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**From Food Advertising to Digital Engagements:  
Future Challenges for Public Health**

Rebecca Wells and Martin Caraher

Global spending on advertising is predicted to increase in 2016, with large food companies the second biggest category after the automotive industry. These food companies are predicted to spend \$30.7 billion on advertising and promotion, compared to \$30.4 billion in 2015 (Maddox 2015). An increasingly globalized food industry has successfully used advertising and marketing to develop and promote trademarked products in order to increase sales with brand recognition, brand loyalty and economies of scale. Oxfam (2013) estimates that worldwide, 500 companies control 70% of food choice. They identify ten powerful global food and beverage corporations, employing millions around the world and generating revenues of more than \$1.1 billion a day (Oxfam 2013). Their food brands are promoted, marketed and advertised in a sophisticated way, with many of them recognized worldwide. The global reach and influence of these companies is significant—their annual revenues of more than US\$450bn outstrip the GDP of all low-income countries combined (Oxfam 2013), which the World Bank put at US\$392.9bn in 2015 (World Bank 2016).

This global food market has emerged within the last 100 years or so. While some products have been branded for centuries, for example bread, which carried its baker's mark since at least the 13<sup>th</sup> century (Wilkins 1994), Lien and Jacobsen (2013) connect the beginning of mass food marketing to food production changes at the end of the 19<sup>th</sup> century. This period saw the industrialization of the food industry with advances in transportation, packaging and processing (Wilkins 1994). Food produced at a distance from its consumers began to be sold by middlemen such as shopkeepers. Food manufacturers began to package and brand their products both to protect them and to denote their quality. This had the

additional impact of building manufacturers' own relationships with their customers (Douglas 1984). The rise of the mass media in the form of newspapers was occurring at about the same time and the mass circulation of these newspapers ensured a wider audience for the advertisements they carried. Lien and Jacobsen (2013) see a paradigm shift in the mid-twentieth century when mass production of food and supply surpluses saw a growing interest in generating consumer demand and adopting sophisticated marketing techniques. Further shifts in mass media occurred with the development of new technologies, including the introduction of television and more recently with social media.

Advertising and marketing are separate but linked activities, advertising being part of the marketing process. However, while advertising occurs at a specific point in the production process, marketing occurs throughout: before, during and after. Food marketing "is enacted as complex and all-encompassing. It is potentially everything to do with food until it is digested" (Lien and Jacobsen 2013, 259). The "marketing mix" model, introduced in the 1950s (Borden 1964) sees the marketer as a "mixer" of a number of product elements to optimize profit (Gronroos 1994). The Four P's model (product, price, place and promotion) of the marketing mix gained popularity in the 1960s (McCarthy 1960) and came to dominate marketing theory for decades (Gronroos 1994). Some have introduced more Ps to the list to account for the marketing of services (e.g., people, physical evidence) but the original 4P model has persisted, despite its limitations (e.g., Glanz et al. 2012). However, another paradigm has emerged, "relationship marketing," which focuses on interaction between company and consumer in an effort to create a longer term relationship that builds profits on repeat business (Gronroos 1994; Lindgreen 2003). The food industry makes use of both the 4Ps model and increasingly uses social media to enhance its relationship marketing, for example to encourage brand loyalty (e.g., Nieburg 2013; Heneghan 2016). Originally carried out in-house, marketing and advertising are now often carried out by separate, expert

organizations—themselves now constituting a massive global industry. Alongside has grown up a substantial public relations industry, dating from the early 20<sup>th</sup> century (Evans 2013).

There are clear links between the old media channels of print, radio, and television and new social media. At the moment, social media are largely used to build on the relationships developed through marketing processes and have not, as yet, replaced traditional mass media channels. This replacement may occur as a generation emerges that is more comfortable with new media. Currently, traditional media such as television and radio use advertising to encourage individuals to visit social media sites. Here products are “directly marketed” to individuals based on their browsing history across multiple devices, creating the illusion of personal interaction.

Researchers have examined the extent to which marketing and advertising have led to the mass global consumption of highly processed food and beverage brands or whether global brands have achieved market dominance through efficient distribution, economies of scale and market forces. At the end of the twentieth century, the majority of food industry advertising expenditure was on highly packaged food, while advertising of meats, fruits and vegetables was negligible (Gallo 1999; Adams et al. 2009). By 2006 some researchers found a decline in overall food advertising on television; in Canada, the majority of television food advertising focused on restaurants and meals while in the UK the majority was for food stores, e.g., supermarkets (Adams et al. 2009). This reflects both social trends and power concentrations: eating out in North America accounts for a large and growing percentage of the household budget (USDA 2014) giving power to the North American hospitality industry (Schlosser and Wilson 2006; Albritton 2009). In the United Kingdom eating in the home represents the bulk of household food spent (DEFRA 2015) and the big retailers in the United Kingdom have a powerful influence on food choice and culture (Blythman 2012; Lawrence and Dixon 2015). These ratios fluctuate over time, relative to food prices and disposable

incomes, however, the total amount spent on advertising by the food industry has consistently dwarfed the amount spent by government on nutrition information or education (Keane 1997; Gallo 1999; Nestle 2013).

The public health community has repeatedly expressed concern over the mass consumption of highly processed foods that are energy dense and high in fat, salt and sugar [HFSS foods]. Moodie et al. (2013) point out that these industrially produced “ultra-processed” foods and drinks are durable, palatable and ready to consume, which puts them at a commercial advantage over fresh, perishable, whole products. Marketers and advertisers have promoted these advantages, emphasizing reliability, convenience and economy in their intensive and extensive marketing of these products. Many scholars (e.g., Moodie et al. 2013; Nestle 2013; Moubarac et al. 2014) say HFSS processed foods have largely replaced fresh, minimally processed foods in the diets of the global north, prompting further concern over the extent or contribution the aggressive marketing of HFSS products has on rising global non-communicable diseases related to poor diets (Moodie et al. 2013). Public discourse (e.g., in the mass media, see Adams 2011) has focused on a binary argument in which public health actors argue for increased regulation of “unhealthy” foods (e.g., Story and French 2004; Moodie et al. 2013) while marketing and industry bodies tend to argue for the benefits of self-regulation, the free market and individuals’ right to choose (Buse and Harmer, 2007; Kraak et al. 2012; Gornall 2014). However in the academic literature there are debates about the simplistic classification of foodstuffs as “healthy” or “unhealthy,” and the tendency for the media and research in nutrition science to focus on individual nutrients at the expense of overall diets. Dixon (2009) and Scrinis (2008) argue that this “nutritionalism” can cause food to be seen merely as a collection of nutrients—denying its complex cultural and social significance. In some countries such as Brazil and Australia, new food guidance relegates some foods to the category of discretionary, removing them from the “food plate” or “food

pyramid” altogether. This helps negate some of the arguments over definitions of “healthy” versus “unhealthy” food, as they are deemed non-foods to begin with. While this may not have much impact on consumer choice, it could encourage the food industry to reformulate their products, to avoid having them designated as a non-essential food.

A response from the public health community has been the development of a discipline called “social marketing,” which seeks to harness commercial advertising and marketing principles for social good (Hastings 2007). Examples include campaigns by public health organizations to promote healthier eating patterns such as the UK’s Change4Life program (see below for further discussion on this), fortification of foods with micronutrients in India (Bhagwat et al. 2014), and culturally relevant diabetes interventions in the United States (Thackeray and Neiger 2003). However, this can never compete against either the budgets or reach of full scale commercial marketing and so public health advocates have consistently encouraged regulation as an important element to encourage good nutrition (Kraak et al. 2016; Panjwani and Caraher 2014).

## **Reviews of the Literature**

Much of the published public health literature has concentrated on measuring the effects of advertising and marketing, and authors have taken part in a vigorous debate with the food industry as to the impact of advertising and marketing of “unhealthy foods” on audiences (Lindstrom 2008; Nestle 2013; Lang and Heasman 2015). There is also a raft of literature on the pros and cons of regulation of marketing and advertising. Research in this area has focused on health claims for food (e.g., Heasman and Mellentin 2001; Lawrence and Germov 2004; Nocella and Kennedy, 2012), advertising of alcoholic beverages (e.g., Smart 1988; Nelson 2010; Hastings et al. 2010; Bosque-Prou et al. 2014), marketing of infant formulas (e.g., Howard et al. 2000; Aguayo et al. 2003; Brady 2012), and marketing of food

to children (e.g., Hastings et al. 2003; Hawkes 2008; McGinnis et al. 2012). These debates have generally centered on the effectiveness of marketing restrictions and a neoliberal impulse to argue for choice. The food industry has argued for its right to advertise its products within a free market structure, in which it regulates itself with support from government (Sharma et al. 2010), even when there are societal costs such as damaging health or environmental outcomes, e.g., contribution to chronic disease patterns or greenhouse gas emissions (Panjwani and Caraher 2014). For their part, public health researchers have repeatedly put forward arguments in favor of legislation and regulation (Hastings et al. 2010). This long running debate about individuals' rights to choose what they eat reached a peak with disagreements about food advertising aimed at young people. Here, public health campaigners have successfully argued that children and adolescents belong to a special group of consumers who are vulnerable to advertising messages differently than adults.

### **Marketing to Children and Adolescents**

One of the main debates among researchers, civil society groups and policy makers centers on how and whether legislation against advertising towards children and adolescents could work (Hastings et al. 2003; Livingstone 2006; Hawkes and Lobstein 2011; Cairns et al. 2013). Before regulation and legislation can even be implemented there are practical difficulties of definition—how should (un)healthy food be defined? How should children be defined in age terms? In addition, there has been fierce debate over whether or not food advertising and marketing is demonstrably linked to rising childhood obesity and diet related non communicable diseases (DRNCDs). Researchers have found that advertisements influence children's eating habits and food preferences and can have a harmful effect on their health (Hastings et al. 2003; Cairns et al. 2009; Kelly et al. 2013) but while television viewing is positively correlated with obesity in children, research has found that there are

multiple influences on childhood obesity and it is difficult to isolate precisely the influence of television. In addition, some have argued that a focus on childhood obesity misses the contribution to other diet related non communicable diseases (DRNCs), problematizes weight in a way that is moralistic (Kirkland 2011; Guthman 2003), unfairly responsabilizes individuals (Crawford 1977; 1980; 1984) and is used by the food and marketing industries to deflect attention away from the wider issues of DRNCs (Caraher, Landon and Dalmeny 2006).

The weight of evidence from what became known as the Hastings Review (Hastings et al. 2003) resulted in the Office of Communications (Ofcom), the UK communications regulator, introducing new restrictions on the advertising of foods high in fat salt and sugar in television programs aimed at children under 16 in the UK (Ofcom 2006). The UK is not alone in considering regulation in this area—in 2011, of 59 countries surveyed, “26 have made explicit statements on food marketing to children in strategy documents, and 20 have, or are developing, explicit policies in the form of statutory measures, official guidelines or approved forms of self-regulation” (Hawkes and Lobstein 2011, 83). Further evidence linking advertising to childhood obesity led to the World Health Organization (WHO 2016) recommending that “settings where children and adolescents gather and the screen-based offerings they watch, should be free of marketing of unhealthy foods and sugar-sweetened beverages.” Nonetheless, Kraak et al. (2016) reported that no WHO Member State had “implemented comprehensive legislation or enforced mandatory regulations to prohibit the marketing of fatty, salty, and/or sugary branded foods and non-alcoholic beverage products to young people.” This is within the context of an ongoing neoliberal debate about the effectiveness of legislation, with governments preferring to act in partnership with industry, using voluntary agreements. This strategy risks accusations that governments are protecting food industry interests over public health, and the voluntary approach has also more recently

been questioned by so-called “Big Food” itself (Nkwocha 2016) who are keen to see a level playing field in food legislation.

Two international examples are instructive when considering the benefits and limitations of regulation in this area. The longest running model of restrictions on advertising of food to children comes from Québec, which has regulated on this issue since 1980. For over two decades no food advertising targeted directly at children, on Québec-controlled French language stations within its borders, has been broadcast during children’s viewing times. A number of analyses of the Québec model have shown the impact of restrictions on television advertising (Hawkes 2004; Dhar and Baylis 2011). In the modern world of global communications, cross-border media impact was often cited as an impediment—and one of the challenges faced in Québec, where most of the English programming comes from Ontario or the US (e.g., via satellite) and is therefore not subject to Québec regulation. The ban on advertising to children in Québec was upheld by a Supreme Court ruling in 1989. Challenged on the basis that it contravened the right to free speech, the Canadian court found that the ban did not in fact unduly limit free expression. For regularly updated reports on this and other international food advertising legislation see the World Cancer Research Fund’s NOURISHING Framework (WCRF 2016).

Other lessons learned from Québec included that marketing should be defined much more broadly and inclusively—not just of existing media, but of other unthought-of avenues that reach children—to prevent the marketing dollars flowing via alternative unregulated pathways. This included packaging, sponsorships, endorsements, etc. In addition, large numbers of children are also exposed to advertising through mainstream programming which is not specifically directed at children, but which is often viewed by many more children and adolescents than children’s programming itself (Dhar and Baylis 2011).

The other example, from Sweden, is used by both advocates of a ban to show what can be achieved and by opponents who claim that the ban has failed to halt the rising tide of obesity. In Sweden all advertising aimed at children under the age of 12 is banned, as are advertisements before or after children's programs. This initiative was introduced not to reduce obesity or to improve health per se but as a human rights scheme—the guiding principle is fair play and protection of children from undue influence such as advertising and marketing (Caraher, Landon and Dalmeny 2006). The Swedish case is based not on “good” or “bad” food but on the findings from research that children under twelve cannot clearly distinguish advertising messages from program content. The issue was discussed during the Swedish Presidency of the EU in 2001, in preparation for the revision of the EU Broadcasting Directive in 2002/3. This drive by Sweden for changes in Europe alarmed the advertising lobby, who advised their members that this could lead to wider bans (Caraher, Landon and Dalmeny 2006).

A recent development in Chile that is being discussed at the time of writing is removal of advertising of food high in calories, sugar, salt and fat from television, radio, magazines and websites. This is based on the argument that prohibition in one area results in displacement to other channels with the result that overall the number of advertisements for HFSS foods remains the same (WCRF 2016). This is an ongoing debate with countries acting unilaterally and taking different approaches to regulation and legislation.

### **Corporate Capture of Popular Food Culture**

Alongside the public health literature on marketing of food to children and adolescents, there is an emerging body of public health literature on food and marketing that examines the corporate capture of food and its related cultural meanings (Mindell et al. 2012; Panjwani and Caraher 2014). Public health researchers have identified marketing

opportunities used by food companies at mass public events as contributing to an environment where energy-dense, nutrient poor food choices are the default option and often the cheapest one (WCRF 2016; Swinburn et al. 1999). Studies looking at food and drink marketing at sporting events have investigated, for example, the advertising of fast food and alcoholic beverages at cricket matches in Australia (Sherriff et al. 2010), consumer opinions on food and drink advertising during Canadian sporting events (Danylchuk and MacIntosh 2009), professional athletes' endorsements of food and beverages in the United States (Bragg et al. 2013), and World Cup football sponsorship by fast food and soda brands (Collin and MacKenzie 2006). These studies have indicated that fast food and sugar-sweetened beverage companies have to some extent replaced tobacco advertising at sporting events and that these sponsors have been considered preferable to alcohol and tobacco advertising both by consumers and regulators. However, studies have shown that food and drinks endorsed by celebrities and chosen as sponsors for major sporting events such as World Cup football were energy-dense and nutrient poor and these were at odds with the stated ambition of many of these publicly funded tournaments to inspire greater public sporting activity and achievement. While Bell and others (2011) outline the dangers associated with extrapolating public health measures on smoking to those attempting to address diet-related ill health, public health academics see lessons to be learned in the regulation and promotion of food from the areas of tobacco and alcohol control. Key among these are that education and voluntary agreements must be combined with legislation, regulation and economic approaches. Corporate power, they feel, cannot be matched and therefore should be regulated (Moodie et al. 2013; Mercer et al 2003; Daynard 2003).

Other researchers have focused on product placement in films, television programs and online gaming environments. Again, literature here has focused on targeted marketing to children. Scholars (Lackey 1993; Beng 1995; Sutherland et al. 2010) have documented the

nature and frequency of food and beverage advertising in movies, pinpointing the successful placement of Reese's Pieces confections in the 1982 children's movie *E.T. the Extra-Terrestrial* as the starting point for an expansion in product placement in children's movies. Sutherland et al. (2010) analyzed the top 20 US box office movies for each year from 1996 to 2005 and found that candy/confections and salty snacks were the most prevalent food brands in movies, while sugar-sweetened beverages were the most prevalent drinks. Fast food comprised two thirds of the food retail establishment brand placements. There has been conflicting research, some (e.g., Gupta and Lord 1998) showing that prominent product placements were more effective than advertisements, while others (e.g., Beng 1995) showed that consumers did not necessarily recall the brand or indicate any intention to buy it after having seen the film. Public health researchers raised concern that such covert advertising was unethical, unhealthy and should be regulated, especially in films directed at a young audience. However, compared to television advertising to children this is a neglected research area (Sutherland et al. 2011) and Sabour et al. (2016) reported that in contrast to regulations on advertising, product placement legislation/regulation in the United States ranges from "weak to non-existent." Elsewhere, regulation for product placement of unhealthy foods to children has been proposed in various forms (industry self-regulation, government guidelines, statutory regulation) in various countries, but most has focused on self-regulation (Hawkes 2008; Hawkes and Lobstein 2011).

There has been some literature exploring attempts to raise awareness of the health status of food products within the advertising space. The alcoholic beverage industry has for some time voluntarily included "drink responsibly" messages in its advertising. These have been examined in the public health literature (e.g., Smith et al. 2014) and the advertising literature (e.g., Ringold 2008) with mixed results. Some public health commentators argue that these voluntary warnings are often incidental to the main slogan or tagline, fail to define

moderate drinking and may even encourage heavier drinking, while others argue that responsible drinking messages can promote moderate drinking behavior. In a related but more recent development, the city of San Francisco has required billboards to add warnings to advertisements for sugar-sweetened beverages. This development, reminiscent of warning labels used on cigarette packaging, was fought by the beverage industry but welcomed by public health campaigners (Arthur 2016). These, however, remain public education initiatives and are not designed to limit the product, placement or price. Parallel examples are the sugar tax in Mexico, the proposed sugar tax in the UK, and the failed Danish fat tax (Caraher and Cowburn 2015). In these instances, the focus has moved beyond control of advertising to focus on the Ps of placement and price of such products. In all instances the power of food and marketing companies extends beyond the budget they have for lobbying activities and the access and influence on government and government departments they have at their disposal. This lobbying is legitimate although not covered by agreements on disclosures or public accountability (Nestle 2013).

### **The Impact of New and Social Media**

Those looking at the media in the light of changing technologies have long sought to understand and emphasize the changes technological advances in communications have had on social interaction (McLuhan et al. 2008). The rise of the Internet and social media has provided new opportunities for marketers and advertisers to promote their products in a more sophisticated way that accounts for the interactive nature and immediacy of social media platforms. The marketing literature reflects the interest of business in engaging and using social media for its own purposes (Drury 2008; Mangold and Faulds 2009; Kaplan and Haenlein 2010). Lang and Heasman (2015) document the shift in food marketing budgets from television (which remains an important platform) towards digital marketing activities

using the Internet, social media and advergames (advertising using video games).

The time lag inherent in academic research means that public health research is still measuring the scope and scale of digital marketing (e.g., Montgomery and Chester 2009), but little work has yet been done exploring the impact this new development is having on nutrition and diets. However, in common with the food industry, health professionals at various levels have begun to use digital marketing in combination with the techniques of social marketing to engage consumers and try to change behavior. Two pertinent UK-based examples are Change4Life and GULP (Give Up Loving Pop). Change4Life is a government social marketing campaign ([www.nhs.uk/change4life](http://www.nhs.uk/change4life)) introduced in 2009 as part of the “Healthy Weight, Healthy Lives” strategy. While this is an innovative public/private model using apps, animations and games as well as traditional media, Change4Life again focuses heavily on weight reduction and is undermined by industry involvement and a lack of opportunities for users to interact in a meaningful way. GULP ([www.giveuplovingpop.org.uk](http://www.giveuplovingpop.org.uk)) is a civil society initiative which aims to raise awareness of the health harms associated with over-consumption of soda. While innovative, as a local, charitable organization GULP has limited resources to engage proactively with users.

### **Methodologies and Paradigms**

Public health academics and policy makers seek to understand how traditional and new media influence purchasing behaviors. Concentrating on quantitatively measuring marketing output, public health researchers have analyzed thousands of hours of television advertising and thousands of words of media texts (e.g., Boyland et al. 2016; Boyland et al. 2015). These analyses can measure correlations with health effects but cannot show causality. Additionally, Lindstrom (2008) shows that many assumptions about relationships between advertisements and the decision-making process are in fact mistaken, as these relationships

are more complex than imagined. The literature in public health has been largely driven by a linear model of communication which in the main fails to take into account the complex nature of communication and food choice. In contrast, the fields of communication and cultural studies have developed theories that explore audience interaction with messages, emphasizing that audiences do not simply passively accept messages, texts, symbols or signs, but that they also negotiate, oppose or interpret them (e.g., McQuail 2011; Hartley 2012). Literature in marketing, public relations and business has also shown interest in these complex models of communication, new technologies and new methods in advertising and marketing (e.g., Belk 2007).

For their part, advertisers base their budgets on numbers of consumers reached and sales data, but they also have difficulty attributing impact or effect on their audiences to advertising. Traditionally the assumption of advertisers has been that increases in sales show correlation, in contrast to the delayed effects of public health messages. The difficulty of measuring the effect of advertising and an associated debate about this has antagonized relationships between public health researchers and advertisers (e.g., Advertising Association 2013). Food in the Internet age, with a vast and expanding array of food blogs, apps, sponsored websites and games, poses new difficulties (Aspray, Royer and Ocepek 2013). While we agree it is necessary to understand the mechanism through which these marketing endeavors work from a public health perspective, too little focus has been on a public health precautionary approach where the onus is on the food and marketing industries to show no harm, by documenting how food and food categories contribute to ill-health.

As noted above, a popular government strategy in this area is voluntary agreement with industry. While there is some evidence that PPPs (public private partnerships) can contribute positively to public health outcomes (Buse and Harmer 2007), many have not had the desired effects, and accountability and monitoring are often missing from the equation

(Panjwani and Caraher 2014; Buse and Harmer 2007; Kraak et al. 2012; Kraak et al. 2016).

Also many lack a clear outcome against which success and company culpability can be measured. Key learning is that business often defaults on the original intention and there is a lack of accountability by politicians and civil servants to argue for the greater good or to set limits on what is negotiable.

## **The Future**

Current problems with public health research relate to its conceptualization of information and behavior change as a linear model of movement, whereas the food and beverage industries are increasingly moving towards new media and use these platforms to build relationships with and between customers. While public health policy has been successful in introducing restrictions on advertising to groups such as children, particularly in the realm of television advertising, public health research and action have been slow to respond to the new areas of digital and social media. At the moment, much is made of the power of “nudge” (Thaler and Sunstein 2008) to bring about positive health changes. While such persuasive behavioral interventions may be useful, public health academics have argued that they still do not and cannot match the power of “Big Food” and the promotion of highly processed food that is high in calories, fat, salt and sugar.

In common with other areas of prevention work, research on advertising restrictions suffers from a lack of evidence-based, well-designed intervention projects. One way of addressing this is by adopting a solution-oriented approach (Robinson and Sirard 2005). In essence, this moves the research focus away from developing more descriptions of the problem, to working on solutions. This means that research in this area, in addition to focusing on the processes and mechanisms involved in marketing, would also look to develop policies that use econometric and health data to estimate the impact of “Big Food,” including

how its marketing and advertising contributes to ill health. This is a strategy already adopted by sections of public health engaged with alcohol control, where the contribution of alcohol companies to alcohol-related ill health and other social costs such as domestic violence have been measured (Addiction and Lifestyles in Contemporary Europe Reframing Addictions Project, [www.alicerap.eu](http://www.alicerap.eu)). This possible new area for public policy to develop, could also address criticism of public health research by shifting from victim blaming that emphasizes individual behavior change towards a system in which large companies are held responsible (Crawford 1977; Guthman 2011). As Julie Guthman notes, many individual, consumerist solutions are based on singular causes, “which tends to neglect the sources of the problem in production and lets off the hook those more responsible for the problem (corporate bad actors and policy makers)” (Guthman 2011, 187).

As noted above, public health research is lagging behind that of industry in the move to understanding and developing social media (see Lindstrom 2008 for an industry view on this). In policy terms, public health practitioners do not always possess the requisite skills to develop policy interventions in new areas (Caraher and Cowburn 2015). Future debates will be further complicated by discussions on the right of the food industry to promote and sell food and the public health mandate to protect citizens and populations. Current trends predict more countries adopting restrictions in combination with industry partnership to try to bridge this gap. Public health researchers will continue to try to keep up with the advances and changes in technology, which offer increasing opportunities and platforms for marketing and advertising. Key developments include the use of big data and social media algorithms for direct marketing (O’Raghallaigh 2015). The debate at the moment is polarized and diffuse, with a notable lack of interdisciplinary work. Opportunities exist for public health researchers to work more closely with academics in the fields of communications, marketing and

advertising as well as anthropology and sociology, to explore the options for both restricting and harnessing the power of marketing for the public good.

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