Relative Placement of Benefit and Risk Information in Direct-to-Consumer Advertisements of Prescription Drugs on the World Wide Web

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Abstract

This research was conducted to determine how risk information is presented within direct-to-consumer (DTC) drug advertisements on the World Wide Web (WWW). Twenty prescription drug manufacturers' web sites were examined with respect to risk and benefit information placement. Measured were (a) the number of clicks required to view the benefit and risk information from the home page, (b) the number of clicks to the risk information from the benefit information, (c) the number of clicks to the benefit information from the risk information, (d) and whether scrolling was required to view both benefit and risk information. Also measured were whether the benefit and risk information was on the same page and whether a separate file reader was needed to view the risk information. Results indicated that the risk information is more difficult to find on DTC prescription medication web site advertisements compared to benefits. More clicks from the home page were required to find the risk information than the benefits. Also, scrolling was required more often to find the risk information compared to the benefits. Implications of these results are discussed with respect to the equal balance of risk and benefit information that is required by U.S. Federal Regulations.

Introduction

The practice of promoting prescription medications directly to consumers (DTC) gained popularity in the early 1980s (Wilkes, Bell & Kravitz 2000). Before this prescription medication advertisement campaigns were aimed almost exclusively to the professional medical community. However, in 1997, the U.S. Food and Drug Administration (FDA) issued new guidelines for the advertisement of prescription medications within the broadcast (television and radio) and print media (newspaper, magazine, and billboards). These new federal regulations made it easier for drug manufacturers to advertise their prescription drugs directly to the consumer in both mediums.

By the year 2000, the use of DTC advertising for prescription medications increased dramatically. A recent FDA survey found that approximately 70% of respondents had seen or heard a DTC advertisement for a prescription medication (CDER, 2000). Approximately half of these respondents had seen three DTC prescription medication advertisements within the last year (CDER, 2000).

The current regulations were created for DTC broadcast and print media advertisements and do not contain provisions specifically for DTC advertisements on the WWW (FDA, 1999). The current regulations require manufacturers to provide only a drug's name, what the drug treated, and the drug's major risks within the advertisements instead of all drug related information (FDA, 1999). The regulations also have specific stipulations for the

layout and placement of risk information within print advertisements and stipulate that broadcast advertisements must present an equal balance of risk and benefit information (FDA, 1999). An equal balance of information is defined as presenting the same number of risks as benefits that are given in the advertisement.

Because the current regulations do not specify specific guidelines for DTC web site advertisements, manufacturers only need to present an equal number of risks and benefits on the web site, the risks given must include the major health hazards. However, there are no specific guidelines for the placement of the risks and benefits within the web site. The lack of specific regulations for the placement of risk and benefit information on DTC web sites advertisements muddy the issue of how to present an equal balance of risk and benefit information.

Because the WWW is a different medium, it presents its own complications and characteristics with respect to the presentation of information. Web sites are usually constructed of pages at different hierarchical levels. The placement of information within a web site hierarchy affects the number of clicks needed to reach the information. Past research has also shown that the farther down a web site hierarchy information is placed the less likely it is to be found (Vigilante & Wogalter, 2001).

Because there are no specific rules governing where risk and benefit information should be placed within web site advertisements, it is conceivable that manufacturers can unknowingly (or knowingly) make risk information less accessible than the benefits by placing it farther down the web site hierarchy.

The present research concerns the differential placement of risk and benefit information in DTC prescription medication web site ads. The present study randomly sampled a set of DTC prescription drug advertisements web sites to determine how manufacturers placed the benefit and risk information in relation to the home page and to each other. Also measured was the number of clicks required to reach the risk and benefit information from the home page and from each other. Additionally, it examined whether scrolling was required to view the risk or benefit information and whether a separate file reader was necessary to view the risk information.

Method

Web Site Selection

Twenty prescription drug web sites were selected randomly from the *Physician's Desk Reference* (PDR, 1999). A random number table was used to select page numbers in the PDR. The drug with information comprising the majority of the page was then chosen. If the drug listed was an over-the-counter (OTC) medication, the page was skipped and the next random number was used. This procedure was repeated until a large pool of prescription drugs were selected for the next stage of the process.

Infoseek.com and Hotbot.com (two popular WWW search engines) were used to determine if a web site existed for the drugs selected from the PDR. To be included in the study the drug web site had to have its own specific local navigation and home page. A total of a 126 prescription drugs were examined until a sample of 20-prescription drug web sites that met the criteria described above were found.

Procedure

The web sites were viewed using the Netscape Navigator 4.6 browser between March 20th and March 23th, 2001. Recorded were the: (1) number of clicks to the benefit information from the home page, (2) number of clicks to the risk information from the home page, (3) number of clicks from the benefit information to the risk information, (4) number of clicks from the risk information to the benefit information, (5) if the site required scrolling to see the benefit information, (6) if the site required scrolling to see the risk information, (7) number of clicks to the risk information from the benefit information, (8) number of clicks to benefit information from the risk information, (9) if the site had the risk and the benefit information on the same page, (10) and if the site required the use of a Portable Document Format (PDF) file reader to read the risk information.

Table 1. Drug Web Sites and Manufacturer Information

Drug Name	Manufacturer	Clicks to benefits from home page	Clicks to risks from home page	Clicks from benefits to risks	Clicks from risks to benefits	Scroll to view benefits	Scroll to view risks	Benefit & Risks on same page	PDF required to view risks
Aricept	Eisai	1	1	0	0	no	yes	same	no
Betapace	Berlex Laboratories	1	1	1	1	no	no	different	no
Biaxin	Abbott Laboratories	2	2	0	0	yes	yes	same	no
Celexa	Forest Pharmaceuticals	1	2	1	1	no	no	different	no
Cozaar	Merck	2	3	1	1	no	yes	different	no
Epogen	Amgen	1	3	1	2	no	yes	different	no
Fludara	Berlex Laboratories	2	2	0	0	yes	no	same	no
Fosamax	Merck	1	3	1	3	no	no	different	no
Gabitril	Abbott Laboratories	0	0	0	0	no	yes	same	no
Humalog	Eli Lilly	4	5	1	2	no	no	different	yes
Integriline	Key Pharmaceuticals	1	2	1	2	yes	yes	different	yes
Nasacort	Aventis Pharmaceuticals	3	3	0	0	no	yes	same	no
Neupogen	Amgen	2	2	1	1	no	yes	same	no
Pravachol	Bristol-Myers Squibb	1	1	1	1	yes	yes	different	no
Prilosec	Astra Pharmaceuticals	1	2	1	1	no	no	different	yes
Prozac	Eli Lilly	1	1	1	1	no	yes	different	no
Rabavert	Chiron	2	2	2	2	no	no	different	no
Taxol	Bristol-Myers Squibb	1	0	1	1	no	no	different	no
WellButrin	GlaxoWellcome	1	2	1	1	no	yes	different	no
Zyprexa	Eli Lilly	3	4	1	1	no	yes	different	yes

A click was defined as a manual response given by depressing a mouse button, which was required to activate a hot link (link) on a web page to access another web page within the web site's hierarchy.

Number of clicks to the risk and benefit information was defined as the minimum number of links that needed to be clicked to reach the web page that contained the risk or benefit information from the home page. Number of clicks to the risks from the benefit information was defined as the minimum number of links that needed to be clicked to reach the web page that contained the risks from the benefit information. Number of clicks to the benefits from the risk information was defined as the minimum number of links that needed to be clicked to reach the web page that contained the benefits from the risk information.

The need to scroll was based on whether information was initially visible on a 15-inch (23.3 cm) diagonal monitor, set at 1024 x 768 dpi resolution with the browser window maximized. If the information was located on the page, but required use of the scroll bar to make the information visible then scrolling was considered to be necessary.

Results

Table 1 presents the drug web sites examined and the associated manufacturers. The remaining columns depict the results of the risk and benefit information search within the prescription drugs' as described in the Method section.

The current results indicate that the number of clicks required to find the risks from the home page ranged from 0 to 5 clicks (M = 2.05, SD = 1.23). Whereas, the number of clicks required to find the benefits from the home page ranged from 0 to 4 clicks (M = 1.55, SD = 0.95). Analysis indicated that significantly more clicks were required to find the risk information from the home page than the benefits, $t(19) = 2.94, p < .01$.

Sixty percent of the web sites required scrolling to view the risk information while only 20% required scrolling to view the benefit information. Scrolling was also required significantly more often to find the risk information (M = 0.60, SD = 0.50) then to find the benefit information (M = 0.20, SD = 0.41), $t(19) = 2.99, p < .01$.

Finally, 70% of the prescription drug web sites presented the risk and benefit information on separate pages and 45% of the web sites placed the

benefit information closer to the home page than the risk information. Only one web site presented the risk information closer to the home page than the benefits. Twenty percent of the web sites required a separate PDF file reader to view the risk information.

Pearson correlation coefficients indicated a significant positive relationship between the number of clicks from the home page to find the risks and the number of clicks to find the benefits ($r = .79$, $p < .001$). A significant positive correlation was also found between the number of clicks required to find the risks and the need for a PDF file reader to read the risk information, ($r = .50$, $p < .05$). Finally, a significant positive correlation was found between the number of clicks from the benefits to the risks and the number of clicks from the risks to the benefits ($r = .76$, $p < .001$).

Discussion

The current study provides a descriptive assessment of the manner in which manufacturers present benefit and risk information on DTC prescription medication advertisement web sites. The results also reflect the varying degrees to which FDA regulations are interpreted with respect to providing an equal balance of benefit and risk information on DTC prescription medication advertisement web sites.

DTC drug advertisement web sites are required to provide an equal balance of risk and benefit information (same number of risks as benefits) (FDA, 1999). However the regulations do not stipulate where and how risk information should be placed within DTC prescription drug ad web sites. Therefore the current regulations could allow manufacturers to place risk information deeper within a web site's hierarchy while presenting the benefits closer to the drug's home page.

The results from the present study support this hypothesis. Specifically, risk information tended to be placed at deeper levels ("more distant") in the hierarchy of the 20 web sites that were examined than the benefit information. Also, scrolling was more often required to find the risk information than the benefits within the examined web sites.

The importance of these findings are illuminated in the results of a recent study that demonstrated risk information was less likely to be found when it was placed at deeper levels of a web site hierarchy (Vigilante & Wogalter 2001). Vigilante and Wogalter's (2001) results suggest that although the same number of risks and benefits are given on a DTC prescription drug web site (an equal balance), consumers may be prevented from acquiring an equal amount of risk and benefit information because the risks may not be accessible.

The advantage of the PDF format is the ability to download a document with all the prescription information in a set format. However, the disadvantages of using the PDF format are an increase in download times (especially over a dial up service), the extra clicks required to reach the risk information, and the need to install the required program if it is not already available.

The variance in risk presentation between the sampled web sites may indicate a need for some form of basic guidance on how to present risk and benefit information on a DTC prescription drug web site advertisements to create an actual equal balance of risk and benefit information. Furthermore, standardizing the placement of risk and benefit information with DTC prescription medication web site ads may facilitate faster and more accurate risk and benefit knowledge acquisition. Consistent formatting should aid consumers in accessing information more easily.

Further research should be conduct to determine the best manner to present risk and benefit information in DTC web site advertisements. The research should then be used to create guidelines and regulations for the presentation of important risk and benefit information on DTC prescription medication web site advertisements. Future sampling of DTC drug advertisement web sites should also be conducted at different time intervals to examine how manufacturers evolve their web site designs over time.

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