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Cancer Screening in the United States: Evidence, Guidelines, Implementation, Disparities and Future Directions

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Abstract

Cancer screening is a central component of cancer control in the United States, but its population impact depends on more than the availability of effective tests. Screening can detect cancer at an earlier stage and, for selected diseases, identify precancerous lesions that can be treated before invasive cancer develops. At the same time, screening can produce false-positive and false-negative results, complications, overdiagnosis and overtreatment. This narrative review examines the contemporary U.S. cancer-screening landscape, focusing on breast, cervical, colorectal, lung and prostate cancer screening; disparities in screening uptake; health-system implementation; shared decision-making; emerging technologies; and strategies for improving equitable access. The United States continues to face a substantial cancer burden, with the American Cancer Society estimating more than two million new cancer cases and more than 618,000 cancer deaths in 2025, excluding nonmelanoma skin cancer (American Cancer Society [ACS], 2025). Current evidence-based recommendations differ by cancer type and organization. The U.S. Preventive Services Task Force (USPSTF) recommends biennial mammography for women aged 40–74, colorectal cancer screening beginning at age 45, annual low-dose computed tomography for eligible adults at high risk from smoking, and cervical cancer screening for women aged 21–65 under its current final recommendation; ACS recommendations sometimes differ in starting ages, intervals or available test options (USPSTF, 2024a; USPSTF, 2021a; USPSTF, 2021b; USPSTF, 2018; ACS, 2026). National survey evidence shows that screening remains incomplete and socially patterned. In 2023, 79.8% of eligible women were up to date with breast-cancer screening, 75.8% with cervical screening, and 63.5% with colorectal screening according to CDC analysis using NHIS data and USPSTF-based intervals (Sabatino et al., 2025). Lower screening use was associated with limited healthcare access, financial hardship, lack of a usual source of care, transportation barriers and other social determinants. The review argues that improving U.S. cancer screening requires a complete screening pathway: evidence-based eligibility, accessible testing, high-quality interpretation, timely diagnostic follow-up, treatment, surveillance and continuous quality improvement. Future directions include HPV self-collection, improved risk-based screening, more efficient colorectal testing, better integration of screening into primary care, navigation programs, and careful evaluation of multi-cancer early-detection technologies. Equity should remain a central outcome of screening policy because an effective test cannot produce population benefit when eligible people cannot access it or complete the diagnostic pathway.

Keywords: cancer screening; United States; early detection; breast cancer; cervical cancer; colorectal cancer; lung cancer; prostate cancer; screening disparities

1. Introduction

Cancer screening refers to testing people who do not have symptoms in order to detect cancer early or identify abnormal tissue that may become cancer. Screening differs from diagnostic testing, which is undertaken because a person has symptoms, an abnormal clinical finding or another reason to suspect disease (National Cancer Institute [NCI], 2023a). An effective screening program should improve outcomes that matter to patients and populations, particularly by reducing cancer mortality or preventing invasive cancer, rather than simply increasing the number of cancers diagnosed.

The United States has one of the world's most developed cancer-screening infrastructures, with organized and opportunistic programs operating through primary care, specialty care, community health centers, imaging facilities, laboratories and public-health programs. Nevertheless, access and uptake remain uneven. Screening recommendations also evolve as evidence changes, and different authoritative organizations can issue recommendations that are not identical. Consequently, clinicians, policymakers and patients must navigate a complex environment involving age, risk factors, screening intervals, test characteristics, insurance coverage, follow-up capacity and individual preferences.

The scale of the U.S. cancer burden reinforces the importance of prevention and early detection. The American Cancer Society estimated that more than two million new cancer cases and more than 618,000 cancer deaths would occur in the United States during 2025, excluding nonmelanoma skin cancers (ACS, 2025). Cancer mortality has nevertheless fallen substantially from its 1991 peak; ACS reported a 34% decline in the age-adjusted cancer death rate between 1991 and 2022, reflecting contributions from reduced smoking, improvements in treatment and early detection for some cancers (ACS, 2025).

Screening is therefore one component of a larger cancer-control system. It should be considered alongside tobacco control, vaccination, risk reduction, treatment, survivorship and palliative care. This manuscript focuses on screening while recognizing that screening alone cannot explain changes in cancer mortality or eliminate cancer disparities.

2. Conceptual Framework for Cancer Screening

Screening is based on the principle that disease can sometimes be identified during a preclinical phase when intervention is more effective than after symptoms appear. For some cancers, screening detects invasive disease; for others, it can detect precursor lesions and prevent cancer from developing. Cervical and colorectal screening are particularly important examples because screening can identify and treat abnormalities before invasive disease occurs (NCI, 2023a; ACS, 2026).

A screening program has several linked components: identifying the eligible population, delivering an appropriate test at the recommended interval, communicating results, completing diagnostic evaluation of abnormal results, initiating treatment when indicated, and monitoring outcomes. Failure at any point can reduce the benefit of screening. A positive stool test followed by no colonoscopy, for example, does not constitute effective colorectal cancer screening at the population level.

Screening also involves trade-offs. False-positive results may generate anxiety, repeat testing and invasive procedures. False-negative results can create false reassurance. Some screening programs identify cancers that would never have become clinically important during a person's lifetime, a phenomenon known as overdiagnosis. Treatment of such cancers can cause harm without providing benefit (NCI, 2023a; NCI, 2023b).

Table 1. Essential components of an effective cancer-screening pathway

Component	Key question	Potential failure
Eligibility	Who should be screened and at what age/risk level?	Screening people unlikely to benefit or missing high-risk people
Test selection	Which validated test should be used?	Poor test performance or inappropriate modality
Interval	How often should testing occur?	Under-screening or excessive testing
Result communication	Does the patient receive and understand the result?	Loss to follow-up or delayed action
Diagnostic follow-up	Are abnormal results investigated promptly?	Delayed diagnosis
Treatment	Is confirmed disease treated appropriately?	Screening without mortality benefit
Quality assurance	Are facilities and clinicians meeting standards?	Variable accuracy and safety
Equity	Can underserved populations complete the pathway?	Persistent disparities in benefit

3. Methodology

This article uses a narrative review and health-policy analysis approach. It synthesizes recommendations and evidence from the U.S. Preventive Services Task Force, National Cancer Institute, Centers for Disease Control and Prevention, American Cancer Society and peer-reviewed literature. Current guideline information was reviewed for breast, cervical, colorectal, lung and prostate cancer screening. National screening-use estimates were drawn from CDC analyses of the National Health Interview Survey (NHIS).

The review emphasizes average-risk screening where population guidelines are applicable, while recognizing that individuals with genetic syndromes, strong family histories, prior cancers, abnormal previous screening results or other high-risk conditions may require different strategies. The article does not provide individualized medical advice and does not substitute for current clinical guidelines or clinician assessment.

Because U.S. screening recommendations are updated periodically and organizations may differ, the manuscript identifies the guideline source and year when describing recommendations. Where a newer recommendation is in draft or under review, it is distinguished from a current final recommendation.

4. Breast Cancer Screening

Breast cancer is a major cause of cancer morbidity and mortality among U.S. women. Screening mammography is the principal population-based screening modality. The USPSTF's 2024 final recommendation advises biennial mammography for women aged 40–74 (USPSTF, 2024a). The recommendation applies to average-risk women, including women with a first-degree family history or dense breasts, but it does not apply to people with known high-risk genetic syndromes, prior breast cancer or certain other high-risk conditions, who may need individualized strategies.

The ACS guideline differs in emphasis and schedule. ACS recommends that women aged 40–44 have the option to begin annual mammography, women aged 45–54 receive annual mammography, and women aged 55 and older transition to mammography every two years or continue annually, provided they are in good health

and have a life expectancy of at least 10 years (ACS, 2026). These differences illustrate that screening guidelines can reflect different interpretations of benefits, harms and values.

Digital mammography and digital breast tomosynthesis are established screening technologies. Supplemental MRI may be appropriate for women with substantially elevated risk, but it is not a routine replacement for mammography in average-risk populations. The 2024 USPSTF concluded that evidence was insufficient to determine the balance of benefits and harms of supplemental ultrasonography or MRI solely because a woman has dense breasts after a negative mammogram (USPSTF, 2024a).

Breast screening also highlights racial disparities. The USPSTF noted that Black women have a substantially higher risk of dying from breast cancer than White women and emphasized the need for research and equitable follow-up (USPSTF, 2024a). Screening equity therefore requires more than increasing mammography rates; it requires timely diagnostic resolution and access to effective treatment.

5. Cervical Cancer Screening

Cervical cancer is distinctive because screening can identify precancerous lesions and because persistent infection with oncogenic HPV is the necessary cause of virtually all cervical cancers. Screening therefore operates as both early detection and cancer prevention.

The current final USPSTF recommendation applies to women aged 21–65. It recommends cervical cytology alone every three years for women aged 21–29, and for women aged 30–65 it recommends either cytology every three years, high-risk HPV testing every five years, or co-testing every five years (USPSTF, 2018). The USPSTF has been updating this recommendation, and its 2024 draft recommendation included primary HPV screening and patient-collected HPV samples as part of the evolving evidence base; draft recommendations should not be treated as the current final recommendation until finalized (USPSTF, 2024b).

The ACS has moved more strongly toward HPV-based screening. Its updated guidance incorporates self-collected HPV testing as an option and revises approaches to when screening can end (ACS, 2025/2026). The divergence between guidelines illustrates the rapid evolution of cervical screening technologies and the need to identify the applicable guideline in a particular clinical setting.

The effectiveness of cervical screening depends heavily on follow-up. An abnormal HPV or cytology result is not equivalent to cancer and generally requires risk-based diagnostic evaluation. Screening programs can fail when abnormal results are not communicated, diagnostic procedures are delayed or treatment is inaccessible.

Table 2. Major U.S. screening recommendations for selected cancers

Cancer	USPSTF/current U.S. recommendation	Key modality	Important considerations
Breast	Women 40–74: every 2 years (2024)	Mammography	Individualized approaches for high-risk conditions; evidence gaps for >74 and supplemental imaging
Cervical	Women 21–65: cytology 21–29 every 3 years; age 30–65 cytology q3y, hrHPV q5y, or co-test q5y (2018 final)	Pap/cytology and/or HPV	Guideline updating is underway; vaccination does not eliminate need for screening

Colorectal	Adults 45–75; multiple stool and visual options (2021)	FIT, stool DNA-FIT, colonoscopy, CT colonography, etc.	Positive non-colonoscopy tests require diagnostic colonoscopy
Lung	Adults 50–80 with ≥20 pack-year history who currently smoke or quit <15 years ago; annual LDCT	Low-dose CT	Shared decision-making and smoking cessation remain important
Prostate	Men 55–69: individual decision under 2018 USPSTF recommendation	PSA-based testing	Benefits and harms are closely balanced; higher-risk groups require individualized discussion

6. Colorectal Cancer Screening

Colorectal cancer screening is one of the most important areas of contemporary U.S. prevention because screening can detect cancer early and can also identify and remove precancerous polyps. The USPSTF recommends screening average-risk adults from age 45 through 75 and recommends individualized decisions for adults aged 76–85 based on overall health, previous screening and preferences (USPSTF, 2021a).

Available strategies include annual high-sensitivity fecal immunochemical testing (FIT), stool DNA-FIT at specified intervals, colonoscopy every 10 years, CT colonography every five years and flexible sigmoidoscopy-based strategies (USPSTF, 2021a). ACS likewise recommends starting average-risk screening at age 45 and emphasizes that positive non-colonoscopy tests require timely colonoscopy (ACS, 2026).

A major strength of colorectal screening is the availability of several modalities. Patients who are unwilling or unable to undergo colonoscopy may accept stool-based testing. However, choice must not be confused with completion. A stool-based program is only effective if testing is repeated at the appropriate interval and abnormal results receive colonoscopic follow-up.

National uptake remains a major challenge. CDC analysis of 2023 NHIS data estimated that 63.5% of adults aged 45–75 were up to date with colorectal screening under USPSTF-based definitions (Sabatino et al., 2025). Uptake among adults aged 45–49 was only 37.1%, indicating a particularly important implementation gap after the screening age was lowered from 50 to 45.

7. Lung Cancer Screening

Lung cancer screening differs from most other screening programs because eligibility is based heavily on smoking exposure and age rather than age alone. The USPSTF recommends annual low-dose computed tomography (LDCT) for adults aged 50–80 who have a 20 pack-year or greater smoking history and currently smoke or quit within the previous 15 years (USPSTF, 2021b). Screening should stop when a person has not smoked for 15 years, develops a health problem that substantially limits life expectancy or would prevent curative lung-cancer treatment, or reaches age 81.

The ACS updated its lung screening guideline in 2023 and similarly lowered the starting age to 50, increased the upper age to 80, lowered the smoking exposure threshold to 20 pack-years and removed the previous

requirement that people who quit smoking must have quit within the preceding 15 years (ACS, 2023). These differences again demonstrate why clinicians should identify which guideline governs their practice or insurance context.

LDCT screening can reduce lung-cancer mortality in high-risk populations, but it can also generate false-positive findings, incidental findings and downstream diagnostic procedures. Screening should therefore occur within systems capable of standardized nodule evaluation, follow-up and treatment. Smoking cessation remains essential because screening does not prevent the initial development of lung cancer and cessation produces benefits beyond screening.

8. Prostate Cancer Screening

Prostate cancer screening is more controversial than screening for some other major cancers because PSA testing can identify clinically important disease but can also detect cancers that would never have become symptomatic. The USPSTF's 2018 recommendation concluded that for men aged 55–69, the decision to undergo periodic PSA-based screening should be individualized after discussion of potential benefits and harms (USPSTF, 2018b). For men aged 70 and older, the USPSTF recommends against routine PSA-based screening.

ACS similarly emphasizes informed decision-making. Its approach begins discussion earlier for men at higher risk and emphasizes life expectancy, family history and race-related risk differences when considering PSA testing (ACS, 2026). The existence of differing approaches illustrates the importance of shared decision-making rather than assuming that every eligible person should receive identical testing.

Potential harms include false-positive results, biopsy complications, overdiagnosis and treatment-related adverse effects such as urinary and sexual dysfunction. Active surveillance can reduce overtreatment for some men with low-risk disease, but the screening decision still requires understanding of uncertainty.

9. Screening for Other Cancers

Not every cancer has an established population screening program. The absence of a recommended screening test does not mean that the cancer is unimportant; it means that available evidence has not demonstrated a favorable balance of benefits and harms for screening asymptomatic populations.

The USPSTF recommends against screening asymptomatic women for ovarian cancer because available tests do not reduce mortality and can produce harms from false-positive results and diagnostic procedures (USPSTF, 2018c). It similarly recommends against routine screening for pancreatic cancer in asymptomatic adults who are not known to be at high risk (USPSTF, 2019).

Endometrial cancer illustrates a different model: there is no recommended population screening test for asymptomatic average-risk women, but postmenopausal bleeding is an important symptom that requires evaluation. The ACS emphasizes awareness of abnormal bleeding and individualized evaluation for women at increased risk (ACS, 2026).

Skin cancer screening also differs because there is insufficient evidence to support a universal population screening program using clinician visual examination for asymptomatic adults. However, individuals with suspicious lesions or high-risk characteristics may require clinical evaluation. This distinction between screening and diagnostic assessment is essential.

10. Screening Uptake in the United States

National screening uptake is substantial but incomplete. CDC's analysis of 2023 NHIS data estimated that 79.8% of eligible women were up to date with breast screening, 75.8% with cervical screening and 63.5% with colorectal screening when screening was defined using USPSTF-based intervals (Sabatino et al., 2025). Compared with earlier years, breast screening increased while cervical and colorectal screening decreased in the analyzed period.

Table 3. U.S. screening use among eligible adults, 2023

Screening	Population definition used in CDC analysis	Up-to-date in 2023
Breast	Women eligible under USPSTF-based criteria	79.8%
Cervical	Women aged 21–65 under USPSTF-based criteria	75.8%
Colorectal	Adults aged 45–75 under USPSTF-based criteria	63.5%

The national averages conceal substantial variation. CDC analysis found lower screening use among people with limited access to healthcare, financial hardship, no recent wellness visit or no usual source of care. For colorectal screening, use among adults aged 45–49 was 37.1%, while colorectal screening was particularly low among uninsured adults younger than 65 and people experiencing transportation, food or housing-related hardship (Sabatino et al., 2025).

These findings demonstrate that screening is partly a health-system access problem. Increasing awareness is useful but insufficient if a patient cannot obtain an appointment, lacks transportation, cannot afford downstream diagnostic testing, or does not have a regular clinician to interpret results and coordinate care.

11. Racial, Ethnic and Socioeconomic Disparities

Cancer screening disparities reflect broader inequalities in healthcare access, insurance coverage, income, education, transportation, language, trust and neighborhood resources. Screening rates may differ by race and ethnicity, but race itself should not be treated as a biological explanation for disparities. Structural and social conditions, differential exposure to risk, healthcare access and quality of treatment all contribute.

The USPSTF's breast-cancer guidance highlights the disproportionate mortality experienced by Black women and emphasizes the need for equitable follow-up and treatment (USPSTF, 2024a). CDC data similarly demonstrate lower screening among people facing financial and access barriers (Sabatino et al., 2025).

Insurance coverage is an important determinant, particularly for adults younger than Medicare eligibility. Although preventive services are covered under many U.S. insurance arrangements, cost-sharing and coverage differences can still affect uptake, especially when screening leads to diagnostic procedures. Policies that remove barriers to the entire screening-to-treatment pathway are therefore more likely to produce equitable benefits than policies that focus only on the initial test.

12. Screening and the COVID-19 Pandemic

The COVID-19 pandemic disrupted preventive care in the United States. Deferred appointments, reduced healthcare capacity and patient concerns about infection contributed to interruptions in cancer screening. CDC analyses provide evidence that screening patterns changed during and after the pandemic, with recovery differing by cancer type (Sabatino et al., 2023; Sabatino et al., 2025).

The pandemic also highlighted the importance of flexible screening systems. Home-based FIT and HPV testing can reduce some logistical barriers, although they require reliable distribution, instructions, laboratory processing and follow-up. Telehealth can support counselling and navigation but cannot replace procedures such as mammography, colonoscopy or LDCT.

13. Screening Quality and Follow-Up

The quality of screening should be measured across the entire continuum rather than by test volume alone. A high screening rate can coexist with poor outcomes if positive results are not followed by timely diagnosis or treatment. Quality indicators should therefore include abnormal-result follow-up, time to diagnostic resolution, stage at diagnosis, treatment initiation and patient experience.

For colorectal cancer, this principle is especially clear. FIT or stool DNA testing can increase participation among people who decline colonoscopy, but a positive test requires colonoscopy. Failure to complete that step converts a potentially effective screening strategy into an incomplete pathway.

Breast and cervical screening likewise require reliable follow-up systems. Abnormal mammography requires appropriate diagnostic imaging and/or biopsy. Abnormal cervical screening results require risk-based management, surveillance or treatment. Navigation programs can help patients overcome barriers between screening and diagnosis.

14. Benefits and Harms of Cancer Screening

Screening benefits include earlier diagnosis, prevention of invasive cancer in diseases with treatable precursors, reduction in cancer mortality and, in some circumstances, less intensive treatment. However, screening also produces harms that should be communicated clearly.

False-positive results can lead to anxiety, additional imaging, biopsy or other procedures. False-negative results can delay diagnosis if people assume that a negative test rules out cancer permanently. Overdiagnosis can lead to treatment of cancers that would never have become clinically important. Invasive procedures can cause bleeding, infection or other complications (NCI, 2023a).

The balance of benefits and harms differs by cancer and by patient. It also changes with age and life expectancy. Overdiagnosis becomes more consequential when life expectancy is limited because slowly growing cancers are less likely to cause symptoms before competing health conditions become more important. This is one reason many guidelines use upper age limits or recommend individualized decisions in older adults.

Table 4. Principal benefits and potential harms of cancer screening

Potential benefits	Potential harms
Earlier detection of treatable cancer	False-positive results
Prevention of cancer through detection of precursor	False-negative results

lesions	
Reduced cancer mortality for effective screening programs	Overdiagnosis
Potentially less intensive treatment when disease is found early	Overtreatment
Improved population cancer surveillance	Anxiety and psychological burden
Opportunity to identify high-risk individuals	Procedure-related complications
Potential reduction in advanced-stage disease	Incidental findings and downstream testing

15. Shared Decision-Making

Shared decision-making is particularly important when the balance of benefits and harms is close or when multiple screening options are reasonable. Patients should understand the purpose of the test, the likelihood of abnormal findings, what happens after an abnormal result, the screening interval and the consequences of choosing not to screen.

The NCI emphasizes that screening tests are not diagnostic tests and that informed decision-making should incorporate benefits, harms and uncertainties (NCI, 2023a). This is particularly relevant to prostate cancer screening, where the potential mortality benefit must be balanced against overdiagnosis and treatment harms. It is also relevant when older adults consider whether to continue screening beyond routine age ranges.

Shared decision-making should not be used as a substitute for evidence-based recommendations. Rather, it is a mechanism for applying evidence to individual circumstances, preferences and risk levels.

16. Primary Care and Health-System Integration

Primary care is a critical setting for cancer screening because clinicians can assess eligibility, identify risk factors, offer vaccination and prevention counselling, order screening tests and coordinate follow-up. Yet primary-care visits often involve competing demands, and screening may be missed when systems depend entirely on clinician memory.

Electronic health records can generate reminders and identify overdue patients. Population health registries can allow health systems to contact eligible patients outside routine visits. Standing orders, mailed FIT kits, community outreach and patient navigation can increase screening completion.

The most effective systems combine patient-level and system-level interventions. A reminder alone may have limited impact if the patient faces transportation or cost barriers. Navigation, flexible scheduling, community partnerships and assistance with follow-up can address these structural barriers.

17. Emerging Screening Technologies

17.1 HPV Self-Collection

Self-collected vaginal samples for HPV testing represent an important development in cervical cancer screening. Self-collection may improve convenience, privacy and access for people who face barriers to clinic-based pelvic examination. U.S. guidance is evolving, and ACS has incorporated self-collection into updated

cervical-screening recommendations (ACS, 2025/2026). Implementation requires validated assays, clear instructions, appropriate follow-up and equitable access.

17.2 Blood-Based Colorectal Screening

Blood-based colorectal cancer screening tests are emerging as an additional option. ACS's updated colorectal guidance has incorporated blood-based testing while emphasizing that available tests differ in evidence, performance and frequency (ACS, 2026). The central implementation principle remains the same: a positive screening result must lead to diagnostic colonoscopy.

17.3 Multi-Cancer Early Detection Tests

Multi-cancer early detection (MCED) tests aim to identify molecular signals associated with multiple cancers from a blood sample. These technologies are scientifically promising, but they raise important questions about test performance, overdiagnosis, false positives, the cancer site identified, downstream diagnostic procedures and whether population use reduces cancer mortality.

The NCI notes that the benefits and harms of MCED assays cannot be established adequately without clinical trials using meaningful outcomes such as mortality (NCI, 2023a). Therefore, enthusiasm about technological innovation should not substitute for evidence of population benefit.

18. Artificial Intelligence and Digital Health

Artificial intelligence is increasingly being studied for mammographic interpretation, colonoscopy, radiology, risk prediction and workflow optimization. Potential benefits include improved detection, standardized interpretation and reduced workload. However, algorithmic performance can vary by population, imaging equipment and clinical setting.

Digital systems can also improve outreach and tracking. Automated reminders, risk calculators and registry-based recalls may increase adherence. Yet digital approaches can reproduce disparities if people without stable internet access, digital literacy or primary care relationships are excluded. Equity assessment should therefore be built into digital screening programs from the beginning.

19. Screening in High-Risk Populations

Average-risk guidelines do not apply to everyone. Individuals with pathogenic genetic variants, strong family histories, previous cancers, prior high-risk lesions or substantial environmental or occupational exposures may require earlier or more intensive screening. High-risk screening should be based on validated risk assessment rather than broad assumptions about demographic identity.

For example, women with hereditary breast and ovarian cancer syndromes may require MRI in addition to mammography. People with hereditary colorectal syndromes may require colonoscopy beginning substantially earlier than average-risk adults. Individuals with substantial smoking exposure may qualify for LDCT under lung-screening criteria. These examples demonstrate why risk assessment should be incorporated into routine primary care.

Risk-based screening can improve benefit by concentrating resources on people with higher absolute risk, but it also creates implementation challenges. Genetic testing and specialist assessment may not be equally available across regions and socioeconomic groups.

20. Cost, Insurance and Access

The economics of screening involve more than the price of the test. Screening programs generate costs for outreach, clinical assessment, laboratory or imaging services, diagnostic procedures, treatment and follow-up. Conversely, prevention and early detection can reduce costs associated with advanced cancer and improve quality of life.

The Affordable Care Act expanded coverage of many preventive services recommended by the USPSTF and other bodies, but the U.S. insurance system remains complex. Coverage can vary according to insurance type, guideline version, age, risk status and whether a test is considered screening or diagnostic follow-up. Patients may face unexpected costs when an abnormal screening test leads to diagnostic procedures.

Effective policy should therefore distinguish between screening access and complete preventive pathways. Eliminating the initial test cost is unlikely to eliminate disparities if patients cannot afford follow-up, transportation or time away from work.

21. Rural and Underserved Communities

Rural populations may face shortages of primary-care clinicians, imaging services, endoscopy capacity and oncology specialists. Long travel distances can make repeated appointments difficult. These barriers are particularly important for screening pathways that require multiple steps.

Community health centers, mobile mammography, mailed stool tests, local vaccination programs, telehealth-supported navigation and regional referral networks can reduce some access barriers. Partnerships with local organizations may also improve trust and culturally appropriate communication.

The goal should be to bring screening capacity closer to populations where possible while maintaining quality standards. Expansion without quality assurance could produce false reassurance or inconsistent follow-up.

22. Cancer Screening and Health Equity

Health equity should be considered a core performance measure of U.S. cancer screening. A program that raises average screening rates while leaving disadvantaged populations behind may increase overall performance without narrowing disparities.

Equitable screening requires attention to insurance, income, transportation, language, disability, work schedules, immigration-related concerns, geographic location, health literacy and trust. It also requires culturally responsive communication and convenient testing options.

Patient navigation is one promising approach because navigators can help people schedule tests, understand results, obtain transportation, address insurance problems and complete diagnostic follow-up. Screening programs should collect demographic and social data responsibly so disparities can be identified and addressed without reinforcing stigma.

Table 5. Barriers to cancer screening and potential responses

Barrier	Mechanism	Potential response
No health insurance/underinsurance	Cost and limited access	Coverage expansion, low-cost programs, navigation
No usual source of care	Missed preventive opportunities	Primary-care linkage and

		outreach
Transportation problems	Missed imaging/procedural appointments	Transportation assistance, mobile services
Financial hardship	Competing household priorities	Cost reduction and social-support referral
Limited health literacy	Uncertainty about screening	Plain-language and culturally appropriate education
Language barriers	Difficulty understanding eligibility/results	Professional interpretation and translated materials
Fear or mistrust	Avoidance of testing	Trusted community partnerships and shared decision-making
Geographic isolation	Long travel distances	Mobile screening and regional networks
Fragmented follow-up	Abnormal results not resolved	Patient navigation and tracking systems

23. COVID-19 Recovery and Future Preparedness

The pandemic demonstrated that screening systems are vulnerable to disruption. Future preparedness should include mechanisms for identifying missed screening, prioritizing people at highest risk and restoring services without creating excessive demand for limited diagnostic capacity.

Electronic registries can identify people who became overdue. Health systems can use outreach campaigns, mailed tests and community partnerships to restore participation. At the same time, quality safeguards are needed to prevent rushed screening without sufficient capacity for diagnostic follow-up.

24. Research Priorities

Future U.S. screening research should focus on outcomes that matter to patients and populations. These include cancer-specific mortality, all-cause mortality, advanced-stage disease, quality of life, treatment burden and harms, rather than screening participation alone.

Research is also needed on how best to reduce disparities. Interventions should be tested in real-world settings and should include populations that are often underrepresented in trials. This includes racial and ethnic minorities, rural residents, people with disabilities, uninsured populations and people experiencing economic hardship.

Emerging technologies require especially careful evaluation. MCED tests, AI-assisted screening, blood-based tests and new imaging modalities should be studied for mortality benefit, false positives, overdiagnosis, downstream procedures, cost-effectiveness and equity before widespread population adoption.

25. Discussion

The U.S. cancer-screening system has substantial scientific and technological capacity, but its principal challenge is increasingly one of implementation and equity. Evidence-based tests exist for several major cancers, yet national screening remains incomplete. The gap is particularly visible in colorectal screening, where only 63.5% of eligible adults were up to date in 2023 under USPSTF-based definitions (Sabatino et al., 2025).

The differences among major guidelines also demonstrate that screening is not simply a technical question. Recommendations incorporate judgments about evidence quality, benefits, harms, life expectancy and patient values. The 2024 USPSTF breast recommendation, for example, recommends biennial mammography from age 40 to 74, while ACS uses a different schedule that begins with an option at age 40 and emphasizes annual screening at ages 45–54 (USPSTF, 2024a; ACS, 2026). Such differences make clear communication and guideline awareness essential.

The future of screening will likely involve greater personalization. Risk calculators, genetic information, electronic records and biomarkers may allow screening intensity to be tailored more precisely. However, personalization should not create a two-tier system in which technologically sophisticated screening is available primarily to people with greater financial resources.

The most effective national strategy is likely to combine population-level prevention with targeted screening. Tobacco control, HPV vaccination, healthy living and occupational/environmental regulation reduce the underlying cancer burden. Screening then provides a second layer of prevention or early detection for cancers in which evidence supports it. Treatment and survivorship complete the pathway.

Ultimately, the success of cancer screening should be judged by whether it reduces preventable cancer morbidity and mortality without causing disproportionate harm. This requires evidence-based eligibility, high-quality testing, equitable access, timely follow-up and continuous evaluation.

26. Policy and Practice Recommendations

1. Maintain evidence-based national screening recommendations and update them as high-quality evidence changes.
2. Strengthen colorectal screening participation, particularly among adults aged 45–49 and populations with limited healthcare access.
3. Expand cervical cancer prevention through HPV vaccination, HPV-based screening and accessible follow-up, while clearly distinguishing current final guidance from emerging recommendations.
4. Improve equitable mammography access and ensure rapid diagnostic and treatment follow-up after abnormal findings.
5. Expand access to evidence-based lung cancer screening for eligible high-risk smokers and integrate screening with smoking cessation.
6. Use shared decision-making for screening decisions where benefits and harms are closely balanced, particularly prostate cancer screening.
7. Invest in patient navigation, outreach, transportation support and community partnerships to reduce screening disparities.
8. Strengthen electronic registries and tracking systems so abnormal results and overdue screening are not lost.
9. Evaluate emerging screening technologies using mortality, advanced-stage disease, harms, cost and equity outcomes rather than test performance alone.
10. Integrate screening with primary prevention, vaccination, risk assessment, treatment and survivorship services.

27. Limitations

This manuscript is a narrative review and not a systematic review or meta-analysis. Recommendations can change as professional organizations update their guidelines, and different organizations may issue

recommendations that differ in age ranges or testing intervals. National screening-use estimates also depend on survey definitions and may not capture all forms of testing. In addition, screening benefits and harms vary across individual risk groups, and average-risk recommendations should not be generalized to people with high-risk genetic or clinical conditions.

The article also focuses primarily on major population screening programs and does not provide detailed guidance for every rare cancer or high-risk syndrome. The purpose is to synthesize the U.S. screening landscape rather than replace disease-specific clinical guidelines.

28. Conclusion

Cancer screening remains a major opportunity for reducing preventable cancer deaths and, for selected diseases, preventing cancer itself. The United States has established screening programs for breast, cervical, colorectal and lung cancer, while prostate screening relies more heavily on informed decision-making because of a closer balance between benefits and harms. National uptake is substantial but incomplete, and disparities remain strongly associated with healthcare access and socioeconomic conditions.

The central lesson is that screening is a pathway rather than a single test. Population benefit requires appropriate eligibility, validated testing, timely communication, diagnostic follow-up, treatment and monitoring. Programs must also minimize false positives, overdiagnosis and unnecessary procedures.

Future U.S. cancer screening policy should prioritize equity, evidence and complete care pathways. New technologies such as HPV self-collection, blood-based colorectal testing, AI-supported interpretation and multi-cancer early-detection assays may expand opportunities, but they should be adopted according to evidence of meaningful health benefit. A screening system that combines prevention, early detection, primary care, navigation and equitable access offers the strongest foundation for reducing the national burden of cancer.

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