

(160, 330). It is too early to judge the effectiveness of the legislation in improving the lives of adolescents, but Congress could encourage the Commission on National and Community Service (also established by Public Law 101-610), to evaluate systematically the impact on adolescents in the Commission's Report to Congress.

Summary of Major Policy Options

In conclusion, three major policy options suggest themselves as a result of OTA's analysis of adolescent health:

1. Congress could adopt strategies to improve adolescents' access to appropriate health and related services;
2. Congress could adopt strategies to restructure and invigorate the Federal Government's efforts to improve adolescents' health; and
3. Congress could adopt strategies to improve environments for adolescents.

It is important to note, however, that apart from whatever specific strategies the Federal Government may adopt to improve adolescents' health, there is a need for a basic change in approach to adolescent health issues in this country. Even if all the specific policy changes suggested by OTA's analysis were to be implemented without a basic change in approach, the whole would be less than the potential sum of the parts. Instead, both the major options and the specific options (discussed below) were developed using a basic guiding principle, which should not be forgotten as specific changes are considered and, perhaps, implemented. That basic guiding principle is that a more sympathetic and supportive approach to adolescents is needed. This approach could follow the model of authoritative parenting, which combines warmth, democracy, and demandingness in a prolonged protective environment.

Specific Findings and Policy Options

This section discusses specific findings and additional policy options related to topics addressed in particular chapters of OTA's adolescent health Report:

- . the conceptualization of adolescent health (ch. 2),
- . parents' and families' influence on adolescent health (ch. 3),

- schools and discretionary time (ch. 4),
- prevention and services related to selected adolescent health concerns (chs. 5 through 14),
- the delivery of primary and comprehensive health services to adolescents (ch. 15),
- adolescents' financial access to health services (ch. 16),
- adolescents' legal access to health services (ch. 17),
- issues in the delivery of services to specific groups of adolescents (e.g., poor adolescents, racial and ethnic minority adolescents, and rural adolescents) (ch. 18), and
- the role of Federal agencies in adolescent health (ch. 19).

Policy options in each of these areas are summarized in accompanying tables. These specific options are permutations of the three major policy options identified earlier:

1. improve adolescents' access to health and related services,
2. reconceptualize and invigorate Federal efforts to improve adolescent health, and
3. foster environmental changes to improve adolescent health.

It is important to emphasize that the specific policy options presented below (and above) are not intended as recommendations. OTA does not make recommendations. The options here are merely intended to illustrate a range of possible alternatives that Congress may wish to consider in addressing some of the adolescent health problems identified in specific chapters of this Report. Each of the options presented has pros and cons, and a full consideration of these would be advisable prior to taking action on any particular option.

The Conceptualization of Adolescent Health (ch. 2)

In the process of testing formerly widely accepted grand theories of adolescent development, researchers in adolescent development have found that popular conceptions of adolescents as a group whose behavior is overwhelmingly determined by "raging hormones" and of adolescence as a period when to be abnormal is normal are misguided (see, e.g., 62). Further, these misconceptions are not benign: they may have deleterious effects on attitudes towards individual adolescents and, subsequently, on inter-



Photo credit: Education Week

More appropriate conceptualizations of adolescent health would include the most traditional definitions of health (i.e., the presence or absence of disease and disability); consideration of adolescent behaviors; positive components of health (e.g., social competence); health and well-being from the perspective of adolescents themselves; and social influences on health (e.g., families, schools, communities, and policies).

actions with individual adolescents and on policy and program development.

A more positive view of adolescents should not obscure the fact that, as a period of life, adolescence involves major physiological, cognitive, psychological, and social change, perhaps more so than at any other time of life. OTA finds that as a society, the United States provides little help to individuals as they try to cope with the normal changes of adolescence. For example, societal expectations for adolescents are inconsistent and may simultaneously restrict adolescents unnecessarily and demand from them an unrealistic level of maturity.

Specific options related to the conceptualization of adolescent health are presented in table 9.

Parents' and Families' Influence on Adolescent Health (ch. 3)

Contrary to theories that the goal to strive for during adolescence is an individual's complete

Table 9-Specific Options Related to Conceptualizations of Adolescent Health (ch. 2)

Option 1: Improve adolescents' access to health and related services.

- Support changes in health education efforts so that adolescents' wants and needs are taken into greater consideration.

Option 2: Support Federal data collection and research.

Data collection:

- Support the collection of data that allow for differences that occur *during* adolescence. This would require data from larger samples of adolescents.

Research:

- Support research on normal adolescent development in poor and minority adolescents.

SOURCE: Office of Technology Assessment, 1991.

independence from his or her family, families continue to be of major importance to individuals as they go through adolescence. If parents and families are to be a positive influence in adolescents lives, however, they need to be available, and to have accurate and useful information about adolescent development and about family functioning appropriate to adolescents.

Parent availability is difficult to assess, because it has both quantitative and qualitative aspects. Single parents, parents who work full time, and parents who do not live with their adolescent children maybe as psychologically available to their children as some parents who are frequently at home. However, one would expect that not living with one's child, being a single parent, or working full time would all reduce the amount of time that parents have available for their adolescent children. On this account, many adolescents and families may be at risk of missing important positive parental guidance. Approximately 6 percent of adolescents (1.9 million) live in households without either parent.¹⁶¹ Thirty percent of adolescents ages 10 to 18 (9.3 million adolescents) live in households headed by a single parent (1987 data (109)). Two-thirds of adolescents (17.5 million of those ages 10 to 17) live in households where both parents (or a single parent) work full time (245).¹⁶² Anecdotal evidence suggests that other family members are often not available to take up some of the roles of parents.

Research suggests that parenting an adolescent requires a different approach than does parenting a younger child, but relative to the amount of guidance

¹⁶¹Some of the adolescents counted by the Census Bureau as living without either parent are adolescents who are married and living with their parents.

¹⁶²In March 1990, there were approximately 18.6 million family households with adolescent children ages 12 to 17 (247). Data are not readily available on the number of families with children ages 10 through 18.

provided to parents of infants and young children, little guidance is provided to parents as their children mature into adolescence. Promising models of parent-adolescent interaction are available, however: these models provide a combination of open communication (give-and-take between parents and adolescents) in an environment of consistent support and firm enforcement of unambiguous rules (13,198). Families with such interactions tend to have adolescents with less susceptibility to antisocial influences, healthier forms of exploratory behavior, greater social competence, and greater capacity for cooperative or responsible social relationships (13, 81,93).¹⁶³

That relationships between some parents and adolescents are not all that they should be is suggested by findings—not widely recognized or discussed—that the rate of maltreatment is more prevalent among adolescents than among younger children. In 1986, between 600,000 and 700,000 adolescents ages 10 to 17 were found to have been maltreated (259).^{164 165} But children's protective services have focused on early childhood abuse and neglect, failing to provide adequate protection to adolescent victims.

Another partial indicator of poor relations between adolescents and parents is the number of adolescents in foster care. In 1985, approximately 120,000 adolescents were in foster care (330). Yet a more serious indicator is the number of adolescents who "run away" or are "thrown away from home." The number of homeless adolescents is not known, but DHHS estimated in 1984 (on the basis of 1976 data) that 1 million adolescents are homeless (256). Adolescents, more than younger children, can be expected to be homeless as a result of running or being "thrown" away.

Specific options related to providing support for improving parents' and families' influences on adolescent health, when such improvement is needed, are presented in table 10.



Photo credit: Office of Technology Assessment

There is some evidence that child protective services have failed to provide adequate protection to adolescent victims of maltreatment.

Schools and Discretionary Time (ch. 4)

Although little systematic empirical research has been supported, the studies that have been conducted suggest that academic and health outcomes of adolescent students are influenced by school environments. Overall, school environments that facilitate adolescent well-being take the shape of small (fewer than 1,000 students in the school, and 15 to 20 per class), comfortable, safe, intellectually engaging, and emotionally intimate communities. Transitions are minimized, and when they must occur, they are managed with a view toward meeting the developmentally appropriate needs of adolescents. Teachers are encouraged to initiate and develop new programs that are sensitive to the diversity of their students. The curriculum responds to individuality as well as to differences, while developing a common knowledge base among students in a particular school. Teacher, parent, and student participation in decisionmaking is encouraged. Unfortunately, this combination of features characterizes few schools, particularly those public

¹⁶³For a popularized guide to parenting that is in accordance with the research findings, see McBride (130).

¹⁶⁴The number of maltreated adolescents differs depending on use of the original (1980) definitions or the use of the revised (1986) definitions of maltreatment (see ch. 3, Parents' and Families' Influence on Adolescent Health," in Vol. II). The revised definitions, which counted maltreatment that resulted in endangerment as well as demonstrable harm, and teenage as well as adult perpetrators, result in higher estimates. Although there are differences by age and type of maltreatment within adolescence, the general order of prevalence in 1986 was: 1) physical abuse, 2) educational neglect (which was the leading form of maltreatment for older adolescents), 3) emotional neglect, 4) emotional abuse, and 5) sexual abuse. OTA was not able to calculate the rate of physical neglect using the information available in the report from the National Center on Child Abuse and Neglect (within DHHS).

¹⁶⁵ Adolescents were, however, more likely to suffer moderate injuries and far less likely to suffer fatalities due to maltreatment than were younger children (259).

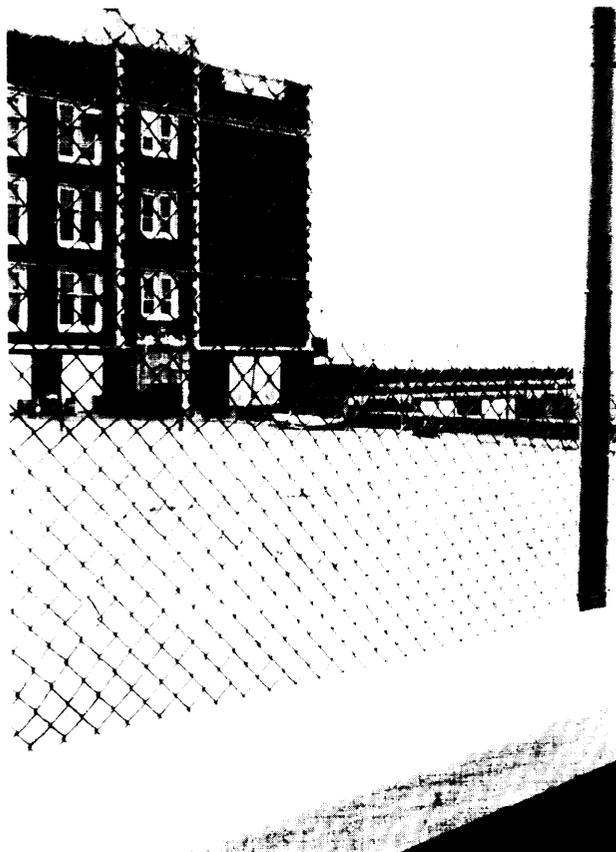


Photo credit: Office of Technology Assessment

Many schools serving socioeconomically and educationally disadvantaged students lack the combination of features that promotes adolescents' well-being.

schools serving socioeconomically and educationally disadvantaged students, many of whom are racial and ethnic minorities. Instead, the larger, often impersonal, schools that these students attend have been found to be associated with higher rates of retention in grade, suspensions from school, discipline and crime problems, lowered social cohesion, more negative student attitudes, and greater student passivity (including lower participation in school activities, and less interaction with faculty).

Specific practices such as tracking and "teaching to the test" for minimum competency testing have been associated with lowered levels of academic achievement, retention in grade, and school dropout, especially for low income racial and ethnic minority students. Although school practices and policies are rarely investigated for their direct links to adolescent health and well-being, studies have shown that lower

Table 10-Specific Options Related to Parents' and Families' influence on Adolescent Health (ch. 3)

Option 1: Improve adolescents' access to health and related services.

- Support the dissemination to parents of accurate and useful information about adolescent development and appropriate parenting (e.g., following authoritative and democratic family models).
- Support access to individual and family therapy services for adolescents from abusive or dysfunctional families and families with stepparents.

Option 2: Support Federal data collection and research.

- Support additional research on parenting styles and their effects on adolescent health and development, especially among poor adolescents and racial and ethnic minority adolescents.
- Support demonstration projects for alternative child protection approaches for adolescents (e.g., therapeutic foster care, transitional living).
- Support demonstration projects to determine and change attitudes of health and related service providers so that families come to be treated more respectfully in their interactions with public and private agencies.
- Support research on the relationship between adolescent maltreatment and health problems" such as depression, alcohol and drug abuse, suicide attempts, and other self-destructive behaviors.

Option 3: Foster changes in adolescents' environments.

- Support family and parental leave including flexible time arrangements to promote appropriate parental involvement in their adolescents' lives.

SOURCE: Office of Technology Assessment, 1991.

grades are associated with violence toward school property, other delinquency, and pregnancy. Students who are retained in grade school are more likely to drop out of school before graduation. In turn, school dropout is associated with high rates of subsequent poverty and unemployment, underemployment, diminished earnings, and adolescent pregnancy and parenting.

Adolescents, particularly females, can be particularly harmed by the transition from elementary to middle or junior high school grades, if such transitions are not handled well in the middle school setting (29). The environment of the typical junior or middle school adolescent has been found to clash with early adolescents' needs for autonomy, their budding cognitive abilities to think at an abstract level, their heightened needs for intimacy, and their heightened self-consciousness.

Teachers' attitudes and parental involvement are critical links in the relationships between school policies and environments and health outcomes for adolescents. Teachers' attitudes toward students tend to be more positive in schools that are smaller, use decentralized governance and participatory deci-



Photo credit: Kevin O'Malley, Los Angeles, CA

Adolescents, particularly females, can be harmed by the transition from elementary to middle or junior high school if such transitions are not well handled in the middle school setting.

sionmaking, and rely less on standardized testing. Parental involvement in schools has been shown to be related to increasing the responsiveness and efficiency of schools and to fair treatment of students, but the evidence on academic achievement is mixed.

Some interventions have shown increases in tolerance across racial groups and improvements in the self-esteem or academic achievement of racial and ethnic minorities; these interventions include exposure to persons of differing cultural backgrounds, learning in mixed ability groupings, a multicultural curriculum, bilingual education, and school-based collaborations with minority communities.

Much of adolescents' time is spent away from school. The scarce data that are available suggest that sufficient opportunities do not exist for adolescents to spend their discretionary time in ways that are attractive and satisfying, conducive to healthy development, and acceptable to the adult community. The problem has been found to be worse in poor than in middle-class communities.

The Federal share in funding for schools (6.3 percent of public school revenues in 1988) rose until 1980, when it began to fall again (249). Financial and programmatic support for recreation and youth service activities from Federal, State, and local governments, and the private for-profit sector, has been meager and fragmented. Federal support for 4-H clubs and, more recently, the National and

Table li-specific Options Related to Schools and Discretionary Time (ch. 4)

Option 1: Improve adolescents' access to health and related services.

- Re-evaluate policies and practices associated with tracking students by academic performance.
- Increase Federal support for schools to mitigate disparities in community tax bases.
- Support promising interventions such as peer tutoring, decentralized decision making, and innovative approaches to parental involvement while including rigorous evaluations of these interventions.
- Support education for students and school and youth services personnel on topics in adolescent development.
- Promote the widespread dissemination, transfer, and application of knowledge about adolescent development, "and recreational and community service programs for adolescents.

Option 2: Support Federal data collection and research.

Data collection:

- Collect data on the availability of school-based resources and facilities that could be used by adolescents in their discretionary time.
- Support the collection of data on the availability of recreational, youth service, and community service outlets for adolescents, especially those living in poor communities.

Research:

- Support rigorously evaluated demonstration projects on the impact of multicultural and bilingual curricula on adolescent health outcomes such as self-esteem and academic achievement.
- Support research on the features of recreational and youth and community services activities that both attract adolescents and are health-enhancing.
- Support a multisite demonstration project of efforts to improve academic achievement and school retention for minority, poor, and academically marginal students, using factors that are known or appear to be effective in improving health outcomes as a framework for intervention. Support research on adolescent preferences for recreational, community service, and youth services outlets in poor, minority, and rural communities.

Option 3: Foster changes in adolescents' environments.

- Support the expansion of recreational (e.g., pools, gymnasiums, parks) and community service programs (e. g., peer tutoring) in elementary, middle, junior high, and senior high schools, and in communities with large numbers of minority and/or poor adolescents. Especially support the involvement of adolescents in the design and implementation of these programs and the provision of incentives for adolescent and adult participation.

SOURCE: Office of Technology Assessment, 1991.

Community Service Act of 1990 (Public Law 101-610) is an exception.

Specific options related to schools and discretionary time are presented in table 11.

Prevention and Services Related to Selected Adolescent Health Concerns (chs. 5 through 14)

This section discusses specific findings and policy options related to the prevention and treatment of specific adolescent health problems:

- accidental injuries (ch. 5),
- chronic physical illnesses (ch. 6),
- nutrition and fitness problems (ch. 7),
- dental and oral health problems (ch. 8),
- AIDS and other sexually transmitted diseases (STDs) (ch. 9),
- pregnancy and parenting (ch. 10),
- mental health problems (including suicide attempts and suicide) (ch. 11),
- alcohol, tobacco, and drug abuse (ch. 12),
- delinquency (ch. 13), and
- hopelessness (ch. 14).

summary information on the prevalence of these problems and the adolescents most affected is presented in appendix B, "Burden of Health Problems Among U.S. Adolescents," in Volume HI.

Accidental Injuries (ch. 5)¹⁶⁶

Since 1970, the accidental death rate for U.S. adolescents has declined (figure 3 in "Major Findings"), although not to the levels seen in the 1950s (65,184). Accidental injuries today are responsible for more deaths to U.S. adolescents than any other cause, representing more than half of all deaths to persons ages 10 to 19 in 1987 (290). In 1987, 10,658 adolescents ages 10 to 19 died as a result of an accidental injury.

Vehicle-related (motor and nonmotor vehicle) accidents account for almost three-fourths of accidental *deaths* among persons ages 10 to 19; other important causes of accidental deaths in this age group are drowning accidents (8 percent of accidental deaths), and firearm accidents (4 percent of accidental deaths). Exposure of adolescents to firearms appears to be quite high. Over 40 percent of the 8th and 10th graders surveyed in the National Adolescent Student Health Survey reported that they had used a gun during the past year; of these, over 40 percent had used a gun more than 10 times (10),

Many U.S. adolescents experience accidental injuries that are not fatal but cause visits to



Photo credit: Bethesda-Chevy Chase Rescue Squad

Efforts to develop a national strategy to prevent accidental injuries have been hampered in part by a lack of information about the causes of such injuries and the effectiveness of interventions to prevent injuries or reduce their severity. To address the lack of information about the causes and extent of injuries among adolescents, Congress could support the collection of data that include information about levels of exposure to risks.

physicians' offices or hospital emergency rooms, temporary or permanent disability, restricted-activity and school-loss days, and other problems. Comprehensive national data on nonfatal accidental injuries are not available,¹⁶⁷ but sports injuries incurred while playing basketball, football, or baseball, or riding a bicycle accounted for 772,000 emergency room visits by adolescents in 1988 (239).

Adolescent males, particularly males ages 15 to 19, are at higher risk for all leading accidental injuries and deaths than adolescent females, but the precise reason (e.g., differing exposure rates) cannot be ascertained from available data. White male and American Indian and Alaska Native adolescents have the highest rates of motor-vehicle-related accidental deaths. Motor vehicle deaths and injuries among adolescents are associated with driving at night and with drinking. Adolescent drivers do only 20 percent of their driving at night, but they suffer

¹⁶⁶To make this Report more accessible to the lay reader and for other reasons, OTA has chosen to use the term **accidental injury** in this Report. The term preferred by those in the injury prevention community, however, is **unintentional injury** (e.g., 184). Those who prefer the term **unintentional injury** believe that the term **accidental injury** implies that injuries cannot be prevented, whereas the term **unintentional injury** implies that while an individual may not have consciously intended to hurt him or herself, some action taken or not taken may have prevented the **injury**. Perhaps to overstate this perspective somewhat, **all** injuries are thus avoidable. The position that true 'accidents' do not occur (i.e., by chance, entirely without cause) correctly brings attention to injuries as a public health problem to which additional preventive interventions can and should be applied, but it seems to be **unprovable**. Use of the term "unintentional" also may have the unfortunate effect of placing the onus of causation (and responsibility for precautions) exclusively on the person who is injured, **although** in fact unintentional injuries may be caused, although unintentionally, by persons, organizations, or systems other than the victim.

¹⁶⁷For example, available data on visits to physicians' offices and hospitals do not record the cause of injury.

more than half of their crash fatalities at night. According to the National Highway Traffic Safety Administration, about half of the motor vehicle crash fatalities among adolescents are related to alcohol, and about one-quarter of fatally injured drivers ages 15 to 19 are intoxicated. It appears to take less alcohol to put an adolescent at risk for a serious or fatal motor vehicle crash than it takes to put an adult at such a risk.

Of the approaches to the prevention of accidental injuries among adolescents, there appears to be some consensus that automatic protection (e.g., airbags in cars, helmets for football players, environmental improvements such as better street design) is the most effective strategy for injury protection, followed by laws and regulation when strictly enforced (e.g., motorcycle and bicycle helmet laws, safety belt laws, nighttime driver curfews for adolescents), and, lastly, education and persuasion. Declines in accidental motor vehicle injury deaths during the 1980s, for example, have been attributed to State safety belt laws and the subsequent increased use of safety belts, and State minimum drinking age laws (158).¹⁶⁸ However, programs combining education *and* incentives (e.g., distribution of free or discounted bicycle helmets in conjunction with a community-wide education program to encourage use of helmets) have also shown some evidence of effectiveness. Basic improvements in injury prevention strategies, such as additional driving time in driver education classes or with parents prior to licensing of adolescent drivers, enhanced access to swimming lessons for poor adolescents, changes in sports regulations, and preventing inappropriate access to firearms, also seem warranted.

Efforts to develop a national strategy to prevent accidental injuries among adolescents have been hampered in part by a lack of information on both the causes of many such injuries and on the effectiveness of interventions to prevent accidental injuries or limit their severity. Cultural, political, and economic factors also appear to have impeded the adoption of preventive strategies that are likely to prove effective (see, e.g., 25). For example, there is no Federal regulation mandating the installation of airbags in

Table 12—Specific Options Related to Accidental Injuries (ch. 5)^a

Option 2: Support Federal data collection and research.

Data collection:

- Support the collection of national data on accidental injuries *and their causes* from the spectrum of health services delivery settings (including clinics, emergency facilities, and schools). Data collection should include the measurement of exposure as a risk factor.

Research:

- Support research to investigate more fully the causes of injuries and injury related deaths, including research on accidental injuries and deaths (particularly motor vehicle deaths, drowning deaths, firearm-related deaths, and sports-related injuries).
- Support research and rigorously evaluated demonstration projects on innovative ways to prevent accidental injuries (e.g., communitywide education and incentives to increase the use of bicycle helmets, efforts to provide more driving time in school-based driver education classes).
- Support research on the special needs of adolescents coming to emergency facilities as a result of accidents.

Option 3: Foster changes in adolescents' environments.

- Mandate the use of airbags in cars and trucks, including the older cars and trucks that are likely to be used by adolescents.
- Mandate the use of bicycle and motorcycle helmets.
- Support local lending programs to distribute free protective equipment (e.g., football and bicycle helmets) to adolescents in economic need, similar to programs that lend automobile infant seats to needy families.

^aOptions related to intentional injuries (e.g., suicide and homicide) are presented in other tables. Options related to suicide are in table 18, "Specific Options Related to Mental Health Problems," and options related to homicide are in table 20, "Specific Options Related to Delinquency."

SOURCE: Office of Technology Assessment, 1991.

cars and trucks; gun control remains a controversial issue¹⁶⁹; increased driving time in school driver education classes and additional certified trainers for school sports would cost schools money; and bicycle helmets are expensive,

Specific options related to prevention and services related to accidental injuries among U.S. adolescents are presented in table 12.

Chronic Physical Illnesses (ch. 6)¹⁷⁰

Many adolescents experience acute respiratory illnesses or other transient health problems, but a few adolescents experience chronic physical illnesses or disabilities. Good recent clinical epidemiological data specific to U.S. adolescents' physical

¹⁶⁸OTA did not evaluate the validity of these attributions. The cause of declines in deaths by drowning, which have been more marked than declines in motor vehicle-related deaths (65), is not known

¹⁶⁹As noted earlier, however, the sale of firearms to adolescents is illegal (see ch. 13, "Delinquency: Prevention and Services," in Vol. II).

¹⁷⁰This chapter excludes the physical health problems of AIDS and other STDs, which were felt to merit discussion in a separate chapter (see ch. 9, "AIDS and Other Sexually Transmitted Diseases: Prevention and Services," in Vol. II).

health are not available, but the best estimates suggest that 5 to 10 percent of adolescents experience a serious chronic condition that severely limits their activities (78, 291). These include leukemia, severe asthma, cystic fibrosis, traumatic brain injury, cerebral palsy, diabetes, hearing or visual impairment, sickle cell disease, or mental retardation.

The last national survey of the physical health of adolescents that actually involved clinical examinations of large numbers of adolescents was completed in 1970; data from that survey suggested that 22 percent of adolescents had some significant physical problem that could interfere with their development.¹⁷¹

Information is particularly limited on the physical (and other) health problems of poor and racial and ethnic minority adolescents and on health problems from the perspective of adolescents. There are virtually no reliable data on the health status of minority and poor adolescents and their utilization of health services. Data comparing the health concerns of adolescents, their parents, and health care providers suggests that adolescents have concerns that differ substantially from those of health care providers and that, even in relation to clinical findings of health care providers, parents may minimize the health problems of adolescents. Yet national health survey information, especially for younger adolescents (e.g., those under age 17) is routinely collected from parents, rather than from the adolescents themselves.

Specific options related to chronic physical illnesses are presented in table 13.

Nutrition and Fitness Problems (ch. 7)

Adolescent-specific data on nutrition and fitness, aside from average nutrient intake information, are limited and often neglected in favor of data on adults. Existing data represent the average adolescent population, often missing the smaller minority and ethnic groups. In addition, research on nutrition and on fitness is hampered by inconsistent outcome measures and other methodological problems. A major problem is the absence of research on how



Photo credit: Benjamin Smith, Washington, DC

Information is particularly limited on the physical (and other) health problems of poor and racial and ethnic minority adolescents and on health problems from the perspective of adolescents.

adolescents' nutritional and fitness behaviors affect their current or future health.

If one accepts the conventional wisdom concerning nutrition and fitness needs,¹⁷² available data suggest that most adolescents suffer from some nutritional or fitness problem (usually mineral deficiencies, imbalance diets, and overweight or obesity). Female adolescents and those adolescents who are most intensively engaged in fitness and athletic activities are more likely than others to have nutritional problems. Available information suggests problems with obesity for black female adolescents, Mexican Americans, Native Hawaiians, American Indians and Alaska Natives, Samoans, and Tongans of both sexes.

¹⁷¹A National Health and Nutrition Examination Survey (NHANES III) will be completed in 1994 (See ch. 6, "Chronic Physical Illnesses: Prevention and Services," in Vol. II). Children as a group, but not adolescents specifically, are being oversampled for this survey. Only 3,220 adolescents ages 12 to 19 are included in the survey, while approximately 11,000 individuals ages 2 months to 11 years are included (7,771 of whom are younger than 6). The numbers of 10- and 11-year-olds are not available separately.

¹⁷²That is, one assumes that the same nutrition and fitness factors that adversely affect adult health adversely affect adolescent health.

Table 13—Specific Options Related to Chronic Physical Illnesses (ch. 6)

Option 1: Improve adolescents' access to health and related services.

- . Support efforts to reduce fragmentation in delivery of health services to adolescents with chronic physical illnesses.
- . Provide financial support to families of adolescents with catastrophic health care needs.
- In health education, support efforts to inform adolescents about the availability of treatments for problems of importance to them (e.g., acne, dysmenorrhea).

Option 2: Support Federal data collection and research.

Data collection:

- Support the collection of information on the prevalence of a broad range of physical health problems, including serious chronic problems of low prevalence and chronic problems of importance to adolescents.
- . Support oversampling of minority, poor, and rural adolescents in population-based and health services utilization surveys.

Research:

- Support efforts to determine from adolescents themselves the types of health problems that are of importance to them.
- . Study financing alternatives for adolescents with catastrophic health care needs.

SOURCE: Office of Technology Assessment, 1991.



Photo credit: Coray Macklin, Atlanta, GA

Adolescents' physical abilities change over time and are highly individual.

Adolescents' physical abilities change over time, and may be highly individual, depending on such factors as gender, race, the rate of physical development and growth, and specific health problems. It is not clear that those involved in overseeing the physical education of adolescents are aware of these individual and developmental differences, or that they take them into account in designing physical education activities. Access to fitness activities is a special problem for many adolescents with chronic physical and mental illness and disabilities.

Specific options related to adolescents' nutrition and fitness problems are presented in table 14.

Dental and Oral Health Problems (ch. 8)

The prevalence of caries increases during adolescence, but national data show a remarkable decline in the prevalence of dental caries among U.S. adolescents who are in school. National data on the dental and oral health of adolescents not in school, disabled adolescents, adolescents in institutions, minority adolescents, and poor adolescents are generally not available.

The fluoridation of water supplies in the United States, initiated in 1945 with the support of the Federal Government, is believed to be largely responsible for recent declines in dental caries among U.S. children and adolescents. As of 1988, fluoridated tap water was available to 61 percent of the United States population (276). One alternative to fluoridated tap water is the topical application of fluoride to the teeth during a visit to the dentist.



Photo credit: Benjamin Smith, Washington, DC

A major shortcoming in nutrition and fitness research is the absence of information about how adolescents' nutritional and fitness behaviors affect their current or future health.

Adolescents appear to have little information about nutrition (including information on how to interpret nutrition information on food labels), and there is little evidence that current school-based nutrition education efforts, with the possible exception of those that take adolescents' preferences into account, influence what adolescents eat. Others, such as the family, community, or school, may have more control than adolescents over their nutritional choices.

Table 14—Specific Options Related to Nutrition and Fitness Problems (ch. 7)**Option 2: Support Federal data collection and research.***Data collection:*

- Support a survey of schools and communities to determine the availability of facilities for a range of physical activities and the competence of adults supervising physical education.
- Support the routine collection of data on adolescents' nutritional status with oversamplings of disabled, minority, and poor adolescents in population-based surveys.

Research:

- Support research on the effects of adolescents' nutrition and fitness choices on adolescents' current and future health.
- Support research on the nutritional and fitness preferences of adolescents in order to help target educational and other preventive interventions.
- Support research on the relationships between nutritional needs and varying levels of physical activity.

Option 3: Foster changes in adolescents' environments.

- Support the provision of healthy nutritional choices to adolescents in schools and the community (e.g., in fast food outlets).
- Support efforts to improve access to fitness activities for adolescents with special health care needs (e.g., the chronically ill and disabled), overweight, and poor adolescents.
- Support the education of physical education teachers, coaches, trainers and others about adolescent-specific factors that could influence adolescents' physical abilities.

SOURCE: Office of Technology Assessment, 1991.

It is important that adolescents have regular visits to the dentist so that they can receive preventive dental services (e.g., cleaning, education about personal dental hygiene) and therapeutic services (e.g., filling of dental caries, treatment of rampant caries, treatment of severe malocclusion). Currently, the dental visit is the primary locus for dental and oral health education, suggesting that limited access to such visits may interfere with appropriate dental health education.

Two factors that greatly influence adolescents' access to basic and other dental care are income level and the possession of health insurance that covers basic dental services. Adolescents from low-income families who do not have Medicaid are the least likely to have private dental insurance and are also the least likely to make annual dental visits, followed by adolescents on Medicaid, and privately insured adolescents. Most privately insured adolescents do not have basic dental benefits.¹⁷³ Dental programs in public health clinics may not provide

Table 15—Specific Options Related to Dental and Oral Health Problems (ch. 8)**Option 1: Improve adolescents' access to health and related services.**

- Support Medicaid reforms (e.g., increase reimbursement rates, standardize some administrative procedures, enforcement of current Federal Medicaid requirements for State participation) to encourage more dentists to participate in the program.
- Support efforts to ensure that publicly funded dental programs offer adolescents basic preventive and therapeutic services (e.g., topical fluoride, sealants, prophylaxis, restorations, and space maintenance).

Health education:

- Support the provision of information to adolescents on dental hygiene and means of access to services.
- Support education of dentists on adolescent-specific conditions and needs (e.g., localized juvenile periodontitis and the effects on oral health of certain behaviors such as the use of smokeless tobacco).

Option 2: Support Federal data collection and research.*Data collection:*

- Support the collection of dental health information on adolescents who are not in school, disabled, in institutions, racial and ethnic minorities, and poor.
- Support research on the availability of dental care for poor and low-income adolescents not eligible for Medicaid.

Research:

- Support research on the immediate and long-term physical (e.g., nutritional) and psychological (e.g., self-esteem, social withdrawal) health effects of poor adolescent dental and oral health.

Option 3: Foster changes in adolescents' environments.

- Support efforts to improve access to fluoridated water.

SOURCE: Office of Technology Assessment, 1991.

certain basic dental services that could reduce or prevent adolescents' dental and oral health problems (237).

Information on adolescents' attitudes or behaviors related to dental or oral health and information on the effectiveness of educational interventions in promoting dental and oral health is generally lacking.

Specific options related to adolescents' dental and oral health problems are presented in table 15,

AIDS and Other¹⁷⁴ Sexually Transmitted Diseases (ch. 9)

In recent years, there has been growing national alarm about and attention to the problem of AIDS, a fatal disease caused by HIV. Currently, the prevalence of AIDS among U.S. adolescents is not

¹⁷³See ch. 16, "Financial Access to Health Services," in Vol. III.

¹⁷⁴A] though HIV, the virus that causes AIDS, can be, and usually is, transmitted sexually in adolescents, there are other modes of transmission, such as through intravenous drug use and through the transfusion of contaminated blood and blood products, that are not common to many other STDs although they may occur.

very high. As of September 1990, there were 568 cases reported among 13- to 19-year-olds (280). This situation should not be interpreted as eliminating cause for concern, however, because the prevalence of HIV infection is undoubtedly higher. The median interval between infection with HIV and the development of AIDS is about 10 years (278), so one would not expect many adolescents to have full-blown AIDS.

In the absence of a cure for AIDS, preventing the spread of HIV among adolescents is essential. One way of preventing the spread of AIDS is to encourage adolescents to delay the initiation of sexual intercourse or prevent intravenous drug use. For adolescents who are sexually active, '75 the use of condoms is essential. Recent data suggest an encouraging increase in adolescents' use of condoms, but more than half of sexually active female adolescents do not use condoms at first intercourse (68) and only 22 percent of sexually active females reported current¹⁷⁶ use of condoms in 1988 (141).

More creative and effective approaches are needed to prevent the spread of HIV infection, AIDS, and STDs among adolescents who are not yet infected. Apart from ensuring the safety of the Nation's blood supply, efforts to prevent the spread of HIV infection include encouraging adolescents (especially young adolescents) to delay the initiation of sexual activity, encouraging sexually active adolescents to use condoms and "safer sex practices," and encouraging adolescents to refrain from intravenous drug use or sharing contaminated needles. For many reasons, including time and fiscal restraints, few careful evaluations of AIDS and STD prevention projects have been conducted. AIDS prevention efforts, it often seems, do not seem to take advantage of the opportunity to encourage the simultaneous prevention of other STDs. Efforts to prevent AIDS and other STDs are generally impeded by a lack of information about adolescents' attitudes and sexual practices and a seeming unwillingness on the part of program developers and policymakers to act on information that is available.

Controlling the spread of HIV infection and STDs also means identifying adolescents who have these



Photo cm&t: Centro del Control de /as Enfermedades de los Estados Unidos

The link between the prevention of AIDS and the prevention of other sexually transmitted diseases (STDs) is often not made in health education efforts.

conditions and providing effective treatment (if available) and counseling about safer sex practices. Possibly, information about the availability of confidential treatment could be communicated to adolescents through health education courses offered in schools. It is more difficult to inform adolescents who are not in school.

Adolescents' compliance with treatment regimens for STDs have been shown to be more effective when they are delivered by clinicians who are responsive to adolescents and their health problems and who are perceived by adolescents to be friendly, understanding, and willing to take their time; and when treatment is administered in single-dose regimens (if available) (1 1,16,122).

¹⁷⁵In 1988, 42.5 percent of 15- to 19-year-old females surveyed for the DHHS National Survey of Family Growth reported having had sexual intercourse in the last 3 months (68). Certain adolescents (e.g., male adolescents, black adolescents, adolescents living on the streets) are more likely to be sexually active than others.

¹⁷⁶Estimates of the "current" use of condoms are based on responses to a question to female adolescents participating in the DHHS National Survey of Family Growth about what form of contraception they are using now (141).



Photo credit: Education Week

Congress could support the provision to adolescents of information relevant to obtaining access to services for the prevention and treatment of HIV infection, AIDS, and other STDs.

Treatments for HIV infection and AIDS (e.g., zidovudine) are undergoing clinical trials. Access to clinical trials of AIDS treatments is difficult for adolescents with AIDS or HIV infection who do not have access to the mainstream health care delivery system (e.g., homeless and runaway adolescents, uninsured adolescents). No specific outreach is in place to bring more of these adolescents into research trials.

Specific options related to AIDS/HIV infection and STDs among adolescents are presented in table 16.

Pregnancy and Parenting (ch. 10)

The United States has higher adolescent pregnancy rates, birth, and abortion rates than a number of other industrialized countries¹⁷⁷ (see figure 14). It has been estimated that 4 out of 10 U.S. females experience pregnancy before the age of 20 (210), and in 1988, there were nearly half a million births (488,941 births) to U.S. females under age 20 (294). About 65 percent (322,406 births) of these births were out-of-wedlock (312,499 to females ages 15 to 19 and 9,907 to females under age 15) (210,294). Adolescent mothers and their infants are typically in need of substantial social support, including food, income support, housing, mentoring, education, vocational training, parenting skills classes, child care, and employment.

Table 16-Specific Options Related to AIDS/HIV Infection and Other Sexually Transmitted Diseases (ch. 9)

Option 1: Improve adolescents' access to health and related services.

- Encourage school districts to make condoms and condom-related education easily available to the adolescents who are most likely to be sexually active (e.g., older adolescents).
- Support active and flexible approaches to the provision of treatment for STDs to encourage adolescents to seek treatment and return for followup care.
- Target AIDS/HIV prevention (e.g., condom distribution) and education efforts to adolescents living on their own.
- Support outreach efforts to bring adolescents who are not in contact with the mainstream health care system into clinical trials for AIDS drugs.

Health education:

- Support the provision of information to adolescents on the prevention and treatment of AIDS and STDs.
- Support the provision to adolescents of information relevant to obtaining access to services for the prevention and treatment of AIDS and STDs.
- Support training and dissemination of information on the specific needs of adolescents for health care workers in STD clinics.
- Support the dissemination of prevention and education efforts into nonmetropolitan areas, to younger adolescents, to adolescents who are intravenous drug users, and homosexual or bisexual adolescents.

Option 2: Support Federal data collection and research.

Data collection:

- Mandate confidential reporting of a broader spectrum of STDs.
- Encourage States to collect and report additional demographic data on those with STDs (e.g., smaller age breaks, socioeconomic status, and race and ethnicity).
- Support the regular collection of population-based information on STDs, including HIV, among adolescents.

Research:

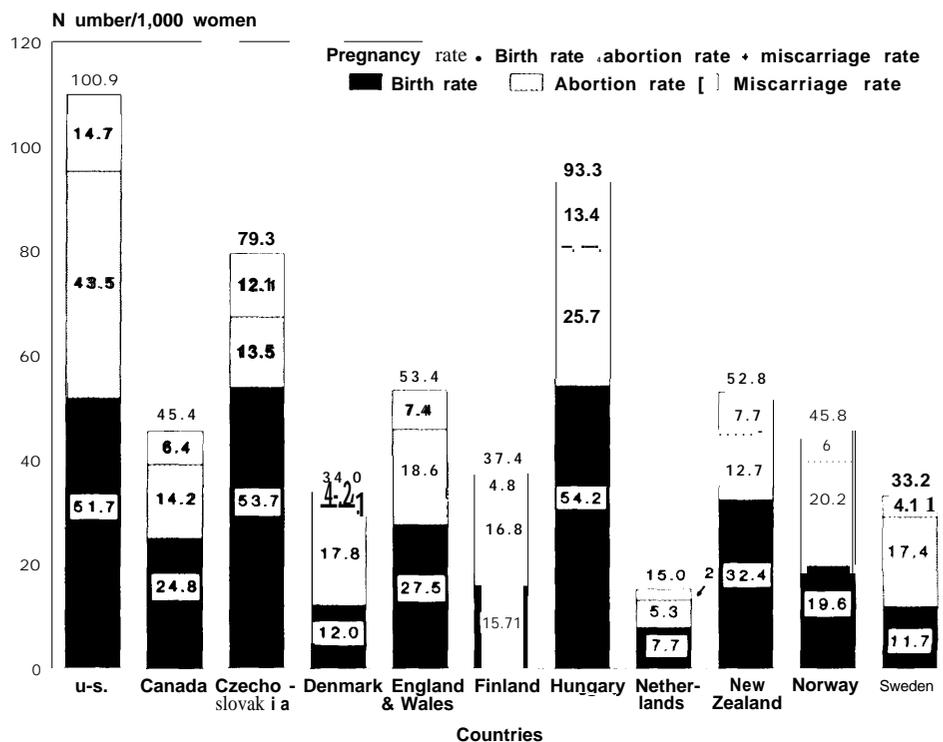
- Support research to assess the need for adolescent-specific guidelines for the treatment of STDs and AIDS. Support research into therapeutic regimens that are likely to increase adolescent compliance (e.g., single-dose regimens).

SOURCE: Office of Technology Assessment, 1991.

Since the 1970s, sexual activity rates (the number of individuals per 1,000 who have ever had sexual intercourse) among U.S. adolescent females have increased (see figure 15). U.S. adolescent pregnancy rates have also increased since the 1970s, but the increase in pregnancy rates has been modest in comparison to increases in sexual activity rates (from 94 pregnancies per 1,000 females under age 20 in 1972 to 109 in 1987) (figure 15). Pregnancy rates among *sexually active* females declined between 1970 and 1985, suggesting that sexually active adolescents were making more effective use of contraception. More recent (1987) data suggest an

¹⁷⁷OTA did not assess whether levels of sexual activity were equivalent across these nations.

Figure 14—Birth Rates, Abortion Rates, Miscarriage Rates, and Pregnancy Rates Among Females Ages 15 to 19 in 11 Countries, 1983



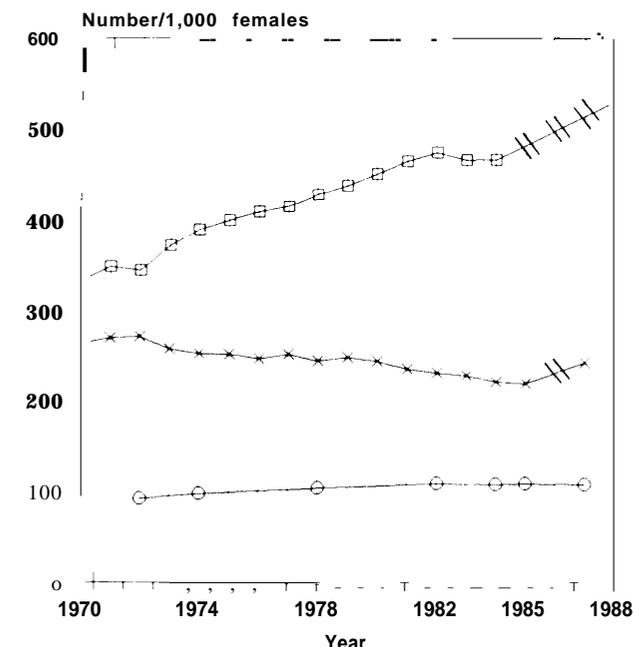
SOURCE: National Collaboration for Youth, *Making the Grade: A Report Card on American Youth* (Washington, DC: 1989).



Photo credit: Katherine Criss, New York, NY

Adolescent mothers and their children typically need substantial social support.

Figure 15—Trends in Sexual Experience Rates and Pregnancy Rates Among U.S. Females Ages 15 to 19 and Trends in Pregnancy Rates Among Sexually Experienced U.S. Females Ages 15 to 19, 1970-88



Number of females ages 15 to 19 who have ever had sexual intercourse
 Pregnancy rate among sexually experienced females ages 15 to 19
 Pregnancy rate among all females ages 15 to 19

SOURCE: office of Technology Assessment, 1991, based on data from the following sources: Pregnancy rates: National Academy of Sciences, National Research Council, Commission on Behavioral and Social Sciences and Education, Committee on Child Development Research and Public Policy, Panel on Adolescent Pregnancy and Childbearing, *Risking the Future: Adolescent Sexuality, Pregnancy, and Childbearing, Volume II: Working Papers and Statistics/Appendixes*, S.L. Ho Hofferth and C.D. Hayes (eds.) (Washington, DC: National Academy Press, 1987); and J. Lipsett, Public Information Press Assistant, Department of Communications and Development, Alan Guttmacher Institute, New York, NY, personal communication, Feb. 27, 1991. Sexual experience rates: J.D. Forrest and S. Singh, "The Sexual and Reproductive Behavior of American Women, 1982-1988," *Family Planning Perspectives* 22(5):206-214, 1990; and S.K. Henshaw, Alan Guttmacher Institute, New York, NY, personal communication, May 21, 1990.

increase in pregnancies among sexually active adolescent females, however (figure 15).

For largely unknown reasons, most available contraceptives have not proven to be as effective with adolescents as they are with older females. The recent introduction of Norplant, an implantable long-term contraceptive, has not been tested with adolescents.



Photo credit: Education Week

There is little systematic knowledge about risk factors for adolescents' involvement in sexual activity, use of contraceptives, pregnancy, abortion, and parenthood. Congress could support research on factors that lead adolescents to engage in unprotected sexual intercourse and research on contraceptives.

Unfortunately, there is little systematic knowledge about risk factors for adolescents' involvement in sexual activity, use of contraception, pregnancy, abortion, and parenthood. This lack of knowledge limits the appropriate design of pregnancy prevention programs. Further, development of appropriate designs is limited because most education-based programs designed to prevent adolescent pregnancy have not been rigorously evaluated.

Some interventions for pregnancy prevention appear particularly promising and deserving of implementation accompanied by rigorous evaluation. These include preventive education begun before adolescents have begun to engage in sexual intercourse, and broad-based programs that go beyond education about sexuality (e.g., life-options interventions¹⁷⁸) (23,145,169). Some broad-based

¹⁷⁸Life-options interventions designed to prevent adolescent pregnancy have provided work opportunities to develop job-related skills along with educational training, family life education, and discussion of sexuality.

programs achieve worthwhile goals other than reductions in pregnancy rates (e.g., reductions in school absenteeism), even if they are not able to demonstrate a reduction in pregnancy rates (23,145, 169).

Most adolescent pregnancy prevention programs focus on adolescent females. Given that males have a role in pregnancy prevention (as well as in safer sex practices to reduce the risk of HIV infection), there is a compelling need to develop effective ways to engage adolescent and young adult males in efforts to prevent adolescent pregnancy.

Considerable research suggests the need for, and effectiveness of, a range of intensive health and other services for adolescents who become pregnant. Promising approaches to preventing the potentially adverse effects of an unwanted pregnancy include improving access to pregnancy testing and counseling; improving the availability of abortion; and improving the availability of adoption supports. For adolescents who want to keep their babies, prenatal and postnatal health care, and the provision of housing, mentoring, education, child care, and employment to pregnant and parenting adolescents, are needed.

Not all adolescents who become pregnant and want to bear their children may be able to obtain adequate prenatal care. Among adolescents without health insurance, the problem is particularly critical. Even unmarried adolescent females whose parents have otherwise adequate health insurance may not be able to obtain prenatal care because of a loophole in the Pregnancy Discrimination Act of 1978 that omitted minor dependents from requirements for coverage for prenatal care.

Studies of programs that have attempted to arrange a comprehensive range of services (e.g., housing, child care, transportation, education, jobs) for adolescent parents have found that problems occur in attempting to locate and broker services.

Specific options related to pregnancy and parenting among adolescents are presented in table 17.

Mental Health Problems (ch. 11)

Although a national systematic epidemiologic study of mental health problems among children and

adolescents has not yet been fully mounted, recent data suggest that approximately 1 out of 5 adolescents ages 10 to 18 suffer from a diagnosable mental disorder (e.g., conduct disorder, separation anxiety disorder, depression). The identification of adolescents in need of mental health treatment by standard assessment techniques is often based more on adolescents' outward behavior of concern to teachers, parents, and society at large than on adolescents' subjective distress (e.g., depression and anxiety) and the subjectively perceived needs of the adolescents themselves. When asked, an average of one out of four adolescents report symptoms of emotional distress, although the rate is higher among rural and Native American adolescents.

Certainly one of the most severe manifestations of subjective distress among U.S. adolescents is suicide. In recent years, the U.S. adolescent suicide rate appears to have increased; suicide is currently a major cause of death among U.S. adolescents (see figure 4 in "Major Findings"). In 1988, the suicide rate among 15- to 19-year-olds was 10.3 suicides per 100,000 population (see figure 4 in "Major Findings")—apparently triple the rate in the mid-1950s.¹⁷⁹ Firearms are the leading method for committing suicide, accounting for half of all successful suicides.

Adolescents who have made a previous suicide attempt are at increased risk for suicide. Other risk factors for adolescent suicide include being male; being white or Native American; the presence of a mental health or substance abuse problem; concern about sexual identity; school problems; family disruption and parental loss; loss of a close personal relationship (i.e., boyfriend or girlfriend); and exposure to other adolescent suicides.

Trends in adolescent suicide attempts are not available, but according to data from the 1987 National Adolescent Student Health Survey, one out of seven adolescent 10th graders reported having attempted suicide (10). Females are more likely to report suicide attempts.

Mental health promotion is a term describing a broad range of efforts that seek to foster a healthy mental equilibrium and maintain emotional stability (39, 63); most mental health promotion efforts can

¹⁷⁹Comparisons of suicide rates across time should be viewed cautiously, however, because reports of suicides could be influenced by public attention or greater acceptability of recording suicide as a cause of death. Problems concerning the validity of suicide data are discussed in depth in ch. 11, 'Mental Health Problems: Prevention and Services,' in Vol. II.

Table 17-Specific Options Related to Pregnancy and Parenting (ch. 10)

Option 1: Improve adolescents' access to health and related services.

Services for pregnancy prevention:

- Support efforts to make contraception (and information about using contraception effectively—also see *Federal research options*) readily available to sexually active adolescents.
- Support the provision of comprehensive services (i.e., mental health, social, educational, vocational services) to pregnant and parenting adolescents.

Services for adolescents who are pregnant:

- Support outreach to ensure that pregnant adolescents who choose to give birth remain in school and obtain prenatal care. Support a range of intensive services for pregnant adolescents who choose to bear children (including prenatal care, housing, nutritional support, education, counseling).
- Eliminate the loophole in the Pregnancy Discrimination Act of 1978, which currently does not require that dependents other than spouses be covered for prenatal care (also see ch. 76).
- Support equal opportunity to abortion services, including a greater range of alternatives to parental notification and permission (also see ch. 17).

Services for adolescents who are parents:

- Support the availability of a range of intensive services for adolescent parents and their children, and of adequate assistance to manage adolescents' access to such services; such services include housing, food, transportation, child care, academics, and parenting education and assistance.

Health education:

- Support the provision to adolescents of information relevant to obtaining access to contraceptive and other services that could protect them against pregnancy.
- Support pregnancy prevention education for young adolescents, before they are likely to become sexually active. Support implementation (with accompanying rigorous evaluation) of broad-based, intensive programs such as life-

options training and work experience programs which are combined with participatory discussions of responsible sexuality, and the provision of contraception. Such innovative efforts would require more intensive, and perhaps different, training of family life educators.

- Support the implementation (with accompanying rigorous evaluation) of parent-child communication groups with a focus on sexuality.
- Support targeting of pregnancy prevention education efforts to black and poor adolescents.

Option 2: Support Federal data collection and research.

Data collection:

- Support routine collection of data on adolescent sexual activity and birth-related outcomes.
- Support routine collection of data on sexual activity, pregnancies, and pregnancy outcomes among racial and ethnic minority adolescents.
- Support routine collection of socioeconomic status data on adolescents who are sexually active, become pregnant, have abortions, and become parents.

Research:

- Support research on the factors that lead adolescents to engage in unprotected sexual intercourse.
- Support research on contraceptive technology, with an emphasis on technology that is appropriate for and acceptable for adolescents.
- Support efforts to determine how to incorporate adolescents' views in the design and evaluations of prevention efforts.
- Support research on why pregnant adolescents do not more frequently choose adoption as an option.
- Support research on why efforts to provide a comprehensive range of services to adolescent parents through case management and referral have found that *brokering* such services is difficult.

SOURCE: Office of Technology Assessment, 1991.

be distinguished from efforts that attempt either to prevent the occurrence of specific mental disorders or to restore the effective functioning of an individual with a major mental illness. Selected mental health promotion programs have demonstrated success in enhancing the coping skills of adolescents, their ability to function empathetically in social settings, and their academic performance, but few such programs have been implemented.

Concerns about mental health promotion and primary prevention interventions have arisen as some suicide prevention interventions have had unintended negative effects. Some observers have criticized the state of the art in prevention, asserting that primary prevention of mental disorders is not possible in most instances, because knowledge of causes and mechanisms of adolescent mental disorders is so limited (189). This criticism seems intended more to generate support for early treatment intervention for adolescents who show early signs of mental health problems than to suggest that

some primary prevention and mental health promotion efforts may not be worthwhile.

Very few data are available on adolescents' utilization of or access to mental health services, but all evidence suggests that, although access has apparently increased, it is still very limited. One factor that affects adolescents' financial access to mental health treatment is the fact that Medicaid and many private, employment-based health insurers place limitations on reimbursement for mental health services that they may not place on services for physical problems. Such limitations include limitations on the number of visits, lifetime days of hospitalization, reimbursement levels, and the need to have a diagnosable disorder. In 1986, only half of adolescents' outpatient visits in organized mental health settings were covered by commercial health insurance or Medicaid (271).

Roughly half of the States have statutes that allow adolescents who meet certain requirements (e.g., minimum age of 16) to obtain outpatient and/or



Photo credit: Sasha Bruce Youth Network, Inc. Washington, DC

A major limit to adolescents' access to mental health services is the requirement by insurers that a person have a diagnosable mental disorder to be covered for services.

inpatient mental health services without parental consent. These statutes seem to reflect legislative concerns that a parental consent requirement might discourage some adolescents from seeking treatment for mental health problems because of a reluctance to reveal such problems to their parents. The statutes vary with respect to parental notification provisions, but the inpatient statutes are more likely to require or permit parental notification than the outpatient statutes.

Some people are concerned that increases in admissions to private inpatient mental health treatment facilities are indicative of widespread misuse of commitment to control troublesome minors (326). As a concomitant of the parental consent requirement, parents have sometimes been allowed to make a 'voluntary commitment' of a minor child to a mental institution or facility regardless of the minor's desire or need for services. A few States have addressed this problem by requiring both the minor's consent and a parent's consent for such treatment.

Although increases in inpatient mental health care utilization are viewed by some as a sign of increasing accessibility of mental health treatment, such increases continue to cause concern in the absence of objective criteria for admission or rigorous evaluations demonstrating the effectiveness of such care.

Research is essential on the availability and effectiveness of standard providers and settings such as school guidance counselors, inpatient treatment and residential treatment care, and promising innovative treatments and approaches such as home-based care, crisis intervention services, therapeutic foster care, therapeutic group homes, transitional living, partial hospitalization (day treatment), and 'wraparound' services.

For the most part, Federal engagement in child and adolescent mental health initiatives has not been strong or consistent, although there are continuing changes that hold promise for improvement. These include recent amendments to the State Comprehensive Mental Health Services Plan Act, recent requirements for studies related to the care of seriously emotionally disturbed children under the provisions of Public Law 94-142, and funding for the National Plan for Research on Child and Adolescent Mental Disorders. Support for clinical training has received little attention.

Specific options related to adolescents' mental health problems are presented in table 18.

Alcohol, Tobacco, and Drug Abuse (ch. 12)

In recent years, a great deal of national attention, concern, and effort has been centered on the problem of illicit drug use in American society. National survey data from adolescents (and adults (232, 263, 266)) suggest that considerable decline in the use of illicit drugs has been achieved, at least as self-reported by high school seniors and adolescents living in households (see figure 16). In addition, available information suggests that experimentation, regular use, and possibly problem use, of substances that are legally available to adults but not to minors-i. e., alcohol and tobacco-are considerably more prevalent among adolescents than is the use of illicit drugs (see figure 8 in 'Major Findings'). This is not to deny the continuing impact of illicit drugs (and involvement in the illicit drug trade) on many adolescents, particularly those in some localities and with some other problems (e.g., school dropouts, homeless and runaway adolescents, incarcerated adolescents) (e.g., figure 12 in 'Major Findings').

What causes adolescents to use and abuse alcohol, tobacco, and illicit drugs? Experimentation? family conflict? peer influences? adult modeling? advertising? Conclusions are difficult to draw because of

Table 18—Specific Options Related to Mental Health Problems (ch. 11)

Option 1: Improve adolescents' access to health and related services..

- Have Medicaid and commercial insurers make health insurance as available for mental health problems as it is for "physical" problems.
- Support funding and treatment delivery approaches (e.g., "wraparound funding") by the Federal Government, States, localities, and other entities that respond to individual mental health treatment needs, rather than continuing to finance services tied to specific delivery sites.
- Support efforts to increase the availability of mental health services for adolescents in accessible settings (e.g., schools), including services for adolescents who do not yet have a diagnosable mental disorder.
- Support efforts to improve access to mental health treatment services for runaway and homeless, American Indian and Alaska Native, black, and poor adolescents,
- Assuming the development of strict criteria for admission and guidelines for practice, increase Medicaid reimbursement rates for psychiatric hospitalization; alternatively, mandate private psychiatric hospitals' participation in Medicaid.
- Support the implementation by schools and other settings (with accompanying rigorous evaluation) of mental health promotion interventions.
- Support the provision to adolescents of information about when to seek, and how to gain access to, mental health services.
- Increase support for the provision of adolescent-specific clinical training to a range of mental health providers.

Option 2: Support Federal data collection and research.*Data collection:*

- Support the collection of data on the availability of and utilization of a broad range of mental health services likely to be used by adolescents (e.g., in primary health care, schools, juvenile justice, social services, and child welfare).
- Research:*
- Support independent research on the appropriateness of current diagnostic criteria for adolescent mental health programs.
 - Support multisite research comparing the effectiveness of different mental health treatment settings and approaches to coordinating treatment (e.g., case management).
 - Support the development of admissions criteria for mental health treatment, beginning with treatments in the most restrictive environments.
 - Support further research on models of comprehensive services for emotionally disturbed adolescents and their families.
 - Support a research study on the capability of adolescents to decide whether or not to accept mental health treatment.
 - Encourage the Agency for Health Care Policy and Research (within DHHS) or a similar agency to develop practice guidelines for psychiatric hospitalization of adolescents.
 - Provide sufficient support for the National Institute of Mental Health (within DHHS) to implement its National Plan for Research on Child and Adolescent Mental Disorders.

^aAlso see table 22, "Specific Options Related to the Delivery of Primary and Comprehensive Health Services to Adolescents," table 23, "Specific Options Related to Problems in Adolescents' Financial Access to Services," and table 24, "Specific Options Related to Concerns About Consent and Confidentiality in Adolescent Health Care Decisions."

SOURCE: Office of Technology Assessment, 1991.

methodological problems in the available research. Much of the research has not distinguished among substances and among levels of use in any meaningful way, and almost none of the research is longitudinal (i.e., research that follows individuals across time). Some research suggests that *problem use* of drugs and alcohol is likely to follow mental health problems. Research on the short- and long-term consequences of a range of levels of drug and alcohol use is scarce.

Extensive financial and human resources are being applied to preventing drug use among adolescents, although there is little information on the effectiveness of these efforts. The strategies that have been most successful in reducing, or at least delaying, substance use include life-skills decision-making programs, peer-led programs, and, for low-income adolescents, alternatives programs.¹⁸⁰ The generally unremarkable results of primary prevention programs do not necessarily imply that the

efforts should be discontinued. Both the rigorously evaluated and not-so-rigorously evaluated programs may achieve other goals, such as improvements in social competence. However, it may be important to assess the impact of drug prevention programs in terms of these other outcomes. Otherwise, the programs may not be continued if they are found to be ineffective for drug abuse prevention or if resources are withdrawn from the war on drugs.

Concerns about the current substance abuse treatment system for adolescents include the lack of objective, standardized criteria for admission; potentially inadequate training and credentials for substance abuse treatment personnel; reliance on the addiction model; the absence of methodologically rigorous evaluations of treatment; and lack of access to early intervention.

Specific options related to alcohol, tobacco, and drug abuse problems among adolescents are presented in table 19.

¹⁸⁰*Alternatives programs* are programs that provide alternatives to life in the drug culture, such as recreation and sports programs and outward bound-type camping efforts.



Photo credit: Office of Technology Assessment

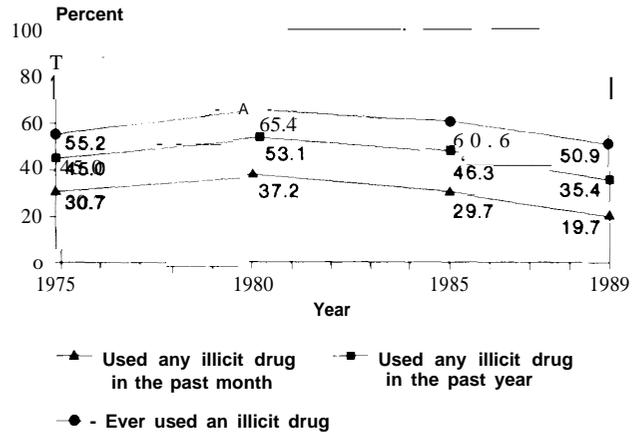
Substance abuse treatment that works well with adults may not be appropriate for adolescents.

Delinquency (ch. 13)

Existing data sources do not provide reliable and valid information on the extent of adolescent involvement in illegal behavior. Arrest data and victims' reports show a leveling off since their peak in the mid- 1970s in adolescent arrest rates for serious violent offenses and a pronounced decline for serious property offenses (see figure 17). Unfortunately, though, there are worrisome increases in arrest rates for serious some specific violent offenses among adolescents. Since 1965, adolescent arrest rates for aggravated assault have shown a rather steady increase, and arrests for murder and nonnegligent manslaughter have increased since 1984 (see figure 18).

Another troubling trend is the narrowing gender gap in arrest rates, from 11.4 (males):1 (female) in 1965 to 7.5:1 in 1987 for serious violent offenses, and 6.7: 1 to 3.6:1 over the same period for serious property offenses (303). The significance of these changes—whether they reflect an increase in serious offenses among female adolescents, manifest changing social views that permit or encourage police to

Figure 16-Trends in Illicit Drug Use by High School Seniors, 1975-89



SOURCE: U.S. Department of Health and Human Services, "1969 National High School Senior Drug Abuse Survey," *HHS News*, RPO689, Feb. 13, 1990.



Photo credit: Office of Technology Assessment

The social environment is thought to be an important influence on adolescents' alcohol, tobacco, and drug use.

Table 19-Specific Options Related to Alcohol, Tobacco, and Drug Abuse (ch. 12)

<p>Option 1: Improve adolescents' access to health and related Services..</p> <ul style="list-style-type: none"> • Support efforts to improve access to early intervention (accompanied by rigorous evaluation) for adolescents who believe themselves at risk of substance abuse. • Support early intervention for mental health problems (with rigorous evaluation to determine whether such intervention can prevent subsequent problem use of alcohol, tobacco, and illicit drugs). • Encourage the Agency for Health Care Policy and Research (within DHHS) or some similar agency to develop practice guidelines and criteria for quality assessment for substance abuse treatment and treatment facilities for adolescents. • Support expansion of Medicaid access to substance abuse treatment. <p>Health education:</p> <ul style="list-style-type: none"> • Support the provision to adolescents of information relevant to obtaining access to a range of substance abuse treatment options (from early intervention to inpatient treatment). <p>Option 2: Support Federal data collection and research.</p> <p><i>Data collection:</i></p> <ul style="list-style-type: none"> • Expand support for local and more detailed surveys of drug and alcohol use and national surveys that oversample racial and ethnic minorities and a range of adolescents in different socioeconomic groups. • Collect utilization data on the range of substance abuse treatment alternatives likely to be used by adolescents. • Support inclusion of family income data in national and local surveys of drug use (e.g., through use of proxies such as 	<p>street address); oversample low income, racial and ethnic minority adolescents.</p> <p>Research:</p> <ul style="list-style-type: none"> • Support research to develop effective substance abuse prevention and early intervention efforts for additional high-risk adolescents (i.e., adolescents who work, adolescents with disposable income, homeless and runaway adolescents). • Conduct research on the use of alternative (to self-report) measures of substance use. • Support longitudinal research to enable the tracking of precursors and short- and long-term consequences of adolescent drug use. • Support research that distinguishes between substance use, problem use, and abuse for adolescents and research that distinguishes clearly among different substances. • Support research on development and evaluation of effective treatments for adolescents with substance abuse problems. <p>Option 3: Foster changes in adolescents' environments.</p> <ul style="list-style-type: none"> • Support a range of changes in the social environment that have been associated with lower rates of problem use of alcohol, tobacco, and illicit drugs, and may have other beneficial effects on adolescent health and well-being (e.g., reductions in parental drug use, higher levels of adult supervision, less contact with drug-using peers, perceptions of socially acceptable life options).
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^aAlso see table 22, "Specific Options Related to the Delivery of Primary and Comprehensive Health Services to Adolescents," table 23, "Specific Options Related to Problems in Adolescents' Financial Access to Services," and table 24, "Specific Options Related to Concerns About Consent and Confidentiality in Adolescent Health Care Decisions."

SOURCE: Office of Technology Assessment, 1991.

arrest more female adolescent offenders, or result from some other factor—is not known,

As in the case of accidental deaths and suicides, firearms area leading factor in adolescent homicide. Despite Federal legislation that prohibits the sale of rifles and shotguns until age 18, and handguns until age 21, almost 60 percent of adolescent offenders who committed homicide in 1988 used a firearm, compared to 53 percent in 1976 (302). In addition, the proportion of homicides involving adolescent victims has increased (see figure 4 in "Major Findings").¹⁸¹

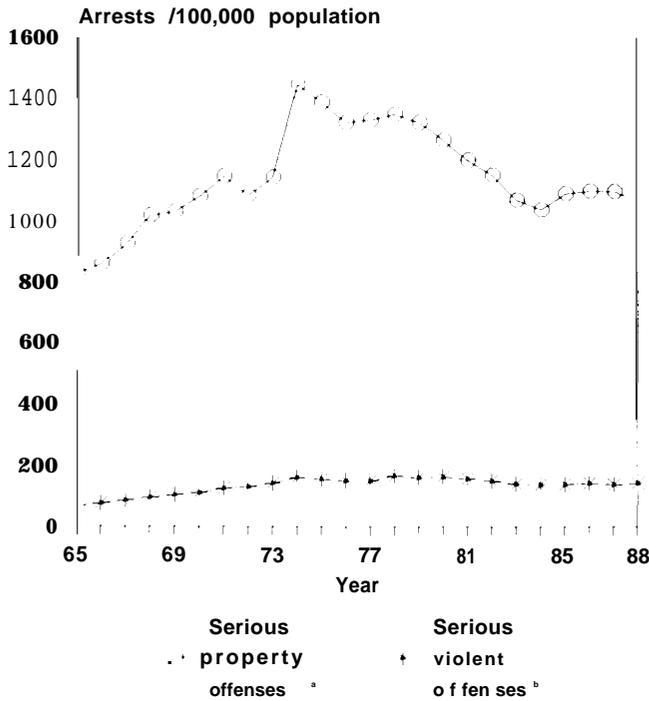
Certain demographic characteristics—being in the age group 15 to 17, being male, and having access to an urban area—are more associated with serious delinquency than others. The relationship of race to delinquency is unclear. When one examines black and white adolescents' self-reports of serious offenses (1.5:1 in 1976 (58)), racial disparities are much smaller than those typically reported based on arrest statistics, where arrest rates for black adoles-

cents far outnumber those for whites (3: 1 in 1987 (300)). Furthermore, about half of black adolescents live in poor or near-poor families, many of them in urban areas typified by high rates of crime and limited educational or employment opportunities; and adolescents of low income and adolescents who live in urban areas are more likely to commit serious delinquent acts than other adolescents.

Early (preadolescent) involvement in socially disapproved behaviors, a number of family factors (e.g., lack of parental supervision), low intelligence (particularly poor verbal ability), and associating with delinquent peers have been identified as factors increasing the risk of serious adolescent delinquency; however, these factors also characterize a large proportion of adolescents who do not go on to become serious chronic delinquents. Thus, more comprehensive models that include individual, familial, and community factors, including community economic and social factors, and that are sensitive to interactions between an individual's age

¹⁸¹Because of limitations in available data, OTA was not able to assess the ages of those who murdered adolescents.

Figure 17—Trends in Arrest Rates for Serious Property Offenses^a and Serious Violent Offenses^b by Persons Under Age 18, 1965-1988



^aSerious property offenses are specified offenses against property (i.e., burglary, larceny-theft, motor vehicle theft, and arson).
^bSerious violent offenses are specified violent offenses against a Person (i.e., murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault).

SOURCE: Office of Technology Assessment, 1991, based on U.S. Department of Justice, Federal Bureau of Investigation, *Age-Specific Arrest Rates and Race-Specific Arrest Rates for Selected Offenses 1965-1988* (Washington, DC: April 1990).

and his or her risk, are needed to explain and predict delinquency.

Despite incomplete knowledge about the causation of adolescent delinquency, some programs designed to prevent delinquency, while not widely duplicated or tested, have shown promising results in relatively rigorous studies. Overall, successful approaches to prevention can be characterized as those that have the following characteristics:

- they are appropriately supportive of children and adolescents and their families;
- they are intensive (i.e., they involve the commitment of considerable time, personnel, and effort); and
- they are broad-based (i.e., they intervene in a number of the systems (including family, school, and peer) in which the child or adoles-

cent is involved, and use multiple services (e.g., educational, health, and social) as appropriate for the individual child or adolescent).

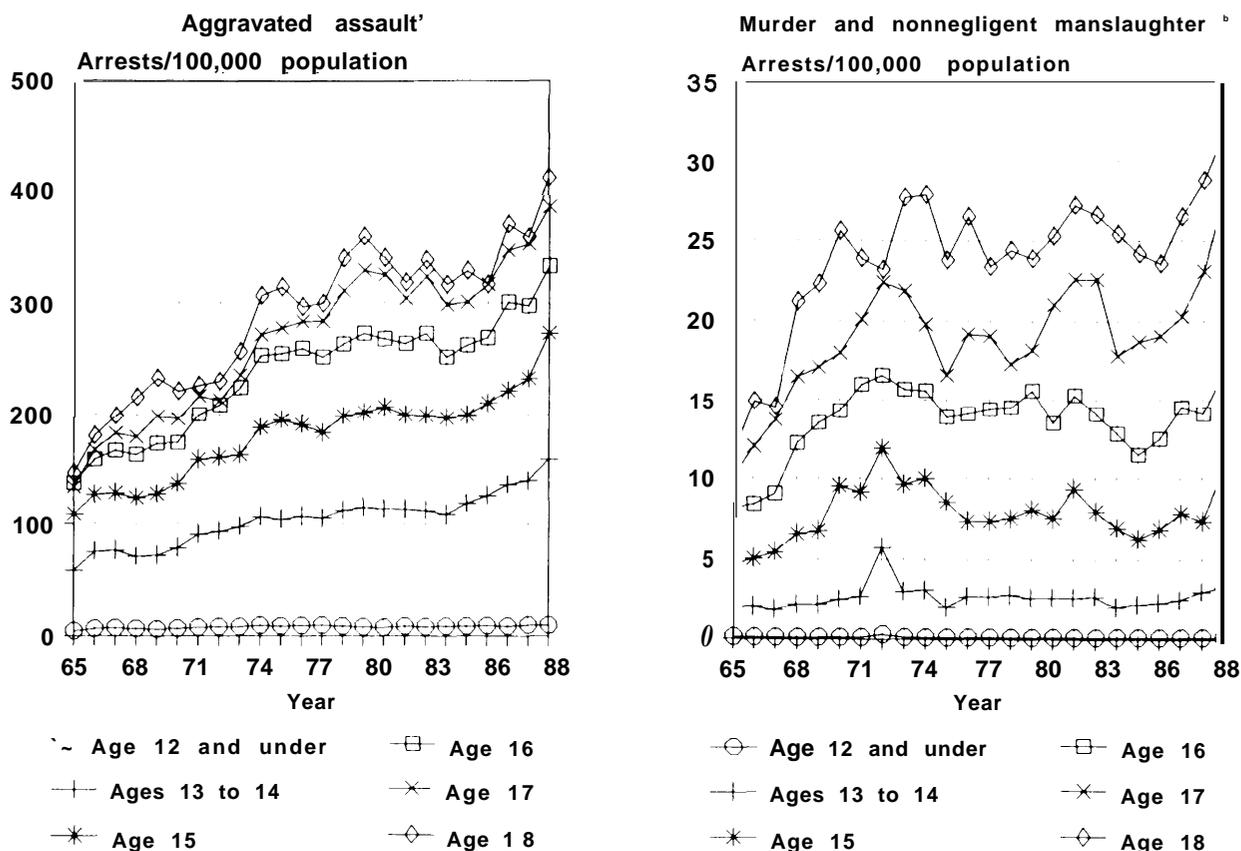
The most promising *primary* prevention efforts appear to be conducted early in life for high-risk children, such as the Perry Pre-School program and a broad-based prevention intervention that included parent-skill training. Promising *secondary* prevention approaches, conducted during adolescence after antisocial behavior has become apparent, include the intensive psychotherapeutic and education/job placement intervention evaluated by Shore and his colleagues and the integration of identified antisocial adolescents into activities with nondisturbed peers. These models deserve additional implementation accompanied by rigorous evaluation.

Also in need of attention as preventive factors are limits on access to firearms and educational interventions intended to help adolescents avoid becoming victims. The role of firearms in delinquency has not been well researched, but it is clear that the use of guns can exacerbate the outcome of violent delinquent and adult criminal acts.

There are conflicts inherent in the multiple goals of the juvenile justice system: rehabilitation, punishment, deterrence, and public safety. In recent years, society has apparently taken a more punitive approach to dealing with adolescents who commit delinquent acts; however, increases in juveniles held in public facilities have occurred only for nonwhites. Nearly 40 percent of adolescents in State-operated juvenile detention facilities are black; 15 percent are Hispanic (see figure 19). Between 1985 and 1987, the number of black and Hispanic juveniles increased 15 percent and 20 percent, respectively.

Almost nothing is known about the effectiveness of the current juvenile justice system as it normally operates in reducing subsequent delinquency among adolescents. It is clear that health care for adolescents in juvenile confinement is a serious cause for concern, in part because incarcerated adolescents have a greater than average number of health problems and in part because health problems often increase during confinement. One oft-cited impediment to improving access to health services is the Federal regulation that prohibits Medicaid payment for health services provided within correctional facilities. In addition, only 32 of the more than 3,000 eligible facilities have been accredited as meeting

Figure 18-Trends in Arrest Rates for Aggravated Assault^a and Murder and Nonnegligent Manslaughter^b by Persons Age 18 and Under, 1965-88



^aAggravated assault is an unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault usually is accompanied by the use of a weapon or by means likely to produce death or great bodily harm.
^bMurder and nonnegligent manslaughter refer to the willful (nonnegligent) killing of one human being by another. Note that the scale is different from that for aggravated assault, in order to show the recent increases.
 SOURCE: Office of Technology Assessment, 1991, based on U.S. Department of Justice, Federal Bureau of Investigation, *Age-Specific Arrest Rates and Race-Specific Arrest Rates for Selected Offenses 1965-1988* (Washington, DC: April 1990).

existing voluntary standards for providing health care.¹⁸²

Executive branch support for the lead Federal agency in juvenile justice and delinquency prevention, the Office of Juvenile Justice and Delinquency Prevention in the U.S. Department of Justice, has declined, and the agency currently provides little support for prevention of delinquency. Some have suggested that Federal efforts concerning delinquency be returned to the U.S. Department of Health and Human Services. At the least, an in-depth

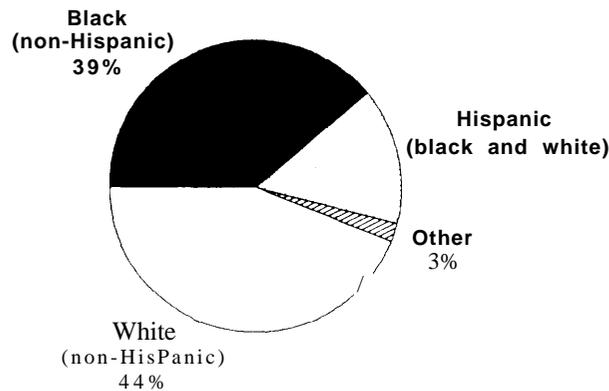
analysis of Office of Juvenile Justice and Delinquency Prevention activities seems warranted.

Adolescents and young adults (ages 11 to 24) are the age group most likely to be the victims of theft, rape, robbery and assault (see figure 9, in 'Major Findings'). These data suggest the need for educating adolescents about how to avoid becoming victims, including becoming victims of actions by other adolescents.

Specific options related to delinquency problems among adolescents are presented in table 20.

¹⁸²It is not known how many of the nonaccredited facilities either applied for accreditation and were turned down, or did not apply for accreditation. In any event, standards remain strictly voluntary.

Figure 19--Distribution of Juveniles in Custody in Public Juvenile Facilities by Racial and Ethnic Group, 1987a^b



^aBased on single-day census count (see ch. 13, "Delinquency: prevention and Services," in Vol. II, for explanation), The total population in public juvenile facilities on census day in 1987 was 53,503.

^bPublic Juvenile facilities include institutional facilities and open facilities. They also include short-term facilities and long-term facilities. According to the Office of Juvenile Justice and Delinquency Prevention, the vast majority (91 percent) of admissions to public juvenile facilities in 1987 were to institutional rather than open facilities; 67 percent of admissions to public juvenile facilities were to long-term facilities and 33 percent were to short-term facilities.

SOURCE: Office of Technology Assessment, 1991, based on U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention, "Children in Custody: Public Juvenile Facilities, 1987," *Juvenile Justice Bulletin*, October 1988.

Hopelessness (ch. 14)

Hopelessness is one of the riskiest situations for adolescents. In addition to behaviors and conditions associated with hopelessness **that may** present a risk to future health (e.g., engaging in survival sex¹⁸³), available evidence suggests that adolescents who are homeless with their families or on their own (i.e., runaways and "throwaways"¹⁸⁴) are likely to already suffer disproportionately from health problems. Efforts **to address the** needs of substance-abusing parents, prevent child abuse, provide counseling for families about gay sexual orientations, and provide supportive interventions for adolescents in foster families and institutions may be appropriate

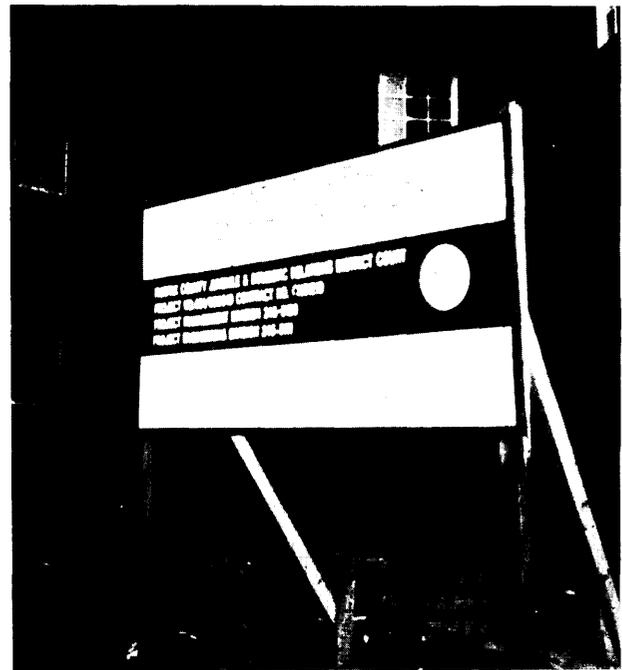


Photo credit: Office of Technology Assessment

The health care of adolescents in juvenile confinement is a serious cause for concern, because adolescents in confinement have a greater than average number of health problems, because their health problems may increase during confinement and because only 1 percent of eligible juvenile justice facilities have been accredited as meeting existing voluntary standards for providing health care.

strategies for preventing adolescents from running away from home. Different approaches are needed to prevent hopelessness among families with adolescents.¹⁸⁵

For those adolescents who are already homeless, providing shelter is a necessary, but not sufficient, intervention. Until recently, Federal programs to serve the needs of homeless adolescents on their own have been limited primarily to temporary (2-week) shelter. Funds for the transitional living programs authorized by Public Law 100-690 were not appropriated until fiscal year 1990, and pro-

¹⁸³'Survival sex' is engaging in sexual intercourse in exchange for food, shelter, money, or drugs.

¹⁸⁴'Throwaways' are adolescents who have been asked or told to leave home by parents or guardians. Runaways may also leave because they perceive that they are not wanted, in many cases apparently because they have been abused.

¹⁸⁵The Stewart B. McKinney Homeless Assistance Act Amendments of 1990 (Public Law 101-645) provided for grants for demonstration programs intended to prevent hopelessness among families with children (Subtitle F, Family Support Centers); \$50 million for fiscal year 1991 and \$55 million for fiscal year 1992 was authorized for a total of 30 competitive grants.

**Table 20-Specific Options Related to Delinquency
(ch. 13)**

Option 1: Improve adolescents' access to health and related services.

- Change Federal regulations so that adolescents in correctional facilities are eligible for Medicaid.
- Support the development of Federal quality standards for health care in juvenile justice facilities and mandate that all juvenile justice facilities meet the standards.

Option 2: Support Federal data collection and research.

Data collection:

- Support the regular collection of self-report data on a range of adolescent offenses for a range of ages.
- Support the collection of standardized data on adolescent offenders' social adjustment (e.g., recidivism) following their release from juvenile facilities.

Research:

- Support research on appropriate evaluation methods for delinquency prevention.
- Support evaluation research in delinquency prevention and treatment.
- Support research on ways to prevent the commission of violence by adolescents and the victimization of adolescents.
- Support research on effective rehabilitative treatment approaches to juvenile offenders in the community rather than institutions.
- Support an objective examination of the placement, mission, and accomplishments of the Office of Juvenile Justice and Delinquency Prevention (currently in the U.S. Department of Justice).

Option 3: Foster changes in adolescents' environments.

- Support early intervention programs that provide comprehensive care to families.

SOURCE: Office of Technology Assessment, 1991.

grams were not initiated until October 1990.¹⁸⁶ Important service needs include access to education and employment training, AIDS/HIV infection prevention and education, mental health counseling, training in independent living, and other health services.

Specific options related to hopelessness among adolescents are presented in table 21.



Photo credit: Sasha Bruce Youth Network, Inc., Washington, DC

Homeless adolescents have needs for interventions that go beyond their need for shelter.

Major Issues Pertaining to the Delivery of Primary and Comprehensive Health Services to Adolescents (ch. 15)

Adolescents are relatively unlikely to use the services of private office-based primary care physicians, having the lowest rate of use of any age group (see figure 20). About one-quarter of adolescents' visits to private office-based physicians are to pediatricians, two-fifths are to general and family practice physicians (35 percent) or internists¹⁸⁷ (5 percent), and the rest are to specialists (287) (see figure 21).

Given that adolescents clearly have health problems that would benefit from care, a number of nonfinancial and nonlegal reasons¹⁸⁸ why adolescents might exhibit relatively low utilization of the services of primary care physicians and, to some

¹⁸⁶*Transitional living programs* are structured programs that provide shelter while helping young people develop the skills they need to live on their own. For fiscal year 1990, \$9.867 million was appropriated and \$9.939 million for fiscal year 1991 in the form of grants (156). Grantees are required to submit annual reports to DHHS on their activities and achievements and statistical summaries describing the number and characteristics of the homeless youth served by the transitional living programs (42 U.S.C. 5714-2). An evaluation is scheduled to begin in late 1991. Programs are limited to adolescents and young adults between ages 16 and 21. The Young Americans Act, described above, also allows for (but does not require) grants to be made for transitional living services to young individuals who are homeless, with no age restriction specified (Public Law 101-501, Title IX; 42 U.S.C. 12338).

¹⁸⁷*Internists* are physicians practicing in general internal medicine. Internal medicine in the United States differs from family practice mainly in not providing extensive training for pediatric and obstetric care and in providing more experience with severe and complex illness (324). Internal medicine differs from the subspecialties that have developed out of internal medicine (e.g., cardiology, oncology, hematology) by offering primary care, including first contact care and referrals to subspecialists when warranted (196, 324).

¹⁸⁸Financial issues and access are discussed in ch. 16, "Financial Access to Health Services," in Vol. III. In addition, the reasons for the relative lack of physician interest in adolescent health care may be related to the relatively low level of financial remuneration associated with the intensive level of cognitive services that are needed by adolescents (see "Barriers and Opportunities to Change," below).

Table 21-Specific Options Related to Hopelessness (ch. 14)

Option 1: Improve adolescents' access to health and related services.

- Increase support for contraceptive, prenatal care, STD, mental health, and substance abuse treatment, and legal services intended to help adolescents who are homeless alone or with their families.
- Continue to support, with appropriate evaluation, supervised transitional living for homeless adolescents, with access to a range of supportive services (health, education, employment, training).
- Support outreach efforts to help homeless and runaway adolescents gain access to comprehensive health services.

Option 2: Support Federal data collection and research.

Data collection:

- Support systematic collection of data on the physical health, mental health, and other needs of homeless and runaway adolescents.

Research:

- Support rigorous research on what causes adolescents, including white, middle-class, and gay adolescents, to run away from their families.

Option 3: Foster changes in adolescents' environments.

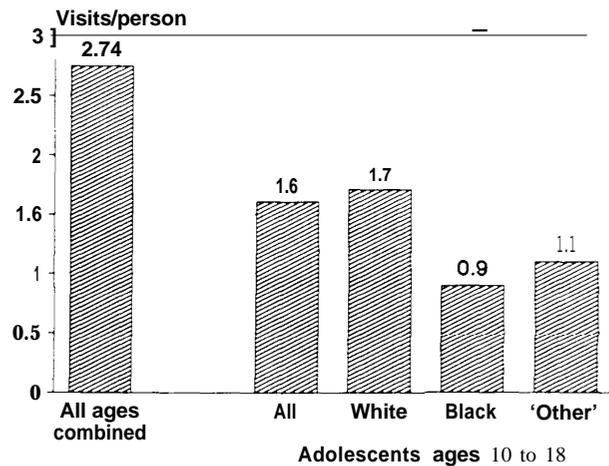
- Increase mental health support for families (e.g., family counseling).
- Expand housing and income support for homeless families with adolescents and for families with adolescents who are at high risk of hopelessness.

SOURCE: Office of Technology Assessment, 1991,

extent, other health care providers, '89 have been examined. They include: the lack of availability and willingness of physicians to treat adolescents; inconsistencies between adolescents' perceived needs and the care provided by physicians; adolescents' concerns about confidentiality; and physicians' and other health care providers' lack of competence to identify and treat the health problems of adolescence.

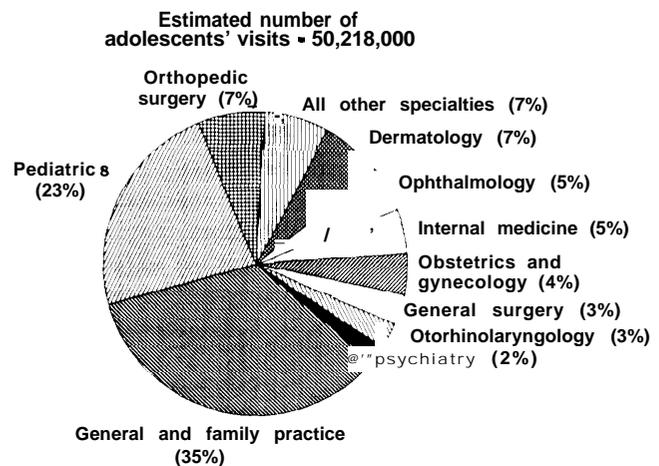
Generally, however, there is little empirical research on the extent to which physicians and other health care providers meet the needs of adolescents. In some instances, the needs or desires of adolescents (e.g., for confidentiality of care, for certain issues to be discussed during a health care visit) may conflict with the requirements of laws pertaining to the allocation of authority in health care decision-making,¹⁸⁹ with the needs of health care providers to be paid, with the advisability of family (parental) involvement in the health care experience, and with overall societal perceptions of which health care

Figure 20-Visits to Private Office-Based Physicians by U.S. Citizens, All Ages Combined and U.S. Adolescents Ages 10 to 18, 1985



SOURCE: Office of Technology Assessment, 1991, based on U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Health Statistics, unpublished data from the 1985 National Ambulatory Medical Care Survey, Hyattsville, MD, 1989.

Figure 21—Distribution of Visits to Private Office-Based Physicians by U.S. Adolescents Ages 10 to 18, by Physician Specialty, 1985a



^aPercentages may not add to 100 because of rounding.

SOURCE: Office of Technology Assessment, 1991, based on U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Health Statistics, unpublished data from the 1985 National Ambulatory Medical Care Survey, Hyattsville, MD, 1989.

¹⁸⁹Most of the available research on adolescents' utilization patterns and experiences with health care providers has focused on physicians as providers. Further, most of the research on physicians has focused on pediatricians as providers of adolescent health care.

¹⁹⁰See ch. 17, "Consent and Confidentiality in Adolescent Health Care Decisionmaking," in Vol. III.



Photo credit: Joe Sanders/American Academy of Pediatrics

Adolescents' needs or desires for confidentiality of care may conflict with laws pertaining to the allocation of authority for health care decisionmaking.

problems are important. Nevertheless, available evidence clearly suggests that the needs of adolescents—both those defined by adolescents and, to some extent, defined by society—are not being met by the contemporary mainstream primary health care system.

The number of health care providers with both interest and special skills in providing health care to adolescents is not known, but available data suggest that the number is quite small (perhaps 5,500).¹⁹¹ With the exception of the small group of specialists in adolescent medicine, there is no group of health care providers who are available, clearly defined as appropriate, and clearly willing to provide care to adolescents. For example, despite the potentially increased importance of “anticipatory guidance” during the adolescent years, pediatricians have been found to spend an average of approximately 1 minute more with adolescents than they do with other noninfant patients (90); one study suggests that an average of 7 seconds a visit is spent on anticipatory guidance (176). More rigorous (e.g., direct observational) studies and surveys of adolescents themselves finding that little time is spent discussing the “new morbidities” issues that are believed to be amenable to preventive educational interventions or the health concerns of importance to adolescents themselves (126,176).

Findings concerning physicians' attitudes and behavior with respect to confidentiality of care for adolescents are both limited and variable, with 75 percent of members of The Society for Adolescent Medicine and a random sample of pediatricians expressing support for confidentiality for adolescent patients (124), but a survey using a specific example (a pregnant 15-year-old's desire that her mother not be told of the pregnancy) finding that the majority of physicians would not abide by the patient's request for confidentiality (161).

The very small body of empirical work, much of it methodologically limited, that has explored the issue of health care provider competence in diagnosing and treating adolescents' specific problems, suggests the following:

- primary care physicians appear to have difficulty in identifying children and adolescents who have behavioral and emotional problems;
- physicians as a group are currently not able to identify substance abuse problems very effectively;
- primary care physicians appear able to identify acne in adolescent patients, but their ability to treat acne has not been tested;
- hospital services do not appear to adequately document health problems in adolescent patients; and
- physicians, nurses, social workers, psychologists, and nutritionists all consider themselves relatively untrained in important areas of adolescent health (e.g., sexuality, handicaps, endocrine problems, contraception, psychosocial concerns).¹⁹²

Almost no work has been conducted on the important issue of providers' abilities to interact with adolescents, regardless of the specific problems that an adolescent may have. However, the studies that have been conducted suggest that important characteristics include friendliness, understanding, and willingness to take one's time (11,122). One study suggests that advanced training in adolescent health care improves adolescent patient satisfaction (122).

¹⁹¹OTA was able to estimate that there are perhaps 2,000 nonpsychiatrist physician specialists in adolescent medicine; 1,500 psychologists who have reported adolescents to be their primary professional interest; 1,500 members of the American Society for Adolescent Psychiatry; and 370 members of the North American Society for Pediatric and Adolescent Gynecology. In addition, health care providers that may be likely to treat adolescents and receive some special training include family physicians, pediatric nurse-practitioners, nurse midwives, school nurses, health educators, and social workers. However, none of these groups ascertain the extent of specialized professional interest in adolescents as opposed to other age groups.

¹⁹²Issues related to the role of emergency personnel who come in contact with adolescents (e.g., those who have been in accidents, been assaulted, or attempted suicide) are discussed in ch. 5, “Accidental Injuries: Prevention and Services,” in Vol. II.

Perhaps more disturbing than findings that many health care providers are apparently not able to treat adolescents, several studies have found that health care providers have expressed relatively little interest in additional training. Further, except for those who explicitly specialize in adolescent health care, existing training requirements with respect to adolescents, while improving, are minimal.¹⁹³ Thus, those adolescents who seek health care are likely to see providers who have not been specially trained to work with them. There is minimal Federal support for clinical training in adolescent health and almost no systematic information on the desirable features of training in adolescent health care.

Given the apparent failure of both the primary health care system and the specialty health care systems to meet the health care needs of adolescents, several innovations in health care delivery have been attempted. These include the provision of comprehensive health (and, sometimes, related) services by an interdisciplinary team of health care providers at a single site (e.g., hospital-based adolescent health care clinics, community-based adolescent health care clinics, a teen center at an HMO, 'free clinics,' multiservice centers, and, most extensively, school-linked health centers), attempts to integrate services, and efforts to involve adolescents in health services planning and management.

Systematic evidence of the effectiveness of comprehensive programs in terms of improving health *outcomes* is scarce. The only study to date that compared special hospital-based adolescent health clinics to hospital-based clinics without a special adolescent focus found no outcome differences after a year (54). However, the specially funded clinics were more successful in getting adolescents to disclose behavioral and lifestyle problems to their clinical providers, and consequently to obtain care for such problems (54). Reductions in school absenteeism, alcohol consumption, smoking, sexual activity, and pregnancy have been found in some schools with on-site school-linked health centers, though not consistently (105,339). In general, assessments of

the effectiveness of specialized comprehensive adolescent health care services (whether school-linked, hospital-based, health maintenance organization-based, or freestanding) have been few and methodologically limited. In addition, given the socially embedded nature of many adolescent health problems, the capacity of any clinical program *in and of* itself to completely alleviate the problems of adolescents may be limited.

What has often been found is that many of the adolescents who use the services of school-linked health centers are adolescents who have no other source of health care,¹⁹⁴ and that adolescents use school-linked health centers for typical urgent care for illness and injuries and for services otherwise unavailable without high levels of income, generous insurance policies, or breaches of confidentiality (e.g., mental health counseling, reproductive health care¹⁹⁵). Further, one of the few systematic studies of school-linked health centers suggests that efforts to meet the more intangible needs of adolescents have been successful: the primary reasons cited by students for using the school-linked health center in their school were that users felt they could trust it because it was part of the school; the school-linked health center was easy to get to; and the staff was caring (105). The number of repeat visits to school-linked health centers is also cited as suggestive that school-linked health centers are responsive to the needs of adolescents as they perceive them (180).

When it comes to adolescents, then, school-linked health centers and, perhaps to a lesser extent, community- and health-care-organization-based adolescent health care centers, appear to respond to many of the shortcomings of the traditional health care system: Such centers attempt to provide comprehensive services that address the range of problems that many adolescents face (e.g., care for acute physical illnesses; general medical examinations in preparation for involvement in athletics; mental health counseling; laboratory tests; reproductive health care; family counseling; prescriptions; educational services; vocational training; legal assistance; recreational opportunities; advocacy; coordination

¹⁹³ For example, a structured experience in adolescent health became a required aspect of training for future pediatricians in January 1990, although no patient age range nor duration of training was specified. Neither family practice nor internal medicine include specific curricula regarding adolescents.

¹⁹⁴ This finding is confounded somewhat by the fact that most school-linked health centers have been purposefully situated in communities deemed to be medically underserved.

¹⁹⁵ Apparently because they wish to avoid delays in implementing the broader range of services that are needed, most school-linked health centers do not provide contraceptive methods on site.

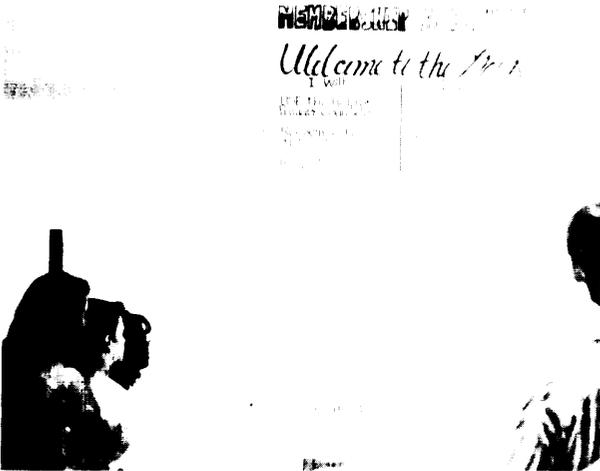


Photo credit: Katherine Criss, New York, NY

Comprehensive health centers for adolescents attempt to provide services that address the range of problems many adolescents face. Such services include care for acute physical illnesses, general medical exams, reproductive health care, mental health counseling, family counseling, vocational training, recreational opportunity, and child care services.

of care (e.g., with school personnel); advocacy%). Settings are often designed with adolescents in mind, to the extent possible. Adolescents are often involved in the design and management of the programs. In the case of school-linked health centers, the services are physically accessible, because they are located in or near where most adolescents spend much of their waking day.

However, there are certain ways in which school-linked health centers and other specialized adolescent health care programs reflect some of the limitations of the mainstream primary health care system and can be strengthened.

For a variety of reasons, a reorganization of adolescent health services to meet desirable criteria for adolescent health services has not been realized. The reasons are both formidable and interrelated. They include community resistance to the provision of contraceptive services and abortion counseling to adolescents; resistance of organized medicine; resistance by schools to adding yet another responsibility to the educational infrastructure; lack of a core of adequately trained professionals to staff comprehensive programs; State Medicaid administrative barriers; lack of conclusive and convincing data on the

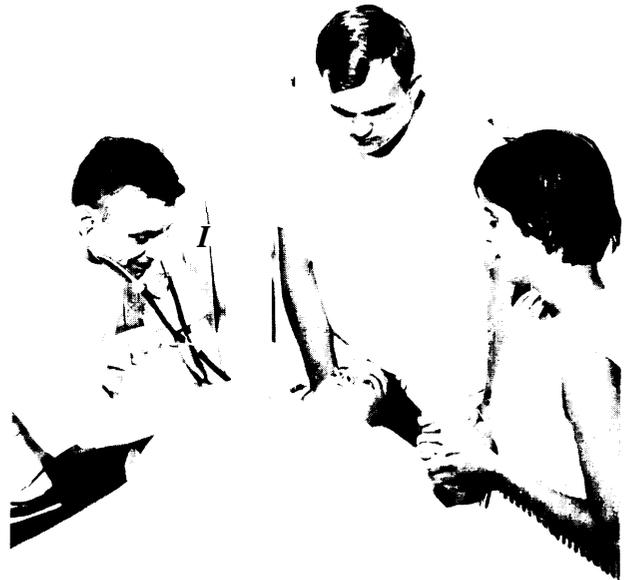


Photo credit: Bethesda-Chevy Chase Rescue Squad

Congress could support research aimed at evaluating, and if necessary could support improvements in, training of health care providers who work with adolescents.

effectiveness of such programs in reducing a number of highly socially visible adolescent health problems; and, finally, lack of financing.

Major options related to the delivery of primary and comprehensive health services were discussed earlier in this chapter. Additional options are presented in table 22.

Problems in Adolescents' Financial Access to Health Services (ch. 16)

One out of seven adolescents, 4.6 million overall, are without a key ingredient to access to health care: health insurance coverage. This includes one out of three poor adolescents who are not covered by the Medicaid program. Adolescents in Southern states are the most likely to be uninsured.

There is increasingly worrisome evidence that escalating health insurance costs are threatening coverage of adolescents and other dependents of the working insured. Faced with rising costs of health insurance, some families are choosing not to cover their dependents. Some employers plan to cut benefits for dependents, in particular mental health and substance abuse treatment benefits.

1% Not all services are available at all centers.

Table 22—Specific Options Related to the Delivery of Primary and Comprehensive Health Services to Adolescents (ch. 15)

Option 1: Improve adolescents' access to health and related services.*

Option 2: Support Federal data collection and research.

Data collection:

- Support the collection of data on the Federal (within the Bureau of Maternal and Child Health, Health Resources and Services Administration, Public Health Service, U.S. Department of Health and Human Services) interdisciplinary training program in adolescent health care.

Research:

- Support research aimed at improving adolescent-provider interactions, including research on diverging perceptions of adolescent health care needs.
- Support research aimed at evaluating and, if necessary, improving the content of training for adolescent health care providers across a broad range of disciplines (medicine, psychology, social work, health education, nursing).
- Support research aimed at improving referrals among systems of care.
- Support research on a range of alternative delivery mechanisms for adolescent health and related services.
- Support research on the question of what "comprehensive" and integrated means (and should mean) in the delivery of health and related services for adolescents.

*See Major Option 1 related to improving adolescents' access to health and related services that was presented in table 5.

SOURCE: Office of Technology Assessment, 1991.

Even those adolescents with health insurance coverage may not be eligible to receive the services they most need. Most private health insurance plans do not cover many of the important needs of adolescents, including basic dental, hearing, vision, and maternity-related benefits. Mental health and substance abuse treatment benefits are universally subject to separate and more stringent limitations than for "physical" problems. Preventive services are generally not covered for adolescents unless they belong to a health maintenance organization.¹⁹⁷ Little is known about the extent to which private health insurance reimburses the nonphysician health care professionals who could be critical to the development of additional low-cost community adolescent health care resources. Physician participation in Medicaid is particularly low among two specialties of special importance to adolescents: gynecologists and psychiatrists.

OTA finds that a combination of two proposals for increasing coverage (an expansion in Medicaid to



Photo credit: March of Dimes Birth Defects Foundation

Congress could amend the Pregnancy Discrimination Act of 1978 (Public Law 95-555) to close the loophole that allows employers not to cover prenatal and maternity care for adolescent daughters of employees covered by their health benefit plans.

cover all poor adolescents, and a requirement that employers provide health benefits to all workers (and their families) working at least 30 hours weekly) would insure approximately 78 percent of uninsured adolescents. Even if appropriate benefits are available, however, adolescents who are concerned about confidentiality may be reluctant to seek care from providers if their private health plan requires parents to submit a claim for reimbursement (as most do), or present a parent's Medicaid card to obtain services. And providing "basic" coverage does not ensure that all adolescent health care needs would be met.

Several strategies related to improving adolescents' financial access to health services were presented in conjunction with Major Option 1 (see table 5). Additional options are presented in table 23.

Consent and Confidentiality Issues (ch. 17)

Parental consent and notification requirements pose a significant barrier to some adolescents' access to certain health services. Under common

¹⁹⁷It is important to note that a previous report by OTA found no evidence that well-child care visits beyond those necessary for immunizations were cost-effective (225.) OTA 1988 report emphasized well-child care prior to adolescence. The current Report did not conduct a cost-effectiveness or effectiveness analysis of the literature on well-child care visits for adolescents. However, other attempts to do so have found no evidence that any particular periodicity schedule is warranted by existing evidence on effectiveness (see especially, 319).

law, a minor cannot receive health services without parental consent. State courts and legislatures, as well as the U.S. Supreme Court,¹⁹⁸ have carved out various types of exceptions to the parental consent requirement (e.g., for emancipated minors, for emergency health services, for services related to the treatment of STDs, and for family planning and abortion services),¹⁹⁹ but the exceptions vary widely from State to State and frequently vary for different types of services within a State. In carving out exceptions to the parental consent requirement, State courts and legislatures have sometimes—though not always—replaced the parental consent requirement with a parental notification requirement. Courts and legislatures seem to regard parental notification requirements as less burdensome for adolescents than parental consent requirements, but it is not clear that adolescents who are in conflict with their parents make this distinction.

In the case of family planning and abortion services, studies have found that parental consent and notification requirements pose a significant barrier to adolescents' access to and utilization of services. Quite probably, such requirements also pose similar barriers to adolescents' access to other types of services (e.g., mental health treatment, drug abuse treatment, alcohol abuse treatment).

Parental consent and notification requirements appear to be based on various rationales. One is that such requirements foster the stability and cohesiveness of the family, something in which the state has a legitimate interest, by bolstering family autonomy and parental authority. Another is that minors as a class are incompetent to give informed consent to health care or to enter into contracts with physicians. Little empirical research has been done on the competence of minors to give informed consent to health care. The research that has been done suggests, but not conclusively, that adolescents ages 14 and older may have the capacity for informed consent. This empirical research is consistent with findings on cognitive development during adolescence.²⁰⁰ More research on adolescent participation in health care decisionmaking would be useful in

Table 23-Specific Options Related to Problems in Adolescents' Financial Access to Health Services (ch. 16)^a

Option 1: Improve adolescents' financial access to health and related services.

- In considering any potential Medicaid physician payment reform that results from the Physician Payment Review Commission's OBRA-89-mandated effort to examine the adequacy of physician payment, physician participation, and access to care by Medicaid beneficiaries, give high priority to providers involved in direct service to adolescents.
- Amend the Pregnancy Discrimination Act of 1978 (Public Law 95-555) to close the loophole that allows employers not to cover prenatal and perinatal (maternity) care for adolescent daughters of employees in their health benefit plans.
- Support private and public insurance coverage of nurse practitioners and clinical nurse midwives and other nonphysician providers to boost the availability of personnel to treat adolescents and promote the financial viability of school-linked health centers and other adolescent health centers designed to provide services to adolescents.^b
- Encourage the U.S. executive branch, a congressional agency, or an independent nongovernmental entity to fund a study to determine the elements of a model health insurance benefit for adolescents.

^aAlso see Major Option 1 related to improving adolescents' access to health and related services that was presented in table 5.

^bThese personnel may need adolescent-specific training. See table 22, "Specific Options Related to the Delivery of Primary and Comprehensive Health Services to Adolescents."

SOURCE: Office of Technology Assessment, 1991.

helping to inform considerations of what, if any, changes would be appropriate in current State and other laws and regulations governing consent and confidentiality.

Given the array of laws pertaining to consent and confidentiality that currently exist, adolescents—and perhaps even providers—are understandably confused about how these laws pertain to them as individuals. If it chose to, Congress could intervene to reduce these uncertainties by moving Federal and State laws in the direction of greater uniformity. Another way of reducing adolescents' uncertainties might be to encourage States, localities, and schools to integrate information about the legal aspects of access to health services in health education courses for adolescents.

Several strategies related to improving adolescents' legal access to health services were discussed

¹⁹⁸Laws related to the allocation of authority for decisions about the provision of health services to minors have historically been the province of State legislatures, State courts, and State administrative agencies, but the U.S. Supreme Court decides whether State laws comport with the U.S. Constitution.

¹⁹⁹The exceptions tend to fall into four categories: 1) exceptions for abused and neglected minors; 2) exceptions for emancipated, independent, or mature minors; 3) exceptions for health emergencies; and 4) exceptions for specific health problems and services (e.g., services related to sexual activities, to drug and alcohol abuse treatment, and to mental health treatment).

²⁰⁰See ch. 2, "What Is Adolescent Health?" in Vol. II.

Table 24--Specific Options Related to Concerns About Consent and Confidentiality in Adolescent Health Care Decisions (ch. 17)

Option 1: Improve adolescents' legal access to health and related services.^a

Option 2: Support Federal data collection and research related to the allocation of authority for adolescent health care decisions.

- Support further research on adolescents' capacities to make various types of health care decisions, taking into account factors such as age, prior experience, situational factors, and intelligence.
- Support further research to determine the extent to which, and under what circumstances, parental consent and notification requirements create barriers to adolescents' access to services other than family planning and abortion services (e.g., treatment for sexually transmitted diseases, outpatient mental health services, substance abuse treatment).
- Support research to determine the extent to which parental prerogatives to hospitalize their children for mental health or substance abuse problems causes harm to the adolescents.

^aSee Major Option 1 related to improving adolescents' access to services that was presented in table 5.

SOURCE: Office of Technology Assessment, 1991,

in conjunction with Major Option 1 (see table 5). Additional options are presented in table 24.

Issues in the Delivery of Services to Special Groups of Adolescents (ch. 18)

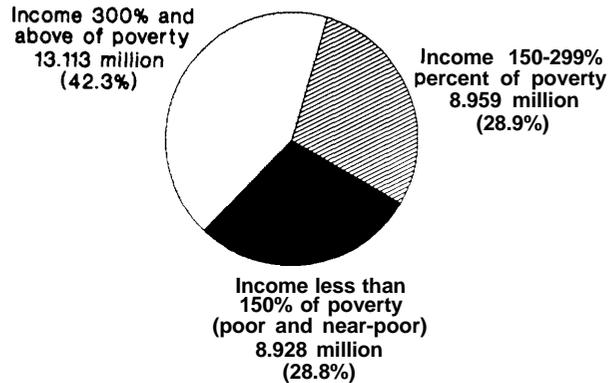
Certain groups of adolescents—adolescents living in poverty, racial and ethnic minority adolescents, and adolescents living in rural areas—experience health problems at disproportionate rates and face barriers to health care because of lack of financial resources, limited local availability of resources, or other factors.

Poor Adolescents

In 1987, nearly one-third of U.S. adolescents lived in families with incomes that did not exceed 150 percent of the Federal poverty level (see figure 22). One of the primary determinants of whether an adolescent was living in poverty was living arrangement. Adolescents who were living with both parents or with their father were far less likely to be living in poor families than were adolescents living with their mother only or adolescents living on their own (see figure 23).

The effects of growing up poor are complex and not well understood (152). It is well known, however, that children growing up in poverty confront more risk factors and benefit from fewer protective and supportive factors than their more advantaged peers. Among the risk factors that many (though not

Figure 22--Socioeconomic Status of U.S. Adolescents Ages 10 to 18, by Family Income as a Percent of the Federal Poverty Level, 1987^a



^aFamily income is expressed in relation to the Federal poverty level. In 1987, the Federal poverty level was \$9,058 for a family of three.

SOURCE: Office of Technology Assessment 1991, based on R. Kronick, Adjunct Professor, University of California, San Diego, CA, calculations based on U.S. Department of Commerce, Bureau of the Census, March 1988 Current Population Survey public use files. 1989.



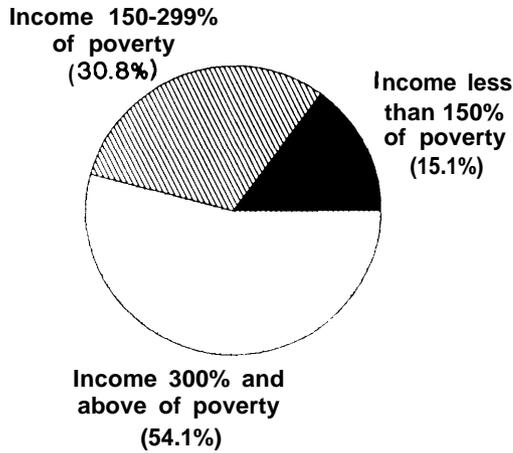
Photo credit: Office of Technology Assessment

Dilapidated housing is among the stressful factors that many poor adolescents confront.

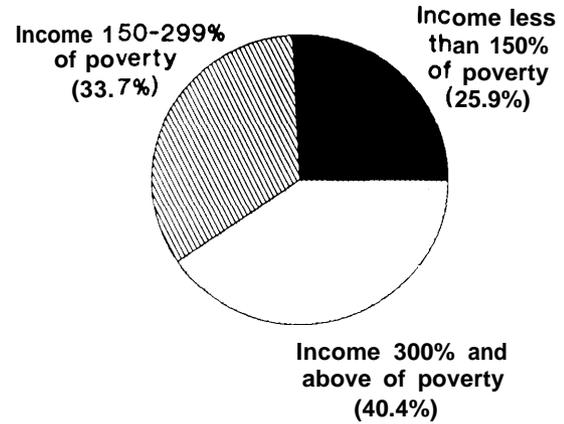
all) poor children confront are a highly stressed and disorganized family environment, dilapidated housing, substandard schools, and often, especially in inner cities, dangerous, blighted neighborhoods where crime and violence seem to have become the norm (74). Access to health care for poor adolescents appears to be limited, based on utilization data and known barriers to access (e.g., low physician participation in Medicaid, problems with transportation, lack of services in poor areas). Yet although the rates of many health and related problems (e.g., days of

Figure 23-Family Incomes as a Percent of the Federal Poverty Level by U.S. Adolescents' Living Arrangements, 1988^a

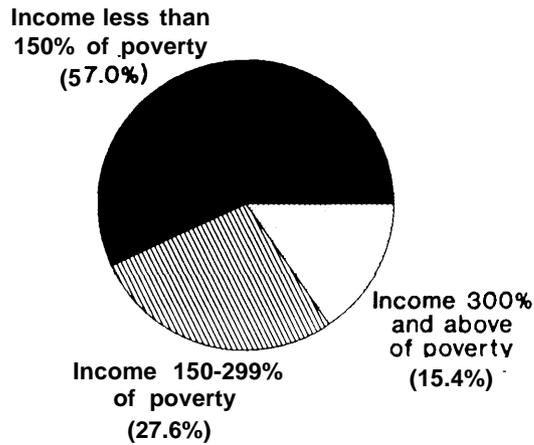
Incomes of families in which adolescents are living with both parents



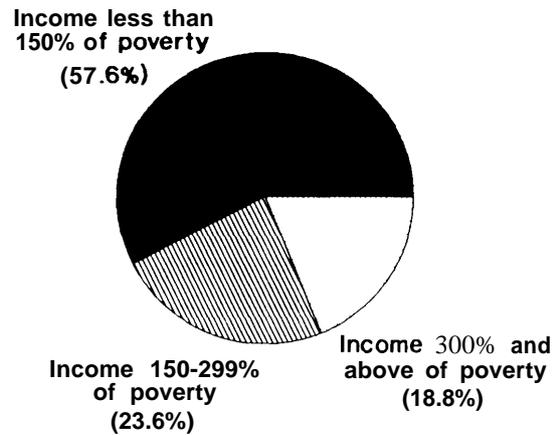
Incomes of families in which adolescents are living with their father only



Incomes of families in which adolescents are living with their mother only



Incomes of families in which adolescents are not living with parents or are married and living with their parent(s)



NOTE: Figures may not add to 100 percent because of rounding error.

^aFamily income is expressed in relation to the Federal poverty level. In 1988, the Federal poverty level was \$9,431 for a family of three.

SOURCE: Office of Technology Assessment, 1991, based on R. Kronick, Adjunct Professor, University of California, San Diego, CA, calculations based on U.S. Department of Commerce, Bureau of the Census, March 1989 Current Population Survey public use files, 1990.

restricted activity due to acute and chronic conditions, overall self-reported fair or poor health, school dropout, adolescent pregnancy, cigarette smoking, involvement in serious forms of delinquency, victimization) are higher among poor than nonpoor adolescents, many, if not most, poor adolescents

appear to survive their childhoods relatively unscathed.

Research on the predictors of resiliency among adolescents from disadvantaged backgrounds (including impoverished homes) is receiving increasing attention from researchers, although it has

received little Federal support. Past research on this topic suggests that having access to supportive individuals and networks, and the ability to draw upon existing networks (e.g., through greater social competence and intelligence), are important factors in helping adolescents overcome adverse circumstances. For many adolescents these factors may be amenable to intervention.

Racial and Ethnic Minority Adolescents

Currently, half of black, Hispanic, and American Indian adolescents, and 32 percent of Asian-American adolescents, are poor or near-poor (below 150 percent of the Federal poverty level) (see figure 24). The disproportionate occurrence of health problems that is found among adolescents in these racial, ethnic, and tribal groups is attributable at least in part to their poverty status, and the lack of access to health care that is associated with being poor. A long history of discrimination against people of color may contribute to stress in racial and ethnic minorities (e.g., 106,1 83).

Among the pressing prevention and service needs for racial and ethnic minority adolescents include preventive mental health and mental health outreach programs for Hispanic, Asian, and American Indian and Alaska Native adolescents; dental care and fluoridation for American Indian and Alaska Native, and Hispanic adolescents; dental care for low-income black adolescents; victimization and violence prevention for black adolescents in poor neighborhoods; pregnancy prevention services for black and Hispanic adolescents; HIV prevention and treatment services for black and Hispanic adolescents. In general, however, these problems are not restricted to these groups, and the sources of the problems are not related to race per se (e.g., genetically based), but to complex interactions among economic, neighborhood, and societal factors.

There is an increasing consensus that services for racial and ethnic minority adolescents would be improved if they were “culturally competent. Culturally competent services for adolescents may be difficult to design, though, because there is little systematic information about how racial and ethnic minority and poor adolescents experience adolescence. There is beginning to be some systematic analysis of what a culturally competent system of care is, but the knowledge base has not yet been applied systematically to the design of training



Photo credit: © Ted Kirk/Education Week

Some research suggests that adolescents who live on farms are particularly unlikely to have access to sources of health care.

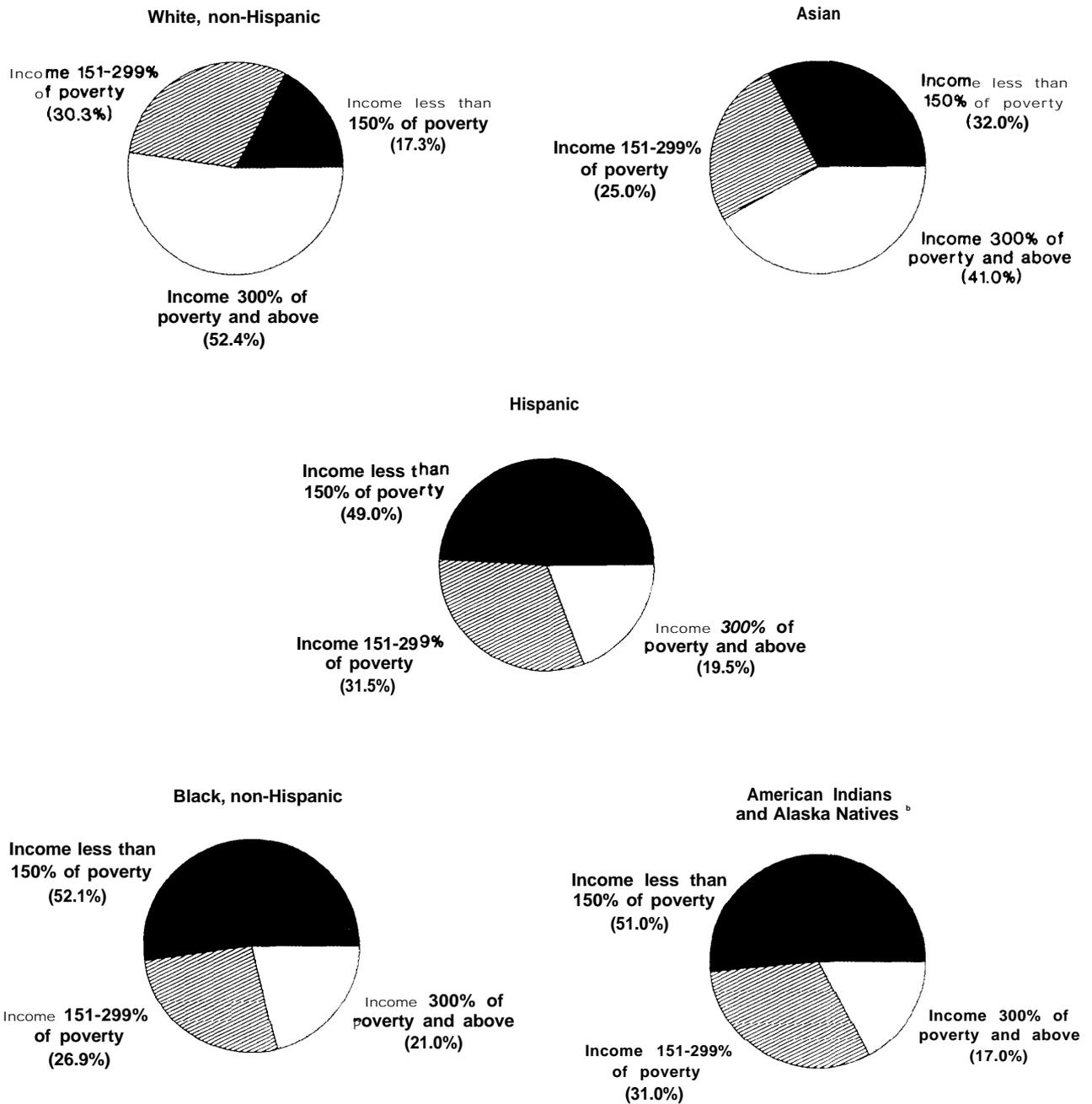
programs for health care and other service providers. Overall, there is little systematic description of how services have been developed or adapted to meet the specific needs of racial and minority adolescents, and less scientific evaluation of the effectiveness of available services. There are, however, very few health care providers who are racial or ethnic minorities. The number who are racial and ethnic minorities and trained to work specifically with adolescents is not known.

Rural Adolescents

With the exception of the higher rate of accidental injuries (due in part to farm injuries) and lower rate of delinquency for adolescents living in rural areas, there are few known sizable rural-urban *differences* in adolescent health. Although research on adolescents living in rural areas is limited, this suggests that rural adolescents are at least as likely to experience many of the same health problems experienced by adolescents in metropolitan areas. However, additional descriptive research designed to separate rural, regional, social class, and ethnic factors is needed, in addition to analyses to determine the possibly differential effects of particular dimensions of rural life (e.g., living on a farm v. in a town) on adolescent health and well-being.

Rural adolescents' access to health services is limited by shortages of professionally staffed mental and physical health services, transportation problems, and less access to Medicaid in rural States (233). Thus, adolescents in rural areas are especially likely to receive their health care from hospital

Figure 24—Family Incomes as a Percent of the Federal Poverty Level by U.S. Adolescents' Race/Ethnicity, 1988^a



^aFamily income is expressed in relation to the Federal poverty level. In 1988, the Federal poverty level was \$9,431 for a family of three.

^bBecause of the small number of American Indians and Alaska Natives sampled for the Current Population Survey and various limitations of the survey design, the estimates for this group may be unreliable. The proportion with incomes less than 150 percent of poverty could be between 41 to 61 percent (11). However, the high rate of poverty among American Indians and Alaska Natives found through the Current Population Survey is consistent with estimates from other sources (223).

SOURCE: Office of Technology Assessment, 1991, based on R. Kronick, Adjunct Professor, University of California, San Diego, CA, calculations based on U.S. Department of Commerce, Bureau of the Census, March 1989 Current Population Survey public use files, 1990.

Table 25-Specific Options Related to the Delivery of Services to Poor Adolescents, Racial and Ethnic Minority Adolescents, and Rural Adolescents (ch. 18)

Option 1: Improve access to health and related services among poor adolescents, disadvantaged racial and ethnic minority adolescents, and rural adolescents..

- Expand support for training of racial and ethnic minority, rural, and low-income health care providers with an interest in adolescent health care.
- Support training in cultural competence for health care providers who work with racial and ethnic minority adolescents, incorporating evaluations of the effects of such training.
- Support preventive mental health and mental health outreach programs for Hispanic, Asian, and American Indian and Alaska Native adolescents.
- Increase support for dental care for American Indian and Alaska Native, Hispanic, and low-income black adolescents.
- Support injury prevention efforts targeted to rural and American Indian adolescents.
- Support homicide and violence prevention efforts targeted to male adolescents living in inner cities.
- Support innovative efforts (accompanied by rigorous evaluation) to increase rural adolescents' access to health care services (e.g., school-based youth services centers, improved transportation, use of nonprofessionals, dissemination of information about availability of local health services).

Option 2: Support Federal data collection and research related to selected groups of adolescents.

Data collection:

- Support the expansion of data collection efforts to oversample racial and ethnic minority adolescents and to include information on socioeconomic status.
- Collect data on the availability and accessibility of health services for racial and ethnic minorities, rural, and poor adolescents, with such research to include adolescent perceptions of accessibility and availability.

Research:

- Support research on the impact of racial and ethnic minority status and poverty on adolescent health and development, including health beliefs and practices. Include the effects of rural poverty. Such research should attempt to ascertain the positive, as well as negative, aspects of racial and ethnic identification and all strata of socioeconomic status, and such research should be conducted in such way that the effects of racial and ethnic minority status can be distinguished from socioeconomic status.
- Support evaluations of the use of nonprofessionals to provide health and related services to rural, minority, and poor adolescents.

Option 3. Foster changes in adolescents' environments.

- Support fluoridation of drinking water supplies in the Southwest.
- Support efforts to improve environments in poor areas (including hard-hit farm belt communities, Indian reservations, and inner cities), focusing on family support, improving school environments, improving dilapidated housing, increasing access to nutritional food, increasing access to recreational and fitness facilities and activities, and increasing access to appropriate adult role models.

^aSee Major Option I related to improving adolescents' access to health and related services that was presented in table 5.

SOURCE: Office of Technology Assessment, 1991.

clinics, and are relatively unlikely to have any consistent source of care (132). Some research suggests that adolescents who live on farms are particularly unlikely to have access to sources of health care (323). Innovations in efforts to provide more comprehensive and integrated services will have to be adapted to the specific needs of rural adolescents, and specific limitations in health care resources (e.g., the relative scarcity of health care professionals).

Options related to the delivery of services to, and the improvements of environments for, poor adolescents, racial and ethnic minority adolescents, and rural adolescents are presented in table 25.

The Role of Federal Agencies in Adolescent Health (ch. 19)

OTA's analysis of Federal expenditures and efforts on behalf of adolescents finds that, with some condition-specific exceptions (e. g., drug use), attention to adolescent concerns has been weak and fragmented. Most Federal agencies do not provide specific budget lines for adolescents but include adolescents as part of a larger, more general, research or service focus. Within DHHS, for example, it is rare for an agency to devote more than 10 percent of its expenditures specifically to adolescents.²⁰¹ In those agencies outside of DHHS, adolescent issues tend to receive a larger proportion of appropriated money, although the total amounts are small.

Because adolescents require comprehensive, continuous, developmentally appropriate, labor-intensive interventions, they may not be receiving the services they need when they are included as part of programs serving children in general or adults. On the other hand, it is important to view adolescents as part of a life-span continuum and not separate them inappropriately from other age groups. What has occurred, however, is a somewhat scattershot approach neither intensively oriented toward adolescents as a specific population nor attentive to the relationships between other developmental periods and adolescence. Thus, as opposed to some specific behaviors engaged in by some adolescents and judged to be both prima facie unacceptable *and* characteristic of adolescents as a group, adolescents

²⁰¹The Centers for Disease Control's Division of Adolescent and School Health, the National Institutes of Health's National Institute Of Allergy and Infectious Diseases, and the Alcohol, Drug Abuse, and Mental Health Administration's National Institute of Mental Health are the exceptions.