

PUTTING THE CONSUMER FIRST: A SYSTEMATIC REVIEW OF THE EVIDENCE OF DIRECT-TO-CONSUMER-ADVERTISING OF PRESCRIPTION MEDICINES

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Abstract

Not very long ago the advertising of prescription medicines was directed exclusively at doctors and other healthcare professionals. However, in recent times, there is increasing evidence that consumers need and seek more information concerning their health and well-being. This study focuses on DTCA by pharmaceutical companies; a practice that is polemical as it operates at the nexus of population healthcare and 'for profit' enterprise, and is thus still severely restricted in developed and developing nations of the world. Whilst much has been written about this topic, the consumer is not often the focus of the debate. This paper takes that perspective, presents the findings of a systematic review of the evidence and succeeds in propelling the debate to new heights.

Keywords: DTCA Medical Marketing Consumer Needs Healthcare Advertising

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INTRODUCTION

This study focuses on Direct-to-Consumer-Advertising (DTCA) by pharmaceutical companies; a practice that is polemical as it operates at the nexus of population healthcare and 'for profit' enterprise, and is thus still severely restricted in developed and developing nations of the world (Weissman, Blumenthal, Silk, Zapert, Newman and Leitman 2003). However interest in, and the literature on, DTCA has developed apace over the last decade or so, but has tended to reflect the positions of the 'pro' and 'anti' groups towards DTCA. There are few, if any, studies that consider DTCA strictly from the perspective of the consumer and this is the key purpose of this paper. An additional objective of the paper is to assess the rigour of those studies that purport to assess the impact of DTCA on consumer behaviour.

STUDY METHOD

'DTCA is any paid form of non-personal communication of prescription medicines by manufacturers and distributors, the effect of which is to induce the prescription, supply, purchase and/or use of those prescription medicines' (World Health Organisation 2005, Kotler and Keller 2006). A systematic review of all evidence relating to DTCA and the consumer was undertaken. The systematic review was conducted in line with the guidelines set out by Khan et al. (2001) and our results are presented according to the guidelines laid down in the QUOROM statement (www.consor-statement.org/QUOROM.pdf 2005). It was not possible to extend the review into a formal statistical method syntheses or meta-analyses because of the heterogeneity of the studies explored. An extensive search of relevant databases from 1987 to October 2004 coincided with the study by Gilbody, Wilson and Watt. (2005) and a search of the data bases from October 2004 to May 2006 provided a more current view of the field.

FINDINGS

Background

DTCA is only permitted in the United States of America and New Zealand but has been considered in other developed nations. The DTCA debate in the literature has concentrated on the ‘pros’ and ‘cons’ of the process to the virtual exclusion of evidence-based position statements. The critics express concern about consumer safety, increased costs and patient doctor relationships, whilst the proponents stress patient awareness of conditions, treatment alternatives, compliance and a heightened involvement in their healthcare (Baukus 2004).

The healthcare market is divided basically into two segments, the healthy half and the unhealthy half (White et al. 2004); segments that comprise different people with different needs. According to White, DTC ads are ‘invisible’ to the healthy half because they have no obvious health problems (2004, p. 63). This is not necessarily the case because, as will be shown, some of these people have health problems of which they are unaware – and they may need to be alerted to them. Consumers and close carers need and search for information on healthcare issues; the intensity of the search is influenced by the physical and mental condition of the consumer, and age, sex and income level (Neutel and Walop 2005).

Television is a well-used medium in DTCA with problem-solution and emotional appeals being most popular. Magazines are most popular with female consumers but many people do not bother to read all the copy and ‘skim through’ brief summaries. The internet is an important source of information and the integrated approach of TV-Internet has high attention and credibility. Doctors are a highly credible and trusted source of information.

Consumer Protection and Regulation of DTCA

In the United States the consumer is protected by the government body, the Food and Drug Administration (FDA), whilst in New Zealand the consumer is protected by an industry self-regulatory body (the Advertising Standards Authority (ASA)). Both systems work well, but differ significantly in costs and flexibility. DTC ads are monitored by the FDA in the USA and in New Zealand all prescription

drugs ads must comply with the Medicines Act 1981 and Medicine Regulations 1985. The 1996 Code of Therapeutic Advertising (revised in 1999), introduced by the Advertising Standards Authority, lays down strict conditions for all therapeutic ads and 100% compliance with decisions by the industry is achieved.

The Practice

The populations of industrialised nations are ageing; the ‘boomer’ generation accounts for 80 million consumers and the ‘mature’ accounts for 52 million consumers in the United States. American consumers ‘buy’ on average 9 prescriptions each per year and by the age of 45 years, 50% of Americans and over 45% of New Zealanders, are prescribed at least one prescription drug. However, 80% of Americans feel confident about the safety of prescription drugs sold in the USA (Cohen, McCubbin, Collin and Perodeu 2001, *Prevention* 2004),

Ninety-six percent of US citizens are aware of advertised medicines and 32% of consumers who had seen an advertisement talked to their doctors about an advertised drug, while 57% of consumers searched for additional information on the internet. The top 20 drugs account for 58% of DTCA expenditure in the USA (*Prevention* 2004). In New Zealand, the high awareness levels of DTCA match those in the USA and awareness of benefits are above 80% in both countries, but risk information recalled in New Zealand is much lower than the US (30% v 80%). However a ‘great majority’ of New Zealand patients neither asked for, nor received, a prescription as a result of DTCA (Hoek, Gendall and Calfee 2004). Further, the surveys suggest that consumers do not share many of the concerns raised about DTCA on their behalf.

Educating Consumers

The ‘consumer welfare’ effect of DTCA, whereby advertising provides information to consumers that taps unmet, but medically significant, conditions, for example diabetes, hypertension, esophagus and stomach problems, and high cholesterol, has been confirmed by a number of rigorous studies. 43% of new diagnoses were ‘high priority conditions’ (Berndt 2005). ‘Well informed consumers are the bedrock

of an efficiently operating market' (Presidents' Advisory Healthcare Commission, 1998), and the FDA confirmed that DTCA served public health functions by increasing patient awareness of diseases that could be treated and prompted thoughtful discussions with doctors (Aikin, Swasey and Braman 2004).

More than half of adults who were interested in an advertisement for medication took action after seeing the ad. Most consumers sought information from their doctor as a result of DTCA – higher than any other source, and the doctor was the most trusted source of information at 95% (White et al 2004). Although ads were useful in initiating doctor discussions, some older consumers found them confusing. But over 61% of consumers in a national survey in the United States disagreed with the statement: '*Ads for medications should only be in medical journals*' (ORC 2002).

Consumer Reaction to DTCA

Consumer reaction to DTCA in the United States is tracked through a longitudinal study by *Prevention* magazine, confirmed by two FDA surveys. The overall consumer attitude towards DTCA is positive (Calfee 2002) and 'consumers like DTCA' (Deshpande, Menon, Perri and Zinkhan 2004). DTCA increases consumer awareness of new drug treatment, and 93% of consumers said that doctors welcomed their questions about prescription treatment. There was some concern from consumers about the clarity of information in broadcast advertisements.

It has also been argued that pharmaceutical companies charge high prices for new drugs and those drugs are promoted selectively (Kaiser 2003). A comprehensive study by Anantharaman and colleagues (2005) found a weak relationship between DTCA and price for 20 heavily-advertised drugs, and concluded that DTCA costs 'did not drive price increases' (2005, p. 15). Additionally, in the last 20 years the FDA has moved more than 600 drugs from prescription to over the counter (OTC) status. It has also been argued that some new drugs are more expensive, as companies endeavour to recover high research and development investments. However newer drugs are more effective and help to lower the costs of non-

drug spending; for example, replacing a 15 year-old drug with a new one increases drug costs by US\$18 but reduces overall costs on average by US\$100 (Auton 2004).

Spending on prescription drugs, accounting for around 10% of healthcare expenditure in the United States, has been growing rapidly (National Institution of Health Care Management (NIHCM) 2002). There has been some speculation about the causes of the increase in this spending growth. Some studies have suggested that increased drug prices are the main culprit (Kaiser Family 2003), whilst others ascribe the increases to the rapidly ageing population and the increased uptake of available treatments. However, according to the most recent statistics, the rate of drug spend growth is starting to slow down. This is due to a fall in the number of prescriptions dispensed, a change in payment plans, the conversion of a popular allergy medication to OTC status and a number of drugs losing patent protection (Content Management System (CMS) News 2005).

It has been claimed that Pharmaceutical companies charge high prices for new drugs and that drugs are promoted selectively (Mintzies 2002, Kaiser Family 2003), but new OTC and generic drugs represent considerable savings for the consumer. Also, the United States General Accounting Office (USGAO) has reported in a study that the most heavily advertised drugs outsold those that were less heavily advertised by a factor of 6 to 1. The prices of the heavily advertised drugs increased by 6% over the year, whilst the price of the other drugs rose by 9%. The USGAO report concluded that advertising had increased prescription drug utilization which, in turn, had influenced prescription drug expenditures rather than price (USGAO 2002).

One of the 'clearest and strongest' findings of FDA research, according to the FDA study, is that DTCA increases consumers' awareness of new drug treatments (Aikin 2004, p. 86). The authors also conclude that the advertising had motivated consumers to seek additional information about a drug or their condition and, as has been demonstrated, most consumers (89%) seek advice from a doctor. Further,

DTCA was of value to consumers by assisting them to guide their discussions with doctors and allowing them to become more involved in their own healthcare (Aikin et al. 2004). In a special survey directed at women, Kahn (2001) found that DTCA helped 75% of the sample to discuss prescription medicines with their physicians. These 1,600 women found that magazines were the best source of information on prescription medication.

Consumer Attitudes, Behaviour and Treatment

Research in the United States and New Zealand indicates that there are few problems with DTCA (Hoek et al 2004). Detailed and longitudinal research data interrogated by Calfee (2002) demonstrates the overall attitudes towards DTCA were very positive and six lessons can be learned from these data: 1. consumer deception is not an issue, 2. DTCA provides valuable information to consumers, 3. DTCA motivates consumers to seek additional information from health professionals and other sources, 4. consumers like DTCA (Deshpande, Menon, Perri and Zinkhan 2004), 5. DTCA aids patient doctor discussions, and 6. spill-over benefits for consumers from DTCA include better knowledge of the risks of medication, better compliance with drug therapies, and even motivation to pursue life style changes in the place of prescription drugs (Calfee 2002).

An important study by Kravitz, Epstein, Feldman, Franz, Azari, Wilkes, Hinton and Franks (2005) took us into the doctor's office to assess prescribing behaviour of doctors as a result of DTCA. The rigorous study used a randomised controlled trial and engaged actors called 'standardised patients' (SPs) who presented at doctors' offices with two levels of depression, requesting three levels of information for treatment from 'no medication request', through 'a general request', to 'request for a specific brand of drug'. Interestingly, 'patients' who made 'brand' requests for information, and had either major depression or minor disorder, received antidepressant prescriptions in similar proportions (53% vs. 55%). Only 31% of 'patients' presenting with major depression, but making 'no request' was prescribed an antidepressant. The findings of this study suggested that, although patients can influence the treatment

that they receive, doctors differed systematically in their propensity to prescribe anti-depressant drugs; there was evidence of under-treatment of serious depression and some over-treatment of less serious conditions (Berndt 2005).

When discussing this study with Dr Norman Swann of the Health Report on Australia's Radio National, Professor Kravitz explained that the 'patients' who presented with major depression were about twice as likely to receive antidepressant medication when they requested it than when no request was made (Swann 2005). This comment was questioned by Dr Swann: "*So what you are telling me is that an active consumer, and active patient, gets better care than somebody who is passive*" (Swann 2005). Professor Kravitz went on to explain that possibly the low prescription rate was due to the fact that the patient might be referred to a specialist or the doctor wished to monitor progress before prescribing; this was subsequently termed 'minimally acceptable care for depression'. 'The prescription rates for 'minimally acceptable care were 56% when the patient made no request but over 90% when they made a request'. Swann responded: '*So nearly half fell below the minimum standards*' (Swann 2005). Kravitz replied 'you might ask how did you manage to recruit such a cohort of bad doctors – but these doctors really aren't bad at all, in fact they are among the better doctors in the various communities that we studied.'

An exhaustive study entitled 'The Relationship between Clinical Experience and Quality of Healthcare' by Choudry and colleagues (Choudry, Fletcher and Soumerai 2005) produced some interesting results for patient care. The researchers carried out a comprehensive systematic review to uncover 59 studies, or 62 evaluations, between 1966 and 2004 that related physician knowledge to age and experience. They found that 52% of evaluations reported decreasing doctor performance with years in practice. More specifically, of the 19 studies that looked at adherence of standards to appropriate therapy, it was found that 14 of the 19 (74%) evaluations reported a negative association between doctor age and adherence to appropriate therapy standards; for example with Beta-blockers and lipid-lowering agents. Older doctors, it seems, are failing to provide the appropriate therapy for their patients and the authors of this study recommend

quality improvement interventions (Choudry et al. 2005). Younger doctors, also are not free from criticism when it comes to knowledge and practice; it appears that anatomy teaching in Australian universities is not as comprehensive as it used to be and that young doctors 'do not have the basics on which to build their medical thinking' (Creswell 2006).

Additionally, doctors are under increasing pressure for cost control, and found it increasingly difficult to manage busy practices and devote adequate time to their patients (Gallagher and Levinson 2004). Doctors found patients better informed but were concerned with the time taken to discuss patient misconceptions about conditions and treatments (Weissman et al 2004). Consumers are, however, much more interested in their healthcare and the balance of power between doctor and patient is changing as consumers interrogate and become better-informed from the numerous databases available to them. Eight out of ten patients who visited their doctor to discuss a condition as a result of DTCA did in fact suffer from that condition.

DTCA and the Doctor-Patient Relationship

The healthcare landscape is complex and dynamic and is being influenced by a number of factors, all of which impact on the doctor-patient relationship. The influencing factors are the rise of consumerism, increasing litigation, direct-to-consumer promotion of drugs, and easy access to a multitude of sources about medical conditions, for-profit healthcare, and the relentless pursuit of cost containment by health plans and government departments (Gallagher and Levinson 2004).

Consumers are becoming much more involved in their healthcare. Doctors are expected to be 'life-long learners' in addition to running a business, managing staff, completing forms from demanding bureaucracies— and this in a technically-complex and rapidly changing healthcare environment. As populations age, surgeries are busier, subsidized consultation times are shorter and doctors are under pressure 'to meet customer needs' (Weimers 2002, Axelroyd and Moore 2004, Gallagher and Levinson

2004). Before DTCA and the internet the local doctor was the first point of call and probably the sole custodian of key aspects of health data, today the patient is armed with vast quantities of data from numerous sources concerning conditions, treatments, test data on latest 'blockbuster' drugs, and the medical profession struggles to keep up to date with the latest advances in treatments, drugs, and 'bed-side' manners (Gallagher and Levinson 2004). But the doctor is still the most valuable source of healthcare information as demonstrated by White et al. (2004) and other researchers (for example, Aikin et al. 2004, Allison-Otley, Ruffin and Allison 2002, *Prevention* 2002), and the most trusted according to Koch, Ernst and Kelly (2002) where doctors rated a 98% trust rating from consumers. Both doctors and patients reported benefits and some problems with DTCA. Almost three-quarters of physicians thought that patients asked thoughtful questions as a result of DTCA exposure and that patients were better-informed and educated on treatments and healthcare generally. Doctors were concerned however with the time taken in correcting patient misconceptions and there were concerns that some of the information lacked 'balance' (Weissman et al. 2004).

Consumers felt that they were able to have better, more informed and shared discussions with their doctor as a result of DTCA. Advertised drugs discussed were prescribed less than 5% of the time and often doctors took the opportunity to re-educate patients about different treatments such as lifestyle changes (Aikin et al. 2004). Over 80% of doctors in the FDA survey said that they welcomed questions from patients prompted by DTCA (Aikin et al. 2004). White concludes from the MARS study 'our data along with 2002 US FDA survey of 500 doctors, show that more information in the patients' hands actively stimulates something closer to true consultation with their physicians than was the case prior to 1997' (White et al. 2004, p. 59).

A number of studies have suggested that DTCA encouraged consumers to seek medical help and to increase the flow of traffic into doctors' surgeries. However DTCA does not seem to have interfered with the doctor-patient relationship since prescription choice was still decided primarily by the doctor once

patients made the surgery visit (Berndt 2005, Rosenthal et al. 2002, and Wosinska 2002). However, in three countries where DTCA is not permitted, attitudes are less positive and there are behavioural differences between doctors and patients. In the UK, doctors and hospital specialists were highly opposed to the 'concept and likely overall impact of DTC advertising'. Further, these same doctors were also not in favour of recently introduced 'see your doctor' campaigns when 50% of the sample was unaware of the campaigns even though they had been running for four years (Reast, Palihawadana and Spicket-Jones 2004).

An Australian study showed that consumers who had 'high knowledge' of prescription advertising and drug regulation had a more negative attitude towards DTCA than those consumers with 'low knowledge' (Vatjanapukka and Warszak 2004). Another piece of research, however, found that 50% of Australian people felt that DTCA would be a useful source of information for consumers and would increase public awareness of prescription medicines; they also thought that DTCA would increase the price of prescription medicines (Miller and Waller 2004).

A rigorous study by Mintzes and her colleagues demonstrated that American doctors in Sacramento were more likely to prescribe an advertised drug than their Canadian counterparts in Vancouver. Seven percent of Sacramento patients requested an advertised drug as opposed to 3% in Vancouver, and physicians fulfilled 78% of requests for the advertised drug in Sacramento compared to 72% in Vancouver; this latter difference does not appear to be significant (Mintzies et al. 2003).

According to White et al. (2004), it is possible that doctors are being 'disintermediated' as the primary gatekeepers of health-related information, often by other healthcare providers. As in many fields, laypeople can now read about the latest advances in theory and practice as soon as they are published in specialist journals. The fundamental question is: '*Are doctors being displaced as the primary authority on individual patients' care?*' White answers his own question in the negative, with the authority of

21,000 consumer respondents (White et al. 2004). However, it seems that physicians are concerned with the ‘gradual but pervasive devaluation of the doctor-patient relationship’, caused fundamentally by the cost control practices and policies of health plans and policy makers (Gallagher and Levinson 2004, p. 61). DTCA has not significantly impacted adversely on the patient-doctor relationship but it seems to be a contributor in affecting the balance of power in discussions in the consulting room (Weimers 2002).

The Consumer and Medicalisation

Medicalisation is the process by which non-medical problems become defined and treated as medical problems, usually in terms of illness and disorders. There has been concern in some quarters that consumers were being persuaded, by DTCA, that non-medical conditions have become defined and treated as medical conditions (Lexchin 2004), for example toe nail fungus, baldness and erectile dysfunction. Other researchers have highlighted the epidemiological evidence showing ‘substantial under-diagnosis’ of major diseases and the known risk factors for which treatments exist (Bonaccorso and Sturchio 2002). A recent study by AusDiab (2006) has shown that an additional 275 Australian citizens are developing diabetes every day – but not all know this fact it appears.

Mintzies asks the question ‘does DTCA broaden the domain of medicine beyond reasonable grounds?’ (Mintzies 2002, p. 908). Mintzies argues that advertising campaigns can lead to shifts in patterns of demand for healthcare services, citing campaigns in Holland for toenail fungus where consultations increased ‘dramatically’ after a 3 month unbranded promotion, and in the United States where a campaign for baldness resulted in increased doctor visits. Mintzies points out that relatively healthy people are targeted and that even when the focus is on the prevention of serious disease, the drug companies ‘cast too wide a net’; for example, lipid-lowering drugs lower the incidence of serious heart disease in men, yet the drug is under-prescribed to this group. It is more profitable to promote primary prevention as more people are affected (2002, p. 908).

In a spirited response to the Mintzies stance in the medicalisation debate set up by the British Medical Journal, Bonaccorso and Sturchio (2002) highlighted the epidemiological evidence that showed ‘substantial under-diagnosis’ of major diseases and the known risk factors for which treatments exist. Even when diagnosed, the diseases are still under-treated and, when non-compliance is factored into the equation (estimated at 50% of prescribed medicines across all the major chronic diseases), avoidable morbidity and mortality is the result. These data ‘make the most powerful case for greater public awareness of the benefits of modern medicines’ (Bonaccorso and Sturchio 2002, p. 2). It has also been seen that direct to consumer promotion from pharmaceutical companies has an educational function in that it can keep consumers informed about healthcare, particularly diagnoses, risks, and potential treatments. The growing band of old consumers especially value DTCA and its ability to prepare them for discussions with their doctors (Huh, DeLorme and Reid 2004). Poor communication between doctor and patient ‘is known to lead to suboptimal health outcomes – consumers need information to make informed choices about their health’ (Bonaccorso and Sturchio 2002, pp. 2-3).

In Australia the medicalisation debate has been refueled in 2005 by an article from Dr. Con Costa of the Doctors’ Reform Society. He suggests that dementia and osteoporosis are a natural part of the ageing process and that the pharmaceutical industry is ‘medicalising’ these conditions (Costa 2005). He also questions the commitment by the industry to high cholesterol and impotence conditions. In a response to the claim by Costa that osteoporosis and dementia are ‘newly manufactured’ by the pharmaceutical industry, Kieran Schneemann (2005) rebuts the argument. He points out that many of the drugs available today are ‘discovered, researched, manufactured, trialed, registered, supported and marketed by pharmaceutical companies’. It is totally appropriate that continuing education about new and existing drugs is supported by the companies that know most about them (Schneemann 2005). As evidence Schneemann directs Costa to a new website by the International Federation of Pharmaceutical Manufacturers and Associations which has more than 250,000 links to clinical trials around the world; an indication of the transparency and remarkable research being done to save lives (Schneemann 2005).

The medicalisation concept was introduced into the literature in the 1990s, since when there have been significant changes in the pharmaceutical industry. The medical profession used to dominate the industry but now consumers and advocacy groups, providers (doctors, hospitals), payers (insurance companies and governments) and buyers (companies that buy health insurance for workers) all compete for power and influence over healthcare. But if there has been an increase of medicalisation through rising consumerism and industry zeal, insurers and governments have acted quickly to correct the balance according to Conrad and Leiter (2004).

CONCLUSIONS

The systematic review of the literature that was undertaken for this study into DTCA from the consumer's perspective demonstrates that much of the research in this area has been descriptive in nature. Valuable as this is, the research has failed to answer some key questions. The *Prevention* studies in the United States, and the work of Eagles and Hoek and colleagues in New Zealand have been valuable as they provide information of trends in consumer awareness, knowledge and attitudes over time; these studies were also confirmed by FDA work in 1999 and 2002. Such descriptive studies have value in that they explore the 'who', 'what', 'when' and 'where' questions. But they are unable to answer the important questions of 'why' and 'how'; the research studies have not explored in any depth the basic behavioural issues, that is 'why do consumers do what they do and what influences this behaviour'.

The studies that we have evaluated in this systematic review of the DTCA literature and consumers have provided valuable insights into the nature, extent and effects of direct-to-consumer advertising of prescription medicines:

- Some consumers are better educated about conditions and treatments
- Some consumers are better prepared for doctor discussions
- DTCA can facilitate the compliance process with older consumers

- DTCA increases the demand for treatments and medicines
- DTCA appears to influence prescribing behaviour of doctors.

It has been said that ‘the absence of evidence is not evidence of absence’ (Rosenthal et al. 2002) but the effects of DTCA on consumers have yet to be summarized in a relevant and rigorous manner. In company with Gilbody, Wilson and Watt (2005), we were unable to find significant studies that actually demonstrated the impact of DTCA on consumer behaviour. We were keen to find and interrogate studies that gave some insight into the ‘why’ and ‘how’ of consumer behaviour in the healthcare market. We sought studies that not only described variables and established loose relationships but studies that clearly indicated a causal link between variables, for example drug ‘x’ ads cause increased compliance of drug x. We looked for studies that used rigorous experimental designs with controls, or multi-measure interrupted time-series that demonstrated causal relationships between variables. Five studies met these strict criteria.

The first three studies were interrupted time-series analyses with before-after measures (Basara 1996, Zachry, Shepherd, Hinich, Wilson, Brown and Lawson 2002, Jong, Stricker and Sturkenboom 2004), and the last two studies were quasi-experimental designs with control groups (Mintzies et al. 2003, Kravitz et al. 2005). The time-series studies indicated that DTCA was effective in increasing prescribing volume for the advertised drugs, whilst the controlled experiments gave some insights into the prescribing behaviour of doctors in consultation with patients (Mintzies et al. 2003, Kravitz et al. 2005). The final study by Kravitz et al. raises some interesting questions about the prescribing behaviour of physicians.

These five important studies have given us the first real insight into the effects of advertising on consumer healthcare behaviour because they are able to isolate the effects of advertising from all the other variables that could affect that behaviour. All these researchers have conceded the limitations of their studies that affect the interpretation of the results. However research is an iterative process and, although rigorous research is a ‘late starter’ in the DTCA field, a bold start has been made and the foundations have been

laid for rigorous future research. We must learn much more of how and why consumers and healthcare providers behave in the way that they do.

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