

## CHAPTER 2



# Health Status of Adolescents and Young Adults

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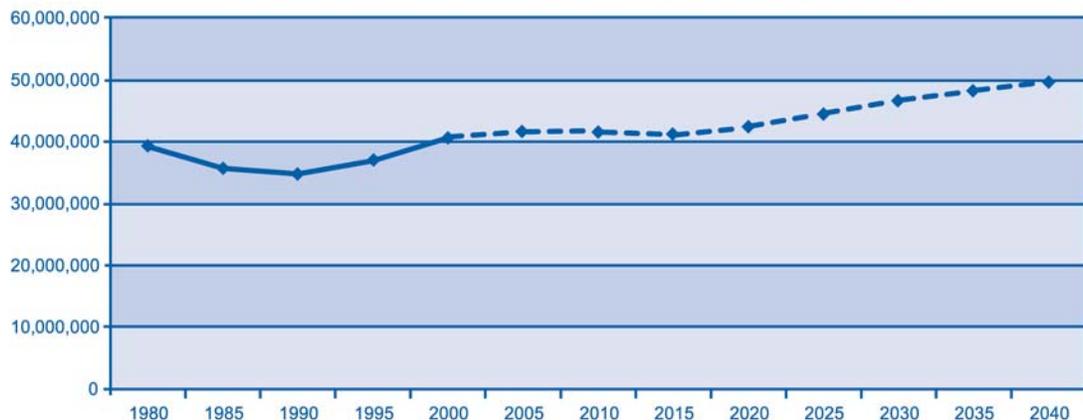
*This chapter, which presents an overview of adolescent health status, is primarily organized around the focus areas of the 21 Critical Health Objectives (i.e., mortality, unintentional injury, violence, substance use and mental health, reproductive health, and the prevention of chronic disease during adulthood) and closes with a brief section on chronic conditions. We highlight trends and significant disparities in the health areas covered. Although the data on health status are organized by individual Objectives, it is important to keep in mind a comprehensive approach, that seemingly isolated adolescent problems are influenced by common antecedent factors—both those that protect and those that can jeopardize health and safety. This reality underscores the importance of improving adolescent health and safety through multiple societal institutions—this approach is needed to create healthy environments that promote positive youth development and discourage health risk behaviors. Before turning to the health status measures themselves, we present a demographic profile of the adolescent population. This profile supplements the overview of societal institutions that will be presented in Chapter 3.*

## Demographic Profile

The National Initiative comes at a critical time, with the number of adolescents in the United States expected to grow by almost 1 million by 2010. Although large in absolute size, this figure represents a much smaller percentage increase than that of the overall population. In particular, the size of the elderly population will swell as the “baby boomers” age. At the same time, however, an increasingly ethnically diverse group of young people will compete for limited resources at a time when the need for services responsive to the unique challenges facing adolescents and young adults is becoming more widely recognized.

The size, average age, and racial and ethnic composition of the adolescent population all changed significantly during the 1990s, and its demographic composition is projected to continue changing through the next several decades. From 1990 to 2000, the number of adolescents aged 10-19 grew by 5.8 million, or 16.5% (US Census Bureau 2002a; US Census Bureau 2002b; US Census Bureau 1992), as the children of “baby boomers” reached toward maturity. Current projections show the population of adolescents aged 10-19 growing from 40.7 million in 2000 to 41.6 million in 2010. This represents a 2.0% increase, but is still much smaller than the expected 6.6% increase in the total U.S. population. By 2020, the adolescent population is projected to reach 42.4 million, and a record 50 million adolescents are projected by 2040. Meanwhile, the number of young adults aged 20-24 is projected to grow at a faster rate, an increase of 2.2 million, or 11.5%, over the next 10 years (US Census Bureau 2000a; US Census Bureau 2002b).

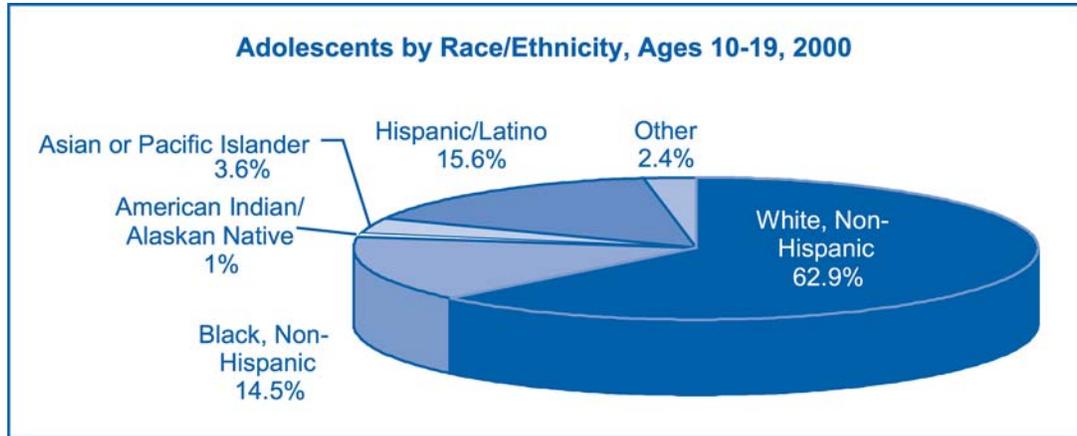
**US Population Actual & Projected, Ages 10-19, 1980-2040**



Sources: US Census Bureau 2000b; US Census Bureau 2002c

The western states have experienced the greatest growth among adolescents (ages 10-19), increasing 22.7% from 1990 to 2000. This growth rate compares to increases of 15.6% in the South, 8.8% in the Midwest, and 8.4% in the Northeast (US Census Bureau 2000a; US Census Bureau 2002b). In addition, more adolescents are living in the suburbs (Fields and Casper 2001).

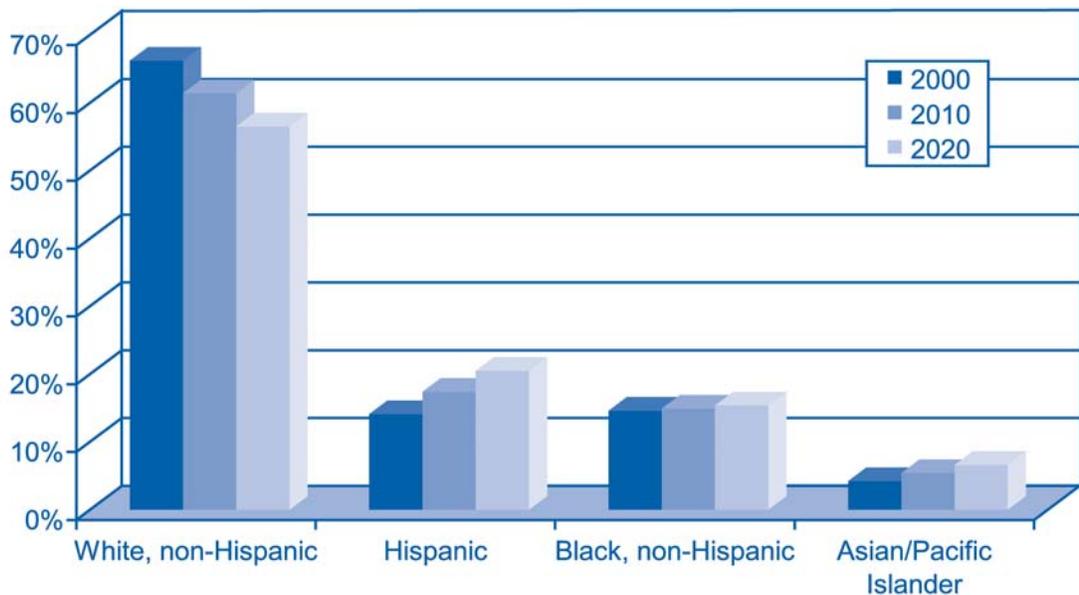
In the coming decades, the adolescent population will become even more racially and ethnically diverse. Key trends will include a decrease in Whites as a proportion of the overall adolescent population, a shift from Blacks to Hispanics as the second most populous racial/ethnic group, rapid increase of Asian Americans, and significantly more racial/ethnic diversity in the adolescent population than in the US as a whole (US Census Bureau 2000a).



Source: US Census Bureau 2000a; US Census Bureau 2002b

Non-Hispanic Whites accounted for only 63% of the adolescent population in 2000, compared to 76% in 1980 (US Census Bureau 2002c) and this figure is projected to fall to 56% in 2020. By 2040, non-Hispanic Whites are expected to no longer comprise the majority of the adolescent population. In 2000, non-Hispanic Blacks represented 14.5% of adolescents; Hispanics, 15.6%; and non-Hispanic Asian or Pacific Islanders, 4%. The Hispanic adolescent population is expected to nearly double in absolute terms by 2020, when it is anticipated to

Proportion of Adolescent/Young Adult Population by Race/Ethnicity, 2000-2020



Source: US Census Bureau 2000a; US Census Bureau 2002b



include 23% of all adolescents. By comparison, the proportion represented by non-Hispanic Blacks will fall slightly to 14%, and non-Hispanic American Indians/Alaskan Natives will remain at 1%. The non-Hispanic Asian or Pacific Islander population will also experience rapid growth, rising to 6.4% of the adolescent population by 2020 (US Census Bureau 2000a; US Census Bureau 2002b).

The shift in the racial/ethnic makeup of our youth stems from high immigration rates of Hispanics and Asian or Pacific Islanders. In addition, over the past two decades, birth and fertility rates have decreased among non-Hispanic Whites and Blacks, while these rates have increased among Hispanics (NCHS 2002). The number of adolescents who were foreign-born increased from 1.9 million in 1990 to 2.3 million in 2000. Among adolescents born in countries other than the United States in 2000, 55% were Hispanic and 22% were Asian or Pacific Islanders. In comparison, non-Hispanic White adolescents made up 16% of the foreign-born population, and Black adolescents only 8% of it (US Immigration and Naturalization Service 2000; Lollock 2000).

## Health Status of Adolescents

In examining specific measures of adolescent health, the framework of the 21 Critical Health Objectives is used for each Objective, with a box showing the Objective name and number, baseline data, and the target for 2010. These boxes also indicate the national data source for the Objective as well as the age range (e.g., 15-19 or 12-17 years). For some Objectives, *Healthy People 2010* does not provide a target for specific age groups. Data issues are explained in more detail in Chapter 4 (see Table 4-1 for list of data sources).

## Mortality

Healthy People 2010 Outcome Area: Mortality Objective 16-03: Reduce deaths of adolescents & young adults		
Age Group (years)	Baseline (per 100,000) (year)	2010 Target (per 100,000)
10-14	21.5 (1998)	16.8
15-19	69.5 (1998)	39.8
20-24	92.7 (1998)	49.0

Source: National Vital Statistics System-Mortality (NVSS-M), CDC, NCHS

The mortality rate is a key indicator of the health and safety of a population. Three-quarters of adolescent and young adult mortality is due to preventable causes, including motor vehicle crashes, homicide, and suicide. Overall mortality rates have consistently decreased and are now at or near historical lows for all racial/ethnic and age groups. Even so, the data show continued areas of concern, including unacceptably high mortality rates for older adolescents and young adults and significant disparities by sex and race/ethnicity.

Major differences in mortality rates exist between age groups, with rates increasing throughout adolescence and early adulthood and then throughout the life span. In 2000, young adolescents (10-14) had a mortality rate of 21.1/100,000; older adolescents (15-19) had more than triple this figure (69.8/100,000); while the rate for young adults (20-24) was 93.6/100,000 (Anderson 2002).

Analysis by sex reveals a significant disparity between males and females, with the mortality rate for males (10-24) over twice that for females (85.9/100,000 vs. 34.6/100,000). The difference increases with age: in 2000, the male mortality rate among 10-14-year-olds (25.0/100,000) was about 1.5 times the rate for females (16.6/100,000). For 15-19-year-olds, the ratio was 2.4:1 (94.9/100,000 vs. 40.0/100,000), and by age 20-24, males were 3 times as likely to die as their female peers (142.0/100,000 vs. 48.2/100,000) (Anderson 2002).

Mortality rates have fallen for all racial/ethnic groups and are now at or near all-time lows for each group. Even so, despite experiencing the steepest recent decline (47% since 1993), in 2000 15-24-year-old Blacks were still above their historic low of 111.9/100,000 reached in 1984 (NCHS 1991; NCHS 1994; Anderson 2002). In 2000, non-Hispanic Blacks (125.2/100,000) and American Indians (117.9/100,000) had the highest death rates among youth aged 15-24, nearly twice the rate for non-Hispanic Whites (72.1/100,000) and much higher than the 81.6/100,000 overall rate for this age group. Hispanics followed with a rate of 85.0/100,000, and Asian or Pacific Islanders had the lowest rate (44.3/100,000) (Anderson 2002).

Striking differences in mortality rates are apparent when race and sex are considered together (in this case for 15-24-year-olds in 2000). Versus all other age-sex groups, Black males have the highest mortality rates, and there is great variation in sex difference by race/ethnicity. The greatest difference is among Hispanics, where males die at 3.7 times the rate of their female counterparts (131.2 vs. 35.2 per 100,000). Among non-Hispanic Blacks, the male:female ratio is 3:1 (188.2 vs. 61.8 per 100,000). Among both American Indians and non-Hispanic Whites, the male:female ratio is 2.4:1 (167.0 vs. 68.4 per 100,000 for American Indians; 100.5 vs. 42.2 per 100,000 for non-Hispanic Whites), and among Asian or Pacific Islanders the ratio is 2.5:1 (63.6 vs. 25.1 per 100,000) (Anderson 2002).

Among young adolescents ages 10-14 years, motor vehicle crashes (MVCs) account for 22% of deaths (based on 2000 figures). Other leading causes of mortality in this age group include unintentional injuries other than MVCs (16.2%), malignant neoplasms (12.6%), suicide (7%) and homicide (5.6%). Among 15-19-year-olds, MVCs account for 37.8% of deaths (2000 data); homicide, 14%; suicide, 12%; other unintentional injuries, 12%; and malignant neoplasms, 5.5%. Among 20-24-year-olds, MVCs account for 29.3% of deaths; homicide, 17%; suicide, 13.4%; other unintentional injuries, 12.2%; and malignant neoplasms, 5.5% (Anderson 2002; NCIPC 2003).

### Unintentional Injury

Healthy People 2010 Outcome Area: Unintentional Injury		
Objective 15-15: Reduce deaths caused by motor vehicle crashes		
Age Group (years)	Baseline (per 100,000) (year)	2010 Target (per 100,000)
15-24	25.6 (1999)	*
*Not Applicable		
Source: National Vital Statistics System - Mortality (NVSS-M), CDC, NCHS		

As discussed above, MVCs are the leading cause of death for adolescents and young adults, accounting for 31.7% of deaths. MVC-related mortality has fallen 36% over the past two decades, however, from 31.0/100,000 to 19.8/100,000. Males aged 10-24 are over two times more likely than same-age females to die from MVC injury; this statement holds true for all racial/ethnic and age groups (NCIPC 2003).

Using 2000 data, analysis by race/ethnicity and sex for adolescents aged 15-19 years shows that non-Hispanic American Indian/Alaskan Native males have the highest MVC mortality rates (71.6/100,000). This rate is twice that for non-Hispanic White males (37.2/100,000) and 2-5 times that for males who are Hispanic (34.5/100,000), non-Hispanic Black (23.6/100,000) or non-Hispanic Asian or Pacific Islanders (15.7/100,000). Since 1990, rates have declined for all males, except non-Hispanic Blacks. Among adolescent females in the same age group, non-Hispanic American Indians/Alaskan Natives also have the highest rate of MVC mortality (37.4/100,000), followed by non-Hispanic Whites (21.0/100,000), Hispanics (11.7/100,000), non-Hispanic Blacks (10.9/100,000), and non-Hispanic Asian or Pacific Islanders (7.0/100,000) (NCIPC 2003).



**Healthy People 2010 Outcome Area: Unintentional Injury  
Objective 15 19: Increase use of safety belts**

<u>Age Group</u>	<u>Baseline (per 100,000) (year)</u>	<u>2010 Target (per 100,000)</u>
High school students (9 <sup>th</sup> -12 <sup>th</sup> Grades)	84% (1999)	92%

*Source: Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP*

Failure to use seat belts is a major cause of motor vehicle-related mortality. An analysis of 2001 data for fatal motor vehicle crashes among adolescents and young adults aged 16-24 years demonstrated that 62% of occupants were not wearing seat belts, and only about 30% were restrained (remaining 8%, unknown). Among crashes causing injury but not death, 75% of occupants used restraints and 17% did not (8%, unknown) (NHTSA 2001a). Adolescent seat belt use varies by sex but not by race/ethnicity. Male high school students (82%) are less likely to wear seat belts than are females their age (90%). Differences between racial/ethnic groups are negligible: non-Hispanic Blacks (84%), Hispanics (85%), and non-Hispanic Whites (86%). Between 1991 and 2001, high school students increased seat belt use overall from 74% to 86% (Grunbaum et al. 2002).

**Healthy People 2010 Outcome Area: Unintentional Injury  
Objective 26-01: Reduce deaths and injuries caused by alcohol- and drug-related motor vehicle crashes**

<u>Age Group (years)</u>	<u>Baseline (per 100,000) (year)</u>	<u>2010 Target (per 100,000)</u>
15-24	13.5 (1998)	*

*\*Not Available  
Source: Fatality Analysis Reporting System (FARS), Department of Transportation (DOT); National Highway Traffic Safety Administration (NHTSA)*

**Healthy People 2010 Outcome Area: Unintentional Injury  
Objective 26-06: Reduce the proportion of adolescents who report that they rode, during the previous 30 days, with a driver who had been drinking alcohol**

<u>Age Group</u>	<u>Baseline (per 100,000) (year)</u>	<u>2010 Target (per 100,000)</u>
High school students (9 <sup>th</sup> -12 <sup>th</sup> Grades)	33% (1999)	30%

*Source: Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP*

Other important strategies for preventing motor vehicle-related injury and death are reducing rates of driving under the influence of alcohol and riding with drivers who are under the influence. Although alcohol was involved in only 4.8% of all MVCs among adolescent and young adult drivers aged 16-24 years in 2000, 28.7% of motor vehicle fatalities in this age group involved a driver who had been drinking. In contrast, just 4.7% of nonfatal crashes with adolescent or young adult drivers involved alcohol (NHTSA 2001b). This indicator has improved significantly over the past decade. Based on self-reported data, the percentage of high school students who rode (in the previous 30 days) with a driver who had been drinking fell from 40% in 1991 to 31% in 2001. Male students (32%) are slightly more likely than female students (30%) and Hispanics (38%) are more likely than non-Hispanic Whites (30%) or non-Hispanic Blacks (28%) to engage in this behavior (Grunbaum et al. 2002).

**Violence**

**Healthy People 2010 Outcome Area: Violence  
Objective: 15-32: Reduce homicides**

<u>Age Group (years)</u>	<u>Baseline (per 100,000) (year)</u>	<u>2010 Target (per 100,000)</u>
10-14	1.2 (1999)	*
15-19	10.4 (1999)	*

*\*Not Available  
Source: National Vital Statistics System - Mortality (NVSS-M), CDC, NCHS*

Violence accounts for a significant portion of morbidity and mortality among today's youth. Even so, most indicators show significant improvements since the mid-1990s; in addition to having dramatically lower homicide rates, youth are fighting less, perpetrating fewer violent crimes, and are less likely to carry a weapon.

Much violent behavior in the United States is perpetrated both by and upon young people, with arrests for violent crimes peaking at age 18 and declining thereafter. Between 1985 and 1993, arrests of 10- to 17-year-olds for murder rose 54%, from 5.7/100,000 to 14.5/100,000. By 1997, however, this trend had reversed, with a homicide arrest rate of 8.2/100,000 for this age group (Snyder and Sickmund 1999). The sharp decrease in homicide offense rates has been paralleled by similar drops in victimization rates for both sexes and all racial/ethnic groups. The decrease in the homicide offending rate among young Black males is particularly striking. In 1994, the homicide-offending rate among 14-to 17-year-old males was 22.4/100,000 for Whites and 226.7/100,000 for Blacks. In 2000, these rates had dropped dramatically, to 7.9/100,000 for Whites and 62.8/100,000 for Blacks. Sharp decreases in homicide offenses among Black males have also been seen among older adolescents and young adults aged 18 to 24 years: the homicide-offending rate for Black males in this age group dropped 38% from 329.8/100,000 in 1994 to 205.8/100,000 in 2000 (Fox and Zawitz 2002).

Healthy People 2010 Outcome Area: Violence Objective 15-38: Reduce physical fighting among adolescents		
Age Group	Baseline (per 100,000) (year)	2010 Target (per 100,000)
High school students (9 <sup>th</sup> -12 <sup>th</sup> Grades)	36% (1999)	32%

*Source: Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP*

Overall, physical fighting has decreased over the past decade. In 2001, 33% (by self-report) of high school students had been in at least one physical fight during the previous 12 months; this figure represents a 22% decrease from the 42.5% involved in fighting during 1991. Among all students, 4.0% had sustained a serious injury in a fight. Males (43%) were much more likely than females (24%) to have fought, while non-Hispanic Whites (32%) were less likely than either Hispanics (36%) or non-Hispanic Blacks (36.5%) to have done so. Much of this violence occurs on school property, with 12.5% of high school students involved in at least one fight on school grounds over the previous 12 months (Grunbaum et al. 2002).

Weapon carrying is also linked to violence. Based on self-report, in 2001, 17% of high school students had carried some type of weapon in the past 30 days, with males (29%) 5 times as likely as females (6%) to engage in this behavior. Analysis by race/ethnicity shows slightly higher weapon-carrying rates among non-Hispanic Whites (18%) than Hispanics (16.5%) or non-Hispanic Blacks (15%). Additionally, 6% of students had carried a weapon on school property during the past month, while 9% had been threatened or injured with a weapon on school property during the previous 12 months. In addition, 6% of students (10% of males, 1% of females) had carried a gun within the past month (Grunbaum et al. 2002). Still, the incidence of weapon carrying has fallen significantly over the past decade.

Homicide represents the second-leading cause of death in the U.S. for both the 15-19 and 20-24 age groups. There have been major swings in homicide rates for 15-19-year-olds, mostly among males, and Black males in particular. Homicide rates dropped to a record low in 1984, increased significantly until 1993, then started to fall again. Currently, homicide rates in the 15-19-year-old population are slightly lower than they were two decades ago (9.63/100,000 in 2000 vs. 9.96/100,000 in 1981). The decrease primarily reflects the decline in deaths caused by firearms. Overall, since 1981, homicide rates have increased by 4% for males, but have decreased 33% for females (NCIPC 2003).



Despite decreases in overall homicide rates, significant disparities by race/ethnicity and gender remain, with Black males affected more than any other population group. For example, among adolescents aged 15-19 years, the 2000 homicide rate of 60.2/100,000 for non-Hispanic Blacks represents a dramatic decline from the 1993 peak of 143.4/100,000, but homicide remains the leading cause of death for Black, non-Hispanic adolescent males. Per 2000 data, Black, non-Hispanic males are 17 times more likely to die from homicide than White, non-Hispanic males and more than twice as likely to do so compared with Hispanic/Latino males. Hispanic males had the second-highest homicide rate (29.3/100,000) in 2000, followed by non-Hispanic Whites, who had a much lower rate of 3.4/100,000. These figures also represent significant decreases from the high rates of the early or mid-1990s – 60.4/100,000 in 1992 for Hispanic males and 15.0/100,000 in 1994 for White, non-Hispanic males (NCIPC 2003).

Among adolescent females aged 15-19 years, non-Hispanic Blacks also have homicide rates significantly higher than other female adolescents. The 2000 homicide rate of 8.9/100,000 for non-Hispanic Black females represents a significant decline from the 1993 high of 18.6/100,000, but it is 2 to 5 times that of Hispanic (3.1/100,000) or non-Hispanic White females (1.9/100,000) (NCIPC 2003).

Healthy People 2010 Outcome Area: Suicide Objective 18-01: Reduce suicide rate		
Age Group (years)	Baseline (per 100,000) (year)	2010 Target (per 100,000)
10-14	1.2 (1999)	*
15-19	8.0 (1999)	*
*Not Available		
Source: National Vital Statistics System - Mortality (NVSS-M), CDC, NCHS		

Suicide represents the third-leading cause of death for adolescents and young adults. During the past 20 years, 10-14-year-olds were the only group to experience an increased in suicide rates, a rise of 39% (from 0.89/100,000 in 1981 to 1.5/100,000 in 2000), but suicide represents a small proportion of deaths for young adolescents. Suicide rates among 15-19-year-olds are below the 1981 level. After peaking in the early 1990s, rates for young adults have declined almost 20% during the past two decades (NCIPC 2003).

Suicide rates are far higher for males than females, and this difference increases with age. The ratios are 3.8:1 among 10-14-year-olds (2.3/100,000 vs. 0.6/100,000), 3.7:1 for 15-19-year-olds (9.7/100,000 vs. 2.6/100,000); and 6.7:1 among 20-24-year-olds (22.0/100,000 vs. 3.3/100,000) (NCIPC 2003). Although females attempt suicide more often than males, males complete suicide at a rate over five times that of females (12.3/100,000 vs. 2.2/100,000) (Grunbaum et al. 2002; NCIPC 2003).

It is critical to examine suicide data by race/ethnicity and gender. In the 15-19-year-old male population, non-Hispanic American Indians/Alaskan Natives have the highest suicide rate: 33.3/100,000 (in 2000) – a rate over 2 times that of non-Hispanic Whites (14.6/100,000) and more than 3 times that of Hispanics (9.7/100,000), non-Hispanic Blacks (10.0/100,000), and non-Hispanic Asian or Pacific Islanders (8.9/100,000). Black male adolescents have shown the largest increase since 1981, almost doubling from 5.5/100,000 in 1981 to 9.7/100,000 in 2000 (the latter rate still represents a decrease from the peak of 16.5/100,000 reached in 1994) (NCIPC 2003).

Among females aged 15-19, non-Hispanic American Indians/Alaskan Natives also have the highest rate of suicide. Their 2000 suicide rate was 9.1/100,000 in 2000 – a rate more than twice that for non-Hispanic Asian or Pacific Islanders (3.6/100,000), non-Hispanic Whites (2.9/100,000), Hispanics (2.6/100,000) and non-Hispanic Blacks (1.6/100,000). Suicide data for American Indian/Alaskan Native and Asian or Pacific Islander adolescents are considered unreliable, however, because of the absolute low number of cases (NCIPC 2003).

**Substance Use**

Using alcohol, tobacco, and other drugs during adolescence can have a lifelong impact on personal health. Many substances, including alcohol and tobacco, are addictive, and habits developed in the formative years are some of the most difficult to break (W.K. Kellogg Foundation 1998). Researchers conducting the Monitoring the Future Survey have noted that a change in these attitudes toward use of substances is usually a precursor to a change in actual use, with teens being less likely to use a drug if they perceive it as dangerous (Johnston, O’Malley, and Bachman 2002). Adolescents’ perceptions of risk fell during the 1990s for many substances, but this low-key attitude appears to have recently leveled off. In 2002, 46% of 8<sup>th</sup>-graders and 23% of 12<sup>th</sup>-graders thought that occasionally smoking marijuana poses a “great risk” (Johnston, O’Malley and Bachman 2003). In addition, the percentage of 12<sup>th</sup>-graders believing their friends would disapprove of their regularly or occasionally using drugs increased after a decline in the early 1990s. The proportion of students perceiving daily drinking or “binge” drinking as dangerous or disapproving of it has remained stable over the past decade (Johnston et al. 2002).

Healthy People 2010: Substance Use		
Objective 26-10: Reduce past-month use of illicit substances (marijuana)		
<i>Age Group (years)</i>	<i>Baseline (per 100,000) (year)</i>	<i>2010 Target (per 100,000)</i>
12-17	8.3% (1998)	0.7%

*Source: National Household Survey on Drug Abuse (NHSDA), SAMHSA*

Following declines during the 1980s, the prevalence of alcohol use among adolescents (defined as ages 12-17) and young adults (defined as ages 18-25) remained largely stable throughout the 1990s, with the exception of recent increases in binge drinking. Currently, past-month use of alcohol is at an all-time low for both adolescents and young adults; among adolescents this rate fell from 49.6% in 1979 to 20.9% in 1992, and then declined further to 17.3% in 2001. Past-month use among young adults followed a similar pattern, from 75.1% in 1979 to 58.8% in 2001 (SAMHSA 1999; SAMHSA 2002).

Healthy People 2010: Substance Abuse		
Objective 26-11: Reduce the proportion of persons engaging in binge drinking of alcoholic beverages		
<i>Age Group (years)</i>	<i>Baseline (per 100,000) (year)</i>	<i>2010 Target (per 100,000)</i>
12-17	7.7% (1998)	2.0%

*Source: Monitoring the Future Study (MTF), NIH, NIDA.*

Based on self-report, the prevalence of binge drinking (consuming 5 or more drinks on one occasion) has recently increased. Among adolescents, the prevalence of past-month binge drinking fell sharply from 1985 (21.9%) to 1992 (10.0%) and remained at 7-8% from 1994 until 2001, when it increased to 10.6%. For young adults, binge use declined from 34.4% in 1985 to 29.1% in 1993 and remained stable until 2001, when it increased to 38.7% (SAMHSA 1999; SAMHSA 2002).

Males are more likely to binge drink than females; in 2001, 11.2% of 12-17-year-old males and 9.9% of females had at least one binge drinking episode during the preceding month. This gender gap widened among young adults (ages 18-25: 48.5% vs. 29.2%). There are also significant differences in binge drinking among racial and ethnic groups. Non-Hispanic American Indian/Alaskan Native 12-17-year-olds had the highest prevalence (12.8%) in 2001 followed by non-Hispanic Whites (12.1%), Hispanics (9.8%), non-Hispanic Blacks (5.5%) and non-Hispanic Asians (4.6%). For young adults, non-Hispanic Whites were most likely to have engaged in binge drinking during the past month (43.7%), followed by



Hispanics (34.0%), non-Hispanic American Indians/ Alaskan Natives (29.6%), non-Hispanic Asians (25.0%), and non-Hispanic Blacks (24.3%) (SAMHSA 2002).

Trends in marijuana use by adolescents and young adults follow a pattern similar to that of illicit drugs overall. Among adolescents, past-month use fell from its peak in 1979 (14.2%) to 1991 (3.6%). After increasing in the mid-1990s, reaching 9.4% in 1997, marijuana use declined to 8.0% in 2001. Monthly use among young adults fell from 35.6% in 1979 to 10.9% in 1992 but has been slowly rising since, reaching 16.0% in 2001 (SAMHSA 1999; SAMHSA 2002).

Illicit drug use by adolescents and young adults remains well below levels seen in the late 1970s and 1980s. Rates have, however, increased from the lows reached in the early 1990s, especially among adolescents. In 2001, 10.8% of adolescents had used an illicit drug in the past month, well above 1992's low of 5.3% but still below the 1979 prevalence of 16.3%. Among young adults, 18.8% had used an illicit drug within the past month during 2001, an increase from 13.1% in 1992 but half the 1979 prevalence of 38.0%.

In 2001, adolescent males were slightly more likely than their female peers to have used illicit drugs in the past month (11.4% vs. 10.2%). Among young adults, however, males were more likely to be users than females (23.3% vs. 14.3%). These figures also varied by race/ethnicity: among adolescents, non-Hispanic American Indians/ Alaskan Natives had the highest prevalence of use (22.1%), followed by non-Hispanic Whites (11.3%), Hispanics (10.1%), non-Hispanic Blacks (9.1%), and non-Hispanic Asians (8.0%). Among young adults, non-Hispanic Whites were most likely to have used illicit drugs in the past month (20.8%), followed by non-Hispanic Blacks (17.1%), non-Hispanic American Indians/ Alaskan Natives (17.0% in 2000), Hispanics (13.4%), and non-Hispanic Asians (10.6%) (SAMHSA 2002).

Overall, use of illicit substances among adolescents and young adults has fallen significantly over the past two decades, with a consistent decline from 1979 until the early 1990s, when use leveled off for adolescents and began rising slightly among young adults (Johnston et al. 2002). One notable exception has been MDMA, or Ecstasy, which had a significant increase among all age groups between 1996 and 2001 but a slight drop in use in 2002. Past-month use of alcohol is currently at historic lows for both adolescents and young adults, but binge drinking has recently been on the rise.

## Mental Health

Healthy People 2010 Outcome Area: Mental Health		
Objective 06-02: Reduce the proportion of children and adolescents with disabilities who are reported to be sad, unhappy, or depressed		
Age Group (years)	Baseline (per 100,000) (year)	2010 Target (per 100,000)
4-17	*	*
*Baseline & target inclusive of age groups outside of adolescent/young adult age parameters. Source: National Health Interview Survey (NHIS), CDC, NCHS.		

Healthy People 2010 Outcome Area: Mental Health		
Objective 06-02: Reduce the proportion of children and adolescents with disabilities who are reported to be sad, unhappy, or depressed		
Age Group (years)	Baseline (per 100,000) (year)	2010 Target (per 100,000)
4-17	*	*
*Baseline & target inclusive of age groups outside of adolescent/young adult age parameters. Source: National Health Interview Survey (NHIS), CDC, NCHS.		

Currently, no national survey provides trends on the mental health status of adolescents, but the prevalence of mental health conditions can be examined through population-wide surveys as well as data accumulated from smaller studies. In addition, some national surveys on adolescent well-being include questions that reflect mental health status, such as suicidal behavior. Epidemiological surveys have found that about 20% of adolescents use mental health services (Leaf et al. 1996). The Surgeon General’s Report on Mental Health estimates that nearly 21% of youth aged 9-17 have a diagnosable mental or addictive disorder associated with at least minimum impairment, while 11%, or 4 million, youth have a disorder that results in significant impairment (Shaffer et al. 1996, cited in DHHS 1999). Other studies indicate that mental health disorders among adolescents are underdiagnosed. In one study of 1,710 adolescents, 30% had at least one current symptom of major depression, but only 2.6% had received a diagnosis (Roberts, Lewinsohn, and Seeley 1995).

Suicidal behavior has been related to various mental health problems, including depression and adjustment or stress reactions (DHHS 1999). In 2001, 19% of high school students had seriously considered suicide over the previous 12 months, down from 29% in 1991. Ideation among females (24%) was more common than males (14%). This sex difference was identified for all grades and racial/ethnic groups (Grunbaum et al. 2002).

Healthy People 2010 Outcome Area: Mental Health		
Objective 18-02: Reduce the rate of suicide attempts by adolescents that require medical attention		
Age Group	Baseline (per 100,000) (year)	2010 Target (per 100,000)
High school students (9 <sup>th</sup> -12 <sup>th</sup> Grades)	2.6% (1999)	1.0%

Source: Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP

As noted in the Mortality section of this chapter, males are more likely to commit suicide than females. In contrast, females are more likely to attempt suicide. Overall, in 2001, suicide was attempted by 9% of high school students, up slightly from 7% in 1991. Female students (11%) were almost twice as likely as male students (6%) to have attempted suicide at least once in the last 12 months. This sex difference held true across racial/ethnic groups. Hispanic females (15%) were most likely to have attempted suicide, followed by non-Hispanic White females (10%) and non-Hispanic Black females (10%). Among male high school students, Hispanics (8%) were more likely than non-Hispanic Blacks (7.5%) or non-Hispanic Whites (5%) to have attempted suicide. Although suicide attempts among female high school students have decreased in recent years, they have risen for males. Overall, in 2001, 3% of high school students reported requiring medical attention due to a suicide attempt in the previous 12 months (Grunbaum et al. 2002).

### Reproductive Health

Compared to two decades ago, fewer adolescents are sexually active today, and sexually active adolescents are using condoms more often. Accordingly, pregnancy and birth rates are declining.

Healthy People 2010 Outcome Area: Reproductive Health		
Objective 25-11: Increase the proportion of adolescents who abstain from sexual intercourse or use condoms if currently sexually active		
Age Group	Baseline (per 100,000) (year)	2010 Target (per 100,000)
High school students (9 <sup>th</sup> -12 <sup>th</sup> Grades)	85% (1999)	95%

Source: Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP



In 2001, 46% of high school students had ever had sexual intercourse, a decrease from 53% in 1993. Males (48.5%) were more likely than females (43%) to have had intercourse. Overall rates increased with age, with 60.5% of high school seniors having had intercourse at least once, versus 34% of 9<sup>th</sup>-graders. There were major differences by race/ethnicity: Black, non-Hispanics (61%) had the highest rate, followed by Hispanics (48%) and non-Hispanic Whites (43%). In addition, condom use has increased among adolescents, with 58% of sexually active high school students having used a condom at last intercourse, up from 53% in 1993. Black, non-Hispanic youth (67%) were most likely to use condoms, followed by non-Hispanic Whites (57%) and Hispanics (53.5%) (Grunbaum et al. 2002).

Healthy People 2010 Outcome Area: Reproductive Health Objective 09-07: Reduce pregnancies among adolescent females		
<i>Age Group (years)</i>	<i>Baseline (per 1,000) (year)</i>	<i>2010 Target (per 1,000)</i>
15-17	68 (1996)	43

*Source: National Survey of Family Growth (NSFG), CDC, NCHS; National Vital Statistics System - Natality (NVSS-N), CDC, NCHS; Abortion Provider Survey, The Alan Guttmacher Institute; Abortion Surveillance Data, CDC, NCCDPHP.*

Healthy People 2010 Outcome Area: Reproductive Health Objective 25-01: Reduce the proportion of adolescents and young adults with <i>Chlamydia trachomatis</i> infections		
<i>Sex and Age Group (years)</i>	<i>Baseline (year)</i>	<i>2010 Target</i>
Females, 15-24 (Family Planning clinics)	5.0% (1997)	3.0%
Females, 15-24 (STD clinics)	12.2% (1997)	3.0%
Males, 15-24 (STD clinics)	15.7% (1997)	3.0%

*Source: STD Surveillance System (STDSS), CDC, NCHSTP.  
STD indicates Sexually Transmitted Disease*

Each year, almost 1 million adolescent females—10% of all females aged 15-19 and 19% of those who have had intercourse—become pregnant. Seventy-eight percent of these pregnancies are unplanned, and these early, unplanned pregnancies carry great costs, both social and economic, for the individual and for society (Henshaw 2001). Adolescent pregnancy rates have declined in recent years and are now at their lowest level since 1976. After peaking at 116.5 per 1,000 in 1991, the pregnancy rate among 15-19-year-olds fell to 94.3/1,000 in 1997. This trend occurred across all racial/ethnic groups, although Black, non-Hispanic (170.4/1,000) and Hispanic (148.7/1,000) adolescents continued to have pregnancy rates 2 to 3 times higher than non-Hispanic White adolescents (65.1/1,000) (Ventura, Mosher, Curtin, Abma and Henshaw 2001).

The three components of the pregnancy rate (births, abortions, and miscarriages) have all fallen. In 2001, the rate of births to adolescents aged 15-19 was 45.8/1,000, the lowest rate since 1988. Birth rates have decreased for all racial/ethnic groups, with Blacks experiencing the steepest decline. Between 1991 and 2001, the decrease in the birth rate was highest for non-Hispanic Black adolescents (36%), followed by non-Hispanic Whites (31%), Asian or Pacific Islanders (26%), American Indian adolescents (22%), and Hispanics/Latinos (13%) (Martin et al. 2002). Abortion rates have also fallen significantly among adolescents, from 40.3/1,000 in 1990 to 27.5/1,000 in 1997. Between 1990 and 1997, the percentage of adolescent pregnancies ending in abortion decreased from 40% to 21% (Ventura et al. 2001).

Of the 15 million new cases of sexually transmitted disease (STD) in the United States each year, one-fourth occur in teenagers (CDC 2000). Compared to older adults, adolescents and young adults (ages 10-24) are at higher risk for acquiring STDs because they are more likely to have multiple sexual partners, engage in unprotected intercourse, and may have higher-risk partners (CDC 2001). Infection rates for gonorrhea have decreased in recent years for all age, racial, and ethnic groups. Chlamydia infection rates increased among adolescents and young adults (10-24) 11%-68% from 1996 to 2001 (CDC 2002b, CDC 2001). The increase in reported chlamydial infections reflects the expansion of chlamydia screening and reporting.

Almost 40% of chlamydia cases occur among adolescents aged 15-19, with reported prevalence exceeding 30% for female adolescents and 5% for male adolescents in clinic-based studies. Among females, the highest age-specific rates of chlamydia in 2001 were among 15- to 19-year-olds (2,547.2/100,000) and 20- to 24-year-olds (2,466.9/100,000). Rates among males, while substantially lower than among females, were also highest in these age groups (383.9/100,000 and 623.5/100,000 respectively). Non-Hispanic, Black adolescents (15-19) are disproportionately affected by STDs. In 2001, this population had a chlamydia rate of 4,975.3/100,000—a rate almost twice that of same-age American Indians/Alaskan Natives (2,522.4/100,000), over 3 times that of Hispanics/Latinos (1,547.1/100,000), and more than 7 times the rate among non-Hispanic Whites (689.0/100,000) or Asian or Pacific Islanders (567.1/100,000) (CDC 2002b).

Cases of gonorrhea among adolescents (15-19) decreased by 5% from 1996 to 2001. Among all females in 2001, 15-19-year-olds had the highest rate (703.2/100,000); among males, 20-24-year-olds had the highest rate (563.8/100,000). Although the incidence of gonorrhea among Black adolescents declined from 1996 to 2001, this group still accounted for three-quarters of all reported cases. Black, non-Hispanic adolescents (15-19) experienced gonorrhea at a rate of 2,635.3/100,000, over 7 times the rate among same-age American Indian/Alaskan Native (346.3/100,000), over 11 times the rate among Hispanic (223.7/100,000), and over 23 times that among non-Hispanic White (114.3/100,000) or Asian or Pacific Islander (93.2/100,000) adolescents (CDC 2002b, CDC 2001).

Healthy People 2010 Outcome Area: Reproductive Health		
Objective 13-05: Reduce the number of new HIV diagnoses among adolescents and adults		
Sex and Age Group (years)	Baseline (year)	2010 Target
Females and Males, 13-24	16,479 (1998)	*

*Source: Potential: HIV/AIDS Reporting System (HIV/AIDS), CDC, NCHSTP.  
Proposed baseline is shown, but has not yet been approved by the Healthy People 2010 Steering Committee.*

Issues such as confidentiality, insurance coverage, and social stigma continue to make accurate data on HIV/AIDS difficult to obtain. Figures from states that report these data show that HIV infection rates continue to fall among adolescents, as do death rates from AIDS. Even so, AIDS cases, while still relatively rare among adolescents and young adults, are increasing in prevalence (CDC 2002a). Surveillance data from the states that report HIV/AIDS cases indicate that youth accounted for a higher proportion of HIV cases (13%) than of AIDS cases (3%) from 1996 to 1999. Black adolescents and young adults (ages 13-24) have accounted for over half of all HIV cases ever reported among youth. Among adolescents aged 13-19, females are more likely to become infected with HIV than their male counterparts, with females accounting for 57% of new cases of HIV infection. Among young adults (20-24), there has been a decrease in infection among males. In 2001, males accounted for 71% of cumulative AIDS cases in this age group but only 59% of new HIV infections and 59% of newly reported cases of AIDS (CDC 2002a).



## Chronic Disease Prevention

Tobacco use can have serious negative health effects for adolescents, but the most severe consequences, such as cancer and chronic obstructive lung disease, are usually not realized until adulthood. The most common form of tobacco use, cigarette smoking, often begins in grade 6 or 7 (ages 11-13), with 16% of 8<sup>th</sup>-graders in 2001 having tried a cigarette by 5<sup>th</sup> grade. Cigarette smoking among adolescents peaked in the late 1970s, declined throughout the 1980s until the early 1990s, increased in the mid-1990s, and has declined again more recently (Johnston et al. 2002). Frequent cigarette use among high school students has risen slightly, from 13% in 1991 to 14% in 2001. In addition during 2001, 29% of high school students had smoked at least once within the past 30 days. Prevalence increases with age, with 24% of 9<sup>th</sup>-graders having smoked in 2001, compared with 35% of students in 12<sup>th</sup> grade. White, non-Hispanic high school students (32%) are more likely than Hispanic (27%) or non-Hispanic Black (15%) students to smoke. Male and female high school students are about equally likely to use cigarettes (Grunbaum et al. 2002).

### Healthy People 2010 Outcome Area: Chronic Disease Prevention Objective 27-02: Reduce tobacco use by adolescents

<i>Age Group (years)</i>	<i>Baseline (per 100,000) (year)</i>	<i>2010 Target (per 100,000)</i>
High school students (9 <sup>th</sup> -12 <sup>th</sup> Grades)	40% (1999)	21%

Source: Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP.

Some important health problems of adulthood, such as certain types of heart disease and cancer, are linked to behaviors established during adolescence and young adulthood. Regular exercise and balanced eating patterns are known to promote health and a sense of well-being, and poor eating habits, as well as a lack of regular physical activity, can have severe health consequences later in life. The National Initiative focuses on diet and physical activity as ways to improve the health of the entire population.

Nutrition is a critical factor for lifelong health. In 2001, only 21% of high school students had eaten 5 or more servings of fruits and vegetables on the preceding day, down from 29% in 1997. Male students (23%) were slightly more likely than female students (20%) to meet this standard. A higher percentage of Black, non-Hispanics (24.5%) ate 5 or more servings of fruits and vegetables than did Hispanics (23%) or non-Hispanic Whites (20%) (Grunbaum et al. 2002). In addition, in 1997, 62% of students had eaten 2 or fewer servings of food high in fat content during the preceding day. Female students (71%) were significantly more likely than male students (55.5%) to consume 2 or fewer servings of such foods. Students in 9<sup>th</sup> and 10<sup>th</sup> grades were more likely to eat 2 or more servings of such foods than 11<sup>th</sup>- or 12<sup>th</sup>-graders (Kann et al. 1998).

### Healthy People 2010 Outcome Area: Chronic Disease Prevention Objective 19-03: Reduce the proportion of children and adolescents who are overweight or obese\*

<i>Age Group (years)</i>	<i>Baseline (per 100,000) (year)</i>	<i>2010 Target (per 100,000)</i>
12-19	11% (1988-94)	5%

\* Based upon 2000 CDC Body Mass Index for age-growth charts.  
Source: National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.

Overweight and obese adolescents are at high risk for being overweight adults, are relatively more likely to experience serious long-term morbidity, including coronary heart disease, diabetes, hypertension, and some cancers (Troiano et al. 1995). Data from the 1999-2000 National Health and Nutrition Examination Survey (NHANES) show an increase in the percentage of adolescents (ages 12-19) who are overweight. In 1976-1980, only 5% of adolescents were overweight but this increased to 11% in 1988-1994 and 16% in 1999-2000. The

1999-2000 NHANES found male and female adolescents equally likely to be overweight, but there were differential risks by race/ethnicity. For example, among males, Mexican Americans had the highest overweight prevalence (27.5%), followed by non-Hispanic Blacks (20.7%) and non-Hispanic Whites (12.8%). Among females, the highest rate was among non-Hispanic Blacks (26.6%), followed by Mexican Americans (19.4%), and non-Hispanic Whites (12.4%) (NCHS 2002).

According to the 2001 Youth Risk Behavior Surveillance System (YRBSS), 60% of students (68% of females and 51% of males) had exercised to lose weight or avoid gaining weight in the previous 30 days; 44% (59% of females and 28% of males) consumed less food, fewer calories, or foods low in fat to lose weight or avoid gaining weight. Female adolescents are apt to use potentially damaging measures to lose weight: in 2001, 13% used diet pills and 8% used laxatives or made themselves vomit to control their weight (Grunbaum et al. 2002).

Healthy People 2010 Outcome Area: Chronic Disease Prevention		
Objective 22-07: Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion		
Age Group (years)	Baseline (per 100,000) (year)	2010 Target (per 100,000)
High school students (9 <sup>th</sup> -12 <sup>th</sup> Grades)	65% (1999)	85%

Source: Youth Risk Behavior Surveillance System (YRBSS), CDC, NCCDPHP

Regular physical activity accrues significant health benefits. The 2001 YRBS found that overall, 65% of high school students had engaged in vigorous physical activity 3 or more days per week. This level of physical activity decreased with age, however: 72% of 9<sup>th</sup>- graders but only 55.5% of 12<sup>th</sup>-graders met this standard. More males (73%) exercised than females (57%), and rates varied somewhat by race/ethnicity: non-Hispanic Whites had a rate of 66.5%; Hispanics 60.5%; and non-Hispanic Blacks 60% (Grunbaum et al. 2002).

### Special Health Care Needs

Chronic conditions and disabilities can be measured according to limitations placed on activity. Adolescents with chronic conditions or disabilities have complex health care needs often requiring a constellation of services to ensure their optimal health and development. In 1997, 8.4% of adolescents aged 10-17 had activity limitations due to chronic conditions; males (10.7%) were more likely than females (5.9%) to be affected. Differences were found by race and ethnicity as well as socioeconomic status: White, non-Hispanics (9.0%) were most likely to have such limitations, followed by Black, non-Hispanics (8.9%) and Hispanics/Latinos (6.1%). Among poor youth, 12.3% had a chronic condition, versus 7.4% of those not living in poverty (NCHS 2000). Overall, children with special health care needs use health services at higher rates than their peers without these. For example, in 2002, 52.6% of children over 5 years of age with activity limitations had visited a doctor at least 4 times in the previous year, versus 23.6% of their peers without such limitations (MCHB 2002).

### Summary

Current data show some promising trends, such as significant decreases in teen pregnancy rates as well as in homicide and other indicators of violence. Conversely, several areas warrant continued concern and attention, including the significant disparities highlighted throughout this chapter, the continued high rates of sexually transmitted infections, the increase in obesity, continued use of tobacco, alcohol and illicit drugs, and the decrease in vigorous physical activity. The health issues raised here warrant the concerted national effort of the National Initiative to Improve Adolescent Health by the Year 2010.