

SOCIAL MARKETING IN PUBLIC HEALTH

Sonya Grier¹ and Carol A. Bryant²

¹*The University of Pennsylvania, Colonial Penn Center, Philadelphia, Pennsylvania 19104; email: griers@wharton.upenn.edu*

²*University of South Florida, Florida Prevention Research Center, Tampa, Florida 33609; email: cbryant@hsc.usf.edu*

Key Words audience segmentation, consumer research, consumer orientation, theory, evaluation

■ **Abstract** Social marketing, the use of marketing to design and implement programs to promote socially beneficial behavior change, has grown in popularity and usage within the public health community. Despite this growth, many public health professionals have an incomplete understanding of the field. To advance current knowledge, we provide a practical definition and discuss the conceptual underpinnings of social marketing. We then describe several case studies to illustrate social marketing's application in public health and discuss challenges that inhibit the effective and efficient use of social marketing in public health. Finally, we reflect on future developments in the field. Our aim is practical: to enhance public health professionals' knowledge of the key elements of social marketing and how social marketing may be used to plan public health interventions.

INTRODUCTION

Societies worldwide face an ever-increasing array of health challenges, heightening the importance of social change efforts. Social marketing, the use of marketing to design and implement programs to promote socially beneficial behavior change, has grown in popularity and usage within the public health community. In recent years, the Centers for Disease Control and Prevention (CDC), the U.S. Department of Agriculture (USDA), the U.S. Department of Health and Human Services (USDHHS), and other governmental and nonprofit organizations have used social marketing to increase fruit and vegetable consumption, promote breastfeeding, decrease fat consumption, promote physical activity, and influence a wide variety of other preventive health behaviors (12). State and local communities are using social marketing to increase utilization of the Supplemental Food and Nutrition Program for Women, Infants, and Children (WIC), prenatal care, low cost mammograms, and other health services (9). Internationally, social marketing has been used to improve access to potable water (42), eliminate leprosy in Sri Lanka (55), increase tuberculosis medicine adherence (37), and promote immunizations and

universal iodization legislation (15, 31), among other applications. Social marketing has enormous potential to affect other health problems such as observed health disparities between members of ethnic minority and majority groups (54).

There also has been increasing professional activity in the field by academics, nonprofit organizations, and governmental agencies. New textbooks and workbooks, multiple annual conferences, the inclusion of social marketing in national public health conferences, training programs, including CDCynergy–Social Marketing Edition and other materials developed by the Turning Point Program (available online at <http://www.turningpointprogram.org>), and a certificate program for graduate trained public health professionals have emerged in the past decade. [See Andreasen (4) for a review of social marketing's history.] Public health has been important in the field's growth, with the promotion of condom use internationally being among social marketing's first applications (22).

The widespread adoption of social marketing in public health has garnered important successes. Among these is VERB_{TM}, a national, multicultural, social marketing program coordinated by CDC (56). The VERB_{TM} program encourages "tweens" (young people ages 9–13) to be physically active every day. The program was based on extensive marketing research with tweens, their parents, and other influencers. Results were used to design an intervention that combines mass-media advertising, public relations, guerrilla (i.e., interpersonal) marketing, and partnership efforts with professional sports leagues and athletes, as well as well-known sporting-goods suppliers and retailers, to reach the distinct audiences of tweens and adult influencers. VERB_{TM} also partners with communities to improve access to outlets for physical activity and capitalize on the influence parents, teachers, and other people have on tweens' lives. After just one year, this award-winning program resulted in a 34% increase in weekly free-time physical activity sessions among 8.6 million children ages 9–10 in the United States. In communities that received higher levels of VERB_{TM} interventions, the increases in physical activity were more dramatic (45). Another well-known example is the TRUTH_{TM} campaign, which contributed to the reduction of smoking among teenagers nationwide (16).

Despite its popularity and influence, many public health professionals have an incomplete understanding of social marketing (28, 36, 38). In Hill's (28) review of the health promotion literature between 1982 and 1996, he concluded that health promoters' views of marketing differed considerably from how the marketing discipline is usually defined. Specifically, he found that many health promoters perceive social marketing as a predominantly promotional or, even more narrowly, a communication activity. Other common problems he noted were neglect of the exchange process and a lack of integration of the marketing mix in planning program interventions. These misunderstandings persist today as evidenced by the large number of abstracts submitted to the Social Marketing in Public Health conference and manuscripts submitted to *Social Marketing Quarterly*, which use the social marketing label to describe social advertising or communication activities not developed with marketing's conceptual framework. In this chapter, we provide an overview of social marketing in hopes of overcoming misconceptions about

its key elements and advancing current knowledge. First, we provide a practical definition, discuss social marketing's conceptual underpinnings, and present case studies to illustrate its application in public health. Next, we discuss challenges that may inhibit the effective and efficient use of social marketing by public health professionals. Finally, we reflect on future developments needed in the field. Our objective is to enhance public health professionals' understanding of the key elements of social marketing and their ability to use social marketing to design public health interventions.

Defining Social Marketing

Although a variety of definitions have been proposed by social marketers, and debate continues (49), social marketing is typically defined as a program-planning process that applies commercial marketing concepts and techniques to promote voluntary behavior change (1, 34). Social marketing facilitates the acceptance, rejection, modification, abandonment, or maintenance of particular behaviors (34) by groups of individuals, often referred to as the target audience. Although social marketing's target audience is usually made up of consumers, it is used also to influence policy makers who can address the broader social and environmental determinants of health (15, 48). Hastings & Saren's (27) definition of social marketing includes also the analysis of the social consequences of commercial marketing policies and activities, e.g., monitoring the effects of the tobacco or food industries' marketing practices.

The defining features of social marketing emanate from marketing's conceptual framework and include exchange theory, audience segmentation, competition, "the marketing mix," consumer orientation, and continuous monitoring. Although social marketing shares many features with other related public health planning processes, it is distinguished by the systematic emphasis marketers place on the strategic integration of the elements in marketing's conceptual framework.

THE NOTION OF EXCHANGE The field of marketing attempts to influence voluntary behavior by offering or reinforcing incentives and/or consequences in an environment that invites voluntary exchange (47). Exchange theory (6) views consumers acting primarily out of self interest as they seek ways to optimize value by doing what gives them the greatest benefit for the least cost. Contrary to commercial exchanges, in which consumers receive a product or service for a cash outlay, in public health situations, there is rarely an immediate, explicit payback to target audiences in return for their adoption of healthy behavior (47). Nevertheless, exchange theory reminds social marketers that they must (a) offer benefits that the consumer (not the public health professional) truly values; (b) recognize that consumers often pay intangible costs, such as time and psychic discomfort associated with changing behaviors; and (c) acknowledge that everyone involved in the exchange, including intermediaries, must receive valued benefits in return for their efforts (15).

AUDIENCE SEGMENTATION Social marketers know it is not possible to be “all things to all people.” Rather, marketing differentiates populations into subgroups or segments of people who share needs, wants, lifestyles, behavior, and values that make them likely to respond similarly to public health interventions. Public health professionals have long recognized intragroup differences within populations, but they typically use ethnicity, age, or other demographics as the basis for identifying distinct subgroups. Social marketers are more likely to divide populations into distinct segments on the basis of current behavior (e.g., heavy versus light smoking), future intentions, readiness to change, product loyalty, and/or psychographics (e.g., lifestyle, values, personality characteristics). Compared with other systematic planning processes, social marketing devotes greater attention and resources to segmentation research, the identification of one or more segments as the target audience to receive the greatest priority in program development, and development of differential marketing strategies (e.g., in how products will be positioned, placed, or promoted) for selected population segments (17).

The VERB_{TM} program initially segmented its target population by age (e.g., youth aged 9–13 and parents/influencers) and then conducted research that identified important differences among specific segments within the tween audience on the basis of activity level, receptivity to physical activity, ethnicity, and gender. Segmentation and target marketing increase program effectiveness and efficiency by tailoring strategies to address the needs of distinct segments (17) and helping to make appropriate resource allocation decisions.

COMPETITION In commercial marketing, competition refers to products and companies that try to satisfy similar wants and needs as the product being promoted. In social marketing, the term refers to the behavioral options that compete with public health recommendations and services, e.g., bottle-feeding versus breastfeeding (23). The marketing mindset asks, what products (behaviors, services) compete with those we are promoting, and how do the benefits compare to those offered by competing behaviors? Answers to these questions enable social marketers to offer benefits that best distinguish healthy behaviors from the competition and develop a sustainable competitive advantage that maximizes their products’ attractiveness to consumers (23).

An assessment of the competition also may be useful in determining which behaviors are best to promote and which segments are best to target. As Novelli (43) explains, “Thinking about where, how, and with whom to compete is important—you might do that analysis and decide not to compete because the foe is too formidable. And that is okay: “we need to have the courage not to compete.” We may also decide to compete for specific population segments in which we can provide better value than the competition (25).

THE MARKETING MIX Another core concept adopted from the commercial sector is the marketing mix, also known as the four Ps: product, price, place, and promotion. These key elements of social marketing are central to the planning and implementation of an integrated marketing strategy.

Product refers to the set of benefits associated with the desired behavior or service usage. Kotler et al. (34) distinguish between the core product (what people will gain when they perform the behavior) and the actual product (the desired behavior). They also use the concept of the augmented product to refer to any tangible objects and services used to facilitate behavior change. However, it is important to note that pamphlets and other promotional activities are designed to facilitate adoption of the behavior and are not the actual product.

To be successful, social marketers believe the product must provide a solution to problems that consumers consider important and/or offer them a benefit they truly value. For this reason, research is undertaken to understand people's aspirations, preferences, and other desires, in addition to their health needs, to identify the benefits most appealing to consumers. For instance, the VERB™ program positioned physical activity as a way to have fun, spend time with friends, and gain recognition from peers and adults rather than to prevent obesity or chronic disease later in life. The marketing objective is to discover which benefits have the greatest appeal to the target audience and design a product that provides those benefits. In some cases, public health professionals must change their recommendations or modify their programs to provide the benefits consumers value most.

Price refers to the cost or sacrifice exchanged for the promised benefits. This cost is always considered from the consumer's point of view. As such, price usually encompasses intangible costs, such as diminished pleasure, embarrassment, loss of time, and the psychological hassle that often accompanies change, especially when modifying ingrained habits. In setting the right price, it is important to know if consumers prefer to pay more to obtain "value added" benefits and if they think that products given away or priced low are inferior to more expensive ones. Consumer research conducted by Population Services International, for instance, revealed that many teens did not trust condoms that were given away by public health agencies. But even a small, affordable monetary price (25 cents) was sufficient to reassure them that the condoms were trustworthy.

Place refers to the distribution of goods and the location of sales and service encounters. In social marketing, place may be thought of as action outlets: "where and when the target market will perform the desired behavior, acquire any related tangible objects, and receive any associated services" (34). Place includes the actual physical location of these outlets, operating hours, general attractiveness and comfort, and accessibility, e.g., parking and availability by public transportation (15). It also includes intermediaries—organizations and people—that can provide information, goods, and services and perform other functions that facilitate the change process. Research may be necessary to identify the life path points—places people visit routinely, times of the day, week, or year of visits, and points in the life cycle—where people are likely to act so that products and supportive services or information can be placed there. In the Kentucky Youth Nutrition and Fitness Program, a community coalition offered numerous opportunities for tweens to try out new forms of physical activity (or VERBS) at multiple times and locations throughout the summer months. The public parks, YWCAs, Children's Museum, neighborhood associations, retail outlets, university and high school athletic clubs,

the Lexington Legends (a minor league baseball team), and other organizations designed action outlets where tweens could have a summer scorecard validated each time they tried a new VERB. Tweens that participated in a designated number of activities received special recognition and eligibility to win prizes (13). A key element in this project's placement strategy is providing sufficient incentive to the intermediaries to provide opportunities, consistent with the VERBTM program's exciting and edgy brand attributes, for tweens to be physically active.

Promotion is often the most visible component of marketing. Promotion includes the type of persuasive communications marketers use to convey product benefits and associated tangible objects and services, pricing strategies, and place components (34). Promotional strategy involves a carefully designed set of activities intended to influence change and usually involves multiple elements: specific communication objectives for each target audience; guidelines for designing attention-getting and effective messages; and designation of appropriate communication channels. Promotional activities may encompass advertising, public relations, printed materials, promotional items, signage, special events and displays, face-to-face selling, and entertainment media. In public health, policy changes, professional training, community-based activities, and skill building usually are combined with communication activities to bring about the desired changes.

An integrated marketing mix is essential. Though promotion, one of the four Ps, is generally what people think of when considering social marketing, marketers use their understanding of consumers to develop a carefully integrated strategy addressing all four Ps. By integration, we mean that each element has been planned systematically to support clearly defined goals, and all marketing activities are consistent with and reinforce each other. For instance, a program offering the emotional benefits associated with breastfeeding would use a warm, emotional appeal rather than one that instills fear, and advertisements for a breastfeeding advice program would not be aired until those support services were readily available. In similar fashion, the VERBTM program uses a tone consistent with its positioning of physical activity as fun and exciting rather than using a serious, factual description of the health benefits of physical activity.

The emphasis marketers place on understanding the exchange process and competition, and the development of an integrated marketing strategy based on the 4 Ps, are social marketing's most distinctive features.

CONSUMER ORIENTATION AND THE IMPORTANCE OF RESEARCH Marketing's conceptual framework demands a steadfast commitment to understanding consumers, the people whose behavior we hope to change. The premise is that all program planning decisions must emanate from a consideration of the consumers' wants and needs (1).

The backbone of a customer orientation is consumer research. Formative research is used to gain a deeper understanding of a target audience's needs, aspirations, values, and everyday lives. Of special interest are consumers' perceptions of the products, benefits, costs, and other factors (e.g., perceived threat, self-efficacy,

social influences) that motivate and deter them from adopting recommended behaviors. Research also provides information on distinct population subgroups and the social and cultural environments in which the people act on behavioral decisions. This information is used to make strategic marketing decisions about the audience segments to target, the benefits to offer, and the costs to lower, and about how to price, place, and promote products. Although consumer research need not be expensive or complex, it must be done. [For a discussion of inexpensive research methods, see Andreasen (3)].

The importance of evidence-based program planning and community-based approaches in public health has increased dramatically during the past two decades (30). As a result, social marketers are not alone in their reliance on research and careful consideration of consumers' needs when designing strategies to change behavior. Social marketing is distinctive, however, in its reliance on marketing's conceptual framework to guide the research process and the development of a strategic plan (i.e., based on the 4 Ps and an understanding of the competition). The VERB_{TM} program, for instance, used existing data and consumer research to understand the behaviors, lifestyle, and mindsets of tweens, parents, and other key influencers. Research explored the cultural, ethnic, and economic dynamics that unify and differentiate the tween audience and provided insights into the competitive environment in which tweens make decisions about how to spend their time. Results were used to develop an integrated marketing plan based on the 4 Ps and communication guidelines that served as a blueprint for the national media campaign (56).

Ideally, the consumer orientation represents a commitment to provide consumers with satisfying exchanges that result in long-term, trusting relationships (15). If, for instance, health services are underutilized or dietary change recommendations are overlooked, program planners listen to consumers to find out what they can do to improve program offerings and make their recommendations more helpful. This willingness to change the product to meet consumer preferences is an essential feature of social marketing, one shared by total quality management or continuous improvement approaches but which is divergent from more traditional, expert-driven approaches in which public health professionals determine what consumers need to do.

CONTINUOUS MONITORING AND REVISION Plans for evaluating and monitoring a social marketing intervention begin at the outset of the planning process. As program interventions are implemented, each is monitored to assess its effectiveness to determine if it is worthy of being sustained, and to identify activities that require midcourse revision. Although many public health programs conduct process and impact evaluations, marketing devotes considerable resources to this activity and practices it on a continuous basis. Social marketers are constantly checking with target audiences to gauge their responses to all aspects of an intervention, from the broad marketing strategy to specific messages and materials (7). The VERB_{TM} program, for example, uses observation and intercept interviews at sponsored events

to assess visitor demographics and interaction patterns of the tweens with the activities.

Comparing Marketing to Other Behavior Management Tools

Social marketing can also be understood by comparing it with other approaches to managing behavior change. Rothschild (47) developed a conceptual framework that contrasts marketing with education and law. In his view, education informs and persuades people to adopt healthy behaviors voluntarily by creating awareness of the benefits of changing. When health professionals educate people about the benefits of adopting healthy lifestyle behaviors, citizens have free choice in how they respond, and society accepts the costs when some people continue to practice undesirable behaviors. Education is most effective when the goals of society are consistent with those of the target audience, the benefits of behavior change are inherently attractive, immediate, and obvious, the costs of changing are low, and the skills and other resources needed to change are readily available [e.g., putting a baby to sleep on its back to prevent sudden infant death syndrome (SIDS)].

Law or policy development uses coercion or the threat of punishment to manage behavior. Legislation is the most effective tool for public health when society is not willing to pay the costs associated with continued practice of an unhealthy or risky behavior (e.g., drunk driving) yet citizens are unlikely to find it in their immediate self-interest to change.

In contrast, marketing influences behavior by offering alternative choices that invite voluntary exchange. Marketing alters the environment to make the recommended health behavior more advantageous than the unhealthy behavior it is designed to replace and then communicates the more favorable cost-benefit relationship to the target audience. Marketing is the most effective strategy when societal goals are not directly and immediately consistent with people's self-interest but citizens can be influenced to change by making the consequences more advantageous. Like education, marketing offers people freedom of choice; but unlike education, it alters the behavioral consequences rather than expects individuals to make a sacrifice on society's behalf. Education and policy changes are often components in a social marketing intervention; however, marketing also creates an environment more conducive for change by enhancing the attractiveness of the benefits offered and minimizing the costs.

Steps in the Social Marketing Process

The social marketing process is a continuous, iterative process that can be described as consisting of six major steps or tasks: initial planning; formative research; strategy development; program development and pretesting of material and nonmaterial interventions; implementation; and monitoring and evaluation. The initial planning stage involves gathering relevant information to help identify preliminary behavioral objectives, determine target markets, and recognize potential behavioral determinants and strategies. Formative research is then conducted

to investigate factors identified during the initial planning phase to segment audiences and determine those factors that must be addressed to bring about behavior change. Strategy development involves the preparation of a realistic marketing plan comprised of specific, measurable objectives and a step-by-step work plan that will guide the development, implementation, and tracking of the project. The plan includes the overall goals of the program, a description of the target audience, specific behaviors that will be marketed toward them, and strategies for addressing the critical factors associated with the target behavior. The social marketing plan is organized around marketing's conceptual framework of the four Ps. Campaign strategies and materials are then developed, pretested, piloted, and revised prior to program implementation. Monitoring and evaluation activities continue throughout the program implementation to identify any necessary program revisions, as well as to understand program effectiveness and make midcourse corrections as needed.

CASE EXAMPLES OF SOCIAL MARKETING APPLICATIONS

Three case studies are provided to illustrate how social marketing can be used to develop new public health products (the Road Crew), improve service delivery and enhance program utilization (the Texas WIC Program), and promote healthy eating behaviors (the Food Trust).

The Road Crew

In the Road Crew project, social marketing was used to develop a new product to compete with a dangerous brand, "I can drive myself home, even though I've had too much to drink" (32). In an effort to curb alcohol-related automobile crashes, this program targets 21- to 34-year-old men who drive themselves home after an evening of drinking at taverns in rural Wisconsin. Formative research revealed that, although alternative forms of transportation were unavailable in these communities, even if offered a ride home, men were unwilling to leave their automobiles at the bars overnight. In response, program designers created a ride service that transported men from their homes to the bars, between bars, and back home again, allowing them to enjoy their evening without risk of driving while intoxicated. The program was not without controversy, as some critics argued that the ride service would lead to increased individual-level drinking. Nonetheless, three rural communities were given funds to establish ride services tailored to meet the unique opportunities and constraints in respective areas. Each community also developed a pricing scheme to cover costs. An advertising agency developed the program's name (Road Crew), slogan, and logo. At the end of the first year, and 19,575 rides later, evaluation results suggest that the program has decreased alcohol-related crashes by 17% and saved the state of Wisconsin \$610,000 (32). Additionally, the

evaluation found no evidence to support the criticism that the program increased individual-level drinking.

The Texas WIC Program

The second case study examines a social marketing program conducted to increase enrollment and improve customer and employee satisfaction with the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in Texas. Participant observation, in-depth interviews, telephone interviews, focus groups, and surveys were used to understand the needs, preferences, and characteristics of four target audiences: families eligible but not participating in the program, program participants, program employees, and professionals who refer people to the program (9, 10). Research results were used to develop a comprehensive social marketing plan that included policy changes, service delivery improvements, staff and vendor training, internal promotion, public information and communications, client education, and community-based interventions. This plan worked to change families' perceptions of WIC as a welfare program that provided free food to poor people by emphasizing nutrition education, health checkups, immunizations, and referrals. It included recommendations for lowering costs by repositioning the program as a temporary assistance nutrition and health program—"WIC—Helping Families Help Themselves"—in which families can maintain their pride and self-esteem as they earn their WIC benefits and learn about nutrition and other ways to help their families. Because many women did not know they were eligible for the program and/or had trouble enrolling, the marketing plan also emphasized ways to help families understand eligibility guidelines, streamline the certification process, and make it easier for health and social service professionals to refer eligible women. Placement strategies recommended the location of WIC clinics outside of government assistance venues, and professional training programs were developed to enhance employees' skills in dealing with customers and teach grocery store cashiers to process WIC clients more efficiently and respectfully. Promotional efforts included a community outreach kit to reach referral sources as well as the use of mass media to reach eligible families. The Texas WIC Program was launched in the fall of 1995. Program data was used to monitor the number of families who called the toll-free number for more information after the program was launched and, more importantly, the number of people participating in Texas WIC. When results showed that increases in program enrollment were not sustained, midcourse revisions were made to improve program delivery. The program's caseload then grew from its baseline level of 582,819 in October 1993 to 778,558 in October 1998—an increase of almost 200,000 participants.

The Food Trust

The last case study examines the Food Trust, a nonprofit organization in Philadelphia, Pennsylvania, which aims to increase people's access to affordable and nutritious foods. The Food Trust's Corner Store Campaign seeks to reduce the

incidence of diet-related disease and obesity by improving the snack food choices made by youth in local corner stores. The campaign uses social marketing to increase demand for healthy snacks, promote student participation in the school meals programs, and target the food industry to increase the availability of healthier choices in local stores. An initial budget of \$10,000 (not including staff time) was allocated to develop the social marketing plan for the Corner Store Campaign. At the start of the planning process, Food Trust staff members interviewed 33 key informants on best practices in social marketing and also worked to identify other programs aimed at affecting youth snack choices nationwide. Survey research was conducted to understand the food choices available in the corner stores in five local communities and to provide a baseline for the development of strategies to increase the distribution of healthier snacks. Survey results found that healthy food choices were available only in limited quantities in most of these stores, e.g., only one store carried low-fat milk in single serving containers and none sold fresh fruit. Results of the assessment of the food environment were used to determine (a) which healthy snacks could be promoted in the short term and (b) how to facilitate food manufacturers and retailers distribution of healthier snacks. For example, the Food Trust developed partnerships with individual snack food companies to increase the distribution of healthier choices in neighborhood stores. Formative research was also conducted with youth ages 5–12 to understand their snacking behavior and how to best promote the currently available healthier snack choices. This formative research informed the development of a social marketing plan that was piloted in two local communities in the summer of 2004.

CHALLENGES AND MISCONCEPTIONS

Andreasen (4) has argued that social marketing is now moving into a period of early maturity with growing popularity among public health professionals. However, to continue developing, social marketing must overcome a variety of challenges. In public health, these challenges can be grouped into four categories: (a) misconceptions and other barriers to diffusion, (b) formative research and evaluation methodologies, (c) theoretical issues, and (d) ethical considerations.

Barriers to Diffusion

After initial resistance, the field of public health has readily embraced marketing's reliance on advertising and other promotional techniques and has begun to rely increasingly on consumer research to make evidence-based decisions (27). It has yet, however, to fully appreciate social marketing's "flexibility, range, and breadth of potential for addressing behavioral and social issues" (38). As previously noted, social marketing is often viewed as a method for designing communication campaigns rather than developing comprehensive interventions that integrate the full marketing mix of product, price, place, and promotion. In part, the diminished attention given to nonpromotional elements of the marketing mix reflects confusion

surrounding the adaptation of these concepts to social marketing situations (a theoretical issue we discuss at greater length below). It also reflects difficulties social marketers have in modifying public health products (e.g., creating new and more attractive benefits for eating fruits and vegetables), lowering the costs associated with healthy behaviors (e.g., making fruits and vegetables cheaper to purchase or easier to prepare), and creating accessible action outlets (such as placing fruits and vegetables on fast-food restaurant menus). Finally, many of social marketing's earliest adopters were dazzled by advertising or came from the public relations and advertising fields and did not recognize the difference between marketing and health communication (51). Whatever the reason, the disproportionate amount of attention given to promotional activities has created the misconception that social marketing relies primarily on advertising to achieve its goals. To overcome this problem and realize social marketing's full potential, its practitioners must recognize the power that lies in the integration of all elements of the marketing mix rather than the magic of advertising messages.

Another criticism of social marketing is that it "blames the victim" by focusing on individual behavior rather than on the underlying environmental and social causes of the problems it addresses. Perhaps the most articulate of social marketing's critics is Wallack (52), who argues that social marketing, like many public health approaches, tries to rescue people from drowning "downstream," when the important work lies "upstream," combating the environmental and social structural factors that create the health problems. There is an element of truth in this criticism: Social marketers have been guilty of relying too heavily on strategies aimed at changing individual behavior and paying too little attention to environmental factors (15, 26). The field has benefited from this criticism, and today the importance of understanding the social environment and making it more conducive to individual healthy behavior is well established (25). For instance, Goldberg (20) describes how an intervention designed to persuade individual motorcyclists to wear helmets can be successful downstream in increasing individual helmet usage and succeed upstream by demonstrating health care savings that prompt policy makers to pass mandatory helmet laws. Nevertheless, although more cognizant of environmental factors, social marketing practitioners too infrequently target policy makers who can address the broader social determinants of health (e.g., social inequality, illiteracy, lack of community cohesiveness, poor housing, racism) (15, 26). [See Siegel & Doner (48) for a discussion of social marketing and policy development.]

Another long-standing complaint against social marketing is that it is manipulative. Some public health professionals in the developing world view social marketing as a colonial approach that implies disrespect by using language based on military metaphors (e.g., target markets) and commercialism (e.g., customers). As Wallack (52) points out, "even the term consumer evokes a metaphor of limited power that values people only for what they can purchase and not for how they can participate." Some public health professionals still reject social marketing because of its ties to Madison Avenue—style advertising, a field that has come

under increased scrutiny and criticism (27). Yet, as Hastings & Saren (27) note, these criticisms ignore social marketing's consumer orientation and commitment to using research to understand and meet the wants and needs of consumers, an approach that "challenges the expert-driven hegemony in the health sector. . . ." To successfully dispel the claim that marketing is manipulative, social marketers need to focus less on communication to inform people about public health products and place greater emphasis on developing affordable, accessible products that allow people to solve their problems and realize the aspirations that matter most in their lives and to modify the environment to make it easier and more enticing to adopt the healthy behavior. Efforts to involve consumers in goal-setting, participatory research and strategy development would also enable them to become true partners instead of targets of professionals' programs.

Social marketing's diffusion has also been affected by some public health professionals' reluctance to invest time and resources in consumer research. Fortunately, some funding agencies (e.g., the CDC, USDHHS, USDA, and the Robert Wood Johnson Foundation) now require a planning phase and allocate funds for community assessments, environmental scans, and consumer research for many of the grants they award. But many other federal, state, and nonprofit funding agencies still expect grantees to begin implementation before they have had ample time to understand their consumers and develop appropriate intervention strategies.

Whereas social marketing may be inappropriate when time and resources are not available to conduct formative research, in other cases, it may be possible to truncate planning time and minimize costs by relying more on existing information to develop a marketing plan. In addition to the published literature, local and state program data sets can provide important insights into service utilization rates, characteristics of current and previous program participants, and customer satisfaction ratings. Also, social marketers can now access unpublished reports of federally sponsored audience research on prevention topics from the Prevention Communication Research Database (PCRD) created by the U.S. Department of Health and Human Services (<http://www.health.gov/communication/>).

Another valuable way to save time and scarce financial resources is to build on existing program strategies and interventions. Many large-scale social marketing programs such as VERBTM or 5 A Day programs produce interventions, including educational, promotional, and/or training materials, that can be used at the state and local community level. These interventions make it possible to capitalize on extensive formative research and sophisticated creative development that local public health professionals can rarely afford. In some cases, careful pretesting and pilot testing of existing materials and program strategies may be needed to adapt existing program approaches to fit unique community characteristics and provide a local face for national programs. In other cases, this may not be necessary because the national program materials address issues that cut across state and regional boundaries. In either case, practitioners at the local level are wise to build on the brand equity created by national media coverage rather than replicate or compete with national initiatives.

Formative Research and Evaluation

The application of social marketing in public health would also benefit from improved research methodologies—a greater reliance on mixed methods, more creative audience segmentation, and improved evaluation studies.

Each year, the University of South Florida Social Marketing and Public Health conference issues a call for abstracts. And each year, the majority of respondents submit projects that have relied exclusively on focus groups to design a program intervention. Rarely is their marketing plan based on a solid foundation of secondary data and/or a mixture of qualitative and quantitative methods. The overreliance on focus groups in marketing research is problematic for at least two reasons. First, focus group interviews can be misleading: The issues that people discuss in a group setting are not always those that have the greatest impact on their behavioral decisions. Second, quantitative data is needed to segment populations into more distinct subgroups. Conversely, survey data alone can miss important insights into a consumer's “. . . everyday life and how either adopting or stopping certain types of behaviors impacts it” (35). For these reasons, social marketers would benefit from using mixed methodologies to develop effective marketing plans.

Audience segmentation in public health also is limited by an overreliance on ethnicity and other demographic variables and the Stages of Change theoretical framework (46). Many public health practitioners of social marketing have yet to heed the advice Walsh and her associates (53) gave more than a decade ago:

Health programs could benefit from more diversified and customized segmentation strategies, taking account of variables—such as life stage, propensity for sensation seeking, interest in changing lifestyle, and entertainment and leisure-time activities—that may be especially germane to health.

The CDC employs two data sets that make it possible to link this type of psychographic data with health information on U.S. populations: Healthstyles and the merging of the PRIZM database with health data such as cancer screening rates and medically underserved status. The Healthstyles segmentation system, developed by Porter Novelli, integrates information on health beliefs and behaviors (e.g., physical activity and nutrition, smoking, alcohol consumption, weight control, and breastfeeding), lifestyle factors, and demographics (34). The PRIZM system, developed by Claritas, Inc., divides the U.S. population into 64 segments on the basis of demographic and lifestyle variables. CDC produces summary reports and maps based on the PRIZM data set, which provide insights into the media preferences, purchasing behavior, lifestyle activities and demographics of residents living in census tracts, ZIP codes, or other geographic units (5).

Program evaluation poses yet another challenge. The field still lacks convincing evidence that social marketing programs are more effective than those planned using traditional, top-down approaches (35). Many social marketing programs are evaluated poorly or not at all. Because social marketing interventions often vary

continuously over long periods of time and attempt to reach large population units (e.g., U.S. tweens) they do not lend themselves to the gold standard randomized clinical trial or other experimental designs (29). However, other evaluation and monitoring designs can generate strong inferences about a program's impact and "satisfy critics that there is no other equally plausible or compelling reason change might have occurred even if absolute cause and effect cannot be demonstrated" (14). Alternative evaluation designs also can provide important insights into other aspects of the program's process and performance, e.g., by determining if the program is implemented as planned, identifying consumers the program has failed to reach, determining if consumers recognize the program's brand and can recall key messages, and recommending ways to improve the program (29). [For a discussion of less well-known designs that may be appropriate for evaluating social marketing programs see Hornik (29).]

McDermott (39) reminds us that evaluators should begin by asking a series of questions: Why are you going to be evaluating? Whom are you going to be evaluating? What are you going to be evaluating? Where are you going to be evaluating? When are you going to be evaluating? How are you going to be evaluating? and Who is going to be doing the evaluating? By answering these questions in advance we can avoid some of the common problems that compromise evaluations of social marketing interventions, such as

- measuring outcomes too early, before change can occur
- failing to measure exposure and expecting too much from a limited intervention "dose,"
- measuring the wrong outcomes (e.g., individual behavior change instead of policy changes), and
- using the wrong units of analysis when measuring effects (e.g., individuals instead of communities).

Theoretical Underpinnings

Over the past two decades, social marketers have looked largely to commercial marketing for theoretical grounding and attempted to make its principles and concepts fit social marketing situations. There has been considerable discussion on the Social Marketing List Serve, for instance, about how to apply the concept of product to the promotion of health behavior (44).

More recently, however, Peattie & Peattie (44) have warned that "[t]here is . . . a danger that an overemphasis on the direct translation of mainstream marketing principles and practices into social contexts may create practical problems and also confusion regarding the theoretical basis of social marketing." Some scholars (19), for instance, have questioned the usefulness of exchange theory for social marketing programs. Peattie & Peattie (44) also recommend that the 4 Ps be renamed and conceptualized as the social proposition (product), costs (price),

accessibility (place), and communication (promotion). Other recent debates among social marketers have concerned the degree to which relationship marketing (24), branding (40), and an analysis of competition are useful in marketing public health products (23).

If careful not to throw the baby out with the bath water, the field could benefit by expanding its vocabulary and broadening its theoretical underpinnings (19, 35, 44, 51). Because no single theory or discipline is likely to provide all the guidance needed to direct social change, the following are some “next steps” to consider:

- explore other ways to conceptualize the exchange process that more appropriately account for the complex, social nature of health behavior change (19);
- look to marketing’s subdisciplines (relationship marketing, service marketing, political marketing, nonprofit marketing) for additional insights into consumer behavior that are appropriate for social marketing situations (44);
- investigate a wide array of potential behavior change determinants (e.g., emotions and motivation), recognizing that the most important factors are unlikely to be the same for all health behaviors (35); and
- explore other theoretical frameworks for understanding change processes and other models for directing change (35, 51). In addition to public health’s standard health behavior theories, social marketing could be blended with elements from community organization (41), media advocacy (52), and behavior analysis (18). Social marketers could learn also from risk compensation theory, the emotional contagion model, political risk compensation theory, risk homeostasis theory, and social capital (19, 35).

The intent of these explorations should not be to break social marketing’s ties with its commercial counterpart, but rather to develop a better understanding of the factors that influence health behavior and improve social marketing’s tools for modifying the social-structural, environmental, and individual-level determinants of social change. As social marketers adopt other theories and vocabularies, the field is likely to move away from its marketing roots. This raises important questions: Will it stop being social marketing and morph into a new model? And is it important to maintain distinct boundaries as social marketing as long as we become more effective in bringing about social change? One of our most influential social change agents Novelli (43) writes

I realize that if you’re going to have a discipline, you have to have some boundaries. But to me, that shouldn’t interfere with the objective—to win. These are not programs for the faint of heart. There’s not enough money, there’s not enough time. . . I don’t know how these definitional debates are going to turn out, but I hope they’re not stymieing people from moving forward. (p. 45)

Ethical Considerations

Investigators increasingly are recognizing that if the field is to mature as a profession, its practitioners must pay careful attention to ethical standards and practices (2). The marketing of social products, services, and ideas is particularly prone to ethical dilemmas. Unlike most commercial marketing, social marketing involves some of our most deeply held beliefs and moral judgments (50). Recent work on ethics highlights unique issues about the moral justification of social marketing's aims (e.g., individual or social welfare versus individual satisfaction), procedures (e.g., how much disclosure is necessary in the promotion of a contraceptive about product side effects), and outcomes (e.g., moral changes in a community, especially when the social marketers are not members of that community) (2, 8, 50).

Many ethical criticisms of social marketing focus on power differentials that contribute to an unequal playing field between marketers and consumers. Some authors argue that incorporating consumers in the process, from the beginning of the social marketing design to its implementation and evaluation, would help counteract this issue (23). Hastings (24), for instance, notes that public health can learn as much from the consumer as it teaches them.

Given the ecological nature of most health conditions, efforts to change health behaviors can impact a variety of contextual factors; therefore, it also is important to anticipate any unintended effects social marketing activities may have on target audiences and others. Media messages, for instance, should not reinforce stereotypes or stigmatize population segments (21) [e.g., by presenting smokers as nasty or parents as unfit (50)] or divert program planners from addressing structural factors needed to facilitate change. For a more complete coverage of ethical issues see Andreasen (2).

THE NEXT STEPS: A VISION FOR THE FUTURE OF SOCIAL MARKETING IN PUBLIC HEALTH

For social marketing to become more widely accepted by public health professionals and carefully applied, several developments are necessary. Program administrators, health educators, and other program planners need to be trained in social marketing to enable them to imbue public health organizations with a marketing mindset. Currently, short training sessions are offered in the United States and elsewhere, and the University of South Florida offers certification in social marketing for public health professionals who hold graduate degrees. This program provides instruction in the basic skills required to manage social marketing programs. However, at this time, no schools of public health offer a concentration in social marketing, and most do not provide a complete course on the topic. Although it is debatable whether social marketing should develop into a distinct degree-granting discipline within public health, competency-based training is needed to prepare public health professionals to apply its principles correctly: specifically, to conduct

rigorous formative research, develop integrated marketing plans, and evaluate social marketing programs.

Funding organizations need to provide training for their project officers and administrators to help them structure program grants in ways that optimize social marketing's impact. Grantees should be given sufficient time and resources to conduct formative research, develop evidence-based marketing strategies, pretest program interventions, and monitor program activities. Administrators should recognize the danger inherent in short funding cycles and limited budgets that prevent social marketing programs from achieving the intervention "dose" needed to bring about social change. Agencies that encourage grantees to use social marketing also need staff who can determine if social marketing principles are being applied correctly and provide technical assistance when necessary.

Evaluation of social marketing projects is critical to determine if social marketing programs are cost effective and to identify the conditions under which social marketing is the preferred program planning approach. Commercial marketers often rely on national databases to monitor their success in the marketplace. Similar data sets are needed that would allow social marketing's practitioners to monitor the health behavior of population segments in a timely fashion (14).

Public health practitioners now recognize the value of community-based approaches to social change. Ideally, social marketing practitioners will develop ways to incorporate consumers as partners into the planning process, allowing them to set agendas and directly participate in efforts to ameliorate the problems they decide to tackle. Community-based prevention marketing is one model that blends community mobilization, empowerment, and participatory research with marketing principles and processes in an attempt to balance the power differentials between public health professionals and consumers while benefiting from marketing's approach to social change (11). The prevention marketing initiative is another model in which social marketers work closely with community coalitions (33).

A final and admittedly idealistic goal is for public health to adopt social marketing's consumer orientation as a central value in its organizational culture. Rather than view marketing's orientation as just another program-planning tool or new type of intervention to prevent disease, public health organizations could benefit from viewing the consumer as the center of everything they do, inviting consumers to be true partners in determining how to best meet their health needs. We envision a public health field in which its practitioners, working at all levels, are committed to understanding and responding to the public's desires as well as their needs and routinely use consumer research to make strategic planning decisions about how best to help its consumers solve their problems and realize their aspirations. We believe the marketing mindset will optimize public health's ability to create trusting relationships with consumers and make their lives healthier and more fulfilling.

ACKNOWLEDGMENTS

Sonya Grier is a Robert Wood Johnson Foundation Health and Society Scholar at the University of Pennsylvania and an assistant professor of marketing (on leave) at the Stanford University Graduate School of Business.

The authors thank James Lindenberger for his thoughtful comments and editorial assistance with the manuscript. We also thank Alan Andreasen, Dominick Frosch, Shiriki Kumanyika, and Jose Pagan for their helpful comments on earlier drafts.

**The Annual Review of Public Health is online at
<http://publhealth.annualreviews.org>**

LITERATURE CITED

1. Andreasen AR. 1995. *Marketing Social Change: Changing Behavior to Promote Health, Social Development, and the Environment*. San Francisco, CA: Jossey-Bass
2. Andreasen AR. 2001. *Ethics in Social Marketing*. Washington, DC: Georgetown Univ. Press
3. Andreasen AR. 2002. *Marketing Research That Won't Break the Bank: A Practical Guide to Getting the Information You Need*. San Francisco: Jossey-Bass. 2nd ed.
4. Andreasen AR. 2003. The life trajectory of social marketing. *Mark. Theory* 3:293–303
5. Andreasen AR, Kotler P. 2003. *Strategic Marketing for Nonprofit Organizations*. Upper Saddle River, NJ: Prentice Hall
6. Bagozzi RP. 1978. Marketing as exchange: a theory of transactions in the marketplace. *Am. Behav. Sci.* 21:535–56
7. Balch GI, Sutton SM. 1997. Keep me posted: a plea for practical evaluation. In *Social Marketing: Theoretical and Practical Perspectives*, pp. 61–74. Mahwah, NJ: Erlbaum
8. Brenkert GG. 2001. The ethics of international social marketing. See Andreasen 2001, pp. 39–69
9. Bryant CA, Kent E, Brown C, Bustillo M, Blair C, et al. 1998. A social marketing approach to increase customer satisfaction with the Texas WIC Program. *Mark. Health Serv.* Winter: 5–17
10. Bryant CA, Lindenberger JH, Brown C, Kent E, Schreiber JM, et al. 2001. A social marketing approach to increasing enrollment in a public health program—Case Study of the Texas WIC Program. *Hum. Org.* 60:234–46
11. Bryant CA, McCormack FM, Brown K, Landis D, McDermott RJ. 2000. Community-based prevention marketing: the next steps in disseminating behavior change. *Am. J. Health Behav.* 24:61–68
12. Coreil J, Bryant CA, Henderson JN. 2000. *Social and Behavioral Foundations of Public Health*. Thousand Oaks, CA: Sage
13. Courtney AH, Bryant CA, Peterson MF, Koonce D. 2004. *Kentucky youth nutrition and fitness project: progress report*. Tech. Rep. Div. Nutr. Health Educ., Lexington-Fayette County Health Dep., Lexington, Kentucky
14. Doner L. 2003. Approaches to evaluating social marketing programs. *Soc. Mark. Q.* IX: 18–26
15. Donovan RJ, Henley N. 2003. *Social Marketing: Principles and Practices*. Melbourne: IP Commun.
16. Farrelly MC, Healton CG, Davis KC, Messeri P, Hersey JC, Haviland ML. 2002. Getting to the truth: evaluating national tobacco countermarketing campaigns. *Am. J. Public Health* 92:901–7
17. Forthofer MS, Bryant CA. 2000. Using audience-segmentation techniques to tailor health behavior change strategies. *Am. J. Health Behav.* 24:36–43
18. Geller ES. 2002. The challenge of social change: a behavioral scientist's perspective. *Soc. Mark. Q.* VIII:15–24
19. Glenane-Antoniadis A, Whitwell GB. 2003. Extending the vision of social marketing through social capital theory:

- marketing in the context of intricate exchange and market failure. *Mark. Theory* 3:323–43
20. Goldberg ME. 1995. Social marketing: Are we fiddling while Rome burns? *J. Consum. Psychol.* 4:347–70
 21. Grier SA, Brumbaugh A. 1999. Noticing cultural differences: advertising meanings created by the target and non-target markets. *J. Advert.* 28:79–93
 22. Harvey P. 1999. *Let Every Child Be Wanted: How Social Marketing Is Revolutionizing Contraceptive Use Around the World*. Westport, CT: Auburn House
 23. Hastings G. 2003a. Competition in social marketing. *Soc. Mark. Q.* IX:6–10
 24. Hastings G. 2003b. Relational paradigms in social marketing. *J. Macromark.* 23:6–15
 25. Hastings G, Donovan RJ. 2002. International initiatives: introduction and overview. *Soc. Mark. Q.* 8:3–5
 26. Hastings G, MacFadyen L, Anderson S. 2000. Whose behavior is it anyway? The broader potential of social marketing. *Soc. Mark. Q.* VI:46–58
 27. Hastings G, Saren M. 2003. The critical contribution of social marketing: theory and application. *Mark. Theory* 3:305–22
 28. Hill R. 2001. The marketing concept and health promotion: a survey and analysis of “recent health promotion” literature. *Soc. Mark. Q.* 2:29–53
 29. Hornik RC. 2002. *Public Health Communication: Evidence for Behavior Change*. Mahwah, NJ: Erlbaum
 30. Inst. Med. 2003. *The Future of the Public's Health in the 21st Century*. Washington, DC: Natl. Acad. Press
 31. Jooste PL, Marks AS, van Erkom Schurink C. 1995. Factors influencing the availability of iodised salt in South Africa. *S. Afr. J. Food Sci. Nutr.* 7:49–52
 32. Rothschild ML, Mastin B, Karsten C, Miller T. 2003. The Road Crew final report: a demonstration of the use of social marketing to reduce alcohol-impaired driving by individuals age 21 through 34. *Wis. Dep. Transp. Tech. Rep.*, Madison, Wis., <http://www.dot.wisconsin.gov/library/publications/topic/safety/roadcrew.pdf>
 33. Kennedy MG, Mizuno Y, Seals BF, Myllyluoma J, Weeks-Norton K. 2000. Increasing condom use among adolescents with coalition-based social marketing. *AIDS* 14:1809–18
 34. Kotler P, Roberto N, Lee N. 2002. *Social Marketing: Improving the Quality of Life*. Thousand Oaks, CA: Sage
 35. Lefebvre C, Bryant CA. 2004. An interview with R. Craig Lefebvre. *Soc. Mark. Q.* 10:17–30
 36. Maibach EW, Rothschild M, Novelli W. 2002. Social marketing. In *Health Behavior and Health Education: Theory, Research, and Practice*, ed. K Glanz, B Rimer, FM Lewis, pp. 437–61. Indianapolis, IN: Jossey-Bass
 37. Marks AS, Greathead D. 1994. *The application of social marketing to the design of a programme aimed at fostering TB compliance*. Presented at Tuberculosis—Towards 2000 Int. Conf., Pretoria, South Africa
 38. McDermott RJ. 2000. Social marketing: a tool for health education. *Am. J. Health Behav.* 24:6–10
 39. McDermott RJ. 2003. Essentials of evaluating social marketing campaigns for health behavior change. *Health Educ. Monogr. Ser.* 20:31–38
 40. McDivitt J. 2003. Is there a role for branding in social marketing. *Soc. Mark. Q.* IX:11–17
 41. Minkler M, Wallerstein NB. 2002. Improving health through community organization and community building. In *Health Behavior and Health Education: Theory, Research, and Practice*, ed. BRK Glanz, FM Lewis, pp. 279–311. San Francisco, CA: Jossey-Bass
 42. Mong Y, Kaiser R, Ibrahim D, Rasoiatiana Razifimbololona L, Quick RE. 2001. Impact of the safe water system on water quality in cyclone-affected communities in Madagascar. *Am. J. Public Health* 91: 1577–79

43. Novelli W. 1996. SMQ centerpiece: an interview with William D. Novelli. *Social Mark. Q* III:27–50
44. Peattie S, Peattie K. 2003. Ready to fly solo? Reducing social marketing's dependence on commercial marketing theory. *Mark. Theory* 3:365–85
45. Potter LD, Duke JC, Nolin MJ, Judkins D, Huhman M. 2004. Evaluation of the CDC VERB campaign: findings from the Youth Media Campaign Longitudinal Survey, 2002–2003. Rep. Contr. Number 200199900020, Rep. for U.S. Cent. Dis. Control Prev.
46. Prochaska JO, DiClemente CC. 1984. *The Transtheoretical Approach: Crossing the Traditional Boundaries of Therapy*. Homewood, IL: Dow Jones-Irwin
47. Rothschild ML. 1999. Carrots, sticks, and promises. *J. Mark.* 63:24–27
48. Siegel M, Doner L. 1998. *Marketing Public Health: Strategies to Promote Social Change*. Gaithersburg, MD: Aspen
49. Smith WA. 2000. Social marketing: an evolving definition. *Am. J. Health Behav.* 24:11–17
50. Smith WA. 2001. Ethics and the social marketer: a framework for practitioners. In *Ethics in Social Marketing*, ed. AR Andreasen, pp. 1–16. Washington, DC: Georgetown Univ. Press
51. Smith WA. 2002. Social marketing and its contribution to a modern synthesis of social change. *Soc. Mark. Q.* VIII:46–50
52. Wallack L. 2002. Public health, social change, and media advocacy. *Soc. Mark. Q.* VIII:25–31
53. Walsh DC, Rudd RE, Moeykens BA, Moloney TW. 1993. Social marketing for public health. *Health Aff.* Summer:104–19
54. Williams JD, Kumanyika S. 2002. Is Social Marketing an Effective Tool to Reduce Health Disparities? *Soc. Mark. Q.* 3:14–31
55. Williams PG. 1999. Social marketing to eliminate leprosy in Sri Lanka. *Soc. Mark. Q.* 4:27–31
56. Wong F, Huhman M, Heitzler C, Asbury L, Bretthauer-Mueller R, et al. 2003. VERB™—a social marketing campaign to increase physical activity among youth. *Prev. Chron. Dis.* 1:<http://www.cdc.gov/pcd/>



CONTENTS

EPIDEMIOLOGY AND BIostatISTICS

- A Life Course Approach to Chronic Disease Epidemiology,
John Lynch and George Davey Smith 1
- Advances in Cancer Epidemiology: Understanding Causal Mechanisms
and the Evidence for Implementing Interventions, *David Schottenfeld
and Jennifer L. Beebe-Dimmer* 37
- Competing Dietary Claims for Weight Loss: Finding the Forest Through
Truculent Trees, *David L. Katz* 61
- Population Disparities in Asthma, *Diane R. Gold and Rosalind Wright* 89
- The Rise and Fall of Menopausal Hormone Therapy,
Elizabeth Barrett-Connor, Deborah Grady, and Marcia L. Stefanick 115
- Magnitude of Alcohol-Related Mortality and Morbidity Among U.S.
College Students Ages 18–24: Changes from 1998 to 2001,
Ralph Hingson, Timothy Hereen, Michael Winter, and Henry Wechsler 259

ENVIRONMENTAL AND OCCUPATIONAL HEALTH

- Advances in Risk Assessment and Communication, *Bernard D. Goldstein* 141
- EMF and Health, *Maria Feychting, Anders Ahlbom, and Leeka Kheifets* 165
- The Public Health Impact of Prion Diseases, *Ermias D. Belay
and Lawrence B. Schonberger* 191
- Water and Bioterrorism: Preparing for the Potential Threat to U.S. Water
Supplies and Public Health, *Patricia L. Meinhardt* 213

PUBLIC HEALTH PRACTICE

- Economic Causes and Consequences of Obesity, *Eric A. Finkelstein,
Christopher J. Ruhm, and Katherine M. Kosa* 239
- Magnitude of Alcohol-Related Mortality and Morbidity Among U.S.
College Students Ages 18–24: Changes from 1998 to 2001,
Ralph Hingson, Timothy Hereen, Michael Winter, and Henry Wechsler 259
- New Microbiology Tools for Public Health and Their Implications,
Betty H. Robertson and Janet K.A. Nicholson 281

The Public Health Infrastructure and Our Nation's Health, <i>Edward L. Baker, Jr., Margaret A. Potter, Deborah L. Jones, Shawna L. Mercer, Joan P. Cioffi, Lawrence W. Green, Paul K. Halverson, Maureen Y. Lichtveld, and David W. Fleming</i>	303
Social Marketing in Public Health, <i>Sonya Grier and Carol A. Bryant</i>	319
Urban Health: Evidence, Challenges, and Directions, <i>Sandro Galea and David Vlahov</i>	341
SOCIAL ENVIRONMENT AND BEHAVIOR	
Urban Health: Evidence, Challenges, and Directions, <i>Sandro Galea and David Vlahov</i>	341
Acculturation and Latino Health in the United States: A Review of the Literature and its Sociopolitical Context, <i>Marielena Lara, Cristina Gamboa, M. Iya Kahramanian, Leo S. Morales, and David E. Hayes Bautista</i>	367
Adolescent Resilience: A Framework for Understanding Healthy Development in the Face of Risk, <i>Stevenson Fergus and Marc A. Zimmerman</i>	399
Declining Rates of Physical Activity in the United States: What are the Contributors?, <i>Ross C. Brownson, Tegan K. Boehmer, and Douglas A. Luke</i>	421
Impact of Nicotine Replacement Therapy on Smoking Behavior, <i>K. Michael Cummings and Andrew Hyland</i>	583
Primary Prevention of Diabetes: What Can Be Done and How Much Can Be Prevented?, <i>Matthias B. Schulze and Frank B. Hu</i>	445
Psychosocial Factors and Cardiovascular Diseases, <i>Susan A. Everson-Rose and Tené T. Lewis</i>	469
Social Marketing in Public Health, <i>Sonya Grier and Carol A. Bryant</i>	319
HEALTH SERVICES	
Abortion in the United States, <i>Cynthia C. Harper, Jillian T. Henderson, and Philip D. Darney</i>	501
Patient Perceptions of the Quality of Health Services, <i>Shoshanna Sofaer and Kirsten Firminger</i>	513
Toward a System of Cancer Screening in the United States: Trends and Opportunities, <i>Nancy Breen and Helen I. Meissner</i>	561
Competing Dietary Claims for Weight Loss: Finding the Forest Through Truculent Trees, <i>David L. Katz</i>	61
Urban Health: Evidence, Challenges, and Directions, <i>Sandro Galea and David Vlahov</i>	341

Impact of Nicotine Replacement Therapy on Smoking Behavior, <i>K. Michael Cummings and Andrew Hyland</i>	583
---	-----

INDEXES

Subject Index	601
Cumulative Index of Contributing Authors, Volumes 17–26	000
Cumulative Index of Chapter Titles, Volumes 17–26	000

ERRATA

An online log of corrections to *Annual Review of Public Health* chapters may be found at <http://publhealth.annualreviews.org/>