



Impact of Direct-to-Consumer Advertising on Prescription Drug Spending

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With spending on prescription drugs rising faster than the costs of most other health care services, there is intense interest in the reasons why. Many in health policy circles suggest that the growth in direct-to-consumer (DTC) advertising by pharmaceutical manufacturers is a major contributor to higher prescription drug costs. A new study, commissioned by the Kaiser Family Foundation and conducted by researchers at the Harvard School of Public Health (M.B. Rosenthal and A.M. Epstein), Massachusetts Institute of Technology (E.R. Berndt), and Harvard Medical School (J.M. Donohue and R.G. Frank), provides important new information on this issue.

More than five years after the Food and Drug Administration issued new rules governing broadcast DTC advertising -- which allow television and radio ads to promote specific drugs with less detailed information in the ad itself about side effects and precautions than is required of print ads -- the marketing of prescription medications directly to consumers remains the focus of considerable debate. Proponents argue that DTC advertising informs consumers about important, treatable health conditions and encourage doctor-patient communication, while critics say that this type of advertising contributes to rising drug costs and lead people to demand unnecessary or inappropriate medications.

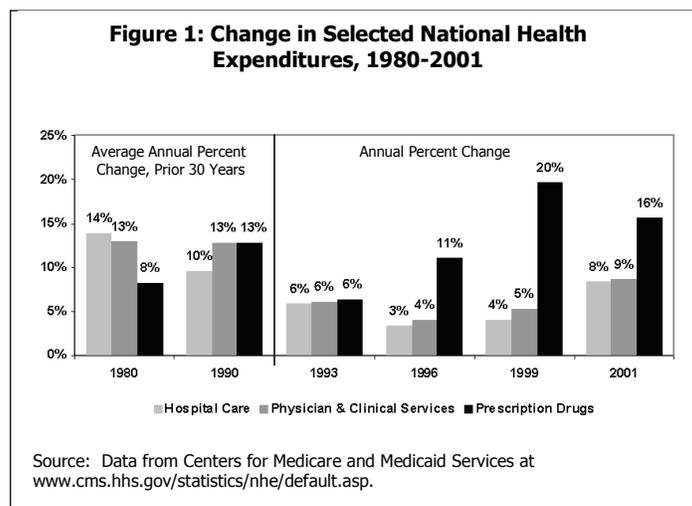
The new study examined changes in direct-to-consumer (DTC) advertising and physician promotion activities from 1996 to 1999 and their effects on drug sales within five therapeutic drug classes, chosen based on prevalence of DTC advertising within the classes and variation in advertising patterns and product lifecycles of drugs within the classes.¹ Impacts of the changes in DTC advertising and physician promotion on the market share of individual drugs within each class and on sales for the entire class were calculated. After accounting for the fact that drugs with higher sales are more likely to be advertised to consumers and have higher levels of promotion to physicians, the study found that increases in DTC advertising were associated with significant growth in sales for the classes of drugs studied: for every 10% increase in DTC advertising, drug sales within the classes studied increased on average by 1%. No evidence was found that changes in DTC advertising affected the market share of individual drugs within the classes.

¹ Therapeutic drug classes were developed by pharmaceutical data companies to group drugs according to the type of illness they treat and their mechanism of action.

To simulate the overall impact of changes in DTC advertising on drug spending growth, these results were applied to changes in spending from 1999 to 2000 for the 25 drug classes with the highest retail sales. Drugs in these classes accounted for about 60% of the DTC advertising and about 75% of retail sales over that period. The study concludes that changes in DTC advertising during that period accounted for 12% (\$2.6 billion) of the total growth in drug spending in 2000. This means that each additional dollar spent on DTC advertising in 2000 yielded \$4.20 in additional pharmaceutical sales in that year.

Growth in Prescription Drug Spending

U.S. spending for prescription drugs was \$140.6 billion in 2001, more than tripling since 1990. Although prescription drug spending remains a relatively small proportion (11%) of personal health care spending, it is one of its fastest growing components, increasing at double-digit rates in each of the past 7 years. National prescription spending increased 16% from 2000 to 2001, compared to a 9% increase for physician and clinical services and an 8% increase for hospital care (Figure 1).^a



There are several components to this rapid rise in spending: more prescriptions are being written, prices of existing drugs are rising, and higher-priced new drugs are replacing existing drugs. Between 1997 and 2001, drug spending increased 86%, with almost one-

half of the growth attributable to more prescriptions and about one-quarter of the growth attributable to price increases for existing drugs and to changes in drug mix.^b

Actuaries at the Department of Health and Human Services project that prescription drug spending will continue to grow at between 9% and 12% annually through most of the next decade.^c Concerned about the impact that this cost growth is having on the availability and affordability of prescription drugs, policymakers, public and private health plan managers, and others have begun to look at the factors contributing to these rapid increases, including the potential role of DTC advertising.

Promotion of Prescription Drugs

Promotional spending by pharmaceutical manufacturers has risen steadily in recent years, more than doubling from \$9.2 billion in 1996 to \$19.1 billion in 2001, an average annual increase of 16%. While most promotional spending (86%) remains directed at physicians, a growing proportion is directed at consumers, especially through television ads.^d

Pharmaceutical manufacturers use several types of promotion, each of which has been growing in recent years (Figure 2):²

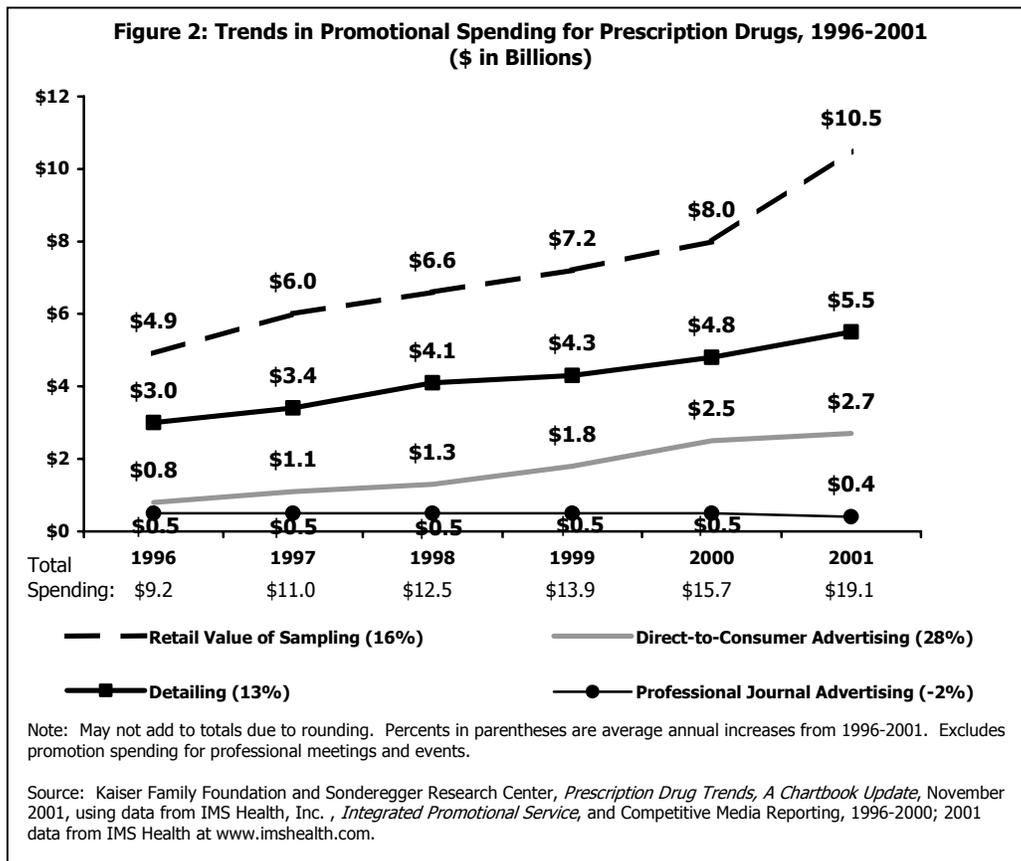
- *Detailing* (29% of spending) is the sales activities of drug representatives directed toward physicians. Most detailing is directed at office-based physicians (\$4.8 billion), the rest at hospital-based physicians (\$700 million).
- *Sampling* (55% of spending) is the free drug samples that pharmaceutical representatives provide to office-based physicians. Sampling, valued at retail pharmacy prices, totaled \$10.5 billion in 2001.³ Recently, samples are also being

² Although not included in these promotion totals, pharmaceutical companies also conduct educational meetings and events for physicians, estimated at a cost of \$2.1 billion in 2001 (Scott-Levin data from "Spending Hits a Wall" in *Pharmaceutical Executive*, Sept. 2002).

³ The retail value of samples is used to approximate the economic cost to the pharmaceutical companies of giving away free samples. Because samples presumably crowd out at least some sales, using production costs would understate the cost of samples to the manufacturers. Using the retail price to value all free samples, however, probably overstates the opportunity cost to the manufacturer, so this approach may well overvalue the cost of sampling to manufacturers.

made available through DTC advertising venues like TV, newspapers, and the Internet.

- *Direct-to-consumer (DTC) advertising* (14% of spending) includes advertisements targeted toward consumers through magazines, newspapers, television, radio, and outdoor advertising.
- *Medical journal advertising* (2% of spending) is the value of professional journal advertisements.



While DTC advertising remains a relatively small part of overall industry promotion, its rapid spending growth in recent years (increasing an average of 28% annually from 1996-2001), frequent presence on television and in magazines, and extensive use in promoting newer, more expensive medications, have attracted the attention of critics who worry that it encourages patients to demand high-cost prescriptions for ailments that could be treated effectively with lower cost options.

The public has certainly become more aware of DTC advertising in recent years – the percent saying they had seen or heard an ad for a prescription medication grew from 63% in 1997 to 85% in 2002.^e And the ads are resulting in consumer interest in prescriptions -- nearly a third (30%) of adults say they have talked to their doctor about a drug they saw advertised, and 44% of those who talked to their doctor received a prescription for the medication they asked about. This means that 13% of Americans have received a specific prescription in response to seeing a drug ad.^f

Spending for DTC advertising is concentrated in a relatively small number of drugs -- the top 10 drugs with DTC advertising accounted for about a third (36%) of all DTC advertising spending in 2001. Six of the top 10 drugs advertised through DTC were also among the top 10 drugs promoted to physicians through detailing and medical journals. The drugs most heavily promoted to both consumers and physicians are typically drugs that treat chronic conditions -- in 2001, the top 3 drugs with the most promotion spending were anti-inflammatories and an anti-ulcerant.^g Prescription drugs with the highest promotion spending tend to be newer drugs, many of which are more expensive than the drugs they are intended to replace.

Drugs that are heavily advertised to consumers typically rank high in sales -- 6 of the top 10 drugs advertised through DTC were among the top 20 drugs in dollar sales and in the number of prescription dispensed in 2000. Sales of the most heavily advertised drugs have increased much more rapidly than for other drugs – from 1999-2000, the dollar sales of the 50 most heavily promoted drugs increased 32%, while the sales of all other drugs increased 14%; the number of prescriptions sold increased 25% for the top 50 promoted drugs, compared to 4% for all other drugs.^h

Analysis of the Effects of Promotion on Prescription Drug Spending

A recent study by researchers at the Harvard School of Public Health (M.B. Rosenthal and A.M. Epstein), Massachusetts Institute of Technology (E.R. Berndt), and Harvard Medical School (J.M. Donohue and R.G. Frank) finds that DTC advertising has a significant effect on prescription drug spending. The complete report of their study, *Demand Effects of*

Recent Changes in Prescription Drug Promotion, May 29, 2003, can be found at www.kff.org.ⁱ

The study examines changes in sales and drug promotion over a three-year period for five therapeutic classes of drugs in order to determine the effects of increases in DTC advertising and physician promotion on sales for the therapeutic classes and on changes in relative market shares of the drugs within the classes.^j The five therapeutic classes studied were antidepressants, antihyperlipidemics (cholesterol-lowering), proton pump inhibitors, nasal sprays, and antihistamines. These five classes were selected based on having (1) at least one product with significant DTC advertising expenditures in the class; (2) variation in spending for DTC advertising within the class; and (3) variation in the remaining patent periods of drugs within the class. The five classes selected accounted for about 30% of all DTC advertising and 25% of physician promotion in 1999. The drugs within the selected classes treat a wide variety of ailments, are indicated for different populations, and are prescribed by a number of different clinical specialists.

To simulate the overall impact of changes in DTC advertising on drug spending growth, the price elasticity results from the five-class analysis were applied to the aggregate changes from 1999 to 2000 in total sales and total DTC spending for the 25 drug classes with the highest retail sales. Drugs in these classes accounted for about 60% of the DTC advertising over that period and about 75% of retail sales.

Significant findings from the study include:

- **The analysis of advertising and sales growth in the five therapeutic classes studied produces an advertising elasticity of .10, which means that on average a 10% increase in DTC advertising of drugs within a class results in a 1% percent increase in sales of drugs in the class.** The study offers the case of proton pump inhibitors (or PPIs, for treatment of ulcers) as an example. Between 1998 and 1999, DTC advertising spending for PPIs increased 60% (from \$49.7 million to \$80.1 million) and PPI sales increased 36% (from \$4.2 billion to \$5.7 billion). Applying the estimated elasticity of .1 to the results for this drug class, the study estimates that \$252 million, or about 17% (or 6 percentage points), of the 36%

increase in PPI sales from 1998 to 1999 is attributable to the increase in DTC advertising.

- **Applying this elasticity to the growth in DTC advertising for the 25 largest therapeutic drug classes, the study estimates that increases in DTC advertising between 1999 and 2000 accounted for 12% of drug sales growth during that period.** Applying the 5-class analysis results to the 25 classes with the highest retail spending finds that DTC advertising growth during the year resulted in an additional \$2.6 billion in drug spending in 2000.
- **DTC advertising is an important, but not the primary, driver of growth in prescription drug spending. However, DTC advertising produces a significant return for the pharmaceutical industry: every additional \$1 the industry spent on DTC advertising in 2000 yielded an additional \$4.20 in sales.**
- **For the therapeutic classes studied, the impact on sales of increased spending for promotion to physicians was considerably smaller than the impact of increased spending for DTC advertising.** The study found that every 10% increase in spending for promotion of drugs within a class to physicians leads to a .2%-.3% increase in sales for drugs in the class.
- **DTC advertising does not appear to affect relative market share of individual drugs within their therapeutic class.** While DTC advertising appeared to influence sales at the therapeutic class level, the study did not find evidence that changes in DTC advertising for individual drugs increased their sales relative to the other drugs within the class. A possible explanation for this finding is that DTC advertising prompts previously untreated patients to talk to their doctors about advertised treatments, but that the discussions may not lead to a prescription for the particular drug that was advertised. (A November 2001 survey by the Kaiser Family Foundation found that for Americans who said they talked to their doctor about a medicine they saw advertised, 44% said the doctor gave them the prescription they asked about, while 25% said the doctor recommended a different drug). The authors of this new study caution, however, that since the research models used in the study may not capture the complex timing of relationships between promotion efforts and sales for

individual drugs, or the experimentation of drug manufacturers with DTC advertising, the impact of promotion on individual drugs is more ambiguous and merits further research.

Conclusion

DTC advertising is an important, but not the primary, driver of growth in prescription drug spending. For pharmaceutical manufacturers, the return generated by increasing spending on DTC advertising appears to be significant. Although prescription drug spending growth has moderated somewhat in the last couple years, annual increases in the 9% to 12% range are still expected for most of the next decade. Given this continuing rapid growth, the debate over the costs and benefits of DTC advertising are likely to continue. This new study provides important information to policymakers as they evaluate the benefits and costs of DTC advertising.

Endnotes

^a Center for Medicare and Medicaid Services, Office of the Actuary, National Health Expenditure data, at cms.hhs.gov/statistics/nhe/default.asp.

^b Kaiser Family Foundation, *Prescription Drug Trends*, March 2003, at www.kff.org/content/2003/305702/3057_02_033103.pdf.

^c Center for Medicare and Medicaid Services, Office of the Actuary, National Health Projections, 2002-2012, February 2003 at cms.hhs.gov/statistics/nhe/default.asp.

^d IMS Health, Integrated Promotional Services, and Competitive Media Reporting data, at www.imshealth.com/ims/portal/front/articleC/0,2777,6599_41551570_41718516,00.html.

^e *Prevention Magazine*, Annual Survey on Consumer Reactions to Direct-to-Consumer Advertising of Prescription Drugs, 1997 and 2002.

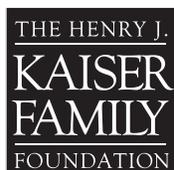
^f Kaiser Family Foundation, *Understanding the Effects of Direct-to-Consumer Prescription Drug Advertising*, November 2001, at www.kff.org/content/2001/3197/DTC%20Ad%20Survey.pdf.

^g *Medical Marketing & Media*, May 2002, IMS Health and Competitive Media Reporting data, at www.cpsnet.com/reprints/2005/05/IMS.pdf.

^h National Institute for Health Care Management, *Prescription Drugs and Mass Media Advertising, 2002*, November 2001, at www.nihcm.org/DTCbrief2001.pdf.

ⁱ An earlier version of this report can be found in *Frontiers in Health Policy Research*, Vol. 6, edited by David M. Cutler and Alan M. Garber, MIT Press, June 2003.

^j The Harvard and MIT study relied on several sources of information on advertising and prescription drug sales: sales and detailing data are from Scott-Levin, Inc.; DTC advertising data are from Competitive Media Reporting; and sampling data are from IMS Health, Inc. Spending on professional journal advertising, which represented only 2% of promotional spending in 2001, was not included in the study.



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