



PREPARING FOR THE 21ST CENTURY



CHALLENGES FACING A CHANGING SOCIETY

NATIONAL ACADEMY OF SCIENCES
NATIONAL ACADEMY OF ENGINEERING
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Background

Since Abraham Lincoln approved the Congressional charter of the National Academy of Sciences in 1863, the Academy complex—now made up of the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council—has been advising government about the impact of science and technology on society. The Academy complex provides independent advice to government by appointing committees of experts who serve without compensation, asking these committees to prepare draft reports by consensus, and subjecting these drafts to rigorous independent scientific review before release to ensure their quality and integrity. To avoid potential conflict of interest and bias, careful attention is given to the composition and balance of study committees.

As the 21st century approaches with science and technology assuming increasing importance in society, the Governing Board of the National Research Council has synthesized, summarized, and highlighted principal conclusions and recommendations from recent reports to inform decisions in a number of key policy matters. The resulting series of papers do not address all the intersections of science and technology with public policy, but they do address some of the most important. They are directed to federal administrators, members of Congress, leaders of nongovernmental organizations, and all others involved in the development and implementation of public policies related to science and technology.

This paper discusses policies that deserve continued attention as policymakers address the challenges of a changing society. Previous reports from the Academy complex have had a major effect on social and behavioral aspects of public policy. During both world wars, for example, the National Research Council made many scientific contributions to the classification and training of military personnel. The Research Council's Committee on the Training and Selection of Aircraft Pilots developed the instrumentation, testing, and training methods that provided the bases for selection of military pilots. That committee also served as coordinator between military and civilian aviation psychologists and trainers. More recently, Research Council committees have published studies that draw on scientific knowledge concerning child development, education, families, an aging society, and many other issues with important social implications. The issues summarized in this paper from past reports continue to be relevant to the work of the Academy complex and to the nation.

This document, with direct links to the text of all reports cited herein, is available on the Internet at <http://www2.nas.edu/21st>. A box at the end describes other ways to obtain information on the Academy complex and the topics discussed in this paper.



PREPARING FOR THE 21st CENTURY

CHALLENGES FACING A CHANGING SOCIETY

New knowledge about *human behavior and social change* can help to shape public policies that will improve human well-being.

Introduction

Our era is often said to be a time of rapid technological change, but the social changes occurring in this country and elsewhere are equally dramatic. In 1960, for example, 19% of women with children under the age of 6 were in the workforce in the United States; today, 57% are. The proportion of households headed by a single parent—usually the mother—also has increased sharply: from 11% to 26% of all families with children over the period 1970-1992. And the number of elderly Americans is growing rapidly and will continue to do so as the children of the “Baby Boom” age.

Society often has sufficient experience and knowledge to make better-informed decisions, but it is not always prepared to use this wisdom from the social and behavioral sciences. When it does not do so, we lose an important opportunity to mitigate adverse social trends.

Several key objectives set forth in Academy complex reports can help guide the actions of those involved in developing and implementing public policies, including the following:

- Develop and implement a new measure of poverty that better reflects the income available to our nation's families for meeting basic needs.
- Use statistical sampling and estimation techniques to supplement the traditional head count, thereby producing more-accurate and less-expensive census data.
- Adopt as a new social norm the goal that all pregnancies should be consciously and clearly desired at the time of conception.
- Make investments to strengthen the infrastructure of our child-care system.
- Expand research on child care beyond the children

Why Do We Care How Many Persons Populate the United States?

The number of Congressional seats is fixed at 435: an addition of a Congressional seat for one state means that another state loses a seat. Changes in the size of Congressional delegations after a decennial census typically are caused by very small differences in population size. For example, the state of Washington received the 435th seat in the reapportionment based on the 1990 census. If Washington's population had been 10,200 persons fewer, or 0.21% of its total, it would not have qualified for the 435th seat. At the same time, Massachusetts failed to qualify to gain another seat by 12,607 persons, or 0.21% of its total population. Hence the need for an accurate population count.


The census also affects the distribution of those federal and state funds that are allocated on the basis of population. Funds for education, health, transportation, housing, community services, and job training are all allocated to geographic areas on the basis of population size and social and economic factors. In 1990, the federal government disbursed about \$125 billion to state and local governments, and nearly half this amount was distributed according to formulas involving census population data.

The obligation for the federal government to conduct a census or decennial enumeration of the population for the purpose of apportioning the Congress is part of the Constitution. But the census also provides the nation with essential data that go well beyond a simple population count. Census data are used by many in the private sector and by for-profit and not-for-profit organizations. Several key types of small-area census data are used for business purposes—such as age, education, employment, housing-unit age, income, occupation, vehicles per household, and commute to work. For example, a retail corporation with expansion plans would often use census data to analyze potential markets before selecting sites.

Social scientists and economists have conducted considerable research to ensure that these important data can be trusted, be used appropriately, and be collected accurately and cost-effectively.

For more information:

- *Modernizing the U.S. Census*, Panel on Census Requirements in the Year 2000 and Beyond, 1995



being cared for to include the effects of child care on families, communities, and schools.

- Pay primary, sustained attention to reducing the exposure of children and adolescents to high-risk settings.
- Undertake an iterative process for evaluating promising preventive strategies that could lead to better understanding of specific violence problems and the interventions that can prevent and control them.

Science Should Be Used to Improve Measurements of Social Change

Measures of social conditions can have a powerful influence on public policy. They often are tied directly to government programs—for example, in determining eligibility for government benefits—and are widely used as indicators of how we are faring as a nation. Yet some of the indicators that are most widely used are not well grounded in current scientific understanding. An important example is the measure used to calculate the poverty rate in the United States.

Improving the Poverty Measure

The social and policy changes of the last three decades have far outpaced the measure of poverty used in this country. The poverty measure is now used to gauge the well-being of Americans for two purposes. First, it shows how many Americans are poor, that is, do not have the financial resources to meet their basic needs. Second, it is used to establish eligibility for various programs and thus has a major effect on the flow of federal funds; programs in this category include Medicaid, Medicare, and food stamps.

The poverty line used today is the same one that was originally defined in the early 1960s as the cost of a “minimum diet” multiplied by three to account for other expenses and adjusted by family size for economies of scale. The definition was designed for convenience in a rapid study and was never given the full attention it deserves. It focuses only on the need for food and reflects the circumstances of many poor families in the 1960s, not the situation today. As already noted, many more women go outside the home to work, and this creates a new need for child care. Medical costs were lower in the past than today. Furthermore, the poverty measure does not reflect the tax burdens on the poor.

On the opposite side of the ledger, many government

The State of Black America

Measures of social conditions reveal major variations among racial and ethnic groups. For example, a gap of serious proportions continues to exist between blacks and whites in housing, income, education, opportunity, and health care. As measured by several indicators of social progress, blacks made considerable progress in the three decades after 1940.

But since the early 1970s, blacks have lost ground or have remained at the same relative level on the average according to most indicators. Residential separation of whites and blacks is practically unchanged since the 1960s. The poverty measure now available shows that black poverty rates today are 2-3 times higher than for whites. Blacks of almost all ages suffer from higher mortality and morbidity rates than do whites.

National averages disguise many individual achievements, and on some measures blacks have continued to make progress. For example, blacks now vote in percentages of at least those of whites in national elections. But the special legacy of poverty and discrimination continues to hamper black achievement.

Purposeful actions and policies by government and private institutions have made a large difference in the opportunities and conditions of black Americans. Further progress is unlikely without similarly purposeful steps.

For more information:

- *A Common Destiny: Blacks and American Society*, Committee on the Status of Black Americans, 1989

programs designed to combat poverty did not exist in the early 1960s, so benefits like food stamps and public housing, which have improved the lives of many low-income families, are not reflected in the poverty statistics as income.

The federal government should develop and implement a new measure of poverty that reflects the income available to the nation's families for meeting basic needs.

(A-1) The new measure should consider income after taxes, not before. It should subtract work-related expenses (like child care and commuting costs) and non-work-related expenses (such as health-insurance premiums and out-of-pocket medical-care expenses). Funds paid out for these expenses are not available to pay for such basic necessities as food and shelter. The poverty line should continue to be



related to basic needs, but it should reflect actual spending on basic needs—including food, clothing, and housing—in different parts of the country. It should also include benefits that cover items that would otherwise require cash outlays, such as food stamps, school lunches, and public housing.

Note that Medicare is not included among these benefits. One reason is that health-care benefits are not very interchangeable. Not all households have medical-care needs, and although medical-care benefits, such as low-cost prescriptions or doctor's visits, might free funds for other consumption, the same is not true of expensive surgery. In contrast, essentially all households spend at least some money for food, so the receipt of food stamps frees money for consumption of other goods.

The new measure of poverty would paint quite a different picture of who is poor. Fewer people who receive welfare and other government benefits would be considered poor. More working people and people in two-parent families would be considered poor, as would more people who lack health insurance. By providing us with a much better idea of who is poor and how poverty is changing over time, the new measure of poverty would foster a more-informed debate about poverty's causes and cures.

No measure is perfect, and assistance programs must balance objectives and contend with various implications of changing the poverty measure. In particular, using the new poverty measure might affect the number of caseloads and the cost of implementing benefit programs. Program designers should fully evaluate all the ramifications of the proposed poverty measure, before deciding to adopt as their measure one that is proposed for statistical purposes.

Improving the US Census

The most extensively used source of social and economic data in the United States is the decennial US census. Besides determining the apportionment of seats in Congress, the census affects the distribution of billions of dollars in federal funding under a wide range of programs. It also provides a wealth of information that is used by businesses, community and nonprofit organizations, educators, academic researchers, and writers. Yet as with the poverty measure, social changes are reducing its accuracy and usefulness.

In the past the Census Bureau relied entirely on physical enumeration—the process of trying to reach individually each household in the United States and determining who

lives there. But physical enumeration is increasingly difficult and expensive (the 1990 census cost \$2.6 billion). Some groups concentrated in cities—particularly the homeless and recent immigrants—are hard to count. Among Americans as a whole, cooperation with the census has declined. These problems have contributed to serious undercounts of the population, despite increasingly intensive and expensive efforts to find everyone. Moreover, they bias the characterization of who is counted.

To produce more-accurate and less-expensive census data, the Census Bureau should use statistical sampling and estimation techniques to supplement the traditional head count. (A-2) The application of modern statistical methods provides an opportunity to obtain more-accurate census results at lower costs than in recent censuses. A mail questionnaire sent to every known household in the United States still will be the cornerstone of the census. However, the use of sampling and estimation techniques will provide a more cost-effective way to follow up people who do not respond and people and households that are entirely missed, and it will increase coverage and reduce biases in the characterization of who is counted.

The introduction of statistical estimation techniques into the census presents an opportunity for far-reaching changes within the Census Bureau. Many expensive operations can be modified, streamlined, and even eliminated. The greater the effort to count everyone, the greater the marginal cost of counting the last few individuals. Preliminary estimates indicate that the use of specific cost-saving techniques, such as not conducting intense follow-up efforts individually with all those who fail to return the mail questionnaire, could have reduced the cost of the 1990 census by \$300-400 million.

The Census Bureau could also experiment with the use of large, monthly sample surveys and results averaged over several years. Federal, state, and local administrative records—such as Social Security records and vital-statistics records—could be used to supplement and update information collected by the census.

For more information on social indicators:

- A-1. *Measuring Poverty: A New Approach*, Panel on Poverty and Family Assistance: Concepts, Information Needs, and Measurement Methods, 1995
- A-2. *Modernizing the U.S. Census*, Panel on Census Requirements in the Year 2000 and Beyond, 1995



The Nation Should Focus on Children and Families

Strong families are a powerful determinant of the health and well-being of children and of the values transmitted from generation to generation. Public policies that influence the structure and dynamics of families have consequences that extend throughout society.

Reducing Unintended Pregnancies

The extent of unintended* pregnancy and its serious consequences are poorly understood throughout the United States. Today, nearly 60% of all pregnancies in the United States are unintended—either mistimed or unwanted altogether. Considerable attention is now focused on teenage pregnancy and nonmarital childbearing, along with continuing controversy over abortion. But a common link among all these issues—pregnancy that is unintended at the time of conception—is essentially invisible. Reducing unintended pregnancies requires a new national consensus that pregnancy should be undertaken only with clear intent.

The nation should adopt a new social norm that all pregnancies should be consciously and clearly desired at the time of conception. (B-1) This goal has three important attributes. First, it emphasizes personal choice and intent. Second, it speaks as much to planning for pregnancy as to avoiding unintended pregnancy. And third, it is directed to all Americans and does not target only one group. The problem of unintended pregnancy is as much one of public policies and institutional practices as it is one of individual behavior. Influential organizations and their leaders—corporate officers, legislators, owners of mass media, and others of similar stature—need to address this problem.

A campaign to reduce unintended pregnancies should draw on the experience of other successful efforts to address public-health problems, such as those for reducing smoking and alcohol-impaired driving. The federal government has adopted as a national goal the reduction of unintended pregnancies from today's 60% to 30% of all pregnancies by

*Pregnancies are either "intended" (wanted at the time or sooner, irrespective of whether contraception was used) or "unintended" (if the pregnancy had not been wanted at the time conception occurred, irrespective of contraception). Among unintended pregnancies, a distinction is made between "mistimed" (conceptions wanted by women at some time, but which occurred sooner than they were wanted) and "unwanted" (conceptions that occurred when the women did not want to have any more pregnancies at all).

the year 2000. This proportion, which has already been reached by several industrialized nations, would translate into about 200,000 fewer births that were unwanted at the time of conception and about 800,000 fewer abortions per year.


Balanced, accurate information on methods of contraception, on unintended pregnancy, and on reproductive health would reduce the misunderstandings that impede the careful, consistent use of contraception. Financial barriers to contraceptive services should be reduced by increasing health-insurance coverage, extending Medicaid coverage for poor women for two years after childbirth so that they have access to contraceptive services, and continuing to provide public funding for comprehensive services. Counseling about relationships, goals, and feelings about pregnancy and contraception should be an important part of reproductive services.

Unintended pregnancies impose major burdens on children and families. Both mother and father can suffer economic hardships and fail to achieve their educational goals because of an unintended pregnancy, and their relationship is at greater risk of dissolution. Mothers with unwanted (as distinct from mistimed) pregnancies are less likely to seek prenatal care, and they suffer from a higher incidence of low birthweight and other infant and maternal health problems. They are more likely to expose their fetuses to harmful substances by smoking or drinking, and unwanted children are more likely to suffer from abuse. A major campaign is needed to reduce unintended pregnancies and the problems associated with them.

Improving the Quality of Child Care

Recent years have seen a profound shift in child care. By the age of one year, most children in the United States begin some form of child care, usually for 30 hours or more per week. The implications for children's health and safety, emotional security, and preparation for school are far-reaching. Child care also lies at the core of debates about welfare reform and school readiness, so it has moved to center stage in the larger arena of discussion about federal policy for children and families.

For some families, child-care services are unavailable or unaffordable. For many others, care might be available but fail to meet basic standards of quality. In particular, children of low-income families—especially those dependent wholly on a mother's income—are enrolled disproportionately in poor-quality child-care arrangements.



Understanding Child Abuse and Neglect

Child abuse and neglect are devastating social problems in the United States. Nearly 2 million instances of abuse and neglect are reported each year, and child maltreatment results in over 2,000 deaths annually. Yet the complex origins and profound consequences of child victimization are just beginning to be fully understood.

Although substantial progress has been made in identifying the factors responsible for child maltreatment, research is relatively undeveloped compared with that in related fields, such as child development, social welfare, and criminal violence. Substantial efforts are now needed to reach beyond the limitations of current knowledge to gain new insights that can lead to the prevention of child abuse and neglect. Research should focus on the processes by which individual, family, community, and social factors interact in instances of child abuse and neglect. Programs designed to treat or prevent child maltreatment need to be carefully evaluated. Models of victimization that incorporate many perspectives will suggest multiple opportunities for prevention.

For more information:

- *Understanding Child Abuse and Neglect*, Panel on Research on Child Abuse and Neglect, 1993

A number of studies have indicated that quality child care can have important positive effects on children's development. Developmentally appropriate care provided in safe and healthy environments has been shown to enhance the well-being of young children. And because today's children are tomorrow's adult citizens and workers, their proper care and nurturance will pay enormous dividends to society as a whole.

Specific gaps in current programs and arrangements mean that many children and families lack access to services.

Governments at all levels, with employers and other private-sector groups, should make investments to strengthen the infrastructure of the child-care system.

(B-2) Specific steps that could strengthen this infrastructure include expanding resource and referral services, improving care-giver training and wages, expanding vendor-voucher programs, encouraging the organization of family day-care systems, and improving planning and coordination. The urgent needs of low-income populations are such that immediate effort should concentrate on the provision of quality care for the most disadvantaged children.

Despite the greatly expanded use of child care by Ameri-

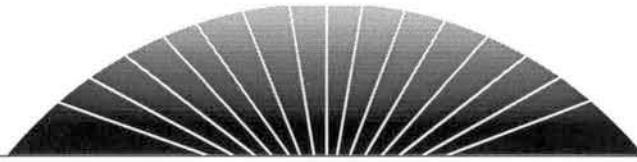
can families, many questions still surround the organization, funding, and consequences of child-care programs. These questions involve the delivery and financing of services, the quality and stability of care, and systematic data collection on child care. **As child care becomes more widely and extensively used, researchers need to expand their investigations beyond the children being cared for to include the effects of child care on families, communities, and schools.** (B-3) Studies of quality should be extended to informal child-care arrangements to help to determine the conditions that lead to favorable outcomes.

Better Understanding of Adolescence

As children reach adolescence, a new set of concerns emerge. Some adolescents engage in high-risk behaviors. They adopt risky life styles, experiment with drugs, engage in sex (often unprotected), drop out of school, or commit violent acts. As one consequence, adolescents have a substantially greater risk of being the victims of homicide than does the average member of the population as a whole.

Most research conducted on adolescent behavior has concentrated on the individual characteristics of teenagers and their families in an attempt to explain the causes of risky behavior. Little attention has been paid to the settings that have enormous power over the development and behavior of adolescents. Adolescents depend on families, neighborhoods, schools, and systems of health care, welfare, and justice, and many of these institutions are under stress. Too many children and adolescents are growing up in socially disorganized, racially segregated neighborhoods where they have a high risk of becoming the victims or perpetrators of violence. Although public schools traditionally have been viewed as the institutions through which poor children can rise above their socioeconomic roots, many schools in poor neighborhoods have not been able to fulfill that role. And the fragmented American health-care system does not address many of the health-care needs of adolescents. Even institutions and systems designed to help high-risk youth, such as juvenile justice and child welfare, are sometimes sources of risk. Some youths do prosper despite growing up in disadvantaged environments. But the settings and institutions on which adolescents depend increasingly fail to provide them with the support and resources needed for healthy development.

The most important determinant of the settings in which children and adolescents spend their formative years is family income, and for many families this measure has been



worsening relentlessly. Over the last two decades, the real incomes of families headed by a parent under the age of 30 have declined by almost one-third. In 1991, almost one-fourth of the families headed by an adult aged 25-34 had incomes below the poverty line.

Even given the relatively crude measure of poverty that is now available, we know that growing up in or near poverty exacts a heavy toll on children and adolescents. Adolescents in low-income families are more likely to have physical and mental health problems, to exhibit delinquent behavior, to show low academic achievement, and to drop out of school. They also are less likely than their higher-income contemporaries to get stable and good-paying jobs.

The lack of attention to the settings in which adolescents live—families, schools, neighborhoods, and systems of health care, welfare, and justice—has produced an incomplete picture of adolescence and an excessive concentration on individual behaviors and programs. **If we hope to achieve widespread reductions in health- and life-threatening behaviors, we must pay primary, sustained attention to reducing the exposure of children and adolescents to high-risk settings. (B-4)**

Targeted interventions will be needed to enhance job skills, provide entry employment opportunities, and improve access to critical support services such as child care, if we are to improve the economic position of large numbers of families. Reviving depressed urban areas will require a major commitment from federal and state governments and the private sector, including support for housing, transportation, economic development, and the social services required by poor and low-income residents. To increase the vitality of low-income neighborhoods, support will be needed to rebuild neighborhood infrastructures, including transportation networks and such basic community services as police, libraries, and parks and recreation opportunities.

Health and mental-health services for adolescents will need to be directed toward disease prevention and health promotion. Strategies to create a safe and healthy living environment for adolescents must address the problem of firearms as the most serious threat to inner-city youth (The next section discusses the prevention of violence in more depth.) School reform efforts must address inequities in funding and change the instructional practices that fail to improve the school performance of low-achieving students. School-to-work programs should provide young people

Adolescents and Smoking

Another risk faced by some adolescents is that posed by smoking. Every day about 3,000 additional young people become regular smokers. Cigarette-smoking is the leading cause of avoidable death in the United States, accounting for more deaths than AIDS, automobile collisions, suicides, homicides, fires, and illegal drugs combined—nearly 400,000 per year. Public policies can have a substantial effect on this serious health problem.

Chronic, long-term cigarette-smoking almost invariably begins in a person's teens years, yet government devotes scant resources to preventing tobacco use among children and adolescents. **The excise tax on tobacco products should be increased to a level comparable with that of other industrialized countries. A reasonable target would be to increase the federal cigarette tax by \$2.** It has been estimated that, if Congress raised the federal cigarette tax by \$2 per pack, tobacco use would decrease by 23% (about 7 million fewer smokers).

Other actions are important as well. **Congress should repeal the federal law preempting state regulation of tobacco promotion and advertising that occur entirely within a state borders and enact comprehensive legislation establishing a timetable for gradual implementation of a plan to restrict tobacco advertising and promotion in interstate commerce.**

Congress should enact legislation that delegates to an appropriate agency the necessary authority to regulate tobacco products for the dual purposes of discouraging consumption and reducing the morbidity and mortality associated with the use of tobacco, strengthen the federally mandated warning labels for tobacco products, and take steps to increase the salience and effectiveness of health warnings on both advertising and packaging.

Government at all levels should increase youth-centered tobacco-control efforts and eliminate features of tobacco advertising and promotion that encourage tobacco use among young people. Government and private organizations should reinforce the emerging view of smoking as an unacceptable behavior.

For more information:

- *Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youths*, Committee on Preventing Nicotine Addiction in Children and Youths, 1994

with a coordinated set of services, including academic remediation, counseling, peer-group support, mentoring, and job-placement services over an extended period.



Successful models should be more generously supported and replicated.

Unless progress is made in reducing the risks to which adolescents are exposed, large numbers of them will fail to make the transition into roles as healthy, productive, contributing adults. Policies supporting families and the restructuring of service institutions can help to impart the academic, vocational, social, and psychological competencies that young people need.

For more information on policies affecting children, adolescents, and families:

- B-1. *The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families*, Committee on Unintended Pregnancy, 1995
- B-2. *Who Cares for America's Families: Child Care Policy for the 1990s*, Panel on Child Care Policy, 1990
- B-3. *Child Care for Low-Income Families: Directions for Research*, Steering Committee on Child Care Workshops, 1996
- B-4. *Losing Generations: Adolescents in High-Risk Settings*, Panel on High-Risk Youth, 1993

Scientific Research Can Help Us Understand and Prevent Violence

In some 200 years of national sovereignty, Americans have been preoccupied repeatedly with trying to understand and control one form of violence or another. On the road to collective bargaining and peaceful picketing, there was much violent conflict. Urban riots have been part and parcel of our history from late colonial times. In today's cities, suburban areas, and even small towns, Americans are fearful and concerned that violence has permeated the fabric and degraded the quality of their lives. The diminished quality of life ranges from an inability to sit on the front porch in neighborhoods where gang warfare has made gunfire a common event—to the installation of elaborate security systems in suburban homes where back doors once were left open.

What do we know about violence? First, nearly one-third of the 19 million crime victimizations reported in 1990 involved violence. Second, in general, the United States is more violent than other industrialized countries. Homicide rates in the United States far exceed those in Europe, Japan, and Canada. But the United States is not more violent today than ever before. The national homicide rate has peaked twice in this century. The first peak was in the early 1930s,

the second between 1979 and 1981. We also know today that minority populations are at greater risk of violent acts and violent death. In 1990, blacks were 41% more likely and Hispanics 32% more likely than whites to be victims of violent crimes. And males (89% of those arrested) and disproportionate numbers of members of racial and other ethnic minorities are more likely to commit violent crime.

What can be done to understand and prevent violence?

An iterative process for evaluating promising preventive strategies should be undertaken by policymakers and researchers to improve our understanding of specific violence problems and the interventions designed to prevent and control them. (C-1) The iterative steps in such a process include diagnosis, intervention design, evaluation of interventions, refining interventions, and evaluation of refined interventions. Through such an experimental technique, we will gain a better understanding of what programs do and do not work.


Techniques that could be evaluated include intervening in the psychosocial development of individuals to reduce their potential for violent behavior (such as cognitive-behavioral techniques); modifying places, routine activities, and situations that promote violence; maximizing the violence-reduction efforts of police directed at illegal markets; reducing the impact of violence related commodities (including firearms, alcohol, and other psychoactive drugs) in connection with violent events or their consequences; intervening to reduce the potential of violence in bias crimes, gang activities, and community transitions; and implementing a comprehensive initiative to reduce partner assault (such as less-expensive criminal-justice intervention, public-awareness campaigns, and batterer-counseling programs).

For more information on policies affecting violence:

- C-1. *Understanding and Preventing Violence*, Panel on the Understanding and Control of Violent Behavior, 1993

Conclusions

Understanding human behavior is a key to designing public policies that can improve the functioning of the nation's economy and the operation of its community and political institutions. The behavioral and social sciences have made great strides in contributing to that understanding, but this research continues to be poorly understood, both by the public and by elected officials. For



many people, personal experience is a more-powerful influence than scientific evidence, especially when the two conflict. But public policies must depend on clear evidence of how people and institutions act—not on people's impressions, wishes, or fears.

Demographic and economic changes are transforming the shape of many institutions and the ways in which people interact with them and with each other. It is important, first, to measure those changes accurately. A second task of social and behavioral science is to provide information about human behavior that can reduce violence, facilitate the major demographic and economic transitions now under way in the world, and improve human performance and learning. The use of that information in an open exchange between scientists, the public, and elected officials can lead to more-realistic and more-productive public policies.

For Further Information:

The World Wide Web site <http://www2.nas.edu/21st> includes up-to-date versions of all the documents in this series and on-line versions of the reports referred to in this document.

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The **National Academy of Engineering** (NAE) was established in 1964, under the charter of the NAS, as a parallel organization of distinguished engineers. It is autonomous in its administration and in the selection of members, sharing with the NAS its responsibilities for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. William A. Wulf is interim president of the NAE.

The **Institute of Medicine** (IOM) was established in 1970 by the NAS to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the NAS in its congressional charter to be an adviser to the federal government and, on its own initiative, to identify issues of medical care, research, and education. Dr. Kenneth I. Shine is president of the IOM.

The **National Research Council** (NRC) was organized by the NAS in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the NAS and the NAE in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both Academies and the IOM. Dr. Bruce M. Alberts is chairman and Dr. William A. Wulf is interim vice-chairman of the NRC.



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