media-based e -DTCA (eDTCA2.0) to market a wide variety of medical products that are of questionable quality, origin, and authenticity. The use of eDTCA by these actors is a source of concern as it often contains content that is misleading and illegal (Liang and Mackey, 2011).

Almost all of pharmaceutical companies today have a face book page, twitter feed, and sponsored blogs. Internet has revolutionized the sale of medicines so that consumers can select and buy medicines, often delivered across national and state boundaries, without face-to-face interaction (Bessel et al., 2003). Many certified e-pharmacies are currently available on the Internet but an important number of illegal drug sellers are also operating on the web. E-pharmacies look appealing to consumers because they save trips to doctors, avoid waiting time and often offer reduced prices.

Some drug companies are also developing health management tools for mobile applications, which are available in online markets such as the Apple iTunes Store and the Android Market. Although many early smart phone apps focused primarily on diabetes management tools, there has now been rapid

expansion into other disease categories (Ernst & Young ,2011). Although people can get information directly from pharmaceutical companies' sites, they can also search for information about particular drugs within popular social media sites. In particular, Facebook, Twitter, and YouTube are some of the most common social media platforms used by customers (Duggan, 2014). Consumers choose to buy through internet because convenience, price, avoidance of embarrassment or being able to buy products that would not otherwise be available without prescription (or at all) in the purchaser's country. In developed countries, online pharmacies supply so-called 'lifestyle drugs' such as for weight loss, hair loss or erectile dysfunction. (Glover-Thomas N and Fanning , 2010).

Emmaus (2001) finds that less than 6 percent of patients obtained a prescription for the advertised drug after being prompted by direct-to-consumer advertising to ask their doctor about the drug. The internet offers the possibility of obtaining medication that is not provided by the public healthcare system in the purchaser's country. There is likely to be less demand for therapeutic medication in countries with "high social security coverage" (such as France) given that the price of the relevant pharmaceutical may actually be higher than in domestic pharmacies(Mahé , Saiag et.al,2009) .The Royal Pharmaceutical Society of Great Britain (RPSGB) has identified the most popular purchases online (or at least products being sold as such) as Prozac (an antidepressant), Viagra (for erectile dysfunction), Valium (a tranquiliser), Ritalin (a psychostimulant), Serostim (a synthetic growth hormone) and Provigil (a psycho stimulant) (Mainous and Everett ,2009).

A study in USA has also shown that antibiotics are commonly available online without prescription (Krebs B ,2005). Some of the most commonly bought products are associated with conditions where social stigma is involved, suggesting that people might feel uncomfortable about talking to their doctor about their condition or about these pharmaceuticals. They might also think that such products would not be prescribed by a doctor, or they might have been refused them in the past. It may also offer the chance of obtaining the medication at a lower cost than through other channel (Schulz and Domenighini et al. 2009). Patients may be purchasing drugs without professional oversight; some drugs may be unapproved or have safety concerns. Some online pharmacies have been found to sell counterfeit drugs resulting in patient death and injury(Liang and Mackey 2009).But the integrity and privacy of physician-patient confidentiality is suddenly compromised when pharmaceutical companies push to get patients to ask for a drug by name (Denecke, et al., 2016).

The use of descriptions can cause strong associations in a pharmaceutical drug promotion. In fact, Biegler & Vargas (2016) found that patients had statistically significant positive feelings, intentions and beliefs about a drug when the advertisement featured positive imagery over neutral or negative imagery. These patients were more likely to ask for a prescription of the drug when talking to their doctor at their next visit..The online health information & DTC Campaigns, greatly influenced the health discourse of the consumers. Internet sites claiming to sell authentic Viagra, shipped counterfeit medication 77% of the time; counterfeits usually came from non-U.S. addresses and had 30%-50% of the labeled API (active

pharmaceutical ingredients) claim. Caution is warranted, when purchasing Viagra via the Internet (Campbell,2012).The internet also facilitates access to antibiotics without a prescription. It is known that self medication using antibiotics takes place in all countries, but currently there is limited evidence as to the extent that antibiotics are actually purchased over the internet without prescription for this purpose(Mainous ,2009).

Some companies have adopted a very innovative strategy of supporting unbranded websites, such as iwalkbecause.org etc. The content on such websites is mostly patient generated, allowing the company to gather vital information about the patients' experiences. At the same time, a link which directs users to the company's branded website serves the twin purpose of facilitating a quick market research and fostering relationship with patients' groups(Sriram,2011).Although marketers claim that enhancing awareness and understanding of diseases, symptoms, and treatments are the major contributions of DTCA, there is no evidence that direct-to-consumer advertising results in any improvement in health outcomes (Lexchin and Mintzes, 2002).

Innovative methods adopted by Pharma Companies Online

The open nature of social media also presents limitless opportunities for stakeholders to use the online community to promote their products and services. In 2007, a pharmaceutical firm found editing articles on Wikipedia and deleting side effects of certain medicines. Also some pharmaceutical companies are sponsoring e-patients to blog about their disease, which includes writing about some drugs in their blog entries. Social media is not just about designing and publishing content; it is also crucial to consider the way content is disseminated because it has the potential to become viral in the online community (lau et. al, 2012). As per the investigation of Prabha Raghavan (2016) in a study of 20 Indian medication creators, the Indian Pharmaceutical Industry is clearing crosswise over Rs.1036 billion pieces of the overall industry and is going into the advanced floods of advancements .The examination additionally found that, Mobile Apps and Social Media are assuming a more extensive part in this present ventures' development.

Organizations are extremely well underscoring, on checking the discourses going on the web about the products. Sanofi, a world leader in vaccines, has proved to be an early entrant by utilizing the social media landscape in India for its brand of flu vaccinehas ended up being one among early participants in India by using the online networking scene in India for its image of influenza immunization. They made the 'Moms against Influenza' crusade in Mumbai where they focused on 'DigiMoms' or moms who frequently get to person to person communication destinations. This helped them distinguish and fabricate an objective network for their influenza immunization. They propelled the battle on Facebook and through this page, sorted out various surveys, tests, dialogs focused on the point of basic influenza and influenza immunizations. The battle has produced in excess of 12,000 likes to date, with more than 3,000 in the principal month itself (Sriram ,2013).

The World Health Organisation estimates that over 80 per cent of the world's population relies on traditional plant-based medicine for their primary health care needs (Bannerman et al ,1983). During the last decade the demand for medicinal plants has grown significantly in Europe and elsewhere. The international market for medicinal plant-based products is estimated to be US\$ 60 billion (and is growing at the rate of 7 per cent per annum. There is an extensive nearness of a little, disorderly miniaturized scale fabricating units and drug stores which makes it extremely hard to evaluate the general turnover of the business. (Kamboj ,2000) .Generally it was assessed at around INR 88 billion for the year 2010 (Krishnakumar, 2010). Numerous drug stores are advertising the restorative plant-based items online which should be examined.

Concerns about Online Pharma Marketing

Despite the growth of online pharmacy industry, e-pharmacies pose many problems. In the opinion of many experts, Internet pharmacies display a disregard for the health of those buying from their websites. It is possible to buy prescription-only medicines on their sites (such as weight-loss drugs and anti-depressants) with little or no diagnosis or promise of follow-up care, making it easy for people to buy these powerful drugs. Usually, there is no address to write to or a phone number to complain, putting customers in void when they want to complain. Often there are no assurances that the doctors who prescribe the drugs are authentic or that the personal data about the patient is protected. Nor are the drugs they offer always safe or genuine (FDA, 2005).

A recently published study on fourteen thousands inhabitants of Western European countries shows that one of five people questioned have already acquired medicines from Internet without medical prescription (WHO International Medical Products Anti-Counterfeiting Taskforce, 2010). Thus, Western European population is purchasing medicines from the Internet and spending approximately 10.5 million Euros per year from illicit sources. The complexity and seriousness of this problem increases, as the World Health Organization (WHO,2010) estimates that around 50% of the medicines commercialized on the Internet conceal their physical address have been found to be counterfeit.

The presence of drug efficacy claims and illegal pharmacies on social media sites is important to examine because these media have the potential to convey a degree of credibility to content they host (Flanagin and Metzger,2008).Furthermore, the international access to pharmaceuticals provided by the internet may lead to confusion about medicine names and labels. For example, a medicine as ubiquitous as paracetamol is known throughout the world by a variety of different names. In the USA, for example, it is called acetaminophen, but is often known simply through a brand name such as Tylenol,²⁵⁹ while in Israel paracetamol is often known through another brand name, Acamol (O'Dowd,2009).

Through the heavy e-mail spam that is now on the Internet, the offer of all kinds of drugs and miraculous treatments for any disease (cancer included) is such that virtually no Internet user can stay away from it. The main target of this kind of marketing is customers who have chronic health problems and

need medications regularly and those who do not have medical insurance who use e-pharmacies to shop for the best deals (Fonseca, Pedro Barroso, 2007).

Cancer patients are potential clients, especially when miraculous results are promised to emotionally weakened persons. As an example, in June 2004, the US Food and Drug Administration announced the sentencing of a man who swindled cancer patients by heavily advertising and selling Laetrile, also known as vitamin B-17 or apricot pits. Although he announced it to be a dietary supplement, Laetrile is actually an unapproved drug. The highly toxic product has not shown any effect on treating cancer (FDA, 2005). Another example is the warning letter issued by FDA to the **Cellular** Wellness Foundation in September 2004, citing claims made on its website that the product Cellular Tea was effective in treating serious diseases such as cancer (FDA, 2005).

On March 26, 2009, the FDA issued letters of warning to 14 major pharmaceutical companies, regarding their Internet ads that accompanied keyword searches on Google and other search engines. The FDA stated that the ads were misleading because they did not include information on the risks or side effects associated with a drug (Porter, 2009).

Maybe more alluring to pharma companies Facebook and other internet based social media offer venues for advertiser controlled, advertiser affected, or basically beneficial purpose related promoting openings, with the end goal that consumers inspired by a social issue (eg: childhood obesity, heart disease) might be converted to potential consumers of a relevant product (eg, cholesterol lowering medication) (Malloy, 2010). Drug websites' structures and layouts influence users' perceptions of website credibility. Pharmaceutical companies often display prominent photographs, fonts, and graphics on their product pages. By contrast, important safety information is sometimes hidden in plain view, thereby satisfying the FDA's Fair Balance requirement while still being hardly noticeable (Robins & Holmes, 2009).

One site was falsely portrayed as "independently operated and not managed by" Novartis. The site repeatedly endorsed Gleevec as a treatment option, but identified no other drugs in the same class. Despite the FDA's warnings, consumers continue to access these promotional sites. (Comer, 2011). Since one-third of physicians' and many of patients' search terms are branded medication names, it is important to consider the influence of drug company websites, which may mislead viewers as any other form of marketing can (Parekh, Mayer, Rojowsky, 2011). Some pharmaceutical companies also use so-called unbranded websites to provide information about diseases that can be treated with medications that they manufacture. Often, they do so without revealing their sponsorship of these sites. (Ebeling, 2011).

In 2010 the FDA warned pharmaceutical giant Novartis about its sponsorship of three distinct websites that provided information on different types of cancer. All three sites, disguised as informational, promoted Gleevec (a Novartis product) for unapproved uses and dosages while underplaying the drug's risks (Rulli, 2010).

Beyond overestimating source credibility, users are vulnerable to online pharmaceutical misinformation when they are unaware of whether the source of health information is a drug company or a more neutral

party (e.g. a health information website). Given the Internet's speed and ease of use, web users are also often unaware of drug misinformation because they seldom take time to verify the reliability of the sources they access. (Eysenbach Köhler, 2002) A 2002 observational study in Germany found that e-patients generally do not read disclaimers, disclosures or 'about us' sections on health sites (Eysenbach Köhler, 2002).

To address the problem of online pharmacies in foreign countries, the FDA has begun to send "cyber letters" to foreign pharmacies that it suspects are selling illegal prescription drugs to Americans.⁴⁷ The cyber letter is only a warning letter that puts the pharmacy on notice that it may be violating U.S. laws, and that U.S. customs officers may refuse entry of packages delivered from their site into the country (Sara, Zeman, 2010). Snapdeal and Shopclues e-commerce companies operating in India, faced legal issues when the Maharashtra FDA filed a case against it for selling prescription drugs online without an authentic pharmacy retail license. Snapdeal and Shopclues violated the provisions of the Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954 and directly contravening Section 18 (c) of the Drugs and Cosmetics Act, 1940.

Lawmakers and industry participants are aware of the need for a cohesive system of regulation. Although the need has been identified, there is still a lack of consensus on the means to the end. A recent white paper by Tata Consultancy Services (TCS, 2011) suggests that the Indian pharmaceutical industry can monitor conversations on social media. Some of the areas where listening could benefit the industry were understanding the effects of drugs in real time, monitoring off label use, educating and engaging patient communities, interacting with Sales personnel, getting insight into patients' experiences, brand positioning etc.

There is no specific law to deal with online pharmacies in India but multiple laws govern online pharmacies in an indirect manner. The Drugs and Cosmetics Act, 1940, and the Drugs and Cosmetics Rules, 1945, have guidelines on the sale of Schedule H and Schedule X drugs. These can be sold only on prescription and there are specific rules, including for labelling and bar coding (Serena, 2013).

The present medication control in India dwells under Medications and Beautifying agents Act, 1940, Medications and Beauty care products Guidelines, 1945, Drug store Act, 1948, Indian Medicinal Act, 1956 and Code of Morals Directions, 2002, Data Innovation (IT) Act, 2000 etc.. The forces of direction have been appropriated between the middle and the state governments. Focal Government is in charge of authorizing of medication imports and the state governments are in charge of the fabricate, deal and dispersion of medications. Each state has its own Medications Control Administration

Be that as it may, the drugs and cosmetics Act, 1940 does not separate between meds sold on the web or disconnected; there is no strong direction/approach accessible to manage e-Pharmacy activity in India. Accordingly, the wellbeing service and Focal Medication Standard control Association (CDSCO) have been cooperating on e-Pharmacy direction strategy, which is required to streamline the online offers of

drug. Regardless of this the present advancements of entrepreneurial ventures in e-Pharmacy Segment has officially settled the e-Pharmacy example of overcoming adversity for a more prominent reason. In this view, the IIPA without e-Pharmacy arrangement by the legislature reported a deliberate "Implicit rules", as this Code agrees to existing Medication and Restorative Act, 1940 proposes that-

- The e-drug stores will just process booked meds (Calendar H, H1) against a substantial physical or filtered duplicate of the medicine. They won't process plan X and other propensity framing pharmaceuticals.
- The e-drug stores will just administer medications through authorized drug stores and will convey solutions "securely and with fitting directions", as indicated by the code.

In addition, The Draft Pharmaceutical Approach of 2017 additionally empowers e-Pharmacies, and tries to go up against the intense appropriation campaign by permitting e-drug stores, which will chop down channel costs.

Conclusion

Online drug pharmacy might be demonstrated as hazardous pattern in future if not directed appropriately. Administrative experts and legislature of India should consider existing drug store framework and drug specialists while surrounding the guidelines for e-drug stores. Patients' well being and nature of medication should vital while surrounding rules. A lot of research has been completed in western nations on online pharmacy promoting and their impact, certainties from quickly creating nations like India is as yet lacking. There is a requirement for look into on buyers' mindfulness levels, perceptions, attitudes, responses, expectations and desires for the patient populace and doctors which are the objective gathering for pharmaceutical marketing

References :

1. Annie Y.S. Lau, Elia Gabarron (2012). Social Media in Health — What are the Safety Concerns for Health Consumers? Health Information Management Journal Vol 41, Issue,2
2. Bhagat & Dutta (2012). Social Media Promotion: Role of IMC in Rising above the Clutter, National Conference on Emerging Challenges for Sustainable Business, 46(3), 1437- 1451.
3. Biegler, P. & Vargas, P. (2016). Feeling is believing: Evaluating conditioning and the ethics of pharmaceutical advertising, Journal of Bioethical Inquiry. doi: 10.1007/s116373-016-9702-8.
4. Campbell N, Clark JP, Stecher VJ, Goldstein I. (2012). Internet-ordered viagra (sildenafil citrate) is rarely genuine. J Sex Med. Nov;9(11):2943-51
5. Carlise Goerge (2006). Internet Pharmacies: Global threat requires a global approach to regulation. Hertfordshire Law Journal, 4(1), 12-25.

6. Comer B. (2010). Consumers want unbranded sites: despite FDA warnings. Medical Marketing and Media.. Available at <http://www.mmm-online.com/consumers-want-unbranded-sites-despite-fda-warnings/article/169950/>
7. Denecke, K, Bamidis, P., Bond, C., et.al. (2015). Ethical issues of social media usage in healthcare, IMIA Yearbook of Medical Informatics, 137-147.
8. Donohue (2006). A History of Drug Advertising: The Evolving Roles of Consumers and Consumer Protection, Milbank Q. 2006 Dec; 84(4): 659–699.
9. Duggan M, Ellison NB, Lampe C, Lenhart A, Madden M. Social Media Update 2014. Washington, DC: Pew Internet & American Life Project; 2015.
10. Ebeling M (2011.) “Get with the program!”: pharmaceutical marketing, symptom checklists and self-diagnosis. Soc Sci Med 73:825–32
11. Emmaus, P. (2001). International survey on wellness and consumer reaction to DTC advertising of prescription drugs. Prevention Magazine, 46–55
12. Ernst & Young (2011). Do prescription drug advertisements educate the public?, The consumer answers. Drug Inf J 39:25-33.
13. Eysenbach G, Köhler, C. (2002). How do consumers search for and appraise health information on the World Wide Web? Qualitative study using focus groups, usability tests, and in-depth interviews, BMJ 2002; 324: 573–7
14. Flanagan AJ, Metzger MJ. (2008). Digital media and youth: unparalleled opportunity and unprecedented responsibility, Digital Media, Youth, and Credibility. Cambridge, MA: The MIT Press; pp. 5–28.
15. Fonseca, André Damas Mora, Pedro Barroso (2007). “The Web and the New Generation of Medical Information Systems”, Outcome Prediction in Cancer, Pages 391–414.
16. Glover-Thomas N. and Fanning J. (2010). Medicalisation: The role of e-pharmacies in iatrogenic harm, Medical Law Review 18(1): 28–55.
17. IMPACT Brochure: Counterfeit Drugs Kill – WHO International Medical Products Anti-Counterfeiting Taskforce; <http://www.who.int/impact/FinalBrochureWHA2008a.pdf?ua=1> (appearance: 2010-07-08).
18. José Manuel Fonseca, André Damas Mora, Pedro Barroso (2007), “The Web and the New Generation of Medical Information Systems”, Outcome Prediction in Cancer, Pages 391–414.
19. Kamboj, V.P. (2000). Herbal medicine, Current Science: Vol. 78 (1), pp. 35–39

20. Krebs, B. (2005). Few online 'Canadian pharmacies' based in Canada, FDA Says Washington Post 14 June, available at: <http://www.washingtonpost.com/wp-dyn/content/article/2005/06/14/AR2005061400254.html>.
21. Krishnakumar, A.K. (2010) Ayurveda Sector in India Challenges, Potential & Way Forward. [Online] Available from: <http://cii.in/WebCMS/Upload/Mr%20A%20K%20Krishnakumar.pdf>
22. Liang and Mackey (2011). Global Reach of Direct-to-Consumer Advertising Using Social Media for Illicit Online Drug Sales, *Journal Med Internet* 15(5).
23. Liang BA, Mackey T. (2009) .Searching for safety: addressing search engine, website, and provider accountability for illicit online drug sales. *Am J Law Med* ;35(1):125–84 .
24. Liang BA, Mackey TK. (2011). Prevalence and Global Health Implications of Social Media in Direct-to-Consumer Drug Advertising. *J. Med. Internet Res.*;13(3):e64
25. Mahé E, Saiag P, Aegerter P and Beauchet A (2009). Shopping for psoriasis medicine, internet *Journal of the European Academy of Dermatology and Venereology* 23: 1050–5. 292
26. Mainous ,A.G, Everett, CJ., Post RE, Diaz VA and Hueston WJ (2009). Availability of antibiotics for purchase without a prescription on the internet, *Annals of Family Medicine* 7(5): 431–5.
27. Malloy, M. (2010). What is the role of unbranded websites in pharmaceutical digital marketing. *DTC Perspect.*;9(3):27- 28.
28. Mintzes, B., M.L. Barer, R.L. Kravitz, B. Bassett, J. Lexchin (2003). How does direct-to-consumer advertising (DTCA) affect prescribing? A survey in primary care environments with and without legal DTCA, *Canadian Medical Association Journal* 169(5) 405–412.
29. Campbell, John P., Clark, Vera J. Stecher, Irwin Goldstein (2012). "Internet-Ordered Viagra (Sildenafil Citrate) Is Rarely Genuine," *Journal of Sexual Medicine*, volume 9, issue 11.
30. Nielsen (2011). *webcite* State of the media: social media report Q3 2011 available at <http://www.nielsen.com/us/en/reports/2012/state-of-the-media-the-social-media-report-2012.html>.
31. O'Dowd, A. (2009). GPs and hospitals do not communicate adequately about patients' medicines, *British Medical Journal* 339: b4450.
32. O'Malley AJ, O'Dowd A. (2009). Impact of Alternative Interventions on Changes in Generic Dispensing Rates, *Health Services Research*. 41(no 5):1876–1894.

33. Pankaj Gupta,& Aaditya Udapa.(2011).Adverse Drug Reaction Reporting and Pharmacovigilance: Knowledge, Attitudes and Perceptions amongst Resident Doctors, Journal of pharmaceutical sciences and Research , Vol.3(2), 2011,1064-1069.
34. Parekh,(2009) .Risks and benefits of direct to consumer advertising on patient - provider relationships , Journal Of The International Society For Pharmacoeconomics And Outcomes Research.
35. Porter A.(2011). FDA Cracks Down on Pharma Search Ads. *Search Engine Land*. April 13, 2009. Available at <http://searchengineland.com/fda-cracks-down-on-pharma-search-ads-17323>.
36. Prabha Raghavan. (2016), ET Bureau “Indian pharma sector going digital at a fast pace”, http://economictimes.indiatimes.com/articleshow/55146271.cms?source=contentofinterest&utm_medium=text&utm_campaign=cppst.
37. Robins, D.& Holmes,J.(2009).Consumer health information on the Web: the relationship of visual design and perceptions of credibility, *J Am Soc Inf Sci Technol* 61:13–29.
38. Rosenithal. Eerst (2002),Promotion Of Prescription Drugs To Consumers, *New England Journal of Medicine* 2002; 346:498-505.,
39. Rulli, KR. (2010). Warning Letter: Novartis Pharmaceuticals Corporation. Department of Health and Human Services, Food and Drug Administration, Available at <http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation>.
40. Sara E. Zeman (2001).Regulation of Online Pharmacies: a Case for Cooperative Federalism, 10 *Annals of Health Law*, 2001, 105, <http://academic.udayton.edu/health/syllabi/health/unit03/lesson20e.htm>.
41. schulz and domenighini et al. (2009) .Cyber drugs: a cross-sectional study of online pharmacies characteristics, *European Journal of Public Health*, Volume 19, Issue 4, 1 August 2009, Pages 375–377.
42. Serena Josephine, M.(2014)."State to crack down on online pharmacies", *The Hindu*..
43. Sriram,B.(2012).Leveraging social media for success, *ExpressPharma* ,available at <http://pharma.financialexpress.com/sections/management/1344-leveraging-social-media-for-success>
44. Vigilante Jr. and Wogalter P. (2001). Direct-To-Consumer (DTC) Advertising of Prescription Medications on the World Wide Web: Assessing the Communication of Risks. Proceedings of the Human Factors and Ergonomics Society 45th Annual Meeting, 1279- 1283.