



## Addressing vaccine hesitancy: The potential value of commercial and social marketing principles and practices<sup>☆</sup>



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### ABSTRACT

Many countries and communities are dealing with groups and growing numbers of individuals who are delaying or refusing recommended vaccinations for themselves or their children. This has created a need for immunization programs to find approaches and strategies to address vaccine hesitancy. An important source of useful approaches and strategies is found in the frameworks, practices, and principles used by commercial and social marketers, many of which have been used by immunization programs. This review examines how social and commercial marketing principles and practices can be used to help address vaccine hesitancy. It provides an introduction to key marketing and social marketing concepts, identifies some of the major challenges to applying commercial and social marketing approaches to immunization programs, illustrates how immunization advocates and programs can use marketing and social marketing approaches to address vaccine hesitancy, and identifies some of the lessons that commercial and non-immunization sectors have learned that may have relevance for immunization. While the use of commercial and social marketing practices and principles does not guarantee success, the evidence, lessons learned, and applications to date indicate that they have considerable value in fostering vaccine acceptance.

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### 1. Introduction

Many countries and communities are dealing with groups and/or growing numbers of individuals who are delaying or refusing available recommended vaccinations for themselves and/or their children [1–3]. Recognizing that the factors underlying these decisions are varied and that no single intervention strategy can solve the problem [1–5], the SAGE Working Group on Vaccine Hesitancy (WG) placed emphasis in their recommendations on identifying and evaluating approaches that are designed to better

understand and to decrease vaccine hesitancy [6]. Among the strategies assessed by the working group was the Tailoring Immunization Programs (TIP) initiative developed by the WHO Regional Office for Europe, which is based upon social marketing principles and behavioral insight methodology [7,8], along with insights gained from discussions with commercial marketing and social marketing experts involved in health and non-health related applications that might be applicable to vaccine hesitancy [6]. The potential value of social marketing has also been recognized by immunization programs and advocates [8–11] including possible application to vaccine hesitancy [12–14].

This review builds on the WG's interest in commercial and social marketing principles and practices to help address vaccine hesitancy, providing an introduction to social marketing and overviews of: (1) challenges to the marketing and social marketing approach when applied to immunization programs, (2) how immunization advocates and programs have used marketing or social marketing approaches or core elements of it to address hesitancy, and (3) lessons from commercial and non-immunization sectors that may

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have relevance for immunization. It also reaffirms the value of, and the need for, evaluating efforts that use such practices and principles, both to build the evidence base and to assess their impact, if any, on vaccine hesitancy or acceptance.

## 2. Introduction to marketing and social marketing

As defined by the American Marketing Association, “marketing” is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large [15]. Marketing is based on the notion that products and services are most likely to be successful – i.e. purchased or taken up – if they are focused on identifying, addressing and satisfying the needs of current and potential customers [16]. Individuals’ purchasing or buying behaviors are seen as “exchanges of value” that benefit both the buyer and the seller, with a marketer’s branded product or service being perceived by the customer as the one that best meets their needs. Social marketing represents the extension of this thinking to the “selling” of ideas, attitudes and behaviors, usually ones characterized as “pro-social” or focused on improving the health and well-being of both the targeted individuals and the broader community or society (e.g. preventing or reducing tobacco use, promoting physical activity, and sharing nutrition recommendations) [17–20]. Thus, while the outcomes of interest differ – with commercial marketers focused on persuading consumers to value and purchase branded products or services, and social marketers focused on encouraging individuals to value and adopt advocated ideas and recommended actions – in the end, both are intended to inform and influence a decision that affects a behavior. Thus, there is much commonality in the approaches, practices, and principles guiding the application.

Social marketing takes commercial marketing principles and applies them to influence target audience behaviors that will benefit the individual and society, i.e. its primary goal is public good. Social marketing thus provides a potentially helpful lens when examining immunization program issues such as hesitancy. As the WG and others have noted [1–5,21], dealing with vaccine hesitancy within a country or subgroup requires developing an understanding of the magnitude and setting of hesitancy, developing and validating metrics that allow monitoring trends over time, a diagnosis of the root cause or causes, tailored evidence-based strategies to address the causes, and evaluation of the effects and impact of the interventions. Social marketing provides a framework for doing this as it focuses on creating, communicating, delivering, and exchanging offerings that have a positive value for the segmented, targeted audiences and partners within the constraints of available resources [12,18–20].

## 3. The four “P’s”: product, price, place and promotion

At the heart of marketing and social marketing are the four “P’s” – Product, Price, Place and Promotion [16–18]. These are the four major categories used to create, communicate, and deliver value to target populations, with each category containing elements that can be changed or varied in order to make an offering, service, idea, recommendation, or the adoption of a behavior more attractive and appealing. The “*Product*” includes the actual features or characteristics of the offering, the benefits derived or received from using the offering or performing the advocated behavior, and how the offering relates to the end user’s interests and needs. The “*Price*” encompasses the costs associated with the offering or behavior, including money, time, physical and psychological (e.g. cognitive processing expended) efforts, while “*Place*” encompasses access, accessibility, distribution and convenience. Price and

place considerations often place a priority on creating or fostering easy, convenient access to marketed products, services, or things that enable adoption of recommended behaviors. The fourth “P” – “*Promotion*” comprises the persuasive communication factors used to highlight product features/benefits, its price or costs, and where/how to obtain the offering. The promotion category includes the creative strategy, the media and message delivery channels, the messengers or spokespersons, and the messages to be used [9,13,18].

In social marketing, the product is often the behavior that is being advocated, while the price can include the investment in time and/or effort to make a decision that results in the desired behavior, the social value of following the perceived community consensus (or, conversely, the social costs of not complying with a perceived norm), as well as the provision of monetary subsidies to foster adoption of the advocated behavior [12,17,18]. Two additional “P’s” – “*Partnerships*” and the “*Participation*” of key stakeholders – are also frequently used to help accomplish public health goals, including through the establishment of social norms and via policy-maker engagement [19].

In both marketing and social marketing, the 4 “P’s” are combined into a “marketing mix” or a comprehensive strategy that utilizes all the major categories in an effort to inform a decision that affects *voluntary* behavior or behavior change (i.e. neither is about coercion or enforcement) [20]. The marketing mix and specific efforts are also usually grounded in: (1) a situation analysis that provides an assessment of the context in which the campaign or intervention is to be launched; (2) research that helps identify different population groups or segments, including the cognitive and behavioral determinants of action or inaction associated with each; (3) engagement of stakeholders and partner organizations, such as those involved in delivering or providing the service; and (4) promotional strategies and messages based on insights gained from audience research, feedback or engagement [12,17–20,23].

## 4. Overview of application of social marketing to address immunization and vaccine-hesitancy

Social marketing introduces the field of immunization to *brand positioning* and prompts programs to think about the value of immunization in a different way; what is the ‘brand’ and how is it perceived? What are the immunization program product’s attributes and benefits as seen through the eyes of the individuals for whom vaccination is recommended or of the parents for whose children vaccination is recommended? Immunization program planners need to consider how to best promote vaccine and vaccination benefits from the perspective and needs of the hesitant caregivers, individuals, and communities, rather than from the program planner perspective.

Social marketing also introduces *tactical segmentation* of the population going beyond mere background characteristics, by drawing on consumer market research and analysis to consider demographic and psychographic characteristics, population members’ subjective experiences with immunization, their intention to perform the advocated behavior, their medical histories, cultures and environments. These help form a more complete picture of the population that goes well beyond traditional healthcare profiling and characterization. Social marketing also involves the determination/identification of the key influencers, gate keepers, and agents of change within the population as information provision alone does not determine behavior – it also matters who is providing vaccination-related information and how it is provided. Social marketing therefore, seeks/encourages an enhanced understanding of how different subgroups in the targeted population are likely to be persuaded given that hesitancy varies and is not uniform across

the population, and the factors influencing hesitation are not the same across the subgroups [21,22]. Some subgroups may be more difficult to address or persuade [8,14] and therefore knowing how subgroups differ from each other is essential. Context timing and vaccine also matter. Applying social marketing to immunization makes a very clear distinction between hesitancy toward new vaccine introduction and hesitancy regarding older vaccines such as the measles–mumps–rubella (MMR) vaccine.

Social marketing not only helps immunization programs identify and understand the physical, social, and economic environmental factors that play a major role in determining vaccine acceptance; it also calls attention to the need to examine *immunization convenience* [7,8,18]. Social marketing encourages consideration of alternative methods and outlets to reach their target populations, according to their profiles. Marketers focus much of their attention on how their products are delivered and whether the delivery channels and places where the product is offered meet the needs of the population in question. Social marketers consider not only the problematic barriers that prevent the desired behavior but also the *positive behaviors and their determinants* that need to be encouraged and promoted to support the desired behavior [19,22]. This is particularly important in addressing vaccine hesitancy where the majority of the people or parents in the population are already performing the desired behavior, i.e. accepting vaccines according to the schedule. For those who are not performing the desired behavior, the key questions are: “Are there approaches that can move or ‘nudge’ them toward vaccine acceptance?” [23] Is the “selling” of long-term or short-term benefits the most beneficial? Would it be more effective to emphasize the immediate benefits of being vaccinated, such as feeling safe and being a good parent, rather than on the longer-term benefit of not contracting the disease? What factors can help the hesitant join the acceptance group?

Thus social marketing applied to immunization has a focus on end-user outcomes, i.e. public and individual good, and is end-user driven [19,24]. It presents systematic ways and tools to engage communities and facilitates empowerment and ownership through its belief in community solution efficacy, where the answer usually exists within the community and the social marketer merely facilitates the process so that the community draws its own conclusions and thus ‘owns’ the outcome.

## 5. Lessons learned

What is known about the marketing and communication practices championed in other public health applications (e.g. tobacco initiation and cessation, physical activity, alcohol prevention) [24] and by commercial and non-profit enterprises, along with social marketing principles, that could be applied to immunization [21]? In fact, as a number of published guidance documents and studies illustrate, many immunization programs and providers have used marketing and social marketing frameworks and elements to promote vaccinations and adherence to recommended vaccination schedules. These include as noted above the WHO Regional Office for Europe’s *Guide to Tailoring Immunization Programs (TIP)* (2013); WHO’s *HPV Vaccine Communication: Special Considerations for a Unique Vaccine* (2013); The Health Communication Capacity Collaborative’s *The P Process: Five Steps to Strategic Communication* (2013); and the U.S. Centers for Disease Control and Prevention’s *CD Cynergy Social Marketing* (<http://www.orau.gov/cdcynergy/soc2web/default.htm>). Typically, in these efforts, the specific vaccines, the recommended immunization schedule, or the act of getting vaccinated are characterized as the “Product”; the financial costs, the convenience and ease of access to the vaccine or immunization services and perceptions of safety and efficacy and value to individuals

and the community are in the “Price” category; where the vaccine is obtained or administered (e.g. doctors’ offices, clinics, retail outlets) in the “Place”; and messages, communication materials (e.g. posters, brochures, websites, public service advertisements), news media outreach and stories, spokespersons, and interpersonal communication (e.g. provider–parent communication) fall in the “Promotion” category [12,25].

## 6. Challenges in application of marketing and social marketing to immunization

In considering social marketing uses and commercial sector practices that may have value for addressing vaccine hesitancy, it is important to recognize that public health efforts related to vaccination often face challenges different from those faced by other marketers and programs. These challenges can make it difficult, or in some cases, not possible, for immunization programs and other health efforts to apply strategies or tactics found in the commercial sector. In discussions with marketing experts, for instance, the Working Group on Vaccine Hesitancy [6] noted that these challenges included: (a) the financial and resource costs that large-scale (e.g. national) marketing campaigns often require or need; (b) achieving the very high adoption or compliance rates that immunization programs need to achieve for there to be a population benefit (i.e. a high proportion of people have to accept vaccination for herd immunity to be attained); (c) using the social media approach in areas where not everyone has access; (d) the influence of health-care workers on vaccination decision making is large; (e) the benefit from vaccines lies in the prevention of a bad event that may or may not actually occur as opposed to a good event happening (i.e. it provides a less tangible or appreciated outcome); and (f) narrowing the social marketing approach to the 4Ps may restrict vision and limit opportunities as ignorance of contextual factors may totally undermine the best planning [4,7,8].

In addition, because public health vaccination programs are about health rather than profit, there are ethical issues such as beneficence and justice that need to be considered. Further, while commercial sector firms face competition from other product or service offerings, vaccination programs struggle with anti-vaccine movements, political groups that oppose or ban vaccination, and social/cultural norms within certain communities. If lack of trust underlies vaccine hesitancy, the source or issue may or may not be vaccine-related – often, distrust in vaccines may reflect or emanate from a broader distrust of health providers, the health system or the government and/or politics [22].

## 7. Field examples of immunization-related use of marketing and social marketing

Marketing and social marketing frameworks and principles have been used or incorporated into efforts designed to foster vaccination acceptance. A good example is the “Immunize Australia” public health social marketing campaign undertaken in 1997 by the Australian government [9]. The effort was in response to a 1995 survey that found only 33 percent of Australian children up to 6 years of age were fully immunized according to the schedule being recommended at the time. A number of initiatives were implemented, including a social marketing strategy that involved formative (communication) research with parents; using the research to identify different parent groups or segments (i.e. as the basis for a segmentation strategy); grounding the communication strategy in both the research and a theoretical framework (in this case, the Health Belief Model); and including activities directed at immunization service providers to increase and reinforce their knowledge levels and support for immunization [9].



While there are many factors that can result in low vaccination coverage rates, the formative communication research undertaken as part of “Immunize Australia” found two major barriers to full immunization, one practical and one medical. Each, in turn, encompassed beliefs often associated with vaccine hesitancy. On the practical side, many parents did not recognize the importance of the precise timing and number of vaccinations; and medical factors included a lack of belief in the seriousness of some vaccine preventable diseases, a fear of side-effects that is out of proportion to their actual occurrence, and postponing vaccinations if a child was ill because of the belief that the vaccine would exacerbate the child’s illness and/or that the resultant immune response would be suboptimal. The multifaceted social marketing campaign included developing and distributing an Australian Immunization Handbook to over 60,000 immunization service providers, opening new communication channels to keep providers updated, launching a community/parent education campaign that included television and magazine advertisements as well as posters in clinics, hospitals and doctors’ offices, and a series of Immunization Awareness Days. In addition to the social marketing campaign, a National Centre for Immunization Research and Surveillance was established, school-entry immunization requirements were initiated, and efforts to improve vaccine service delivery were undertaken [9]. The overall effort resulted in increased awareness of the immunization schedule, greater recognition of the importance of recommended vaccinations, and more children being immunized as recommended (e.g. 91 percent by June 2001) [9].

In the United States, outbreaks of vaccine preventable disease among unvaccinated children prompted Opel et al. [12] to advocate the use of social marketing to foster timely immunization in children from birth to age 24 months. They believed social marketing would be helpful for two reasons: (1) a “one-size-fits-all” approach to health promotion was unlikely to succeed given the often diverse or varied reasons for parent delay or refusal of recommended vaccinations; and (2) social marketing approaches utilize marketing principles and techniques to influence the voluntary behavior of target audiences. They also noted the value of applying social marketing strategies such as segmenting the larger population of all parents of children aged two years and younger, into specific segments based on knowledge, attitudes, and behaviors (KABs) and then using communication research, social psychology and communication science to develop a marketing mix that can be implemented to achieve the desired behavior or behavior change. Opel et al. described how Washington state, which in 2008 ranked 46th among U.S. states in immunization rates, used social marketing principles to guide the development of a campaign that targeted parents who were expecting or currently had a child up to age 24 months and were hesitant toward immunizations. The application of social marketing involved formative research with parents in this group to identify barriers and facilitators of vaccination, communication materials and messages that addressed myths or misunderstandings related to immunization recommendations, and engagement/inclusion of health-care providers to better focus conversations with parents to address their specific questions and concerns. For example, whereas immunization communication frameworks often suggest discussing vaccines in a participatory and open manner, a 2013 study by Opel et al. found that health-care providers who used directive and presumptive discussion styles were more effective in improving vaccine acceptance in hesitant middle to upper class parents/caregivers studied in Seattle, USA [26].

The Netherland’s joint DELTA Companion: Marketing Planning Made Easy tool [27] provides another example of how social marketing planning tools can be used to obtain high-grade audience insight and brand positioning to assist programs in creating a

situation analysis that allows clear and concise marketing objectives to be defined.

Social marketing has also been used in specific contexts related to vaccination acceptance and hesitancy: (1) to foster acceptance of a newly recommended vaccine and (2) to foster acceptance of a specific vaccination recommendation, as shown in the examples below.

## 8. Vaccine specific social marketing examples

### 8.1. Human papilloma virus (HPV) vaccines

Human papilloma virus (HPV) vaccines were licensed and recommended in a number of countries beginning in the mid-2000s. HPV vaccination recommendations in many countries were met with concerns and hesitancy on the part of parents and in some cases, health-care providers. One result was application of social marketing frameworks and principles as a way to address concerns regarding the safety, efficacy, and need for vaccination, and to overcome hesitancy among both parents and healthcare providers. Two helpful outcomes of these efforts were: (1) identifying determinants of HPV vaccine acceptance; and (2) providing insights related to messages and messaging. Lack of awareness of the vaccination recommendation, lack of knowledge related to cervical cancer, and perceptions regarding vaccine risks and efficacy were common facilitators of hesitancy or barriers to acceptance [11,25,28]. How the messaging around the basis for and the value of the vaccination was framed, positioned and communicated was often important with respect to HPV because it could be associated with behavioral risk factors (e.g. sexual transmission). Groups and people who were opposed to HPV vaccination for a variety of reasons, often worked to shift the focus of the discussion from cancer prevention to vaccine safety, teen sexuality, and parents’ rights. Vaccine acceptance was most likely to happen where cervical cancer prevention was the predominant and most accepted focus [28,29], including in African countries [30].

Efforts to identify facilitators of the HPV vaccination have also emphasized the importance of well-informed physicians and health-care workers. Studies have not only documented the value of and need for a strong provider recommendation in order to overcome parent hesitancy [31,32], but also the consequences of providers themselves being reluctant with respect to the vaccine. McRee et al. [28], for instance, found that if health-care providers perceived large numbers of parents to be hesitant about the HPV vaccine, the providers were less inclined to recommend the HPV vaccination. This happened either because they were reluctant to embark on a conversation about sexual and reproductive health with the parent of a young adolescent, or because they believed that they would not be able to change the parents’ opinions for different reasons, including because they lacked the interpersonal communication skills to do so. Thus, in line with marketing and social marketing practices and principles, it is often the case that intervention efforts (e.g. a social marketing campaign) need to include providing those responsible for delivering a service (e.g. physicians and nurses), with the communication resources and training that they need to be able to foster acceptance in their target population (e.g. guidance and materials for effective conversations with hesitant parents).

### 8.2. Poliovirus vaccine; *haemophilus influenzae type b* vaccine

These principles have also been applied successfully in middle and low income countries by UNICEF and others for the poliovirus vaccine. For example, the Global Polio Eradication Initiative, in partnership with the Government of Pakistan, used social

marketing principles to develop programs that specifically address needs and concerns of those living in the Federally Administered Tribal Areas where polio transmission has been persistent, including the development of transit clinics to vaccinate those on the move [33]. Similarly, Hajjeh in 2011, in describing factors that facilitated the introduction of *Haemophilus influenzae* type b (Hib) vaccine as part of the Gavi Hib Initiative, noted that a number of marketing and communication principles were associated with higher and better acceptance [34]. These included communication strategies that ensured decision-makers and other stakeholders had timely access to Hib disease information that was relevant and understandable; extensive communication and advocacy efforts that increased health-care provider and public awareness about the public health importance of Hib disease and Hib vaccine; extensive engagement with health-care providers to inform the development of Hib messaging; and framing of the Hib vaccine as an important tool for overall pneumonia prevention.

### 8.3. Influenza vaccine

Marketing and social marketing practices and principles have been used to address hesitancy and foster greater acceptance of long recommended vaccines, particularly those with uptake rates far below those that are needed and desired, such as with the influenza vaccine. One of the most commonly used practices is qualitative research, including focus group discussions, to learn more about the differences between those who decline or hesitate when it comes to getting the influenza vaccination, and those individuals who routinely receive a seasonal influenza vaccination. Bhat-Schelbert et al., for example, conducted focus groups with parents, teenagers, pediatric health-care staff, and immunization and marketing experts, to identify potential barriers, facilitators, and strategies for child influenza vaccination [35]. They found that concerns about vaccine adverse events, skepticism about vaccine effectiveness, and lack of trust in those recommending the influenza vaccination, fostered hesitancy, particularly among parents. Conversely, parents who had their children vaccinated were motivated by a desire to prevent influenza, including the transmission to others. With respect to marketing the influenza vaccination, participants who were marketing expert, identified the use of trusted and informed sources (e.g. doctors, school nurses, pharmacists) to convey the importance of influenza vaccinations, and the use of schools as a place for disseminating messages, as potentially effective strategies for overcoming hesitancy.

In an effort to identify effective practices in promotional communications for seasonal influenza vaccines, MacDonald et al., in 2013, examined 22 studies from seven European countries. The studies were primarily outcome evaluations of communication efforts, including those promoting vaccination to the general public, to specific populations (e.g. people aged 65 years and older) and health-care workers [13]. While none of the studies they reviewed directly assessed the impact of promotional communications on public acceptance of influenza vaccination, they did find a number of insights with respect to reducing hesitancy or resistance to the influenza vaccination, including: (1) while the evidence base for effective practice is fragmented and incomplete, the available evidence does indicate that using a range of promotional communications could improve vaccine uptake (e.g. mass communication campaigns, personalized communications and health education); (2) social networks might be a useful channel (i.e. “Place”) to improve socially shared acceptance of vaccination; (3) while many interventions aim to affect psychosocial barriers to vaccination (e.g. attitudes, beliefs), very few clearly or explicitly use theories or models of behavior change to inform and develop the intervention; and (4) personalized communications combined with improved service

delivery (i.e. “place”) appears to foster increased vaccination in some groups (e.g. elderly adults).

## 9. Insights gained from commercial and non-immunization communication efforts

In addition to immunization programs, marketing and social marketing frameworks and principles have been used to guide public health campaigns and efforts on a variety of health issues, including tobacco cessation and prevention, reproductive health, physical activity, HIV/AIDS prevention, nutrition, and family planning [19,24,36,37]. A number of studies have described how the frameworks were applied and/or lessons learned in the application [e.g. 24,37–40]. In addition, a number of studies have used systematic reviews to more broadly identify and describe lessons learned, effective practices and insights gained from the application of marketing, social marketing, and private-sector or commercial communication approaches [e.g. 24,36,41–45]. Key findings from these efforts when it comes to addressing or reducing vaccine hesitancy include:

- *Marketing and social marketing approaches and principles can be effective but effectiveness varies and is not guaranteed.* In a review of the effectiveness of social marketing interventions for health improvement, Gordon et al. found evidence that social marketing interventions could work with a range of groups, in different settings, and could work upstream as well as with the individuals [24,45]. A number of the interventions they assessed produced a range of positive effects, from policy adoption to behavior change to increased awareness and/or attitude change. They also found, however, circumstances in which social marketing interventions had no effect on the cognitive or behavioral outcomes of interest, as well as a number of instances where evaluation was weak or missing. The studies included in the review found stronger evidence of effectiveness for nutrition and alcohol, tobacco, and illicit drug use, and mixed results for physical activity-related efforts. Conversely, a systematic review of alcohol prevention interventions based on social marketing principles was unable to conclude whether there was an effect on alcohol-related attitudes and behaviors [40]. There was evidence that some of interventions were able to achieve awareness and knowledge increases, but little evidence of effects beyond that. While Helmig and Thaler’s later review of the effectiveness of social marketing found that around half of the analyzed articles measured behavior change, they also found many that focused on cognitive mediators or outcomes, with uncertain link to behavior [42].
- *Context matters, as multiple factors typically determine the success of efforts designed to influence or shape consumer behavior.* Aschemann-Witzel et al. undertook a case-study analysis of 27 recent and successful commercial food and beverage marketing cases in an effort to identify lessons for strengthening public health campaigns [46]. Their analysis focused on identifying the major factors behind the success of commercial food marketing campaigns involving nutrition and health products, with “six clusters of success factors” emerging. Each cluster subsumed two or three elements, with the six general factors being “Data and Knowledge” (e.g. good research and strong insights into consumer behavior); “Emotions” (e.g. focus on the emotional side of messages, allowing for more emotional engagement by consumers); “Endorsement” (i.e. the use of different forms of endorsement to create trust and credibility); “Community” (e.g. focus on what appeals to general human or social values, evoking a sense of shared values); “Media” (i.e. choosing the best media match or the right combination of media, with television

often being important); and “Why and How” (i.e. the facilitation of the consumer’s ability to understand and act upon the main message).

- *Message tactics often have a significant influence on intentions toward health-related recommendations.* Keller and Lehmann’s meta-analysis of 60 studies involving 22,500 participants, examined the influence of 22 messaging tactics and six individual (i.e. message receiver) characteristics on intentions to comply with health recommendations [44]. Their key findings included the following: (1) low-involvement audiences are more persuaded by moderately fearful gain-framed messages, references to other people (e.g. friends, family members), vivid messages, and strong source credibility; (2) high-involvement audiences prefer data and strong messages that are also moderately fearful; (3) younger audiences are more influenced by references to social consequences, whereas older audiences are more influenced by physical consequences; and (4) women respond to emotional messages with social consequences for oneself or health consequences to their near and dear ones, while men are more influenced by unemotional messages that emphasize personal physical health consequences. Overall, emphasizing social and physical consequences in an emotional format was an approach they concluded was most likely to have the broadest influence or impact.
- *Campaigns, messages and materials should be guided by, and tailored to, targeted populations or individuals.* As the three points above strongly suggest, much evidence and experience suggests that health-related communications are often more effective when tailored according to the knowledge, beliefs, attitudes and current behaviors of targeted populations and audiences. Mackert suggested that one of the disciplines used by advertising agencies throughout the world – *account planning* – may be helpful when doing this [47]. According to Mackert, account planning brings at least three specific elements into the campaign and messaging process: (1) it seeks to explicitly link relevant consumer or target population information and insights into the primary communication messages and materials; (2) it places emphasis on bringing the “voice of the consumer” into the messaging and communication materials; and (3) it provides a “template” or generalized format for going from a general strategy to specific tactics. This “template” is called a *creative brief* – and generally requires answers to questions like: why are we advertising or communicating at all? What is the communication or messaging trying to achieve? Who are we talking to? What do we know about our target audience? What is the main point or idea we need to communicate? What is the best way of conveying that idea? How do we know we are right?
- *Marketing, social marketing and commercial sector communication practices and principles can increase the likelihood of positive cognitive and behavioral outcomes but also bring the need for resources.* In addition to requiring resources and time to undertake research that can be used as the foundation for communications, messages, and materials [24], marketing and social marketing efforts often are – and need to be – multifaceted (e.g. use a number of media and communication channels to reach members of targeted populations) [18,37,45]. In looking at trends in the practice of health communication campaigns, Noar and Heard noted that the most effective campaigns are those where behavioral determinants are well understood, where social media and interpersonal communication are part of the strategy, and where members of targeted subpopulations are highly exposed to the messages and materials, including because of factors such as visibility, repetition, and long-term exposure [41]. They also noted that while many campaigns have failed to invest in evaluation, there is a growing recognition of the importance of rigorous outcome evaluation, including the use of controlled efficacy

trials to test campaign materials before implementing them on a larger scale in community-level campaigns. Immunization programs and advocates who apply marketing and social marketing practices and principles in an effort to reduce or address vaccine hesitancy, need to recognize that their efforts must be large or significant enough to achieve a measureable impact and that they must have the means in place to measure the impact.

## 10. Social marketing of immunization to children

Historically, children have not been systematically educated in schools about vaccines, which can later result in parents and adults not having an understanding or appreciation of the risks of vaccine preventable diseases and the benefits of immunization to the health and well-being of communities as well as individuals. While public health campaigns, media stories, and information from health-care professionals, provide many opportunities for people to learn about vaccines beyond schools, these routes can miss many in the overall population. By contrast, older generations understand the value of vaccines because as children they personally experienced or saw first-hand the impact and harm cause by vaccine preventable diseases. Now that most vaccine preventable diseases have become much less prevalent and visible as a result of high vaccine uptake, vaccine education efforts have become important surrogates and substitutes for personal experience. Ensuring education and knowledge dissemination about vaccines among children, adolescents and young adults – including through school-based programs – may be a good opportunity to foster parental acceptance as well as shape the future vaccine acceptance behavior of parents and other adults. For instance, Bartolini et al. reported that a demonstration project in 2008 involving 12 primary schools in Peru, helped foster parent acceptance of HPV vaccination for girls aged 11 and 12 [48]. The high levels of social media use among children means it is also possible to reach and influence children outside of schools. Peer-group provision or sharing of information is both common and influential, and finding ways to use those channels to educate young people about vaccine preventable diseases and the importance of vaccines, may provide additional opportunities to shape future vaccine beliefs and behaviors.

## 11. Conclusions: using marketing and social marketing to address vaccine hesitancy

This review provides support for the SAGE Working Group’s conclusion that marketing and communication practices along with social marketing frameworks and principles likely have much utility when it comes to addressing vaccine hesitancy. As this review illustrates, marketing and social marketing practices and principles have been used by a number of programs in a number of settings and contexts to foster vaccine acceptance. They have done so by increasing awareness of immunization recommendations, addressing the questions and concerns of those who were hesitant, and framing (i.e. talking about) vaccines and vaccination recommendations in ways that increase understanding and motivate behavior. Related to this, marketing and social marketing frameworks highlight the important and central role of “value” in the context of behavior or behavior change. People are motivated to act – whether it is purchasing a product or service, or adopting an advocated behavior, when doing so provides them with, or helps them achieve, something that they value. As commercial marketers well know, people care most about benefits, and they care most when the information about the key benefits are communicated in a meaningful way (e.g. through stories, with emotion, and with a compelling message). It is important that immunization advocates and programs recognize the power of value demonstrating



and the need for powerful messages in their efforts to foster vaccine acceptance. Social marketing and commercial sector marketing and communication practices provide approaches and methods for bringing forth the value that facilitates or impedes acceptance of vaccines or vaccination recommendations.

Commercial and social marketing approaches and principles also help draw attention to two other important considerations with regard to vaccine hesitancy and acceptance. The first is that promotion represents or provides just one category of factors. There are at least three other categories of factors that need to be taken into consideration in addressing vaccine hesitancy and acceptance, i.e. product, price and place. Immunization advocates and programs need to examine whether elements in these categories are impeding vaccine acceptance or fostering vaccine hesitancy. Inconvenient access, limited availability of vaccination services, and inadequately trained vaccination providers all have the potential to create or increase hesitancy. Similar to successful commercial marketers, immunization programs need to go beyond promotions and communications in their efforts to achieve the greatest success possible. Programs should be mindful that “one-size-fits-all” approaches to communications and messaging often do not lead to the greatest success. Rather, it is more likely that several different parent or population segments exist, each with a different set of values, interests and needs. As Keller and Lehman’s study illustrates, the effectiveness of message tactics often varies across segments [44]. Thus, maximizing success on the promotion and communication front will likely require a portfolio of messages and materials, including those specifically tailored for vaccine-hesitant parents or individuals.

Immunization advocates and programs need to recognize that developing effective marketing and communication strategies is not simple, nor is the application of marketing and social marketing practices and principles a “magic bullet.” The following considerations need to be taken into account:

- (1) Designing effective strategies, particularly those directed at hesitant and reluctant subpopulations, requires time and resources. Efforts must be made to learn how members of targeted populations perceive vaccines and vaccination recommendations, and what factors could potentially facilitate acceptance. As the examples described here illustrate, it is also likely the case that efforts will need to encompass developing, disseminating, and providing training to health-care workers.
- (2) In using marketing and social marketing practices and principles, immunization programs and advocates need to be aware that the word “marketing” can be problematic as a label. Despite the efforts and desire of both commercial and social marketers, many non-marketers associate the term with “selling” or with efforts that seek to persuade individuals to buy things they do not need or do something that they otherwise would not do. It is also the case that efforts made by immunization programs and vaccine manufacturers to “market” or promote vaccines has sometimes been met with criticism [49,50].
- (3) It is probable that some groups or individuals, such as those adamantly opposed to vaccines and vaccinations, are unlikely to be persuaded or to change their beliefs even if marketing and social marketing practices are used as a foundation. It is more likely these practices and principles have value with those who are willing to consider vaccinations.
- (4) It is likely that one of the potential sources or causes of hesitancy – the “product” (i.e. a specific vaccine or the immunization schedule) – represents a relatively inflexible category when it comes to developing a marketing strategy. While there are and will continue to be ongoing efforts to improve the safety and efficacy of recommended vaccines and immunization schedules, the timeframes for vaccinations often do not lend to

adjustment based on consumer preferences. Science and public health priorities will always be high on the list for many aspects of immunization recommendations and programs, even if or when those priorities do not align perfectly with parent preferences.

For reasons such as these, social and commercial marketing practices and principles provide value, but are also not without limitations. There thus will be situations and circumstances in which other approaches – including health-care worker involvement and training, vaccine education efforts in schools and other settings, and upstream policies that facilitate vaccination – will continue to be needed.

### Conflict of interest statements

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None of the other authors had any potential conflict of interest.

### Appendix. SAGE Working Group on Vaccine Hesitancy

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