An Updated Analysis of Direct-to-Consumer Television Advertisements for Prescription Drugs

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ABSTRACT

PURPOSE In 2015, the American Medical Association called for a ban of direct-to-consumer advertising (DTCA) for prescription drugs. Yet, the pharmaceutical industry spends more than ever on broadcast advertisements, with national health care costs largely driven by drug spending. An evaluation of these ads is critical, as these advertisements can impact the frequency which patients ask their doctors about medications.

METHODS A content analysis of prime-time direct-to-consumer ads was conducted across 4 major cable television networks. The ad content (n = 61) was coded for factual claims made regarding target conditions, appeals used, portrayal of medications, and lifestyle characteristics shown.

RESULTS We found a substantial decrease in the percentage of ads that conveyed information about the conditions being targeted, such as risk factors (16%) and prevalence (16%). Positive emotional appeals (94%) continued to be emphasized; yet there was decreased use of negative emotional appeals (51%), pointing to an overall more positive portrayal of a patient's experience with a medication. The lifestyles portrayed in the sample largely featured how products can enable more recreational activities (69%) and fewer ads (7%) presented alternatives to product use.

CONCLUSIONS Direct-to-consumer advertising continued to promote prescription drugs above educating the population. Improvement in the educational value of DTCA is likely to require regulatory action rather than reliance on self-regulation by the pharmaceutical industry.

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INTRODUCTION

Twenty years ago, the US Food and Drug Administration (FDA) relaxed the risk information disclosure requirements for direct-to-consumer advertisements (DTCA) of prescription drugs appearing on television or radio. Since that time, DTCA has become a mainstay of consumer broadcast media. Total expenditures on DTCA topped 6 billion dollars in recent years with television commercials accounting for the majority of expenditures.[1] Accordingly, most Americans are aware of DTCA, and a substantial minority (18% to 30%) claim to have visited a doctor after seeing a drug ad.[2-4]

Despite the ubiquity of DTCA, debate surrounding it lingers. Proponents generally tout the information in the ads as educational and motivating while critics regard the information as biased and misleading. A prior study of direct-to-consumer television commercials suggested DTCA may motivate doctor visits but falls short of its educational promise.[5] Specifically, the study found the ads were better at providing basic information about symptoms than explanations of the mechanism, risk factors, or prevalence of the condition. The ads tended to downplay negative lifestyle changes, prominently utilized emotional appeals, and promised broad effects of medication use such as patients regaining control over their lives. The original study generated extensive commentary, both supportive

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and critical of DTCA, and has continued to serve as a key reference for researchers, policy makers, and other stakeholders.[6]

It is important to note that the advertisements analyzed previously aired in the first half of 2004,[5] and since that time, there have been several important developments in the DTCA landscape. The pharmaceutical industry experienced high-profile controversies including the recall of Vioxx in 2004 and the revelation that ads falsely depicted the Lipitor spokesperson, Dr Jarvik, as a licensed physician. The Institute of Medicine called for a 2-year moratorium on DTCA for newly approved drugs in 2007, and the American Medical Association voted in favor of a ban on DTCA in 2015.[7,8]

Policy makers have rejected or ignored proposals to ban DTCA, but regulation has evolved. The FDA Amendments Act of 2007 required drug makers to submit television advertisements 45 days before the first airing.[9] The FDA has drafted updated guidance to standardize the appearance of drug brand names, to clarify points regarding the fair and balanced presentation of benefit and risk information, and to specify regulatory guidelines to be applied to online advertisements.[10]

In response to certain pressures and challenges, the Pharmaceutical Researchers and Manufacturers of America (PhRMA) issued 2 iterations of self-regulatory principles. The initial set of principles, presented in 2005, stated that information about drug benefits and risks should be accurate, clear, balanced, and evidence-based in compliance with regulations.[11] In addition, several principles called for ads to responsibly educate the consumer about the medicine and the condition, promote health and disease awareness, and inform the audience about other options such as diet and lifestyle changes where appropriate.[12] In 2008, the guidelines were updated to denounce the promotion of off-label medication uses and benefits, to compel clear identification of actor and celebrity endorsers, and to reiterate the revised FDA guidance that risk and benefit information were to be presented with equivalent prominence using clear, conspicuous, and neutral language.[12]

It is reasonable to expect the aforementioned changes and events may have influenced the content of DTCA, but there has been a paucity of research evaluating the content of broadcast DTCA since these changes went into effect. The few studies conducted in the interim have been too narrowly focused to gauge changes or improvements in the design of DTCA. It is crucial to have an up-to-date content analysis examining the message strategies employed by pharmaceutical advertisers to ensure that ongoing research and debate regarding DTCA is reflective of current ad practices. To that end, we analyzed direct-to-consumer television ads using the prior study[5] as a model and benchmark.

METHODS

Sampling Strategy

We examined ads appearing on 4 major US television networks (ABC, CBS, NBC, and FOX) for a 13-week period (July 17 through October 18, 2016). SnapStream was used to record all ads airing during primetime television hours (8:00-11:00 PM EST Monday-Saturday and 7:00-11:00 PM EST Sunday). The lead researcher viewed all content and searched accompanying transcripts to identify DTCA in the sample.

The FDA identifies 3 types of prescription drug ads (product claim, reminder, and help-seeking). Product claim ads, the type that consumers are most familiar with, provide the name of a drug, the condition it treats, and discuss its benefits and risks.[13] Reminder ads reveal a drug's name but not its uses, and do not contain risk information, what the drug is, or how it works.[13] Reminder ads were not present in this sample set and currently are rarely used in DTCA. Help-seeking ads, which describe a disease or medical condition but do not recommend a specific drug, appeared in our sample but were not analyzed due to their limited presence. This study only evaluated product claim ads. Product claim ads comprise the vast majority of DTCA and have the greatest implications for policy and practice because they contain the most comprehensive information.[14]

Ad Coding

We adopted the published coding scheme[5] to allow a direct comparison (Table 1) as the coding categories have been replicated and used in previous research.[14] Ads were coded for factual claims presented about the indicated health condition, including (1) any factual information provided, (2) biologic nature or mechanism, (3) risk factors or cause, (4) prevalence, and (5) the subpopulation at risk. Types of appeals coded were (1) rational–use of informational or logical arguments to present the product, its use, or features of the drug; (2) positive emotional–depiction of favorable emotions or affect (eg, showing characters as joyful); (3) negative emotional–portrayal of negative emotions such as disgust, fear, or anger; (4) humor–use of puns, jokes, or satire; (5) fantasy–depiction of surreal or unrealistic scenes; (6) sex–portrayal of an intimate encounter between characters or provocative situations; and (7) nostalgic–appealing to tradition, heritage, or the past through the use of black-and-white or sepia-toned visuals, or images from an earlier time. In addition, codes for thematic concepts (eg physical activity)

were applied to identify how the ads portrayed the indicated health condition and the role of medication in the lives of patients.

Two graduate-level research assistants were trained as coders for a total of 36 hours over the course of 1 year using a separate collection of DTCA not included in the main sample. Both coders then independently coded all ads in the main sample to establish intercoder reliability.

Coding Reliability and Frequency Presentation

Intercoder reliability, calculated using κ, showed high levels for all coding categories ranging from 0.81 to 1.00. Remaining discrepancies between coders were resolved through discussion and further training. The analysis was based on weighted frequencies calculated by multiplying the frequency of coded elements for each ad by the total number of times that ad appeared in the sample ($M = 14.2$, SD = 12.4, range = 1-58) to facilitate comparison of our results to a prior study.[5]

RESULTS

Direct-to-consumer product claim ads aired 868 times during the collection period. After removing duplicates, the sample had 61 unique product claim ads for 35 prescription drug brands. The results of our study are referred to as the "2016 sample" (Table 1). The results reported previously[5] are referenced for comparison and designated as the "2004 sample". Table 2 lists the drug brands, manufacturers, and indicated health conditions in the 2016 sample. Similar descriptive information from the 2004 sample is featured in Table 3 for comparison.

Ad Length and Story Structure

The average ad length in the 2016 sample was longer ($M = 67.4$ seconds, SD = 17.3, range 30-120), than the average ad length ($M = 51.8$ seconds) in the 2004 sample. Nearly one-half of the 2016 ads (41.0%) featured human characters before and after taking the product. A greater proportion of ads in 2016 (56.9%) showed characters only after taking the product, a substantial increase from the 39.5% of ads featuring only post-medication depictions in the 2004 sample. The remaining 2016 ads (2.1%) did not use human characters or did not clearly indicate if a main character had taken the product.

Factual Claims About the Target Condition

Similar to the 2004 sample, many of the 2016 ads featured facts related to the indicated health condition. Fewer of the 2016 ads, however, provided information related to the biologic nature, risk factors or causes, or prevalence of the condition compared with the 2004 sample. We also noted that none of the 2016 ads provided quantitative estimates of the condition prevalence (eg, 1 in 4), but instead provided qualitative descriptions such as thousands or many. Factual information about the indicated health condition was stated at the beginning of the advertisement.

Appeals

The frequency of rational and positive emotional appeals used in 2016 ads remained high, consistent with the 2004 sample, but there was a decrease in the use of negative appeals. Positive emotional appeals were most frequently portrayed in the context of

Table 1. Types of Content Presented in Product Claim Ads in the 2004 Sample Compared With the 2016 Sample

Content Category	2004 Sample (n = 31)	2016 Sample (n = 61)
Factual claims		
Any factual information (eg, symptoms)	82.0	77.4
Biologic nature or mechanism of disease	53.9	24.5
Risk factors or cause of condition	25.8	16.3
Prevalence of condition	24.7	15.8
Subpopulation at risk of condition	7.9	9.1
Appeals		
Rational	100.0	100.0
Positive emotional	94.4	94.1
Negative emotional	75.3	50.8
Humor	36.0	8.9
Fantasy	22.5	13.7
Sex	4.5	6.2
Nostalgia	3.4	11.1
Lifestyle portrayals		
Condition interferes with healthy or recreational activities	30.3	47.5
Product enables healthy or recreational activities	56.2	68.8
Lifestyle change is alternative to product use	0.0	0.0
Lifestyle change is insufficient	21.3	19.9
Lifestyle change is adjunct to product	22.5	7.4
Medication portrayals		
Loss of control caused by condition	67.4	59.7
Regaining control as result of product use	88.8	95.7
Social approval as a result of product use	83.1	90.8
Distress caused by condition	53.9	58.9
Breakthrough	67.4	69.5
Endurance increased as a result of product	12.4	23.5
Protection as a result of product use	11.2	24.5

Note: All data presented as weighted percentages.

a character's happy mood after taking the product, whereas negative emotions were evoked when portraying a patient's experience with their condition before the medication was prescribed.

Lifestyle Portrayals

The 2016 ads had increased portrayals of medical conditions interfering with healthy or recreational activities and of the product enabling healthy or recreational activities. Physical activity was featured in 58% of the 2016 ads, with characters shown engaging in moderate or vigorous physical activity, such as bicycling, hiking, running, or playing sports (results not shown). As was the case with the 2004 sample, many of the 2016 ads targeted conditions that have treatment options involving some behavioral change (eg, diabetes, fibromyalgia, submental fullness). Yet, none of the ads offered behavioral change as an alternative to taking medication and fewer ads in the 2016 sample presented the drug as a beneficial addition to lifestyle changes such as diet and exercise. The proportion of ads presenting lifestyle changes as insufficient for condition improvement remained virtually the same.

Table 2. Drug Brands in Product Claim Advertisements in 2016 Sample

Brand Name	Manufacturer	Advertised Indication
Breo	GlaxoSmithKline	Asthma
Brilinta	AstraZeneca	Acute coronary syndrome
Chantix	Pfizer	Smoking cessation
Cialis[a]	Eli Lilly	Erectile dysfunction, enlarged prostate
Cosentyx	Novartis	Plaque psoriasis, psoriatic arthritis
Eliquis	Bristol-Myers Squibb	Deep vein thrombosis, pulmonary embolism
Enbrel[a]	Amgen	Rheumatoid arthritis
Entresto	Novartis	Chronic heart failure
Farxiga	AstraZeneca	Type 2 diabetes
Harvoni	Gilead Sciences	Hepatitis C
Humira	AbbVie	Crohn's disease, plaque psoriasis, psoriatic arthritis, rheumatoid arthritis, ulcerative colitis
Invokana	Janssen	Type 2 diabetes
Jardiance	Boehringer Ingelheim	Type 2 diabetes
Kybella	Allergan	Submental fullness
Latuda	Sumitomo Dainippon	Bipolar depression
Linzess	Allergan; Ironwood	Irritable bowel syndrome with constipation
Lyrica	Pfizer	Diabetic nerve pain, epilepsy, fibromyalgia, neuropathic pain, post herpetic neuralgia
Myrbetriq	Astellas	Overactive bladder
Namenda XR	Allergan	Dementia with Alzheimer
Opdivo	Bristol-Myers Squibb	Hodgkin's lymphoma, lung cancer, melanoma, metastatic melanoma across BRAF status
Pradaxa	Boehringer Ingelheim	Deep vein thrombosis, pulmonary embolism
Prevnar 13	Wyeth; Pfizer	Pneumococcal pneumonia vaccine
Symbicort	AstraZeneca	Asthma, chronic obstructive pulmonary disease (COPD)
Taltz	Eli Lilly	Plaque psoriasis
Toujeo	Sanofi	Type 2 diabetes
Tresiba	Novo Nordisk	Type 1 or 2 diabetes
Trintellix	Takeda	Major depressive disorder
Trulicity	Eli Lilly	Type 2 diabetes
Trumenba	Pfizer	Meningitis B vaccine
Viagra	Pfizer	Erectile dysfunction
Viberzi	Allergan	Irritable bowel syndrome with diarrhea
Victoza	Novo Nordisk	Type 2 diabetes
Xarelto	Janssen	Acute coronary syndrome, deep vein thrombosis, stent thrombosis
Xeljanz	Pfizer	Rheumatoid arthritis
Xiidra	Shire Pharmaceuticals	Chronic dry eye

BRAF = human gene that encodes the B-Raf protein.

[a] Product also featured in 2004 sample.

Medication Portrayals

Almost all ads portrayed a character regaining control as a result of obtaining a prescription drug. All ads that portrayed a loss of control due to the condition (59.7%) offered the drug as the solution to this negative experience. Most ads associated the medication with greater social approval, often depicted by showing more friends, family, and recreational activities after a character obtained a prescription. Many ads continued to frame the medication as being a type of scientific breakthrough, using words like "revolutionary," or phrases such as "for the first time ever," and "now you can…". The portrayal of endurance increasing as a result of medication use (eg, showing a character being able to go to work, participate in family activities, etc) nearly doubled in the 2016 sample (23.5%) compared with the 2004 sample, indicating a further broadening of claims that the medications can help with patient's daily tasks and responsibilities.

DISCUSSION

This study revealed a shift in some aspects of DTCA execution. Problematic characteristics of prescription drug ads originally identified by Frosch et al[5] seem to have become more extreme. For instance, 2016 ads conveyed a greater emphasis on

Table 3. Drug Brands in Product Claim Advertisements in 2004 Sample

Brand Name	Manufacturer	Advertised Indication
Actonel[a]	Procter & Gamble	Osteoporosis
Allegra[a,b]	Aventis	Allergy
Ambien[c,d]	Sanofi-Synthelabo	Insomnia
Celebrex[c,d]	Pfizer	Overactive bladder
Cialis[c,e]	Eli Lilly	Erectile dysfunction
Crestor[a,d]	AstraZeneca	Hypercholesterolemia (high cholesterol)
Detrol LA[a,d]	Pfizer	Overactive bladder
Diovan[a,d,f]	Novartis	Hypertension
Diovan HCT[d]	Novartis	Hypertension
Enbrel[a,e]	Immunex	Rheumatoid arthritis
Fosamax[a,d]	Merck	Osteoporosis
Lamisil[a,d]	Novartis	Onychomycosis (nail fungus)
Levitra[a]	Bayer	Erectile dysfunction
Lipitor[c,d]	Pfizer	Hypercholesterolemia (high cholesterol)
Lotrel	Novartis	Hypertension
Nexium[a,b]	AstraZeneca	Gastresophageal reflux disease (acid reflux)
Plavix[a,d]	Bristol-Myers Squibb	Acute coronary syndrome
Prevacid[b,c]	TAP	Gastresophageal reflux disease (acid reflux)
Procrit[c,d]	Amgen	Chemotherapy-related anemia
Singulair[a,d]	Merck	Allergy
Valtrex[c,d]	GlaxoSmithKline	Genital herpes
Zelnorm[a]	Novartis	Irritable bowel syndrome with constipation
Zocor[a,d]	Merck	Hypercholesterolemia (high cholesterol)
Zoloft[a,d]	Pfizer	Depression, social anxiety disorder

[a] Product claim advertisements.
[b] Product switched to over-the-counter availability (prescription no longer required) since study's publication.
[c] Product claim and reminder advertisement.
[d] Patent for product expired since study's publication, opening up the market to generic equivalents.
[e] Product also featured in 2016 sample.
[f] Advertisement promoted unnamed products that were identified on corresponding website.

the reported drug benefits at the expense of information about the health condition. This pattern was identified in the 2004 ads but the gap between educational and promotional content within the advertisements has increased. Specifically, the 2016 ads were more likely to portray only the post-medication experience compared with the 2004 ads, and the post-medication experience was more often depicted with healthy or recreational activities, endurance, social approval, and regaining control as benefits of medication use. Such portrayals may have great motivational and empowering value, be beneficial in destigmatizing conditions, and prove helpful for patient adherence. Nonetheless, such expansive promotion of drug benefits could imply off-label outcomes and encourage an inappropriately broad population to seek the advertised drug.[15]

Concern about ad messages attracting an overly broad audience is exacerbated by the accompanying reduction in health condition information in the ads. Compared with 2004, the current sample of DTCA provided substantially less information about the biologic nature of the conditions, risk factors, and populations at risk. Similarly, there was a decrease in use of negative emotional appeals often associated with the challenges of coping with health issues. Pharmaceutical advertisers may be relying less on fearmongering, a tactic shown to be ineffective in health campaigns.[16-19] This finding, however, may also indicate an underrepresentation of the full context of patients' lives in relation to their health conditions. More importantly, by further de-emphasizing lifestyle changes, the role of medication in the experience and management of a patient's health is decontextualized.[14]

In discussing the educational shortcomings of DTCA, it is worth noting that while the ads have become longer (by 30%), their potential educational value has declined compared with the 2004 sample. This presents a disconnect with PhRMA's guidelines and other proponents of DTCA that set the expectation that the ads promote health and disease awareness above product endorsement.[11,12] To that point, Frosch et al[20] outlined the ways in which the drug industry could improve the usefulness of DTCA for consumers (eg, more precise information on health benefits of drugs drawn from published studies, acknowledgment of generic alternatives available). It is clear these suggestions have not been heeded.

This study had several limitations. Content analysis does not account for advertising effects on audience members. The findings warrant further research testing the efficacy of ad features to educate the public on health conditions and assessing consumers' interpretations of the emotional and psychological benefits found in DTCA.

For consistency with the 2004 sample, our coding scheme did not assess adherence to the fair balance doctrine, the analysis focused on product claim advertising rather than help-seeking ads, and the sampling method relied on prime-time programming. It is possible advertisers have replaced some of the health condition information to allow for more comprehensive risk information disclosure. Given the widening gap between drug promotion and health education evident in the our results, additional research is needed to understand how pharmaceutical advertisers may be using help-seeking

ads. Lastly, future research should investigate DTCA aired on niche networks and cable channels such as ESPN, Lifetime, or BET to see if differences exist in messages designed for narrower populations.

In conclusion, balancing motivation and adherence goals with the need for evidence-based accuracy and appropriate targeting deserves more attention than ever considering current advertising practices. Given the debate surrounding whether these ads serve to educate or persuade consumers, this study shows that pharmaceutical ads currently provide health education. In response to ongoing scrutiny and proposals to tighten restrictions, PhRMA put forth guiding principles in 2005 and 2008 urging its members to go beyond the basic FDA requirements for advertising prescription drugs.[11,12] These principles repeatedly call for efforts to educate patients about health conditions and alternative treatment options and to promote only well-substantiated drug claims. In concluding their findings, Frosch et al[20] were pessimistic that self-regulatory measures would be sufficient and our results suggest that self-regulation has done little to improve the educational quality of DTCA. If these ads are to fulfill a public health function in addition to a drug marketing function, policy makers will likely need to take further regulatory action to codify those expectations.

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Key words: prescription drug advertising; DTC; direct-to-consumer advertising; DTCA; content analysis; pharmaceutical industry

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