HHS Public Access

Author manuscript

Am J Prev Med. Author manuscript; available in PMC 2016 May 01.

Published in final edited form as:

Am J Prev Med. 2015 May ; 48(5): 575–579. doi:10.1016/j.amepre.2014.12.001.

Trends in Exposure to Televised Prescription Drug Advertising, 2003–2011

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Abstract

Introduction—TV accounts for over half of pharmaceutical direct-to-consumer advertising (DTCA) spending in the U.S. The purpose of this study is to quantify average household exposure

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[b]Conditions were selected to represent a variety of bodily systems, disease presentations (e.g., chronic versus acute), and severity levels. These conditions were highly advertised; nine of the ten most-promoted brands fell in these categories with the exception of Nexium™, for heartburn. Caduet™ treats both high cholesterol and high blood pressure, but was coded as a cholesterol medication so that this data set was as inclusive as possible. The arthritis category includes osteoarthritis, psoriatic arthritis, and rheumatoid arthritis. In 2011, Cymbalta™ was advertised for chronic musculoskeletal pain, including osteoarthritis and chronic lower back pain; this indication was also coded as arthritis.

This arrangement has been reviewed and approved by Johns Hopkins University in accordance with its conflict of interest policies. No other financial disclosures were reported by the authors of this paper.

to branded and non-branded (help-seeking) televised prescription drug advertisements and describe variation over time and according to medication indication and geography.

Methods—In 2013, Nielsen TV ratings were compiled for prescription pharmaceutical advertising that aired between 2003 and 2011 for the top 75 U.S. media markets. All advertisements were coded as branded or help-seeking. Advertisements were further coded for one of eight prevalent indications (allergies, arthritis, asthma, erectile dysfunction, high cholesterol, smoking cessation, depression, and sleep disorder) or as "other."

Results—Televised DTCA exposure increased from 2003 to 2007 and then declined 43% by 2011, to 111 monthly prescription drug advertisements per household. The examined indications were associated with varying amounts and patterns of exposure, with greatest declines among medications for allergies and sleep disorders. Help-seeking advertisements comprised 10% of total exposure, with substantial variation by indication.

Conclusions—Considerations of DTCA's effects on health care should take into account the shifting concentration of advertising across indications.

Introduction

In 1997, the U.S. Food and Drug Administration (FDA) loosened disclosure requirements for broadcast advertising; direct-to-consumer advertising (DTCA) spending increased 437%, from $985 million in 1996 to $4.3 billion by 2010,[1] with the majority from TV advertising.[2] The pervasiveness of televised DTCA in the U.S. is exceptional; no other industrialized nation except New Zealand permits branded prescription drug advertisements on TV.[3]

DTCA is controversial given its potential impacts on health care.[4–6] Although studies have shown that DTCA increases physician visits and treatment requests,[7,8] examinations of effects on prescribing have yielded mixed results. Some demonstrate strong effects on prescribing[9] or price,[10] whereas others show no prescribing[11] or price effects.[12] However, most studies have examined only branded advertising for limited disease areas and have used national-level data and expenditure estimates.[13,14] Disparate findings may in part reflect that DTCA's effects vary over diseases, regions, and regulatory statuses (branded versus "help-seeking").[a] Furthermore, expenditure data may not provide sufficient granularity because advertising costs vary across products and time.[13]

This paper uses Nielsen TV ratings to calculate household exposure to prescription drug advertising over 9 years, illuminating trends for all DTCA and facilitating comparison across diseases, regions, and regulatory statuses. Understanding exposure trends may prepare prescribers for medication requests and support further consideration of DTCA's impact, as DTCA harms and benefits are strongly tied to targeted diseases and populations.[15]

[a]Help-seeking advertisements do not mention brands, but generate awareness about a health condition, typically referencing websites or toll-free numbers where consumers may seek further information; secondary resources include branded appeals.

Methods

Ratings data were purchased from Nielsen Media Research for all televised pharmaceutical advertising airing in the top 75 media markets for 2003-2011.[16] Gross rating points (GRPs) represent the fraction of households reached multiplied by exposure frequency. Monthly GRPs were summed and then divided by 100 to derive the average number of advertisement exposures per household.

DTCA was coded based on available metadata (product names and video descriptions); where metadata were ambiguous, video was reviewed. Each advertisement was coded as either help-seeking or branded and for one of eight heavily advertised conditions[17] (allergies, arthritis, asthma, erectile dysfunction, high cholesterol, smoking cessation, depression, and sleep disorder)[b] or as "other."

Longitudinal and geographic trends in DTCA exposure were examined, overall and by disease, as well as distribution across help-seeking and branded campaigns. For the eight diseases, medications with multiple indications were identified and their exposure distribution was tracked. Coefficient of variation (CV) was computed to examine geographic variation across indications. ANOVA was used to examine variation in exposure by media market, indication, and time. R^2 values were used to measure the fraction of total variation in exposure explained by each source. Analyses were conducted in 2013.

Results

Household exposure to pharmaceutical advertising increased between 2003 and 2007, and then declined 43% by 2011 (Table 1). Number of promoted brands increased initially, peaked in 2008 at 73, and then declined 34% by 2011. Fifty-six (39%) of 144 advertised brands treated one of the eight conditions, representing 46%–56% of total exposure.

Although overall exposure declined considerably after 2007, trends varied by condition, particularly for allergies and sleep disorders. For allergies, exposure declined from 33 ads/month in 2005 to six ads/month by 2011. For sleep disorders, exposure climbed to 24 ads/month by 2006, making it the most advertised indication, then declined to three ads/month by 2010.

Eight brands treating one of the eight conditions were promoted for additional indications. Humira™ and Enbrel™ were first advertised for arthritis, then concurrently for psoriasis. Advair™ and Symbicort™ were first advertised for asthma, then concurrently for chronic obstructive pulmonary disease (COPD). For Seroquel™ and Abilify™, exposure shifted from bipolar disorder to adjunct depression therapy. Singulair™ was advertised for allergies and asthma. Cymbalta™ was advertised for depression and chronic pain.

All eight indications used help-seeking, but campaigns were sporadic and typically represented a small fraction of exposure. Help-seeking was most heavily used for smoking cessation. Among the eight indications, taken together, help-seeking ranged from 2% to 10% of annual exposure. Help-seeking comprised a greater fraction of DTCA for "other" diseases (9%–23%). Overall use of help-seeking declined after peaking in 2006 at 16%.

Figure 1 shows distribution of DTCA in the top 75 media markets for 2011. Average exposure was 1,334 advertisements per household (SD=122), with greatest exposure in parts of the South and Midwest. Although regional trends were roughly consistent over time and across indications, CV was highest for arthritis (10.0%) and lowest for erectile dysfunction (8.3%). Indication, time, and media market explained 83% of total variability in monthly exposure (ANOVA F-test $p<0.0001$, $R^2=0.83$). Of these three factors, indication explained the largest fraction of variation (79.6%).

Discussion

This study found significant declines in household exposure to televised DTCA since 2007, consistent with other reports.[1,2] Several factors likely contribute. First, newer products and those with wide clinical applications are most promoted to consumers;[18,19] the findings presented here are therefore consistent with a slowing drug pipeline and increasing proportions of generic and specialty drugs.[20] Second, televised DTCA may be waning as consumers increasingly utilize online media.[21,22]

However, the present analyses suggest that overall trends obscure distinct patterns among medical conditions. Exposure for depression increased between 2003 and 2011, while declines for sleep disorders and allergies were steeper and earlier than for overall DTCA. Declining exposure for sleep disorders may reflect approval of generic Ambien in 2007 and increased risk perceptions following FDA warnings.[23] Striking declines in exposure for allergy medications may reflect incentives to heavily advertise brands before over-the-counter switches.[24]

These data also suggest ways pharmaceutical companies compensate for slowing innovation by advertising new drug uses.[25] For example, advertising for asthma drugs has largely shifted to the recently approved COPD indication and, for atypical antipsychotics, it has shifted toward adjunct depression therapy. DTCA for new indications may generate awareness about treatment options, but cost-benefit balance may shift negatively where healthier populations are targeted, drugs lack substantial advantage, or safety and efficacy are not well established.[15,26]

Analysis reveals broad use of help-seeking campaigns, and suggests targeted use among “other” less-common, less-advertised conditions. Help-seeking campaigns are rarely regulated,[27] yet have potential to prompt self-diagnosis and healthcare utilization.[28]

This study has limitations. First, this is a descriptive study of DTCA exposure; it does not evaluate forces underlying observed trends or assess how trends affect attitudes and behaviors. Second, content and placement of advertisements may target particular consumers,[6,14,29,30] but this study focused on aggregate exposure. Third, medications are grouped by brand; introducing new formulations may be another way to expand markets.[25] Fourth, a subset of indications are examined, aggregating all others. Finally, this study neither assesses exposure to other forms of DTCA (e.g., Internet) nor measures how consumers sought treatment information after TV exposure. Future research should examine

how consumers seek drug information and how industry promotes brands in online environments.[31–34]

This work suggests interplay between several aspects of pharmaceutical markets, including availability of new and alternative treatments, public understanding of medication safety and efficacy, and shifting advertising to new indications. Advertising also may shift given emergent online media and changes in economic climate and health insurance markets. Given this complexity, studies relying on televised DTCA data for limited diseases must be cautious in extrapolating findings to all DTCA. Shifts in DTCA exposure across indications have potential to prompt self-diagnoses and drug requests for millions of consumers.

Acknowledgments

This paper was supported by funding from the National Heart, Lung and Blood Institute (NHLBI) award number R01HL107345.

Dr. Alexander is Chair of the FDA's Peripheral and Central Nervous System Advisory Committee, serves as a paid consultant to IMS Health, and serves on an IMS Health scientific advisory board.

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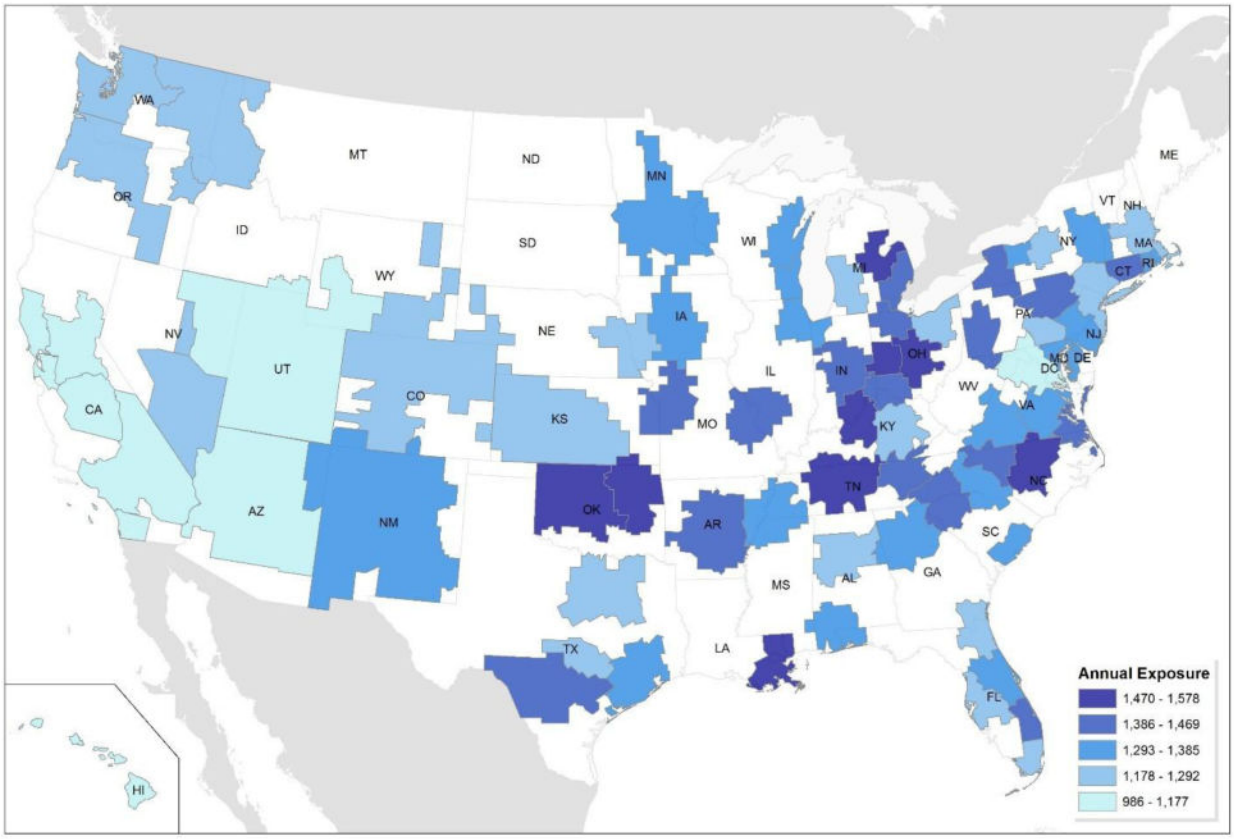

Figure 1. Variation in direct-to-consumer advertising exposure, by designated market area, 2011

Table 1

Average monthly household exposure to prescription drug advertisements and percent of total, by indication

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Allergy	30.2 (19%)	28.5 (15%)	33.2 (17%)	19.6 (10%)	21.4 (11%)	18.4 (11%)	17.4 (11%)	7.3 (7%)	6.1 (5%)
Arthritis	15.5 (10%)	16.1 (8%)	5.6 (3%)	6.3 (3%)	4.6 (2%)	8.2 (5%)	8.0 (5%)	6.0 (5%)	14.7 (13%)
Asthma	9.8 (6%)	10.6 (6%)	10.2 (5%)	8.1 (4%)	5.0 (3%)	7.1 (4%)	8.4 (5%)	6.6 (6%)	5.4 (5%)
Cholesterol	9.0 (6%)	15.3 (8%)	15.6 (8%)	20.1 (10%)	20.6 (11%)	11.9 (7%)	17.6 (11%)	16.3 (14%)	10.7 (10%)
Erectile dysfunction	8.7 (5%)	16.1 (8%)	6.9 (4%)	11.0 (6%)	10.6 (5%)	12.8 (7%)	10.8 (7%)	7.9 (7%)	7.4 (7%)
Depression	9.0 (6%)	9.3 (5%)	8.7 (5%)	9.1 (5%)	8.6 (4%)	6.0 (3%)	10.6 (7%)	10.5 (10%)	11.3 (10%)
Sleep disorder	4.2 (3%)	5.1 (3%)	16.5 (9%)	23.5 (12%)	21.7 (11%)	9.6 (6%)	6.8 (4%)	2.9 (3%)	2.9 (3%)
Smoking cessation	2.2 (1%)	0.7 (0%)	0.0 (0%)	1.0 (1%)	3.8 (2%)	5.1 (3%)	3.0 (2%)	2.8 (2%)	3.5 (3%)
Eight conditions:									
Total	88.5 (55%)	101.7 (54%)	96.7 (50%)	98.6 (51%)	96.3 (49%)	79.1 (46%)	82.6 (51%)	60.2 (54%)	62.1 (56%)
Brands (N)	22	26	26	23	27	29	28	26	25
All conditions:									
Total	161.8	190.0	191.5	192.2	195.3	171.6	163.2	112.4	111.1
Brands (N)	53	62	63	57	72	73	64	51	48