

US direct-to-consumer medical service advertisements fail to provide adequate information on quality and cost of care

ABSTRACT

Background In the 1970s, the Federal Trade Commission declared that allowing medical providers to advertise directly to consumers would be “providing the public with truthful information about the price, quality, or other aspects of their service.” However, our understanding of the advertising content is highly limited.

Objective To assess whether direct-to-consumer medical service advertisements provide relevant information on access, quality, and cost of care, a content analysis was conducted.

Method Television and online advertisements for medical services directly targeting consumers were collected in two major urban centers in Nevada, USA, identifying 313 television advertisements and 200 non-duplicate online advertisements.

Results Both television and online advertisements reliably conveyed information about the services provided and how to make an appointment. At the same time, less than half of the advertisements featured insurance information and hours of operation and less than a quarter of them contained information regarding the quality and price of care. The claims of quality were substantiated in even fewer advertisements. The scarcity of quality and cost information was more severe in television advertisements.

Conclusion There is little evidence that medical service advertising, in its current form, would contribute to lower prices or improved quality of care by providing valuable information to consumers.

KEYWORDS

advertising; advertisement; marketing of health services; ethics

INTRODUCTION

In 1975, the U.S. Federal Trade Commission (FTC) filed an administrative complaint against the American Medical Association (AMA) for banning its members from advertising. The FTC claimed that the advertising ban “prevented doctors from providing the public with truthful information about the price, quality, or other aspects of their service (such as office hours, acceptance of Medicare assignment or credit cards, or house-call services).”[1] Ensuing legal disputes between the FTC and the AMA eventually concluded in 1982 when the U.S. Supreme Court sided with the FTC. Since that ruling, direct-to-consumer advertising (DTCA) for medical services (“medical advertising/advertisements” hereafter) has grown substantially. Over time, other developed countries adopted similar measures; The UK deregulated a physician advertising ban in 1996,[2] and Germany and Israel took similar steps in 2000.[3,4] In the U.S., spending on physician advertising reached \$2.9 billion in 2016 which is about half of the \$6 billion spent on DTCA for prescription drugs.[5] Contrary to much of the scrutiny the latter has received, however, relatively little attention has been paid to the former.[6,7]

The ethics debate regarding medical advertising rests on the notion that healthcare is fundamentally different from other service industries and thus the conventional, market-based distribution of the limited resources is not morally justifiable.[8] The greatest concern with medical advertising is its potential damage to the patient-provider relationship.[9] Also raised are issues related to information asymmetry between providers and the public, resulting in amplified healthcare inequality.[10,11] Advocates of a market-based healthcare economy, on the other hand, argue that advertising helps consumers by expanding choices, lowering prices, and educating them about treatment options.[12,13] It is noteworthy that the historical and contemporary debates about medical advertising both revolved around the notion of whether it

benefits or hurts consumers. They are also similar in what they considered are important functions of the ads: expanding access, improving quality, and lowering price, all through provision of accurate information.

To date, little empirical evidence exists to support or rebuke the claims purported by either side. There are however some studies that looked at the information provided to consumers by medical centers. Two such studies, one focusing on newspaper advertisements by academic medical centers and the other analyzing the websites of bariatric surgery centers, revealed that advertisements were more likely to promote elective—rather than essential—procedures using commercial marketing strategies such as emotional appeal and patient testimonials.[14,15] When researchers examined television and magazine advertisements for cancer centers, only 5% of them mentioned cost.[16] Although 27% of the advertisements mentioned that consumers would experience medical benefits from choosing their facility, the benefits were quantified in just 2% of advertisements.[16] In another study, the homepages of Medicare-registered hospital websites were analyzed, revealing price mentioned in 19% of advertisements, medical outcome in 41%, patient safety in 20%, and satisfaction in 18%.[17] The investigators also noted that the information provided was often incomplete and difficult to understand.[17]

While calling for systematically monitoring medical advertising, Schwartz and Woloshin recognized the difficulty of this task due to the large number of organizations and individuals promoting a vast array of services.[5] Indeed, methodological challenges might have contributed to the scarcity of studies examining the content of medical advertisements. When researchers did study this matter, they focused primarily on national advertisements by large healthcare organizations. Limited data is available on local advertisements by individual physicians and

small physician groups. This actually is an important segment and should not be overlooked because physician-owners account for more than one-third of physicians practicing in the United States.[18] Moreover, the physician-owners are likely to be more directly involved in the advertising and marketing activities of their clinical offices than physicians working at large healthcare organizations.

Here we analyzed the content of medical advertisements from Reno and Las Vegas, the two largest media markets in Nevada, USA. Specifically, we wanted to determine whether advertisements by local physicians provide “the public with truthful information about the price, quality, or other aspects of their service” as the FTC claimed decades earlier. We specifically chose television and online advertisements because they are the top two media avenues for medical advertising.[19] The analysis aimed to answer the following three questions:

1. Do direct-to-consumer medical service advertisements contain information about access?
2. Do direct-to-consumer medical service advertisements contain claims about quality and, if they do, is evidence provided to support these claims?
3. Do direct-to-consumer medical service advertisements contain information about cost?

METHODS

Collecting local television advertisements

All DTCAs for medical services aired in the two media markets during primetime were collected for one month by subscribing to TVEyes, a television content recording service. For this study, medical service was defined as clinical service provided by a medical doctor or doctor of osteopathic medicine. Two research assistants saved the advertisements while speed-watching

the entire primetime programming from the four local affiliates of ABC, CBS, NBC, and Fox in each market. Initially, 546 advertisements were identified of which 61 were unique. Among them, 106 advertisements (10 unique advertisements) were excluded from the analysis because they did not promote a particular specialty or procedure and thus were not expected to contain information regarding access, quality, and cost. Instead, they focused on the brand image for a hospital or healthcare system. In sum, 440 advertisements (51 unique advertisements) were analyzed.

Collecting local online advertisements

Only paid advertisements showing up on the Google search result pages labeled as sponsored were collected to the exclusion of provider webpages appearing on the organic search results. Because over 80% of people looking for a healthcare provider online begin their searches by using the name of their condition/disease or the specialty they associate their condition with,[20] we compiled a list of 20 disease names that were most commonly searched on Google [21] and 22 medical specialty names recognized by the American Board of Medical Specialties.[22] For each of the 20 diseases and 22 medical specialties, we created four sets of search keywords (e.g., pediatrician; pediatric clinic; pediatric specialist; pediatric doctor). In total, two research assistants independently conducted 336 searches (42 disease/specialty names, using four sets of keywords, in two cities) and collected links to all ads from the first, second, and third search result pages. Because searches for online advertisements typically yield inconsistent results depending on who conducted the search from where, several measures were taken to minimize tailoring of the search results. First of all, the two research assistants collected the ads independently, using the exact same set of keywords, and duplicates were removed. Because

they conducted the searches from one of the two cities, they used a proxy service that provided IP based locations to Google’s personalization algorithm when they were collecting the ads from the other city. In addition, they used newly downloaded browsers with cookies disabled and with no log-in of any sort. See Figure 1 for a typical paid advertising search result from which the landing page URL was obtained.

- Figure 1 about here -

Unlike television advertisements, the universe of online advertisements cannot be reliably defined and thus we focused on identifying unique advertisements only. After 8 brand image advertisements, 5 physician profile advertisements, 1 advertisement solely focusing on different locations, and 1 advertisement for research participant recruitment were eliminated, the final count of unique advertisements was 200. The number included different advertisements by the same organization and advertisements by out-of-state providers, most of which were from neighboring states.

Advertised medical specialties

Among the 440 television advertisements (51 unique advertisements) and 200 online advertisements analyzed, some promoted a group of services whereas others promoted a single service. The number of advertisements for each medical specialty was generated by combining the numbers of advertisements promoting a group of services and a single service under the specialty. See Table 1 for the medical specialties promoted in the advertisements.

Table 1 Medical specialties featured in the television and online advertisements (ads)

Specialty	TV ad (unique) n (%)	TV ad (total) n (%)	Online ad (unique) n (%)
allergy/immunology	2 (3.9)	3 (0.7)	5 (2.5)
alternative medicine	1 (2.0)	2 (0.5)	3 (1.5)

cancer	5 (9.8)	23 (5.2)	4 (2)
cardiology	1 (2.0)	3 (0.7)	2 (1)
dermatology	0 (0.0)	0 (0.0)	5 (2.5)
emergency medicine	0 (0.0)	0 (0.0)	3 (1.5)
endocrinology	0 (0.0)	0 (0.0)	1 (0.5)
erectile dysfunction	1 (2.0)	42 (9.5)	0 (0.0)
family medicine	0 (0.0)	0 (0.0)	10 (5)
general surgery	5 (9.8)	49 (11.1)	9 (4.5)
hospice	4 (7.8)	136 (30.9)	0 (0.0)
infectious diseases	0 (0.0)	0 (0.0)	1 (0.5)
internal medicine	0 (0.0)	0 (0.0)	5 (2.5)
neurology	1 (2.0)	6 (1.4)	5 (2.5)
obstetrics/gynecology	5 (9.8)	37 (8.4)	14 (7)
ophthalmology	3 (5.9)	16 (3.6)	12 (6)
orthopedic surgery	1 (2.0)	1 (0.2)	15 (7.5)
otolaryngology	1 (2.0)	3 (0.7)	7 (3.5)
pain care	3 (5.9)	4 (0.9)	7 (3.5)
pediatrics	4 (7.8)	4 (0.9)	4 (2)
physical medicine	0 (0.0)	0 (0.0)	1 (0.5)
plastic surgery	9 (17.6)	30 (5.5)	39 (19.5)
psychiatry/counseling	1 (2.0)	19 (4.3)	18 (9)
radiology	0 (0.0)	0 (0.0)	2 (1)
rheumatology	0 (0.0)	0 (0.0)	1 (0.5)
screening/prevention	0 (0.0)	0 (0.0)	4 (2)
travel medicine	0 (0.0)	0 (0.0)	1 (0.5)
urgent care	0 (0.0)	0 (0.0)	16 (8)
urology	0 (0.0)	0 (0.0)	4 (2)
multiple specialties	4 (7.8) ^a	62 (14.1)	2 (1) ^b
Total N (%)	51 (100)	440 (100)	200 (100)

^a The 4 television ads about multiple specialties included: a healthcare system ad announcing new urgent care and primary care offices; a healthcare system ad promoting allergy and lung care; a hospital ad highlighting new facilities and services such as an outpatient surgery center, wound care, NICU, and an ER; a group practice ad listing pain care, primary care, urgent care, radiology, diagnostics, and medical spa services.

^b One of the 2 online ads was a healthcare system ad promoting obstetrics/gynecology services and lung/pulmonary care equally. The other was an ad for a telemedicine company (JustAnswer.com) that listed "general medical, OB GYN, mental health, pediatrics, urology, dermatology, dental and more" as their services provided.

Unit of analysis

The unit of analysis was a television advertisement or the webpage linked from the paid advertising search result. The majority of the television advertisements were 30 seconds long, although some were shorter or longer. Both verbally spoken and visually displayed words were

analyzed. The majority of the online advertisements were a page of clinic/hospital websites and approximately 15% of them were webpages specifically created for advertising purposes. From each webpage, all text, including the text layered on the images and words on top/side navigation bars and sub-navigation bars, including those visible only when the “menu” button was clicked, were analyzed. When a navigation bar suggested some relevant information on the inside page, the page was visited and examined as well. Further, we randomly selected 40 (20%) of the online advertisements and analyzed all pages clickable from the navigation and sub-navigation bars to assess whether the information that we were looking for might be found elsewhere on the websites linked to the landing pages.

Coding

All advertisements were examined for the presence of four elements related to access (services provided, how to make an appointment, location/address, and hours of operation), six regarding quality (outcome claim, outcome claim substantiated by evidence, safety claim, safety claim substantiated by evidence, patient satisfaction claim, and patient satisfaction claim substantiated by evidence), and four concerning the cost of care (financing plans, insurances accepted, acceptance of Medicaid/availability of uncompensated or reduced-cost care, and price). In coding whether a claim of outcome/safety/patient satisfaction was substantiated or not, reporting only a number (e.g., “95% patient satisfaction”) was deemed insufficient. Instead it had to be accompanied by a source (e.g., “95% patient satisfaction according to the Healthgrade consumer survey”) or a description of how the number was obtained (e.g., “Out of 800 patients Dr. XXX treated, 85% of patients experienced improvement in their symptoms”).

After multiple training sessions, two coders obtained acceptable intercoder reliability (Krippendorff’s $\alpha = .86$ for hours of operation in online advertisements; .93 for outcome claim

substantiated by evidence in online advertisements; 100% agreement for all other variables in television and online advertisements) from random samples of 11 television and 35 online advertisements. Subsequently, they split the advertisements and analyzed them independently.

Statistical analysis

The answers to the three questions were based on the frequencies of individual coding variables. In answering the three research questions, one outlier television advertisement that was repeated 127 times was excluded from the analysis. After the exclusion, the total number of television advertisements used to answer the research questions was 313. For the online advertisements, we not only examined the frequencies but also tested whether the landing page contained appreciably less information than the entire website by using a noninferiority test with a pre-specified margin of 30%. The margin was determined based on a previous study that found about 70% of key information on or within minimal clicks from the homepages.[23]

RESULTS

Description of advertised medical services

Television The 440 television advertisements were attributed to 17 distinct specialties and services. Almost half of them (8/17, 47%) had only one or two unique advertisements from the two media markets combined. In terms of the number of unique advertisements, plastic surgery was the highest (9/51, 18%), followed by cancer (5/51, 10%), general surgery (5/51, 10%), and obstetrics/gynecology (5/51, 10%). However, except for the general surgery advertisements, the advertisements were not heavily repeated. Most frequently repeated were the advertisements for hospice facilities (136/440, 31%), large organizations or practices offering multiple specialties

(62/440, 14%), general surgery (49/440, 11%), and erectile dysfunction (42/440, 10%) that together represented almost two thirds (289/440, 66%) of the total advertisements.

Online The 200 unique online advertisements were attributed to 28 distinct specialties. Less than one third (8/28, 29%) had only one or two advertisements from the two media markets combined. Among the specialties, plastic surgery (39/200, 20%), psychiatry (18/200, 9%), urgent care (16/200, 8%), and orthopedic surgery (15/200, 8%) had the highest number of unique advertisements and yet they together represented less than half (88/200, 44%) of all online advertisements. See Table 1 for details.

Television

Access Information regarding services provided (308/313, 98%) and how to make an appointment (304/313, 97%) was provided in almost every advertisement. A smaller number of advertisements included information about location (161/313, 51%) and hours of operation (56/313, 18%).

Quality The advertisements rarely mentioned good patient outcomes (33/313, 11%). Claims of patient safety (1/313, 0.3%) or satisfaction (0/313, 0%) were absent. None of the quality claims was substantiated by evidence.

Cost A small number of advertisements included financing information (11/313, 3.5%). Even smaller numbers of advertisements mentioned insurances accepted (5/313, 1.6%), acceptance of Medicaid/provision of care at no or reduced cost (1/313, 0.3%), and price (0/313, 0%). See Table 2.

Table 2 Frequency of access, quality, and cost information features on television advertisements (ads) for medical services

Coding variables	Unique ads n/51 (%)	Total ads ^a n/313 (%)
Question 1: information on access		
Services provided	47/51 (92.2%)	308/313 (98.4%)
How to make appointment	46/51 (90.2%)	304/313 (97.1%)
Location	12/51 (23.5%)	161/313 (51.4%)
Hours of operation	2/51 (3.9%)	56/313 (17.9%)
Question 2: information on quality		
Outcome claim	7/51 (13.7%)	33/313 (10.5%)
If present, evidence provided?	0/7 (0%)	0/33 (0%)
Safety claim	1/51 (2.0%)	1/313 (0.3%)
If present, evidence provided?	0/1 (0%)	0/1 (0%)
Patient satisfaction claim	0/51 (0%)	0/313 (0%)
If present, evidence provided?	- (0%)	- (0%)
Question 3: information on cost		
Financing plans	3/51 (5.9%)	11/313 (3.5%)
Insurances accepted	2/51 (3.9%)	5/313 (1.6%)
Medicaid/no or reduced cost	1/51 (2.0%)	1/313 (0.3%)
Price	0/51 (0%)	0/313 (0%)

^a For television advertisements, the frequencies obtained from total advertisements were used as the primary information to answer the research questions.

Online

Access Virtually all advertisements provided on their landing page information about specific services offered (199/200, 100%) and how to make an appointment (200/200, 100%). A similarly high number of advertisements identified the location (186/200, 93%). A smaller percentage of advertisements indicated their office hours (70/200, 35%) and the figure did not improve appreciably when compared with the rate for the 40 advertisements that were analyzed in their entirety (17/40, 43%).

Quality About one third of the advertisements (68/200, 34%) mentioned good outcomes on their landing page. Two of them (2/68, 3%) presented evidence to substantiate their claim. The outcome claims increased dramatically (28/40, 70%) when the whole website was examined, but

evidence to substantiate this claim remained low (5/28, 18%). Publicizing safety (31/200, 16%) was uncommon on the landing page, with only one of them supported by evidence (1/31, 3%). More safety claims were found elsewhere on the website (22/40, 55%), but they were no more likely to be accompanied by evidence (3/22, 14%). Patient satisfaction claims were also present on the landing page (41/200, 21%), but rarely substantiated by evidence (2/41, 5%). When the entire websites were analyzed, both the claims of patient satisfaction (15/40, 38%) and evidence (4/15, 27%) increased. The test of non-inferiority indicated substantial differences in the presence of outcome, safety, and patient satisfaction claims between the landing pages and entire websites. However, only patient satisfaction claims were more likely to be substantiated in the entire websites than on the landing pages-only.

Cost Information on financing was present on 36/200 (18%) of the landing pages and remained at a similar level in the entire websites (9/40, 23%). Insurance information was offered in 95/200 (48%) of the landing pages and 23/40 (58%) of the entire websites. Information regarding acceptance of Medicaid/availability of no or reduced cost care was on 14/200 (7%) of the landing pages and 7/40 (18%) of the entire websites. Lastly, price information was present in 36/200 (18%) of landing pages, while it was present in 16/40 (40%) of the entire websites. The non-inferiority test indicated a difference in the prevalence of price information between the landing pages and entire websites, but not in others. See Table 3.

Table 3 Frequency of access, quality, and cost information features on online advertisements for medical services

Coding variables	Landing page ^a n/200 (%)	Entire website n/40 (%)	% difference (noninferiority p-value) ^b
Question 1: information on access			

Services provided	199/200 (99.5%)	40/40 (100%)	0.5% (-) ^c
How to make appointment	200/200 (100%)	40/40 (100%)	0% (-) ^c
Location	186/200 (93%)	39/40 (97.5%)	4.5% (-) ^c
Hours of operation	70/200 (35%)	17/40 (42.5%)	7.5% (.001)
Question 2: information on quality			
Outcome claim	68/200 (34%)	28/40 (70%)	36% (.785)*
If present, evidence provided?	2/68 (2.9%)	5/28 (17.9%)	15% (.045)
Safety claim	31/200 (15.5%)	22/40 (55%)	39.5% (.886)*
If present, evidence provided?	1/31 (3.2%)	3/22 (13.6%)	10.4% (.026)
Patient satisfaction claim	41/200 (20.5%)	15/40 (37.5%)	17% (.05)*
If present, evidence provided?	2/41 (4.9%)	4/15 (26.7%)	21.8% (.252)*
Question 3: Information on cost			
Financing plans	36/200 (18%)	9/40 (22.5%)	4.5% (.001)
Insurances accepted	95/200 (47.5%)	23/40 (57.5%)	10% (.001)
Medicaid/no or reduced cost	14/200 (7%)	7/40 (17.5%)	10.5% (.005)
Price	36/200 (18%)	16/40 (40%)	22% (.156)*

^a For online advertisements, the frequencies obtained from the landing pages were used as the primary information to answer the research questions.

^b Test of noninferiority was conducted under the null hypothesis that the difference in proportions of finding given information between the entire website and the landing page-only approaches was more than 30% at $\alpha = 0.05$. The non-inferiority p-value smaller than .05 meant that the landing page-only approach was not inferior to the entire website approach in finding the information by a margin of 30%; The non-inferiority p-value bigger than .05 (marked with *) meant there was not enough evidence to conclude that the landing page approach would not miss some information that the entire website approach would capture.

^c A noninferiority p-value couldn't be computed due to the range of margin and the landing page-only percentage.

DISCUSSION

Overall, our results suggest that the benefits of medical advertising purported by the FTC and upheld by the Supreme Court decision to justify their use have only been partially met in Nevada. The advertisements lacked readily available information on demonstrable quality and cost, although they were better at conveying access information. The lack of quality and cost information is consistent with the findings of previous studies that analyzed national advertisements of academic medical centers, hospitals, and cancer centers.[14-17] In addition, we discovered notable differences between television and online advertisements.

In television, the low number of unique advertisements for each of the specialties suggested that the advertisements were aiding a small number of deep-pocketed practices to gain high visibility or create demands for specialty services rather than being used by multiple practices to compete over patients in need of essential care. The ten most frequently repeated advertisements accounted for 54% (293/546) of all television advertisements, including brand image advertisements. Among the ten advertisers were five integrated care organizations, one independent hospital, and four solo or group practices with multiple office locations each specializing in an off-label use of acoustic wave therapy for erectile dysfunction, fertility treatment, high risk pregnancy, and hair restoration. The heavy advertising spending by large healthcare organizations and physician groups in different specialties may reflect their strategy to use advertising as a barrier to entry by smaller competitions who cannot match them in the marketing budget. It has been well documented that consolidation of medical practices leads to increased prices and lower quality of care through decreased competition.[24] Because of the high costs for production as well as placement, television advertising may contribute to decreased competition rather than increased competition, resulting in higher prices and lower quality.

In terms of the content, most of the television advertisements included information regarding services provided and how to make an appointment, although they were not as reliable in conveying information about location and hours of operation. Furthermore, television advertisements were absolutely inadequate in providing information regarding quality and cost. It is also noteworthy that the low prevalence rates of access, quality and cost information could have been even lower, had we included brand image advertisements in the analysis. We excluded brand image advertisements by adopting a research strategy used in a previous study.[14]

However, the fact that a substantial percentage of medical advertisements on television (16%) fell completely outside of the FTC's premise—(advertisements) providing the public with truthful information about the price, quality, or other aspects of their service—by focusing on branding should not be overlooked.

In comparison, online advertisements were more widespread across different specialties with higher numbers of unique advertisements. They were also more consistent in delivering access information. Still, information about patient outcome, safety, and satisfaction was lacking and less than 5% of the claims were evidence-based. Cost information was also limited. The explanation undoubtedly is multifactorial and complex, as there are many restrictions on physicians to offer differential pricing, waivers of co-pays, discounts, and other charge adjustments. But from a patient's perspective, the lack of information is concerning. It is also noteworthy that cosmetic surgery, a service to which many patients are highly cost-sensitive, was the only category of services that consistently advertised price and available financing plans, accounting for 44 and 58% of all advertisements with the information on their landing pages. The information on whether health insurance plans are accepted or which healthcare insurance plans are accepted was absent in over half of landing pages, which is particularly perplexing given that patients choose 'acceptance of insurance' as the most important factor when selecting a provider.[25] In addition, there appears to be ample room for improvement in providing information regarding acceptance of Medicaid or no/reduced fees, unless medical practices presumably prefer not to expand access to patients with limited financial resources.

When we expanded the analysis to entire websites, the prevalence of outcome and safety claims increased substantially, but the evidence to support the claims did not. Unlike the outcome and safety claims, the increased claims of patient satisfaction were accompanied by

increased evidence. Still, the evidence was presented only in approximately one quarter of the websites with such claim or one tenth of all examined websites. Price was the only cost information that increased when the entire websites were examined. However, the price information was often offered for one highly popular elective procedure or in the form of a hospital charge ledger full of technical terms with no explanations regarding how much of the charges patients will be responsible after insurance and what additional fees will be added for physician services, supplies, and others. Further, the additional analysis of the entire websites (n = 40) provided insights concerning consumer's access to the scarcely found quality and price information. The information was more likely to be buried inside the websites and thus not easy to find for consumers. Unlike broadcast or print advertisements, websites have little restriction in space, which renders the deprioritization and omissions of quality and cost information particularly problematic.

The shortcomings of medical advertisements can be also interpreted from the perspectives of governmental regulation and professional ethics. In general, medical service advertising is regulated by the FTC and state laws that focus on consumer protection against unfair or deceptive advertising/marketing practices and thus enjoys as much freedom afforded to any commercial speech under the U.S. constitution. Although the applications are case-specific, the guiding principle of the FTC "truth in advertising" laws states that an advertisement must be truthful, not misleading, and, when appropriate, backed by scientific evidence.[26] On the other hand, the AMA Code of Ethics sets the bar higher. It provides guidelines on physicians' advertising and publicity activities and state medical boards can discipline physicians who are deemed to have violated the professional ethics. The AMA's guidelines suggest that physician advertising may include the educational background of the physician, the basis of fees or charges

for specific services, available credit or other methods of payment, and any other nondeceptive information. The guidelines also ask that the claims regarding the quality of physicians and the services may be made only if they are factually supportable and generalized statements of satisfaction may be made if they are representative of the experiences of that physician's patients.[27]

In light of these legal and ethical mandates, television advertisements stand out for the lack of any substantial information other than the service provided and how to make an appointment, which may not be an innocent oversight. Indeed, the absence of verbal assertions, in conjunction with the use of visual imagery to the effect, is a well-established advertising strategy commonly deployed by marketers to avoid government regulation of false or misleading advertising.[28] In comparison to television advertisements, online advertisements contained more information than television advertisements and yet quality claims were rarely supported by evidence. The FTC and the Food and Drug Administration have recently issued warnings and cease-and-desist orders against advertisements for dietary supplements and food products,[29,30] because they were making unproven health claims. Our data suggest that medical advertisements should be held to a similar standard.

Additional research is certainly warranted if we want to more fully understand medical advertising practices and their impact on the access, quality, and cost of care. An assessment of value to the consumer would complement these results. In general, the public have exhibited positive attitudes toward healthcare service advertisements.[31,32] Exposure to billboard advertisements also exerted direct influence on patients' choice of urgent care centers.[33] However, the perceived utility and the effects of fleeting exposure to advertisements with little verbal information do not necessarily mean that the advertisements helped consumers make the

choices that led to better health outcomes and lower financial burden. The fact that the vast majority of the advertising landing pages were part of clinic/hospital websites that people can access through organic searches—as opposed to paid advertisements—also casts doubt on the claim that medical advertisements improve access to healthcare by increasing information available to consumers, one of the rationales used by the FTC in the 1970s to challenge the AMA’s advertising ban. Instead, it appears, online medical advertisements only reorder whose information becomes more easily discoverable than others’ based on who is willing to pay and by how much.

Also, there is little evidence that advertising contributes to better quality care and lower cost. A recent study reported a positive relationship between advertising spending of hospitals and the global measure of patient satisfaction in the Healthcare Providers and Systems survey in competitive markets.[34] However, it dealt with only one aspect of quality, patient satisfaction, and the positive relationship between advertising spending and patient satisfaction could be attributed to third variables such as a halo effect of the positive imageries in the advertisements imprinted on patients and business-oriented hospital administrators who prioritize patient satisfaction and also spend a lot of money on advertising.

Further, research on the effects of advertising on price and competition cast doubts on the claims that medical advertising lowers prices and increases competition. A systematic review concluded that price advertising—advertising that emphasizes price—raises consumers’ sensitivity to price and lower prices whereas non-price advertising decreases consumer’s price sensitivity.[35] Because none of the television advertisements and the vast majority of online advertisements examined in this study contained price information, the advertisements are not likely to bring down the price of care.

The only study we were able to locate regarding the relationship between physician advertising and market entry also indicated that more established physicians (more experienced, male, and American medical school graduates) garnered higher return-on-investment from advertising than less established physicians (less experienced, female, and foreign medical school graduates), although the latter groups were more likely to advertise than the former.[36] Given that the stigma against physician advertising has significantly diminished since the time of study, a follow-up study would be valueable to determine whether wider adoption of advertising by established physicians resulted in a substantial redistribution of income from less established physicians to more established physicians, as the authors predicted.[36]

Assuming that physician advertising will continue to be allowed despite the discussed concerns, future studies should also address how to best provide information about the quality and cost of care in advertisements. To fulfill the promise of empowering patients by providing accurate information about the crucial aspects of care, it also behooves advertisers to figure out how to make the complex information accessible to the general public.

LIMITATIONS

This study has several limitations. First, the advertisements were collected in a single state. Although there are no known reasons to suspect that the information provided in these advertisements would be different in other states, further studies that include other states would provide a more comprehensive picture. Second, the scope of investigation was limited to television and online advertisements. Although medical advertisements in both media were short on quality and cost information, the notable differences between television and online advertisements suggest that not all types of advertisements are equally inapt. In future studies,

researchers should also bear in mind the structural differences across media. The comparison between television and online advertisements in this study was compromised because the findings about television advertisements were drawn from the universe whereas the online advertisements were from unique advertisements only. Third, in analyzing the online advertisements, we focused on the information provided on the landing page, including the navigation/sub-navigation bars. According to an industry report, however, the bounce rate of hospital and healthcare websites—the rate of visitors opening a single page on a website and then exiting without triggering any other requests to the server during the session—is 55%,[37] suggesting that the landing page plus navigation/sub-navigation bars approach is likely to have captured a majority of user experiences. Fourth, the quantitative approach taken in this study can be complemented by more nuanced, qualitatively-oriented methods. The highly structured coding scheme generated some concrete evidence of current practices that would benefit from a qualitative approach to the ethical basis for medical advertising.

CONCLUSION

Local television and online medical advertisements in Nevada, USA we examined provide little of the relevant information that would allow consumers to make informed choices about the quality and cost of care. Our findings in accordance with previous studies [14-17] cast doubts on the common defenses for medical advertising that it increases consumer choices, improves quality, and reduces cost. More research is needed to advance our understanding of medical advertising practices and the consequences and to inform policymakers.

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Figure 1 A typical paid advertising search result from which the landing page URL was obtained (file submitted separately)