

This Chapter is from "Beyond Advice: Becoming a Motivational Practitioner"
Click here to order books or go to www.MotivateHealthyHabits.com

SECTION V

THE CHALLENGE OF IMPLEMENTING COMPREHENSIVE BEHAVIOR CHANGE PROGRAMS

This section will provide a “bird’s eye” perspective on the challenge of developing, implementing, and improving comprehensive behavior change programs. As has been discussed, the goal of such programs is to reduce the incidence and prevalence of unhealthy behaviors and to promote self-care of chronic diseases over time. Such motivational programs use proactive, data-driven, population-based approaches to deliver and assess the impact of providing individualized interventions that meet patients’ changing needs over time. However, to be successful, health care teams need ongoing training to enhance their organizational and motivational skills in order to enhance their overall and individual performance over time. This ideal is a future vision of behavioral health care.

Currently, a complex array of factors contributes to resistance against implementing such training and clinical programs in education and practice. The implementation gap between this ideal and reality is a formidable, long-term challenge. An exploration of different worldviews on health and disease provides a wider context in which to understand the complexity of this challenge. Exploring how different kinds of evidence influence clinical practice provides yet another angle on understanding this challenge.

Chapters 15 and 16 may help you hold onto this ideal vision of behavioral health care and encourage you to do the right thing, in spite of powerful impediments to the contrary. Until there is a paradigm shift toward chronic care and behavioral change preventive models in health care delivery, you will need courage and strength to swim upstream against the rapids of the acute (“cure”) medical model.

CHAPTER 15:

EXPLORING HOW WORLDVIEWS AFFECT OUR APPROACH TO HEALTH BEHAVIOR CHANGE

FOR REFLECTION

How do different worldviews support or hinder the process of implementing comprehensive behavior change programs in health care?

OVERVIEW

Curative medicine takes precedence over disease prevention and health promotion and is the dominant force in health care. Yet public health approaches have had a greater impact on improving the health of the population. Medicine and public health provide different worldviews about diseases. Medicine takes a microscopic (reductionist) approach to treating diseases. In contrast, public health takes a telescopic (population-based) approach to disease prevention.^a However, these approaches still provide a limited perspective on health care. A wide-angle lens expands the focus beyond treating and preventing diseases to include worldviews from other disciplines: behavioral, organizational, political, social, and economic sciences, community mobilization, and information technology.

Proponents of different worldviews, collaborating in an interdisciplinary manner, can have a greater population-based impact than any single discipline. For example, behavioral science can assist all disciplines in developing more individualized and potent interventions to help patients change their unhealthy habits. When combined with contributions from organizational sciences (such as continuous improvement methods), this approach can help health care teams in different settings to continuously improve their behavior change programs. Together, these two disciplines are central to developing effective and comprehensive behavior change programs. An understanding of leadership and change processes are essential for transforming your health care organization, fostering effective teamwork, and training your health care team to adopt new roles. Furthermore, your health care team also needs ongoing opportunities to improve their skills at motivating change, so that they can work more effectively with individual patients over time. At national levels, interdisciplinary, population-based, and multi-modal approaches using individualized interventions are needed to transform disease-producing societies into health-promoting ones.

EXPLORING HOW WORLDVIEWS AFFECT OUR APPROACH TO HEALTH BEHAVIOR CHANGE

world-view or worldview. *n.* 1. *The overall perspective from which one sees and interprets the world.* 2. *A collection of beliefs about life and the universe held by an individual or a group.* [translation of Ger. *Weltanschauung.*]

The American College Dictionary, (3rd ed.) 1993

Curative medicine, the dominant force in health care, has a pervasive impact on health care priorities: in effect, it monopolizes health care resources. This near monopoly stands in contrast to the findings of the Lalonde Report (Canada) that identified four major determinants of health: lifestyle behaviors, human biology, environment, and the health care system.¹ The U.S. Surgeon General's 1979 report estimated that the major causes of death could be attributed accordingly: 50% to unhealthy behaviors; 20% to environmental factors; 20% to human biological factors; and 10% to inadequacies in health care.² Similar premature mortality patterns have been observed internationally.³ Furthermore, an estimated 50% of preventable mortality is due to risk behaviors,⁴ but only 10% of preventable deaths are amenable to medical treatment.⁵ Recent reports have again emphasized the need for health promotion and disease prevention,⁶⁻¹¹ while professional inaction on addressing the behavioral determinants of health has been described as a scandal.¹²

Such information is hardly new to the medical profession, as can be seen by the date of the following quotation, which provides a historical perspective about the challenge of addressing the dominance of medicine in health care.

The physician's function is fast becoming social and preventative, rather than individual and curative. Upon him, society relies to ascertain and, through measures essentially educational, to enforce the conditions that prevent disease and make positively for the physical and moral well-being.

*Abraham Flexner, Medical Education: United States and Canada,
Report for the Carnegie Foundation, 1910*

There are understandable reasons for the lack of progress on this issue. Medical care consumes the lion's share of resources; for example, in the United States, up to 99% of health care expenditures.¹³ Even though preventable illness accounts for 70% of health care costs,⁴ health promotion and disease prevention account for approximately 5% of the total national expenditure on health care.¹⁴ In the United States, basic science research about diseases consumes approximately 90% of National Institutes of Health (NIH) funding. The residual funds are directed toward public health and clinical research that addresses specific diseases such as cancer and heart disease.¹⁵

Let's briefly consider the tobacco pandemic, as the magnitude of this problem demands worldwide action. Although WHO's Tobacco-free Initiative aims to decrease global tobacco consumption (<http://www.who.int/toh/>), its funding for tobacco control and cessation is minuscule in comparison to the advertising budgets of international tobacco corporations. Consequently, funding for disease production far exceeds that of health promotion. And what about the research funding for the prevention and treatment of tobacco-related diseases?

Thirty percent of cancer deaths are attributable to tobacco, while 5-10% are linked to genetic causes.¹⁶ Yet in the United States, the tobacco control budget of the National Cancer Institute is dwarfed in comparison to the multibillion-dollar research project to sequence the human genome.¹⁷ Consequently, unraveling the "psychosocial genome" for unhealthy behaviors lags far behind our understanding about the genetic determinants of disease.

PARADOXICAL PRIORITIES

The priority given to medical treatment and research about diseases over clinical practice and research about health promotion and disease prevention is not just a modern-day phenomenon. The following anecdote is a testimony to the human tendency to value dramatic, immediate results that benefit a few privileged individuals over broad-based initiatives that have long-term benefits for the masses.

According to an old story, a lord of ancient China once asked his physician, a member of a family of healers, which of them was the most skilled in the art of healing. The physician, whose reputation was such that his name became synonymous with medical science in China, replied, "My eldest brother sees the spirit of sickness and removes it before it takes shape, so his name does not get out of the house. My elder brother cures sickness when it is still extremely minute, so his name does not get out of the neighborhood. As for me, I puncture veins, prescribe potions, and massage skin, so from time to time my name gets out and is heard among the lords."

These three brothers are the modern equivalent to:

- Public health doctors reducing the cardiovascular risk behaviors in a population;
- Doctors giving thrombolytic treatment to treat myocardial infarctions;
- Surgeons doing heart transplantations.

Quick-fix approaches (drugs and surgery) for treating acute diseases are given much higher priority than the "long haul," population-based approaches needed for promoting healthy behaviors and the self-care of chronic diseases. Yet public health has had a far greater impact on improving the health of the population than medical care.²²

But it is better to have a large number of practitioners with a modicum of influence working to prevent future problems for the benefit of whole populations than to have a small number of specialist doctors with high-impact treatments to address the current problems of a relatively small number of patients. This is a complex paradox: a case of inverted priorities.

In this regard, health care systems are like patients with unhealthy behaviors; the short-term benefits (cure) are valued more than the long-term gain (prevention). This human tendency to want a quick fix naturally favors the worldview of medicine over public health, which in turn predetermines how professional groups and society at large organize health care. An overview of different worldviews on health and disease provides a broader perspective for resolving this paradox. Interdisciplinary, intersectoral and individualized approaches, working in synergistic, integrated and population-based ways, can consider the limitations of the medical worldview and potentially resolve this paradox.

LIMITATIONS OF THE MEDICAL WORLDVIEW

In the sixteenth and seventeenth centuries, medicine began to treat the mind and body as separate entities. Over the ensuing centuries, medicine developed an objective, mechanistic, reductionist, and linear approach for treating diseases.¹⁸ In the twentieth century, experimental research methods helped to advance scientific rationality and contributed to phenomenal advances in curative medicine. This scientific revolution displaced an ancient, holistic worldview that can be traced back to Greek philosophy, as exemplified by Aristotle's statement that "the whole is more than sum of its parts."¹⁹ In effect, the "big picture" about the determinants of diseases has been overlooked, particularly the social and behavioral influences on health such as poverty, lack of education (illiteracy) and unhealthy behaviors.

Nor does medical science adequately address how to deal with risk behaviors in a population-based manner. A holistic and systems approach that incorporates contributions from many disciplines is needed to reduce overall risk behaviors.²⁰ To work toward this goal, Alvin Toffler has emphasized that we must move away from a "second-wave" culture, which emphasizes the study of things in isolation, to a "third-wave" culture, which emphasizes concepts such as context, relationships, and wholes.²¹

In fact, public health and prevention has had a far greater impact on improving the health of the population than has medicine. The first public health revolution, which addressed infectious diseases (1880-90s), still has relevance to the second public health revolution about unhealthy behaviors (1976 onwards).²² In this first revolution, the prevalence of infectious disease decreased significantly, well before antibiotics were introduced to treat bacterial infections. This was because sanitation, quarantine measures,

improved housing conditions, adequate nutrition, and clean water supplies had a much greater impact than antibiotics on improving population health. Similarly, today, comprehensive behavior change programs could have far greater potential than acute care medicine for improving the current health of the population.

WHAT WE NEED

Opportunities for promoting healthy behaviors and self-care of chronic diseases can occur at three levels²³:

- upstream (national policy)—health care legislation and policies
- midstream (organizations)—educational institutions and health care organizations
- downstream (individuals)—teacher-learner and practitioner-patient encounters

Most behavior change training programs have been developed to focus on individual practitioner-patient encounters. These initiatives are “swimming upstream” because health care organizations lack the resources to implement programs systematically in a proactive, population-based manner.²⁴ At the national level, health care systems do not adequately support these organizations to develop comprehensive behavior change programs. Even at a societal level, these programs are still swimming upstream, because we are more focused on treating diseases than on health promotion that creates synergistic interventions at all levels.

Thus, in most health care systems, the first priority has been on identifying patients with unhealthy behaviors, typically done in a case-finding manner. The second priority has been on training practitioners to provide information and advice to patients about changing their unhealthy behaviors. Until recently, however, the third priority—changing public policy and practice settings to develop comprehensive behavior change programs that work in a proactive and population-based manner—was largely ignored.

This is in direct contradiction to a quality management adage that 85% of the opportunities for improving practitioner or team performance are with the system or organization, and 15% with individuals. Behavior change programs must expand the focus of attention on individuals (practitioner-patient encounters) to include the organization (the health care setting). Unfortunately, many of us have not been trained to develop leadership skills for fostering this kind of organizational change; consequently, we suffer from tunnel vision. Once in practice, we are too busy seeing patients, working in a reactive manner, with limited time to think about how to restructure our health care settings. In effect, we work in dysfunctional organizations with inadequate supports to address risk behaviors in a proactive, population-based manner.²⁵⁻²⁷

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

Few health care organizations have appropriately trained personnel, infrastructure, managerial support, and information systems to implement comprehensive behavioral change programs. Health care teams need training in quality improvement methods to continuously enhance the impact of these programs. Practitioners need to develop leadership skills: facilitating organizational change, applying quality improvement methods in program development, and developing data-driven, clinical systems. Contributions from organizational sciences can help develop such programs over time.

An exemplary example of attempting to integrate prevention and public health into medical care is the 20-year program of the Group Health Cooperative of Puget Sound in Canada. For example, they developed, implemented, and evaluated primary and secondary prevention services in clinical practice.²⁸ The Cooperative included prevention care as an integral part of their overall vision and mission from its inception. They have developed an organizational culture and delivery system to promote health and to prevent disease. This kind of data-driven, public accountability for value and outcome performance is emerging as a key issue in health care internationally.

Such development is a sign of progress; moving beyond the historical split between medicine and public health to collaborate more to prevent diseases and to promote health. These changes are a healthy beginning toward interdisciplinary health care.^{29;30} However, medical science and public health alone do not have all the needed expertise to develop comprehensive behavior change programs.^{31;32} There is also a need to call on other disciplines and sectors to contribute to this task.

NEED FOR INTERDISCIPLINARY APPROACHES

A comparison of worldviews helps to clarify the need for using an interdisciplinary approach to behavior change. Four disciplines (medical, behavioral, public health, and organizational sciences) are briefly highlighted to demonstrate how the limitations of one discipline can be compensated for by the strengths of another. Each discipline provides different ways of approaching how you can change yourself, your patients, and/or your organization. The example of tobacco, for example, demonstrates the need for interdisciplinary collaboration to reduce smoking rates.

A. Medical Science

The medical worldview takes a predominantly mechanical approach (“technicians using tools”) to address the complicated task of treating diseases. The human body is treated like an objective entity, disconnecting the disease from the person. In effect, a closed-system approach is used to control and cure disease, using high-tech treatments to save patients’ lives, with the goal of providing dramatic results and immediate benefits. Scientific rationality, using reductionist (i.e., breaking into separate parts) and linear thinking (e.g., “A” causes “B”), is the dominant modus operandi of this worldview.

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

Evidence-based medicine provides us with justification to use proven interventions, such as providing health information and quit-smoking advice. When these fix-it approaches for treating diseases do not work, we may use a motivational approach for addressing health behavior change. Further distinctions are made between treating diseases and motivating behavior change to clarify important differences between the medical and behavioral worldview on health care.

B. Behavioral Science

Contributions from behavioral science, which have been discussed in Sections III and IV of this book, can help you develop individualized interventions for patients, particularly when proven ones from randomized controlled trials (RCTs) do not work. The behavioral worldview takes an organismic approach (“gardeners planting seeds”) to meeting the complex task of changing unhealthy behaviors. Unhealthy behaviors are treated as subjective issues that are shaped by the context of patients’ lives.

In effect, you work in an open system that includes many personal and contextual factors over which you have little or no control. To avoid blaming patients, you can separate them from their unhealthy behaviors while working with them to motivate change. To influence patients over time, low-tech interventions (dialogue) help you develop individualized interventions to meet their changing needs. Thus, change is often incremental, and the benefits are delayed.

C. Public Health

Public health deals with the real-world challenges of implementing efficacious interventions in a population groups rather than individuals. For example, in the United States, the National Health Promotion Objectives for the year 2000 call for 75% of primary care providers to deliver routine antismoking advice to patients. This objective requires a shift from an individual to a population-based perspective. However, proven interventions are not systematically implemented into practice. Physician advice was provided in 16%, 29%, and 21% of smokers’ visits in 1991, 1993, and 1995, respectively.³³ The discrepancy between this objective and the downward trend arises because health care teams do not have adequate supports to achieve the objective. Contributions from organizational sciences can help close this gap.

This holistic approach helps you understand patients’ emotions, perceptions, values and life situations that shape their so-called irrational behaviors. The process of this clinical approach is non-linear (“A” may influence “B,” “C,” “D,” “E” or any combination of them). In other words, behavior interventions do not have predictable impacts. Table 15.1 contrasts the medical and behavioral worldviews about health and disease.

Table 15.1: Comparing Medical and Behavioral Worldviews

Quick-fix: Treating Diseases	Long Haul: Motivating Healthy Behaviors
1. Address complicated, decontextualized tasks —use “closed system” approach	1. Address complex, contextualized tasks —use “open system” approach
2. Focus on objectivity and entities	2. Focus on subjectivity and context
3. Use mechanistic thinking — “ technicians using tools”	3. Use organismic thinking — “gardeners planting seeds”
4. Use reductionist and linear approaches —apply scientific rationality	4. Use holistic and non-linear approaches —address human irrationality
5. Intervene in symptomatic phase —patients depend on their practitioners	5. Intervene in asymptomatic phase —patients start thinking about change
6. Control and cure diseases —practitioners save lives	6. Support autonomy to influence behavior —activate patients to take charge
7. Focus on harms, deficits, and pathology	7. Address emotions, perceptions and values
8. Use high-tech treatments (drugs and surgery) static, prescribed intervention	8. Employ low-tech interventions (dialogue) —dynamic, changing interventions
9. Produce dramatic results —immediate benefits	9. Foster incremental change —delayed benefits

D. Organizational Sciences

Organizational sciences can assist health care settings in developing comprehensive behavior change programs that operate in a proactive, population-based manner.³⁴⁻³⁶ For example, continuous improvement methods can help health care settings improve overall function, performance, and progress toward their goals.^{37;38} In the United States, these methods can help them to achieve the National Health Promotion Objectives for smoking, in addition to other risk behaviors. In England, these methods can help health authorities and primary care groups (and trusts) to achieve the targets for their health improvement programs, and also contribute toward national objectives listed in the Web site Saving Lives: Our Healthier Nation (<http://www.doh.gov.uk/ohn/execsum.htm>).

Over the past decade, a new knowledge base has developed in the redesign of health care organizations.³⁹ The model for improvement incorporates systems theory, practical concepts and tools from quality management such as Plan-Do-Study-Act (PDSA) cycles,⁴⁰ as well as dynamic approaches to organizational transformation and renewal.^{35;36;41} To assess organizational improvement, health care groups can first create a profile of their organization, and then use seven critical functions to identify their specific goals.

E. Organizational profile (reactive-proactive-high performing)

Health care settings need to commit to organizational improvement.⁴² Too often, behavior change programs are implemented without sufficient understanding about the need to incorporate improvement processes throughout all levels of the organization. A self-study tool (see Table 15.2) can help organizations benchmark and monitor their progress in different areas along a continuum: reactive-proactive-high performing. This

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

tool can help the health care team develop a consensus opinion about where they are and where they want to go.

Table 15.2: Assessing Your Organization

Instructions: Circle the number in each row that best describes your organization’s current functioning in addressing preventive and behavior change issues.

	<i>Reactive</i>	<i>Proactive</i>	<i>High Performing</i>
Focus	Medical <i>1 2 3</i>	Advice/Preventive Procedures <i>4 5 6</i>	Risk Behaviors Motivating Change <i>7 8 9</i>
	Individual <i>1 2 3</i>	Individual Some Outreach <i>4 5 6</i>	Population-based & Community <i>7 8 9</i>
	Present, Fight Fires <i>1 2 3</i>	Short-term Prevention <i>4 5 6</i>	Longer Term Health Promotion <i>7 8 9</i>
Leadership	Minimal <i>1 2 3</i>	Directive <i>4 5 6</i>	Visionary, Inspiring <i>7 8 9</i>
	Controlling or Laissez-faire <i>1 2 3</i>	Coaching <i>4 5 6</i>	Empowering <i>7 8 9</i>
	Informal Self-proclaimed <i>1 2 3</i>	Quality Assurance <i>4 5 6</i>	Continuous Improvement <i>7 8 9</i>
	Accountable Mainly to <i>1 2 3</i>	Professionals <i>4 5 6</i>	Patients Public, Patients, Professionals <i>7 8 9</i>
Management Style	Disorganized or Rigid <i>1 2 3</i>	Flexible <i>4 5 6</i>	Synergistic, Participatory <i>7 8 9</i>
	One-way, Sporadic <i>1 2 3</i>	Two-way <i>4 5 6</i>	Multidirectional, Ongoing <i>7 8 9</i>
	Low Priority <i>1 2 3</i>	Sporadic, Opportunistic <i>4 5 6</i>	Lifelong Learning <i>7 8 9</i>
	Professional Development <i>1 2 3</i>	Complacent, Discouraged <i>1 2 3</i>	Supportive <i>4 5 6</i>
Morale			

Seven Critical Functions

Health care settings also need to develop specific goals for organizational improvement. To identify such goals, health care teams can assess seven critical functions that are essential for developing high-performing behavior change programs.

1. Continuing professional development in behavior change—Health care teams and practitioners need ongoing training to develop the organizational and motivational skills needed to continuously improve their behavior change programs.
2. Identification of risk behaviors and related complications—Health care settings need to systematically identify all patients with unhealthy behaviors (e.g., smoking as a vital sign) and chronic diseases (e.g., percentage of smokers with certain chronic diseases such as diabetes and heart disease).
3. Priming/Prompting of patients and practitioners—Health care settings need to develop systematic methods of priming and prompting patients and practitioners to address unhealthy behaviors and to promote self-care of chronic diseases, during and after clinical encounters.
4. Continuing care—Health care teams need to improve how practitioners monitor, re-assess, provide additional support, and arrange follow-up in ways that engage patients in the ongoing process of change.
5. Options for help—Options for help can be internal or external to the health care setting, such as professional assistance, support groups, the Internet, self-help groups and community resources.
6. Linkages/networks among services and resource options—Linkages and networks are the processes present within the health care setting that help practitioners and patients to connect to the relevant options for additional help. Many options for additional support are available to both practitioners and patients, but they are of little use unless both groups know how to access relevant resources.
7. Information management—Data is essential for tracking progress toward the goals of the behavior change programs. Feedback about the ongoing performance of health care teams and individual practitioners in relationship to patient outcomes (rates of unhealthy behaviors and the status of chronic diseases) is crucial for tracking the development of these programs.

A wide variety of methods and tools are available for working on these functions. For example, the “Clinical Value Compass”⁴³ can help health care teams develop a balanced set of goals that relate to clinical outcomes, cost, function and satisfaction. To work toward these goals, health care teams can use “rapid PDSA cycles” to develop ideas for improvement in small tests of change.⁴⁰ These two examples are selected to highlight the need for using the organizational sciences to improve how health care teams and settings function.

NEED FOR A BROAD APPROACH

Contributions from disciplines outside the health care sector provide additional perspectives on how to promote the health of the population. Politics, economics, social sciences, community mobilization, and information technology can all contribute toward addressing, as an example, the pandemic of tobacco use.

A. Politics and Economics

National or federal, state, and local politics affect tobacco policy and legislation that can help reduce smoking rates in direct and indirect ways. For example, government can increase tobacco taxes to reduce consumption. An analysis of 4 years of data from the National Health Interview Survey (NHIS) indicates that lower income, minority and younger populations would be more likely to reduce or quit smoking in response to an increase in cigarette taxation. A 50% price increase could cause a 12.5% reduction in the total U.S. cigarette consumption.⁴⁴

Additional political and legal measures include changing trade laws so that developing countries can curtail international tobacco corporations from selling their product to vulnerable populations; changing laws to enhance the liabilities of tobacco companies to lawsuits for selling a deadly product; curtailing or banning smoking advertisements in newspapers and magazines, and on television, radio, and billboards (near schools and in sporting facilities); banning smoking in public buildings and in settings such as hospitals and work sites; promoting smoke-free zones in facilities such as airports, restaurants, and bars; making the sale of tobacco products to children illegal; and influencing change in the policies, governance, accountability and regulation of health care organizations so that they can implement and evaluate comprehensive behavior change programs.

B. Social Sciences

The social sciences provide different perspectives on the issue of smoking: for example, the field of marketing. In the 1950s before the dangers of smoking were well known, tobacco companies targeted physicians in their advertising campaigns. As a result, an epidemic of smoking occurred among U.S. physicians with well over 50% of all physicians smoking. More important, the companies have been very successful in using marketing methods to produce a pandemic of smokers (without any hard evidence from RCTs to produce this result), particularly in the lower socioeconomic sector.⁴⁵

When the adult smoking rate began to decline significantly, tobacco companies launched covert advertising campaigns to recruit children in order to recapture the adult market as a long-term investment policy. A 3-year cohort study (1993-1996) conducted in California estimated that 34% of adolescent cigarette initiation is causally related to tobacco promotional activities.⁴⁶ Nationwide, these activities induct 700,000 adolescents

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

into smoking each year. Consequently, adolescent smoking is increasing.^{47;48} Thus, tobacco companies are more successful in selling this deadly commodity than health care professions are in providing services that promote healthy behaviors.

While criticizing the behavior of tobacco companies, we can also learn from their skillful ways of manipulating people. How did they take an addictive, carcinogenic, and atherosclerotic-inducing product and sell it worldwide as a pleasure? Antismoking advertising campaigns can learn from the tobacco companies but to different ends. Social science studies demonstrate how media campaigns work better when combined with higher taxes and community and school-based programs.⁴⁹⁻⁵⁴ Studies show these campaigns are effective in reducing tobacco consumption and influencing smokers' decision to quit.^{55;56} Another study that assessed the impact of different anti-smoking messages in advertising campaigns in the United States collected data from focus groups and used a variety of quantitative survey methods. The researchers were able to categorize these messages as follows: industry manipulation, secondhand smoke, addiction, cessation, youth access, short-term effects, long-term health effects, romantic rejection. The relative effectiveness of these tobacco control messages for youth and adults (based on quantitative and qualitative data) are summarized in Table 15.3.

Table 15.3: Relative Effectiveness of Tobacco Control Advertisements*

Strategies and examples of media messages	<i>Youths</i>	Adults
Industry manipulation: tobacco industry executives use deceitful, manipulative, dishonest practices to hook new users, sell more cigarettes, and make more money.	+++	+++
Secondhand smoke: educate general public about the hazards of passive smoking. Focus on the nonsmokers' loss of liberty, freedom, and choice in being exposed to unwanted cigarette smoke.	+++	+++
Addiction: Inform smokers and potential smokers that tobacco companies deliberately try to get people hooked on nicotine, lying to the government that nicotine was not addictive when they knew it was.	+	+
Cessation: Encourage smokers not to quit trying to quit.	0	+
Youth access: Address the ease with which children can get cigarettes in order to encourage restrictions, such as banning vendor machines.	-	++
Short-term effects: Focus on short-term effects such as yellow teeth and fingers, headaches, and unpleasant-smelling clothing and hair.	++	-
Long-term health effects: Focus on long-term health effects such as lung cancer, heart disease, and emphysema.	-	++
Romantic rejection: Point out that the majority of people don't smoke and find smoking socially unacceptable.	-	-

+++ = Highly effective, ++ = Moderately effective, + = Effective, 0 = Impact unknown, - = Not effective
 *Reprinted with permission.⁵⁷

C. Community Mobilization

The health care system is limited in how much impact it can have on reducing the incidence and prevalence of risk behaviors on the whole population. This task is a monumental endeavor. However, there are far more family members than health care practitioners interested in helping people change.

Community mobilization can tap into a huge reservoir of willing helpers: family members who care about their relatives. It can also build on the talents of all stakeholders, and extends the ability to make a difference far beyond a single entity, such as a medical center, a school, or workplace. In particular, schools are a logical starting point to address health promotion because teachers and health care professionals can assist parents and children to develop healthy habits before they acquire unhealthy ones. Some evidence is emerging that some anti-smoking programs are working in schools. (see Book 2: *Beyond Advice: Developing Motivational Skills*; Table 5a.6 for CDC's School Health Program Guideline Web site address and Table 5a.8 for additional Web addresses). However, we need to develop more effective methods and offer children an array of healthy choices to avoid the trappings of all unhealthy habits.

Poor families have not significantly reduced their rates of smoking. A variety of tailored approaches are needed to help these families, who are illiterate or have low-level literacy skills; for example, encourage community leaders to act as lay counselors who then develop a network of counselors from the people who have successfully quit smoking. All these methods can work in concert with the health care system to reduce the incidence and prevalence of risk behaviors.

D. Information Technology (IT)

Information technology, such as Web sites, the Internet, and computerized medical records, can help health care professionals and the general public to address unhealthy behaviors in a variety of ways. Furthermore, IT will integrate the seven critical functions described previously in a seamless way, thereby providing the necessary support to continuously improve these programs.

Web-based interactive services, telephone counselling, and video-phone appointments between practitioner and patients (Function 4. Continuing Care) will provide myriad ways for patients and practitioners to form linkages and network with each other and other resources (5. Options for help; 6. Linkages). These technologies will also provide additional resources for health information and support as well as providing motivational interventions to assist patients to change their behaviors (5. Options for help).

These same technologies can also provide ongoing, real time and asynchronous, relevant professional training in how health care organizations can continuously improve the functioning of their behavior change and disease management programs, as well as in

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

how practitioners can develop their skills at motivating change in risk behaviors (1. Professional Development). In effect, these technologies will develop virtual learning communities of practitioners (6. Linkages). At an intersectoral level, the Internet (6. Linkages) provides access to a wide variety of Web addresses (see Book 2: Tables 5a.6-5a.9) for addressing the issue of tobacco cessation and control from different perspectives (5. Options for Help)

A cornerstone for the future role of information technology in behavior change programs will be a national network of medical records and health information systems for both patients and practitioners. Both groups will have Internet access to computerized medical records and high-quality health information across sites: primary care, hospitals, schools, work and home. Security mechanism will be in place to ensure the confidentiality of medical records.

These computerized medical records will have a variety of software programs to assess patients' risk behaviors and disease states. These programs will use evidence-based guidelines to monitor and manage risk behaviors and chronic diseases (2. Identification). The records will prime and prompt both practitioners and patients to address certain health care issues at or in between appointments (3. Priming and Prompting; 4. Continuing Care). Patients will have access to their medical records at any time and can leave questions for their practitioners (2. Identification; 4. Continuing Care).

With respect to information management (7. Information Systems), real-time data collection will simultaneously provide individual, local, regional and national statistics about the prevalence of risk behaviors and the state of chronic diseases (4. Continuing Care). Individual practitioners will receive updates via the Internet on the changing characteristics of their patients, by risk behavior and by disease state (4. Continuing Care; 7. Information Systems). They will have comparative, risk-adjusted data about their performance within their own setting, between local settings, and across different regions. Patients will also receive similar data about their own risk behaviors and disease states, compared to other patients. They will also have access to the performance of individual practitioners and different health care settings. Patients can then make more informed decision about selecting a health care practitioner, team or setting.

NEED FOR INDIVIDUALIZED INTERVENTIONS

The final link in promoting the health of the population is the use of individualized approaches to behavior change programs. Yet the sophistication of interventions for behavior change has lagged far behind the advances in drug treatments of diseases. In fact, the behavioral interventions used by most practitioners are akin to the specificity of 19th-century drug treatments for diseases. Before the turn of this century, drugs often were used to treat multiple disease states without any clear rationale for their use. Since

then, there has been an exponential increase in the number of drugs that we use in more specific and potent ways to treat diseases. Today, the indiscriminate use of a drug for different diseases without any rationale would be considered malpractice. Yet we often provide the same education and advice to patients about the need for behavior change without taking into consideration the heterogeneity of patients and their life circumstances in terms of psychosocial or so-called “soft” data. Perceptions about risks and harms, personal values, readiness to change, or the need for individualized interventions to catalyze change are often ignored. However, soft data is essential for developing individualized interventions for patients’ changing needs over time.

A contrast between 21st-century drug treatments and motivational interventions highlights the need for practitioners to develop individualized interventions that meet patients’ changing needs over time. The advancement of drug treatments for disease has relevance to the need for developing more potent behavioral interventions.

Contrasting the Characteristics of Drug and Behavioral Interventions

Drugs are the agent of change in treatment of diseases, whereas dialogue is the agent of change in motivational approaches to behavior change. Table 15.5 summarizes other important differences between drug and behavioral interventions that affect the challenge of conducting research about helping patients change their unhealthy behaviors. Medical sciences develop new drugs and assess their effectiveness in curing or modifying disease, and in relieving symptoms. In randomized control trials (RCTs), the drug dose is fixed, a set range of doses is used (dose response studies), or the doses are adjusted to achieve a desired effect. Drug purity and accurate dosages are essential in research trials about diseases; purposeful nonvariation of the drug dose is desirable.

As a result of the influence of medical research methods and approaches on developing behavioral RCTs, practitioners have tended to favor the use of standardized interventions; for example, providing health education and advice in a consistent manner. The goal of delivering behavioral interventions in a consistent manner is, however, far more difficult to achieve than delivering a drug in RCTs. Even when given appropriate training for participating in RCTs, practitioners are noncompliant to the research protocol because they vary how they deliver behavioral interventions to patients. Given this variability in delivery, it becomes more difficult for RCTs to clarify what is really working for patients. Unlike drugs, behavioral interventions have multifaceted components so that RCTs cannot reliably discern what works for the average or even individual patient. Furthermore, standardized delivery of behavioral interventions is less effective than using individualized interventions. In clinical practice, you need to be flexible in developing individualized interventions for your patients.

Unlike drug interventions, practitioner-patient dialogue is the agent of change to motivate change in behavioral interventions. Purposeful variation in delivering motivational approaches is essential for individualizing interventions to meet patients’

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

needs. The study of how dialogue can help patients change their unhealthy behaviors is a human science. Qualitative researchers can help to unravel and understand what helps an individual patient change his or her behavior.

Drug treatments and motivational interventions also differ in terms of interaction (see Table 15.6). Drug treatments are a predominantly linear process with feedback mechanisms. In contrast, the practitioner-patient dialogue is a nonlinear and circular process. Dialogue helps practitioners develop individualized interventions for patients. This process is more dynamic than treating a disease with a drug.

Table 15.5: Contrasting Drugs Treatments and Motivational Interventions

Interventions	Drug	Practitioner-patient dialogue
Target	Disease	Behavior change
Scientific Method	The study of drugs is an objective science that addresses the pathological aspects of the body.	The study of behavior change is a human science that addresses psychological and social processes affecting the mind.
Primary Goal	To cure acute diseases, treat chronic diseases, and relieve symptoms.	To help patients alter their perceptions and values about risk behaviors and increase their motivation to change.
Secondary Goal	Drug treatments can also have psychological and behavioral impacts upon patients.	Behavioral interventions can prevent medical, social, and psychological complications.
Variability of Intervention	Purposeful nonvariation is desirable. Practitioners deliver drugs of high purity in fixed or physiological doses.	Purposeful variation is desirable. Practitioners deliver individualized interventions to patients.

Table 15.6: Contrasting the Interactional Aspects of the Interventions

Characteristic	Disease-Drug Interaction	Practitioner-Patient Dialogue
Interactional Pathway	Linear process with feedback mechanisms.	Circular, nonlinear process with ongoing feedback opportunities.
Interactional Processes	Drug-body interactions are understood in terms of biological and pharmacokinetic processes (absorption, metabolism, and elimination). Drugs are involved in physiological feedback processes when interacting with the body.	Practitioner-patient dialogues are understood in term of psychological and social processes. Both participants can influence and change their knowledge, perception, and understanding of risk behavior.
Erroneous Interactions	Be cautious about drug-disease and drug interactions that may alter the impact of the drug.	Assess for support and barriers that can enhance or hinder patients' ability to change.
Duration of Interaction	Administer drugs continuously: short term for acute disease and indefinitely for most chronic diseases.	Administer motivational approaches episodically until patients have changed their behavior.
Practitioners Eliciting Feedback	Ask patients to provide feedback about the positive and negative aspects of the drug effects.	Ask patients to provide feedback about the positive and negative aspects of using a motivational approach.
Patients Giving Feedback	Patients provide information about symptom relief, side effects, and adverse effects and thereby help practitioners make decisions about changing medications.	Patients tell their practitioners about the positive and negative aspects of their dialogue. This process can help change how practitioners use motivational approaches.
Outcome of Feedback	Change drugs if the outcome is not sufficiently favorable.	Individualize approaches to suit patients' needs.

Another contrast between the two interventions is the difference in temporal effects (see Table 15.7). In drug-disease research studies, the patient response depends upon the dose of the drug, differences in biological makeup (e.g., receptor site characteristics, pharmacokinetics and pharmacodynamic issues), and adherence rates to the medication. Drug interventions involve linear processes so their impact on outcome has some degree of predictability.

In behavioral research studies, the patient response depends on the quality of the practitioner-patient dialogue in developing individualized interventions, and the modification of these interventions to meet the patient's changing needs over time. Motivational interventions involve nonlinear processes, making their impact on outcome not predictable.

Table 15.7: Contrasting the Effects of the Interventions

	Drug Effects	Effects of Dialogue
Effects of Interaction	Impact of drug-body interactions understood in biological terms: receptor sites, enzyme induction and inhibition, membrane pumps, pharmacokinetics and pharmacodynamics.	Impact of the behavioral intervention understood in psychological terms: changes in patients' knowledge, understanding, perceptions, values, assumptions and roles.
Predictability of Effects	Positive effects of the drug are predictable. Most side effects, adverse reactions, and idiosyncratic reactions are reversible by discontinuing the drug and using an alternative one.	Positive effects of motivational interventions are unpredictable. Practitioners can repair unfavorable effects and try a different motivational intervention.
Temporal Effect of Intervention	The physiological impact of the drug on the patient is usually rapid, but its biological impact may be immediate or take several weeks to take effect. Drug treatments may be short term or long term depending on the disease state (acute or chronic).	The behavioral impact of motivational approaches may be immediate in changing outcomes. But it may take years before the patient develops intrinsic motivation to change a risk behavior and prevent complications or relapse.

NEED FOR INTEGRATED, SYNERGISTIC APPROACH

An interdisciplinary, intersectoral, and individualized approach to behavior change using multi-modal and population-based methods will reduce risk behaviors more than any single discipline. Furthermore, an integrated, synergistic approach will work more effectively than multiple disciplines working in parallel to one another. Such a holistic approach addresses how the big picture (politics, culture, public policy, legislation, and economics) affects the little pictures (communities, health care organizations, professional training, school and work settings) and vice versa.

The component parts of an overall synergistic approach to behavior change will have different reaches (percentage of targeted population contacted) and effectiveness (the beneficial effects of helping contacted individuals adopt and work through the change process).

$$\text{Effectiveness} \times \text{Reach} = \text{Impact}$$

Positive impact can be measured in terms of the percentage of contacted individuals who change from:

- Not thinking about change to thinking about it
- Thinking about change to preparing to do it
- Preparing to change to actually making a change
- Making a change to maintaining it over the long term

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

Negative impact can be measured by the percentage of contacted individuals who fail to change or who relapse and resume risk behaviors. To enhance impact, we need to continuously improve the reach and effectiveness of various programs.

The key issues affecting the overall impact of a comprehensive behavior change program are reach, effectiveness, and cost. The challenges are to:

- Individualize interventions to meet patients' changing needs over time
- Keep patients involved in the change process over time
- Continually improve delivery systems and methods
- Provide a variety of modes for interventions
- Use multiple sites and settings to deliver interventions
- Use reactive and proactive methods of recruitment
- Use community mobilization methods
- Deliver interventions in the most efficient and low-cost manner

Population-based programs can expand the reach of behavior change interventions. They can be delivered in a variety of settings: health care organizations, work sites, schools, public agencies, and community centers. Different modes can be used to deliver the interventions: books using self-guided and mutual-help methods, cassettes, videotapes, Web-based learning and the Internet; telephone interventions using lay and professional counselors; self-help groups or groups led by professionals in different settings; individual encounters with lay counselors and professionals in different settings; and community mobilization methods.

Self-guided approaches (such as *Motivate Healthy Habits: Change Yourself before Helping Others*) can help people become their own health coach and develop their own individualized approach to behavior change. In effect, they learn how to motivate themselves to change. If they encounter difficulties, they can seek the assistance of other family members, lay counselors, or practitioners. Having learned how to change themselves, they can also learn how to become a motivational coach to help other family members change. Such approaches can be used in community mobilization initiatives in ways that can greatly increase the reach of a behavior change program. Furthermore, these approaches can be used in different professional settings and in a variety of different modes: for example, telephone counseling.

Reflect and Enhance:

In what ways have you increased your understanding about how different worldviews affect our approaches to behavior change? In what ways will this new understanding affect how you work with patients?

MOVING ON

The dominance of the medical worldview limits our ability to reduce risk behaviors in a population-based manner. The strengths and limitations of different worldviews help to justify an interdisciplinary approach to behavior change. An understanding of these worldviews may also help us overcome our resistance to developing health care policies that support the implementation of comprehensive behavior change programs in mainstream clinical practice. An interdisciplinary, population-based, and multi-modal approach using individualized interventions will reduce risk behaviors more than any single discipline. The systematic use of individualized interventions is the rate-determining step in reducing the incidence and prevalence of unhealthy behaviors. The next chapter will explore what kinds of evidence you can use to justify changing your interactions with patients to develop individualized interventions for them.

Endnotes:

a. Charles Hughes, Ph.D., Professor of Public Health at the University of Utah School of Medicine, used the metaphors of the microscope and the telescope at the New York Academy of Medicine Conference entitled “In Sickness and Health: The National Symposium Between the Evolving Relationship Between Medicine and Public Health” (April 9, 1997).

Reference List

1. Lalonde M. A new perspective on the health of Canadians: A working document. Toronto: Health and Welfare Canada; 1974
2. U.S.DHEW. Healthy People: The Surgeon General’s Report on Health Promotion and Disease Prevention. DHEW (PHS) 79-55071. Washington, DC: U.S. Government Printing Office; 1979
3. Charlton JR, Velez R. Some international comparisons of mortality amenable to medical intervention. *Br Med J (Clin Res Ed)* 1986;292: 295-301
4. McGinnis JM, Foege WH. Actual causes of death in the United States. *JAMA* 1993;270: 2207-2212
5. U.S. Public Health Service. A paper on population-based core functions. The Core Function Project. US Public Health Service; 1993:
6. USDHHS. Healthy people 2000: National health promotion and disease prevention objectives. 1991. Washington, DC, U.S. Government Printing Office.
7. Canadian Task Force on the Periodic Health Examination. The Canadian guide to clinical preventive health care. 1994. Ottawa, Minister of Supply and Services Canada.
8. Preventive & Community Medicine Committee. Guidelines for preventive activities in general practice. 4th ed. Melbourne: Royal Australian College of General Practitioners; 1996
9. U.S. Preventive Services Task Force. Guide to clinical preventive services: Report of the US Preventive Services Task Force. 2nd ed. Baltimore, MD: Williams & Wilkins; 1996
10. Friede A, O’Carroll PW, Nicola RM, et al. CDC prevention guidelines: A guide to action. Baltimore: Williams & Wilkins; 1997
11. WHO Working Group. Report of the WHO Working Group on Lifestyles and Behavior Change. 1999. WHO.

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

12. McAvoy BR. A scandal of inaction: how to help GPs implement evidence-based health promotion [editorial]. *Br J Gen Pract* 2000;50: 180-181
13. McGinnis JM. Investing in health: The role of disease prevention. In: Blank RH, Bonnicksen AL, eds. *Emerging issues in biomedical policy: An annual review (Vol. 1)*. New York: Columbia University Press; 1992:13-26
14. Centers for Disease Control. Estimated national spending on prevention—United States, 1988. *MMWR—Morbidity & Mortality Weekly Report* 1992;41: 529-531
15. Mold JW, Green LA. Primary care research: revisiting its definition and rationale [editorial]. *J Fam Pract* 2000;49: 206-208
16. Doll R, Peto R. *The causes of cancer*. Oxford, England: Oxford University Press; 1981
17. Atwood K, Colditz GA, Kawachi I. From public health science to prevention policy: Placing science in its social and political contexts. *American Journal of Public Health* 1997;87: 1603-1606
18. White KL. *The task of medicine: Dialogue at Wickenburg*. Menlo Park, CA: The Henry J. Kaiser Family Foundation; 1988
19. Davidson M. *Uncommon sense*. First ed. Los Angeles: J.P. Tarcher, Inc.; 1983
20. Bertalanffy LV. General systems theory—A critical review. In: Buckley W, ed. *Modern systems research for the behavioral scientist: A sourcebook*. Chicago: Aldine; 1968:
21. Toffler A. *The third wave*. New York: William Morrow & Co.; 1980
22. Green LW. *Community health*. St. Louis, Missouri: Times Mirror/Mosby College Publishing; 1990
23. McKinlay JB. The new public health approach to improving physical activity and autonomy in older populations. In: Heikkinen E, ed. *Preparation for aging*. New York: Plenum Press; 1995:87-103
24. McKinlay JB. A case for re-focusing upstream: The political economy of illness. In: Enelow AJ, Henderson JB, eds. *Applying behavioral science to cardiovascular risk*. Seattle, WA: American Heart Association; 1975:7-18
25. Thompson RS, Woolf SH, Taplin SH, et al. How to organize a practice for the development and delivery of preventive services. In: Woolf SH, Jonas S, Lawrence RS, eds. *Health promotion and disease prevention in clinical practice*. Williams & Wilkins; 1996:483-504
26. Wagner EH, Austin BT, VonKorff M. Organizing care for patients with chronic illness. *Milbank Quarterly* 1996;74: 511-544
27. Taplin S, Galvin MS, Payne T, et al. Putting population-based care into practice: Real option or rhetoric? *JABFP* 1998;11: 116-126
28. Thompson RS, Taplin SH, McAfee TA, et al. Primary and secondary prevention services in clinical practice: Twenty years' experience in development, implementation, and evaluation. *JAMA* 1995;273: 1130-1135
29. Lasker RD, Committee on Medicine and Public Health. *Medicine & public health: The power of collaboration*. New York: The New York Academy of Medicine; 1997
30. Starfield B. Public health and primary care: A framework for proposed linkages. *American Journal of Public Health* 1996;86: 1365-1369
31. Pearson TA, Spencer M, Jenkins P. Who will provide preventive services? The changing relationships between medical care systems and public health agencies in health care reform. *Journal of Public Health Management and Practice* 1995;1: 16-27
32. Keener SR, Baker JW, Mays GP. Providing public health services through an integrated delivery system. *Quality Management in Health Care* 1997;5: 27-34

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

33. Thorndike AN, Rigotti NA, Stafford RS, et al. National patterns in the treatment of smokers by physicians. *JAMA* 1998;279: 604-608
34. McLaughlin CP, Kaluzny AD. Continuous quality improvement in health care. Gaithersburg, MD: Aspen Publishers; 1994
35. Senge PM. The fifth discipline: The art and practice of the learning organization. New York: Doubleday; 1990
36. Senge PM, Roberts C, Ross RB, et al. The fifth discipline fieldbook: Strategies and tools for building a learning organization. New York: Doubleday; 1994
37. Williams RB, Boles M, Johnson RE. A patient-initiated system for preventive health care. *Archives of Family Medicine* 1998;7: 338-345
38. Preisser JS, Cohen SJ, Wofford JL, et al. Physician and patient predictors of health maintenance visits. *Archives of Family Medicine* 1998;7: 346-351
39. Berwick DM, Nolan TW. Physicians as leaders in improving health care: a new series in *Annals of Internal Medicine* [see comments]. *Ann Intern Med* 1998;128: 289-292
40. Langley GJ, Nolan KM, Nolan TW, et al. The improvement guide: A practical approach to enhancing organizational performance. San Francisco, CA: Jossey-Bass; 1996
41. Kotter JP. Leading change. Boston: Harvard Business School Press; 1996
42. Skinner HA. Promoting health through organizational change. San Francisco: Benjamin Cummings; 2002
43. Nelson E, Mohr J. Improving health care, Part 1: The clinical value compass. *Joint Commission Journal on Quality Improvement* 1996;22: 243-258
44. Farrelly MC, Bray JW. Response to increases in cigarette prices by race/ethnicity, income, and age groups—United States, 1976-1993. *MMWR* 1998;47: 605-609
45. U.S. Department of Health & Human Services. Health, United States, 1998: Socioeconomic status and health chartbook. DHHS (PHS) 98-1232-1. 1998. Hyattsville, MD, US Department of Health and Human Services.
46. Pierce JP, Choi WS, Gilpin EA, et al. Tobacco industry promotion of cigarettes and adolescent smoking. *JAMA* 1998;279: 511-515
47. U.S. Department of Health and Human Services. Preventing tobacco use among young people: A report of the Surgeon General. Washington, DC: Office on Smoking and Health; 1994
48. Nelson DE, Giovino GA, Shopland DR, et al. Trends in cigarette smoking among US adolescents, 1974 through 1991. *American Journal of Public Health* 1995;85: 34-40
49. Bal DG, Kiser KW, Felten PG, et al. Reducing tobacco consumption in California. *JAMA* 1990;264: 1570-1574
50. Flynn BS, Worden JK, Secker-Walker RH, et al. Prevention of cigarette smoking through mass media intervention and school programs. *American Journal of Public Health* 1992;82: 827-834
51. Flynn BS, Worden JK, Secker-Walker RH, et al. Mass media and school interventions for cigarette smoking prevention: Effects 2 years after completion. *American Journal of Public Health* 1994;84: 1148-1150
52. Flynn BS, Worden JK, Secker-Walker RH, et al. Long-term responses of higher and lower risk youths to smoking prevention interventions. *Preventive Medicine* 1997;26: 389-394
53. Worden JK, Flynn BS, Solomon LJ, et al. Using mass media to prevent cigarette smoking among adolescent girls. *Health Education Quarterly* 1996;23: 453-468
54. Murray DM, Prokhorov AV, Harty KC. Effects of a statewide antismoking campaign on mass media messages and smoking beliefs. *Preventive Medicine* 1994;23: 54-60

HOW WORLDVIEWS AFFECT OUR APPROACH (CHAPTER 15)

55. Pierce JP, Evans N, Farkas AJ, et al. Tobacco use in California. San Diego: University of California at La Jolla; 1994
56. Popham WJ, Potter LD, Bal DG, et al. Do anti-smoking media campaigns help smokers quit? *Public Health Reports* 1993;108: 510-513
57. Goldman LK, Glantz SA. Evaluation of antismoking advertising campaigns. *JAMA* 1998;279: 772-777