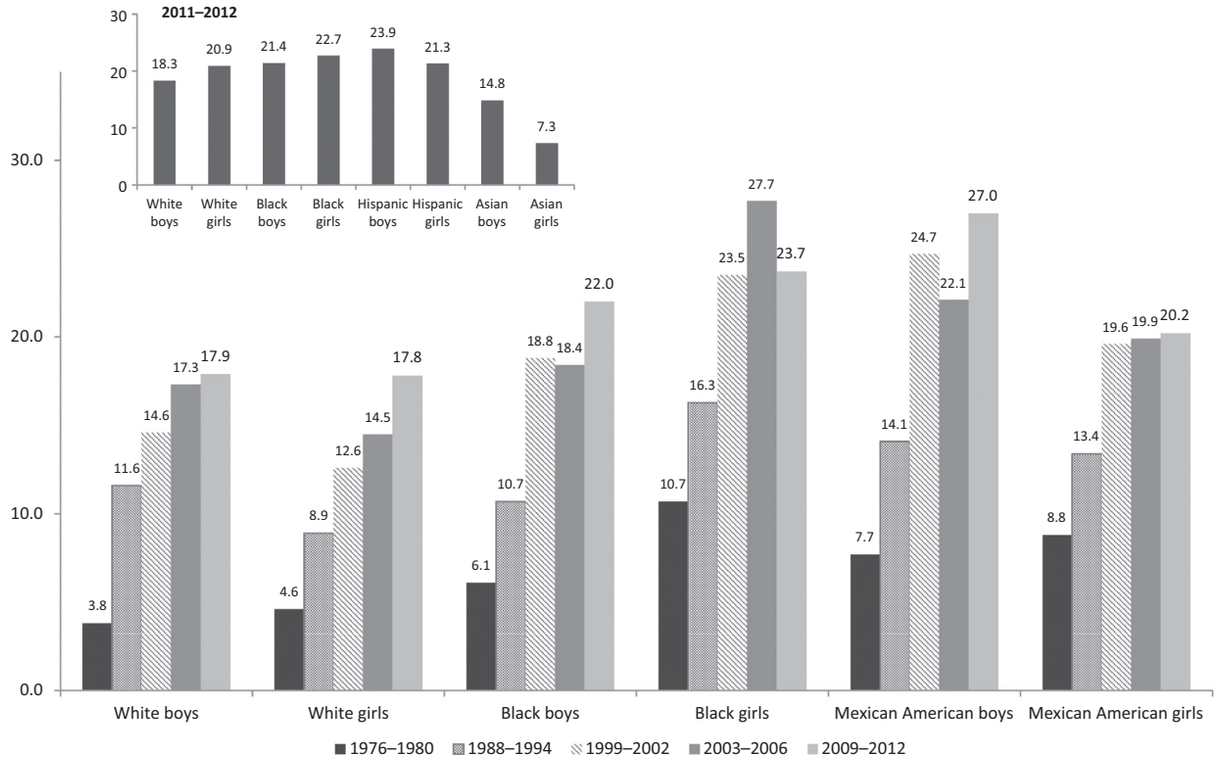

Figure 3.
Obesity[a] prevalence trends, youth 12 to 19 years, by gender and race/ethnicity, NHANES 1976–2012[b]. [a]BMI at or above the sex- and age-specific 95th percentile BMI cutoff points from the 2000 sex-specific BMI-for-age CDC growth charts. [b]NH Asian persons for the first time in 2011–12 NHANES.

and suggestive evidence for increased risk of pancreatic cancer (57). Red meat consumption has decreased since the 1970s and declined from 105 grams/capita/day in 1970 to 85 grams/capita/day in 2007, but remains the most common type of meat consumed in the United States (58% of the total meat intake) (58). Alcohol consumption is an established cause of cancers of the mouth, pharynx, larynx, esophagus, liver, colorectum, and female breast, and there is some evidence of an association with pancreatic cancer (38, 39, 59, 60). Combined with tobacco use, alcohol consumption increases the risk of cancers of the mouth, larynx, and esophagus far more than the independent effect of either drinking or smoking (38). Breast cancer risk increases with increasing intake of alcohol (61). According to 2012 nationwide data, the prevalence of heavier drinking (defined as 2 or more drinks per day for men and 1 or more for women) was around 5% for adults ages 18 years and older (51).

UVR and Skin Cancer

UVR is a risk factor for skin cancer, including, basal cell carcinoma (BCC), squamous cell carcinoma (SCC), and melanoma (62, 63). Incidence of BCC and SCC is difficult to estimate as cancer registries do not require reporting of nonmelanoma skin cancers, though a study using Medicare claims data estimated 2.2 million people were diagnosed with BCC and SCC in 2006 (64). An estimated 73,870 people will be diagnosed and 9,940 will die from melanoma in 2015 (3). The incidence of melanoma in the United States has been increasing in the past 30 years, in part, due to changes in behavior that have resulted in increased exposure to solar UVR, use of indoor tanning devices by young adult white women, and increased awareness and detection practices (65–67).

Prevalence of skin-protective behaviors

Studies show that most adults and adolescents in the United States do not regularly protect themselves against exposure to UVR when outdoors on sunny days (68). In 2010, national data showed that 32.1% of adults reported always or often using sunscreen when outside for an hour or more on a warm, sunny day in the past 12 months, and 37.1% reported seeking shade, while fewer adults reported clothing protection behaviors, including wearing hats (12.8%) or long-sleeved shirts (11.5%) (69). In 2013, only 10.1% of U.S. high school students reported using sunscreen routinely (27).

Indoor tanning devices

Exposure to artificial UVR occurs through the use of indoor tanning booths or lamps. The International Agency for Research on Cancer (IARC) lists UV-emitting indoor tanning devices as carcinogenic to humans (65). In 2013, 4.4% of U.S. adults reported using an indoor tanning device in the past year; use was highest among women (6.9%), non–Hispanic whites (6.6%), ages 18 to 29 years (8.6%), and those living in the Midwest (7.5%; Supplementary Table S4). In the 2013 YRBS, 20.2% and 5.3% of high school girls and boys reported using an indoor tanning device in the previous year, respectively (Supplementary Table S4). Because UVR exposure in childhood and teenage years is particularly detrimental, policy makers in some states are regulating the use of tanning devices by minors (70).

Table 4. Consumption (%) of fruits and vegetables, adults 18 years and older and high school students, by state, BRFSS and YRBS, 2013

	Adults		Students	
State	≥2 Fruit servings per day	≥ 3 Vegetable servings per day[a]	Fruit or 100% fruit juice ≥2 times per day	Ate vegetables ≥3 times per day[b]
Alabama	20.3	12.4	24.0	11.0
Alaska	30.5	19.5	29.3	15.5
Arizona	27.8	17.7	—	—
Arkansas	22.4	13.0	25.7	13.8
California	39.8	22.7	—	—
Colorado	33.5	18.1	—	—
Connecticut	34.4	15.7	31.0	14.6
Delaware	30.2	14.3	34.1	—
District of Columbia	35.2	18.5	29.1	13.6
Florida	31.7	16.8	34.1	15.1
Georgia	26.0	16.0	29.1	11.4
Hawaii	29.1	18.3	27.1	—
Idaho	30.6	17.6	28.4	13.1
Illinois	34.5	16.9	32.6	12.4
Indiana	27.2	13.2	—	—
Iowa	27.5	11.8	—	—
Kansas	24.2	14.2	26.8	12.4
Kentucky	22.8	11.7	25.7	11.6
Louisiana	20.9	11.3	—	—
Maine	34.3	17.9	32.0	—
Maryland	30.9	16.1	31.9	13.8
Massachusetts	33.8	16.9	—	—
Michigan	30.1	13.8	29.2	11.9
Minnesota	30.2	14.3	—	—
Mississippi	21.7	10.9	25.4	14.4
Missouri	25.2	13.2	24.6	11.5
Montana	28.9	16.5	28.2	13.2
Nebraska	29.8	14.2	26.4	11.7
Nevada	30.7	17.6	29.4	11.6
New Hampshire	32.7	17.0	—	—
New Jersey	31.3	15.1	30.8	11.8
New Mexico	28.3	17.8	29.9	17.5
New York	34.1	16.2	33.2	—
North Carolina	23.6	12.7	27.1	12.5
North Dakota	28.1	11.7	28.9	12.0
Ohio	26.4	12.9	30.1	12.0
Oklahoma	19.0	10.6	24.1	11.2
Oregon	34.6	19.7	—	—
Pennsylvania	30.1	13.4	—	—
Rhode Island	32.9	14.9	32.6	13.8
South Carolina	25.5	12.5	27.5	9.7
South Dakota	26.4	11.6	30.5	12.5
Tennessee	17.6	11.2	27.5	12.3
Texas	23.5	14.9	29.4	10.8
Utah	33.4	17.2	34.3	14.2
Vermont	34.7	18.1	—	—
Virginia	31.3	16.4	31.4	12.9
Washington	28.3	16.4	—	—
West Virginia	19.0	11.7	31.2	15.3
Wisconsin	31.0	13.0	33.9	—
Wyoming	27.3	16.3	31.3	16.4
United States[c]	**29.8**	**15.1**	**33.2**	**15.7**

[a]Vegetables included cooked or canned beans, dark green vegetables, orange colored vegetables or other vegetables (excludes fried potatoes).
[b]Vegetables include green salad, potatoes (excluding French fries, fried potatoes, or potato chips), carrots, or other vegetables, during the 7 days preceding the survey.
[c]For adults, the median fruit/vegetable consumption are presented. For high school students, nationwide fruit/vegetable consumption estimates are presented.

Infectious Agents

The IARC has classified 11 infectious agents as carcinogenic to humans, including select strains of HPV, HBV, hepatitis C virus (HCV), human immunodeficiency virus type 1 (HIV), human T-cell lymphotrophic virus type-1, Epstein–Barr virus (EBV), Kaposi sarcoma herpesvirus, *Heliobacter pylori* (*H. pylori*), *Clonorchis sinensis*, *Opisthorchis viverrini*, and *Schistosoma haematobium* (71). In this review, we provide data on five of these infectious agents (HPV, HBV, HCV, HIV, and *H. pylori*), which are responsible for the majority of cancers associated with infectious agents in the United States (72).

HPV

HPV is the most common sexually transmitted infection in the United States, with approximately 14 million people becoming

newly infected annually (73). Virtually all cervical cancers are causally related to persistent HPV infections. Further, persistent infection with HPV causes 90% of all anal cancers, about 60% of SCCs in the oropharynx and 40% of vaginal, vulvar, and penile cancers (74). Three vaccines have now been approved by the U.S. Food and Drug Administration (FDA) for the prevention of HPV infection. Two of the vaccines provide protection against HPV types causing 70% of cervical cancers (75). The most recently approved vaccine offers protection against nine types of HPV and prevention of approximately 90% of cervical, vulvar, vaginal and anal cancers (76).

In 2013, 37.6% of U.S. girls ages 13 to 17 years received the complete three-dose HPV vaccination series in 2013, up from 5.9% in 2007; among adolescent boys, complete vaccination increased from 1.3% in 2011 to 13.9% in 2013 (Supplementary Table S5; ref. 77). Approximately 57.3% of girls and 34.6% of boys ages 13 to 17 years have initiated the HPV vaccine (at least 1 of the 3-dose series; Supplementary Table S5). Initiation of HPV vaccination for adolescent girls ranged from 39.9% in Kansas to 76.6% in Rhode Island and from 11.0% in Utah to 69.3% in Rhode Island among boys in 2013. (Supplementary Table S5). Despite the increases in HPV vaccination uptake among adolescents in the United States, HPV vaccination coverage is considerably lower than countries with national screening programs, including the UK and Portugal, where $\geq$80% of adolescent girls have received all 3 doses of the HPV vaccine (78).

HBV

Chronic infection with HBV causes liver cancer (79). It accounts for 58% and 23% of liver cancers in developing and developed countries, respectively (80). HBV is also increasingly recognized as a risk factor for non-Hodgkin lymphoma (81). Approximately 700,000 to 2.2 million people are living with chronic HBV infection in the United States, and an estimated 38,000 people are newly infected each year (82–84). Most new HBV cases (95%) in the United States are among people who immigrated from countries where HBV infection is more common (85). Vaccination against HBV has been the primary prevention strategy in reducing prevalence of the virus (82, 86). According to the 2013 National Immunization Survey—Teen, 93.2% of adolescents ages 13 to 17 years received at least 3 HBV vaccine doses (Supplementary Table S5); HBV vaccination did not vary across poverty levels, but was slightly lower among Asians (87.8%) compared with other racial/ethnic groups (non–Hispanic whites 93.8%, non–Hispanic black 93.2%, Hispanic 92.8%; ref. 10).

HCV

Chronic infection with HCV also causes cirrhosis and liver cancer and may increase risk of non-Hodgkin lymphoma (71, 87). Liver cancer incidence has increased in the United States in recent years, and HCV-related mortality is also increasing (88). These trends have been attributed to the HCV epidemic that began in the late 1960s, primarily as a result of increased injection drug use (89). In 2013, the United States Preventive Services Task Force (USPSTF) updated their recommendations to include one-time screening among men and women born between 1945 and 1965 because people born during this time period represent about three fourths of the HCV infections in the United States (90). In contrast with HBV infection, there is no vaccine to protect against HCV infection. Until recently, HCV was treated with a combination of drugs that initiated the body's immune response and helped prevent HCV replication; however, these drugs cured only a fraction of HCV infections and required patients to receive weekly injections for up to 48 weeks (91, 92). In the past 5 years, the treatments available for HCV have rapidly changed and the FDA has approved several direct-acting antivirals that have higher cure rates of HCV, and only require 12 weeks of treatment (91–94, 95). However, there is some concern about the affordability and accessibility of these drugs, which may cost $64,000–84,000 for a course of treatment (96, 97).

According to the 2003–2010 NHANES data, 3.6 million Americans, or 1.3% of the noninstitutionalized U.S. population, had past or present HCV infection and 2.7 million, or 1.0%, had chronic HCV infection (98). HCV infection was more common among males, non–Hispanic blacks, and those with lower socioeconomic status (98). HCV prevalence was higher in certain subgroups, including the homeless (22.2%–52.5%), the incarcerated (23.1%–41.2%), and veterans (5.4%–10.7%; ref. 99).

HIV

HIV infection increases the risk of several cancers. There are several acquired immunodeficiency syndrome (AIDS)–defining cancers, including Kaposi sarcoma, certain types of lymphoma (diffuse large B-cell, B-cell immunoblastic, and small-cell cleaved lymphomas), and cervical cancer (100). People infected with HIV are at an increased risk for other cancer-causing infectious agents (such as HCV, HBV, HPV, and EBV) and have higher incidence of cancers (including liver, anal cancer, oropharyngeal and Hodgkin lymphoma) associated with these infectious agents (101–103).

In 2010, there were an estimated 1.1 million people ages 13 years and older living with HIV in the United States (104). Since the mid-1990s, although incidence has remained stable, the prevalence of HIV infection has increased due to improvements in survival among those with HIV as highly active antiretroviral therapy became available (104, 105). In 2011, the majority of people living with HIV infection in the United States were males (75.9%) and males who have sex with males (65.7%; ref. 104). Compared with non–Hispanic whites, prevalence rates were 8 times higher among blacks and 2.5 times higher among Hispanics (104). Further, HIV prevalence varies by geographic region, with higher concentration in urban areas and higher prevalence in the South compared with other parts of the country (106).

H. pylori

Chronic infection with the bacterium *H. pylori* causes stomach cancer and gastric lymphoma (107, 108). Stomach cancer was a leading cause of cancer-related deaths in the United States in the early part of the 20th century; however, stomach cancer is not even among the top 10 causes of cancer-related death currently. This large decline in stomach cancer incidence is thought to be related to improvements in hygiene and changes in dietary patterns (increased consumption of fresh fruits and vegetables as opposed to preserved foods; refs. 109–111). In other parts of the world, particularly in low- and middle-income countries, stomach cancer is still one of the leading causes of cancer deaths (112). According to the 1999–2000 NHANES data, approximately 30.7% of adults in the United States were seropositive for *H. pylori* (113). *H. pylori* infection is higher among Mexican Americans (64.0%) and non–Hispanic blacks (52.0%), compared with non–Hispanic whites

Table 5. Age-adjusted prevalence (%) of cancer screening test utilization, adults, NHIS 2013

	Breast cancer screening among women ≥40 years		Cervical cancer screening among women 21–65 years[a]	Colorectal cancer screening among men and women ≥50 years			Prostate cancer screening among men≥50 years
	Mammogram in past year	Mammogram in past 2 years	Pap test in past 3 years	FOBT in past year	Endoscopy[b]	FOBT and/or endoscopy[c]	PSA in past year
Overall	51.3	65.9	80.8	7.8	55.9	58.6	34.5
Gender							
Males	—	—	—	7.8	56.1	58.8	—
Females	—	—	—	7.7	55.8	58.6	—
Age, y							
40–49	46.6	59.6	—	—	—	—	—
50–64	55.8	71.4	—	—	—	—	—
65+	51.7	66.9	—	—	—	—	—
21–30	—	—	79.9	—	—	—	—
31–40	—	—	83.1	—	—	—	—
41–50	—	—	82.2	—	—	—	—
51–65	—	—	77.6	—	—	—	—
50–64	—	—	—	6.8	50.4	53.1	26.6
65+	—	—	—	8.8	62.3	65.1	43.9
Race/ethnicity							
Non–Hispanic white	52.1	66.4	82.8	7.4	58.0	60.5	36.5
Non–Hispanic black	52.6	66.1	82.3	8.5	56.5	59.4	32.9
Hispanic	45.9	61.6	77.1	8.4	41.5	44.9	24.3
American Indian/Alaska Native	48.5	63.0	80.7	[f]	45.0	48.0	[f]
Asian (non–Hispanic)[d]	50.3	66.9	70.6	10.9	48.6	53.2	26.3
Education[e]							
<HS	38.7	52.7	68.5	6.8	40.0	43.1	23.7
HS or GED	47.7	61.4	75.7	7.3	52.6	55.2	28.6
Some college	51.9	67.3	83.4	8.6	58.0	60.7	35.7
College graduate	59.5	74.8	87.3	7.9	65.4	68.0	43.1
Sexual orientation							
Gay/lesbian	56.8	71.1	72.9	10.7	69.4	73.8	54.3
Straight	51.4	65.9	81.1	7.8	55.8	58.5	34.3
Bisexual	[f]	[f]	65.7	[f]	[f]	[f]	[f]
Insurance status							
Uninsured	22.3	38.0	60.6	2.2	20.3	21.9	20.2
Insured	54.8	69.6	85.2	8.1	58.8	61.6	36.2
Immigration status							
Born in the United States	51.8	66.1	82.5	7.8	57.7	60.4	35.4
Born in U.S. territory	47.2	59.3	76.8	11.1	49.4	55.0	37.2
In the United States fewer than 10 years	27.0	39.9	65.9	[f]	17.3	20.2	25.3
In the United States 10+ years	50.0	66.0	76.0	7.7	47.2	50.4	29.2

Abbreviations: GED, General Educational Development high school equivalency; HS, high school.

[a]Among women with intact uteri.

[b]Sigmoidoscopy within the past five years or a colonoscopy within the past 10 years.

[c]FOBT and/or sigmoidoscopy within the past five years or a colonoscopy within the past 10 years.

[d]Does not include Native Hawaiians or other Pacific Islanders.

[e]Estimates for Pap testing are among persons aged 25 years or older.

[f]Estimate not provided due to instability.

(21.2%; ref. 113). *H. pylori* prevalence is higher among those who recently immigrated to the United States (114). In 2014, IARC recommended that countries with high gastric cancer incidence (including China and Japan) should incorporate *H. pylori* screening and treatment into their cancer control programs (115). In the United States, there is no recommendation to screen asymptomatic people for *H. pylori* because of the low gastric cancer incidence among Americans.

Cancer Screening

Breast cancer screening

In the United States, female breast cancer death rates have been declining since 1989, due to early detection by mammography screening and improvements in treatment (3). Mammography screening reduces breast cancer mortality by detecting cancers at an earlier stage (116). Despite the relatively high prevalence of mammography screening in the United States, studies suggest that many women are initiating mammography later than recommended, are not having mammography at recommended intervals (117), or are not receiving appropriate follow-up of abnormal results (118–120).

According to the 2013 NHIS, 51.3% and 65.9% of women 40 years of age and older reported having a mammogram within the past year and in the past 2 years, respectively (Table 5). The percentage of women 40 years of age and older who reported having a mammogram within the past 2 years increased from 29% in 1987 to 70% in 2000, although this percentage declined by

Table 6. Prevalence (%) of cancer screening test utilization, adults, by state, BRFSS 2012

State	Breast cancer screening among women ≥40 years Mammogram in the past year	Cervical cancer screening among women 21–65 years Pap test in the past 3 years	Colorectal cancer screening among men and women ≥50 years FOBT in past year	Endoscopy[a]	Combined FOBT/ endoscopy[b]
Alabama	59.0	84.0	9.7	63.6	66.6
Alaska	53.6	83.5	6.8	54.6	56.8
Arizona	53.0	78.8	9.9	56.9	60.0
Arkansas	49.8	79.0	9.1	56.3	59.5
California	58.5	85.6	19.5	59.9	68.6
Colorado	52.3	85.5	10.0	61.2	65.8
Connecticut	65.9	88.0	10.8	70.1	72.8
Delaware	67.6	88.9	7.8	71.2	72.6
District of Columbia	62.6	88.1	14.9	65.4	69.1
Florida	59.0	80.4	13.6	63.8	68.0
Georgia	62.1	84.4	12.3	65.1	68.5
Hawaii	58.6	82.2	13.1	57.8	64.2
Idaho	49.1	74.6	7.7	59.9	62.2
Illinois	57.7	85.7	6.9	60.0	62.2
Indiana	52.4	80.4	9.0	57.8	61.1
Iowa	61.0	87.0	9.0	64.8	67.3
Kansas	60.0	84.8	11.1	62.6	66.2
Kentucky	57.3	81.6	9.0	61.6	64.3
Louisiana	60.0	85.0	10.8	58.3	62.3
Maine	65.0	87.9	9.0	71.0	73.2
Maryland	64.8	88.2	11.8	68.3	71.2
Massachusetts	72.1	89.6	10.9	72.8	75.8
Michigan	59.2	86.2	9.6	67.3	69.6
Minnesota	63.4	87.8	5.3	69.4	71.2
Mississippi	52.4	80.9	11.4	56.5	59.5
Missouri	58.4	82.3	8.0	61.7	64.9
Montana	50.4	82.2	6.4	54.7	57.5
Nebraska	54.4	83.9	7.5	59.3	62.2
Nevada	49.6	77.4	12.6	55.3	59.5
New Hampshire	64.6	86.9	8.0	73.2	75.2
New Jersey	61.2	84.9	8.4	61.2	63.6
New Mexico	49.9	83.0	8.6	56.0	59.3
New York	62.0	82.6	8.7	68.0	70.3
North Carolina	61.5	86.3	11.6	66.5	69.9
North Dakota	58.2	84.3	8.3	56.5	59.4
Ohio	60.3	84.5	9.4	60.6	64.2
Oklahoma	52.4	81.0	7.9	57.1	60.3
Oregon	53.9	80.3	10.1	61.6	66.0
Pennsylvania	59.8	83.2	9.2	64.3	67.6
Rhode Island	67.0	88.7	8.9	71.3	73.8
South Carolina	54.3	82.1	7.5	63.6	65.8
South Dakota	61.5	86.7	8.4	60.8	63.5
Tennessee	56.5	85.8	10.9	63.7	66.4
Texas	53.6	80.6	8.8	57.2	60.3
Utah	50.1	79.1	3.5	66.9	68.3
Vermont	61.2	86.8	8.6	68.8	71.6
Virginia	64.3	87.4	9.5	66.0	68.4
Washington	55.6	83.0	10.4	64.8	68.5
West Virginia	58.3	80.9	12.9	59.7	63.8
Wisconsin	63.4	85.2	7.2	70.0	72.6
Wyoming	47.3	79.9	5.4	55.2	57.4

[a]Sigmoidoscopy in the past 5 years or colonoscopy in the past 10 years.
[b]FOBT in the past year, sigmoidoscopy in the past 5 years, or colonoscopy in the past 10 years.

3.4% between 2000 and 2005 and has remained relatively stable since then (121). In 2013, the prevalence of a mammogram in the past year was similar among white, black, and Asian women (50%–52%), but was slightly lower in Hispanic (45.9%) (Table 5). The lowest prevalence of mammography use in the past year was reported among women who lack health insurance (22.3%), followed by recent immigrants (living in the United States <10 years; 27.0%; ref. Table 5). According to the 2012 BRFSS, the percentage of women 40 years of age and older who reported having a mammogram in the past year ranged from 47.3% in Wyoming to 72.1% in Massachusetts (Table 6).

Cervical cancer screening

Cervical cancer incidence and mortality rates have decreased by more than 50% over the past three decades, with most of the reduction attributed to screening with the Papanicolaou (Pap) test, which can detect both cervical cancer and precancerous

lesions (122, 123). Women diagnosed with localized cervical cancer also have a high 5-year survival rate (91%) (122). However, almost half of all cervical cancers are diagnosed at a regional or distant stage for which the 5-year survival rates are 57.4% and 16.1%, respectively (122). Most (60%–80%) women diagnosed at these later stages have not had a Pap test in the past 5 years (124).

According to the 2013 NHIS, 80.8% of women 21 to 65 years of age reported having had a Pap test within the past three years (Table 5). The prevalence of Pap test use was similar among non–Hispanic whites, non–Hispanic blacks, and Native Americans (80.7%–82.8%), but lower among Hispanic (77.1%) and Asian (70.6%) women (Table 5). Prevalence was also low among women with no health insurance (60.6%) and recent immigrants (living in the United States <10 years; 65.9%; Table 5). According to the 2012 BRFSS, uptake of recent Pap testing among women 21 to 65 years of age ranged from 74.6% in Idaho to 89.6% in Massachusetts (Table 6).

Colorectal cancer screening

Colorectal cancer screening can both prevent cancer, through the identification and removal of precancerous polyps, and detect malignancy at an early stage (125, 126). However, only 40% of cases are diagnosed when the cancer is localized, for which the relative 5-year survival rate is 90% (122). The decrease in colorectal cancer incidence and death rates over the past several decades has been attributed to screening uptake, risk-factor reduction (e.g., declining tobacco use), and improved treatments (127).

Although colorectal cancer screening increased rapidly since the 2000s (from 38.6% in 2000 to 54.5% in 2008, primarily through increased use of colonoscopy; ref. 128), screening prevalence has stabilized in recent years and still lags behind that for breast and cervical cancers (Table 5). According to the 2013 NHIS, 58.6% of adults 50 years and older were up-to-date with screening [either a fecal occult blood test (FOBT) within the past year or a sigmoidoscopy within the past 5 years or a colonoscopy within the past 10 years; Table 5]. Endoscopic screening, primarily colonoscopy, was much more common (55.9%) than fecal tests (home-based FOBT or FIT; 7.8%). In 2013, screening prevalence was highest among non–Hispanic blacks and whites (59.4%–60.5%), followed by Asians (53.2%), American Indian/Alaska Natives (48.0%), and Hispanics (44.9%; Table 5). According to 2012 BRFSS data, the percentage of adults 50 years of age and older who were up-to-date with screening ranged from 56.8% in Alaska to 75.8% in Massachusetts (Table 6).

Prostate cancer screening

Among U.S. men, cancer of the prostate is the most common type of cancer (other than skin cancer) and the second leading cause of cancer death (3). Mortality trends for prostate cancer have been declining, which is thought to be, in part, due to early detection using the prostate-specific antigen (PSA) test. However, the results of three large clinical trials designed to determine the efficacy of PSA testing were not in agreement and further studies are under way (129–131). Most experts agree that the current evidence is insufficient to recommend for or against routine testing for early prostate cancer detection given concerns about frequent overdiagnosis and substantial risk for serious side effects from prostate cancer treatment (132–134). Informed decisions on whether or not a man should receive PSA testing is encouraged by some public health organizations; however, studies have shown that informed and shared decision-making measures are inconsistently utilized in clinical practice (135). According to the 2013 NHIS, the prevalence of having a PSA test within the past year was 34.5% in men 50 years of age and older (Table 5). Those who had no health insurance, Hispanic men, those with less than a high school education, and recent immigrants (living in the United States <10 years) were the least likely to have had a recent PSA test.

Lung cancer screening

Among U.S. men and women, lung cancer is the leading cause of cancer death, with an estimated 158,040 deaths in 2015 (3). Whereas lung cancer incidence and mortality rates have been declining over the past two decades in men, rates only recently began to decrease after a long period of increasing in women. These trends reflect historical differences in smoking initiation and cessation (13). The initial National Lung Cancer Screening Trial results published in 2011 showed 20% fewer lung cancer deaths in the group that received an invitation to low-dose helical computed tomography (LDCT) screening compared with the group invited to receive annual chest X-ray group after 8 years of follow-up (136). Following these results, several public health organizations began recommending lung cancer screening with LDCT for healthy patients ages 55 to 74 years (ACS; USPSTF recommendation is for ages 55–80 years) with at least a 30 pack-year history of smoking who currently smoke or have quit within the past 15 years (137–140). Approximately 8.6 million former and current smokers are eligible for lung cancer screening, and an estimated 12,250 lung cancer deaths could be averted annually if this population adopted ACS's lung cancer screening guidelines (141). In 2010, a national survey estimated that 1.8% of high-risk smokers (those with a smoking history of 30 or more pack-years) and 4.4% of high-risk former smokers had undergone LDCT for lung cancer screening within the past year (142).

Conclusion

Although there have been many improvements in cancer control with reductions in cigarette smoking prevalence and progress in cancer screening utilization in the past several decades, about 18% of Americans still smoke and smoking prevalence remains high (>25%) among certain populations, including lower socioeconomic persons. In addition, the use of other forms of tobacco, including cigars and e-cigarettes, has increased in recent years. Obesity prevalence is high among both adults and adolescents, particularly among black women with nearly 60% of this population obese. About 1 in 5 young women continues to use indoor tanning devices despite the known harms related to use of these devices. Furthermore, preventive health services, such as HPV vaccination, remain low with only 37.6% and 13.9% of adolescent girls and boys receiving vaccination, respectively. Receipt of recommended cancer screening varies from 80% for cervical cancer to 59% for colorectal cancer, and regardless of the cancer type, people without insurance have markedly lower cancer screening uptake; for example, 21.9% of uninsured receive recommended colorectal cancer screening. These prevalence estimates provide

a summary of risk factors and early detection methods for major cancer sites and highlight the populations most in need of cancer control efforts and interventions.

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No potential conflicts of interest were disclosed.

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