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ABSTRACT

This symposium addressed key findings of the Carnegie Council on Adolescent Development-sponsored book "Promoting the Health of Adolescents: New Directions for the Twenty-First Century." A panel of experts focused on science policy implications of critical issues in adolescent health promotion that have proven difficult to address such as the effects of poverty, adolescent sexuality, and violence. Included on the panel were experts from Canada and Mexico who provided an international perspective on adolescent health promotion. Following an introduction by Elena O. Nightingale, special advisor to the President, Carnegie Corporation of New York, the following chapters are presented: (1) "Historical Perspective on Adolescent Health Promotion"; (2) "Health-Enhancing and Health Compromising Behaviors during Adolescence" (Delbert S. Elliott); (3) "Poverty, Health, and Adolescent Health Promotion" (William Julius Wilson); (4) "Promoting Healthy Adolescent Sexuality" (Herant Katchadourian); (5) "Promoting Safety and Nonviolent Conflict Resolution in Adolescence" (Mark L. Rosenberg); and (6) "Cross-National Perspectives; Views of Adolescent Health Promotion from Canada and Mexico" (Ivan B. Pless--Canadian Perspective, Anameli Monroy--Mexican Perspective). In his concluding remarks, David A. Hamburg, President, Carnegie Corporation of New York, states that most risky behavior is still tentative and exploratory. There is, therefore, an opportunity for preventive interventions, provided that individual development, the social context of development, and the biological variability that makes different individuals more or less vulnerable to different kinds of environmental insults are understood. Research can offer important insights for the construction of more rational preventive interventions. (LL)

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PROMOTING ADOLESCENT HEALTH

Third Symposium on Research Opportunities in Adolescence

CARNEGIE CORPORATION OF NEW YORK

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ACKNOWLEDGMENTS

The editors of *Promoting the Health of Adolescents: New Directions for the Twenty-first Century* upon which this symposium is based, are very grateful to David A. Hamburg, President of Carnegie Corporation of New York and Chairman of the Carnegie Council on Adolescent Development, for his inspiration to undertake this effort. We also want to acknowledge our distinguished advisory group, all of the authors, and Ruby Takanishi, Executive Director of the Council, who was involved in every step of the effort to bring this book to fruition and to plan the symposium. We are grateful to Martha Zaslow for preparing background materials for the symposium. Our thanks also go to Lyn Mortimer, Linda Schoff, Julia Chill, and Darnice Curtis for their help in producing the book, arranging the symposium, and contributing to this working paper. Council staff member, Katharine Beckman, assisted in editing and producing this working paper, and is gratefully acknowledged for her contribution.

Susan G. Millstein
Anne C. Petersen
Elena O. Nightingale

EXECUTIVE SUMMARY

Promoting the Health of Adolescents: New Directions for the Twenty-First Century provided the focus for the Third Symposium on Research Opportunities in Adolescence. A panel of experts addressed the science policy implications of critical issues in adolescent health promotion that have proven difficult to address such as the effects of poverty, adolescent sexuality, and violence. Included on the panel were experts from Canada and Mexico who provided an international perspective on adolescent health promotion.

HISTORICAL PERSPECTIVE ON ADOLESCENT HEALTH PROMOTION

Presenter: Julius B. Richmond

The tension between those who advocate that good health is enhanced by healthy practices and those who believe that good health is a result of the treatment of disease has existed for centuries. Medical advances in the late 19th and early 20th century for finding cures for specific diseases resulted in treating disease as the model for good health. The idea of health promotion moved to the background.

In 1977 the United States Surgeon General helped to focus attention on health promotion and disease prevention as critical to maintaining good health. An important example of the effectiveness of this approach over time is the dramatic reduction in mortality from cardiovascular disease. This reduction has been attributed to a combination of behavioral changes, including giving up smoking, improved nutrition, frequent exercise, and the detection and management of hypertension.

HEALTH-ENHANCING AND HEALTH-COMPROMISING BEHAVIORS DURING ADOLESCENCE

Presenter: Delbert S. Elliott

Health as defined in *Promoting the Health of Adolescents* describes a state of complete physical, mental, and social wellbeing, called a bio-psycho-social approach

to health. This definition includes the convergence of environmental, psychological, and biological causes as influences on health-promoting behaviors.

Current research suggests that there is a cluster of simultaneously occurring, health-enhancing behaviors, including exercise, adequate sleep, the use of safety belts, a healthy diet, and good dental hygiene. These constitute a health-enhancing lifestyle. The relationships among health-enhancing behaviors are not strong. Further research on the relationships among different behaviors in defining a healthy lifestyle is needed.

There is evidence, however, that whatever healthful orientations are in place before puberty may be interrupted by developmental processes taking place in adolescence, such as the growing influence of peer groups. In addition, experimentation with health-compromising behaviors is often considered a normal part of adolescent development.

The research base for health-compromising lifestyles is extensive. At the center of that lifestyle are two strongly related behaviors: (1) substance use—tobacco, alcohol, marijuana, and other illicit drugs, and (2) delinquent behavior, which includes theft, fighting, public disorder, vandalism, and the more serious crimes of robbery, aggravated assault, forcible rape, and homicide. Several other behaviors are implicated within a health-compromising lifestyle, including early sexual activity, risky driving, and poor school performance.

Social context is important in understanding adolescent behavior patterns. Contrary to widespread belief, involvement in substance use and criminal behavior during adolescence is generally not related to class or race. The major differences by race and class begin to appear in early adulthood.

Neighborhoods are critical influences in sustaining criminal behavior initiated during adolescence into adulthood. Poor neighborhoods hold very little opportunity for a better future and tend to lack the social support structures that allow adolescents to develop fully into responsible members of the community. Opportunities to move into constructive, positive adult roles in society are linked to whether or not an adolescent abandons criminal behavior as he matures. Rather than emphasizing change at the individual level, it may prove more productive to focus on change at the neighborhood level.

POVERTY, HEALTH, AND ADOLESCENT HEALTH PROMOTION

Presenter: William Julius Wilson

The field of adolescent health lacks tests of theoretical formulations of why adolescents living in poverty experience poor health to a greater degree and are less likely to

engage in health-promoting activities than more economically advantaged youth. Studies on the health status of poor adolescents are sparse because they tend to reside in environments that are not conducive to gathering data on health and health promotion. They frequently come from families with little parental supervision; they are more likely to prize membership in peer groups characterized by problem behavior; and they may lack the perception of future opportunities that can provide motivation for positive behavior.

Recent research suggests that the ultimate success of family influence is determined by the extent to which the residents of a neighborhood are able to maintain effective social bonds and communication. Neighborhoods that are characterized by an extensive set of obligations, expectations, and social networks connecting adults are also communities where parents are better able to control and supervise the activities and behavior of their children.

Young people in poor neighborhoods not only face violence and social pressure to participate in health-compromising behaviors on a daily basis, but they also have a startling absence of available information about opportunities after high school and how to withstand negative neighborhood pressures. Because of the lack of school-to-work transition programs, many students succeed in graduating from high school only to fail in making a successful transition into post-secondary education and work.

PROMOTING HEALTHY ADOLESCENT SEXUALITY

Presenter: Herant Katchadourian

Adolescent sexuality embodies some of the most universal elements of human experience, but it also shows a great diversity in its manifestations based on age, developmental schedule, gender, sexual orientation, socioeconomic status, ethnicity, religious affiliation, and other interlacing threads that constitute the fabric of society. Although this field is complex due to the numerous variables and issues, all of the necessary research tools are available for intelligent and informed exploration of the subject.

Reproductive maturation is next to birth and death the most critical event in the lives of organisms. A basic understanding of the biological and psycho-social roots of adolescent sexuality is necessary to deal effectively with its consequences. Biology and the study of hormones must be considered in conjunction within a psycho-social context. Hormones may be responsible for sexuality, but human beings are social creatures. Sexual behavior always involves playing out scenarios that are socially scripted. Although the texts of these scripts are drafted in childhood, they go through more definitive editing during adolescence.

It is time for sexuality to be recognized among the normative developmental tasks of adolescence. It is important to learn about the resilience of adolescent sexuality as well as its vulnerabilities. We must acquire a better understanding of the basic developmental tasks that lead to sexual wellbeing in adolescents. Failure to fully inform and openly talk with adolescents about sexuality is doubly damaging in today's world because of the AIDS epidemic that is now making inroads into the adolescent population. The time for reticence in talking with adolescents about sex, whether for research or teaching, is long past. As a society, we must continue to seek answers to the why and how questions of adolescent sexual behavior.

PROMOTING SAFETY AND NONVIOLENT CONFLICT RESOLUTION IN ADOLESCENCE

Presenter: Mark L. Rosenberg

The magnitude of violence in the United States and the extraordinary toll it takes on adolescents and young children clearly makes it a public health problem. For example, firearm injuries are the second leading cause of death to young people in this country. The resources that the criminal justice sector has available to counter violence have been overwhelmed. Using the results of scientific research, however, can provide a sound base for public health programs addressing the problem of violence. The research base needs to include: (1) collecting information, considering causes, designing interventions, and testing interventions to determine what works; (2) focusing on prevention; and (3) integrating programs from different disciplines and agencies.

Addressing the problem of firearms and firearm injuries is critical to adolescent health. The question is not whether we deal with this problem, it is a question of how we are going to deal with it. The Centers for Disease Control and Prevention (CDC) has developed a scientific model for firearm injury research that has dramatically changed the field. Instead of approaching firearm injuries from the perspective of gun control, the CDC chose to focus on the risks of having a firearm in the home and strategies to prevent injury and death. Having a firearm in the home increases the risk of suicide to a family member almost five times. A firearm in the home is forty-three times more likely to be used to shoot someone in either an unintended homicide, a criminal homicide, or a suicide than it is to be used for self-defense.

The interventions recommended by the CDC are based on four main strategies: (1) changing how guns are used or stored; (2) controlling who has access to guns; (3) reducing the lethality of guns by putting child-proof trigger locks on firearms and

requiring indicators to show if a gun is loaded; and (4) reducing the number of guns by limiting importation, manufacturing, and sales of guns.

ADOLESCENT HEALTH PROMOTION IN CANADA

Presenter: Ivan B. Pless

Any comparison of adolescent health promotion in Canada and the United States must take into account the fundamental differences in each nation's health care system. A number of salient features of Canada's health care and social welfare systems affect Canadian youth. The cost of almost every form of health care is not an issue for Canadian adolescents. All Canadians receive a medical card by mail that allows access to any health care provider. Health insurance premiums are included in general taxes and are, in effect, invisible. Services are universal, portable, and remarkably comprehensive, including all acute and chronic hospital expenses and all physician billings. All services are achieved at a cost that is significantly less as a percentage of gross national product than in the United States.

Adolescent medicine as a distinct specialty is much less well-developed or defined in Canada than in the United States. The proportion of adolescent specialists and physicians is also much lower in Canada. Yet in comparing adolescent mortality rates between the United States and Canada, the United States has dramatically higher rates, except for suicide. What accounts for the dramatic differences across our borders? The single-payer, universal health care system does most likely play a role in contributing to better health. Canadians are much more willing to rely on government action in a number of areas related to adolescent health such as automobile and handgun safety. Because many elements of health promotion are deeply imbedded in the Canadian social context, it is almost impossible to tease out specific components. When comparing health promotion outcomes between Canada and the United States, it is difficult to say how much of Canada's success is due to health promotion efforts versus how much reflects differences in the social environments.

ADOLESCENT HEALTH PROMOTION IN MEXICO

Presenter: Anameli Monroy

Mexico has a national health care system that has focused on the treatment of illness, not on health promotion. Adolescent health programs have been generally neglected, but there are some preventive programs that directly affect adolescents and children such as family planning, maternal and child health, diarrhea prevention, and

immunization. Medical schools are beginning to emphasize such specialties as family medicine, public health, and epidemiology, but these specialties still do not have the status enjoyed by other disease-oriented specialties.

Non-governmental organizations (NGOs), such as the Centro de Orientación para Adolescentes (CORA), have been at the forefront of initiating the idea of adolescent health promotion. CORA began in 1978 as the only organization in Mexico and in Latin America promoting a disease prevention approach. CORA trains students between the ages of 17 and 24 to assist their peers with a variety of problems including disseminating information about birth control and child care. Under the supervision of the U.S. Centers for Disease Control and Prevention, CORA's student employees conducted the first representative household survey in Latin America on reproductive health practices among youth between the ages of 15 and 24 in Mexico City. Mexico is working to expand its view of the adolescent as a whole individual within the context of family, school, workplace, and community and to tailor its health programs to this unique population.

CONCLUDING REMARKS

Presenter: David A. Hamburg

For a half century, federal agencies in the United States have been initiating and sponsoring scientific research over a wide range of biological and behavioral sciences. What is most encouraging in recent years is that foundation officers and representatives from federal agencies have come together in public/private cooperation to better understand the challenges of adolescent development.

The health promotion volume provides ample evidence that a vast frontier remains to be explored. Opportunities in adolescent health research over the next several decades are exciting and potentially very rewarding. A high prevalence of extremely risky behavior among young people exists. Since most of that risky behavior is still tentative and exploratory, the opportunities for preventive interventions that will have an impact throughout the lifespan are abundant. What is needed is a concerted effort to answer the questions that persist about the biological, social, and psychological development of adolescents as a group and as unique individuals.

INTRODUCTION

Elena O. Nightingale, Chair
Special Advisor to the President, Carnegie Corporation of New York

I would like to welcome you to the Third Symposium on Research Opportunities in Adolescence sponsored by the Carnegie Council on Adolescent Development. This symposium follows two previous efforts. The first, held in October 1990, focused on basic developmental processes during adolescence and the influence of various societal institutions on that development. The second, held in November 1991, examined research gaps and opportunities to generate new knowledge to improve the health and education of adolescents. This third symposium will address key findings of the Council-sponsored book, *Promoting the Health of Adolescents: New Directions for the Twenty-First Century* (Oxford University Press, 1993), which was recently issued and provided the impetus for organizing this symposium.

I would also like to draw your attention to a recently published report by the National Academy of Sciences, which is a good companion to our book. While the health promotion book of the Carnegie Council focuses on all adolescents, the Academy's book, *Losing Generations: Adolescents in High-Risk Settings* (National Academy Press, 1993), focuses on American youth living in poverty.

We did not invite the chapter authors to present summaries of their chapters. What we are focusing on today are the science policy implications of key topics. These topics were selected because their impact on adolescent health has been somewhat intractable. Thus, further research is absolutely essential if we are going to make any progress on improving the health of adolescents.

First, we will have an overview of adolescent behavior and its contribution to a health-enhancing or health-compromising lifestyle. Professor Delbert Elliott from the University of Colorado, who is a chapter author, will speak to that issue. Then we selected three areas that need more attention. For each we asked an expert who did not write the chapter, but who will extend our knowledge, critique what we did, and give us their insights on the science policy directions in these areas.

The first area is the impact of poverty on health and health promotion for adolescents. Professor William Julius Wilson from the University of Chicago, Director of the Center for Urban Inequality, will address that issue.

The second area is sexuality and adolescent health. Professor Herant Katchadourian, who is a writer, researcher, and a wonderful teacher on this subject from Stanford University, will speak to that.

And, the third area is violence. Violence in this country is escalating and has reached crisis proportions. Dr. Mark Rosenberg from the Centers for Disease Control and Prevention, who has led the effort of the National Center for Injury Prevention and Control, will speak about that topic.

After tackling these areas, Professor Barry Pless, a pediatrician from McGill University, and Dr. Anameli Monroy, who is founder and director of CORA, an institution in Mexico for health and health promotion of adolescents, will give us views from our neighbors to the north and to the south to enlarge our vision outside our borders.

Finally, David Hamburg will wrap up the discussion. But we will start with Julius Richmond, our former Surgeon General and Assistant Secretary for Health, whose strategic thinking placed health promotion on the nation's agenda in 1979 so carefully and compellingly that it has remained there. He will provide the historical context to set the stage for the discussions to follow.

HISTORICAL PERSPECTIVE ON ADOLESCENT HEALTH PROMOTION

Julius B. Richmond
MacArthur Professor of Health Policy Emeritus, Harvard Medical School

This symposium draws on the recently published volume *Promoting the Health of Adolescents*, but its subtitle, *New Directions for the Twenty-First Century*, puts us on a trajectory that is destined to have a major impact on the health of adolescents. There are historical reasons why the timing of this volume could not be better. I am inclined to recall a historian's quip on pioneering ventures: "It's always earlier than you think." We are indebted to Carnegie Corporation of New York and the leadership of David Hamburg and his staff for recognizing the importance of adolescent health promotion early on when the Carnegie Council was founded in 1986.

In my view, we are on the threshold of a great leap forward in advancing the health of our young people. At a time when we are engaged in a national dialogue on health care reform, it is important that we have our priorities straight. Careful analysis reveals that the vast expenditures for health care—now approaching $900 billion per year, or a little more than 14 percent of the Gross National Product—have not been the main reasons for the health improvements that we have observed in recent decades.

While I do not propose to deny people medical care, it is clear that the major reductions in morbidity and mortality were due mainly to improvements in the quality of life and in the improvements in public health practice. This is not a new issue. From ancient times there has been a tension between health preserved by a way of life and health restored by the treatment of disease. One of the leaders in our effort to understand health more broadly, the late Professor René DuBos of Rockefeller University, described it well when he said that the myths of Hygieia and Aesculapius symbolize the never-ending oscillation between two different points of view in medicine. For the worshipers of Hygieia, health is the natural order of things, a positive attribute to which men and women are entitled if they govern their lives wisely. According to this view, the most important function of medicine is to discover and teach the natural laws that will ensure a man or woman a healthy mind and a healthy body.

More skeptical, the followers of Aesculapius believed that the chief role of the physician is to treat disease and to restore health by erasing any imperfections

caused by accidents of birth or life. René DuBos had the capacity to go back to ancient times and bring us up to date.

In the middle of the last century, one of the founders of modern scientific medicine, Dr. Rudolf Virchow called our attention to the social context of medicine when he stated that physicians are the natural attorneys for the poor, and social problems, to a large extent, fall within their jurisdiction. How prophetic he was in the midpoint of the last century when we look at today's physicians and other health workers who continue to struggle with the impact of poverty on the health of our people.

The British epidemiologist, Dr. Thomas McKeown, was perhaps the most incisive analyst of health trends over the centuries. He noted that as the natural sciences developed in the latter part of the 19th century, the focus on specific causes for disease became the dominant motif in medicine. The notion of health tended to move to the background as modern medicine became increasingly influenced by the rapid advances in the natural sciences and the more recent revolution in biology, which we have been so much a part of in the past several decades.

As modern medicine advanced and became more focused on these concepts of specificity, it became harder and harder to highlight some of the positive approaches to health through health promotion. Professor McKeown's analysis showed that the improvements in health that we have witnessed over the decades were related more to improved nutrition as a consequence of the agricultural revolution, improved housing as a consequence of better economic conditions, and the sanitary revolution as we came to know more about microbiology, rather than to medical care.

His formulations, as you might imagine, did not endear him to physicians, but he was one of them, and so it came from within. There were other lonely voices raised to suggest a more holistic view. Dr. Allen Gregg tried to help physicians better understand the complexity of their tasks when he wrote in 1952, that almost by definition an organism is an association of organs so intimately related that no part can be changed without changing in some way and in some measure all the others. It is intellectual weakness, he said, that prompts us to ascribe a given result to only one sufficient cause.

When I became Surgeon General in 1977, it was apparent to me that our knowledge base was sufficiently well developed to refocus our attention on health promotion and disease prevention. We, therefore, launched a new campaign which resulted in our publication of the Surgeon General's report on health promotion and disease prevention, *Healthy People* (U.S. Department of Health, Education, and Welfare, 1979a). It was important when we published

this report to also provide a back-up volume containing the scientific documentation for it, so we turned to David Hamburg, who was then president of the Institute of Medicine, and his associate, Elena Nightingale. The Institute of Medicine provided the necessary scientific documentation—the background papers—for *Healthy People* (Department of Health, Education, and Welfare, 1979b). Dr. Hamburg at that time was sufficiently cognizant of the importance of adolescence in this whole endeavor on health promotion that he convened a meeting at the Institute of Medicine. It was a conference of people from around the nation on issues that were related to adolescent health and how we could promote it (Institute of Medicine, 1978).

The time, however, was not quite right. We had not yet raised the level of consciousness which by now I believe we have. One compelling example of our timeliness concerns our effectiveness in reducing mortality from cardiovascular disease. Since the first Surgeon General's report on smoking and health in 1964, we have witnessed a 60 percent decline in mortality from stroke and a 35 percent decline in mortality from heart disease, something that nobody believed was going to be possible in our lifetimes.

The general reduction that we have witnessed in cigarette smoking has undoubtedly been a major factor, but it has not been the only factor. In line with Dr. Gregg's notions that we do not have a single cause for most diseases, this decline in mortality relates to multiple causation. Improved nutrition, exercise, smoking reduction, and hypertension detection and management have all played very important roles. In the face of the tobacco industry's current expenditure of four billion dollars a year on advertising, our modest ten million dollar federal efforts have, as we have witnessed, had a very remarkable effect. Now the relevance of this for adolescent health is compelling.

Faced with an overall decline in the number of U.S. smokers, the tobacco companies concluded that they need new addicts. The tobacco industry, therefore, is increasingly targeting young people because they know that the addiction is very difficult to overcome. They also know that virtually all smokers start by age 19. Between 1983 and 1992, the proportion of adult smokers has declined from 30 percent to 24 percent, a 20 percent reduction. By contrast, during the decade of the 1980s, teenage smoking has stayed on a very stubborn plateau, and since 1990, we are even seeing some increases.

The papers in the health promotion volume address these issues and should serve as a springboard from which we can improve our efforts. The papers presented at this symposium will bring together our expanding knowledge base, which will help us find better ways in health promotion for adolescents. I believe that we stand on the threshold of a new era. We have rediscovered the

ancient values of Hygieia for health promotion. We have an increasingly rich knowledge base illustrated by this volume, and we are inventing new social strategies for health promotion. What we need now more than anything is the political will to realize our goals of a healthier people through promoting the health of adolescents.

KEYNOTE PRESENTATION: HEALTH-ENHANCING AND HEALTH-COMPROMISING BEHAVIORS DURING ADOLESCENCE

Delbert S. Elliott
Professor, Department of Sociology and Institute of Behavioral Science, University of Colorado

Julius Richmond provided a historical perspective on how we arrived at the particular kind of conceptual framework presented in this volume. I would like to highlight other features about that perspective because it represents a rather radical departure from earlier research. It has a number of implications that I want to impress upon you as being critical to understanding health and health behavior.

The definition of health that is presented in this book describes a state of complete physical, mental, and social wellbeing. This is labeled a bio-psycho-social approach or perspective on health. But, in fact, it is even more complicated than that. It not only forces us to look at person-environment interactions, which is clearly implied by the bio-psycho-social label, but it also has a developmental perspective that must be acknowledged. It also proposes that we consider multiple etiologies for any given health outcome, that is, there may not be a single sequence or set of conditions that produces a given outcome. There may be multiple outcomes and multiple consequences from a particular sequence of actions or set of conditions that leads us to a common etiological understanding for divergent health-related behaviors.

These are important considerations because they lead us to consider this interaction across different levels of explanation, and to look at developmental progressions and the timing and sequence of events.

We are now in a position in which we can demonstrate that the same causal factors, if they do not appear in the right sequence, will not have the predicted outcome. Thus, the timing of events across the lifespan within a developmental sequence are also a part of our perspective on health behavior.

We are going to look at the convergence of conditions and persons at a particular stage of development that produce particular health outcomes. The central question is how do adolescents organize their lives and pattern their behavior in ways that put them at higher or lower risk of serious health problems? The way that I will answer is to talk about lifestyles, which refer to a distinctive mode of living, defined by a set of expressive pattern behaviors occurring with some consistency over time. This definition of a lifestyle is one of a number of different approaches used in literature.

I drew upon the classic work of Sobel in defining lifestyle, but have extended his definition somewhat. Let me highlight three implications of this definition as we examine the process of looking at lifestyles. First, lifestyles are composed of intentional or expressive patterns of behaviors. Attitudes, perceptions, and beliefs are not a part of the lifestyle. They may well be antecedents of a lifestyle and will certainly be correlated with it, but they are not in and of themselves evidence of a lifestyle.

Second, a lifestyle, if it is to be classified as a mode of living, involves multiple types of behavior or different behavioral domains occurring simultaneously. For example, a person who is engaged in smoking, a particular behavior that clearly is part of an unhealthy or health-compromising lifestyle, does not demonstrate the presence of a lifestyle, because the lifestyle must involve multiple behaviors or multiple domains of behavior.

Third, these behaviors must occur simultaneously and be consistent or stable over some minimum period of time. For us to talk about a mode of living, we are not talking about experimental use of alcohol or drugs. We are talking about a pattern of use over some sustained period of time that puts youth at particular risk. When I talk about involvement in alcohol or drugs, involvement in violence, participation in other forms of illegal delinquent behavior and early precocious sexual behavior, I am then speaking not about a single event, but a pattern of those behaviors that is consistent over time.

Let us look at both the evidence for health-enhancing lifestyles and for health-compromising lifestyles. My assessment of the research base for the presence of a health-enhancing lifestyle is that the evidence is quite limited. If we are talking about research opportunities or needs for research, this is clearly an area where additional work is needed. The best evidence for the presence of a health-enhancing lifestyle comes from the work of Richard Jessor and his colleagues, which suggests that there is a cluster of health-enhancing behaviors that include exercise, adequate sleep, the use of safety belts, a healthy diet, and dental hygiene. Those particular sets of behaviors do appear to cluster and might be considered to define a health-enhancing lifestyle. There is some evidence that this set of behaviors is negatively related with alcohol and tobacco use, which are two behaviors in a health-compromising lifestyle. The available evidence on the existence of health-enhancing lifestyles is preliminary and not as strong as we would like. Further research is clearly needed.

There is some evidence that the period we call adolescence is a period in which whatever kind of health orientation has begun to form is interrupted by the developmental processes which take place in adolescence: the movement into peer groups, concerns of adolescents with social relationships, and the view

that some of what we call health-compromising behaviors are a part of sociability in that particular stage of the lifespan.

This suggests a need for a more focused, comprehensive, educational approach to healthy living, which would be introduced early in the educational experiences of children and pushed in a very focused way across all of the adolescent years. It may be that it is the absence of this kind of approach that accounts for the relatively weak evidence for a health-enhancing lifestyle, or that adolescence in and of itself has some disruptive effect.

On the other hand, there is good evidence for what we call a health-compromising lifestyle. The evidence suggests that at the center of a health-compromising lifestyle are two behavioral domains that I will call substance use—tobacco, alcohol, marijuana, and other forms of illicit drug use—and delinquent behavior. The latter encompasses a wide range of things, such as status offenses (which involve use of alcohol prior to age 18, running away), theft, fighting, public disorder, vandalism, and the more serious forms of crime, including robbery, aggravated assault, forcible rape, and homicide.

That set of behaviors does cluster relatively strongly. Knowing, for example, that an individual has initiated alcohol use prior to the age of 15 indicates that the probability for eventual use of crack, cocaine, or some other serious illicit drug is increased by a factor of four across the lifespan. There is a very tight clustering of these behaviors, particularly during adolescence. In addition to that central core set, which includes delinquent acts and substance use, there are several other behavioral domains that are implicated within this lifestyle. They include precocious sexual activity, risky driving (particularly relative to the use of seat belts), dropping out of school, and school failure. There is some, but substantially weaker, evidence that suicide and the use of pornography might be a part of that general cluster of behaviors.

Covariation is strongest for the central core features of the lifestyle and substantially lower when we look at risky driving, sexual behavior, and dropping out of school. The covariation across those behavioral domains is strongest at age 15 and then begins to decline. At the time that alcohol use and sexual behavior become normative in society, those behaviors are no longer indicative of this lifestyle.

Let me turn then to consideration of the development of this health-compromising lifestyle over the lifespan. Over time, this lifestyle involves a sequence that is characterized by increasing frequency, variety, and seriousness of involvement in these behaviors. The pattern is one of "adding on" rather that one of substitution. An individual typically begins with a minor form of substance abuse or delinquency, and over time, will add new forms of behavior. The add-

on process involves at the same time an escalation in the frequency of the earlier forms. In general, an escalation in minor delinquency and in the use of alcohol precedes the transition into marijuana use. Both of those precede the transition into serious forms of violence and crime, which precedes the onset of illicit drug use.

A classic study of delinquency conducted by Marvin Wolfgang and colleagues (1972) in Philadelphia analyzes arrest rates over time. They concluded that it appeared as though the criminal career started over anew with each arrest. The fact that an individual had an arrest for a serious offense at a point in time did not allow them to predict whether the next offense would be a serious offense or a non-serious offense. That is an artifact of having used official arrest records.

Very serious delinquents commit so many non-serious offenses that they are more likely to be arrested for a non-serious offense than a serious one because the pattern of escalation is one of increasing frequency, increasing variety, and increasing seriousness. Over time, that sequence comes to involve persons who are engaging in all of those behaviors and who commit an extremely high number of offenses. For example, serious violent offenders who are also poly-drug users commit on average over 200 offenses a year, twenty index offenses—armed robberies, aggravated assaults, forcible rapes, burglaries, auto thefts, and larcenies. The sequence of that development is a fairly stable one. It begins with minor delinquency, then the onset of alcohol use, then marijuana use, then sexual activity, serious criminal offenses, and, finally, poly-drug use. I would like you to note where the onset of sexual intercourse takes place in that sequence because it is surprising. It is imbedded within that lifestyle and typically involves initiation (into sexual activity) after the introduction of marijuana use.

The age distribution at which we get 50 percent of persons who will ever initiate these behaviors having done so is: the onset of minor offending at age 12, alcohol use by age 14, marijuana use at age 16, poly-drug use and sexual activity at age 17, and driving under the influence of drugs at age 18. It is the early onset that is indicative of this health-compromising lifestyle. Late onset of alcohol, marijuana, or poly-drug use does not have the same implications. The timing of these sequences is important. The introduction of alcohol at age 17 is not related to crime, violence, or to the probability of future subsequent illicit drug use to the same extent that it is at an earlier age.

I would like to look briefly at the social context of the health-compromising lifestyle. One very important consideration is the impact on lifestyles of neighborhoods in which we have very limited resources, and where there is a loss of normative consensus and social control. Neighborhoods and social environ-

ments with those characteristics traditionally have been viewed as ones that put adolescents at risk.

The evidence, however, challenges certain views about that relationship. Self-reported involvement in substance use and crime is not related to race, class or neighborhood, with the exception of very serious forms of violent behavior. Overall, the manifestation of health-compromising lifestyles is not markedly different during adolescence across different neighborhoods. This probably does not fit the common perception, and I want to specify what appears to be happening.

While it is true that during adolescence we do not see major differences, by early adulthood, large differences are noticeable. For example, the prevalence of serious violent behavior by race is not different for black and white adolescents. In the National Youth Survey (Elliott, 1993), we have been following young people from the age of 11 through the age of 30, and looking at the prevalence of serious violence. We found that prevalence rates are almost identical for blacks and whites. If that is an indication of some predisposition to violence, the conclusion is there are no differences in the predisposition to violence by race.

In early adulthood, however, even the self-reported evidence suggests a four-to-one black/white ratio of serious violence. Neighborhoods are a major influence in perpetuating this lifestyle, which is initiated in adolescence. In low-income neighborhoods, the perpetuity of the lifestyle into the adult phase is substantially higher than it is in more affluent neighborhoods. A quick explanation involves the consideration of differences in the opportunity structures that are available in low-income neighborhoods, and the higher rate of failure to achieve the developmental tasks of adolescence by the youth in these neighborhoods.

The evidence suggests that if we controlled for jobs, the difference in rates of violence between blacks and whites disappears in adulthood. Surprisingly, if we even control for involvement in an intimate personal relationship, marriage, or cohabiting, the black-white difference in adulthood disappears. Clearly the lack of opportunity to move into traditional adult roles in our society is linked to the continuity of health-compromising lifestyles from adolescence into adulthood. There is good evidence that the achievement of successful adolescent developmental tasks—the achievement of personal competence, a sense of personal efficacy, and investments in conventional social roles and activities—differ substantially by neighborhood. Therefore, children coming out of disadvantaged neighborhoods are not as prepared to enter into adult roles, and the opportunities for adult roles are diminished. Those two considerations produce the continuity of the health-compromising lifestyle into the adult years.

The developmental progression clearly gives us some indication of the level of commitment to a deviant or health-compromising lifestyle, which has direct policy implications for the justice system. For example, there is no justification for assuming that an individual who has been arrested and convicted for an armed robbery, even though it is his or her first event known to the justice system, is in reality committing his or her first crime. As I noted before, most people at the time of first arrest for robbery have committed hundreds of offenses and may have committed as many as fifty index offenses. Therefore, knowing something about the developmental sequence tells us something about where an individual is developmentally relative to his or her investment in a health-compromising lifestyle.

There are other policy implications as well. What we know about continuity of the lifestyle, for example, suggests that we should be focusing heavily upon helping children make the transition into adulthood. Policies around sentencing practices and the length of sentences should take into account the strong maturation effect we see for most young people. We need to keep in mind that most young people will outgrow much of this lifestyle if just given the opportunity to move into adult roles.

Finally, we know that there is a common etiology for all of these behaviors in the lifestyle, which suggests that the program that effectively reduces criminal involvement will also reduce the chances for early sexual involvement and substance use. This is an encouraging finding because it implies that we can bring together those persons who have been working on separate behavioral domains around a common set of intervention strategies. It also may be more productive for us to focus upon neighborhood-level change than upon individual change. By changing the social context that characterizes our disadvantaged neighborhoods, we can deal with all youth who live in those neighborhoods simultaneously, thus, facilitating a healthy adolescent development and ensuring a good transition into adult roles.

POVERTY, HEALTH, AND ADOLESCENT HEALTH PROMOTION

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Health is broadly defined in this volume to include not only physical health and psychological wellbeing, but also what is called social role functioning. The health of adolescents is seen as strongly influenced by the broader social-cultural context. I was asked to comment on the chapter by Lorraine Klerman, "The Influence of Economic Factors on Health-Related Behaviors in Adolescence." When I read that chapter, I kept those two points in mind.

Klerman's review of the literature led to the conclusion that "the field of adolescent health needs more studies that test theoretical arguments on why poor adolescents are less likely to experience good health and to engage in health-promoting activities." What we know from available studies, she points out, is that the health status of poor adolescents is not as good as that of more advantaged youth because they tend to reside in environments "that are not conducive to health and health-promotion." Their families are less able to supervise their conduct. They are more likely to value membership in peer groups involved in problem behavior, and their perception of future opportunities often provides little motivation for positive behavior.

I agree with these general conclusions. However, they do not take us far enough. What is absent is a theoretical or empirical discussion of the extent to which the factors that impede adolescent health and health promotion are mutually reinforcing. If we are to develop a meaningful agenda for future research, we must be guided by a broader vision that would help us lay out and investigate the multiple factors that mutually reinforce the social and economic marginality of poor adolescents. These factors help determine a young person's health and health-related behavior.

The purpose of my remarks is to move us in this direction. Klerman argues in her chapter that the poor health status of economically disadvantaged adolescents is not due to the behavior of these adolescents "but rather to poverty itself and the inferior housing, nutrition, safety measures, medical care and other factors associated with low income." She states that even if behavior is a major cause, "the poor adolescent is at a disadvantage. Health promotion requires an individual to make healthful choices." I would like to rephrase the problem in a

slightly different way. I believe that the available social scientific evidence overwhelmingly suggests that economically disadvantaged youngsters are more likely to engage in behaviors that are detrimental to their health because of the constraints they face, including the constraints on the choices they can make. These constraints are not simply economic; they are also social and cultural.

A major objective of future research studies in this area should be to determine how these constraints interact to produce or mutually reinforce the conditions of health among poor adolescents. Let me try to make this point clear by providing some examples from recent research on urban poverty. Problems of adolescent health, very broadly defined, are sometimes associated with family management. By family management I mean parenting skills reflected in the supervision and monitoring of adolescent behavior, the consistency of punishment, and the establishment of strong bonds among youth and parents.

However, recent research suggests that the ultimate success of family management in many situations is dependent on the social organization of the neighborhood. By social organization I mean the extent to which the residents of a neighborhood are able to maintain effective social control and realize their common values. There are two dimensions of neighborhood social organization: the prevalence and interdependence of social networks and the extent of collective supervision and personal responsibility that the residents assume in addressing neighborhood problems (Sampson, 1991).

Neighborhoods in which the adults are connected by an extensive set of expectations, obligations, and social networks are in a better position to control and supervise the activities and behavior of children. The connectedness and stability of social networks in such neighborhoods transcend the household because the neighborhood adults are able to "observe the child's actions in different circumstances, talk to each other about the child, compare notes, and establish norms" (Coleman, 1990, p. 593). These networks reinforce the discipline the child receives in the home because other adults in the neighborhood assume responsibility for the supervision of youth who are not their own (Sampson and Groves, 1989).

Frank Furstenberg (1993) of the University of Pennsylvania provides support for these arguments based on field research that he and his assistants conducted in inner-city neighborhoods in Philadelphia. Furstenberg concluded that the family management of children's behavior is profoundly influenced by the communities in which the families reside. "Ordinary parents are likely to have more success," he states, "when they reside in communities where the burden of raising children is seen as a collective responsibility and where strong institutions sustain the efforts of parents" (Furstenberg, 1993, p. 254).

For example, he reported that regardless of the parenting skills of the parent, residents in a poor, unstable, and socially disorganized neighborhood in north Philadelphia tended to isolate themselves from the surrounding community and were not a part of neighborhood institutions. They distrusted local schools, regarded local services suspiciously, and to the extent they used supportive services at all, they were outside the community. The family system was thus largely disconnected from the community and parents were left to manage on their own. The result was that children not only suffered greater risk because of less supervision and monitoring, but they were also denied positive experiences in being connected to the wider community through school, job, and kinship ties. The implications this has for health and health promotion of children should be clear, especially those children who are at risk due to both the lack of parenting skills and neighborhood social organization.

This is in sharp contrast to another neighborhood his research team studied in south Philadelphia. In this neighborhood, which was poor but nonetheless cohesive, Furstenberg and his colleagues found the same range of parenting skills as in the north Philadelphia neighborhood, but the youth, despite similar levels of poverty and similar family structures, faced quite different structural constraints. This neighborhood featured shared parental responsibility, informal social control of youth in public space, and kinship and friendship bonds that connected local institutions with the family.

Youth in this neighborhood could not easily escape the scrutiny of neighboring adults. The activities of parents inside the home were reinforced by mutual support of other parents in the neighborhood. In other words, children in this south Philadelphia neighborhood tended to be socialized, not solely by parents but also by friends, relatives, and neighbors. Furstenberg points out that many of our social programs focus solely on improving the material, informational, and psychological resources of parents so that they might manage the task of childbearing. Since the full burden of caretaking is attributed to parents, they receive the full measure of blame when their children do not succeed.

However, Furstenberg argues persuasively that if we are committed to strengthening the family, more attention ought to be given to rebuilding neighborhood centers, recreational services, schools, churches, and other local institutions that support families. "Rebuilding local community institutions may be a potent way of supporting beleaguered low-income parents and ensuring a better future for their children" (Furstenberg, 1993, p. 257). In neighborhoods that suffer from a lack of social organization, that is, neighborhoods with weak social controls and weak social monitoring, peer group culture plays a much greater role in shaping the behavior of adolescents including behavior detri-

mental to their health such as alcohol consumption, drug use, gang involvement, and sexual activity.

This is especially true in inner-city ghetto neighborhoods where adolescents are not only influenced by restricted opportunities in the broader society that confront all disadvantaged families, but also by the behavior of other poor individuals and families who face similar constraints. The latter influence is one of culture, that is, the extent to which individuals follow their inclinations—either through forms of non-verbal behavior and conduct, or in the verbal expression of opinions or attitudes concerning norms, values, and beliefs—as they have been developed by learning from other members of their community.

Ghetto-specific practices such as overt emphasis on sexuality, idleness, and public drinking are often denounced by those who reside in the inner-city. However, since such practices occur more frequently there than in middle-class neighborhoods, due in part to social organizational forces, the transmission of these modes of behavior by precept, as in role modeling, is more easily facilitated (Hannerz, 1969). As Deborah Prothrow-Stith so clearly shows in her book, *Deadly Consequences* (1991), in inner-city ghetto neighborhoods plagued by problems of lack of social organization, youngsters are more likely to see violence as a way of life. They are more likely to be taught to be violent by exhortation, witness violent acts, and have role models who do not adequately control their own anger. Accordingly, given the availability of and easy access to firearms, adolescent experiments with "macho" behavior, especially in peer groups that are not subject to neighborhood social controls, often have deadly consequences.

If the mutually reinforcing problems in inner-city ghetto neighborhoods—the problems of family management, neighborhood social organization, unsupervised peer groups, ghetto-specific cultural practices, and the effects of poverty and joblessness—adversely affect the health and health promotion of adolescents, they are reinforced by the problem of lack of information to make healthful choices.

I will conclude by providing one example from our research in Chicago on this point. There is a startling dearth of information available to Chicago public school students and to their parents about opportunities available after high school and how to prepare for the transition from school to work. Delbert Elliott talked about the importance of the transition to adulthood. The school-to-work transition is a very important issue to address in the inner city. Many students who graduate from high school fail to make a successful transition into post-secondary school and work. Younger students are cognizent of the weak association between schooling and post-school employment. Their awareness of the problem acts as a disincentive to educational achievement. Additionally,

due to the widespread perception of an inadequate public school system, Chicago businesses consider it difficult and costly to identify talented students. As a result, many businesses ignore public schools, by hiring from private schools and by relying on referrals from current employees. Inner-city students, overwhelmingly represented in public schools, are therefore shut out of employment opportunities.

The research that we are now conducting in one of the large Chicago high schools on the south side reveals that of the students who graduate from this high school, which has a 40 percent drop-out rate, only half make a successful transition to work or higher education. The other half end up in the street, in jail, or submerged in the peer group culture. Given the absence of neighborhood supports, they are far more likely to be involved in drugs, gangs, illicit sex, and other detrimental health-related behaviors. Our research suggests that many of these students had attainable goals and could have made a successful post-high school transition had they received adequate information, guidance, and resources. In addition, every counselor in this high school reported that they did not have sufficient informational materials, time, and training needed to provide students with effective career counseling.*

What I have tried to do in this presentation by illustration is to show how urban neighborhood problems of family management, social organization, ghetto-specific culture, peer groups, and lack of information to make career choices interact to mutually reinforce the economic and social marginality of young people and ultimately affect their health and health promotion.

There are enormous research opportunities here to more directly tie these factors singularly and in combination to adolescent health. We have to use greater imagination in the way that we collect data. Explicit theoretical formulations that explain the interaction of variables affecting adolescent health in certain areas would be helpful. This would ultimately direct us to obtain both ethnographic and survey data from school and out-of-school populations, families, neighborhoods, peer groups, and others to determine the cumulative effect of chronic subordination on the health of adolescents.

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*This research project is directed by Laura Coyne to whom I am indebted for the ideas expressed here on the problem of lack of information to make healthful choices

PROMOTING HEALTHY ADOLESCENT SEXUALITY

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To promote healthy sexuality among adolescents, we need to answer three questions: Why do adolescents behave sexually? How do adolescents behave sexually? and How should adolescents behave sexually? We will consider these questions against the excellent background provided by the chapter in *Promoting the Health of Adolescents* on adolescent sexuality by Jeanne Brooks-Gunn and Roberta Paikoff entitled, "'Sex Is a Gamble, Kissing Is a Game': Adolescent Sexuality and Health Promotion."

The first question addresses the complex matter of sexual motivation. The second is descriptive. The third is prescriptive. We need to approach these questions from an integrative, multi-disciplinary perspective, and we need to place them in a social and cultural matrix by looking at them across time—the historical view, and across cultures and subcultures at the present time—the cross-cultural view. We must keep in mind that adolescent sexuality embodies some of the most universal elements of human experience. It also shows a tremendous diversity in its manifestations as determined by age, developmental schedule, gender, sexual orientation, socioeconomic status, ethnicity, religious affiliation, and all of the other interlacing threads that constitute the fabric of our pluralistic society.

If the complexity of this picture overwhelms or dismays you, you can take heart from the fact that we now have all the research tools that are necessary for the intelligent exploration of these issues. As documented by the synthesis of the scientific evidence in the chapter, we already have made considerable headway, but there are still major gaps. I counted some twenty phrases in the chapter like "little is known," and "has not been studied," and many of these refer to core questions and not just second decimal details. The task ahead is a much more systematic and thorough investigation of these areas and must be carried out with sensitivity and boldness.

With respect to why adolescents behave sexually, we need to understand, first of all, the biological underpinnings of their behavior. Reproductive maturation is, next to birth and death, the most critical event in the life of organisms. We need to know more fully its evolutionary history: To what extent is adolescent sexuallty an extension of the basic mammalian pattern? To what extent is it

more specifically primate, and to what extent is it exclusively human? There are those who find such research trivial if not offensive. People are not chimpanzees they say. We know that. By now, even chimpanzees know that.

Nevertheless, there is a lot of the chimpanzee in us and we better understand the implications of what that means. Others who are burdened by the knowledge that a million teenagers get pregnant each year and countless thousands contract sexually transmitted diseases feel impatient with such academic concerns. Such impatience is short-sighted because unless we have a basic understanding of the biological and psycho-social roots of adolescent sexuality, we cannot deal with its consequences very effectively. At the same time, we cannot wait for basic scientists to figure out all the answers before we make a move. As Martin Luther King so aptly put it, we cannot succumb to the "paralysis of analysis." Hence, we need to do what we can with what we know.

While the evolutionary perspective takes the long view, the more proximate or immediate biological influences that shape adolescent behavior must be sought in the effects of hormones, especially gonadal hormones: androgens, estrogens, and progestines. It is these hormones that are responsible for the differentiation of the reproductive system in embryonal life and its maturation during puberty.

Among lower mammals, these same hormones are equally responsible for the organization and activation of sexual behavior through the central nervous system. We need to learn a great deal more about how this works among humans with respect to sexual behavior, in general, and in terms of gender and sexual orientation, in particular. Adolescence is a prime time to learn abc .t these questions for although the origins of sexual behavior go back to childhood, it is during puberty and adolescence that adult patterns of sexual behavior emerge in earnest.

Any biological explanation of why adolescents behave sexually would be virtually meaningless outside of a psycho-social context because hormones may fuel the sexual engine, but the driver at the wheel is always a social creature. Hence, who does what with whom, under what circumstances, mainly involve the playing out of scenarios that are socially scripted. Although the texts of these scripts are also drafted in childhood, they go through their more definitive editing during adolescence, which makes it once again an exceptionally important phase of life, not only in terms of understanding how these behavioral scripts are shaped but for influencing the text itself.

The need for answering the second question, how do adolescents behave sexually, should be self-evident. After all, how can we understand any behavior if we do not know what it consists of? What we need, therefore, is a basic description and a taxonomy of adolescent sexual behaviors along with a quantification

of their prevalence. How many do what, at what age, with whom, how often, and so on? This calls for research that is fairly straightforward head-counting. Yet, in spite of the good work in this area documented in the chapter, we are far from having the more comprehensive picture we need.

We are especially ignorant about the developmental schedules by which sexual behaviors unfold. Considering the staggering amount of information available on how children walk and talk, burp and slurp, we know next to nothing about how they develop sexually. What we obviously need are longitudinal studies to provide a coherent narrative. It is time that we recognize sexuality among the normative developmental tasks of adolescence. For too long, adolescent sex has been seen as a collection of bad news. The bad news is very real and very serious, but as the chapter authors state so well, we need to learn about the resilience of adolescent sexuality as well as its vulnerabilities. We must acquire a better understanding of the basic developmental tasks that lead to sexual well-being.

Unfortunately, there are enormous obstacles in the way of conducting this research. These obstacles are not technical, but political. Since we prohibit sexual interactions between adults and youth, we tend to extend that prohibition into the realm of research and teaching. Moreover, there is a fear that talking to adolescents about sex instigates sexual activity, or that discussing socially deviant behaviors would legitimize them. This is why attempts at sex education typically try to say as little as possible as late as possible.

Even if one were to sympathize with these sentiments, we now have a double crisis on our hands that requires urgent response. First, the AIDS epidemic is making inroads into the adolescent population, which is already riddled with sexually transmitted diseases. Second, the explosion of sexually abusive and coercive behavior along with some of the mass hysteria being generated by it have a direct impact on adolescents. Young people are often the victims of such behavior, and many of those who will become the perpetrators develop the attitudes and incentives for this behavior during adolescence. The time for reticence in talking to adolescents about sex, whether for research or teaching, is long past. Whatever innocence young people may have had is long gone. What is now on the line is the health and happiness of their lives. For increasing numbers it is their very lives that are at stake.

These considerations lead directly to our third question: how should adolescents behave sexually? The question has ancient roots since every society has tried to regulate the sexual behavior of its young.

Biological and behavioral scientists know about each other's work, although they do not always agree. A wider gulf separates them from individuals with

strong moral convictions. Scientists consider moral imperatives to fall outside of the realm of their competence. They see beliefs and ethical convictions as matters of faith and values, hence not subject to objective validation. So they opt for a posture of moral neutrality and disengagement. To illustrate this, you will note that the authors of the chapter who deal with so many facets of adolescent sexuality in such a thorough and thoughtful manner sum up the moral perspective in a single sentence, "The moral standard states that sex outside marriage is bad for old and young alike."

This is an oversimplification verging on caricature. The authors surely know that the moral dimension is more complex than that. Although their point about the impact of mixed messages is well taken, the main thrust of this section of the chapter is too cryptic and negative. As a result, the question of how adolescents should behave gets little attention. Of course, the authors are simply reflecting here the dominant perspective in their fields. Hence, it feels almost unfair to point a finger at them.

Nonetheless, we can hardly let adolescents fend for themselves in this critical area, and we cannot merely hand them a list of "don't's", and a few "do's." In calling for a general engagement of behavioral scientists with the question of how adolescents should behave, and a more serious discourse with those preoccupied with these matters, I am not suggesting that they abandon their objectivity. Nor am I advocating that they advance their own political agendas under the mantle of research bolstered by advocacy statistics and self-serving definitions.

We need to realize that moral neutrality is itself a moral position with its own implications. Hence, the question of "how should" cannot be decoupled from the questions of "how" and "why" without creating a dangerous ethical vacuum. The obverse of scientific moral disengagement is the distrust of many moralists with regard to sex research. Their failure to understand why adolescents behave sexually and their unwillingness to differentiate between how adolescents behave and how they would like them to behave leads to the sort of wishful thinking epitomized by slogans like "Just say No."

This mentality is responsible for the reluctance to seek out facts and attempts to stop others from doing so as well. Whereas faith should provide evidence for things unseen, it should not be a substitute for facts. Moral theology was hobbled for centuries by its reliance on the doctrine of natural law because what its proponents surmised to occur in nature often had little to do with what actually did occur in nature. The most compelling recent evidence of the refusal to face facts was the cancellation of the American teenage study of sexuality after it had been duly approved and funded by the National Institutes of Health. Involving

some 20,000 subjects with a budget of $18 million, it would have been the most extensive study of its kind answering a lot of the questions that have been raised about sexual behavior.

While this project fell victim to the political right, other groups can be just as obstructive depending on what is at stake. And, the federal government must be given credit for supporting hundreds of other projects in this area, albeit all less ambitious than the one that was canceled. These conflicting cross-currents need to be reconciled, but until they are, we will continue to have a great deal of difficulty in answering the three questions about adolescent sexuality. Yet, we must answer these questions for the sake of our children, and with a common faith in the knowledge that we shall know the truth and the truth shall make us free.

PROMOTING SAFETY AND NONVIOLENT CONFLICT RESOLUTION IN ADOLESCENCE

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I would like to acknowledge the work that Carnegie Corporation has done in the area of violence prevention. The chapter in *Promoting the Health of Adolescents* entitled "The Control of Violence and the Promotion of Nonviolence," by Felton Earls, Robert B. Cairns, and James A. Mercy, is wonderful. I would recommend it to everybody without reservation as an excellent synthesis. Today, I would like to talk about the public health approach to violence prevention.

Violence is a public health problem first of all because it takes an extraordinary toll on us, on our children, and on our young adults. In this country, firearm injuries are the second leading cause of death to young people from the ages of 10 to 24. No matter how it is measured, this toll is extraordinary in its magnitude. The second reason we consider violence a public health problem is that the resources of the criminal justice system are insufficient by themselves to deal with the problem and have thus been overwhelmed. Too many people are in prison and deterring and incapacitating people have not lowered the rates of violence in this country. A third reason is that violence is not a fact of life. It is not something that we have to live with, but rather a problem that we can address scientifically and intellectually through research and programs. We can make an impact.

The public health approach is characterized, as this chapter does so well, by three principles. The first is to apply the scientific approach to the problem. This is an experimental approach that begins with collecting information, looking at causes, and looking at violence on the basis of these causes and of its distribution. The process then progresses to designing interventions and testing them to determine what works.

The second principle is that public health focuses on primary prevention, which complements the focus of the criminal justice sector on deterrence and incapacitation. Increasingly, as evidenced by the speeches of Attorney General Janet Reno, the criminal justice sector is starting to look at prevention. This leads to the third principle—that the public health approach is integrative. It tries to bring together different sectors and disciplines to develop and implement programs. It considers the perspectives of different racial and ethnic groups in an attempt to better understand and find solutions to a problem.

Let me read two quotes from the chapter written by Drs. Earls, Cairns, and Mercy that will help us frame the issue. The authors say that "the introduction of the handgun by Samuel Colt in the 1840s suddenly made domestic, interpersonal violence more lethal than it had been before. It is an experience from which American society has still not recovered." And "the evidence points to an immediate need to limit access of adolescents to firearms of all sorts and to foster attitudes that would make use of such weapons cowardly or otherwise unacceptable." The authors focus squarely on the need to do something about the problem of firearms and firearm injuries. If you are going to deal with the health of adolescents, you have to deal with injury. If you are going to deal with injury, you have to deal with violence or intentional injury, and if you deal with violence, you have to deal with firearms. I agree with the authors: it is not a question of *are* we going to deal with this issue, it is a question of *how* we are going to deal with it.

Violence is an epidemic in this country. In 1988, the homicide rate for young black men went up thirty-eight percent and is still rising, yet this is not just a minority problem. Young white men also have an exceptionally high rate of homicide. Comparing ourselves with other countries, we find that not only is the homicide rate for young men in the United States the highest among industrialized countries, it is more than four times that of the country with the next highest rate. Young black men in the United States have a higher rate of homicide than those in other countries, and the rate for young white men is more than twice that found in the next highest country.

Perpetrators of homicides have become younger and younger and firearms take their toll on younger and younger victims. For the first time, in 1988, the death rates from firearms for both white and black male teenagers exceeded the total from all natural causes of death. For a long time, young people 25 to 34 years old had the highest rates of homicide, but now the younger people have the highest rates, both as perpetrators and as victims. The problem is increasingly one of kids shooting kids.

Firearms take a toll not only in homicide but also in suicide. Suicide among young people in this country is a tremendous problem. The rates have almost quadrupled among young people since 1950. Homicides make up about 40 percent of the death toll from firearms, while suicides make up about 60 percent. Suicide has traditionally been a problem among whites, particularly older white males. Beginning in 1980, however, and continuing to the present, most suicides have occurred among individuals under age 40. Suicide among young people is a very different phenomena from suicide among the elderly. Most young people who commit suicide are not classically depressed. Detection and treatment for

depression will not stop this trend. In addition, for the first time there is an increased suicide rate among young black men.

Young people in increasing numbers are now carrying guns, and far too many are carrying guns to school. In 1990, about 4.1 percent said they had carried a firearm in the last 30 days. That was very disturbing, but in 1991, the percentage of kids who reported that they carried firearms went up even higher, increasing by thirty-four percent.

Science magazine in October 1992, reported that the Centers for Disease Control and Prevention (CDC) had brought about a "sea change" in firearm injury research by bringing science to bear on firearm injury research. First, we wanted to look at the risks and benefits of firearm ownership in scientific terms. What are the risks of having a gun in your home? What are the risks of giving children access to firearms? What are the benefits of having a firearm in your home? Does it matter whether you live in a poor neighborhood with a lot of crime, or if you live in a rich neighborhood? Does having a gun in your home increase the risk of suicide? We found that if you have a gun in your home, the risk of suicide to a family member goes up almost five times. Further, a firearm kept in the home is forty-three times more likely to be used to kill someone in either an unintended homicide, a criminal homicide, or a suicide than it is to be used for self-defense. In other words, for every time guns kept for protection are used in self-defense, they are used forty-three times in a murder that no one wants or in a suicide.

Second, we wanted to look at the risks of access to firearms, not just by criminals, but by anyone. We wanted to consider firearms in the hands of our children, in the hands of our spouses, or in our own hands. With these risks in mind, we proposed an array of interventions. There are a lot of things that can be done to prevent firearm injuries. We have some excellent suggestions for community-based strategies to change individual, family, and community behaviors or social norms.

Another approach focuses on the firearms themselves. In this regard, there are basically four strategies, and under each strategy, a whole array of interventions. These strategies are:

- Change how guns are used or stored. Examples of these interventions range from putting a penalty on the use of a gun in a felony, to imposing an automatic five-year jail sentence for carrying a gun in public, to making it illegal to carry a concealed weapon, and to encouraging people to keep guns in a locked closet or cabinet.
- Control who has guns. Interventions might include restrictive licensing laws. For example, in Washington, D.C., such laws are reported to have saved 47 lives a year over an 8-year period (Loftin, McDowall, Wiersema, Cottey, 1991).

- Reduce the lethality of guns. This may include installing not only child-proof trigger locks on guns, but also indicators that show whether or not the gun is loaded. Reducing the magazine size, caliber, and bore of the gun, and prohibiting the sale of assault weapons are additional interventions.
- Reduce the number of guns. These efforts might focus on limiting importation, manufacture, or sales in this country.
- We need to reframe the subject of firearm injuries, moving away from the notion of "gun control" to the idea of "prevention of firearm injuries." In this regard, we need better information on risks. What are the risks of children having guns? What is the risk of a gun in school? What is the risk of guns to a community? What are the risks to parents? What are the benefits? We need further research on the potential benefits of women owning guns to protect the family. Because we do not know what really works, we need better research to evaluate interventions so we can determine whether or not approaches like metal detectors at schools, buy-back programs, or waiting periods really work.

We have the potential to change things, to turn things around. Our greatest opportunity will be to use an array of science-based interventions to prevent firearm injuries, just as we have to reduce motor-vehicle injuries. We have saved over 240 thousand lives over the last twenty-five years, not by banning automobiles, but by making cars and roadways safer. We have combined interventions such as installing seatbelts and airbags, protecting passengers from side impact collisions, and constructing major highways without intersections. We also have reduced drunk driving, and we license people to become drivers.

Smoking is another area in which we have made great progress without banning a commodity. Instead, we have imposed taxes on cigarettes, and we do not allow children to buy them. Additionally, we have informed people of the risks of smoking and the risks of secondary smoke. These combined interventions have lead to marked changes. We will see the same thing happening in the area of preventing firearm injuries, and this chapter starts us in the right direction.

CROSS-NATIONAL PERSPECTIVES: VIEWS OF ADOLESCENT HEALTH PROMOTION IN CANADA

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When I first began thinking about adolescent health promotion in Canada, I was quite puzzled because I did not think that health promotion in adolescence was different than in any other age group. For that matter, it did not seem that adolescent health in Canada was very different than it is in the United States. It only took a short period of reflection and a review of some of the data, however, before I concluded that I was wrong on both counts. My knowledge of adolescent health promotion is governed far more by my understanding of how health policy in Canada works than it is by any expertise in adolescence as such. But rest assured that my lack of knowledge will not inhibit my willingness to make several observations on this subject.

To begin with, it seems foolish to try to compare Canada and the United States on any health topic without taking full account of the fundamental differences in our health care systems. So much has been written about health care, especially in the past year or two, that it is difficult to decide how much needs to be repeated. Let me take a few moments to remind you of some of the salient features of Canada's health care system and specifically of our national health insurance program. Perhaps of greater importance, however, is what has been described as our social welfare programs. The cost of almost every form of health care is never an issue for Canadian adolescents. Everyone, including adolescents, receives in the mail a medical card that gives them access to whatever health care provider they wish.

Health insurance premiums are included in general taxes and are, in effect, invisible. Thus, for what appears to be at no cost, we provide services that are universal, portable, and remarkably comprehensive, including all acute and chronic hospital expenses and all physician bills. Coverage for the other services, provided under Medicare, such as glasses, hearing aides, and prescriptions, varies somewhat by province, but nowhere is there any provision for extra-billing. The fee schedule for each item of service, which is the method by which physicians are reimbursed, is negotiated by each province, and that is what the physician receives and nothing more.

Finally, and importantly, all of this is achieved at a cost that is significantly less as a percent of Gross National Product than it is in the United States. In

addition to our health care program, Canadians largely share a social philosophy that tends to echo the welfare state of pre-Thatcher Britain more than the extraordinarily rugged individualism of the Reagan-Bush years. This is expressed in an array of social programs including many provided in the United States, such as unemployment insurance and welfare. But there are several others that the United States does not provide, for example, family allowances.

Perhaps most importantly, we generally accept with reasonable grace the much higher taxes required to pay for these social programs. Until recently, most of these programs were universally available to all, regardless of income, as a matter of principle. Although the element of universality is beginning to be debated, it is certain that this feature will remain central to our Medicare system. Our health minister recently defended in the strongest possible terms another key element of the Canada Health Act: his refusal to consider the introduction of any user fees.

Health promotion, in keeping with the World Health Organization's perspective, begins with a broad focus on health, that emphasizes lifestyle, environmental influences and biological factors. The essence, however, lies in the activities that enable people to have control over their health and thus be able to change or influence their lifestyle or environment.

Most documents that talk about health promotion couple that phrase with disease prevention. This pleases me because I find it difficult to distinguish between the two, and I am more comfortable with the concept of prevention than promotion. I accept, however, that conceptually we can imagine a model that includes a hierarchy with health promotion being the most valued. Health promotion can also be seen as the equivalent to the highest form of prevention: that is, primary prevention achieved largely through lifestyle changes or environmental influences. This is followed by health protection or secondary prevention, followed by disease eradication or cure. Beneath this lies treatment without cure (as in the case of diabetes in childhood, for example) and last, disease detection or screening where no treatment is possible.

Adolescent medicine, as a distinct specialty, is much less well-developed in Canada than in the United States, and the proportion of adolescent specialists to primary care physicians is much lower. Bear that in mind as I review some statistics that compare the health of young people in our respective countries. Differences in mortality for the age group 15 to 19 are largely attributable to differences in external causes such as motor vehicle accidents and deaths by firearms, with the differences in the latter being by far the most dramatic. Even if we compare only the rates for white males in the United States with those for all Canadian youths, these differences remain

The rates of homicide for white males in the United States are nearly three times that in Canada, whereas our suicide rates, which are driven largely by the enormous differences among aboriginal youth, are somewhat higher. Consider, however, the proportion of suicides and homicides attributable to firearms, a point that Mark has made so dramatically. For homicides in the United States, it is 56 percent, and for suicides it is 64 percent. The corresponding figures for Canada are 37 percent and 2 percent: Two percent of all suicides are committed by firearms. These figures speak for themselves!

With respect to substance abuse, the figures suggest that in 1989, Canadian youth drank more, but smoked less, used pot less often, and used little, if any, cocaine or crack. In comparing sexual behavior and its consequences, the data also suggest that in 1985, there were fewer teenage pregnancies, fewer abortions, and fewer unwanted births in Canada.

Insofar as preventive behaviors are concerned, it would appear that Canadian youth are generally more active and more frequently eat breakfast, use seat belts, and live in homes with smoke detectors. Finally, if we compared their outlook on life, based on responses from teenagers in grades eight, ten, and eleven, it would seem that Canadian youth are less often sad and lacking in confidence, less often depressed, and less often attempt suicide, although they were more successful when suicide attempts were made.

The question that now arises is what accounts for these quite dramatic differences? I am not certain of the answers, but three points come to mind. First, the differences in health insurance coverage are quite dramatic. I do not intend to argue that better access to medical care is necessarily responsible for better health. In fact, I think it is not. I am much more in agreement with Julius Richmond's perspective that there are many other factors far more likely to be responsible. I am not indicating, however, any lack of enthusiasm or support for comprehensive single-payer national health insurance. I consider it to be an essential substrate for all else.

Second, it may be the case that Canadians are much more inclined and willing to place heavy responsibility on government action in a number of areas related to adolescent health.

Third, we, too, have a health promotion contribution program, which does many of the sort of nice things that you do, but I do not think this has much, if anything, to do with the statistics we have seen. Rather, I am reasonably convinced that the answer lies where Julius Richmond points us to in his foreword to the Millstein, Petersen, and Nightingale book—that is, the social context in which the adolescent lives.

But it is difficult to prove this for two reasons. First, because many elements of health promotion are so deeply imbedded in the social context that it is

almost impossible to tease out specific, identifiable components. When I compare what appears from an epidemiological perspective to be health promotion outcomes between Canada and the United States, and show where our figures are better than yours, I cannot honestly say how much reflects the greater success of our health promotion efforts as such rather than that which simply reflects differences in the social milieu. Clearly, I believe it is the latter.

My second difficulty is distinguishing, as I pointed out at the beginning, between health promotion and disease prevention. This is a bit like the old and continuing debate over positive measures of health versus disease measures. To a large extent, this debate is a foolish one because it may only be a question of mirror images. I would not even mention it if it did not have a great deal to do with how money is allocated by government.

I agree with the book editors that clear-cut distinctions between these constructs are not especially important. The important point is that we agree that the evidence clearly suggests that the health of Canadian adolescents may be somewhat better than that of Americans. What is less certain is why and specifically which, if any, health promotion programs can accept which share of the credit. Certainly, Canada, as many other countries, was greatly influenced by the LaLonde (1974) report, which represented, in effect, a paradigm shift in our thinking about health, health care, and health promotion.

But many of the important principles are, in my view, much less evident in practice than in political rhetoric, and much as I would like to be able to do so because of my political convictions, I cannot in honesty say that health insurance and more ready access to health care is the critical factor. It is, at best, a necessary but not sufficient factor. Instead, I truly believe that there is something fundamentally different about the nature of our societies so that it is easier in Canada for adolescents and everyone else to function well, even during hard economic or political times. And that difference is epitomized by the staunch support most Canadians provide for our health care system.

It is politically untouchable. It reflects our conviction that government must be socially responsible and caring; that it must be committed to do its best to meet the needs of all in order to create a just, equitable, and peaceful society. And as I said, every Canadian is well aware of the fact that they pay much more in taxes than you do, and by and large they earn less.

Most Canadians see this as a reasonable price to pay for living in a society where adolescents smoke less, use drugs less, and, most importantly, are much less inclined to use firearms. As I conclude, I wonder whether this message is an encouraging one for an American audience. I think it should be for two reasons. First, there seems little question that despite a decade of setbacks, the

United States is becoming very rapidly much more caring and your leaders mo_e sensitive to the social issues that appear to account for our success. The fact that health care reform is being addressed by the current U.S. Administration is tremendously encouraging.

Second, it is evident that, perhaps by way of compensation for our broader social agenda, there is a far greater focus on formal programs to promote the health and social wellbeing of adolescents in the United States than there is in Canada. Many of these have had a remarkable success, as the book describes. The mission now is to maintain and expand them so that they can benefit equally every sector of American youth.

CROSS-NATIONAL PERSPECTIVES: VIEWS OF ADOLESCENT HEALTH PROMOTION IN MEXICO

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I would like to thank the organizers of this symposium for their invitation to give my reaction to the book, *Promoting the Health of Adolescents*, by Millstein, Petersen, and Nightingale. I will comment on two things: the adolescent health promotion experience in Mexico and my opinion of the book. The book's content, organization, perspectives, and the easy and complete way it is written enables the reader to learn about adolescent health in a clearly organized, well defined, and logical way. Indeed, it is a path-breaking volume in its comprehensive approach to analyzing the main health problems that American adolescents face and in presenting research as it is applied to practical, cost-effective interventions.

The adolescent in this book is viewed as a growing person within the family and society, a person who is the protagonist of his own life rather than an isolated, experimental body carrying a negative image and needing the constant advice of adults. The book's developmental approach provides the opportunity for the health educator to answer all of the questions that need to be addressed when designing interventions.

Age, gender, race, socioeconomic status, and educational levels are important factors that educators must take into account when planning an intervention. Is the intervention designed to provide information, to motivate, or to elicit behavioral changes? Is the goal of the intervention to enhance a behavior or discourage it for a certain length of time? Is the intervention going to take place in a school setting or at home? What is the content of the intervention? How will it be delivered so that it is accepted by this special and difficult target group? How can we plan the intervention? How long can the change be sustained?

One thing that I would like to see more explicitly emphasized in intervention programs is youth participation. Many programs try to involve youth, but in reality, young people are only involved in limited ways. They just become recipients of adult information, which may not necessarily be the best way to change behaviors. In Mexico, in other countries, and probably here in the United States, adults, particularly physicians and other health professionals, are not flexible enough to consider adolescents' viewpoints. The professionals are the ones who possess the knowledge. They know what adolescents need to stay healthy, but

usually do not bother to take into account adolescents' suggestions, feelings, perceptions of problems, and solutions.

In other words, even though the book mentions that physicians and other professionals could use the help of young people, would health professionals in general really encourage young people to speak at an adult council on health, design a health promotion strategy, write and teach this strategy, select the right words to deliver a health message, or conduct research on the behavioral patterns of youth? Would they allow young people to design educational materials or evaluate an intervention program for health education?

In Mexico, we founded a program fifteen years ago called Centro de Orientación para Adolescentes (CORA). This program has been mainly supported by young people's participation. Students between the ages of 17 and 24 years old are given scholarships to work with us. The young people are specially trained to provide sex education to their peers, organize activities for leisure time, form study groups to help youngsters with low grades, and teach a variety of classes, including English, French, dancing, drawing, weight-lifting, basketball, first aid, nutrition, and baby care. They are also trained to provide information to their peers about different social, educational, and health institutions, and provide condoms, fact sheets, and booklets about health and health-related matters. Although this is a small program, it has been reproduced in several other countries throughout Latin America. One activity undertaken by these young people in Mexico City, with very close supervision from the U.S. Centers for Disease Control and Prevention, was the first representative household survey in Latin America on reproductive health among youth ages 15 to 24. The survey and methodology has been carried out in ten more cities in Latin America by the Centers for Disease Control and Prevention.

These young people have also developed other projects, and with technical assistance, have evaluated some programs and educational materials. A bingo game and puppet show were developed to test knowledge about contraceptives. In 1989, young people were participants at the 49th World Health Assembly. Through role-playing, they depicted health in different cultural contexts with vignettes of the different taboos and misconceptions, and answered questions that related to teachers, parents, and health workers. It was a unique experience for the 160 health ministers who during the technical discussions are used to seeing slides and listening to scientific materials to be suddenly faced with a large platform of thirty young people acting out their concerns on stage.

I have been asked to give the Mexican point of view on adolescent health promotion and my opinion regarding similarities and differences in research between the United States and Mexico. I would like to say, first of all, that I see many differences among the United States, Canadian, and Mexican views on

adolescent health promotion. In general, the health sector in Mexico has been more concerned with curing illness in sick adolescents than in promoting health among those who are well.

The Mexican Ministry of Health is changing slowly. Prevention has been applied by certain health workers, social workers, psychologists, anthropologists or sociologists, and less by nurses and physicians. Several years ago, the medical profession began putting more emphasis on specialties such as family medicine, public health, and epidemiology, but these specialties still need to have more status among the medical professions. We do not provide training in adolescent medicine in Mexico. Our health sector has been organized by care levels without taking into account the community and the other intersectoral approaches. A few programs have paid more attention to adolescent health promotion than others. For example, family planning and maternal and child health usually focus on health promotion and disease prevention.

The Mexican health care system is mainly governmental except for social security, which also receives funds from the employee and the employer. Adolescent health programs have been, in general, neglected by the Mexican government. Young people have been treated only when they are ill. Non-governmental organizations (NGOs) have been the ones that have started the movement for adolescent health. For example, CORA started with a preventive approach, and we were the only ones for many years using this approach. Young people started to be important to the health sector because of Mexico's changing demographics.

In 1988, the Ministry of Health started an adolescent program on family planning that was not successful because it was based in health clinics. Mexican youth never go to clinics unless they are sick. In addition, research was not done to support the Ministry's programs. Currently, CORA in conjunction with the Ministry of Health is training gynecological staff to conduct educational programs for teen mothers in hospital settings. These mothers are then referred to another social institution that is starting a program called Teen Mothers Home. There, mothers receive educational support that allows them to continue with training or careers. In addition, baby and day care, nutritional supplements, and family planning services are available there.

The government also supports a program called the Adolescent Integrative Program, but activities in the field have not been evaluated yet. The social security system has recently started an official program that is mainly oriented to family planning and secondary and tertiary care in some hospital units. At this point, I need to mention that a girl who is entitled to social security services can only receive care until she is 16 years old. If that young woman gets pregnant,

immediately loses rights to social security unless the husband is in the social security system. She does not qualify for the services by herself, but only as part of a family unit.

There are several NGOs also working on sex education, drug prevention, and family planning. However, CORA is probably the only one that has tried health promotion first. It is often difficult to find the funds to help with this work. Our educational system has several elements of health education, but in countries such as Mexico, only one-third of young people remain in the school system. Little attention is being paid to health promotion for adolescents primarily because health policymakers see the adolescent group as a physically healthy one and do not value the psychosocial aspects of the adolescents' lifestyle.

I have also been asked to comment on research opportunities in adolescent health promotion. I am a health educator and not a researcher by profession; but I have done some research under technical supervision. After clarifying this point, I can say that I would like to see an increase in the knowledge base regarding health promotion and prevention for young people in Mexico. I would also like to see research on adolescent health help to inform service delivery programs in Mexico. In Mexico in the field of adolescent health, we tend to have more information about reproduction and drug use than other types of behaviors. These two topics have received most of the funds and attention in efforts to research the attitudes and behavior of Mexican youth.

Although we know a lot, there are still some questions in this regard. For example, adolescent maternal deaths in rural areas, STDs, suicide, violence, and abortion may all be underreported in Mexico. There are data that have not been analyzed, for example, on accidents, violence, and school dropout due to pregnancy. We need to know more about clustered behaviors, lifestyles, protective factors linked to vulnerability, health concepts, and beliefs from the adolescent perspective.

Evaluation of programs has already started thanks to the technical assistance of international institutions. However, evaluation efforts go very slowly and they are rare. Evaluation in health education, in general, exists in governmental institutions but is mainly quantitative. There is a need to combine quantitative with qualitative approaches. The training of service providers is another important area that needs further research.

What is the role of the Carnegie Corporation in this area? Carnegie is one of the few foundations interested in a holistic view of the adolescent, including the adolescent in the family, school, workplace, and community environments. The Corporation's role may be to help promote adolescent health and explore solutions that could incorporate strong youth participation.

CONCLUDING REMARKS

David A. Hamburg
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Chair, Carnegie Council on Adolescent Development

This is the third in a series of Carnegie-sponsored symposia on research in adolescence. We have had a terrific response and steadily growing participation. Whatever else we may say that is worrisome about American society, the contributions of agencies of the United States government to biomedical, behavioral, and social science research are really extraordinary and unique in the world. The contributions have been immense for about half a century. The agencies represented here have initiated, sponsored, and stimulated the scientific and scholarly community over a wide range of biological and behavioral sciences, the life sciences broadly conceived. All are enormously important not only for the public health, but also for the implementation of humane, compassionate, and democratic values in society.

It is very significant that we come together in a kind of public/private collaboration. There are a number of other foundations besides Carnegie represented here that are involved with us in the work of the Carnegie Council. It is a very encouraging development that foundations and government agencies can work together in a loosely constructed mode of cooperation, to better understand the problems of adolescent development.

I would go so far as to say that the opportunities for research on adolescent development may be one of the greatest frontiers for public health in the next decade or two, because even modest gains in meeting the essential requirements for healthy adolescent development are likely to be projected through the lifespan. If we make modest gains for some significant portion of the population, the net benefit for public health is very great indeed. I am not just talking about being nice to children, although that is not a bad idea. It is a question of the impact on the health of the entire population in the face of very risky behavior. Most of that risky behavior is still tentative and exploratory, and so there is an enormous opportunity for preventive interventions, provided we understand well enough not only individual development, but also the social context of development and the enormous biological variability that makes different individuals more or less vulnerable to different kinds of environmental insults.

In reading the volume and listening to the presentations, it appears that in the next decade or two, research can give us very important insights for the con-

struction of more rational preventive interventions, and indeed, make for a more humane society. I do not think that those insights generated by research helping us get the facts straight with respect to adolescent development will be confined to the United States, although we have good reason to utilize such information constructively in this country. The kind of research being supported by our government agencies and foundations can help the life chances of young people everywhere.

In closing, thanks very much to all of the panel members, to Elena Nightingale for making it possible, and, above all, to the representatives from the various agencies and foundations who are supporting the research and have taken a growing interest in adolescent development. I know that you will continue to make important contributions in the years ahead.

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