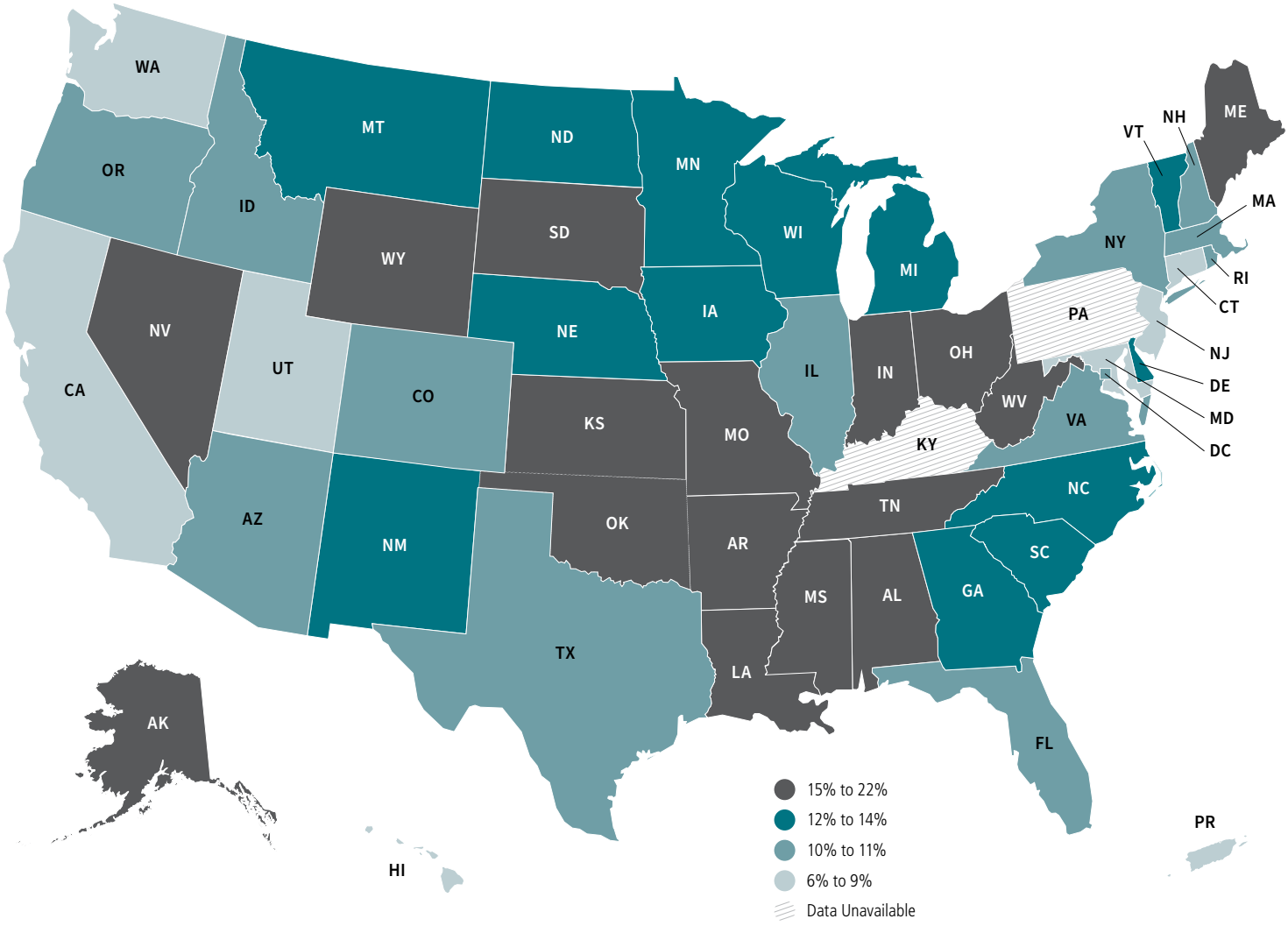
American Cancer Society®

Cancer Prevention & Early Detection
Facts & Figures 2025–2026

Current Cigarette Smoking (%), Adults 18 Years and Older, by State, US, 2023



Kentucky and Pennsylvania were not included in the 2023 Behavioral Risk Factor Surveillance System due to insufficient data. Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years. Current cigarette smoking is defined as ever smoked 100 cigarettes in lifetime and now smoke every day or some days.

Source: Behavioral Risk Factor Surveillance System, 2023.

Contents

This publication summarizes current scientific information about cancer. Except when specified, it does not represent the official policy of the American Cancer Society.

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Highlights

Tobacco

- In 2023, 11% (males: 13%, females: 9%) of adults currently smoked cigarettes, a historic low from its peak prevalence of 42% in 1965. Yet, 27 million adults still smoke, and prevalence remains high among American Indian or Alaska Native individuals (15%), Black males (15%), lower-educated individuals (22% in adults without a high school diploma and 31% in adults with a GED), and in bisexual females (20%).
- Menthol-flavored cigarettes, which can increase smoking uptake and reduce cessation success, are used by 36% of all adults who currently smoke, but this proportion is 76% in Black individuals and 63% in bisexual individuals because of targeted marketing by the tobacco industry.
- In 2022, less than half of adults who smoked cigarettes in the past year, and saw a doctor, received advice (47%) or assistance (46%) to quit smoking. Further, only about 38% of adults who tried to quit smoking used recommended cessation aids, including counseling and/or medications.
- In 2024, e-cigarettes (7.8%) were the most popular tobacco product among US high school students, followed by nicotine pouches (2.4%), cigarettes (1.7%), cigars (1.5%), and smokeless tobacco (1.5%).
- Close to 9-in-10 high school students who reported currently using tobacco products used a flavored product, from 42% for cigarettes (menthol) and 71% for cigars to about 90% for e-cigarettes and nicotine pouches.

Excess Body Weight, Physical Activity, Diet, and Alcohol

- During August 2021-August 2023, 72% of adults ages 20 and over had excess body weight (overweight: 32%; obesity: 40%). Prevalence of overweight was higher in males (35%) compared to females (28%), while obesity prevalence was similar (40% and 41%, respectively).
- During August 2021-August 2023, prevalence of obesity in youth ages 2-19 years was 21% and overweight prevalence was 15%.
- In 2022, less than half of adults reported recommended levels of aerobic activity (48%) and about one-third reported no leisure-time physical activity (27%).
- In 2023, the median prevalence across US states for high school students was 11% for consumption of three or more daily vegetable servings; 23% for consumption of two or more daily fruit servings; and 24% for meeting recommended physical activity levels.

Infectious Agents

- In 2023, 61% of adolescents ages 13-17 years (64% of females, 59% of males) were up to date with the human papillomavirus vaccine series, though estimates differed widely across states, with the lowest prevalence in Mississippi (38%) and the highest in Rhode Island (84%).
- An estimated 63% of adolescents (65% of females, 61% of males) ages 13-17 years received at least one dose of the HPV vaccination series before their 13th birthday.

Occupational and Environmental Cancer Risk Factors

- In 2023, 11% of adults reported occupational exposure in the past year to chemicals (solvents, industrial glues, heavy metals, pesticides, or motor engine exhaust), some of which have been identified as carcinogenic. Prolonged exposure was more common in lower-educated (77%) and Hispanic workers (70%) than in higher-educated (48%), Asian (50%), and White workers (62%).

Cancer Screening

- In 2023, prevalence of up-to-date breast cancer screening in females ages 45 years and older was

69% overall, but substantially lower in females who were uninsured (35%), were recent immigrants (54%), did not have a high school diploma (56%), were ages 45-54 years (58%), and were American Indian or Alaska Native (59%).

- In 2021, 76% of females ages 25-65 years were up to date with cervical cancer screening. Screening utilization was lowest among recent immigrants (55%), those who did not have a high school diploma (56%), and uninsured females (58%).
- About 62% of adults ages 45 years and older were up to date with colorectal cancer screening in 2023, with lower prevalence in individuals who were uninsured (24%), were ages 45-49 years (34%), recent immigrants (38%), and had household incomes below the federal poverty level (49%).
- In 2022, prevalence of up-to-date lung cancer screening was 14% among the estimated 18.91 million screening-eligible adults, with lower prevalence in ages 50-54 years (7%) and uninsured (3%) individuals.
- Among males 50 years and older in 2023, 37% were screened in the past year for prostate cancer, with the lowest prevalence in those who were uninsured (13%), had household incomes below the federal poverty level (21%), were Medicaid/public/dual-eligible insured (22%), and were American Indian or Alaska Native (23%).

Introduction

Cancer prevention and early detection are central to the American Cancer Society's vision to end cancer as we know it, for everyone. Cancer prevention and screening interventions are estimated to have averted about 4.75 million deaths – or 8 of every 10 averted deaths – from breast, cervical, colorectal, lung, and prostate cancers between 1970 and 2020.[1]

Yet, an estimated 40% of cancer cases in the US in 2019 were attributable to modifiable risk factors, including cigarette smoking, secondhand smoke exposure, dietary factors, physical inactivity, ultraviolet radiation exposure, and 7 carcinogenic infections, including human papillomavirus (HPV).[2] Additionally, exposure to occupational and environmental carcinogens (e.g., outdoor air pollution, radon exposure) is pervasive, and human-caused climate change exacerbates exposure to many of these agents. Therefore, systematic interventions to reduce tobacco use and excess body weight, improve healthy eating patterns and physical activity levels, increase HPV vaccination rates, and reduce occupational and environmental carcinogenic exposure are central to reducing the cancer burden. Efforts to increase recommended cancer screening can additionally prevent many cancer cases and deaths through identification and removal of abnormalities before they become cancerous (colorectal and cervical) and detection of cancers at an early stage when treatment is more likely to be successful.

Cancer Prevention & Early Detection Facts & Figures is a biannual report from the American Cancer Society that provides comprehensive information, including scientific background and prevalence estimates about the most common modifiable cancer risk factors; preventive vaccinations; occupational and environmental carcinogenic exposures; use of cancer screening tests; and social, economic, and public policy factors that profoundly influence a person's behavior.

References

1. Goddard KAB, Feuer EJ, Mandelblatt JS, et al. Estimation of Cancer Deaths Averted From Prevention, Screening, and Treatment Efforts, 1975-2020. *JAMA Oncol*. 2024.doi:10.1001/jamaoncol.2024.5381.

2. Islami F, Marlow EC, Thomson B, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States, 2019. *CA Cancer J Clin*. 2024;74(5):405-432. doi:10.3322/caac.21858.

Tobacco

The first US Surgeon General's Report (SGR) on Smoking and Health in 1964 concluded that cigarette smoking caused lung cancer.[1] Since then, other tobacco products, including cigars, cigarillos, waterpipes, and smokeless tobacco, have been causally linked to multiple cancer types.[2] Despite decades of declining smoking prevalence, tobacco use remains the most preventable cause of death in the US.[3, 4] This is partly because there is a lag time between smoking exposure and cancer occurrence but also, importantly, because reductions in smoking have been uneven; prevalence remains high in many groups, including individuals with low socioeconomic status, racially minoritized groups including American Indian or Alaska Native and Black individuals, those with mental illness, sexual and gender diverse persons, veterans, and people with disabilities.[5-7] In 2024, the US SGR on Eliminating Tobacco-Related Disease and Death concluded that tobacco-related health disparities are a social injustice, in addition to an economic and health burden.[7] The report also concluded that addressing disparities requires reflection on the complex history of the commercialization of tobacco and both past and present-day experiences of racism, discrimination, and targeted marketing by the tobacco industry.

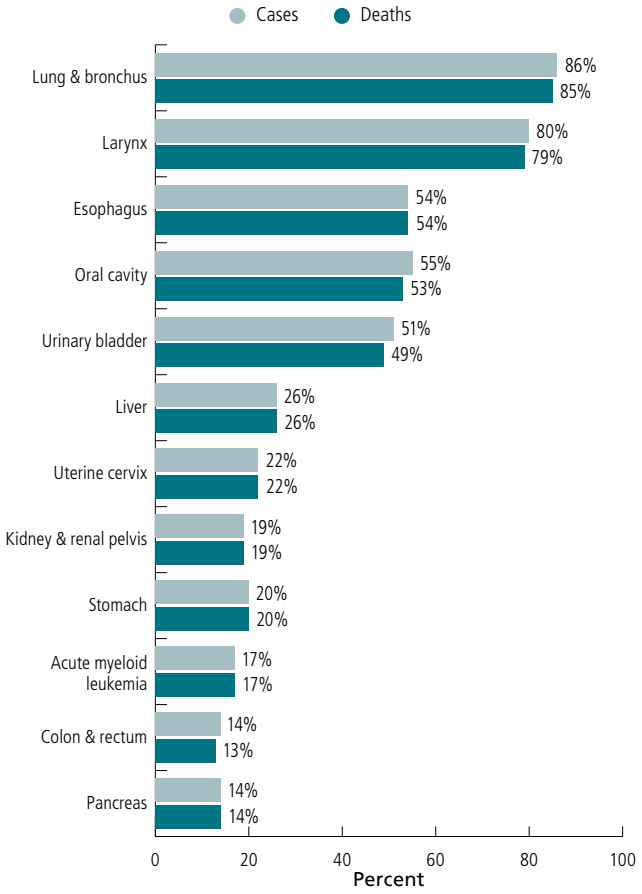
Cigarette Smoking

Cigarette smoking increases the risk of at least 12 cancers: oral cavity and pharynx, lung, larynx, esophagus, pancreas, uterine cervix, kidney, bladder, stomach, colorectum, liver, and acute myeloid leukemia.[2] Smoking may also increase the risk of fatal prostate cancer and a rare type of ovarian cancer.[2, 8] Harmful health effects increase with both duration and intensity of smoking. Smoking's impact also varies by cancer type, causing over 80% of lung and laryngeal cancers, 50% of esophageal, oral/nasal cavity, and urinary bladder cancers, but less than 20% of pancreatic cancer, colorectal cancer, and acute myeloid leukemia cases (Figure 1A). Smoking accounted for 29% of all cancer deaths nationally in 2019,[3] and up to 40% of deaths in parts of the South and Appalachia in 2013-2017,[9] and nearly $900 billion in cumulative economic losses nationally in 2020.[10]

Adult Cigarette Smoking

- The prevalence of current smoking among adults ages ≥18 years in 2023 was 11% (males: 13%, females: 9%) (Table 1A), a 74% decline in smoking prevalence since its peak level of 42% in 1965.[7] However, about 27 million adults still smoked in 2023.
- Smoking prevalence declined across race/ethnicity groups, though substantial disparities remain, with historically higher prevalence in Black males

Figure 1A. Proportion of Cancer Cases and Deaths Attributable to Cigarette Smoking (%) in Adults 30 Years and Older, US, 2019



Source: Islami F, et al. 2024.[3]

Table 1A. Current Tobacco Use and Quit Ratio (%), Adults 18 Years and Older, US, 2023

	Current Cigarette Smoking*			Menthol cigarette smoking§	E-cigarettes¶	Quit ratio†
	Males	Females	Overall			
Overall	**13**	**9**	**11**	**36**	**7**	**65**
Sex						
Males	13	–	13	32	8	64
Females	–	9	9	42	6	65
Age (years)						
18-24	4	3	3	49	13	61
25-44	14	9	12	40	10	60
45-64	15	13	14	31	4	63
65+	10	7	8	29	1	81
Race/Ethnicity						
Hispanic	12	5	8	40	4	63
White only	13	12	12	28	9	66
Black only	15	9	12	76	6	50
Asian only	8	2	5	38	4	67
AIAN only or multiple	18	14	15	36	7	65
Sexual orientation						
Gay or lesbian	15	15	15	35	9	61
Heterosexual	13	9	11	36	7	65
Bisexual	‡	20	18	63	15	61
Immigration status						
Born in US/US territory	13	11	12	36	8	65
In US fewer than 10 years	16	‡	8	‡	3	63
In US 10+ years	10	4	7	38	3	62
Education (≥25 years)						
No HS diploma	27	16	22	40	7	50
GED	32	30	31	48	14	52
HS diploma	19	13	16	33	8	61
Some college	15	13	14	35	8	65
Undergraduate degree	6	5	6	29	4	77
Graduate degree	4	2	3	22	3	86
Income level						
<100% FPL	24	19	21	45	8	48
100 to <200% FPL	22	13	17	36	8	55
≥200% FPL	10	7	8	33	7	70
Insurance status						
Uninsured	21	11	17	37	11	50
Private	10	7	8	31	6	72
Medicaid/Pub/Dual Eligible	20	16	18	44	10	51
Medicare (65 years and above)	10	8	9	28	1	81
Other (below 65 years)	21	16	19	33	9	58

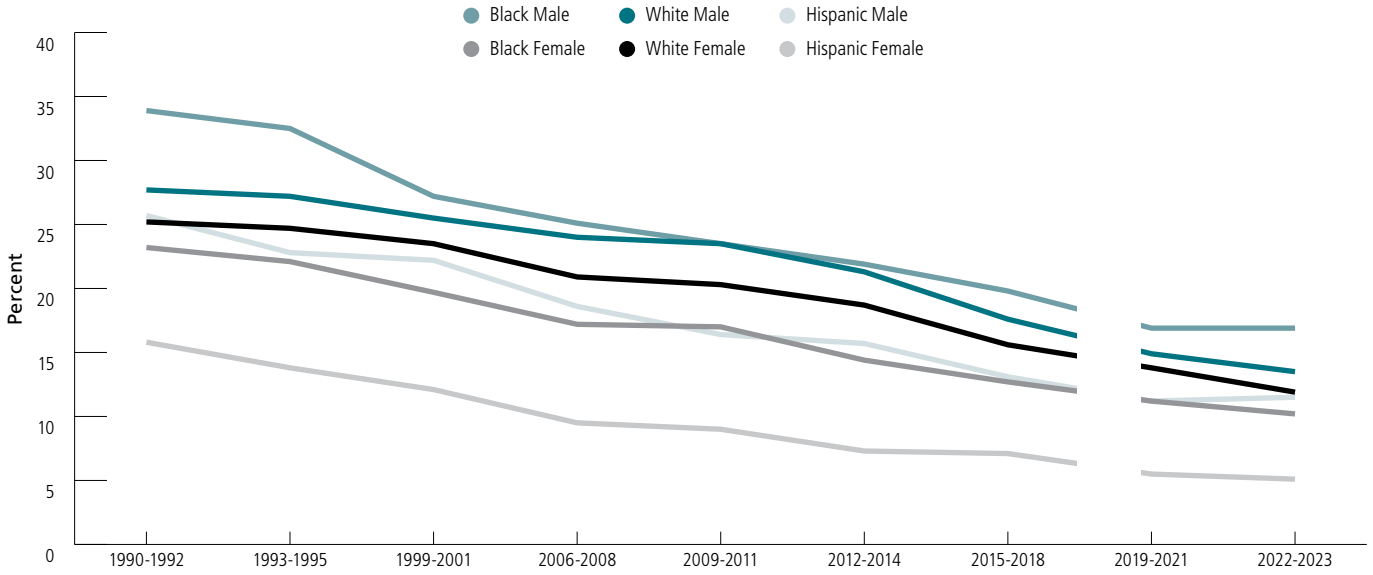
AIAN-American Indian or Alaska Native. GED-General Educational Development high school equivalency. FPL-federal poverty level. All estimates except age and insurance are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years and by 4 age groups: 25-34, 35-44, 45-64, and ≥65 years for education. *Ever smoked 100 cigarettes in lifetime and currently smoke every day or some days. §Of those who currently smoke, those who usually smoked menthol cigarettes (asked March to December 2023 only). ¶Currently using e-cigarettes or other electronic vaping products. †Persons who formerly smoked among those who ever smoked 100 cigarettes in lifetime. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: National Health Interview Survey, 2023.

(Figure 1B). In 2023, smoking prevalence was lowest among Asian persons (males: 8%, females: 2%) and highest among American Indian or Alaska Native persons (males: 18%, females: 14%). (Table 1A).

- In 2023, about 36% of those currently smoking reported using menthol-flavored cigarettes, but this proportion was 76% in Black persons compared to 28% in White persons, 40% in Hispanic persons, 36% in American Indian or Alaska Native persons, and 38% in Asian persons (Table 1A).
- By state, smoking prevalence in 2023 was lowest in Utah (6%) and highest in West Virginia (22%); all but 5 states with smoking prevalence greater than the state median were in the Southern and Midwestern regions (Cover, Table 1B).

Figure 1B. Current Cigarette Smoking Prevalence (%), Adults 18 Years and Older, by Sex and Race/Ethnicity, US, 1990-2023



Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, ≥65 years. The National Health Interview Survey underwent a significant redesign in 2019, preventing comparability to prior years indicated by the line break. Current cigarette smoking is defined as ever smoked 100 cigarettes in lifetime and now smoke every day or some days.

Sources: National Center for Health Statistics, 2019.[61] National Health Interview Survey, 2015-2023.

Youth Cigarette Smoking

Almost 90% of adults who smoke regularly began smoking before the age of 18 years, which is why reducing youth initiation is critical for tobacco control. Additionally, younger individuals are more vulnerable to nicotine addiction.[11]

- In 2024, the prevalence of current cigarette smoking (past month) among high school students was 1.7% (males: 2.2%, females: 1.1%) (Table 1C), declining from a peak of 25% in 1999.[12]
- About 42% of currently smoking students reported flavored (menthol) cigarette product use (Table 1C) in 2023.
- In 2023, cigarette smoking prevalence among high school students ranged from 1% in Utah to 7% in Alaska, Arkansas, Montana, and West Virginia (Table 1D).

Other Combustible Tobacco Products

Other combustible tobacco forms include cigars, cigarillos or little cigars, pipes, waterpipes (also known as hookahs or shishas), and roll-your-own products. Smoking cigars increases the risk of cancers of the lung, oral cavity, larynx, and esophagus.[13-16] Waterpipes, often used in social settings (e.g., hookah bars), are designed to heat tobacco (often flavored) and pass smoke through water. Their use is associated with an increased risk of lung, oral, and esophageal cancers, as well as non-cancer respiratory illnesses.[17-19]

Adult Other Combustible Tobacco Use

- In 2023, 4% of adults (7% males and 1% females) reported currently smoking cigars, and use was more common among Black persons (7%) than White (4%), Hispanic (3%), or Asian (1%) persons.[20]
- Pipe smoking (regular or waterpipe) was less common at about 1% for both males and females in 2023.[20]

Table 1B. Current Tobacco Use and Smoking Cessation (%), Adults 18 Years and Older, by State, US, 2020 and 2023

	Cigarettes* (2023)						Smoking Cessation		
Age adjusted %	**Overall**	**Rank (1=high)**	**Males**	**Females**	**Low education****	**E-cigarettes¶ (2023)**	**Quit ratio† (2023)**	**Past-year quit attempt†† (2020)**	**Recent successful cessation§ (2020)**
United States (median)	**12**	**–**	**14**	**11**	**27**	**8**	**63**	**62**	**6**
Range	*6-22*	*–*	*8-21*	*5-23*	*13-52*	*3-12*	*56-72*	*56-71*	*3-11*
Alabama	15	15	17	12	33	10	62	69	5
Alaska	15	9	17	14	42	8	60	62	‡
Arizona	10	38	12	9	19	8	67	63	6
Arkansas	16	7	17	15	30	12	63	57	4
California	9	48	11	6	13	6	68	69	8
Colorado	10	37	12	9	19	9	68	66	8
Connecticut	9	49	10	7	19	7	72	70	5
Delaware	12	29	12	11	25	7	63	66	‡
District of Columbia	10	39	15	6	43	5	58	71	6
Florida	11	31	13	9	20	9	63	64	6
Georgia	12	27	15	10	32	8	60	66	7
Hawaii	9	44	10	8	21	12	68	63	5
Idaho	11	35	12	9	24	9	71	62	6
Illinois	11	33	12	10	17	7	63	62	8
Indiana	15	12	16	14	32	9	61	60	4
Iowa	14	17	16	13	26	8	61	60	5
Kansas	15	14	15	14	32	10	62	59	7
Kentucky	–	–	–	–	–	–	–	56	6
Louisiana	16	4	18	15	43	11	59	65	6
Maine	15	11	16	14	38	7	64	58	7
Maryland	9	46	11	7	23	6	63	64	6
Massachusetts	10	40	13	8	24	7	65	66	6
Michigan	14	18	14	14	34	10	61	64	6
Minnesota	13	24	13	12	30	8	63	60	6
Mississippi	17	3	18	15	33	10	57	66	3
Missouri	16	6	17	15	31	9	57	61	6
Montana	13	21	13	13	29	9	66	59	7
Nebraska	12	26	14	11	22	9	64	61	6
Nevada	15	16	16	13	22	8	61	62	10
New Hampshire	11	36	11	10	33	8	71	61	5
New Jersey	9	43	10	9	17	7	66	69	7
New Mexico	13	22	16	10	17	9	62	65	7
New York	10	42	11	8	20	7	67	67	7
North Carolina	14	20	17	11	28	9	61	60	7
North Dakota	14	19	15	13	37	9	62	57	6
Ohio	16	8	16	15	37	9	60	59	4
Oklahoma	16	5	17	16	33	12	60	61	4
Oregon	11	34	12	10	24	9	68	59	8
Pennsylvania	–	–	–	–	–	–	–	63	6
Rhode Island	10	41	11	9	19	8	69	66	8
South Carolina	13	23	15	11	24	9	65	63	6
South Dakota	15	10	18	13	41	10	61	59	5
Tennessee	18	2	19	16	44	11	58	58	5
Texas	11	30	13	10	17	8	62	66	7
Utah	6	50	8	5	19	6	72	67	11
Vermont	12	28	13	11	34	6	65	61	6
Virginia	11	32	13	10	27	8	66	65	7
Washington	9	47	11	7	19	8	70	64	8
West Virginia	22	1	21	23	52	12	57	59	7
Wisconsin	12	25	14	11	24	8	66	61	7
Wyoming	15	13	17	13	29	8	62	59	7
Puerto Rico	9	44	13	6	22	3	56	63	5

Kentucky and Pennsylvania were not included in the 2023 Behavioral Risk Factor Surveillance System due to insufficient data. Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years and by 4 age groups: 25-34, 35-44, 45-64, and ≥65 years for education. *Ever smoked 100 cigarettes in lifetime and now smoke every day or some days. **Did not finish high school/GED among adults ages ≥25 years. ¶Reported using e-cigarettes or other electronic vaping products every day or some days. †Persons who formerly smoked among those who ever smoked 100 cigarettes in lifetime. ††Persons who reported that they stopped smoking during the past 12 months because they were trying to quit smoking among those currently smoking and persons who quit during the past year among those who formerly smoked. §Persons who quit smoking for ≥6 months during the past year among those who quit during the past year and among those currently smoking who had smoked for ≥2 years. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: Behavioral Risk Factor Surveillance System, 2020 and 2023.

Youth Other Combustible Tobacco Use

- In 2024, 3.3% of high school students and 2.1% of middle school students smoked any combustible tobacco product (cigarettes, cigars, waterpipes, pipes, or bidis); prevalence was generally higher among American Indian or Alaska Native (8%) and multiracial (5%) high school students than Black (4.4%), White (3%), or Hispanic (3.3%), students.[12]
- Cigars and cigarettes were smoked at similar levels beginning in 2023 (Figure 1C). In 2024, 1.5% of high school students (1% of females and 2.1% of males) reported current cigar use, with prevalence consistently higher in Black students (2.7%) than in White (1.3%) or Hispanic (1.6%) students (Figure 1C, Table 1C). About 71% of those currently smoking cigars used flavored products in 2023 (Table 1C). Across states, cigar smoking in 2023 was lowest in Utah (1%) and highest in Mississippi (10%) (Table 1D).

Table 1C. Current Tobacco Use (%), High School Students, US, 2023 and 2024

	Cigarettes	Cigars	E-cigarettes	Smokeless tobacco†	Waterpipe
Overall (2024)	1.7	1.5	7.8	1.5	0.8
Sex (2024)					
Males	2.2	2.1	7.8	2.3	0.9
Females	1.1	1	7.7	0.6	0.7
Race/Ethnicity (2024)					
Hispanic	1.7	1.6	7.4	1.4	1
White	1.9	1.3	8.1	1.8	0.4
Black	‡	2.7	8.4	‡	1.6
Flavored product use among students currently using the product*	42 (menthol)	71	88	84	85

Data from US territories are excluded from national estimates as they were sampled separately. Current tobacco use is defined as in the past 30 days. †Includes chewing tobacco, snuff, dip, and snus. *Any flavor other than tobacco-flavored or unflavored reported in 2024 for e-cigarettes and in 2023 for all other products. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Sources: Jamal A, et al. 2024.[12] Park-Lee E, et al. 2024.[27] National Youth Tobacco Survey, 2023-2024. Birdsey J, et al. 2023.[62]

E-cigarettes (Vaping Devices)

E-cigarettes, also referred to as e-cigs, vapes, e-hookahs, vape pens, and electronic nicotine delivery systems (ENDS), are battery-powered devices that produce an inhalable aerosol.[21] These devices use cartridges or tanks filled with a liquid typically containing nicotine, propylene glycol (PG) and/or vegetable glycerin (VG), and flavoring. Many e-cigarettes are available as disposable versions and resemble everyday items like USB flash drives and pens that often use pods that contain high levels of nicotine and come in a variety of flavors that often appeal to youth.[21]

There is accumulating evidence of short-term respiratory, cardiovascular, and other negative health effects from e-cigarette use, but information on long-term effects is currently lacking.[22] Importantly, e-cigarettes are addictive and may lead to the use of combustible tobacco products among adolescents and young adults.[23, 24] Although switching completely from conventional cigarettes to e-cigarettes does reduce exposure to numerous toxicants and carcinogens, inhalation of added flavorants and solvents in e-cigarettes can be directly toxic to the lungs or result in higher absorption of toxicants.[25] Evidence about whether e-cigarettes successfully aid smoking cessation is inconclusive and varies based on study design; there is strong evidence that e-cigarettes are associated with cessation from controlled clinical trials but not from real-world population samples.[23, 26] There is also some evidence that e-cigarette use may increase the risk of relapse among individuals who formerly smoked cigarettes.[22] Currently, no e-cigarette has been approved by the FDA as a cessation aid. Visit cancer.org/cancer/risk-prevention/tobacco/e-cigarettes-vaping.html for more information on e-cigarette risks.

Adult E-cigarette Use

- About 7% of adults (8% of males and 6% of females) used e-cigarettes in 2023, with prevalence notably higher in younger people (18-24 years: 13%; 25-44 years: 10%) than older people (45-64 years: 4%; ≥65 years: 1%) (Table 1A).
- E-cigarette use in 2023 ranged from 3% in Puerto Rico to 12% in Arkansas, Hawaii, Oklahoma, and West Virginia (Table 1B).

Table 1D. Current Tobacco Use (%), High School Students, by State, US, 2023

	Cigarettes	Rank† (1=high)	Cigars*	E-cigarettes¶	Smokeless tobacco†
United States (median)	4	–	4	17	3
Range	*1-7*	–	*1-10*	*6-27*	*1-7*
Alabama	–	–	–	–	–
Alaska	7	4	3	17	7
Arizona	–	–	–	–	–
Arkansas	7	1	9	23	5
California	–	–	–	–	–
Colorado	–	–	–	–	–
Connecticut	3	27	3	12	2
Delaware	2	32	5	18	3
District of Columbia	3	25	4	10	4
Florida	–	–	–	–	–
Georgia	–	–	–	–	–
Hawaii	3	27	–	13	–
Idaho	–	–	–	–	–
Illinois	4	18	–	17	–
Indiana	6	6	–	18	–
Iowa	–	–	–	–	–
Kansas	–	–	–	–	–
Kentucky	5	11	4	20	3
Louisiana	–	–	–	–	–
Maine	6	8	4	16	3
Maryland	3	23	4	14	3
Massachusetts	3	20	–	18	–
Michigan	2	33	5	15	3
Minnesota	–	–	–	–	–
Mississippi	5	12	10	18	4
Missouri	6	5	5	21	3
Montana	7	2	5	24	5
Nebraska	2	35	–	7	2
Nevada	3	27	–	15	4
New Hampshire	4	16	–	17	–
New Jersey	3	30	–	18	–
New Mexico	3	23	3	18	3
New York (excluding NYC)	2	36	6	17	3
North Carolina	4	15	–	21	–
North Dakota	5	9	4	18	3
Ohio	4	18	4	19	3
Oklahoma	4	14	6	22	4
Oregon	–	–	–	–	–
Pennsylvania	4	17	5	16	3
Rhode Island	3	25	4	17	3
South Carolina	–	–	–	–	–
South Dakota	5	13	4	15	2
Tennessee	5	9	7	22	5
Texas	3	20	4	14	3
Utah	1	37	1	6	1
Vermont	6	7	4	16	3
Virginia	2	34	2	8	2
Washington	–	–	–	–	–
West Virginia	7	3	6	27	6
Wisconsin	3	20	5	16	3
Wyoming	–	–	–	–	–
Puerto Rico	2	31	3	13	2

Estimates are crude. Cells with hyphen marks denote unavailable estimates. Current use is defined as at least 1 day in the past 30 days before the survey. †Based on % current cigarette smoking. *Cigars, cigarillos, or little cigars. ¶E-cigarettes, vapes, vape pens, e-cigars, e-hookahs, hookah pens, and mods. †Chewing tobacco, snuff, dip, snus, or dissolvable tobacco products. See Special Notes, page 67, for more information regarding unavailable data.

Source: Youth Risk Behavior Survey, 2023.

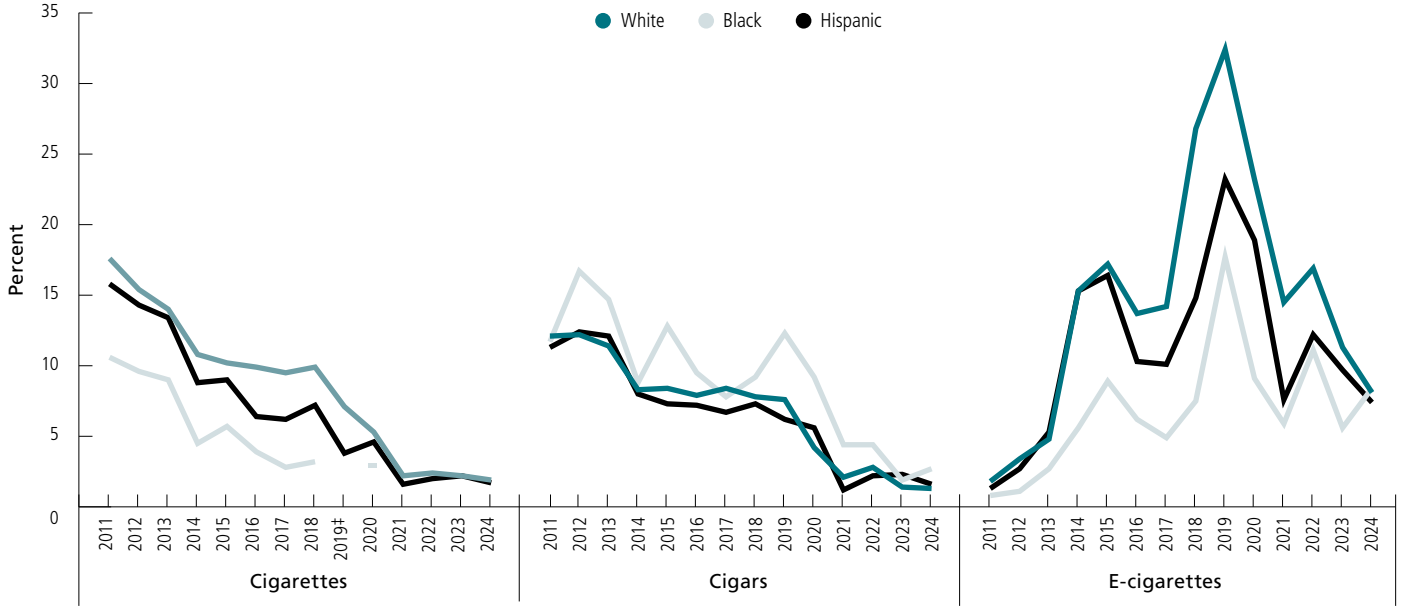
Youth E-cigarette Use

- E-cigarettes have been the most used tobacco product among high school students since 2014, with current use prevalence increasing to 28% in high school students in 2019 and subsequently declining in 2024 to 7.8% (1.21 million students, females: 7.7% and males: 7.8%) (Figure 1C, Table 1C). About 3.5% (0.41 million, females: 3.9%, males: 3.1%) of middle school students also currently used e-cigarettes in 2024.[12]
- Current e-cigarette use in high school students was similar across racial/ethnic groups in 2024 (Hispanic: 7.4%, White: 8.1%, Black: 8.4%) (Table 1C). This pattern diverged from prior years when prevalence was consistently higher in White students. (Figure 1C).
- About 88% of middle and high school students currently using e-cigarettes reported using a flavored product, most commonly fruit (63%); candy (33%); mint (25%); and menthol (15%) in 2024.[27]
- In 2023, e-cigarette use among high school students ranged from 6% in Utah to 27% in West Virginia, and its prevalence was 3 to 10 times higher than cigarette smoking prevalence across states (Table 1D).

Smokeless Tobacco Products

Smokeless tobacco includes products such as chewing tobacco, moist snuff, and snus (a spitless, moist powder tobacco, often in a pouch). These products can cause oral, esophageal, and pancreatic cancer, as well as precancerous lesions of the mouth.[8] Nicotine pouches (dissolvable pouches containing powdered nicotine and sometimes flavors) are an emerging smokeless tobacco form that is placed in

Figure 1C. Current Use of Selected Tobacco Products (%), by Race/Ethnicity, High School Students, US, 2011-2024



Estimates are crude. Current tobacco use is defined as in the past 30 days. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.
Sources: 2024: Jamal A, et al. 2024;[12] **2023:** Birdsey J, et al. 2023;[62] **2022:** Park-Lee E, et al. 2022;[63] **2021:** Gentzke AS, et al. 2022;[64] **2020:** Gentzke AS, et al. 2020;[65] **2019:** Wang TW, et al, 2019;[66] **2018:** Gentzke AS, et al. 2019;[67] **2017:** Wang TW, et al. 2018;[68] **2016:** Jamal A, et al. 2017;[69] **2015:** Singh T, et al. 2016;[70] **2014:** Arrazola RA, et al. 2015;[71] **2013:** Arrazola RA, et al. 2014;[72] **2011-2012:** Centers for Disease Control and Prevention (CDC). 2013.[73]

the mouth between the lip and gum. Evidence on the health effects of nicotine pouches is limited, but these products have high nicotine levels, which can be particularly harmful in young people.[28] Switching from smoking to using spit tobacco products has been shown to result in a higher risk of tobacco-related death than complete tobacco cessation.[29]

Adult Smokeless Tobacco Use

- In 2023, current smokeless tobacco use (chewing tobacco, snuff, and snus) was 2% overall, but varied by sex and racial/ethnic groups, with males (4%), White persons (3%), and American Indian or Alaska Native persons (3%) having higher use than females and Hispanic persons (both <1%).[20]
- Nicotine pouch use in US adults was generally low; about 3% reported ever use and 0.4% reported current use in September 2022, with higher rates among those currently smoking cigarettes.[30]

Youth Smokeless Tobacco Use

- In 2024, 1.5% (females: 0.6%, males: 2.3%) of high school students were currently using smokeless tobacco, 84% of whom reported flavored product use in 2023 (Table 1C), and ranged from 1% in Utah to 7% in Alaska in 2023 (Table 1D).
- In 2024, nicotine pouches were the second most used tobacco product among US students. About 2.4% of high school students reported current use of nicotine pouches, of whom 86% used flavored products (53% mint, 22% fruit, and 19% menthol).[27]

Secondhand Smoke

Secondhand smoke (SHS) exposure causes an estimated 2.7% of all lung cancer cases, which is the equivalent of about 6,120 new cases in 2025.[3, 31]

Secondhand Smoke Exposure

- Nationwide, SHS exposure (measured by testing a person's blood for cotinine, a by-product of nicotine) among non-smoking individuals declined

Table 1E. Smoking Cessation and Cessation Assistance (%), Adults 18 Years and Older, US, 2022

	Past-year quit attempt*	Recent successful cessation†	Doctor advice to quit§	Doctor assistance to quit¶	Counseling**	Medication††	Counseling or medication
Overall	**55**	**10**	**47**	**46**	**7**	**36**	**38**
Sex							
Males	55	9	45	44	7	36	38
Females	56	11	50	50	8	38	39
Age (years)							
18-24	74	15	32	31	‡	27	28
25-44	58	12	37	38	6	29	31
45-64	47	6	60	56	9	45	47
65 years and above	49	6	60	60	10	46	47
Race/Ethnicity							
Hispanic	57	11	34	37	7	28	30
White only	53	10	51	49	7	41	42
Black only	61	9	47	44	10	29	32
Asian only	63	‡	33	40	‡	14	15
AIAN only or multiple	65	‡	50	56	‡	33	33
Sexual orientation							
Gay or lesbian	67	‡	44	58	‡	40	41
Heterosexual	55	9	46	45	7	35	37
Bisexual	54	16	51	46	‡	47	48
Immigration status							
Born in US/US territory	56	10	49	48	8	39	41
In US fewer than 10 years	53	‡	‡	30	‡	‡	‡
In US 10+ years	54	8	43	44	‡	17	19
Education (≥25 years)							
No high school diploma	47	4	45	48	5	29	30
GED	52	‡	55	52	‡	40	43
High school diploma	52	8	50	48	4	35	37
Some college	52	9	51	49	12	42	45
Undergraduate degree	55	14	47	46	7	45	46
Graduate degree	65	18	45	42	‡	40	41
Income level							
<100% FPL	56	8	50	49	12	39	42
100 to <200% FPL	54	8	49	49	6	30	32
≥200% FPL	56	11	46	45	7	39	40
Insurance status							
Uninsured	49	6	31	27	‡	17	20
Private	55	10	48	46	6	38	39
Medicaid/Pub/Dual Eligible	53	9	56	56	10	40	43
Medicare (65 years and above)	48	5	60	60	10	43	44
Other (below 65 years)	53	8	62	60	14	50	53

AIAN-American Indian or Alaska Native. GED-General Educational Development high school equivalency. FPL-federal poverty level. All estimates except age and insurance are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years and by 4 groups: 25-34, 35-44, 45-64, and ≥65 years for education. *Quit smoking for >1 day in past year in those who currently smoke/quit in past year. †Quit smoking for ≥6 months in past year. §Received advice from a health professional to quit in those currently smoking/quit in past year that saw a health professional in the past year. January 2022 excluded due to survey error. ¶Received advice from a health professional on ways to quit/prescribed cessation medication in those currently smoking/quit in past year that saw a health professional in the past year. **Used one-on-one counseling, stop smoking clinic, class, or support group; a telephone help line or quitline to stop smoking in those currently smoking who tried to quit in past year/quit in past 2 years. ††Used nicotine patch, gum, lozenge, nasal spray, or inhaler, varenicline, bupropion, or combination to stop smoking in those currently smoking who tried to quit in past year/quit in past 2 years. ‡Estimates are statistically unstable. See Special Notes, page 64.

Source: National Health Interview Survey, 2022.

substantially over time and was 20% in adults and 34% of youth ages 3-17 years during 2017-March 2020; but exposure remained substantially higher among Black persons and those with lower socioeconomic status.[32]

- In 2023, prolonged occupational exposure to tobacco smoke in the past 12 months (work in a job with 4+ hours a week of tobacco smoke exposure from other people) was 4% among US adults, but exposure was substantially higher in those with lower education levels (7% in those with less than high school versus 2% in those with a college degree).[20]

Tobacco Cessation

Smoking cessation reduces the risk of developing all 12 cancers caused by smoking.[5] People who successfully quit smoking can add as much as a decade of life expectancy and reduce their risk of lung cancer by half after quitting for 10-15 years compared to people who continue to smoke.[5] Quitting at any age is beneficial to health, but the benefit is greatest when done at a younger age.[33] Smoking cessation at the time of cancer diagnosis can also improve cancer survival.[2]

Successfully quitting smoking often requires multiple attempts.[34] Clinician advice to quit, delivered even briefly, and combined with assistance to obtain tobacco cessation treatment increases success rates when routinely delivered in all health care settings.[34] FDA-approved cessation treatments, including nicotine replacement therapy (NRT), and prescription medications (e.g., bupropion and varenicline) and behavioral counseling (individual, group, or telephone), improve the chances of long-term cessation among adults, especially when used together.[5, 34, 35] However, for youth who use tobacco, including e-cigarettes, the US Preventive Services Task Force has found insufficient evidence to recommend specific primary care interventions (counseling or medication).[36, 37] While evidence on e-cigarette cessation is limited, recent trials have shown promise. Smoking cessation medications like varenicline and cytisinicline have proven effective for adults who use e-cigarettes, while interactive tailored text messaging has shown potential for youth e-cigarette cessation.[38, 39]

Adult Tobacco Cessation

- In 2023, the quit ratio (the proportion of those who have quit among those who ever smoked) among US adults was 65% (56 million persons formerly smoked), but this proportion was ≤50% among Black individuals, those without a high school degree, individuals without insurance, and those below the federal poverty level. (Table 1A).
- The quit ratio in 2023 was lower in Southern and Midwestern states compared to other regions, ranging from 56% in Puerto Rico and 57% in Mississippi, Missouri, and West Virginia to 72% in Connecticut and Utah (Table 1B).
- More than half of adults who smoked cigarettes (55%) in 2022 had attempted to quit in the past year, but only about 10% had quit successfully for ≥6 months, with substantially higher success in those with more education (18% in those with a graduate degree versus 4% in those with no high school diploma) (Table 1E).
- Less than half of individuals who smoked in the past year and saw a doctor received advice (47%) or assistance to quit (46%) in 2022 (Table 1E).
- Only about 38% of people in 2022 who tried to quit smoking cigarettes used recommended cessation aids, including counseling and/or medications (Table 1E).
- Younger adults ages 18-24 years, Hispanic, Asian, and uninsured individuals had the lowest receipt of both doctor advice or assistance to quit and use of evidence-based cessation aids (Table 1E).

Youth Tobacco Cessation

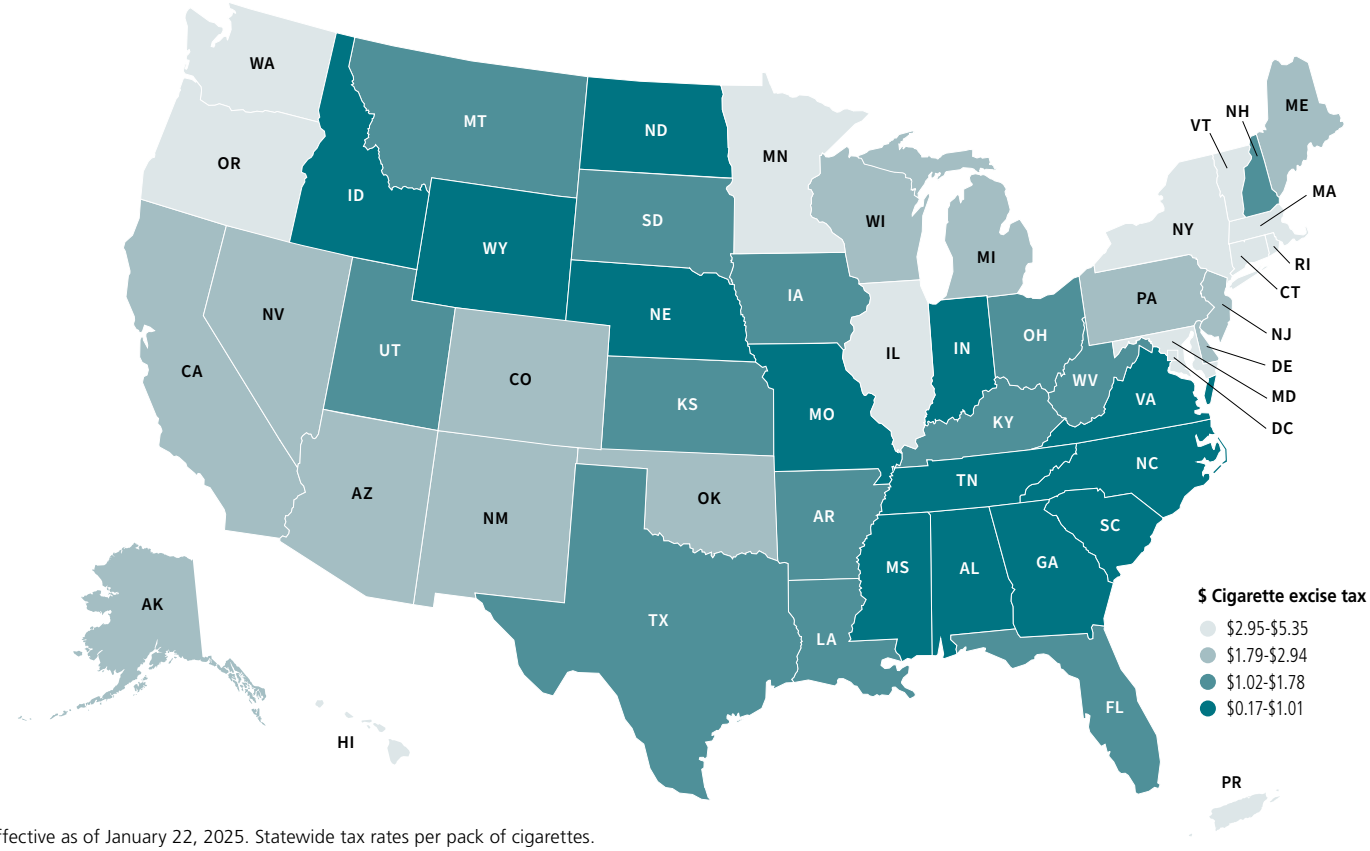
- In 2023, about 53.6% of high school students who smoked cigarettes tried to quit in the past year, and among those who used e-cigarettes, 66.6% tried to quit these products.[40]

American Cancer Society researchers developed the Empowered to Quit email-based program to help individuals quit smoking (cancer.org/cancer/risk-prevention/tobacco/empowered-to-quit.html). Additional cessation resources are available on the American Cancer Society website (cancer.org/healthy/stay-away-from-tobacco/guide-quitting-smoking.html), and the Centers for Disease Control and Prevention website (cdc.gov/tobacco/about/how-to-quit.html) and at https://smokefree.gov/.

Reducing Tobacco Use and Exposure

Since the 1964 SGR on Smoking and Health, numerous tobacco control policies have been implemented at federal, state, and local levels. These include increased cigarette taxes, improved cessation treatment access, comprehensive smoke-free policies, health warnings, prevention and cessation programs, and mass media campaigns. Such initiatives have reduced smoking rates, increased cessation, and are estimated to have averted

Figure 1D. Cigarette Excise Taxes ($), by State, US, 2025



Effective as of January 22, 2025. Statewide tax rates per pack of cigarettes.
Source: Campaign for Tobacco-Free Kids, 2025.[76]

3.9 million lung cancer deaths during 1975-2022 and extended the mean lifespan by 19 to 20 years.[5, 41] Yet, progress in smoking reductions has been uneven across geographic regions and population subgroups. The 2024 SGR on Eliminating Tobacco-related Diseases and Death concluded that geographic disparities in evidence-based policy protections, preemptive laws that thwart communities from protecting their residents' health and safety, and financial and other structural barriers to accessing cessation treatments drive past and present-day tobacco-related health disparities.[7]

Tobacco Control Spending

Research shows that increased state spending on tobacco control correlates with lower youth and adult smoking prevalence.[42, 43] Southern and Midwestern states, which have weaker tobacco control policies including lower cigarette excise taxes (Figure 1D) and historically underfunded tobacco control programs (Table 1F), bear the largest death and economic burden from smoking.[10, 44] For fiscal year 2025, the funding level for state tobacco prevention programs continued to be suboptimal and was less than 4% of the Centers for Disease Control and Prevention's (CDC's) recommended level for 7 states (Alabama, Georgia, Nevada, New Hampshire, Tennessee, Texas, and West Virginia) and less than 50% of the CDC-recommended level for all states except Alaska, California, Colorado, Delaware, Hawaii, Maine, North Dakota, Oklahoma, Oregon, and Utah (Table 1F).

In addition to the information that follows, visit fightcancer.org to review a state-by-state assessment of cancer care and control efforts provided by our advocacy affiliate, the American Cancer Society Cancer Action Network℠ (ACS CAN).

Regulation of Tobacco Products

The Family Smoking Prevention and Tobacco Control Act (TCA) of 2009 granted the Food and Drug Administration (FDA) authority to regulate the manufacturing, marketing, and selling of tobacco products.[45] Key provisions of the act include requiring the FDA to review new products before they go on the market and create standards to make tobacco products less toxic, less addictive, and less appealing. In 2016, the FDA expanded their regulations to include additional tobacco products (e.g., waterpipes, e-cigarettes, loose tobacco, and cigars), as well as future products that meet the statutory definition of a tobacco product.[45] In particular, the rapidly evolving e-cigarette market, marked by unregulated innovations in product types (tanks, pre-filled cartridges or pods, and disposable) and e-liquid contents (nicotine concentration or flavors), necessitates that ongoing government regulation of these products address potential usage in younger populations. ACS CAN and partner organizations have worked to ensure that the FDA meets their statutory obligations under the TCA, including by successfully bringing lawsuits requiring the premarket review of e-cigarettes and all new tobacco products and the issuance of a final rule requiring graphic warnings on cigarette packs and advertising.

Prohibiting Flavored Tobacco Products

Tobacco companies have a long history of design modifications, including the addition of flavors such as menthol, candy, fruit, and mint to make products more appealing, especially to youth and young adults. Menthol cigarettes are still legally sold in the US despite strong evidence of their public health harm,[46] especially among Black persons and those with lower socioeconomic status who use these products disproportionately because of targeted advertising by the tobacco industry.[47] Menthol flavoring is associated with increased cigarette and cigar initiation among youth and young adults, which may increase nicotine dependence and make quitting more difficult.[48] Flavored cigars, non-cartridge e-cigarettes, hookahs, and smokeless tobacco products are widely available. Many of the added flavorants are marketed by e-cigarette and tobacco companies as "generally recognized as safe," a designation intended for use in food products for oral consumption, and not applicable for inhalation via e-cigarettes.[7, 25]

In April 2022, after substantial public health advocacy, including by ACS CAN, the FDA proposed product standards to prohibit menthol in cigarettes and all flavoring in cigars. However, as of January 2025, implementation of these rules has been indefinitely postponed.[49] American Cancer Society research showed that the nation's first comprehensive statewide menthol flavor sale restriction in Massachusetts was associated with declines in cigarette smoking prevalence and increased NRT sales, without a substantial increase in cross-border purchases from neighboring states.[50-52] Comprehensive sales restrictions on all flavored tobacco products is warranted.

- Massachusetts, California, and nearly 400 localities have passed state/local flavored tobacco sales restrictions, including over 200 menthol cigarette sales restrictions.[53]

Tobacco Taxes

Increasing cigarette taxes increases smoking cessation among adults, lowers initiation among youth, and decreases smoking intensity among those who continue to smoke. These effects are stronger among individuals with limited incomes and youth, who are generally more sensitive to price changes.[5, 54, 55] However, the effectiveness of cigarette taxes is often undermined by tobacco industry tactics (e.g., price discounts and coupons) and loopholes in tax regulations, including lack of regular adjustments for inflation and income growth. Moreover, taxes on other tobacco products typically remain lower than cigarette taxes, potentially shifting consumption rather than reducing it completely.

- Unchanged since 2009, the federal cigarette tax is $1.01. As of January 2025, the average cigarette tax rate across 50 states and the District of Columbia was $1.97, ranging from 17 cents per pack in Missouri to $5.35 per pack in New York (Table 1F, Figure 1D).

Table 1F. Tobacco Control Measures, by State, US, 2025

		100% smoke-free laws†					
	Cigarette tax per pack ($)*	W	R	B	G	E-cigarette use also restricted	Tobacco control funding as % of CDC recommendation††
United States *(average)*	**$1.97**						
Range	*$0.17-$5.35*						
Alabama	$0.675						3.2%
Alaska	$2.00						63.0%
Arizona	$2.00	✓	✓	✓	✓		28.9%
Arkansas	$1.15						30.7%
California	$2.87	✓	✓	✓	✓	✓	63.7%
Colorado	$2.24	✓	✓	✓	✓	✓	74.9%
Connecticut	$4.35	✓	✓	✓	✓	✓	4.7%
Delaware	$2.10	✓	✓	✓	✓	✓‡	76.5%
District of Columbia	$4.50	✓	✓	✓			32.9%
Florida	$1.339	✓	✓		✓	§	45.0%
Georgia	$0.37						2.0%
Hawaii	$3.20	✓	✓	✓		§	59.7%
Idaho	$0.57		✓				29.8%
Illinois	$2.98	✓	✓	✓	✓	✓‡	7.5%
Indiana	$0.995	✓	✓				12.4%
Iowa	$1.36	✓	✓	✓			14.2%
Kansas	$1.29	✓	✓	✓			7.0%
Kentucky	$1.10						8.4%
Louisiana	$1.08	✓	✓				8.5%
Maine	$2.00	✓	✓	✓	✓	**	100.0%
Maryland	$5.00	✓	✓	✓	✓	✓	43.8%
Massachusetts	$3.51	✓	✓	✓	✓	✓	16.9%
Michigan	$2.00	✓	✓	✓			4.2%
Minnesota	$3.04	✓	✓	✓	✓	✓	23.0%
Mississippi	$0.68						23.8%
Missouri	$0.17						4.3%
Montana	$1.70	✓	✓	✓	✓		35.7%
Nebraska	$0.64	✓	✓	✓	✓	✓‡	17.6%
Nevada	$1.80	✓	✓			¶	3.2%
New Hampshire	$1.78		✓	✓		**	3.7%
New Jersey	$2.70	✓	✓	✓		§	7.3%
New Mexico	$2.00	✓	✓	✓		§	24.9%
New York	$5.35	✓	✓	✓	✓	✓‡	19.3%
North Carolina	$0.45		✓	✓			13.7%
North Dakota	$0.44	✓	✓	✓	✓	✓	61.8%
Ohio	$1.60	✓	✓	✓	✓	✓‡	5.9%
Oklahoma	$2.03						85.9%
Oregon	$3.33	✓	✓	✓	✓	✓	73.3%
Pennsylvania	$2.60	✓					13.1%
Rhode Island	$4.50	✓	✓	✓		§‡	6.1%
South Carolina	$0.57						11.8%
South Dakota	$1.53	✓	✓	✓	✓	✓	38.5%
Tennessee	$0.62						2.6%
Texas	$1.41						2.3%
Utah	$1.70	✓	✓	✓		§	83.7%
Vermont	$3.08	✓	✓	✓	✓	✓‡	30.5%
Virginia	$0.60						10.3%
Washington	$3.025	✓	✓	✓	✓		7.7%
West Virginia	$1.20						1.6%
Wisconsin	$2.52	✓	✓	✓	✓		11.7%
Wyoming	$0.60						30.7%
Puerto Rico	$5.10	✓	✓	✓		✓	–

W-hospitality workplaces, R-restaurants and attached bar in the restaurant, B-freestanding bars, G-state-run gambling establishments. *Effective as of January 22, 2025. Statewide tax rates per pack of cigarettes. Average does not include Puerto Rico. †Passed or implemented, reported as of January 1, 2025. Other state laws that do not explicitly address electronic smoking devices might be interpreted as prohibiting their use in existing smoke-free provisions. ‡Some exceptions; see references for more information. For e-cigarette use restrictions by establishment: ✓workplaces, restaurants, bars, and gambling establishments. §workplaces, restaurants, & bars only. **restaurants & bars. ¶workplaces and restaurants only. ††Fiscal year 2025.

Sources: American Nonsmokers' Rights Foundation, 2025;[74] Campaign for Tobacco Free Kids, 2025.[75, 76]

- Taxes on non-cigarette tobacco products vary widely in terms of what is taxed and at what rate. Most states do not tax other tobacco products at parity with cigarettes; two states (Florida and Pennsylvania) do not tax cigars at all; and 16 states do not tax e-cigarettes.[56]

Cessation Assistance

Comprehensive, barrier-free, widely promoted insurance coverage of cessation treatments increases their usage, improves cessation outcomes, and is cost-effective.[5] Provisions of the Affordable Care Act (ACA) require coverage for evidence-based cessation treatments for people in most private insurance plans and Medicaid expansion plans. In addition, pregnant persons covered by Medicaid have access to no-cost tobacco cessation services.[57] Telephone quitlines offer another broadly accessible option, delivering effective behavioral counseling to diverse groups of people who use tobacco.[5] Integrating standard NRT into state quitline programs can further improve quit rates.[36, 58]

- While tobacco cessation services are required to be covered by most private insurance plans, Medicaid expansion plans, and Medicare, there are major gaps in coverage for traditional Medicaid recipients. As of June 30, 2024, in 2 states (Nevada and Georgia) no type of cessation counseling is covered for all enrollees, 29 states and the District of Columbia provide at least 1 type of counseling and at least 1 FDA-approved medication for all

enrollees, and 19 states provide individual, group, and telephone counseling and all 7 FDA-approved cessation medications for all enrollees.[59]

Smoke-free Policies

Comprehensive smoke-free laws (e.g., laws that prohibit smoking in public places and create smoke-free environments) reduce SHS exposure, reduce youth and young adult smoking, promote cessation, and reduce the risk of smoking-related diseases.[2, 5]

- As of January 2025, 28 states, the District of Columbia, Puerto Rico, the US Virgin Islands, and 1,216 cities and counties representing 62.7% of the US population had 100% smoke-free laws in all non-hospitality workplaces, restaurants, and bars (Table 1F).[60]
- Twenty-one states, Puerto Rico, and the US Virgin Islands have laws in effect that require all state-regulated gambling facilities to be 100% smoke free.[60]
- One Sovereign Tribal Nation, the Navajo Nation, has a law requiring all non-hospitality workplaces, restaurants, bars, and casinos to be 100% smoke free indoors.[60]

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Excess Body Weight, Physical Activity, Diet, and Alcohol

Maintaining a healthy weight, staying physically active throughout life, following a healthy eating pattern, and limiting or avoiding alcohol consumption reduces cancer risk.[1] Research indicates that the combined effects of excess body weight, alcohol intake, physical inactivity, and certain dietary factors accounted for approximately 19% of cancer cases in 2019.[2] Cancer survivors can also benefit from healthy eating and active living, which may help improve outcomes and overall quality of life.[3] The 2020 American Cancer Society Guideline on Diet and Physical Activity for cancer prevention provides recommendations for healthy behaviors. (See sidebar, page 21.) Adults who closely adhere to this guideline have a 10% to 20% lower risk of cancer diagnosis and a 24% to 30% lower risk of cancer mortality.[4, 5] The guideline also includes community action strategies, acknowledging the environmental influence on individual food and physical activity behaviors.

Excess Body Weight

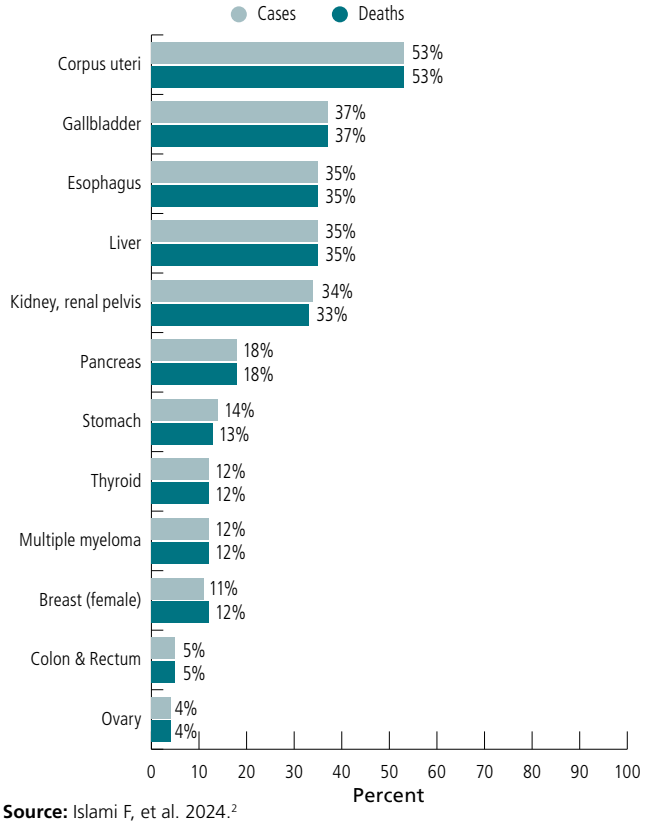
Excess body weight (i.e., overweight or obesity) is conclusively associated with an increased risk of developing 13 types of cancer. These include uterine corpus (endometrium), esophagus (adenocarcinoma), liver, stomach (cardia), kidney (renal cell), meningioma, multiple myeloma, pancreas, colorectum, gallbladder, ovary, female breast (postmenopausal), and thyroid.[6, 7] Additionally, excess body weight may also increase the risk of cancers of the mouth, pharynx, larynx, non-Hodgkin lymphoma (diffuse large B-cell lymphoma), male breast cancer, and fatal prostate cancer.[6, 8] However, research suggests that even modest, sustained weight loss can reduce breast cancer risk among females ages 50 years and older who are not using postmenopausal hormones.[9]

In 2019, an estimated 5% of cancer cases in males and 11% in females were attributable to excess body weight.[2] However, as some cancers are more strongly associated with excess body weight than others, the proportion of attributable cases substantially varies by cancer type. For example, 4% of ovarian cancer cases are attributed to excess body weight compared to 53% of uterine corpus cases (Figure 2A). The proportion of cancer cases attributable to excess body weight varies by state, partly reflecting state-level differences in the prevalence of excess body weight. Among males, the proportion in 2011-2015 was lowest in Montana (4%) and highest in Texas (6%). Among females, the proportion was lowest in Hawaii (7%) and highest in the District of Columbia (11%).[10]

Adult Overweight and Obesity

- During August 2021-August 2023, overall prevalence of excess body weight was 72% (overweight: 32%;

Figure 2A. Proportion of Cancer Cases and Deaths Attributable to Excess Body Weight (%) in Adults 30 Years and Older, US, 2019



Source: Islami F, et al. 2024.[2]

obesity: 40%). Males had a higher prevalence of overweight at 35% compared to females at 28%, while obesity prevalence was similar across both sexes (females: 41%; males: 40%) (Figure 2B).

- Obesity prevalence has markedly increased over time; prevalence during August 2021-August 2023 was nearly 2 times higher in both males and females compared to 1988-1994 (males: 20%, females: 25%) (Figure 2C). These findings are consistent with a long-term increasing trend in obesity prevalence starting during 1960-1962 (ages 20-74 years, males: 11%, females: 16%).[11]

- Severe obesity among females increased more than 3-fold, rising from 4% during 1988-1994 to 13% during August 2021-August 2023, compared to an almost 4-fold increase from 2% to 7% in males over this period (Figure 2C).

- Obesity prevalence during 2017-March 2020 varied by race/ethnicity and sex. Asian individuals consistently had the lowest prevalence (males: 18%, females: 15%). Among males, Mexican American individuals had the highest (51%), followed by similar rates across White (44%), Black (42%), and Hispanic (41%) individuals. Among females, Black individuals had the highest rates (59%), followed by Mexican American individuals (51%).[12]

- Obesity prevalence in 2023 ranged from 24% in the District of Columbia to 42% in West Virginia, with a state median of 30% in the Northeast, 31% in the West, 37% in the Midwest, and 36% in the South (Table 2A).

- During 2021-2023, obesity prevalence across states varied widely by racial/ethnic groups; the number of states with rates of 35% or higher was 38 among Black adults, 30 among American Indian or Alaska Native adults, 34 among Hispanic adults, and 16 among White adults.[13]

Youth Overweight and Obesity

- Obesity prevalence among youth ages 2-19 years was 21% (males: 23%, females: 19%) in August 2021-August 2023, more than doubling from 10% in 1988-1994 (Figure 2D), and continuing a long-term increase since 1971-1974 (5%).[14]

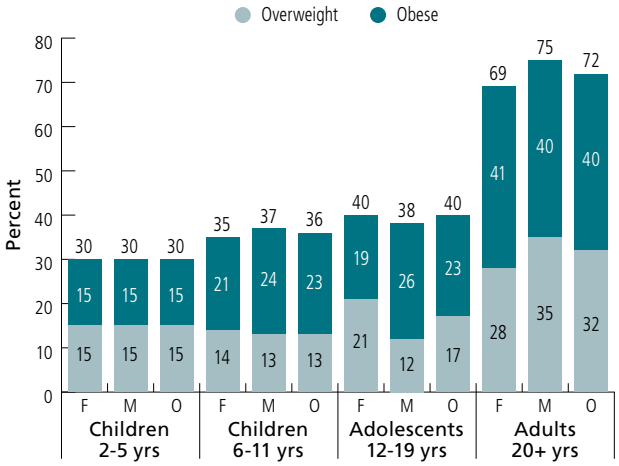
- Since 1988-1994, overweight prevalence increased only in females and was 15% overall (males: 13%, females: 17%) in August 2021-August 2023, whereas severe obesity increased in both males (8%) and females (6%) and was 7% overall in August 2021-August 2023 (Figure 2D).[14]

- Obesity prevalence was: 15% among ages 2-5, rising to 23% for both 6-11 and 12-19-year-olds (Figure 2B).

- Historically and during 2017-March 2020, obesity prevalence among adolescents was higher in Mexican American males (36%) and Black females (39%).[12]

- In 2023, the state-level median prevalence of obesity among high school students was 16%, but varied widely, ranging from a low of 12% in New Jersey to a high of 22% in Arkansas and Kentucky (Table 2B).

Figure 2B. Excess Body Weight (%), Youth and Adults, US, August 2021-August 2023



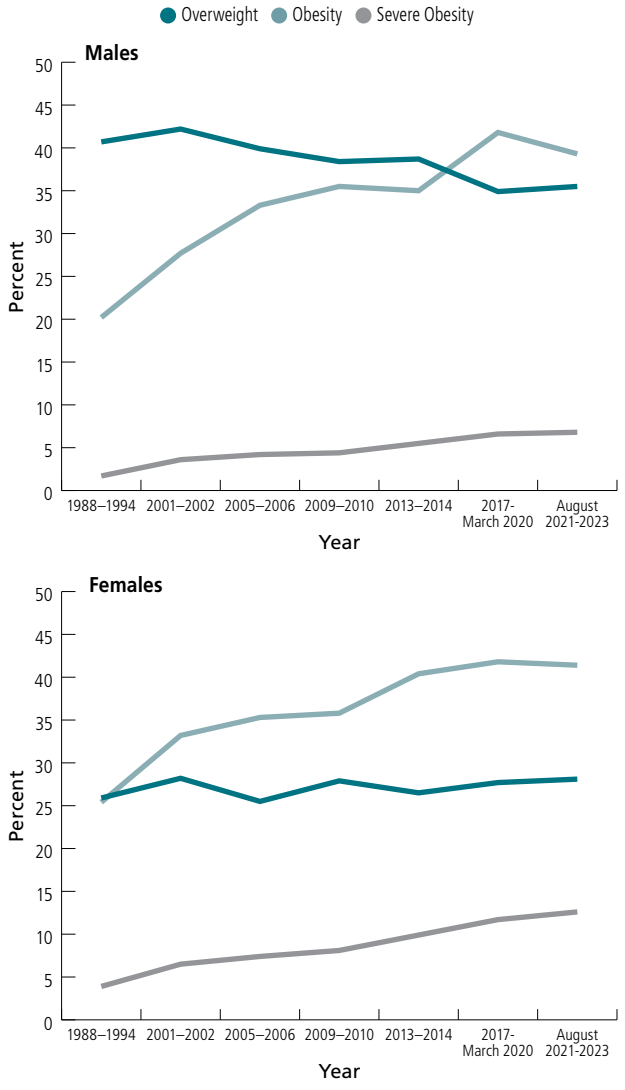
BMI-Body mass index. F-females, M-males, O-overall. For youth (ages 2-19 years), BMI is based on percentile rankings of the individual's height and weight on age- and sex-specific growth charts; BMIs between the top 85th and <95th percentile are considered overweight, and BMIs at or above the 95th percentile (top 5%) are classified as obese. For adults (ages 20+ years), a BMI of 25.0 to <30 kg/m2 is overweight, and a BMI of ≥30.0 kg/m2 is obese. Excess body weight is a BMI of ≥25.0 kg/m2. Estimates for ages 20+ are age adjusted to the year 2000 US population standard using 5 age groups: 20-34, 35-44, 45-54, 55-64, and ≥65 years.

Source: National Health and Nutrition Examination Survey, August 2021-2023.

Physical Activity

An estimated 3% of all cancer cases in 2019 were attributable to physical inactivity.[2] Across states, this proportion ranged from 2% in Utah to 4% in Kentucky in 2013-2016.[15] Conversely, regular physical activity reduces the risk of colon, breast, kidney, endometrial, bladder, esophageal (adenocarcinoma), and stomach (cardia) cancers.[16-19] Sedentary behavior, characterized by sitting or lying down while awake,[20] is also

Figure 2C. Excess Body Weight Trends (%), Adults 20 Years and Older, US, 1988-August 2023



BMI-Body mass index. For adults (ages 20+ years), overweight is a BMI of 25.0–<30 kg/m2, obesity is a BMI at or above 30.0 kg/m2, and severe obesity is BMI at or above 40.0 kg/m2. Pregnant females are excluded from the analysis. Estimates for ages 20+ are age adjusted to the year 2000 US population standard using 3 age groups: 20-39, 40-59, ≥60 years.

Sources: Fryar CD, et al. 2020.[11] National Health and Nutrition Examination Survey, 2017-August 2023.

Table 2A. Overweight and Obesity (%), Adults 18 Years and Older, by State, US, 2023

	Overweight	Obesity	Rank obese† (1=high)
United States (median)	**34**	**35**	–
Range	*31-36*	*24-42*	–
Alabama	32	40	5
Alaska	33	35	23
Arizona	34	33	34
Arkansas	31	41	3
California	36	28	46
Colorado	35	25	49
Connecticut	36	30	42
Delaware	35	36	18
District of Columbia	34	24	50
Florida	35	30	41
Georgia	34	35	24
Hawaii	34	27	48
Idaho	36	31	36
Illinois	35	36	19
Indiana	33	38	7
Iowa	34	38	7
Kansas	33	37	13
Kentucky	–	–	–
Louisiana	32	40	4
Maine	35	33	32
Maryland	34	34	27
Massachusetts	35	27	47
Michigan	33	36	21
Minnesota	34	33	31
Mississippi	31	41	2
Missouri	34	35	22
Montana	35	30	40
Nebraska	35	37	10
Nevada	35	31	37
New Hampshire	35	33	33
New Jersey	36	29	44
New Mexico	33	37	15
New York	36	28	45
North Carolina	35	34	28
North Dakota	36	36	17
Ohio	33	37	11
Oklahoma	32	39	6
Oregon	33	33	30
Pennsylvania	–	–	–
Rhode Island	34	32	35
South Carolina	33	36	16
South Dakota	34	37	14
Tennessee	33	38	9
Texas	35	35	25
Utah	35	31	38
Vermont	34	29	43
Virginia	34	35	26
Washington	35	31	39
West Virginia	31	42	1
Wisconsin	34	36	20
Wyoming	36	34	29
Puerto Rico	34	37	12

BMI-Body mass index. Kentucky and Pennsylvania were not included in the 2023 Behavioral Risk Factor Surveillance System due to insufficient data. Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years. A BMI of 25.0 to <30 kg/m2 is overweight, and a BMI of ≥30.0 kg/m2 is obese. †Based on age adjusted % obese.

Source: Behavioral Risk Factor Surveillance System, 2023.

2020 American Cancer Society Guideline on Diet and Physical Activity for Cancer Prevention[1]

Recommendations for Individuals

1. Achieve and maintain a healthy body weight throughout life.

- Keep body weight within the healthy range, and avoid weight gain in adult life.

2. Be physically active.

- Adults should engage in 150-300 minutes of moderate-intensity physical activity per week, or 75-150 minutes of vigorous-intensity physical activity, or an equivalent combination; achieving or exceeding the upper limit of 300 minutes is optimal.
- Children and adolescents should engage in at least 1 hour of moderate- or vigorous-intensity activity each day.
- Limit sedentary behavior, such as sitting, lying down, and watching television, and other forms of screen-based entertainment.

3. Follow a healthy eating pattern at all ages.

- A healthy eating pattern includes:
  - Foods that are high in nutrients in amounts that help achieve and maintain a healthy body weight
  - A variety of vegetables – dark green, red, and orange, fiber-rich legumes (beans and peas), and others
  - Fruits, especially whole fruits with a variety of colors
  - Whole grains
- A healthy eating pattern limits or does not include:
  - Red and processed meats
  - Sugar-sweetened beverages
  - Highly processed foods and refined-grain products

4. It is best not to drink alcohol.

- People who do choose to drink alcohol should limit their consumption to no more than 1 drink per day for females and 2 drinks per day for males.

Recommendation for Community Action

Public, private, and community organizations should work collaboratively at national, state, and local levels to develop, advocate for, and implement policy and environmental changes that increase access to affordable, nutritious foods; provide safe, enjoyable, and accessible opportunities for physical activity; and limit alcohol for all individuals.

For more information:

- Visit cancer.org/health-care-professionals/american-cancer-society-prevention-early-detection-guidelines.html for nutrition and physical activity guidelines for cancer prevention and for cancer survivors.[1,3]

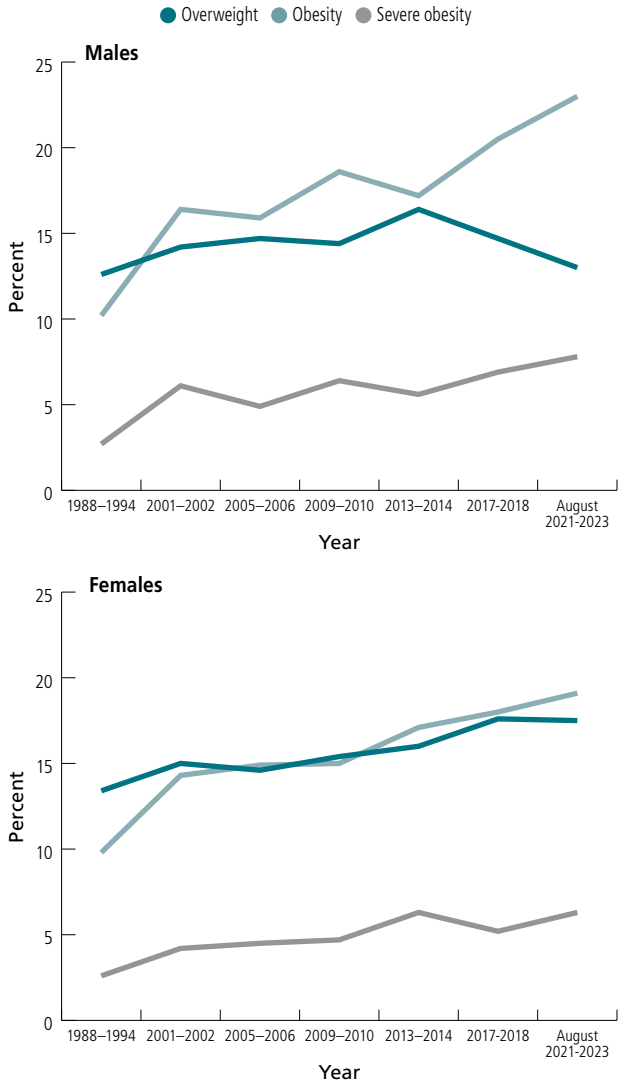
associated with an increased risk of colon, endometrial, and lung cancer,[17,21] and even cancer-related death, but replacing even 30 minutes of sedentary time with light physical activity is associated with an 8% lower risk of cancer mortality.[22]

Additionally, substituting a modest amount of daily sitting time with an equal amount of light or moderate-to-vigorous physical activity appears to reduce the risk of early death, specifically among inactive or moderately active adults.[23] Moreover, breast cancer survivors who perform a combination of resistance training and aerobic exercise after their diagnosis experience significant improvements in their quality of life, fatigue, and depressive symptoms compared to inactive survivors.[24-26]

Adult Physical Activity

- In 2022, 48% of adults reported recommended levels of aerobic activity, while 27% reported no leisure-time physical activity (Table 2C). Recommended aerobic activity prevalence was higher in males (54%) than females (44%) and among higher-educated (college degree: 59%) than lower-educated (without a high school diploma: 29%) individuals (Table 2C).
- In 2023, states with high prevalence of no leisure-time physical activity often had a high prevalence of excess body weight, particularly in the South and parts of the Midwest (Figure 2E). Puerto Rico had the highest proportion of no leisure-time physical activity in adults (51%), while Utah and the District of Columbia had the lowest (16%) (Table 2D).

Figure 2D. Excess Body Weight Trends (%), Children and Adolescents 2-19 Years, US, 1988-August 2023



BMI-Body mass index. Estimates are crude. For youth (ages 2-19 years), BMI is based on percentile rankings of the individual's height and weight on the CDC age- and sex-specific growth charts. BMIs at or above the 85th percentile and below the 95th percentile are classified as overweight. BMIs at or above the 95th percentile (top 5%) are classified as obese. Severe obesity was defined as a BMI ≥120% of the 95th percentile for age and sex on CDC growth charts.

Sources: Fryar CD, et al. 2020.[14] National Health and Nutrition Examination Survey, August 2021-August 2023.

Youth Physical Activity

- In 2023, the state median prevalence of no physical activity in high school students was 16%, ranging from 12% in Montana, North Dakota, and South Dakota to 31% in Puerto Rico, whereas the median prevalence of meeting recommended physical activity levels was 24%, ranging from 14% in Puerto Rico to 30% in Pennsylvania and South Dakota (Table 2E).

Diet

Approximately 4% of all cancer cases and deaths can be attributed to an unhealthy diet.[2] For example, processed meat intake is associated with 13% of colorectal cancer cases, and low fruit and vegetable consumption is associated with 31% of oral cavity, pharyngeal, esophageal, and laryngeal cancers.[2]

A balanced diet rich in whole foods is crucial for cancer prevention and overall health. Increasing fiber intake by replacing some refined grains, added sugars, and ultra-processed foods with whole grains, legumes, and a variety of cruciferous, yellow/orange and non-starchy vegetables (e.g., broccoli, green beans, and lettuce) and whole fruits is beneficial.[1, 27-31] Reducing red and processed meat consumption and placing an emphasis on fish and poultry can lower cancer risk.[28-32] Healthy eating patterns are associated with a 7% to 18% reduction in cancer-related mortality,[33] and may lower the risk for colorectal and breast cancer.[1, 32, 34] Healthy eating patterns also correlate with reduced all-cause mortality[35, 36] and better health outcomes among cancer survivors.[3, 34]

Adult Dietary Patterns

- There were overall modest improvements in the diet quality of US adults, but poor diet quality remained high and socioeconomic disparities persisted; the prevalence of poor diet quality decreased from 49% to 37% between 1999-2020 yet remained unchanged among those experiencing food insecurity (51% to 48%).[37]

Youth Dietary Patterns

- In 2023, the state median prevalence of high school students consuming 3 or more daily vegetable servings was 11%, ranging from 8% in Kentucky to 17% in Vermont; the median prevalence of consuming 2 or more daily fruit servings was higher at 23%, ranging from 18% in Oklahoma to 30% in Connecticut (Table 2E).
- Between 1999 and 2016, prevalence in US youth of poor diet quality declined from 77% to 56%, but ideal diet quality remained low at just 0.25%. Large disparities in diet quality persisted across levels of

Table 2B. Overweight and Obesity (%), High School Students, by State, US, 2023

	Overweight	Obesity	Rank obese† (1=high)
United States (median)	**15**	**16**	–
Range	*13-19*	*12-22*	–
Alabama	–	–	–
Alaska	16	17	13
Arizona	–	–	–
Arkansas	16	22	2
California	–	–	–
Colorado	–	–	–
Connecticut	16	14	27
Delaware	17	18	10
District of Columbia	17	19	6
Florida	–	–	–
Georgia	–	–	–
Hawaii	15	15	26
Idaho	–	–	–
Illinois	15	14	32
Indiana	15	17	12
Iowa	–	–	–
Kansas	–	–	–
Kentucky	15	22	1
Louisiana	–	–	–
Maine	14	–	–
Maryland	15	16	22
Massachusetts	15	13	33
Michigan	16	17	15
Minnesota	–	–	–
Mississippi	19	21	3
Missouri	17	16	21
Montana	15	14	28
Nebraska	13	16	19
Nevada	17	15	24
New Hampshire	13	13	35
New Jersey	17	12	36
New Mexico	17	18	11
New York (excluding NYC)	14	14	31
North Carolina	14	17	14
North Dakota	15	16	19
Ohio	13	20	4
Oklahoma	17	18	9
Oregon	–	–	–
Pennsylvania	15	17	17
Rhode Island	16	15	25
South Carolina	–	–	–
South Dakota	13	16	23
Tennessee	17	18	8
Texas	15	19	7
Utah	15	13	34
Vermont	14	14	29
Virginia	16	14	29
Washington	–	–	–
West Virginia	17	20	5
Wisconsin	16	17	18
Wyoming	–	–	–
Puerto Rico	15	17	16

Estimates are crude. Cells with hyphen marks denote unavailable estimates. A body mass index between the 85th and <95th percentile is considered overweight. A body mass index at or above the 95th percentile is classified as obese. †Based on % obese. See Special Notes, page 67, for more information regarding unavailable data.

Source: Youth Risk Behavior Survey, 2023.

parental education, household income, and household food security status.[38]

Alcohol

Alcohol consumption increases the risk for cancers of the oral cavity, pharynx, larynx, esophagus (squamous cell carcinoma), liver, colorectum, and female breast, but reducing or stopping alcohol use reduces the risk of oral and esophageal cancers.[39] About 5% of cancer cases are attributed to alcohol consumption,[2] ranging from 3% in Utah to 7% in Delaware;[40] its use ranks as the fourth-largest contributor for males (5% of cases) and the third-largest for females (6% of cases). About half of oral cavity (50%) and pharyngeal (45%) cancers in males, and about one-quarter of oral cavity (25%), esophageal (24%), and pharyngeal (23%) cancers in females are attributable to alcohol consumption. Notably in 2019, female breast cancer had the largest number of alcohol-attributable cases (44,180 cases), followed by colorectal cancer (18,480 cases).[2]

Alcohol Consumption

- Approximately 6% of adults reported heavy alcohol consumption in 2022, with higher prevalence in White and American Indian or Alaska Native (8%) adults compared to Black and Hispanic (4%) and Asian (2%) adults; and those at ≥200% of the federal poverty level (7%) compared to those below the poverty level (4%) (Table 2C).
- In 2023, state-level median heavy alcohol consumption prevalence was 6%, ranging from 4% in Maryland, New Jersey, Utah, and Puerto Rico to 9% in Hawaii, Maine, and Montana (Table 2D).

Type 2 Diabetes

Type 2 diabetes mellitus (T2DM) is associated with an increased risk of colorectal, hepatocellular, gallbladder, breast, endometrial, and pancreatic cancers.[41, 42] Notably, T2DM and cancer share several common modifiable risk factors, including obesity, an unhealthy diet, physical inactivity, and smoking.[43]

Table 2C. Physical Activity and Alcohol (%), Adults 18 Years and Older, US, 2022

	Met rec. levels of aerobic activity*	No leisure-time physical activity in past week	Heavy alcohol consump-tion**
Overall	**48**	**27**	**6**
Sex			
Males	54	25	6
Females	44	29	7
Age (years)			
18-24	59	20	5
25-44	52	22	7
45-64	45	29	7
65 years and above	39	38	5
Race/Ethnicity			
Hispanic	40	36	4
White only	52	23	8
Black only	43	33	4
Asian only	48	24	2
AIAN only or multiple	46	28	8
Sexual orientation			
Gay or lesbian	57	23	8
Heterosexual	49	26	6
Bisexual	41	31	12
Immigration status			
Born in US/US Territory	50	25	7
In US fewer than 10 years	35	40	2
In US 10+ years	45	29	4
Education (25 years and older)			
Some high school or less	29	51	5
High school diploma	39	37	7
Some college	46	27	7
College graduate	59	14	7
Income level			
<100% FPL	33	45	4
100 to <200% FPL	39	37	6
≥200% FPL	53	22	7
Insurance status			
Uninsured	43	34	6
Private	53	21	7
Medicaid/Public/Dual eligible	36	41	5
Medicare (65 years and above)	39	38	5
Other (below 65 years)	47	31	6

AIAN-American Indian or Alaska Native. FPL-federal poverty level. All estimates except age and insurance are age adjusted. Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years and by 4 age groups: 25-34, 35-44, 45-64, and ≥65 years for education. *Includes 150 minutes or more of moderate-intensity aerobic activity or 75 minutes or more of vigorous-intensity aerobic activity each week. **>14 drinks/week in the past year for males or >7 drinks/week in the past year for females.

Source: National Health Interview Survey, 2022.

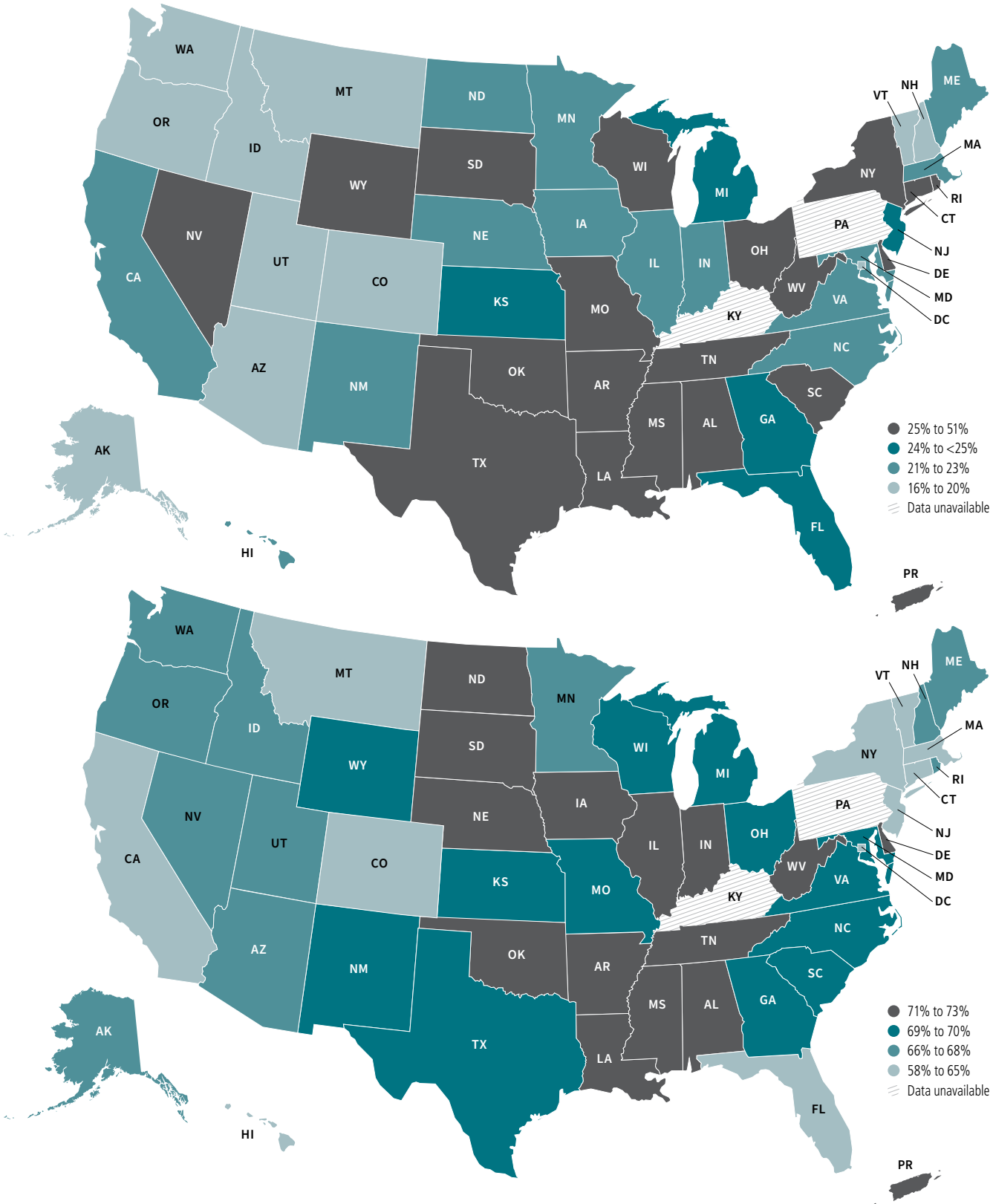
Table 2D. Physical Activity and Alcohol (%), Adults 18 Years and Older, by State, US, 2023

	Met rec. levels of aerobic activity*	No leisure-time physical activity in the past month	Heavy alcohol consump-tion†
United States (median)	**60**	**24**	**6**
Range	*35-68*	*16-51*	*4-9*
Alabama	57	28	6
Alaska	65	20	8
Arizona	63	20	6
Arkansas	53	31	6
California	62	23	5
Colorado	67	17	7
Connecticut	57	25	6
Delaware	60	25	5
District of Columbia	68	16	8
Florida	59	24	7
Georgia	59	24	6
Hawaii	64	21	9
Idaho	65	20	6
Illinois	61	21	5
Indiana	62	23	6
Iowa	59	23	8
Kansas	59	24	7
Kentucky	–	–	–
Louisiana	55	29	7
Maine	67	21	9
Maryland	60	22	4
Massachusetts	64	21	6
Michigan	59	24	6
Minnesota	62	22	6
Mississippi	52	32	7
Missouri	54	27	6
Montana	67	18	9
Nebraska	60	23	6
Nevada	58	25	7
New Hampshire	63	20	8
New Jersey	59	24	4
New Mexico	62	23	5
New York	58	26	5
North Carolina	60	21	5
North Dakota	63	21	7
Ohio	59	25	7
Oklahoma	51	30	5
Oregon	67	18	7
Pennsylvania	–	–	–
Rhode Island	57	25	7
South Carolina	59	25	7
South Dakota	59	25	7
Tennessee	58	25	6
Texas	57	27	6
Utah	65	16	4
Vermont	66	19	8
Virginia	64	22	6
Washington	66	18	6
West Virginia	55	30	6
Wisconsin	58	26	8
Wyoming	62	25	7
Puerto Rico	35	51	4

Kentucky and Pennsylvania were not included in the 2023 Behavioral Risk Factor Surveillance System due to insufficient data. Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years. *Includes 150 minutes or more of moderate-intensity aerobic activity or 75 minutes or more of vigorous-intensity aerobic activity each week. †>14 drinks/week in the past 30 days for males or >7 drinks/week in the past 30 days for females.

Source: Behavioral Risk Factor Surveillance System, 2023.

Figure 2E. No Leisure-time Physical Activity (A) and Excess Body Weight (B) (%), Adults 18 Years and Older, by State, US, 2023



Kentucky and Pennsylvania were not included in the 2023 Behavioral Risk Factor Surveillance System due to insufficient data. Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years. B: Excess body weight is defined as a body mass index ≥25.0 kg/m2.

Source: Behavioral Risk Factor Surveillance System, 2023.

Recommendation for Community Action[1]

Public, private, and community organizations should work collaboratively at national, state, and local levels to develop, advocate for, and implement policy and environmental changes that:

Increase access to affordable, nutritious foods via:

- Community food retail strategies that market and make available healthier options; shelf-labeling systems; in-store healthy food option promotions; healthy checkout aisles, etc.
- Enabling positive health choices outside the home; restaurant menu changes such as the addition of nutrient-dense, low-energy dining options; healthy workplace food availability, etc.

Provide safe, enjoyable, accessible opportunities for physical activity via:

- Built environment modifications such as active transportation systems (pedestrian and bicycle routes); promoting mixed-land use environments to integrate live, work, and leisure time, etc.
- Shared-use agreements between government or other organizations' facilities for use by the broader community
- Quality school physical education programs, including well-designed physical education curriculum; changing instructional practices to better incorporate more time for moderate-to-vigorous physical activity and play, etc.

Limit access to alcohol via:

- Retail environment regulations such as retail outlet density policies, including limits on days of operation and hours when alcohol can be sold and consumed on premises; enforcement of laws prohibiting sales to underage persons; advertising and marketing restrictions of alcoholic beverages that target youth

The exact mechanism linking diabetes and cancer remains unclear. It is hypothesized that the connection could potentially be direct (due to high insulin levels or inflammation), indirect (through shared risk factors like obesity), or related to underlying biological factors (such as insulin resistance). The relationship is further complicated by the duration of diabetes and treatment; therefore, more research is needed to understand the full scope of how diabetes affects cancer risk and prognosis.[44]

- In 2023, 7% of adults (21.1 million) were diagnosed with T2DM.[45]
- In 2023, the prevalence of diagnosed T2DM was highest among American Indian or Alaska Native, Black, and Hispanic adults (10%), and lowest among Asian (8%) and White (6%) adults.[45]
- However, some Hispanic (Puerto Rican: 13% and Mexican: 11%) and Asian (Filipino: 12%, Asian Indian: 11%), subpopulations had substantially higher rates of diabetes than others, regardless of type, in 2019-2021.[46]
- The prevalence of T2DM also varied by income, with only 6% of adults with a household income at or above 200% of the federal poverty level compared to 12% of those below the federal poverty level having T2DM.[45]

Community Action

The 2020 American Cancer Society Guideline on Diet and Physical Activity recommends implementing community action strategies to support healthy eating and active living behaviors.[1] Organizations should collaborate at multiple government levels to develop policies and allocate resources that make it easier for individuals to adopt healthier lifestyles, recognizing the influence of socioenvironmental factors on these behaviors. (See sidebar, left.) Culturally appropriate and equitable support is essential for historically marginalized groups (e.g., people living in poverty, people of color, LGBTQ+ communities, people with disabilities, and rural communities) who have fewer opportunities to improve health behaviors due to structural barriers such as limited access to healthy food and safe greenspaces in their communities.

Public policy efforts are needed at the national, state, and local levels to improve food and nutrition security, increase knowledge of and access to healthy food choices, and limit advertising and accessibility of foods and beverages of low nutritional value (including alcoholic and sugary drinks). In addition, increased

Table 2E. Alcohol, Diet, and Physical Activity (%), High School Students, by State, US, 2023

	Consumed fruit or 100% fruit juice ≥2 times a day	Consumed vegetables ≥3 times a day	Currently consumes alcohol‡	Met recommended levels of physical activity†	No physical activity*
United States (median)	**23**	**11**	**21**	**24**	**16**
Range	*18-30*	*8-17*	*6-28*	*14-30*	*12-31*
Alabama	–	–	–	–	–
Alaska	22	11	17	18	16
Arizona	–	–	–	–	–
Arkansas	21	10	25	25	18
California	–	–	–	–	–
Colorado	–	–	–	–	–
Connecticut	30	14	21	27	14
Delaware	–	–	20	22	22
District of Columbia	–	–	15	19	26
Florida	–	–	–	–	–
Georgia	–	–	–	–	–
Hawaii	20	15	17	22	17
Idaho	–	–	–	–	–
Illinois	–	–	26	24	16
Indiana	–	–	25	23	13
Iowa	–	–	–	–	–
Kansas	–	–	–	–	–
Kentucky	20	8	17	23	16
Louisiana	–	–	–	–	–
Maine	29	–	20	23	14
Maryland	25	13	18	20	20
Massachusetts	26	13	22	23	13
Michigan	23	10	21	26	16
Minnesota	–	–	–	–	–
Mississippi	23	9	23	22	21
Missouri	20	12	24	26	14
Montana	21	11	26	27	12
Nebraska	–	–	11	29	13
Nevada	–	–	16	17	18
New Hampshire	–	–	23	–	–
New Jersey	22	–	27	26	13
New Mexico	22	14	15	29	15
New York (excluding New York City)	25	–	24	24	17
North Carolina	24	11	21	24	18
North Dakota	23	11	20	29	12
Ohio	22	16	23	25	17
Oklahoma	18	9	26	27	16
Oregon	–	–	–	–	–
Pennsylvania	26	–	19	30	13
Rhode Island	–	–	18	22	17
South Carolina	–	–	–	–	–
South Dakota	23	12	24	30	12
Tennessee	21	10	20	19	19
Texas	25	12	–	25	18
Utah	25	9	6	19	13
Vermont	27	17	27	28	13
Virginia	–	–	16	24	18
Washington	–	–	–	–	–
West Virginia	21	–	28	28	15
Wisconsin	–	–	26	25	15
Wyoming	–	–	–	–	–
Puerto Rico	–	–	17	14	31

Estimates are crude. Cells with hyphen marks denote unavailable estimates. ‡At least one drink of alcohol, on at least 1 day during the 30 days before the survey. †Physical activity that increased heart rate and made breathing hard some of the time for a total of ≥60 minutes/day on all 7 days preceding the survey. *No physical activity that increased heart rate and made breathing hard some of the time for a total of ≥60 minutes/day on at least 1 of the 7 days preceding the survey. See Special Notes, page 67, regarding unavailable data.

Source: Youth Risk Behavior Survey, 2023.

funding and standards for physical activity infrastructure are central to helping individuals achieve healthy eating and active living goals.[1] Similarly, health care providers and systems are key partners in promoting cancer prevention behaviors.

States and school districts could require that students receive recommended amounts of high-quality physical education and implement evidence-based nutrition standards for school meals and snacks. With improvements in the nutritional quality of school meals, school breakfasts and lunches would have a greater variety of fruits and vegetables, more whole grains, and better age-appropriate portion sizes. In 2023, the American Cancer Society's advocacy affiliate, the American Cancer Action Network℠ (ACS CAN), submitted regulatory comments supporting the US Department of Agriculture's efforts to further revise the child nutrition program standards to ensure school meals are better aligned with the US Dietary Guidelines for Americans (DGA) and based on the latest nutrition science. The rule was finalized in 2024 and, beginning in the 2025-2026 school year, there will be limits on added sugars for both school breakfast and lunch programs, along with other improvements.

Initiatives of the American Cancer Society and the American Cancer Society Cancer Action Network

The American Cancer Society and ACS CAN also have specific initiatives in nutrition and physical activity research and work with communities to help identify and address barriers to healthy eating and active living. This includes programs to meet the nutritional needs of guests at the American Cancer Society Hope Lodge® facilities; provide grants to community-based organizations addressing food insecurity among people living with cancer; build capacity of our health systems partners to screen patients for food insecurity and provide nutrition assistance; and increase awareness of the benefits of Food is Medicine (FIM) interventions for people with cancer.

The American Cancer Society and ACS CAN also strongly believe that the US DGA (dietaryguidelines.gov/) should reflect current science on diet, physical activity, and cancer risk and advocate to ensure the DGA addresses scientific factors that would reduce the cancer burden. In addition, ACS CAN supports policies that advance health equity by addressing food and nutrition insecurity and improving access to nutritious food, including increasing access to:

- Universal free school meals policies, including expanding access to the Community Eligibility Provision (CEP)
- Supplemental Nutrition Assistance Program (SNAP) and financial incentives to SNAP participants for the purchase of fruits and vegetables
- FIM interventions, such as prescriptions, medically tailored groceries, and medically tailored meals, intended to prevent, treat, or manage chronic diseases. In 2024, ACS CAN submitted regulatory comments to the Centers for Medicare & Medicaid Services (CMS) in support of state Medicaid 1115 waiver applications and/or demonstration projects to provide specific nutrition supports to Medicaid enrollees.

Visit fightcancer.org to learn more about ACS CAN's initiatives.

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Ultraviolet Radiation

Ultraviolet radiation (UVR) exposure from sunlight or indoor tanning devices is a major modifiable risk factor for all skin cancer types. Invasive melanoma, which represents only about 1% of all skin cancer cases, accounts for most skin cancer deaths. About 104,960 new cases of invasive and 107,240 new cases of in situ melanomas of the skin are expected to be diagnosed in the US in 2025, with 8,430 invasive melanoma deaths expected.[1] In 2019, an estimated 92% of melanoma cases were attributable to UVR exposure, but this proportion varied across states from 88% in the District of Columbia to 97% in Hawaii among White persons in 2011-2015.[2, 3]

Other skin cancer types include basal cell and squamous cell carcinomas, collectively known as keratinocyte carcinoma (KC) or non-melanoma skin cancers (NMSC), which are the most common and curable skin cancers;[4] about 5.4 million KCs were diagnosed in the US in 2012.[5]

Apart from UVR exposure, skin cancer risk is also higher among people with weakened immune systems, a personal or family history of melanoma, and those with atypical, large, or numerous moles (more than 50).[6-8]

Solar UVR Exposure

Solar UVR is an invisible form of energy that penetrates and damages skin cells, contributing to skin cancer risk. The sensitivity of a person's skin to UVR and the duration and intensity of exposure are important risk factors for skin cancers.[9] Importantly, the damaging effects of UVR are cumulative over a lifetime.[10] Some studies indicate that unprotected sun exposure during childhood poses an especially elevated risk for melanoma and other skin cancers later in life, while other research suggests that unprotected exposure is harmful regardless of when it occurs.[11-13] In 2019, it was estimated that 23% of NMSC deaths were attributable to occupational exposure to UVR.[14] Beyond skin cancers, the International Agency for Research on Cancer (IARC) notes in their report a positive association between solar radiation exposure and cancers of the lip, conjunctival squamous cell carcinoma, and ocular melanoma.[15]

Recent data reveal ongoing deficits in sun protection behaviors, particularly regarding sunburns among younger individuals.

- In 2023, 55% of high school students (females: 58%, males: 52%) reported having a sunburn one or more times in the past year, with higher prevalence among White students (females: 83%, males: 75%). (Table 3A).
- In 2020, 27% of adults reported being sunburned within the past year, with higher prevalence among adults ages 18 to 24 years (40%) and White persons (36%).[16]

Artificial UVR Exposure (Indoor Tanning)

UV-emitting indoor tanning devices are classified as carcinogenic by the IARC.[17] Indoor tanning is associated with a significantly increased risk of both melanoma (27%) and NMSC (40%), with risks even higher for early-onset cases and frequent or early-age exposure.[18]

Despite these risks, recent indoor tanning trends show encouraging declines in usage. From 2007 to 2018, indoor tanning rates in the US decreased significantly across demographics, with overall adult use dropping from 10% to 4%, and usage among females and young adults ages 18 to 34 years falling from 14% to 4%.[19] This decline has been particularly pronounced in states with youth access legislation, supporting evidence that age restrictions effectively reduce indoor tanning among adolescents and young adults.[19, 20] Nevertheless, tanning remains a complex issue. Research indicates that many adolescent indoor tanners struggle to quit, and others report psychological challenges, such as feeling unattractive without a tan.[21] Importantly, studies reveal that individuals who refrain from tanning before turning 18 years old are two to four times less likely to tan as adults, emphasizing the potential long-term impact of early intervention.[20]

UVR Protective Behaviors

To reduce skin damage from UVR, it is recommended to limit exposure during peak hours, use shade when available, avoid tanning devices, wear protective clothing and eyewear, and apply broad spectrum sunscreen with an SPF of 30 or higher at least 30 minutes before sun exposure, reapplying every 2 hours. These practices help protect the skin from both UVA and UVB rays, which can cause sunburn, premature aging, and increase skin cancer risk.

Visit cancer.org/healthy/be-safe-in-sun/ for additional information. For the latest nationally representative data on adult and youth UVR exposure and sun protection behaviors in adults, please refer to prior editions of *Cancer Prevention & Early Detection Facts & Figures* at: cancer.org/research/cancer-facts-statistics/cancer-prevention-early-detection.html.

Table 3A. Sunburn* (%), High School Students, US, 2023

	Males	Females	Overall
Overall	**52**	**58**	**55**
Race/Ethnicity			
Hispanic	35	48	41
White	75	83	79
Black	13	16	14
Asian	30	32	31
AIAN	30	50	42
NHPI	–	–	46

Estimates are crude. Cells with hyphen marks denote unavailable estimates. AIAN-American Indian or Alaska Native, NHPI-Native Hawaiian or Pacific Islander. *Counting even a small part of their skin turned red or hurt for 12 hours or more after being outside in the sun or after using a sunlamp or other indoor tanning device, one or more times during the 12 months before the survey. See Special Notes, page 67, for more information regarding unavailable data.

Source: Youth Risk Behavior Survey, 2023.

Prevention Strategies in Skin Cancer

In 2014, the US Surgeon General issued a Call to Action to Prevent Skin Cancer,[22] outlining five goals: increase sun protection opportunities outdoors; provide information for informed UVR exposure choices; promote skin cancer prevention policies; reduce indoor tanning harms; and strengthen research and monitoring in skin cancer prevention. One study estimated that implementing a nationwide comprehensive prevention program could potentially avert 230,000 melanoma cases in the US from 2020 to 2030.[23] Strategies could include: increasing shade (both built and vegetative shade, which brings co-benefits to communities, including addressing impacts of extreme heat events, see page 43) in outdoor recreational settings; incorporating skin cancer prevention in school curricula; providing sunscreen dispensers in outdoor recreational areas; and enforcing workplace sun safety policies and indoor tanning prohibitions for minors.

Health care professionals also play a crucial role in patient education. To counter historical social norms favoring tanned skin, effective approaches may emphasize appearance-based consequences of sun exposure, such as premature aging,[24] to promote UVR protection.

Visit the CDC's Melanoma Dashboard at ephtracking.cdc.gov/Applications/melanomadashboard/ for state- and county-level data on melanoma.

ABCDE Rule: Warning Signs of Melanoma

Asymmetry – One-half of the mole does not match the other half.

Border irregularity – Edges of the mole are ragged, notched, or blurred.

Color – Pigmentation of the mole is not uniform. For example, different shades of tan, brown, or black are often present; dashes of red, white, and blue can add to the spotted appearance.

Diameter – Melanomas usually are >6mm in diameter, or about the size of a pencil eraser, but they can be smaller.

Evolving – A particular mole looks different than the others or is changing in size, shape, or color.

Early Detection of Skin Cancer

Skin cancer detection may involve clinical inspection or self-examination. The US Preventive Services Task Force found insufficient evidence to assess the balance of benefits and harms of clinical visual skin examinations for asymptomatic individuals without a personal or family history of skin cancer.[25] The American Academy of Dermatology recommends self-exams, especially for high-risk individuals (e.g., fair-skinned, red/blond hair, blue/green eyes, or males over 50). Approximately 30% of melanomas develop from existing moles.[26] Males over 50 should monitor moles for changes, as melanomas often appear on their backs, while in females, they are more common on their lower extremities.[27]

Any suspicious skin changes warrant prompt medical evaluation. The ABCDE rule aids in identifying potential melanomas. (See sidebar, left.) Visit cancer.org/cancer/risk-prevention/sun-and-uv/skin-exams.html for self-exam guidance.

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Infectious Agents

Several infectious agents known to cause cancer are classified as Group 1 known carcinogens by the International Agency for Research on Cancer, including human papillomavirus, Epstein-Barr virus, hepatitis B virus, hepatitis C virus, and *Helicobacter pylori*. In the US, about 3% (60,310) of all cancer cases and 4% (20,720) of cancer deaths in 2019 were attributable to infections.[1] Fortunately, many of these infections are amenable to prevention and/or treatment, thereby averting cancer occurrence and death.

Human Papillomavirus

Human papillomavirus (HPV) is a very common group of viruses with at least 12 high-risk strains out of over 200 types that can cause cancer.[2] HPV infection is primarily spread through intimate skin-to-skin contact, and is usually asymptomatic and transitory. Persistent high-risk HPV infection causes almost all cervical and anal cancers, about 75% of vaginal cancers, 70% of oropharyngeal and vulvar cancers, and 63% of penile cancers.[2] In 2019, there were 32,730 new cancer cases and 7,410 cancer deaths attributed to HPV in the US.[1] Due to widespread screening, overall cervical cancer incidence rates have declined, but rates have stabilized in the past decade and even increased by 1% per year in females ages 30-44 years from 2012 to 2021.[3, 4]

HPV Infection Prevalence

- In 2018, there were an estimated 43 million HPV infections in the US, with approximately 13 million new infections.[5]
- Among adults ages 18-60 years from 21 states, an estimated 2% (males: 3.3%, females 1%) had high-risk oral HPV infection from 2021-2022.[6] Prevalence of high-risk oral HPV was generally consistent across age groups, with prevalence ranging from 1%-2% in ages 18-50 years. However, males ages 51-60 years had a much higher prevalence of high-risk oral HPV infection (6.8%).[6]
- From 2013-2016, prevalence of high-risk genital HPV infection was similar in males who had sex with males (ages 18-59 years) and heterosexual males (30.1% versus 27.6%).[7]

HPV Prevention and Control

The HPV vaccine was first approved in the US in 2006 and protected against four HPV types.[8] The Gardasil®9

American Cancer Society 2020 Recommendations for HPV Vaccine Use

- HPV vaccination works best when given to boys and girls between ages 9 and 12 years. Special emphasis has been given to starting at age 9 to increase the success of completing the series by age 13.
- Children and young adults ages 13 through 26 years who have not been vaccinated or who have not received all of their shots should get the vaccine as soon as possible. Vaccination of young adults will not prevent as many cancers as vaccination of children and teens.
- The American Cancer Society does not recommend HPV vaccination for persons older than 26 years of age.

See hpvroundtable.org/start-hpv-vaccination-at-age-9/ for more information.

Dosing Schedules by Age

Two doses of HPV vaccine are recommended for most persons starting the series before their 15th birthday. Vaccination is recommended to begin at age 9 years for better immune response.

- The second dose of HPV vaccine should be given 6 to 12 months after the first dose.
- Adolescents who receive two doses less than 5 months apart will require a third dose of HPV vaccine.

Three doses of the HPV vaccine are recommended for most persons starting the series between the ages of 15-26 years.

- The second dose should be given 1-2 months after the first dose.
- The third dose should be given 6 months after the first dose.

See hpvroundtable.org/hpv-vaccines-recommendations/ for more information.

vaccine, approved in 2014 by the FDA, is now the only HPV vaccine available for use in the US. It protects against the previous four HPV types, as well as five additional HPV types (strains: 16, 18, 31, 33, 45, 52, 58, 6, 11).[8] HPV vaccination is associated with population-level reductions in HPV infection, cervical cancer, and other HPV-associated cancers (vaginal, vulvar, penile, anal, and oropharyngeal).[9-12] Declines have been observed in the incidence of cervical precancerous lesions (e.g., cervical intraepithelial neoplasia grade 3 declined by 34% in ages 15-19 years),[13] cervical cancer (e.g., declines of about 69% in females ages 20-24 years),[4] and anal cancer (e.g., in situ and invasive squamous cell carcinomas declined by 15%-24% in vaccine-eligible individuals ages 20-44 years).[14]

The American Cancer Society's HPV vaccination guidelines were updated in 2020 to recommend routine vaccination for girls and boys between ages 9 and 12 years, rather than ages 11 and 12 years and in teenagers and adults through the age of 26 who have not been adequately vaccinated per the Advisory Committee on Immunization Practices.[15,16] (See sidebar, left.) Vaccination does not prevent established infections from progressing to precancer or cancer and does not prevent infection of all HPV types; therefore, females with a cervix in the appropriate age groups should receive regular cervical cancer screening. (See page 59.)

HPV Vaccination Prevalence in the US

- In 2023, 63% of youth ages 13-17 years (females: 65%, males: 61%) had initiated – at least one dose of – the HPV vaccine series before their 13th birthday (Table 4A), and 39% of females and 35% of males were up to date with the HPV vaccination series before their 13th birthday. Up-to-date prevalence before the 13th birthday varied widely across states from 19% in New Jersey to 56% in Puerto Rico (Table 4B, Figure 4A).
- HPV vaccine initiation increased among females ages 13-17 years from 49% in 2010 to 79% in 2023 and among males ages 13-17 years from 21% in 2012 to 75% in 2023.[17]
- In 2023, 64% of females and 59% of males ages 13-17 years were up to date with the HPV vaccination series (Table 4A), but estimates differed widely across states, with the lowest prevalence in Mississippi (38%) and highest in Rhode Island (84%) (Table 4B).[18]
- In 2022, among adult females and males ages 19-26 years, 52% and 31%, respectively, reported ever having received at least one dose of the HPV vaccine.[19]

Table 4A. Vaccination Coverage (%), Youth Ages 13-17 Years, by Sex, Race/Ethnicity, and Poverty Status, US, 2023

	Before 13th birthday among ages 13-17 years						Ages 13-17 years			
	Human papillomavirus						Human papillomavirus			Hepatitis B
	Females		Males		Overall		Females	Males	Overall	Overall
	Initiation†	Up to date*	Initiation	Up to date	Initiation	Up to date	Up to date**			≥ 3 doses
Overall	**65**	**39**	**61**	**35**	**63**	**37**	**64**	**59**	**61**	**91**
Race/Ethnicity										
White	63	38	58	32	60	35	63	58	61	93
Black	70	38	61	34	66	36	62	56	59	92
Hispanic	67	39	66	42	66	40	65	62	64	88
Asian	–††	–	–	–	–	–	71	58	65	88
AIAN	–	–	–	–	–	–	70	65	68	78
Poverty Status										
<100% FPL	68	40	66	40	67	40	60	61	61	89
≥100% FPL	66	39	60	34	63	36	65	59	62	92

AIAN-American Indian or Alaska Native, FPL-Federal poverty level. Data from US territories excluded from national estimates as they were sampled separately. †≥ 1 dose of the human papillomavirus vaccine before 13th birthday among ages 13-17 years. *≥ 2 doses of the human papillomavirus vaccine before 13th birthday among ages 13-17 years. **Up to date human papillomavirus vaccination in ages 13-17 years is defined as 2 doses separated by 5 months (minus 4 days) for immunocompetent adolescents initiating the human papillomavirus vaccine series before their 15th birthday, and 3 doses for all others. ††Initiation and up to date human papillomavirus vaccination before 13th birthday among Asian and AIAN youth not released in the public NIS-Teen dataset nor in the 2023 NIS-Teen MMWR publication.

Sources: Pingali C, et al. 2023.[18] National Immunization Survey-Teen, 2023.

Improvements in HPV vaccination rates reflect, in part, efforts to improve access to vaccines. The Affordable Care Act requires private insurance plans to cover HPV vaccination without cost-sharing for eligible children, adolescents, and adults.[20] Furthermore, the federal Vaccines for Children program covers vaccine costs for children and teens who meet certain eligibility requirements (i.e., uninsured, underinsured, eligible for Medicaid, or are American Indian or Alaska Native).[21]

Quality improvement interventions within health care systems and high-quality provider recommendations are strong predictors of HPV vaccination levels for adolescents.[22] Increased parental acceptance may also play a role in improving vaccination levels. For example, the American Cancer Society, with funding from the Centers for Disease Control and Prevention (CDC), developed HPV Vaccinate Adolescents against Cancers, a national multilevel program to engage health care systems, health plans, states, and other public health organizations to raise HPV vaccination rates for cancer prevention. An evaluation of this program's efforts in 11 federally qualified health center systems found significant improvements in HPV vaccination completion rates associated with implementing systems improvements and provider training.[23]

The American Cancer Society National HPV Vaccination Roundtable

The American Cancer Society National HPV Vaccination Roundtable (ACS HPVRT) was established in 2014 in partnership with the CDC. The ACS HPVRT is a coalition of 90 member organizations working to raise HPV vaccination rates and prevent HPV cancers in the US.

The ACS HPVRT's members advance the roundtable's mission by convening national organizations, experts, and key stakeholders to ideate, strategize, and problem solve; communicating and informing key audiences (coalitions, health systems, parents, providers, and the public) about the importance of HPV vaccination as cancer prevention; and catalyzing members, and by extension the public, to take action to close the adolescent vaccination gap.

Visit hpvroundtable.org for more information.

Table 4B. Human Papillomavirus Vaccination Coverage (%), Youth Ages 13-17 Years, by State, US, 2023

	Up to date before 13th birthday†		Up to date*			
	Overall		Females	Males	Overall	
United States (median)	**37**	**Rank**	**66**	**64**	**64**	**Rank**
Range	*19-56*	(1=low)	*47-87*	*39-81*	*38-84*	(1=low)
Alabama	43	38	66	55	60	17
Alaska	35	14	57	52	54	10
Arizona	41	33	64	63	63	24
Arkansas	32	7	54	52	53	8
California	35	14	65	51	58	14
Colorado	44	40	69	68	69	37
Connecticut	‡	‡	71	71	71	43
Delaware	43	38	75	71	73	47
District of Columbia	42	35	73	72	72	45
Florida	41	33	77	53	64	27
Georgia	22	2	‡	49	40	2
Hawaii	52	46	70	70	70	41
Idaho	33	9	58	49	53	8
Illinois	42	35	74	64	69	37
Indiana	37	23	55	68	62	23
Iowa	37	23	70	67	68	34
Kansas	36	19	59	61	60	17
Kentucky	31	6	50	46	48	4
Louisiana	49	45	67	66	66	30
Maine	37	23	61	62	61	19
Maryland	39	29	70	64	67	32
Massachusetts	46	42	86	79	82	51
Michigan	46	42	81	66	73	47
Minnesota	46	42	72	66	69	37
Mississippi	‡	‡	‡	‡	38	1
Missouri	34	10	60	55	58	14
Montana	37	23	59	59	59	16
Nebraska	36	19	68	67	67	32
Nevada	30	5	51	46	49	5
New Hampshire	36	19	75	66	71	43
New Jersey	19	1	47	53	50	6
New Mexico	38	27	57	65	61	19
New York	40	31	69	68	69	37
North Carolina	34	10	64	63	64	27
North Dakota	54	47	80	77	78	50
Ohio	34	10	65	62	63	24
Oklahoma	26	3	49	39	44	3
Oregon	40	31	67	68	68	34
Pennsylvania	42	35	67	64	66	30
Rhode Island	55	49	87	81	84	52
South Carolina	35	14	63	59	61	19
South Dakota	54	47	69	75	72	45
Tennessee	35	14	58	52	55	12
Texas	34	10	61	54	57	13
Utah	35	14	59	63	61	19
Vermont	36	19	71	66	68	34
Virginia	38	27	59	66	63	24
Washington	39	29	63	67	65	29
West Virginia	26	3	55	45	50	6
Wisconsin	45	41	74	66	70	41
Wyoming	32	7	53	55	54	10
Puerto Rico	56	50	75	77	76	49

Data from Puerto Rico were sampled separately. †≥ 2 doses of the human papillomavirus vaccine before 13th birthday among ages 13-17 years. *Up-to-date human papillomavirus vaccination in ages 13-17 years is defined as 2 doses separated by 5 months (minus 4 days) for immunocompetent adolescents initiating the human papillomavirus vaccine series before their 15th birthday, and 3 doses for all others. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Sources: National Immunization Survey-Teen, 2023.

Since 2014, the American Cancer Society and the CDC have also convened major stakeholders in the National HPV Vaccination Roundtable to improve HPV vaccine uptake. See sidebar, page 35.) In addition, in 2018, the American Cancer Society launched their Mission: HPV Cancer Free public health campaign, with the mission of eliminating vaccine-preventable HPV cancers by reaching a vaccine coverage rate of 80% of 13-year-olds in the United States by 2026, the 20-year anniversary of the original HPV vaccine's release.

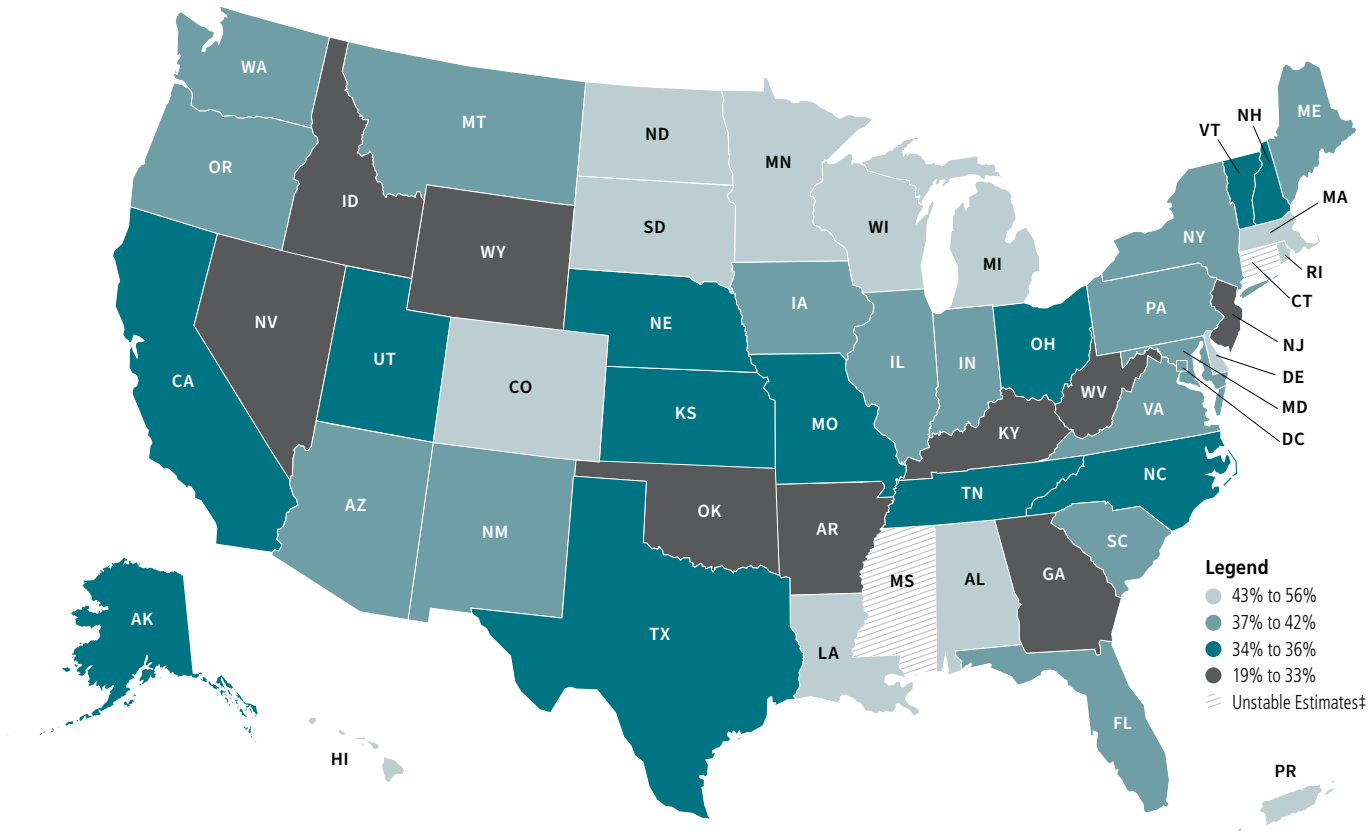
See cancer.org/hpv for more information.

Helicobacter Pylori

Chronic infection with *Helicobacter pylori* (*H. pylori*), a bacterium that grows in and causes damage to the stomach lining, can lead to stomach cancer and gastric lymphoma.[12, 24-26] In the US, about 48% of all stomach cancers are attributable to *H. pylori* infection.[1, 27] About 43%-44% of the world's population is infected with *H. pylori*, but most people will remain unaware of their infection because they do not experience symptoms and few will develop stomach cancer.[28-30]

H. pylori transmission is thought to occur from person to person through oral-oral, like kissing, or fecal-oral routes, such as not thoroughly washing hands after a bowel movement. The risk of transmission increases in crowded living conditions and with poor

Figure 4A. Up-to-date Human Papillomavirus Vaccination Before 13th Birthday (%), Youth 13-17 Years, by State, US, 2023



Data from Puerto Rico were sampled separately. Up-to-date human papillomavirus vaccination is defined in this figure as ≥ 2 doses of the human papillomavirus vaccine before 13th birthday among ages 13-17 years. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: National Immunization Survey-Teen, 2023.

sanitation. There is evidence that gastric cancer incidence and mortality may be reduced among people with *H. pylori* infection following treatment.[31] In the US, there is no recommendation to screen asymptomatic people for *H. pylori*, but a new recommendation is being considered by the US Preventive Services Task Force.[32] A recent study in Taiwan reported no reductions in gastric cancer incidence or mortality when individuals were invited to screen for gastric cancer in tandem with fecal immunochemical testing (FIT) versus FIT alone.[33] However, when accounting for participation and time to follow up, individuals who were invited for combined FIT and gastric cancer screening had a lower incidence of gastric cancer than in the FIT alone group.[33]

H. Pylori Prevalence in the US

- In the US, 18% of adults are estimated to have *H. pylori*,[29] but prevalence has declined from earlier (1909-1919) to more recent (1980-1999) birth cohorts.[34]
- In a review of data between 1965 and 2014, prevalence of *H. pylori* infection was higher among American Indian or Alaska Native persons and persons who immigrated to the US in the past 10 years.[34]
- During 1999 to 2018, the rate of *H. pylori* infection among veterans was higher in Southern states (especially Texas, Alabama, Mississippi, Kentucky, and Georgia) than in any other regions.[35]

Hepatitis B Virus

Chronic infection with hepatitis B virus (HBV) can cause liver cancer and is increasingly recognized as a risk factor for a small proportion of non-Hodgkin lymphoma cases.[12, 26, 36] In the US, about 8% of all liver cancer cases are attributable to HBV.[1] The virus is transmitted through blood or mucosal contact with infectious blood or body fluids (e.g., semen) and can be transmitted to infants at birth or shortly after.

Vaccination against HBV has been the primary prevention strategy in reducing the prevalence of the virus. As of 2023, the CDC recommends that the following groups receive the vaccine: infants, all youth <19 years of age, unvaccinated adults ages 19-59 years of age, and unvaccinated adults ages 60 years and over who are at high risk for infection or seek the added protection.[37] Additionally, the CDC recommends adults receive a one-time universal screening for HBV infection.[37]

HBV Prevalence and Vaccination in the US

- An estimated 580,000 to 2.4 million persons are living with HBV infection in the US. Non-US-born persons account for 14% of the general US population but account for 69% of those living with chronic HBV infection.[37-39]
- Rates of acute HBV infection in 2022 were markedly higher in West Virginia and Florida (3 per 100,000) compared to the national average (<1 per 100,000).[40]
- In 2023, 91% of adolescents ages 13-17 years received at least three doses of the HBV vaccine (Table 4A). By state, adolescent HBV vaccination prevalence ranged from 83% in the District of Columbia to 98% in Georgia.[17]

Hepatitis C Virus

Chronic infection with hepatitis C virus (HCV) can cause liver cancer and non-Hodgkin lymphoma.[12] Some evidence suggests chronic HCV infection may also be connected to bile duct cancer.[12] Liver cancer incidence and mortality rates have increased rapidly in the US for several decades. However, liver cancer incidence and mortality trends have reversed in recent years, with incidence stabilizing and mortality dropping for males.[4] Both the incidence and mortality of liver cancer are still rising in females.[4] Nearly 30% of liver cancers and 28% of liver cancer deaths in the US are attributable to HCV.[1] Today, most HCV is spread through injection drug use; other sources of transmission, although rare, include needle-stick injuries in health care settings, mother-to-child transmission during birth, and sexual contact with an infected individual.

The US Preventive Services Task Force recommends one-time screening among adults ages 18 to 79 years. Those who test positive for HCV are advised to begin antiviral treatment.[41]

Hepatitis C Virus Prevalence and Testing in the US

- Approximately 2.5 million persons (1%) were living with HCV infection in March 2017-2020.[42] However, when adjusting for the underrepresentation of persons who inject drugs in surveys, the number may be as high as 4 million or 1.6% of the US population.
- In 2022, the incidence rate of chronic HCV was 40.2 per 100,000 persons (93,805 new cases), but rates were higher among American Indian or Alaska Native persons (104.8 per 100,000 persons) and those ages 30-39 years (80.2 per 100,000 persons).[40]
- In 2022, rates of acute HCV infection were highest in those ages 20-49 years, consistent with the age group most affected by injection drug use.[40, 43]

Human Immunodeficiency Virus

The human immunodeficiency virus (HIV) is primarily transmitted through sexual intercourse and injection drug use, though other infection routes are possible. HIV is a virus that may be present in the body for a long period of time without symptoms; however, as HIV progresses, the immune system is weakened, and acquired immunodeficiency syndrome (AIDS) develops. The weakened immune system, along with shared routes of transmission with other cancer-causing infectious agents (e.g., HPV and HCV), as well as other major cancer risk factors, particularly cigarette smoking, increases the risk of cancer in this population.[44] Approximately 80% of Kaposi sarcoma, 11% of anal cancers, 9% of non-Hodgkin lymphoma, 5% of Hodgkin lymphoma, and <1% of cervical cancers in the US are attributed to HIV infection.[1] HIV infections may also increase the risk of developing lung, eye, skin, penile, vaginal, and liver cancers.[12]

There are several primary prevention strategies for HIV, such as safe sex practices (including pre-exposure

prophylaxis for males who have sex with males) and using sterile needles. Among those infected with HIV, highly active antiretroviral therapy (HAART) can suppress virus replication and boost the immune system, but these medication regimens must be taken throughout life.

The American Cancer Society currently recommends the same cancer screening tests for people living with HIV as those without the virus. However, it is recommended that HIV-infected individuals with a cervix receive tailored cervical cancer screening immediately following an HIV diagnosis. In June 2024, the Department of Health and Human Services released the first US federal guidelines to help detect and treat anal precancer and prevent anal cancer for people with HIV.[45]

Visit cancer.org/cancer/risk-prevention/infections/hiv-infection-aids/hiv-aids-and-cancer.html for more information on the American Cancer Society cancer screening recommendations for people living with HIV.

HIV Prevalence and Trends in the US

- Since the mid-1990s, the prevalence of HIV infection has increased due to improvements in survival among those with the virus, but incident cases are declining: 36,200 persons in 2018 compared to 31,800 in 2022.[46] In 2022, 1.2 million adults and adolescents were estimated to be living with HIV. Of those, approximately 87% knew they had HIV.
- In 2022, the majority of people living with diagnosed or undiagnosed HIV were male (78%), and among males with HIV, 60% engaged in male-to-male sexual contact.[46] Approximately 40% of people living with HIV were Black, and HIV prevalence was more than two times higher in the South (47%) than in any other region.

Visit cdc.gov/hiv/index.html for more information.

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Occupational and Environmental Cancer Risk Factors

Carcinogenic substances permeate the air, water, and soil and can be found in both occupational and environmental setting. The risk of cancer associated with widespread exposure of these substances can be considerable.

The US National Toxicology Program's (NTP) 15th Report on Carcinogens, published in 2021, classified 63 substances as known to be, and 193 substances as reasonably anticipated to be human carcinogens.[1] The International Agency for Research on Cancer (IARC) invites multidisciplinary scientific teams to review and classify carcinogens. As of November 2024, the IARC had classified 132 agents as Group 1 carcinogens (carcinogenic to humans), and 96 agents as Group 2A carcinogens (probably carcinogenic to humans).[2] Many of these carcinogens are found in occupational or environmental settings. The American Cancer Society does not classify carcinogens but provides summary information for the public (cancer.org/cancer/risk-prevention/understanding-cancer-risk/known-and-probable-human-carcinogens.html).

Visit ntp.niehs.nih.gov/pubhealth/roc/index-1.html and monographs.iarc.who.int/agents- classified-by-the-iarc/ for more information.

The following sections focus on select environmental carcinogens found in the air, water, and soil, as well as occupational carcinogens encountered in the workplace. These sections are not intended to be a comprehensive discussion of all risk factors. Some environmental carcinogens, such as tobacco smoke, infectious agents, and UVR, have been detailed in other sections of this publication. Other environmental carcinogens, such as pesticides and asbestos, have been detailed in previous editions of *Cancer Prevention & Early Detection Facts & Figures* at: cancer.org/research/cancer-facts-statistics/cancer-prevention-early-detection.html.

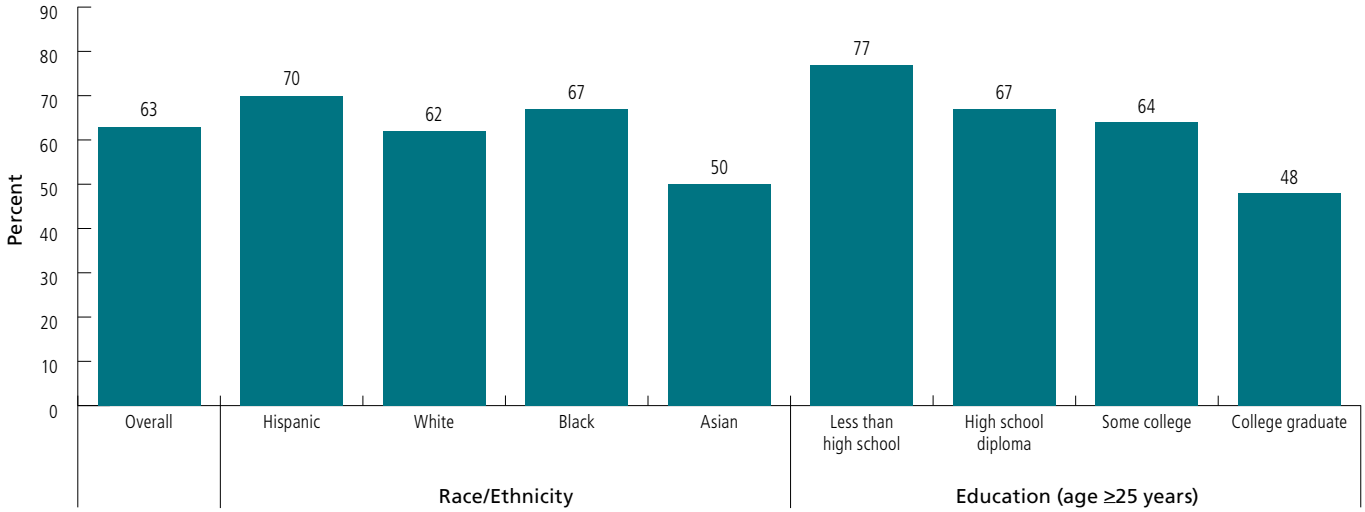
Occupational Cancer Risk Factors

Nearly 27 million adults in the US were exposed to chemicals at their occupation in the past year.[3] Occupational exposures are known to cause many types of cancer, though the most common are those of the lung, skin, bone, and urinary bladder, as well as mesothelioma and leukemia. An estimated 38,878 cancer deaths in the US were attributed to carcinogenic occupational exposures in 2021 alone.[4]

In June 2024, acrylonitrile was classified as a Group 1 carcinogen by the IARC with sufficient evidence linking exposure to lung cancer.[2] Workers in the textile, plastic, automotive parts, and construction industries are vulnerable to occupational exposure of acrylonitrile.[2] Other examples of occupational exposures to chemicals include chromium (leather industry),[2] coal-tar pitch (roof and paving industries),[5] and diesel engine exhaust (transportation,[6] mining,[7] and petroleum industries),[8] which are all linked to lung cancer,[2] as well as, exposure to benzene (petroleum industry)[9] and formaldehyde (laboratory, embalming, and woodworking industries),[10] which are linked to leukemia,[2] and radiation exposure (mining and nuclear industries),[11] which is linked to several cancers.[2] Additionally, firefighters experience a unique exposure to a wide variety of combustion products, including diesel exhaust, firefighting foams, flame retardants, and building materials, among other hazards, linked to urinary bladder cancer and mesothelioma.[2, 12]

- In 2023, 11% of US adults reported occupational exposure to chemicals (solvents, industrial glues, heavy metals, pesticides, or motor engine exhaust) in the past year, some of which have been identified as carcinogenic (Figure 5A).
- Among adults with occupational chemical exposure in 2023, 63% were subjected to prolonged exposure for 4+ hours a week (Figure 5A).

Figure 5A. Prolonged Exposure Among Individuals With Occupational Chemical Exposure (%), US Adults, 2023



Estimates are age adjusted to the year 2000 US population standard using 5 age groups: 18-24, 25-34, 35-44, 45-64, and ≥65 years and by 4 age groups: 25-34, 35-44, 45-64, and ≥65 years for education. Among those with occupational chemical exposure to solvents, industrial glues, heavy metals, pesticides or motor engine exhaust in the past 12 months; those who are exposed for 4 or more hours a week are considered to have prolonged exposure.

Source: National Health Interview Survey, 2023.

- In 2023, Hispanic workers (70%) and workers without a high school diploma (77%) were more likely to have prolonged occupational exposure to chemicals during the week than White workers (62%), Asian workers (50%), and workers who graduated college (48%) (Figure 5A).

Visit cdc.gov/niosh/cancer/about/index.html for more information on occupational cancer research and osha.gov/carcinogens for workplace standards and carcinogens in the United States.

Environmental Cancer Risk Factors

Radon

Radon is a form of ionizing radiation that is of particular concern because it accounts for most naturally occurring radiation exposure and is estimated to be the second-leading cause of lung cancer death in the US, with residential radon accounting for about 7,962 tracheal, bronchus, or lung cancer deaths in 2021.[4] The Environmental Protection Agency (EPA) recommends that homeowners test for radon; for those with measured levels exceeding 4 picocuries per liter, remediation to reduce exposure is recommended.

Visit epa.gov/radon for more information on radon from the EPA.

Drinking Water Contamination

In the US, there are several carcinogenic contaminants in our drinking water, including arsenic, disinfectant by-products, and radioactive contaminants, which incur the greatest cancer risk.[13] Recent attention has been brought to perfluorooctanoic (PFOA) acid and perfluorooctanesulfonic (PFOS) acid, which are substances used in many consumer products and that pollute drinking water.[14] In 2023, the IARC classified PFOA as a Group 1 carcinogen with sufficient evidence of its link to testicular and kidney cancer.[2, 14-16] Both PFOA and PFOS are part of a group of chemicals called per- and polyfluoroalkyl substances or PFAS. PFAS are frequently referred to as "forever chemicals" due to their resistance to degradation and long half-life in the human body.[14, 17] Apart from occupational exposure, individuals are primarily exposed to PFAS through diet

and drinking water.[14] More than 98% of the US population has a detectable serum level concentration of both PFOA and PFOS.[18]

Outdoor Air Pollution and Ambient Fine Particulate Matter (PM2.5)

In 2013, the IARC classified outdoor air pollution as a Group 1 carcinogen based on sufficient evidence that it causes lung cancer. Outdoor air pollution is estimated to account for about 5,972 tracheal, bronchus, or lung cancer deaths in the US.[4] Similar to drinking water contamination, there are several chemical agents polluting the air, including PM2.5, benzene, and diesel combustion.[19]

The IARC separately classified PM2.5 as a Group 1 carcinogen for its link to lung cancer.[2] The number of cancer deaths attributable to ambient particulate matter has declined from over 16,000 in 1995 to just under 6,000 in 2021, but this number has stabilized in recent years.[4] In 2024, the EPA updated their National Ambient Air Quality Standard reducing the permitted level of primary annual PM2.5 from 12 to 9 micrograms per cubic meter (ug/m3), which is still well above the World Health Organization recommendation of 5 ug/m3.[20] Studies have linked increases in PM2.5 with lung cancer incidence,[21] pediatric cancer mortality,[22] and several other morbidity outcomes (asthma in children, chronic obstructive pulmonary disease, ischemic heart disease events, stroke, and hypertension).[23]

Visit epa.gov/pm-pollution for more information on particulate matter pollution.

Climate Change

Climate change describes the current rise in average global temperatures caused by human activities, primarily the burning of fossil fuels. Human-caused climate change influences exposure to environmental carcinogens in a variety of ways.[24] Extraction, processing, transportation, and consumption of fossil fuels release greenhouse gases into the atmosphere,[25-27] and carcinogens into the surrounding communities, hindering cancer prevention efforts.[28-30] Climate change can also exacerbate health inequities[31] and disrupt access to potentially lifesaving cancer care.[32]

Climate change alters the frequency and behavior of extreme weather events, including intense precipitation and heat waves, making it harder for communities to prepare.[33-35] For example, there has been an increase in the areas burned by wildfires, the number of large fires, and the length of fire season, coinciding with climatic conditions (e.g., temperature and drought) conducive to wildfires.[36, 37] Wildfire smoke contains and transports carcinogens, including PM2.5 and benzene,[38] contaminating the air, water, and soil; damaging infrastructure; and worsening health conditions.[39] In an American Cancer Society-led study, patients recovering from lung cancer surgery who were exposed to a wildfire after discharge had worse mortality outcomes compared to unexposed patients.[40] Climate change and cancer have numerous direct and indirect compounding links via cancer risk, access to care, and outcomes, and adaptation and mitigation efforts are central to addressing these joint crises.[24]

Environmental Justice

Environmental justice is defined as the fair treatment and meaningful involvement of people of all racialized groups, nationalities, or incomes, in all aspects of policies and practices that affect the environment and public health.[41] Incorporating an environmental justice framework[42] in cancer research, oncology practice, and policymaking has the potential to reduce the cancer burden in the entire population.[24, 31]

In the US, environmental injustices can occur when structural racism informs environmental and public health policies and practices. This translates to disproportionate exposure and adaptation to environmental hazards,[42] such as residential proximity to polluting infrastructure,[31, 43, 44] transportation pollution,[45] particulate matter in the outdoor air,[44, 46] industrial pollution,[47] water contamination,[48] and hazardous waste sites,[49] as well as the cumulative impacts of environmental hazards on health.[50] Environmental injustices also limit employment and residential options available to individuals racialized as Black, Hispanic, and

Asian, and so they are more likely to be exposed to unhealthy levels of PM2.5 than White persons.[44] Additionally, most emission sources for PM2.5 (e.g., industrial, construction, and light-duty gas vehicles) disproportionately affect racial and ethnic minoritized groups.[44] In one study, biomarkers of hazardous chemical exposures were disproportionately found in racial and ethnic minoritized adults and children.[51]

The American Cancer Society remains committed to supporting the environmental justice principles of fair treatment and meaningful involvement to end cancer as we know it, for everyone.

Visit https://19january2021snapshot.epa.gov/environmentaljustice/learn-about-environmental-justice_.html for more information on environmental justice from the EPA. Visit https://css.umich.edu/sites/default/files/2022-09/Environmental%20Justice_CSS17-16.pdf for a fact sheet on environmental justice and environmental justice solutions.

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Cancer Screening

Screening reduces mortality from cancers of the breast, cervix, colon and rectum (colorectal), lung, and prostate by detecting cancer early in asymptomatic individuals. Screening can also prevent cervical and colorectal cancers by identifying and treating precancerous lesions. However, the full potential of screening remains unfulfilled due to suboptimal uptake and quality issues. Disparities persist, with certain racial/ethnic groups, rural populations, individuals with disabilities, and those of lower socioeconomic status less likely to be up to date with recommended cancer screenings.

Breast Cancer Screening

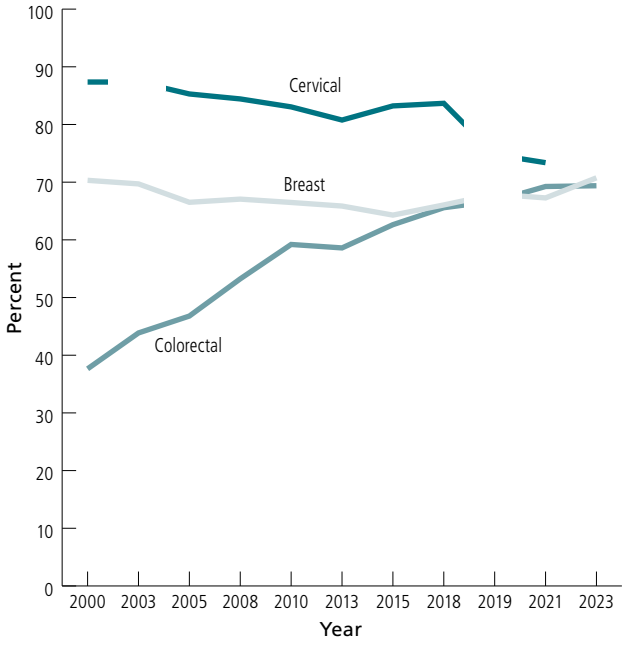
In 2025, an estimated 316,950 cases of invasive breast cancer will be diagnosed, and 42,170 deaths will occur among US females.[1] Early detection by mammography screening and treatment improvements have contributed to declines in breast cancer death rates.[2] However, breast cancer death rates are still 38% higher in Black than White females, despite a 5% lower incidence rate; rates are also declining more slowly or not at all among females with a lower educational level and in American Indian or Alaska Native females.[3,4] These disparities partly reflect unequal access to breast cancer screening and early detection, as well as prevention and care.[2]

Breast Cancer Screening Among Average-risk Individuals

Mammography, which is the primary breast cancer screening modality, reduces mortality from this disease by detecting cancers at an earlier and more treatable stage.[5] Since 2015, the American Cancer Society has recommended that females with an average risk of breast cancer begin annual screening with mammography at age 45 years, with an option to change to biennial exams at age 55 years. Females ages 40 to 44 years should have the choice to begin annual screening before age 45 years.[6] The American Cancer Society is in the process of updating their guidelines for breast cancer screening for both females at average and higher than average risk. In 2024, the United States Preventive Services Task Force (USPSTF) lowered the recommended age to begin screening from 50 to 40 years, extending their recommendation for biennial screening to females ages 40 to 74 years.[7]

There are several types of mammographic screening. Digital or 2D mammography (2D DM) has replaced older film-screen units used in the 1980s and 1990s. Digital breast tomosynthesis (DBT) or 3D mammography, a

Figure 6A. Trends in Breast, Cervical, and Colorectal Cancer Screening (%), US, 2000-2023



The National Health Interview Survey (NHIS) underwent a significant redesign in 2019, preventing comparability to prior years indicated by the line break. Breast cancer screening is defined as a mammography in the past 2 years among females ages 40+ years. Breast cancer screening estimates are age adjusted to the year 2000 US standard population using three age groups: 40-49, 50-64, and 65+ years. Cervical cancer screening is defined as a Papanicolaou test in the past 3 years (2000-on) among females ages 21-65 years or HPV and Papanicolaou co-testing in the past 5 years (2015-on) among females 30-65 years who have not had a hysterectomy; hysterectomy data not available in 2003. Up-to-date cervical cancer screening not available in the 2023 NHIS. Cervical cancer screening estimates are age-adjusted to the year 2000 US standard population using 4 age groups: 21-29, 30-39, 40-49, and 50-65 years. Colorectal cancer screening is defined as colonoscopy, sigmoidoscopy, or fecal occult blood test/fecal immunochemical test in the past 10, 5, and 1 years; computed tomography colonography in the past 5 years (2010-on); or multi-target stool DNA test (sDNA) in the past 3 years (2018-on) among adults 50+ years. Colorectal cancer screening estimates are age adjusted to the year 2000 US standard population using 2 age groups: 50-64 and 65+ years. Due to data limitations in 2019, sDNA was only estimated among those who responded "yes" to receiving an FOBT/FIT test from 2019-2023.

Source: National Health Interview Surveys, 2000-2023.

newer technology approved in 2011, creates 3D images of the breast from multiple low-dose x-rays, which are interpreted in combination with conventional 2D DM images (as required by the US Food and Drug Administration [FDA]), and may offer similar benefits and fewer false positives when compared to 2D DM alone, according to the USPSTF, a conclusion that was based on screening trials and modeling studies.[7-9]

Mammography has some limitations. It will not detect all breast cancers; some breast cancers detected with mammography will still have a poor prognosis, and a small percentage may not be progressive, and thus may be treated unnecessarily. There is also potential for false-positive results, which are most common in younger individuals or during their first screening, and the possibility of undergoing a biopsy for benign abnormalities.

About 43% of US females receiving mammography between 2007-2010 were classified as having mammographically dense breast tissue, a measure that is unrelated to breast size or firmness.[10] Breast density is based on an indicator that measures the amount of glandular and connective tissue relative to fatty tissue measured during a mammogram.[10] Females with dense breast tissue have lower accuracy on 2D DM and a higher risk of developing breast cancer.[11] Supplemental imaging, including breast ultrasound, DBT, and breast MRI, may be used to help detect breast cancer among females with dense breast tissue and is associated with reduction in advanced cancers and deaths averted, but evidence to assess harms versus benefits is limited.[7, 12, 13] In September 2024, the FDA required that all mammogram results notify patients of their breast density as "not dense" or "dense" and how it reduces the sensitivity of mammography, which may prompt patient-provider discussion of supplemental screening strategies.

Breast Cancer Screening Among High-risk Individuals

The American Cancer Society 2007 breast cancer screening recommendations define high-risk females as having an estimated lifetime risk of approximately 20%-25% according to risk estimation software based

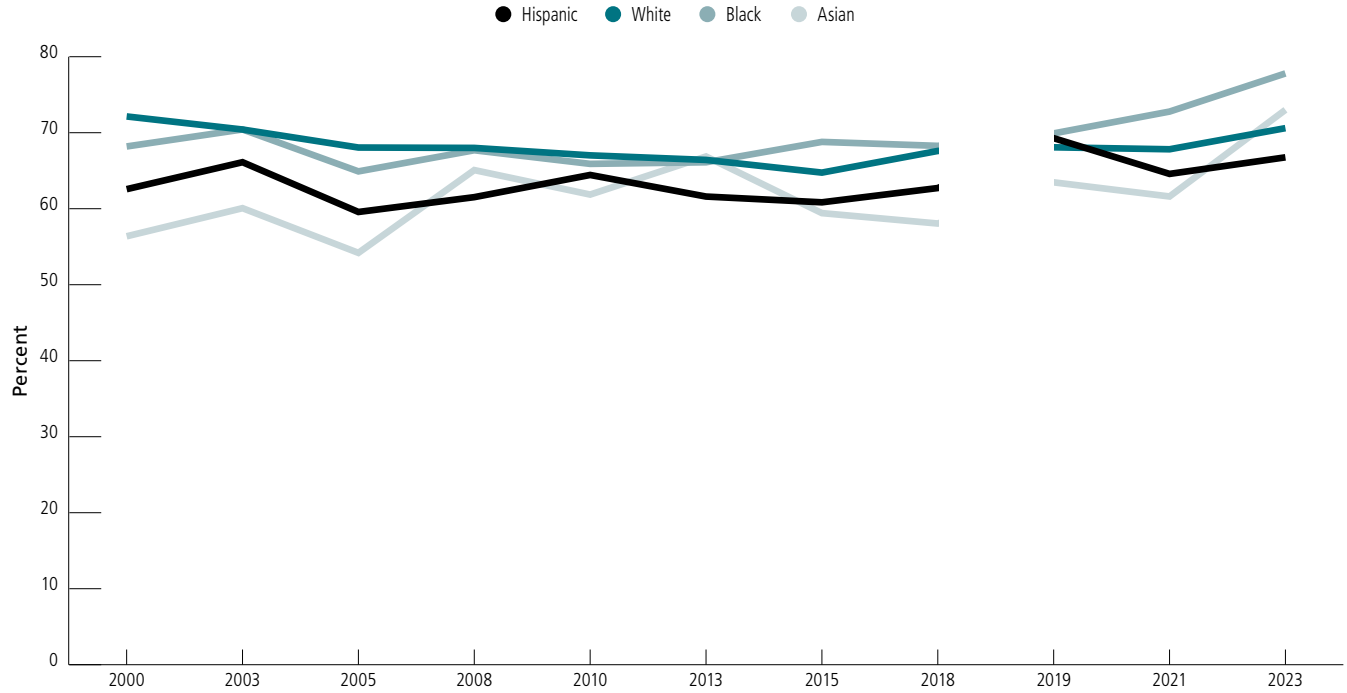
Table 6A. Mammography (%), Females 40 Years and Older, US, 2023

	ACS* ≥45 yrs	USPSTF§ 50-74 yrs	USPSTF† 40-74 yrs
Overall	**69**	**80**	**73**
Age (years)			
40-44	–	–	55
45-54	58	78	74
55-64	80	80	80
65-74	82	82	82
75 years and above	57	–	–
Race/Ethnicity			
Hispanic	64	78	68
White only	69	79	72
Black only	75	86	80
Asian only	71	81	76
AIAN only or multiple	59	74	62
Sexual orientation			
Gay or lesbian	72	80	69
Heterosexual	69	80	73
Bisexual	63	‡	64
Immigration status			
Born in US/US territory	70	80	73
In US fewer than 10 years	54	66	60
In US 10+ years	68	81	73
Education			
Less than high school	56	70	64
High school diploma	64	76	67
Some college	69	80	72
College graduate	77	85	79
Income level			
<100% FPL	56	69	61
100 to <200% FPL	62	74	65
≥200% FPL	72	83	76
Insurance status			
Uninsured	35	50	42
Private	74	83	78
Medicaid/Public/Dual eligible	63	72	67
Medicare (65 years and above)	70	83	83
Other (below 65 years)	72	78	76

ACS-American Cancer Society, USPSTF-United States Preventive Services Task Force, AIAN-American Indian or Alaska Native, FPL-federal poverty level. All estimates except age and insurance are age adjusted. *Mammogram within the past year (ages 45-54 years) or past two years (ages ≥55 years). Estimates are age adjusted to the year 2000 US population standard using 3 age groups: 45-49, 50-64, and ≥65 years. §USPSTF 2016 Recommendation: Mammogram within the past 2 years. Estimates are age adjusted using 2 age groups: 50-64, and 65-74 years. †USPSTF 2024 recommendation: Mammogram within the past two years. Data are presented only as baseline estimates, as this recommendation was not in place at time of survey. Estimates are age adjusted using 3 age groups: 40-49, 50-64, and 65-74 years. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: National Health Interview Survey, 2023.

Figure 6B. Trends in Mammography Within the Past Two Years (%), Females 40 Years and Older, by Race/Ethnicity, US, 2000-2023



Estimates are age adjusted to the year 2000 US population standard using 3 age groups: 40-49, 50-64, and 65+ years. The National Health Interview Survey underwent a significant redesign in 2019, preventing comparability to prior years indicated by the line break.

Source: National Health Interview Survey, 2000-2023.

mainly on family history, the presence of known mutations in the breast cancer susceptibility genes *BRCA1* and *BRCA2*, a first-degree relative (parent, sibling, or child) with a *BRCA1* or *BRCA2* gene mutation, prior chest radiation therapy (e.g., for Hodgkin lymphoma), or have Li-Fraumeni syndrome, Cowden syndrome, or Bannayan-Riley-Ruvalcaba syndrome or a first-degree relative with one of these syndromes.[14] It is recommended that females who meet these criteria receive annual magnetic resonance imaging (MRI), in addition to mammograms, beginning at age 30.

National Mammography Screening

- Self-reported biennial screening mammography in females ages 40 years and older increased from 29% in 1987 to 70% in 2000, before gradually declining to between 64%-66% during 2000-2018 (Figure 6A).[15] Past year mammography screening in females ages 50-74 years dropped during the COVID-19 pandemic between 2019-2021 before rebounding in 2023.[16]
- In 2023, 69% of females ages 45 years and older were up to date with American Cancer Society breast cancer screening guidelines; about 80% of females ages 50-74 years had a mammogram in the past two years (Table 6A).
- In 2023, prevalence of up-to-date screening according to the American Cancer Society guideline was lower among American Indian or Alaska Native (59%) and Hispanic (64%) females than White (69%), Asian (71%), and Black females (75%) (Table 6A). Historically, mammography prevalence has been lower in Hispanic and Asian females compared to White and Black females (Figure 6B).
- Only 56% of females without a high school diploma were up to date with screening compared to 77% of females with a college degree (Table 6A).
- Uninsured females (35%), recent immigrants in the US fewer than 10 years (54%), and females ages 45-54 years (58%), had the lowest prevalence of up-to-date screening in 2023 (Table 6A).

State-level Mammography Screening

- In 2022, the prevalence of up-to-date screening among females ages 45 years and older ranged from 56% in New Mexico to 76% in Rhode Island (Table 6B).
- In 2022, among females ages 45-64 years without insurance, receipt of a mammogram in the past two years ranged from 18% in Colorado to 63% in Connecticut (Table 6B).

Visit cancer.org/research/cancer-facts-statistics/breast-cancer-facts-figures.html for the current edition of *Breast Cancer Facts & Figures*.

Cervical Cancer Screening

In the US, an estimated 13,360 cases of invasive cervical cancer will be diagnosed in 2025, and 4,320 deaths will occur.[1] Cervical cancer incidence and mortality rates have more than halved over the past three decades, with declines attributed to screening, which can detect both cervical cancer at an early stage and precancerous lesions.[17] Persistent HPV infection causes almost all cervical cancers. HPV vaccination, initially recommended for adolescent girls in 2007, has been accompanied by remarkable declines in incidence of cervical precancerous lesions and cancer among young females <25 years in the US.[18,19] However, rates for some cervical cancers are increasing in a cohort of middle-aged females[20,21] in whom the HPV vaccine is not recommended and thus they rely entirely on regular screening for prevention and early detection. HPV vaccination also supplements rather than replaces cervical cancer screening because vaccination does not protect against established HPV infections or all HPV types. Therefore, adherence to regular screening is recommended regardless of vaccination status. (See Infectious Agents section, page 33.)

Cervical Cancer Screening Among Average-risk Individuals

The American Cancer Society 2020 cervical cancer screening guideline recommends screening every 5 years with primary HPV testing as the preferred option, a test that can be used on its own to detect the presence of high-risk HPV infection. Other acceptable options

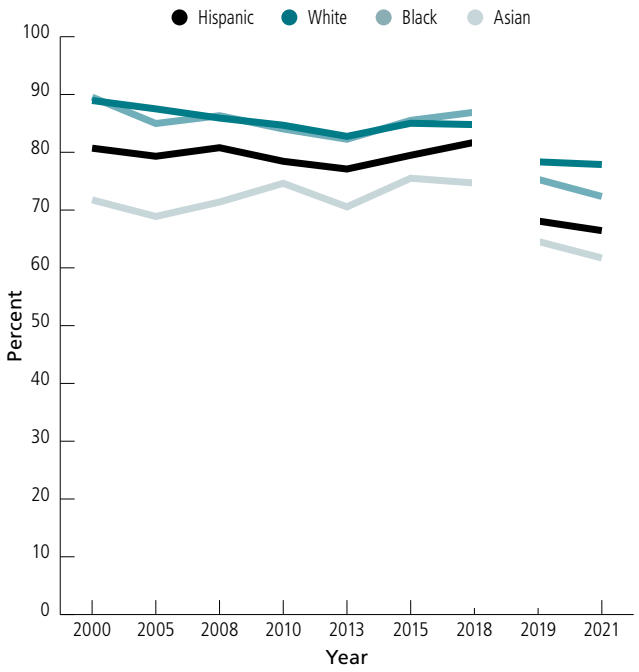
Table 6B. Mammography (%), Females 40 Years and Older, by State, US, 2022

	ACS*		USPSTF§	USPSTF†
	≥45 years	Uninsured 45-64 years	50-74 years	40-74 years
United States (median)	**66**	**30**	**76**	**70**
Range	*56-76*	*18-63*	*64-86*	*59-79*
Alabama	65	41	76	70
Alaska	58	‡	69	63
Arizona	63	33	75	66
Arkansas	64	‡	75	69
California	64	37	76	66
Colorado	62	18	71	64
Connecticut	72	63	81	77
Delaware	70	‡	80	72
District of Columbia	66	‡	78	69
Florida	67	30	78	70
Georgia	65	25	76	70
Hawaii	70	‡	78	73
Idaho	60	28	68	60
Illinois	65	35	72	65
Indiana	67	35	78	70
Iowa	69	46	79	71
Kansas	65	23	74	67
Kentucky	65	‡	73	67
Louisiana	73	‡	82	76
Maine	70	30	81	72
Maryland	73	35	83	76
Massachusetts	75	‡	85	76
Michigan	66	‡	77	73
Minnesota	69	34	79	72
Mississippi	65	‡	73	70
Missouri	64	26	74	70
Montana	64	19	75	66
Nebraska	64	28	76	68
Nevada	58	‡	70	61
New Hampshire	70	‡	81	74
New Jersey	66	‡	76	72
New Mexico	56	25	69	59
New York	69	36	79	74
North Carolina	69	43	79	72
North Dakota	68	‡	80	73
Ohio	64	29	75	68
Oklahoma	61	‡	69	63
Oregon	67	‡	78	68
Pennsylvania	66	‡	76	72
Rhode Island	76	‡	86	79
South Carolina	69	26	79	71
South Dakota	66	‡	72	75
Tennessee	65	19	75	69
Texas	64	20	74	66
Utah	61	38	74	65
Vermont	64	‡	76	65
Virginia	68	23	77	71
Washington	64	29	75	65
West Virginia	65	‡	76	69
Wisconsin	70	42	82	72
Wyoming	58	33	64	59
Puerto Rico	71	‡	84	77

ACS-American Cancer Society, USPSTF-United States Preventive Services Task Force. *Mammogram within the past year (ages 45-54 years) or past two years (ages ≥55 years). Estimates are age adjusted to the year 2000 US population standard using 3 age groups: 45-49, 50-64, and ≥65 years and by 3 age groups: 45-49, 50-59, and 60-64 years for uninsured. §USPSTF 2016 recommendation: Mammogram within the past 2 years. Estimates are age adjusted using 2 age groups: 50-64, and 65-74 years. †USPSTF 2024 recommendation: Mammogram within the past two years. Data are presented only as baseline estimates, as this recommendation was not in place at time of survey. Estimates are age adjusted using 3 age groups: 40-49, 50-64, and 65-74 years. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: Behavioral Risk Factor Surveillance System, 2022.

Figure 6C. Trends in Cervical Cancer Screening* (%), Females 21-65 Years, by Race/Ethnicity, US, 2000-2021



Estimates are age adjusted to the year 2000 US standard population using 4 age groups: 21-29, 30-39, 40-49, and 50-65 years. The National Health Interview Survey (NHIS) underwent a significant redesign in 2019, preventing comparability to prior years indicated by the line break. *Cervical cancer screening is defined as Pap test in the past 3 years (2000-2021) among females 21-65 years or HPV and Pap co-testing in the past 5 years (2015-2021) among females 30-65 years who have not had a hysterectomy; hysterectomy data not available in 2003. Up-to-date cervical cancer screening data not available in the NHIS 2023. Primary HPV testing estimates are not available due to questionnaire limitations.

Source: National Health Interview Surveys, 2000-2021.

include 1) screening every 3 years with Pap testing, which detects abnormal cells in the cervix or 2) co-testing every 5 years with both HPV and Pap tests. Screening with an HPV test approved by the FDA for primary HPV testing is preferred because it has fewer false negatives compared with Pap testing and has equivalent long-term sensitivity to detect cervical cancers compared with co-testing, but requires fewer tests, and has fewer false positives.[22] In May 2024, the FDA approved primary HPV self-collection for cervical cancer screening in a health care setting, which has the potential to increase access and reduce screening barriers.

The American Cancer Society 2020 guidelines also raised the recommended screening age from 21 to 25 years, recognizing the rarity of cancers before age 25 and the potential harms of screening in this age group.[22]

Table 6C. Cervical Cancer Screening (%), Females 21-65 Years, US, 2021

	Pap test in past 3 years	Pap test and HPV test in past 5 years	ACS†	USPSTF**
	25-65 years			21-65 years
Overall	**72**	**38**	**76**	**73**
Age (years)				
21-29	–	–	–	64
25-29	74	45	77	–
30-39	77	48	80	80
40-49	72	36	76	76
50-65	68	27	72	72
Race/Ethnicity				
Hispanic	66	37	69	66
White only	75	39	80	78
Black only	74	40	76	72
Asian only	61	26	64	62
AIAN only or multiple	65	31	68	65
Sexual orientation				
Gay or lesbian	66	36	73	69
Heterosexual	73	37	76	74
Bisexual	76	52	82	78
Immigration status				
Born in US/US territory	75	40	79	76
In US fewer than 10 years	54	30	55	53
In US 10+ years	67	32	69	66
Education (25 years and older)				
Less than high school	54	28	56	56
High school diploma	64	31	67	67
Some college	74	43	78	77
College graduate	79	40	83	83
Income level				
<100% FPL	60	33	64	63
100 to <200% FPL	63	35	67	65
≥200% FPL	76	39	80	77
Insurance status				
Uninsured	53	31	58	55
Private	77	38	80	77
Medicaid/Public/Dual eligible	66	40	69	68
Medicare (ages 65 years only)	52	17	57	57
Other (below 65 years)	67	36	70	68

ACS-American Cancer Society, USPSTF-United States Preventive Services Task Force, AIAN-American Indian or Alaska Native, FPL-federal poverty level. Estimates are among females who have not had a hysterectomy. All estimates except age and insurance are age adjusted. Up to date cervical cancer screening data are not available in the National Health Interview Survey 2023. †Pap test in the past 3 years or Pap test and HPV test within the past 5 years among females 25-65 years. Pap test, combined Pap and HPV tests, ACS estimates, and USPSTF education estimates are age adjusted to the year 2000 US population standard using 4 age groups: 25-29, 30-39, 40-49, and 50-65 years. **Pap test in the past 3 years among females 21-65 years or Pap test and HPV test within the past 5 years among females 30-65 years. USPSTF estimates are age adjusted using 4 age groups: 21-29, 30-39, 40-49, and 50-65 years. Primary HPV testing estimates are not available due to questionnaire limitations.

Source: National Health Interview Survey, 2021.

Currently, the USPSTF recommends screening for females ages 21-65 years, though these recommendations are being updated.[23] Both the American Cancer Society and the USPSTF recommend stopping screening in females older than 65 years who have had adequate prior screening and are not at high risk for cervical cancer. The American Cancer Society recommends stopping screening after age 65 years only in females with adequate documented negative prior screening results for the past 10 years and who do not have a history of cervical intraepithelial neoplasia grade 2 or a more serious diagnosis within the past 25 years.

National Cervical Cancer Screening

- Between 2000-2013, self-reported cervical cancer screening prevalence in females ages 21-65 years modestly declined and then stabilized between 2013-2018 (Figure 6A). During the COVID-19 pandemic, past year screening prevalence declined between 2019-2021 and had not returned to pre-pandemic levels by 2023.[16]
- In 2021, the prevalence of up-to-date cervical cancer screening according to the American Cancer Society guideline among females 25-65 years was 76% and was similar among White (80%) and Black (76%) females, but lower among Asian (64%), Hispanic (69%), and American Indian or Alaska Native (68%) females (Table 6C). Historically, cervical cancer screening has been lower in Hispanic and Asian than White and Black females (Figure 6C).
- The utilization of cervical cancer screening in 2021 was lowest among recent immigrants who had been in the US fewer than 10 years (55%), females without a high school diploma (56%), and uninsured females (58%) (Table 6C).

State-level estimates are unavailable from the 2022 Behavioral Risk Factor Surveillance System survey. (See Special Notes, page 64.) Please refer to *Cancer Prevention & Early Detection Facts & Figures Tables & Figures 2024* at cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-prevention-and-early-detection-facts-and-figures/2024-cped-files/cped-2024-cff-tables-and-figures.pdf for the most recent estimates from survey year 2020.

Colorectal Cancer Screening

An estimated 154,270 cases of colorectal cancer will be diagnosed in the US in 2025.[1] Colorectal cancer is the second-leading cause of cancer death overall, with 52,900 deaths estimated to occur in 2025, and is the leading cancer death in males younger than 50 years. Colorectal cancer screening can reduce colorectal cancer mortality both by detecting and removing potentially precancerous lesions, thus preventing the disease, and by detecting invasive tumors at earlier, more treatable stages. While there was an accelerated decline in colorectal cancer incidence and death rates during the 2000s, primarily reflecting the increased uptake of screening and removal of precancerous lesions among older adults, these declines slowed between 2011-2019, partly because of increases in colorectal cancer screening among individuals younger than 55 years.[24, 25]

Colorectal Cancer Screening Among Average-risk Individuals

The American Cancer Society 2018 colorectal cancer screening guideline recommends that adults ages 45 years and older undergo regular screening.[26] The American Cancer Society lowered the recommended age to begin screening from 50 to 45 years because of the increasing colorectal cancer risk in younger generations,[27] and the benefit of screening people ages 45-49 years outweighing the risk in modeling studies. In May 2021, the USPSTF issued new guidelines also lowering their recommended age to begin screening from 50 to 45 years.[28]

There are several recommended methods for colorectal cancer screening in average-risk persons (see page 59). Offering patients different test options substantially increases adherence to screening recommendations, and the American Cancer Society guideline specifically states that adults should be offered a direct visual exam or stool test.[29] Structural (visual) examinations include colonoscopy, computed tomography (CT) colonography, and flexible sigmoidoscopy. High-sensitivity stool-based tests include high-sensitivity guaiac-based fecal occult blood test (gFOBT), fecal immunochemical test (FIT), and the multi-target stool DNA (MT-sDNA) test, which

Table 6D. Colorectal Cancer Screening (%), Adults 45 Years and Older, US, 2023

	Stool test*	Colonoscopy†	ACS**	USPSTF§
	≥45 years			45-75 years
Overall	**11**	**56**	**62**	**60**
Sex				
Males	11	56	62	60
Females	11	57	62	61
Age (years)				
45-49	7	28	34	34
50-54	10	44	51	51
55-64	11	64	70	70
65-75	–	–	–	80
65-74	16	74	80	–
75 years and above	10	68	70	–
Race/Ethnicity				
Hispanic	15	46	54	52
White only	10	59	64	63
Black only	12	60	64	62
Asian only	15	46	56	54
AIAN only or multiple	15	49	57	55
Sexual orientation				
Gay or lesbian	12	66	72	71
Heterosexual	11	56	62	60
Bisexual	16	59	64	60
Immigration status				
Born in US/US Territory	10	59	65	63
In US fewer than 10 years	11	27	38	37
In US 10+ years	14	48	56	53
Education				
Less than high school	11	42	50	48
High school diploma	11	52	57	55
Some college	12	58	64	62
College graduate	11	64	69	68
Income level				
<100% FPL	11	44	49	47
100 to <200% FPL	12	49	55	54
≥200% FPL	11	60	65	63
Insurance status				
Uninsured	5	18	24	23
Private	9	60	65	65
Medicaid/Public/Dual eligible	15	49	57	56
Medicare (65 years and above)	15	71	76	80
Other (below 65 years)	15	59	66	66

ACS-American Cancer Society, USPSTF-United States Preventive Services Task Force, AIAN-American Indian or Alaska Native, FPL-federal poverty level. All estimates except age and insurance are age adjusted. *Fecal occult blood test (FOBT) or fecal immunochemical test (FIT) within the past 1 year or multi-target stool DNA (sDNA) test within the past 3 years. †Within the past 10 years. **FOBT/FIT, sigmoidoscopy, colonoscopy, computed tomography (CT) colonography, or sDNA test in the past 1, 5, 10, 5 and 3 years, respectively. Stool testing, colonoscopy, and ACS estimates are age adjusted to the year 2000 US population standard using 3 age groups: 45-49, 50-64, and ≥65 years. §FOBT/FIT, sigmoidoscopy, colonoscopy, CT colonography, or sDNA test in the past 1, 5, 10, 5 and 3 years, respectively, or sigmoidoscopy in the past 10 years with FOBT/FIT in the past 1 year. USPSTF estimates are age adjusted using 3 age groups: 45-49, 50-64, and 65-75 years. Due to data limitations in 2019, sDNA was only estimated among those who responded "yes" to receiving an FOBT/FIT test.

Source: National Health Interview Survey, 2023.

combines an FIT test with a stool DNA test. Low-sensitivity guaiac-based tests and gFOBT in a clinical setting after a digital rectal exam are not recommended due to their low sensitivity for advanced neoplasia.

There are several new or updated colorectal cancer screening tests that were recently approved by the FDA. In 2024, the FDA approved the first cell-free DNA blood-based test (cf-bDNA),[30] a multi-target stool test that utilizes RNA in combination with an FIT test (MT-sRNA),[31] a "next-generation" update of the currently available Cologuard® MT-sDNA.[32] The net benefit and harm of newer tests have not been fully established,[33] and because the cf-bDNA and MT-sRNA were only recently approved by the FDA, they have not yet been reviewed by the American Cancer Society or the USPSTF in their guideline or recommendation updates.

All recommended tests can reduce colorectal cancer mortality when performed at the appropriate intervals and with prompt follow-up colonoscopy after a positive non-colonoscopy screening test. Lack of timely follow-up is associated with a greater risk of advanced-stage colorectal cancer diagnosis and death.[34] Importantly, many people do not receive adequate or timely follow-up after a positive stool test; a study of five health care organizations estimated that only about half of those with positive FIT received a follow-up colonoscopy within one year.[35] This is especially a concern in

community health centers serving lower-income populations where screening and follow-up rates are particularly suboptimal.[36, 37]

National Colorectal Cancer Screening

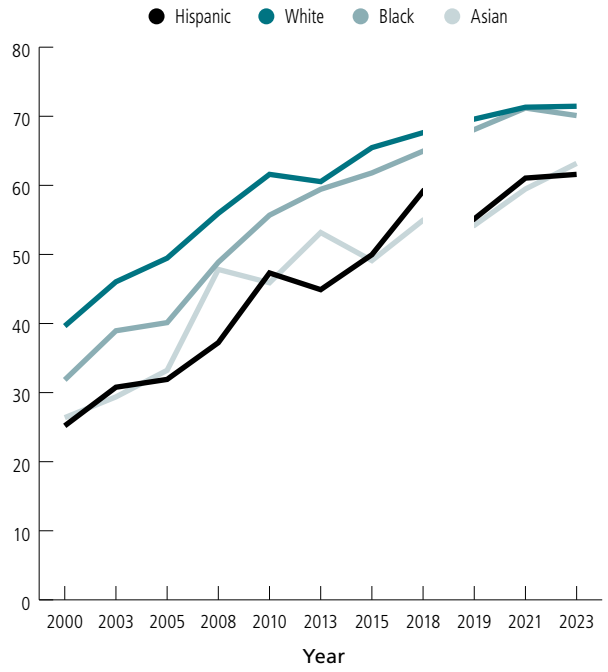
- Between 2000 and 2023, colorectal cancer screening prevalence increased overall from 38% to 69% among adults 50 years and older (Figure 6A).
- In 2023, 62% of adults ages 45 years and older were up to date with colorectal cancer screening concordant with the American Cancer Society guideline. About 56% and 11% of adults ages 45 years and older were up to date with colonoscopy and stool testing, respectively (Table 6D).
- Historically and in 2023, up-to-date screening was highest among White (64%) and Black (64%) individuals and lower among Hispanic (54%), Asian (56%), and American Indian or Alaska Native (57%) persons (Table 6D, Figure 6D).
- Colorectal cancer screening prevalence is lowest in people 45-49 years of age (34%), the uninsured (24%), immigrants in the US fewer than 10 years (38%), and those with household incomes below the federal poverty level (49%) (Table 6D).

State-level Colorectal Cancer Screening

- In 2022, the percentage of adults ages 45 years and older who were up to date with colorectal cancer screening ranged from 55% in Puerto Rico and 57% in New Mexico and Wyoming to 71% in Connecticut (Table 6E).
- Stool testing use in 2022 ranged from 4% in Mississippi and Wyoming to 27% in Puerto Rico and 14% in California. Colonoscopy ranged from 38% in Puerto Rico and 49% in California to 65% in Rhode Island and 67% in Connecticut (Table 6E).
- In 2022, among uninsured adults ages 45-64 years, only 11% in South Dakota were up to date with colorectal cancer screening compared to 35% in Connecticut (Table 6E).

Visit cancer.org/research/cancer-facts-statistics for the current edition of *Colorectal Cancer Facts & Figures*.

Figure 6D. Trends in Colorectal Cancer Screening* (%), Adults 50 Years and Older, by Race/Ethnicity, US, 2000-2023



Estimates are age adjusted to the year 2000 US population standard using 2 age groups: 50-64 and 65+ years. The National Health Interview Survey underwent a significant redesign in 2019, preventing comparability to prior years indicated by the line break. *Colorectal cancer screening is defined as colonoscopy, sigmoidoscopy, or fecal occult blood test/fecal immunochemical test in the past 10, 5, and 1 years; computed tomography colonography in the past 5 years (2010, 2015-on); or multi-target stool DNA test (sDNA) in the past 3 years (2018-on). Due to data limitations in 2019, sDNA was only estimated among those who responded "yes" to receiving an FOBT/FIT test from 2019-2023.

Source: National Health Interview Surveys, 2000-2023.

Lung Cancer Screening

An estimated 226,650 new cases of lung and bronchus cancer will be diagnosed in 2025.[1] Despite long-term declines and recent sharp decreases in lung cancer mortality rates, lung cancer is the leading cause of cancer death for both males and females; about 124,730 deaths are expected in 2025.[1] More than 40% of lung cancers are still detected at a distant stage, which has a 5-year relative survival rate of only 8%.[1, 38]

In 2021, the USPSTF updated their lung cancer screening recommendation – which recommended annual screening with low-dose computed tomography (LDCT) to high-risk individuals who currently smoke, or formerly smoked and quit smoking within the past 15 years – by lowering the recommended age to begin screening to age 50 years (from age 55 years) and the pack-year threshold

Table 6E. Colorectal Cancer Screening (%), Adults 45 Years and Older, by State, US, 2022

	Stool test*	Colonoscopy†	ACS**		USPSTF¶
	≥45 years	≥45 years	≥45 years	Uninsured (45-64 years)	45-75 years
United States (median)	**7**	**60**	**64**	**24**	**62**
Range	*4-27*	*38-67*	*55-71*	*11-35*	*53-70*
Alabama	7	60	65	19	63
Alaska	7	56	61	19	59
Arizona	8	55	60	17	57
Arkansas	7	57	62	29	60
California	14	49	60	22	58
Colorado	8	57	63	22	61
Connecticut	7	67	71	35	70
Delaware	6	61	66	‡	64
District of Columbia	11	63	69	‡	67
Florida	9	60	65	20	63
Georgia	9	59	64	24	61
Hawaii	10	56	63	‡	62
Idaho	5	57	61	23	59
Illinois	6	59	63	33	62
Indiana	7	61	66	27	64
Iowa	6	60	64	25	62
Kansas	7	58	62	21	61
Kentucky	7	61	65	‡	63
Louisiana	9	61	66	23	64
Maine	6	63	67	24	66
Maryland	9	63	69	29	67
Massachusetts	6	64	67	27	66
Michigan	9	62	67	22	65
Minnesota	6	61	65	26	64
Mississippi	4	59	62	19	59
Missouri	7	58	62	26	61
Montana	7	56	61	27	59
Nebraska	6	57	61	19	59
Nevada	10	53	58	‡	56
New Hampshire	6	62	67	27	65
New Jersey	7	59	63	18	60
New Mexico	9	51	57	26	54
New York	7	62	66	28	64
North Carolina	6	62	66	30	63
North Dakota	6	58	62	‡	61
Ohio	7	60	64	26	63
Oklahoma	9	53	59	20	57
Oregon	9	56	62	‡	61
Pennsylvania	7	60	64	33	62
Rhode Island	6	65	69	22	68
South Carolina	8	62	66	28	64
South Dakota	5	58	62	11	60
Tennessee	6	57	61	14	59
Texas	8	56	61	26	59
Utah	5	61	64	21	63
Vermont	6	60	64	24	62
Virginia	8	63	68	19	66
Washington	10	57	64	23	63
West Virginia	9	60	65	19	63
Wisconsin	7	62	68	28	66
Wyoming	4	54	57	24	55
Puerto Rico	27	38	55	‡	53

ACS-American Cancer Society, USPSTF-United States Preventive Services Task Force. *Fecal occult blood test (FOBT) or fecal immunochemical test (FIT) within the past 1 year or a multi-target stool DNA test (sDNA) test within the past 3 years. †Within the past 10 years. **FOBT/FIT, sigmoidoscopy, colonoscopy, computed tomography (CT) colonography, or sDNA within the past 1, 5, 10, 5, and 3 years, respectively. Stool testing, colonoscopy, and ACS estimates are age adjusted to the year 2000 US population standard using 3 age groups: 45-49, 50-64, and ≥65 years. Uninsured estimates are age adjusted using 3 age groups: 45-49, 50-64, and 60-64 years. ¶FOBT/FIT, sigmoidoscopy, colonoscopy, CT colonography, or sDNA test in the past 1, 5, 10, 5 and 3 years, respectively, or sigmoidoscopy in the past 10 years with FOBT/FIT in the past 1 year. USPSTF estimates are age adjusted using 3 age groups: 45-49, 50-64, and 65-75 years. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: Behavioral Risk Factor Surveillance System, 2022.

to 20 years (from 30 years).[39] The American Cancer Society's 2023 guideline recommends annual LDCT screening for high-risk individuals ages 50 to 80 who currently smoke, or formerly smoked, with a 20+ pack-year smoking history, regardless of years since quitting.[40] The guideline emphasizes continued annual screening until the upper age limit or poor health warrants discontinuation.[40] Life-limiting comorbid conditions and inability or unwillingness to undergo evaluation of positive screening findings or treatment are factors that should preclude referrals for screening.[40]

Both the American Cancer Society and the USPSTF recommendations stipulate the importance of smoking cessation counseling and treatment for individuals eligible for lung cancer screening and currently smoking. The 2020 US Surgeon General's report on smoking cessation found sufficient evidence that LDCT can trigger quit attempts and cessation treatment uptake and even increase cessation.[41] Thus, an LDCT scan can also provide a teachable moment to promote smoking cessation among the 8.09 million lung cancer screening-eligible people who reported currently smoking in 2022.[42]

Potential harms associated with LDCT screening include anxiety associated with recall and further evaluations, which in some cases may lead to complications from invasive procedures, the low risk of future cancer from cumulative radiation exposure, and the

potential for overdiagnosis and overtreatment.[43] However, the potential benefits from LDCT screening substantially outweigh possible harms.[40] The American Cancer Society and USPSTF recommendations stress the need for a shared decision-making (SDM) process between patient and clinician that includes a discussion of individual benefits versus harms to guide decisions regarding lung cancer screening initiation.[39, 40]

National Lung Cancer Screening

- Approximately 18.91 million adults were eligible for lung cancer screening in 2022 according to the American Cancer Society guideline, and of these individuals 14% were up to date with recommended screening (Table 6F).
- Up-to-date lung cancer screening prevalence was lowest in eligible individuals who were ages 50-54 years (7%) and uninsured (3%) (Table 6F).

State-level Lung Cancer Screening

- Screening varied widely across states in 2022, from 7% in New Mexico and 8% in Oklahoma to 22% in Rhode Island and 23% in the District of Columbia (Table 6G).
- Screening rates in 2022 did not match lung cancer mortality burden across US states; Southern states were characterized by high lung cancer burden but generally had lower screening prevalence.[44]

Prostate Cancer Screening

In 2025, an estimated 313,780 new cases of prostate cancer will be diagnosed in the US; approximately 35,770 males will die of the disease.[1] In the US, prostate cancer is the most common type of cancer and the second-leading cause of cancer death among males. Mortality rates for prostate cancer have been declining over the long term, in part, due to improvements in treatment, management of recurrent disease, and early detection with the prostate-specific antigen (PSA) test (a blood test to assess the levels of a protein made by the prostate).[45] However, there's been a recent uptick in distant-stage prostate cancer incidence and stabilization of prostate cancer mortality rates, coinciding with the decline in PSA testing that occurred around 2013 due to the USPSTF recommending against PSA testing based on the conclusion that its benefits did not outweigh harms (e.g., overdiagnosis and overtreatment).[1, 46] The USPSTF has since reversed that decision and returned to recommending SDM. There is increasing interest in an

Table 6F. Lung Cancer Screening (%), Adults 50-79 Years, US, 2022

	ACS*		USPSTF†	
	Eligible¶	Screened¶	Eligible ¶	Screened¶
Overall	**18**	**14**	**13**	**17**
Population weighted (millions)	**18.91**	**2.69**	**13.17**	**2.17**
Sex				
Males	21	14	14	18
Females	15	14	11	17
Age (years)				
50-54	11	7	10	7
55-64	19	15	15	16
65-79	21	19	12	25
Race/Ethnicity				
Hispanic	9	14	7	17
White only	21	14	15	17
Black only	12	17	9	18
Asian only	6	‡	4	23
AIAN only	23	12	18	14
Education				
Less than high school	26	14	21	15
High school diploma	24	15	18	18
Some college	20	15	14	17
College graduate	9	12	5	17
Income level				
<$25k	27	17	22	19
$25-<$50k	22	15	16	18
$50-<$75k	19	12	13	15
≥$75k	13	13	8	18
Insurance status				
Uninsured	20	3	17	4
Private	13	13	9	14
Medicaid/Public	23	15	19	16
Medicare (65 years and above)	22	19	12	26
Other (below 65 years)	21	13	18	14

ACS-American Cancer Society, USPSTF-United States Preventive Services Task Force, AIAN-American Indian or Alaska Native. All estimates except age and insurance are age adjusted. Estimates are age adjusted using 3 age groups: 50-59, 60-69, and 70-79 years. *The American Cancer Society recommends annual screening for lung cancer with a low-dose CT (LDCT) scan for people ages 50 to 80 years who smoke or used to smoke and have at least a 20 pack-year history of smoking. †The USPSTF recommends annual screening for lung cancer with LDCT in adults ages 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. ¶Due to survey questionnaire limitations, estimates are among individuals ages 50-79 years instead of among ages 50-80 years. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: Behavioral Risk Factor Surveillance System, 2022

Tables 6G. Lung Cancer Screening (%), Adults 50-79 Years, by State, US, 2022

	ACS*		USPSTF†	
	Eligibility¶	Screened¶	Eligibility¶	Screened¶
United States (median)	**19**	**14**	**13**	**17**
Range	*10-28*	*7-23*	*7-21*	*9-29*
Alabama	19	18	15	22
Alaska	19	12	13	15
Arizona	19	13	12	15
Arkansas	26	13	20	15
California	12	11	8	15
Colorado	14	10	10	12
Connecticut	16	21	10	28
Delaware	20	20	13	22
District of Columbia	10	23	7	21
Florida	21	15	14	17
Georgia	16	11	12	14
Hawaii	15	10	10	13
Idaho	15	13	10	16
Illinois	18	16	12	18
Indiana	24	17	18	20
Iowa	23	14	16	18
Kansas	22	16	16	21
Kentucky	28	18	20	21
Louisiana	23	13	18	16
Maine	22	19	15	23
Maryland	12	15	8	18
Massachusetts	16	19	11	24
Michigan	22	16	15	19
Minnesota	19	13	13	17
Mississippi	22	15	18	15
Missouri	23	14	16	17
Montana	19	11	13	13
Nebraska	20	20	15	24
Nevada	18	10	13	12
New Hampshire	20	13	12	18
New Jersey	14	18	9	23
New Mexico	17	7	11	9
New York	16	18	11	20
North Carolina	22	15	14	17
North Dakota	22	17	15	19
Ohio	25	16	19	19
Oklahoma	25	8	17	10
Oregon	17	10	11	11
Pennsylvania	21	14	16	19
Rhode Island	21	22	13	29
South Carolina	21	15	14	18
South Dakota	18	15	14	17
Tennessee	26	14	19	16
Texas	16	10	11	12
Utah	10	11	7	12
Vermont	21	17	14	22
Virginia	18	16	13	17
Washington	16	11	10	15
West Virginia	27	13	21	16
Wisconsin	20	15	14	20
Wyoming	24	9	17	10
Puerto Rico	12	10	8	‡

ACS-American Cancer Society, USPSTF-United States Preventive Services Task Force. Estimates are age adjusted using 3 age groups: 50-59, 60-69, and 70-79 years. *The American Cancer Society recommends annual screening for lung cancer with a low-dose CT (LDCT) scan for people ages 50 to 80 years who smoke or used to smoke and have at least a 20 pack-year history of smoking. †The USPSTF recommends annual screening for lung cancer with LDCT in adults ages 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. ¶Due to survey questionnaire limitations, estimates are among individuals ages 50 to 79 years instead of among ages 50-80 years. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: Behavioral Risk Factor Surveillance System, 2022.

approach that includes PSA testing followed by additional biomarker testing and MRI imaging to identify candidates for invasive biopsies, as well as active surveillance – instead of immediate intervention – for lower-grade cancers.[47]

Prostate Cancer Screening Among Average-risk Individuals

The American Cancer Society 2010 guideline recommends that average-risk, asymptomatic males ages 50+ who have a life expectancy of at least 10 years have an opportunity to make an informed decision with their health care provider about whether to be screened for prostate cancer.[48] Males at high risk for prostate cancer, African American males, and males who have a first-degree relative with a prostate cancer diagnosis before age 65 should begin consultation with their health care provider at age 45. Males at the highest risk, who have more than one first-degree relative, should begin that conversation at age 40. The American Cancer Society average-risk guideline generally aligns with other groups' recommendations, including those from the USPSTF, which endorses SDM for PSA testing among males ages 55-69 years.[49] Studies show that informed and SDM measures are inconsistently utilized in clinical practice and that when such discussions do take place, the content varies widely and frequently falls short of accepted standards.[50] The American Cancer Society is in the process of updating their 2010 guideline.

Black males have the highest prostate cancer incidence and twice the mortality rate from this disease as White males.[1] There is evidence, albeit limited, to support earlier screening for Black males, at more frequent intervals, and optimized according to baseline PSA levels.[51] The American Cancer Society and some other organizations recommend earlier screening in Black males,[52] The USPSTF does not make a separate specific recommendation for Black males or those with a family history of prostate cancer, but considers it appropriate for these males to be informed of their increased risk so they can make a decision about screening.[49]

National Prostate Cancer Testing and Shared Decision Making

- During 2005-2010, between 41%-44% of males ages 50 years and older received a PSA test in the past year; prevalence declined to approximately 35% in 2013 and remained stable through 2023 when it was 37% (Table 6H).[53, 54]
- In 2023, the prevalence of prostate cancer screening was highest in White (41%) than Black (34%), Hispanic (27%), Asian (26%), and American Indian or Alaska Native (23%) persons (Table 6H).
- Persons who were uninsured (13%), persons with Medicaid/public/dual-eligible insurance (22%), those without a high school diploma (22%), and those below the federal poverty level (21%) were the least likely to have had a recent PSA test in 2023 (Table 6H).
- In 2019, only 24% reported engaging in shared decision-making for PSA testing with a physician, while 63% never discussed PSA testing.[55]

State Prostate Cancer Testing

- In 2020, the percentage of males ages 50 years and older who received prostate cancer screening was less than 50% across all states and ranged from 22% in New Mexico and Vermont to 48% in Puerto Rico (Table 6I).

Table 6H. Prostate Specific Antigen Test (%), Males 50 Years and Older, US, 2023

	Within the past year
Overall	**37**
Age (years)	
50-64	30
65+	46
Race/Ethnicity	
Hispanic	27
White only	41
Black only	34
Asian only	26
AIAN only or multiple	23
Sexual orientation	
Gay or lesbian	54
Heterosexual	37
Bisexual	‡
Immigration status	
Born in US/US Territory	39
In US fewer than 10 years	‡
In US 10+ years	30
Education	
Less than high school	22
High school diploma	32
Some college	37
College graduate	48
Income level	
<100% FPL	21
100 to <200% FPL	27
≥200% FPL	41
Insurance status	
Uninsured	13
Private	38
Medicaid/Public/Dual eligible	22
Medicare (65 years and above)	46
Other (below 65 years)	31

AIAN-American Indian or Alaska Native, FPL-federal poverty level. All estimates except age and insurance are age adjusted. Estimates are age adjusted to the year 2000 US population standard using 2 age groups: 50-64 and ≥65 years. Prostate cancer screening is defined among males who have not been diagnosed with prostate cancer. ‡Estimates are statistically unstable and not shown. See Special Notes, page 64.

Source: National Health Interview Survey, 2023.

Barriers, Disparities, Health Care Policy, and Cancer Screening

Barriers to cancer screening are not mutually exclusive and occur and interact at multiple levels, including policy, health system, clinician, community, and patient levels. Access can be improved by reducing administrative barriers and costs, offering alternative and flexible

Table 6I. Prostate Specific Antigen Test (%), Males 50 Years and Older, by State, US, 2020

	Within the past year
United States (median)	**31**
Range	*22-48*
Alabama	37
Alaska	28
Arizona	29
Arkansas	35
California	27
Colorado	28
Connecticut	30
Delaware	30
District of Columbia	29
Florida	36
Georgia	34
Hawaii	26
Idaho	28
Illinois	30
Indiana	27
Iowa	29
Kansas	33
Kentucky	31
Louisiana	33
Maine	25
Maryland	33
Massachusetts	31
Michigan	31
Minnesota	25
Mississippi	34
Missouri	32
Montana	29
Nebraska	32
Nevada	27
New Hampshire	30
New Jersey	33
New Mexico	22
New York	34
North Carolina	37
North Dakota	31
Ohio	32
Oklahoma	31
Oregon	27
Pennsylvania	33
Rhode Island	30
South Carolina	32
South Dakota	37
Tennessee	32
Texas	28
Utah	26
Vermont	22
Virginia	33
Washington	24
West Virginia	35
Wisconsin	31
Wyoming	37
Puerto Rico	48

Estimates are age adjusted to the year 2000 US population standard using 2 age groups: 50-64 and ≥65 years. Prostate cancer screening is defined among males who have not been diagnosed with prostate cancer.

Source: Behavioral Risk Factor Surveillance System, 2020.

screening sites and hours, and providing childcare, transportation, and translation. Health system-wide reminders, feedback, and incentives can improve providers' recommendations, and small media and educational campaigns can improve patient demand for screening, while community health workers can serve as a bridge between communities and health care systems.[56] As previously noted, individuals without insurance, with lower socioeconomic status, and some racial/ethnic groups are less likely to be up to date with screening because of systemic and structural barriers to screening. Patient navigation systems that provide client reminders, reduce structural barriers (e.g., administrative and transportation), and reduce patient out-of-pocket costs, can effectively improve screening rates overall and in historically disadvantaged populations.[56]

Broader health policies, including the Affordable Care Act (ACA), aim to improve health delivery systems, prevention efforts, and access to care, thereby facilitating cancer screening and early detection. More than 20 million uninsured adults gained health insurance coverage as a result of the ACA.[57] Despite tremendous gains in insurance coverage (the uninsurance rate was halved between 2013 and 2021), progress has been uneven and larger proportions of minoritized populations remain uninsured.[58] In addition, 10 states have yet to expand Medicaid to lower-income populations, despite evidence linking Medicaid expansion to gains in screening rates and reductions in cancer mortality and stage at diagnosis for several screen-detected cancers (e.g., breast and colorectal).[44, 59-61] ACA provisions still remain under threat, most recently the provision that eliminates cost-sharing of cancer preventive services and screenings for the privately insured. American Cancer Society researchers estimate that the elimination of this provision can result in loss of no-cost coverage for between 3 and 14 million privately insured individuals currently eligible for cancer screening and between 0.5 and 9 million individuals currently screened for cancer.[62]

American Cancer Society Recommendations for the Early Detection of Cancer in Average-risk Asymptomatic People[a]

Cancer Site	Population	Test or Procedure	Recommendation
Breast	Women, ages 40-54	Mammography	Women should have the opportunity to begin annual screening between the ages of 40 and 44. Women should undergo regular screening mammography starting at age 45. Women ages 45 to 54 should be screened annually.
	Women, ages 55+		Transition to biennial screening, or have the opportunity to continue annual screening. Continue screening as long as overall health is good and life expectancy is 10+ years.
Cervix	Women, ages 25-65	Primary HPV DNA test, **OR**	**Preferred:** every 5 years with an FDA-approved primary test
		Pap & HPV DNA co-testing, **OR**	Every 5 years
		Pap test alone	Every 3 years
	Women, ages >65		Discontinue screening if results from regular screening in the past 10 years were negative, with the most recent test within the past 5 years.
	Women vaccinated against HPV		Follow age-specific screening recommendations (same as unvaccinated individuals).
	Women with total hysterectomy		Women and individuals without a cervix and without a history of cervical cancer or a history of cervical intraepithelial neoplasia (CIN) 2 or a more severe diagnosis in the past 25 years should not be screened.
Colorectal[b]	Adults, ages 45+	High-sensitivity guaiac-based fecal occult blood test (gFOBT) or fecal immunochemical test (FIT), **OR**	Every year
		Multi-target stool DNA test, **OR**	Every 3 years
		Flexible sigmoidoscopy, **OR**	Every 5 years alone or combined with a high-sensitivity gFOBT or FIT annually
		Colonoscopy, **OR**	Every 10 years
		CT Colonography	Every 5 years
Endometrial	Women at menopause		Women should be informed about risks and symptoms of endometrial cancer and encouraged to report unexpected bleeding to a physician.
Lung	Adults ages 50-80 with a 20+ pack-year smoking history	Low-dose helical CT	Annual screening in generally healthy (at least 5-year life expectancy) adults who have a 20-pack- year or more smoking history (e.g., smoked 1 pack per day for 20 years or ½ pack per day for 40 years), regardless of whether or when they have quit.
Prostate	Men, ages 50+	Prostate-specific antigen test with or without digital rectal examination	Men who have at least a 10-year life expectancy should have an opportunity to make an informed decision with their health care provider about whether to be screened for prostate cancer after receiving information about the potential benefits, risks, and uncertainties. Prostate cancer screening should not occur without informed decision-making. African American men should have this conversation with their provider beginning at age 45.

CT-Computed tomography. [a]All individuals should become familiar with the potential benefits, limitations, and harms associated with cancer screening. Guidelines for cervical cancer also apply to individuals with a cervix and guidelines for endometrial cancer also apply to individuals with a uterus. [b]All positive tests (other than colonoscopy) should be followed up with a colonoscopy.

Cancer Screening Initiatives and Programs

Ensuring access to affordable, quality health care for all is a top priority for the American Cancer Society and the American Cancer Society Cancer Action Network℠ (ACS CAN), our nonprofit, nonpartisan advocacy affiliate. Research shows that required cost-sharing – including copays, coinsurance, and deductibles – can be a significant barrier for individuals who need preventive services.[63] The American Cancer Society's Position Statement on the Elimination of Patient Cost-Sharing Associated with Cancer Screening and Follow-up Testing states that screening is a "continuum of testing rather than a single recommended screening test, and that irrespective of individual risk, screening is a process that includes a recommended screening test and all follow-up tests described as diagnostic and judged to be integral and necessary to resolve the question of whether an adult undergoing screening has cancer. . . ." The statement makes clear that "these tests should be covered without any patient cost-sharing." ACS CAN supports comprehensive insurance coverage and the elimination of cost-sharing by all payers for recommended cancer screening and follow-up testing for asymptomatic individuals, regardless of risk. Visit cancer.org/health-care-professionals/american-cancer-society-prevention-early-detection-guidelines/overview/acs-position-on-cost-sharing-for-screening-and-follow-up.html to learn more.

In January 2022, federal government guidance clarified that non-grandfathered group health plans and Medicaid expansion plans are required to cover, without cost-sharing, a follow-up colonoscopy after a positive or abnormal non-colonoscopy test.[64] In November 2022, the federal government issued final rules to require coverage for Medicare beneficiaries without cost-sharing of follow-up colonoscopy after a positive or abnormal non-colonoscopy test and to lower the age to initiate screening from 50 to 45 in accordance with American Cancer Society and USPSTF guidelines.[65]

Visit fightcancer.org for resources related to health insurance and the work of ACS CAN.

The Centers for Disease Control and Prevention's (CDC's) cancer screening programs provide key resources to states and communities to prevent cancer and detect it early by ensuring that at-risk and limited-income communities have access to vital cancer screening programs. For instance, the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) provides breast and cervical cancer screenings, diagnostic tests, and treatment referral services to communities that are limited income, underserved, underinsured, and uninsured in the US. Since 1991, the NBCCEDP has served more than 6.4 million females, provided more than 16.5 million breast and cervical cancer screening examinations, and detected 79,789 invasive breast cancers and 25,302 premalignant breast lesions; 248,569 premalignant cervical lesions; and 5,291 cases of invasive cervical cancers.[66] ACS CAN advocates at the state and federal level to protect this important program and ensure it receives adequate funding.

Visit cdc.gov/cancer/nbccedp/index.htm for more information.

National American Cancer Society Roundtables

Some barriers challenging efforts to improve the lives of people with cancer and their families are too complex for any one organization to address on their own. To overcome these barriers, the American Cancer Society unites organizations in collaborative partnerships through our mission-critical national roundtables. We provide organizational leadership and expert staff support to seven roundtables. Five of the seven roundtables focus on screen-detectable cancers (breast, cervical, colorectal, lung, and prostate cancer).

The American Cancer Society national roundtables are a recommended and proven model for creating sustained partnerships across diverse sectors to tackle both longstanding and emerging issues in cancer. Roundtables drive impact by establishing and advancing national priorities across the cancer continuum; catalyzing coordinated policy and patient

The American Cancer Society National Colorectal Cancer Roundtable

The American Cancer Society National Colorectal Cancer Roundtable (ACS NCCRT) is a coalition of more than 225 member organizations and individual experts dedicated to reducing colorectal cancer incidence and mortality in the US through coordinated leadership, strategic planning, and advocacy.

The combined energy of the members of the ACS NCCRT has become one of the nation's most important catalysts to increasing colorectal cancer screening rates. In 2019, the ACS NCCRT launched 80% in Every Community, a health equity-focused campaign to improve colorectal cancer screening across the nation. This initiative builds on the award-winning and high-achieving 80% by 2018 campaign, where more than 1,800 organizations pledged to strive toward reaching screening rates of 80% or higher for age-eligible adults. 80% in Every Community focuses on addressing persistent screening rate disparities so that every community can benefit from lifesaving colorectal cancer screening.

Visit nccrt.org for more information.

The American Cancer Society National Lung Cancer Roundtable

Established in 2017, the American Cancer Society National Lung Cancer Roundtable (ACS NLCRT) has galvanized more than 220 leading experts, as well as patient and caregiver advocate representatives, at the national, state, and local levels to collectively partner to problem-solve and achieve enduring systematic change to reduce deaths from lung cancer. The roundtable engages experts in multidisciplinary collaborations; catalyzes action to create, build, and strengthen innovative solutions; and develops and disseminates evidence-based interventions and best practices. The work of the ACS NLCRT is guided by their Steering Committee and carried out through the efforts of their 10 Task Groups.

The ACS NLCRT engages in public, patient, and provider education; targeted research; and health policy initiatives to increase lung cancer awareness and risk reduction. They advance lung cancer-related health equity by identifying and working to overcome barriers to equitable access to promote implementation, uptake, and adherence of lung cancer screening and nodule detection and management; promote guideline-concordant staging; and optimize the use of biomarker testing to guide appropriate and timely therapy and care, eliminate the pervasive stigma and nihilism associated with lung cancer, and strengthen state-based initiatives.

Visit nlcrt.org for more information.

The American Cancer Society National Breast Cancer Roundtable

Established in 2022, the American Cancer Society National Breast Cancer Roundtable (ACS NBCRT) is a national coalition of over 100 member organizations dedicated to leading collective action so that every person and their support systems will know and understand breast cancer risk and screening needs, and can access timely, high-quality, and compassionate screening, diagnosis, treatment, and supportive care needed to improve their survival and quality of life.

To coordinate, communicate, and ultimately catalyze action of the ACS NBCRT, their members, and a broader collection of partners across the nation, the ACS NBCRT created a roadmap for advancing critical breast cancer priorities. The 2024-2029 ACS NBCRT Strategic Plan provides recommended strategies and activities that ACS NBCRT partners can use to help accomplish their goals across the breast cancer continuum.

Visit nbcrt.org for more information.

The American Cancer Society National Roundtable on Cervical Cancer

Established in 2022, the American Cancer Society National Roundtable on Cervical Cancer (ACS NRTCC) is a national coalition of over 75 member organizations dedicated to tackling disparities in cervical cancer prevention, screening, and treatment through collective action.

By engaging key organizations to institute policy and systems change, the ACS NRTCC aims to reduce barriers to care, eliminate disparities, reduce harms, and increase cervical cancer screening with a special focus on self-sampling as a method for reaching rarely or never-screened people.

Visit cervicalroundtable.org for more information.

The American Cancer Society National Prostate Cancer Roundtable

The American Cancer Society National Prostate Cancer Roundtable (ACS NPCRT) was established in 2024 to address the alarming rise in prostate cancer diagnoses, with a particular focus on Black males, who face disproportionate rates of incidence and mortality in the United States. The ACS NPCRT is a national coalition of member organizations dedicated to leading collective action for improved prostate cancer outcomes across the nation. Through consensus-built and coordinated activities among their membership, the roundtable stands well positioned to achieve critical priorities for every person and their support systems – including increased understanding of prostate cancer risk and screening needs; access to timely, high-quality, and compassionate screening; and the diagnosis, follow-up treatment, and supportive care needed to improve survival and quality of life.

Visit npcrt.org for more information.

care solutions; building evidence-based strategies and translating them into practice; and, leveraging the knowledge and experiences that inform the reduction of health disparities.

Visit cancer.org/about-us/our-partners/american-cancer-society-roundtables.html for more information on all American Cancer Society roundtables.

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Special Notes

Glossary

Body mass index (ages 2-19 years): After a BMI value is calculated for a child based on their weight and height, the BMI value is plotted on the Centers for Disease Control and Prevention's (CDC's) BMI for age- and sex-specific growth charts to obtain a percentile ranking. The percentile indicates the relative position of the child's BMI value among children of the same sex and age.

Visit cdc.gov/bmi/child-teen-calculator/bmi-categories.html for more information regarding youth BMI.

Race/Ethnicity: Unless otherwise noted, estimates for White, Black, Asian, and American Indian or Alaska Native persons are among the non-Hispanic population. Those identified as Hispanic might be of any race.

Sample surveys: Population-based surveys are conducted by selecting a sample of people to estimate the prevalence in a population using weights. The population-based survey methodology introduces sampling error to the estimated prevalence since a true prevalence is not calculated.

Data quality: The sources of data used for this report are from government-sponsored national and state systems of behavioral and health surveillance. These systems employ standardized techniques for sampling and use the latest advances in survey research methodology to survey targeted population groups on an ongoing basis. The design and administration of these surveillance systems can provide sources of good-quality data from which to derive population estimates of specific behaviors in a targeted population. The data included in this report are subject to at least four limitations. First, with regards to phone-based surveys such as the Behavioral Risk Factor Surveillance System, the participants are from households with either a landline telephone or cell phone. Second, both in-person and phone-based surveys have varying proportions of individuals who do not participate for a variety of reasons (e.g., could not be reached during the time of data collection or refused to participate). Third, most estimates presented herein are based on self-reported data, which may be subject to bias. Finally, estimates for the same measure from different surveys may vary, even for overlapping survey years, due to differences in survey methodology (mode of administration, sampling), questionnaires, nature of the survey (general health survey versus topic specific survey), etc.

Suppression criteria: Survey estimates were considered unstable and suppressed if the denominator sample size (n) was <50 or the relative standard error (calculated by dividing the standard error of the estimate by the estimate itself, then multiplying that result by 100) was ≥30%.

Age-adjusted prevalence: A statistical method used to adjust prevalence estimates to allow for valid comparisons between populations with different age compositions. Age adjustments are derived from the year 2000 US population standard (seer.cancer.gov/stdpopulations). Estimates by age, insurance status, and among youth (ages 2-19 years) are crude.

Range: The lowest and highest values of a group of prevalence estimates

Median: Middle value in a range of prevalence estimates. Estimates are arranged from smallest to largest values; the median is the middle value.

Survey Sources

Behavioral Risk Factor Surveillance System (BRFSS): The BRFSS survey of US states and territories is conducted by the CDC and the National Center for Chronic Disease Prevention and Health Promotion. Since 1996, all 50 states, the District of Columbia, and Puerto Rico have participated in this annual survey. In 2023, both Kentucky and Pennsylvania were unable to collect sufficient data to meet the requirement for release in the public data set. Data are gathered through monthly computer-assisted telephone interviews with adults ages 18 years and older living in households in a US state or territory. The methods are generally comparable from state to state. Due to methodological changes, BRFSS results within this publication are not directly comparable to BRFSS data prior to 2011. Additionally, e-cigarette prevalence in 2023 was not comparable to before 2021 as respondents used to be asked about both ever (lifetime) use and current use (some days or every day) and now they are just asked about current use. Cervical cancer screening state-level estimates are not included from the 2022 BRFSS survey because of missing question prompts. Cancer screening estimates do not distinguish between examinations for screening and diagnosis.

BRFSS website: cdc.gov/brfss

Complete citation: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: US Department of Health and Human Services, Centers for Disease Control and Prevention.

National Health and Nutrition Examination Survey (NHANES): Three cycles of this US national survey were conducted between 1971 and 1994. Beginning in 1999, the NHANES survey was implemented as a continuous annual survey. Data are gathered through in-person interviews and direct physical exams in mobile examination centers. Due to the COVID-19 pandemic,

the 2019-2020 survey suspended data collection in March 2020, before the full two-year data collection was completed. As a result, the National Center for Health Statistics merged the 2019-March 2020 NHANES data with the 2017-2018 NHANES data to create a special pre-pandemic data set, referred to as the NHANES 2017-March 2020 dataset in this report. NHANES data collection returned in August 2021. Data from the newly released NHANES August 2021-August 2023 differed from prior years as there was no oversampling by race, Hispanic origin, and income, and person-level oversampling by age group also changed. Finally, a multimode household screening approach (self- and interviewer-administered) was used to reduce in-person contact. As a result, some subgroup estimates, particularly by race/ethnicity and age group, may show markedly different levels from prior years. For this reason, race/ethnicity specific estimates in this report were estimated from the 2017-March 2020 survey cycle.

NHANES website: https://www.cdc.gov/nchs/nhanes/?CDC_AAref_Val=https://www.cdc.gov/nchs/nhanes/index.htm

Complete citation: Centers for Disease Control and Prevention (CDC). National Center for Health Statistics (NCHS). National Health and Nutrition Examination Survey Data. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention.

National Health Interview Survey (NHIS): The CDC's NHIS has monitored the health of the nation since 1957 and is designed to provide national estimates. Data are gathered through a computer-assisted personal interview of adults ages 18 years and older living in households in the US. The NHIS underwent a significant redesign in 2019, so estimates are not strictly comparable to prior years and are separated in our trend lines. Screening estimates do not distinguish between examinations for screening and diagnosis. In 2020, the NHIS survey data collection mode was modified from primarily in-person to telephone-based interviews after the onset of the COVID-19 pandemic. Despite the NHIS recommendation to return to in-person interviews in 2021, telephone interviews remain the primary modality with 54.5% of the 2023 sample adult interviews conducted at least partially by telephone (versus 34.3% in 2019). Estimates in this report are based on questions administered in the NHIS Annual Core, the NHIS Rotating Core, and the sponsored content sections (including the National Cancer Institute sponsored Cancer Control Supplement). The administration schedule for the NHIS rotating core and sponsored content is subject to change. As a result, not all measured estimates are available for the latest survey period.

NHIS website: https://www.cdc.gov/nchs/nhis/index.html

NHIS Cancer Control Supplement: healthcaredelivery.cancer.gov/nhis/

Complete citation: Centers for Disease Control and Prevention (CDC). National Center for Health Statistics (NCHS). National Health Interview Survey Data. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention.

National Immunization Survey-Teen (NIS-Teen): This survey is sponsored and conducted by the National Center for Immunization and Respiratory Diseases, the NCHS, and the CDC. It is designed to monitor national, state, and selected local area vaccination coverage among children ages 13-17 years in the US. Telephone (before 2011: landline, 2011-2018: landline and cellular, 2018-on: cellular) interviews of adolescents' parents/guardians are conducted in all 50 states, the District of Columbia, Guam, Puerto Rico, and the US Virgin Islands. In 2023, estimates from the three US territories were sampled separately. Immunization data for surveyed adolescents are collected through a mailed survey to their vaccination health care provider identified by the adolescent's parent or guardian. Separate racial/ethnic categories for Native Hawaiian or other Pacific Islanders and persons of multiple races were not included due to small sample sizes. In this report, NIS-Teen data were cross-checked in TeenVaxView. TeenVaxView is a resource produced by the CDC that provides vaccination estimates from the NIS-Teen overall and by select sociodemographic characteristics.

Methods for calculating HPV initiation before 13 years of age are described here: Fedewa et al, *Cancer* 2018. https://pubmed.ncbi.nlm.nih.gov/30257056/.

NIS-Teen and TeenVaxView website: cdc.gov/nis/php/datasets-teen; cdc.gov/teenvaxview/interactive/index.html

Complete citation: US Department of Health and Human Services (DHHS). National Center for Immunization and Respiratory Diseases. The National Immunization Survey – Teen, Atlanta, GA: Centers for Disease Control and Prevention (CDC).

National Youth Tobacco Survey (NYTS): This national survey was first conducted in the fall of 1999. Beginning in 2011, the CDC's Office on Smoking and Health and the US Food and Drug Administration's Center for Tobacco Products began collaborating on the NYTS. Now an annual survey, it is designed to provide national data for public and private school students in grades 6-12. Data are gathered through a self-administered questionnaire completed during a required subject or class period. Starting in 2021, surveys were administered 100% online to allow for participation by eligible students at home, school, or somewhere else. Because of survey mode changes, comparisons between the NYTS results from after 2020 to previous NYTS survey results must be done with caution.

NYTS website: cdc.gov/tobacco/about-data/surveys/historical-nyts-data-and-documentation.html

Complete citation: Office on Smoking and Health. National Youth Tobacco Survey: Methodology Report. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Youth Risk Behavior Survey (YRBS): This biennial survey from the CDC's National Center for Chronic Disease Prevention and Health Promotion began in 1991. It is designed to provide national, state, and local prevalence estimates for high schoolers (grades 9-12). Data are gathered through a self-administered questionnaire completed during a required subject or class period in the spring semester. Data that do not meet the weighting requirements are not publicly available and are not presented within this publication. In 2023, 36 states, 5 territories, 3 tribal governments, and 21 local school districts were included in the survey.

YRBS and YRBS explorer website: cdc.gov/yrbs nccd.cdc.gov/Youthonline/App/Default.aspx

Complete citation: Centers for Disease Control and Prevention (CDC). Youth Risk Behavior Survey Data. Available at: http://www.cdc.gov/yrbs.

List of Tables and Figures

Tables

Figures

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