Person-Centered Preventive Healthcare: Prioritizing Clinical Preventive Services

Agency for Healthcare Research and Quality

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Prioritizing Clinical Preventive Services

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List of Acronyms

ACIP	Advisory Committee on Immunization Practices
AHRQ	Agency for Healthcare Research and Quality
CDC	Centers for Disease Control and Prevention
CPS	clinical preventive services
CVD	cardiovascular disease
KII	key informant interview
NCPP	National Commission on Prevention Priorities
QALY	quality-adjusted life years
TEP	technical expert panel
USPSTF	U.S. Preventive Services Task Force

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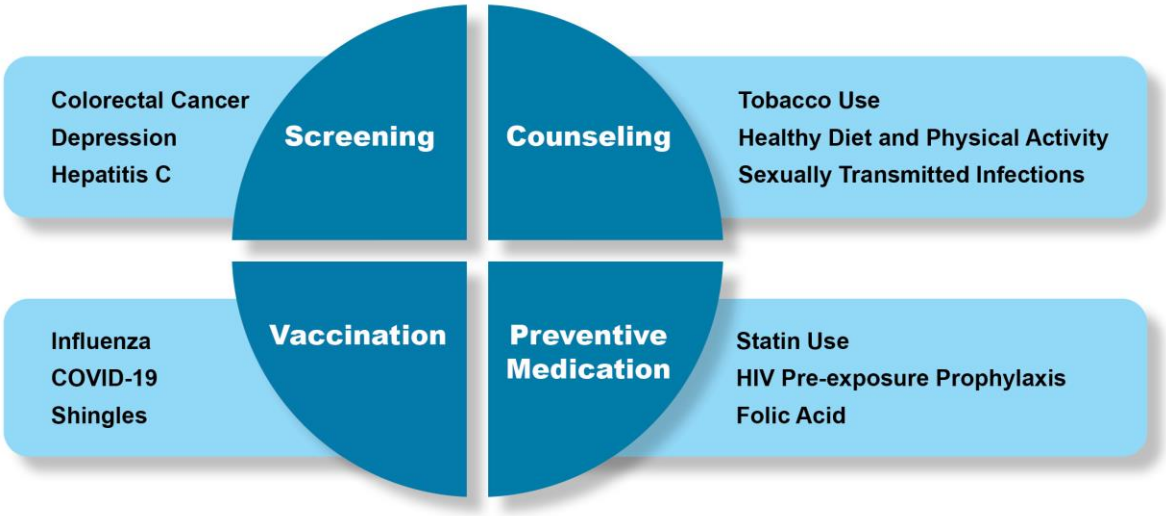
Public Availability Notice

Section 1: Introduction

1. Introduction

Clinical preventive services (CPS) are a cornerstone of healthcare and can help individuals live longer, healthier lives. Many of the leading causes of death or disability in adults in the United States can be attributed to health behaviors or conditions that are preventable or that can be detected early.[1] Examples of evidence-based CPS are shown in **Figure 1**.

Figure 1. Categories of Clinical Preventive Services with Examples



Less than ideal delivery of recommended preventive services has been well documented.[3, 4, 5-7] For example, in 2015, only 8 percent of U.S. adults age 35 or older had received all CPS recommended for them based on age and sex.[8] Realizing the maximum benefits and minimizing harms from evidence-based CPS requires widespread and equitable receipt of high-value services while curbing the use of low-value or potentially harmful services. The National Commission on Prevention Priorities (NCPP) first issued a list of priority CPS in 2001 to place more attention on the importance of these individually delivered services to population health; since then, the list has been updated multiple times, most recently in 2017.[9-12] The NCPP list was generated through methods that considered the potential impact of CPS, primarily based on their cost-effectiveness and preventable burden of disease.[9, 10, 12]

U.S. Preventive Services Task Force Grade Definitions[2]

- **A**: High certainty of a substantial net benefit
- **B**: High certainty of a moderate net benefit; or moderate certainty of a moderate to substantial net benefit
- **D**: Moderate or high certainty that the service has no net benefit or is harmful

In a separate effort, the Agency for Healthcare Research and Quality (AHRQ) commissioned a national steering committee in 2012 to inform the development of a composite measure of the receipt of CPS by adults that could be

assessed through items on the Medical Expenditure Panel Survey.[13] This AHRQ effort used a consensus process to develop a list of high-priority CPS for adults age 35 years or older (**Table 1**). These services were selected from grade A, B, or D recommendations (see callout) from the United States Preventive Services Task Force (USPSTF) and vaccines recommended for the general adult population by the Center for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP).[14, 15] Services that carry a USPSTF A and B recommendation should be offered or provided, and services with a D recommendation should be discouraged from use.[2] The 2012 effort commissioned by AHRQ prioritized CPS based on the following factors: scientific soundness (i.e., evidence-based recommendations for services), clinical importance and current rates of receipt, representation of services across four types of preventive care (i.e., screening, counseling, immunizations, preventive medications), data and other feasibility issues, cost-effectiveness, and mutability (i.e., the degree to which the measure for a service can be changed as necessary). Although both the NCPP and AHRQ efforts to prioritize CPS relied on USPSTF and ACIP recommendations, each used different methodologies to arrive at a prioritized list of CPS, and the NCPP effort included CPS for children and adolescents in addition to CPS for adults.

Recommendations for CPS have evolved over the past decade. The USPSTF has issued recommendations on new topics, existing recommendations have become more salient in the context of ongoing epidemics and pandemics (e.g., screening for unhealthy drug use, screening for prediabetes and type 2 diabetes, vaccination against SARS-CoV-2), and some services included in previous high-priority lists have less importance because of new evidence and resulting changes in recommendations (e.g., aspirin chemoprevention).[16-18]

This report describes an environmental scan, key informant interviews, and a technical expert panel (TEP) convened to update a list of high-priority CPS to support AHRQ's efforts to monitor receipt of CPS. This effort was one of several within a larger project commissioned by AHRQ, the Person-Centered Preventive Healthcare (PCPHC) project, which was designed to identify strategies for the equitable and person-centered provision of CPS. Findings related to the larger project are summarized in a separate report.

For the topic described in this report we aimed to:

- Conduct key informant interviews to inform the environmental scan and TEP approach
- Identify potential new CPS in adults age 35 or older for discussion by the TEP
- Provide contextual information (e.g., preventable burden, current rates of receipt of the service) about candidate CPS for prioritization by the TEP

Convene a TEP to engage in a modified Delphi process to prioritize candidate services and discuss potential uses of and concerns with an updated list of priority CPS

Table 1. List of High-Priority Clinical Preventive Services for Adults by Sex from AHRQ-Commissioned 2012 Report[13]

Clinical Preventive Service	Females	Males
Alcohol screening and counseling	✓	✓
Aspirin use	✓	✓
Blood pressure screening	✓	✓
Cervical cancer screening	✓	Not applicable
Colon cancer screening	✓	✓
Depression screening	✓	✓
HIV screening	✓	✓
Flu vaccination	✓	✓
Cholesterol screening	✓	✓
Breast cancer screening	✓	Not applicable
Obesity screening and counseling	✓	✓
Osteoporosis screening	✓	Not applicable
Pneumococcal vaccination	✓	✓
PSA screening	Not applicable	X
Tobacco use screening and counseling	✓	✓
Shingles vaccination	✓	✓

Note: High-priority preventive services that should be received by patients in each sex category are marked by "✓." Preventive services that should not be received because evidence (at the time of the 2012 list) indicated that the harms outweigh the benefits (i.e., there was a D recommendation from the USPSTF at that time) are marked by "X."

Abbreviations: CPS, clinical preventive service; HIV, human immunodeficiency viruses; PSA, prostate-specific antigen.

Section 2: Methods

2. Methods

In this section, we summarize the methods used for the environmental scan, technical expert panel (TEP), and key informant interviews. We provide detailed methods in **Appendix A**. The Person-Centered Preventive Healthcare (PCPHC) project's 30-member Stakeholder Panel informed our approach and provided feedback on the findings and dissemination suggestions.

2.2 Environmental Scan

We designed the scan to identify candidate clinical preventive services (CPS) for prioritization and contextual information about the candidate services focusing on information generated in the U.S. and systematic reviews supplemented by targeted searches. We selected candidate CPS based on their relevance to U.S. adults age 35 years or older from among grade A or B USPSTF recommended CPS or ACIP-recommended vaccines targeted to the general adult population as these are services monitored by AHRQ with the Medical Expenditure Panel Survey.[i] Sources included published USPSTF-related documents[15] (recommendation statements, evidence reports, evidence summaries, and modeling studies), ACIP recommendations and supporting documents,[14] National Commission on Prevention Priorities (NCPP) publications for estimates of clinically preventable burden,[11, 12] national survey data about the receipt of CPS for U.S. adults,[5] and Centers for Disease Control and Prevention (CDC) WONDER (an integrated source of CDC's public health data).[19] We did targeted searches in PubMed/MEDLINE to fill gaps in data. We extracted specific data elements for each candidate CPS into a structured form (**Table 2**). We selected these elements based on the work of the NCPP, AHRQ's Effective Health Care Program topic prioritization criteria,[20] and input from the PCPHC Stakeholder Panel.

We developed narrative and tabular summaries for candidate CPS to show a comparison of the (a) burden of disease in terms of attributable mortality, (b) preventable burden of disease using quality-adjusted life years (QALYs) saved, and (c) current rate of CPS receipt. For QALYs saved, we grouped services with similar preventable burden into five tiers (from higher to lower) using the same categories used by the NCPP.[11] In the absence of guidance to determine the category levels of receipt of services, we considered receipt of services to be high if data indicated that more than two-thirds of eligible persons received the service, intermediate if between two-thirds and one-third received the service, low if less than a third received the service, and uncertain if published data were conflicting or if we did not find reliable published estimates of receipt.

[i] The Health Resource and Service Administration (HRSA)-supported Women's Preventive Services Guidelines were not explicitly included in the scope of this project, though these guidelines include several services with A or B recommendation from the USPSTF.

Table 2. Categories of Information Collection for Each Candidate High-Priority Service

Category	Data Element Description
Topic and recommendation	Preventive service and recommendation of the USPSTF or ACIP
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF or a recommendation from ACIP; the service is screening, counseling, preventive medication, or immunization
Appropriateness	The preventive service should be provided in or referable from primary care
Importance	Disease burden: Prevalence
Importance	Disease burden: Morbidity
Importance	Disease burden: Mortality
Potential for significant improvement in health	Preventable burden of disease: Morbidity
Potential for significant improvement in health	Preventable burden of disease: Mortality
Receipt and current clinical practice	Frequency of providing the CPS for those who are eligible
Disparities	Disparities in prevalence of the target condition
Disparities	Disparities in outcomes resulting from the target condition or use of the CPS
Disparities	Disparities in receipt of the CPS
Availability	Availability of workforce or supplies to deliver CPS

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPS, clinical preventive services; USPSTF, U.S. Preventive Services Task Force.

2.3 Technical Expert Panel and Modified Delphi Process

We recruited 10 experts and 2 patient/consumer representatives to ensure a variety of perspectives (e.g., clinician, researcher, payor, health system leader) on the TEP (see **Appendix A** for TEP participants). We convened two virtual meetings in March and April 2022, with asynchronous work before meetings. Over 8 weeks, we (a) provided TEP members with background for the project including the results of the environmental scan, (b) facilitated discussions about the uses of and concerns with a prioritized CPS list, challenges with the prioritization process, and future research needs related to prioritizing CPS, and (c) conducted a modified Delphi process to prioritize candidate CPS.

In the first Delphi round, each TEP member identified up to 20 CPS (from 25 candidates) to move forward for prioritization. In the second Delphi round, each TEP member ranked each CPS from highest to lowest priority and responded to open-ended questions about their rationale for their ranking and challenges with the process of ranking. After the second round, we provided TEP members with the aggregated ranking results and a summary of themes from the TEP discussions to date. In the final Delphi round, we gave TEP members the opportunity to

adjust their rankings from the second round and then asked them to place each CPS into one of four priority tiers (highest to lowest) based on their final ranked list. We conducted all ranking activities anonymously. Lastly, we generated tabular and graphical summaries of the prioritized CPS and identified themes from the synchronous and asynchronous TEP discussions.

2.1 Key Informant Interviews

We conducted four key informant interviews before and between the two TEP meetings to inform the environmental scan and TEP approach. Using a semi-structured guide, the 1-hour interviews provided findings that we incorporated into the TEP meeting summaries and this final report. Key informants are listed in **Appendix A**.

Section 3: Results

3. Results

In this section, we first provide an overview of the results from the environmental scan followed by the results of the technical expert panel (TEP) prioritization exercise and qualitative themes from key informant interviews and TEP discussions.

3.1 Environmental Scan Results

Table 3 summarizes the findings for clinically preventable burden, level of clinical preventive services (CPS) receipt, and mortality from target conditions associated with each CPS. We offer detailed information for each CPS in **Appendix B** and provide additional summary figures and tables in **Appendix C**. Health conditions defined by behaviors (diet and physical activity, tobacco smoking, unhealthy alcohol use, and unhealthy drug use) comprised four of the services in the top three tiers for preventable burden of disease.

Table 3. Summary of Clinically Preventable Burden Tier, Receipt Rates, and Mortality from Target Conditions

Clinical Preventive Service	Preventable Burden Tier*	Receipt of Service†	Mortality from Target Condition‡
Counseling on healthy diet and physical activity for CVD prevention‡	5	Low	696,962
Weight loss interventions to prevent obesity-related morbidity and mortality	5	Uncertain	280,000
Tobacco smoking cessation counseling and medication	5	High	480,000
COVID-19 vaccination§	5	High	350,831
Screening for hepatitis C§	5	Intermediate¶	14,863
Influenza vaccination	4	Intermediate	53,544‖
Screening for colorectal cancer	4	High	51,896
Screening for cervical cancer	4	Low	4,152
Screening for hypertension	4	High	270,839
Statin use for primary prevention#	4	High	696,962
Screening for lung cancer§	4	Low	139,601
Screening for prediabetes and diabetes mellitus§	3	Uncertain	102,188
Screening for unhealthy alcohol use	3	Low	140,000
Screening for unhealthy drug use§	3	Uncertain	91,799**
Screening for depression	3	Low	45,900††
Screening for breast cancer	3	High	42,280
Screening for osteoporosis	3	High	N/A
PrEP for the prevention of HIV infection§	2	Low	5,115

(continued)

Table 3. Summary of Clinically Preventable Burden Tier, Receipt Rates, and Mortality from Target Conditions (continued)

Clinical Preventive Service	Preventable Burden Tier*	Receipt of Service†	Mortality from Target Condition‡
Screening for HIV infection	2	Low	5,115
Pneumococcal vaccination	2	Intermediate	53,544‖
Preventive medication to reduce risk of breast cancer§	2	Low	Uncertain‡‡
Falls prevention interventions§	1	Uncertain	36,508
Tdap/Td vaccination	1	Intermediate	Very low
Singles vaccination	1	Uncertain	Very low
BRCA-related risk assessment, counseling, and testing§	1	Uncertain	Uncertain§§

* Clinically preventable burden is health that could be gained if CPS was delivered as recommended and incorporates the clinical effectiveness of the intervention in terms of prevented morbidity and mortality; preventable burden tiers are based on quality-adjusted life years saved; 5 is highest preventable burden; 1 is lowest; tier scheme based on work conducted by the National Commission on Prevention Priorities. The QALYs saved for the five tiers were as follows: greater than 700,000 (tier 5), 190,000 to 700,000 (tier 4), 70,000 to 190,000 (tier 3), 18,000 to 70,000 (tier 2), and less than 18,000 (tier 1).[9, 10, 12]

† We considered receipt by more than two-thirds of eligible population as high; receipt between one-third and two-thirds of the eligible population as intermediate, and receipt by fewer than one-third of the eligible population as low.

‡ Annual number of deaths in the United States attributable to relevant health conditions.

§ CPS that was not on the prior high-priority list (new since 2013 or were not prioritized for previous list).

‖ Deaths reported for influenza and pneumonia combined.

¶ Some healthcare systems serving insured populations, some academic medical centers, and the Veterans Health Administration have achieved high rates of HCV screening and treatment. However, national HCV screening rates in community health centers and from the National Health Interview Study were 8.3% and 17.3%, respectively.[21]

This topic was not on the prior high-priority list, but the Screening for Cholesterol Topic that is no longer active was included on the prior list.

** Death by overdose.

†† Deaths by suicide.

‡‡ A subset of the annual 42,280 deaths from breast cancer would be candidates for preventive medications.

§§ An estimated 5% to 10% of the annual 42,280 deaths from breast cancer are BRCA-related cancers.

Abbreviations: BRCA, breast cancer gene; CVD, cardiovascular disease; COVID-19, coronavirus disease 2019; HIV, human immunodeficiency virus; N/A, not available; PrEP, preexposure prophylaxis.

3.1.1 Preventable Burden of Disease: QALYs Saved

The preventable burden of various CPS organized from highest to lowest tier based on the scheme developed by the National Commission on Prevention Priorities (NCPP)[9, 10, 12] is provided in **Table 3**. The preventive services in the top tier, with the estimated greatest number of QALYs saved, were counseling on healthy diet and physical activity for cardiovascular disease (CVD) prevention for adults with CVD risk factors, weight loss interventions, tobacco smoking cessation, coronavirus disease 2019 (COVID-19) vaccination, and screening for hepatitis C. Health conditions defined by behaviors (diet and physical activity, tobacco smoking, unhealthy alcohol use, and unhealthy drug use) comprised four of the services in the top three tiers. Seven CPS that were not on the prior high-priority list were in the top three tiers: counseling on healthy diet and physical activity for CVD prevention for adults with CVD risk factors, COVID-19 vaccination, screening for lung cancer, statins for primary prevention of CVD

(which replaced the cholesterol screening topic in U.S. Preventive Services Task Force (USPSTF) recommendations), screening for prediabetes and type 2 diabetes, screening for hepatitis C, and screening for unhealthy drug use.

3.1.2 Receipt of Service in Current Clinical Practice

We list the levels of receipt for various CPS in **Table 3**. For some CPS, published literature indicates that current receipt of services was quite low (i.e., less than a third of eligible persons receive the service). These CPS included preventive medications for breast cancer, cervical cancer screening, depression screening, HIV screening, lung cancer screening, and screening for unhealthy alcohol use. For healthy diet and physical activity counseling for cardiovascular disease (CVD) prevention, published data indicated exceedingly high rates for encouraging increased physical activity (99%), but that few clinicians (<10%) referred at-risk patients to the intensive behavioral counseling required to obtain benefits. For some CPS, receipt of services was reasonably high (i.e., more than a third of eligible persons receive the service). These CPS include breast cancer screening (75% of eligible adults have been screened), colorectal cancer screening (almost 70% of adults age 50 to 75 have been screened), hypertension screening (87% of adults age 35 or older, although blood pressure measurement techniques may vary from guideline-endorsed protocols), osteoporosis screening (from 63% to 73%), statins (67%), tobacco smoking cessation interventions (73%). For COVID-19 vaccination, the availability of and recommendations for vaccination changed rapidly between 2020 through 2022. As of fall 2022, over 265 million people (about 80% of the U.S. population) had received at least one dose. For CPS with high receipt, we note that these data are not reporting the percentage of people who remain up to date with screening for the duration of the age range when they are eligible for the CPS; rather, these are typically cross-sectional assessments of whether eligible individuals had received the service. For some CPS, we did not find published data on recent or current receipt (those are labeled as uncertain in **Table 3**).

3.1.3 Burden of Disease: Mortality

The top three causes of death (CVD, tobacco smoking, and COVID-19) were responsible for more total deaths (estimated as more than 1.5 million in 2020) than all the other conditions combined. Health conditions defined by behaviors (tobacco smoking, unhealthy alcohol use, and unhealthy drug use) comprise three of the top 10 causes of death and combined were estimated to be responsible for more than 700,000 deaths annually (from 2010-2020). We separated each type of cancer by primary site (lung cancer, colorectal cancer, breast cancer, and cervical cancer), corresponding to screening recommendations. If all cancer types were combined, cancers would account for the sixth highest number of deaths annually, with a total of almost 238,000 deaths annually.

Of note, the annual number of deaths reflect the current benefits accruing from the receipt of preventive services. In other words, the number of deaths from each condition would be higher in the absence of current preventive services. For example, mortality from colorectal cancer has steadily declined over the past decades, in part due to screening.[22] Further, the data do not isolate *preventable* causes of death or age of death. In theory, all deaths due to tobacco smoking, unhealthy alcohol use, and unhealthy drug use were preventable. In contrast, deaths

due to cancer, for example, comprise those that may have been preventable through screening and those that were not.

We used data from 2019 or 2020 for most of the health conditions from the sources described in the Methods section. However, we were unable to find recent data for some conditions, and we used older data sources for obesity and tobacco smoking. For obesity, the published projections for deaths attributable to obesity cited come from 1990 to 1991 data.[23] Since then, the prevalence of obesity has substantially increased in the United States. Thus, the annual number of deaths attributable to obesity (in **Table 3**) is likely an underestimate, although determining when to attribute deaths to obesity is challenging because of the many confounders that are associated with both obesity and mortality (e.g., other health conditions such as diabetes, hypertension, hypercholesterolemia; behaviors such as inadequate physical activity). For COVID-19, the mortality data was from 2020 and represents the peak of the pandemic. For tobacco smoking, the published projections are from a 2014 Surgeon General's report.[24] In addition, some of the CPS have a corresponding number of deaths that is very low and not displayed in **Table 3** (e.g., zoster).

3.1.4 Disparities in Prevalence and Outcomes

We found that it was common for publications to include notable disparities in prevalence and outcomes for health conditions targeted by the CPS within our scope, usually reporting higher prevalence or worse outcomes for people from racial and ethnic minority groups and for socioeconomically disadvantaged persons (see callout). Some topics also reported disparities by sex (e.g., higher prevalence of CVD and unhealthy alcohol use in males than females), age (e.g., higher mortality rates in persons age 65 years or older for COVID-19), sexual behaviors (e.g., higher prevalence of HIV in men who have sex with men; higher prevalence of tobacco use among adults who are lesbian, gay, or bisexual than among heterosexual adults), or socioeconomic factors (e.g., higher blood pressure control rates for college graduates and those with higher incomes; higher prevalence of tobacco use among adults who completed less education, have lower household incomes, are uninsured, have a disability/limitation, and live in the Midwest or South). In addition, many source documents reviewed in our scan did not report information about disparities. For example, this was the case for screening for depression, influenza vaccination, pneumococcal vaccination, tetanus vaccination, and zoster vaccination.

Services with Racial Disparities in Target Condition Outcomes

- Breast cancer
- Cervical cancer
- Colorectal cancer
- Lung cancer
- COVID-19
- Diabetes
- Cardiovascular disease
- HIV infection
- Hypertension
- Obesity
- Smoking behavior
- Unhealthy alcohol and drug use

3.1.5 Availability of Workforce or Supplies to Deliver the Clinical Preventive Service

We aimed to extract estimates of workforce or supplies available in the United States for each CPS, if reported in the documents we reviewed for the scan. For example, for the screening for depression CPS, we might note information about available behavioral health services to provide diagnostic evaluation and treatment after a positive screening test. Or, for lung cancer screening, we might enter information about nationwide capacity to do all the low-dose computed tomography screenings that would be needed to screen everyone in the eligible groups. However, the information was consistently unavailable in most documents we reviewed.

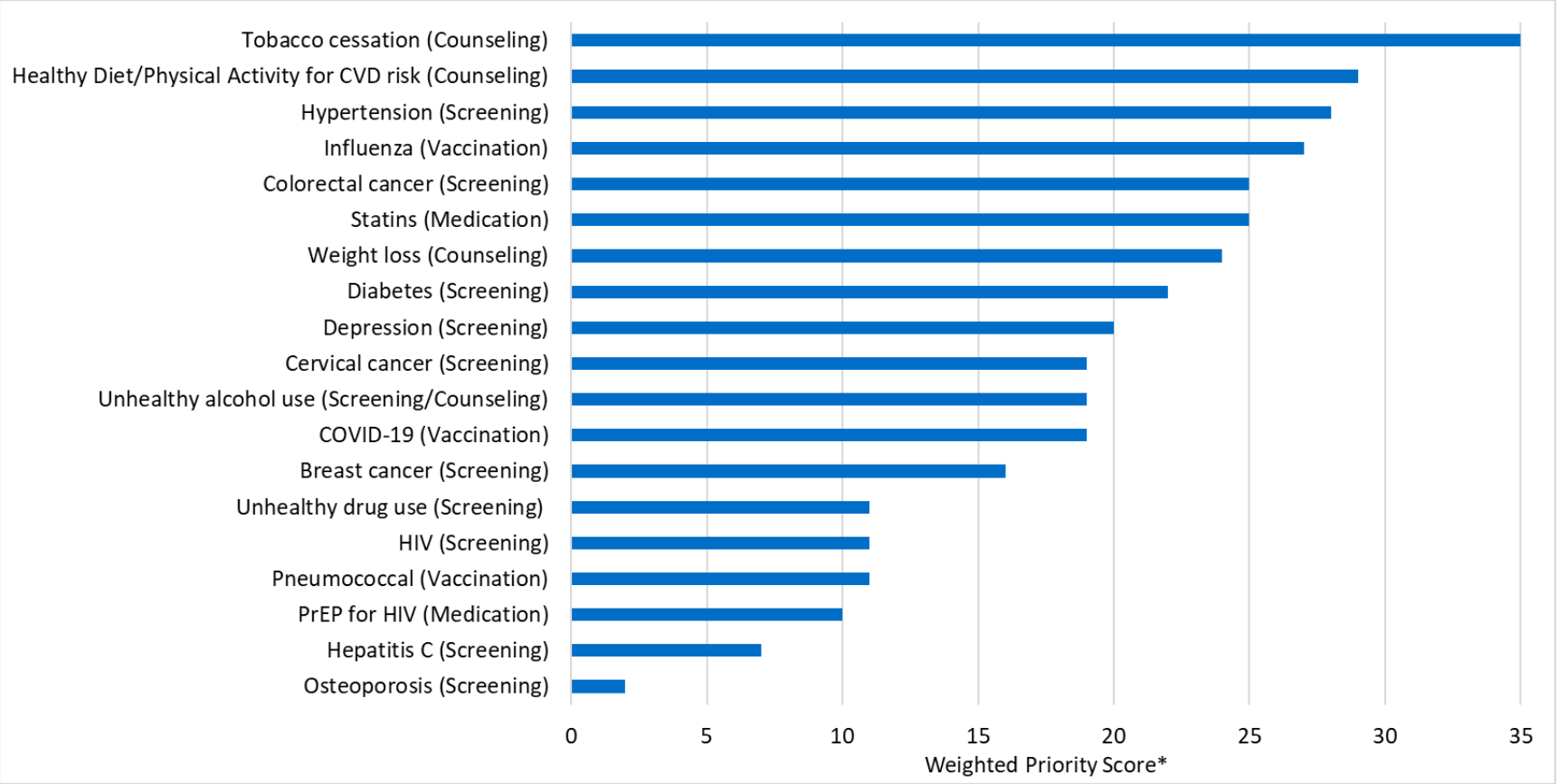
3.2 Clinical Preventive Services Prioritization Results

Services considered by the TEP in early rounds of the modified Delphi process but not prioritized high enough to make the final list of candidates for prioritization included lung cancer screening, zoster vaccination, tetanus vaccination, fall prevention interventions, preventive medication to reduce risk of breast cancer, and breast cancer gene (BRCA)-related risk assessment, counseling, and testing.

The modified Delphi process resulted in a final, prioritized list of 19 CPS (**Figure 2**) from a candidate pool of 25 services. **Table 4** shows how TEP members ranked each CPS in priority tiers. Tobacco cessation was at the top of the list (i.e., ranked as highest priority) as it was the CPS with the highest score by a large margin, with 11 out of 12 TEP members placing it in their top priority tier during the final round of prioritization. There was also good agreement across the TEP on screening for osteoporosis, which 10 of 12 TEP participants placed in the lowest priority tier. We observed less consensus for all other services. For example, screening for breast cancer received two to four votes in each of the four priority tiers.

Services that were new to the list included counseling on healthy diet and physical activity for cardiovascular disease (CVD) prevention for adults with CVD risk factors, COVID-19 vaccination, statins for CVD prevention, screening for prediabetes and diabetes, screening and counseling for unhealthy drug use, preexposure prophylaxis for HIV, and screening for hepatitis C.

Figure 2. Prioritized List of Clinical Preventive Services Sorted From Highest to Lowest Priority



*Weighted priority scores were calculated as follows: 3 points for each TEP member ranking the service in the top tier (i.e., top 5); 2 points for each TEP member ranking the service in the second tier (6 to 10); 1 point for each TEP member ranking the service in the third tier (11 to 15); and 0 points for each TEP member ranking the service in the bottom tier (position 16 or higher). The maximum score that a CPS could obtain was 36 and the minimum score possible was 0.
Abbreviations: CVD, cardiovascular disease; HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis.

Table 4. Priority Tier Ranking of Clinical Preventive Services Sorted from Highest to Lowest Priority

Clinical Preventive Service	Tier 1 (Ranked 1 to 5)	Tier 2 (Ranked 6 to 10)	Tier 3 (Ranked 11 to 15)	Tier 4 (Ranked 16 to 19)	Weighted Score*
Tobacco smoking cessation counseling and medication	11	1	0	0	35
Counseling on healthy diet and physical activity for CVD prevention	9	1	0	2	29
Screening for hypertension	7	3	1	1	28
Influenza vaccination	5	6	0	1	27
Screening for colorectal cancer	3	8	0	1	25
Statin use for primary prevention	4	5	3	0	25
Weight loss interventions to prevent obesity-related morbidity and mortality	6	2	2	2	24
Screening for prediabetes and diabetes mellitus	3	5	3	1	22
Screening for depression	2	4	6	0	20
Screening for cervical cancer	2	5	3	2	19
Screening for unhealthy alcohol use	2	4	5	1	19
COVID-19 vaccination	2	6	1	3	19
Screening for breast cancer	2	3	4	3	16
Screening for unhealthy drug use	0	2	7	3	11
Screening for HIV infection	0	1	9	2	11
Pneumococcal vaccination	1	2	4	5	11
PrEP for the prevention of HIV infection	1	1	5	5	10
Screening for hepatitis C virus infection in adolescents and adults	0	1	5	6	7
Screening for osteoporosis	0	0	2	10	2

*We calculated weighted priority scores by assigning 3 points for each TEP member ranking the service in the top tier (i.e., top 5); 2 points for ranking the service in the second tier (position 6 to 10); 1 point for ranking the service in the third tier (position 11 to 15); and 0 points for ranking the service in the bottom tier (position 16 or higher). The maximum score that a CPS could obtain was 36 and the minimum score possible was 0.

Abbreviations: CVD, cardiovascular disease; COVID-19, coronavirus disease 2019; HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis.

3.3 Themes from TEP and Stakeholder Panel Discussions

Although the primary TEP effort was to inform the Agency for Healthcare Research and Quality's (AHRQ's) update of Medical Expenditure Panel Survey items collecting self-reported data about receipt of various CPS, the TEP and Stakeholder Panel discussions offered feedback about potential uses of such a list beyond AHRQ's primary use case along with concerns about the concept of a high-priority list more generally. They identified several uses but noted that prioritizing a list of CPS is, by nature, focused on maximizing population health and diverts resources away from a person-centered approaches to preventive care for individuals. For this reason, panel members recommended that a list of such services should not guide individual care or be used to evaluate clinician performance. A single prioritized list of clinical preventive services may be of limited value because of the diverse ways this list could be used and the variation in criteria TEP members applied during the prioritization process.

"Rankings may change depending on the purpose of the ranking system. For instance, there might be a difference between things I feel are important to do in the context of a primary care visit versus at a more population level."

3.3.1 Potential Uses for a List of High-Priority Preventive Services

TEP and Stakeholder Panel members and key informants suggested several potential uses for a prioritized list of CPS or measures derived from such a list beyond AHRQ's intended use for monitoring receipt of high-priority CPS.

Informing quality improvement efforts for clinical preventive services. Several TEP members shared that a prioritized list could be used to assess the quality of preventive services delivered to patients and to inform targeted enhanced implementation efforts. Practices and health systems could focus resources (e.g., staff and time) toward ensuring delivery of services on this list. Additional related suggestions included using the list for promoting equity in quality of care and using the list to develop clinical decision support tools in electronic health records to facilitate care delivery.

Informing future research needs and priorities. TEP members shared that the list could be used to inform research priorities for federal and private research funders. The list could also be used as background for research needs.

Accountability under current or future healthcare financing models. Quality measures derived from the list could be used to provide pay-for-performance incentives and could be built into accountable care organization contracts and value-based care models.

Monitoring progress on national health objectives (e.gl, Healthy People 2030) and health equity. The list could be used to assess regional differences in delivery of services and

evaluate differences in delivery among various populations to assess potential inequities in delivery.

Informing public education/public health campaigns. Several members indicated that the list could be used to educate patients so that they understand what preventive services are being recommended broadly. Patients could then use this information to inform discussions with their providers. The list could be used to improve the public's knowledge about gaps in care.

Clinician education and training within primary care. The list could serve as a consolidated resource of priorities that providers can use and reference. The development of a consolidated list to drive decision making and service delivery would reduce the burden on individual providers having to collect information independently from across multiple sources.

Informing public health and health policy. Panel members offered several suggestions for how the list might be used to inform various policies such as those relating to health data exchange priorities, payor coverage decisions, and decision making about community resources or infrastructure needed to ensure delivery of services on the list.

3.3.2 Potential Concerns with a List of High-Priority Services

TEP and Stakeholder Panel members and key informants also identified potential concerns with broader dissemination of a list of prioritized CPS beyond AHRQ's intended use. A key concern was related to holding clinicians accountable for providing everything on the list when it is not always feasible to do and may interfere with addressing higher-priority needs of patients.

The list is not patient- or person-centered. TEP members expressed concern that a focus on this list may distract from more pressing needs of individuals and communities or place undue pressure on patients to receive services they do not want. Different people and different communities will have different priorities for what they can or wish to focus on, and prevention (e.g., USPSTF and ACIP recommendations) may not be the top priority.

The complete list is not going to be applicable to every patient and could lead to a risk of distancing patients from care they report they need or want in favor of care deemed by the list as "must-have." Further, if the list is treated as an all-or-none measure of service receipt, then internal prioritization within the list is disregarded. One member noted that it seems paternalistic for an organization to create a list that will tell a community that they "have" to do something. If a patient is at low risk for a condition that is the target of one of the services on the list, they may choose not to receive the service. And, if the list is being used to incentivize or rate provider performance, there could be more pressure on patients to get services they do not want or need.

"Everything is important to someone in some population or some setting."

Further, there are services on the list that may be relevant for the wider population but might not be relevant to an individual. At the same time, there are preventive services that may be extremely important to an individual that do not affect most of the wider population (e.g., BRCA-related risk assessment, counseling, and testing in women at high risk for genetic breast cancer) but that might have a significant impact on the mortality or morbidity of that one person's life. The primary use case for the list appears focused on population health priorities, which may be at odds with any given individual's priorities.

Patients and providers may assume that other evidence-based preventive services not on the list are not important; an overfocus on this list could divert resources away from other important areas in healthcare. TEP members expressed concern that clinicians would stop providing evidence-based recommended services that are not on this high-priority list and that payors would stop coverage for such services. Further, they commented that health systems tend to focus on what gets measured, so an unintended consequence of focusing on this list means that health systems could divert resources from other efforts that might be equally or more important but that do not get measured.

Use as an "all-or-none" composite measure may not be scientifically sound given the breadth of services on the list. Using a list of high-priority preventive services to develop a composite measure presents a challenge because typically "all-or-nothing" composite measures do poorly when they include a broad set of individual components given that very few people are always up to date with eligible services. Scientifically, composite measures should be related in a way that makes sense (e.g., three or four domains of care). Alternative composite designs for this list may be more informative and scientifically sound.

Primary care providers are already constrained with respect to the time available to provide care. Realistically, providers do not have the time to deliver all services on the list to every patient, and there is concern that if the list is used as a performance measure that it could be employed to "punish" providers.

"Perhaps ranking is not the best presentation for outcome. Perhaps AHRQ can create the top twenty list without a [numerical] priority and offer that as many of these items as are pertinent to your patients should be attempted within the health SYSTEM, not necessarily the duty of the physician to do them."

Not considering inequities in community resources available to deliver the preventive services on the list could exacerbate disparities. TEP members discussed that providers in some communities may not have the resources to deliver all the CPS on the list. Examples mentioned included the availability of low-dose computed tomography for lung cancer screening, intense behavioral interventions for weight loss, and special vaccine freezers. TEP members discussed that the certain screening or counseling preventive services must be coupled with infrastructure or interventions, to which not

all communities or individuals have access. In some cases, communities are not aware of what is needed and struggle with a lack of understanding of what they should request or provide. Although respect and prioritization of the community's needs are necessary, resources need to be equally available to all communities and individuals.

The list requires frequent updating to be relevant. Any changes to USPSTF or ACIP recommendations render the prioritized list out of date if the process for updating is not repeated frequently enough to accommodate changes in recommendations.

3.3.3 Reflections on the Process of Prioritizing among Services

In this section, we summarize three themes based on TEP member and key informant reflections on the prioritization process: services considered, criteria for prioritization, and challenges faced during prioritization.

Regarding the **services considered for prioritization**, TEP members provided their reactions to the environmental scan findings and candidate services. Some TEP members advocated for consideration of additional CPS, such as sexually transmitted infection screening, mental health services, and services related to social determinants of health.

Regarding **criteria for prioritization**, TEP members would have like additional data for use in the prioritization process (see call out box). The key considerations TEP members used for prioritizing services included the following:

Additional data suggested by TEP members for use in prioritization

- Cost and cost-effectiveness data
- Data on receipt of services for populations typically not well served
- Opportunity costs to patients and providers related to these services

- Preventable burden associated with delivery of the preventive service: Many TEP members prioritized services with higher preventable burden higher on the list.
- Level of current receipt of the clinical preventive service: Some TEP members prioritized services with lower receipt higher on the list.
- Needs of diverse populations impacted by health inequities: Some TEP members prioritized services based on whether some populations suffer disproportionately with lower or poor quality delivery of these services or higher prevalence of the target condition.
- Individual versus community benefits of the service: Many TEP members prioritized services targeting only a small portion of the population lower on the list because these services would have less impact at the population level.
- Availability of resources in the healthcare system or community to provide treatment arising from offering the service (e.g., behavioral counseling programs for healthy diet and physical activity, weight management services). Some TEP members prioritized services lower when they perceived a lack of available of resources to provide the

service, while for other TEP members, the lack of resources was a reason they prioritized the services higher to draw more attention to the need for resources.

- Level of patient engagement in health behavior change required for the service: TEP members prioritized services requiring significant patient engagement in behavior change, such as weight management counseling, lower as these services require intense resources that are not feasible in the context of a primary care office.

TEP members identified **several aspects of the prioritization task challenging**. An initial challenge was uncertainty about the use case for the priority list. TEP members stated that their rankings may vary based on the use case for the list, for example, use for setting a national roadmap and funding priorities, internal use by AHRQ, or use for measuring quality of care in health systems. Related to this was variation in the importance of services across individuals and communities: services targeted toward a small portion of the population may be especially important to certain individuals based on their individual risks, and prioritizing at the population level is not a "person-centered" approach. Some of the candidate services are especially important in some populations and not as important in others. TEP members also struggled between considering the importance of the underlying condition targeted by the service versus the feasibility of providing the service within a primary care practice or in the community.

"Likely, one of the most useful parts of this process is recording and synthesizing the discussion of competing values and criteria used in the ranking, and why different people weighted them differently…. I am still concerned with a single ranked list being used for AHRQ's different strategic goals. [The list] has to be tailored for each purpose. Ultimately, there will be an aggregate 'list' for Congress and your [AHRQ] messaging, but I think in practice there should be a more deconstructed process worked out for different purposes and then aggregated."

Section 4: Discussion

4. Discussion

4.1 Summary of Findings

We identified candidate clinical preventive services (CPS) and provided contextual information about each CPS for a technical expert panel (TEP) to prioritize using a modified Delphi process. This process resulted in an updated list of 19 CPS for use by the Agency for Healthcare Research and Quality (AHRQ) in updating items on the Medical Expenditure Panel Survey designed to assess the receipt of high-priority CPS.

Some services that were on a prior high-priority list were removed from consideration because they no longer had an A or B recommendation from the U.S. Preventive Services Task Force (USPSTF) or because they were on the prior high-priority list as a D recommendation. These included aspirin chemoprophylaxis, cholesterol screening, and screening for prostate cancer. Services that were considered by the TEP but not prioritized on the final list were lung cancer screening, zoster vaccination, tetanus vaccination, fall prevention interventions, preventive medications to reduce risk of breast cancer, and BRCA-related risk assessment, counseling, and testing. Except for lung cancer screening, these were all services in the lowest or next to lowest preventable burden tier. Services that are new to the high-priority list include counseling on healthy diet and physical activity for cardiovascular disease (CVD) prevention for adults with CVD risk factors, COVID-19 vaccination, statins for CVD prevention, screening for prediabetes and diabetes, screening and counseling for unhealthy drug use, preexposure prophylaxis for HIV, and screening for hepatitis C.

Challenges identified by TEP members about the process of prioritizing services included the lack of data on cost and cost-effectiveness, the realization that rankings may vary based on what perspective they took, uncertainty about the use case for the priority list, variation in the importance of services across individuals and communities and balancing the importance of the underlying condition targeted versus the service's feasibility and effectiveness.

The TEP and key informants highlighted potential uses of a list of high-priority CPS, including informing quality improvement efforts, informing future research needs and priorities, measuring accountability under value-based care financing models, monitoring progress on national health objectives and health equity, informing public health campaigns, informing clinician education and training, and informing health policy.

The TEP and key informants also raised concerns about such a list, including that focusing provider and system attention on the list may distract from more pressing priorities of individuals and communities or could divert resources away from other critical areas within healthcare. They also expressed concerns that use of the list as an "all-or-none" composite measure may not be scientifically

Key Finding

Person-centered care is increasingly valued, yet setting population-level priorities for preventive services may complicate the ability to tailor care to individual needs and preferences.

sound, puts further time demands on primary care, does not consider inequities in resources available to deliver the CPS in different communities, and requires regular updating to remain relevant.

4.2 Limitations

This project has several limitations. We focused the scope of the scan and the prioritization exercise on CPS for U.S. adults age 35 years or older, and we did not consider CPS for younger people or services applicable to pregnant persons. Some CPS suggested by Stakeholder Panel members for this project (e.g., services related to counseling for firearm safety or screening for loneliness) were not eligible for prioritization because they were not A or B USPSTF recommendations or Advisory Committee on Immunization Practices (ACIP) recommendations at the time we began this project.

We did not collect information about the cost or cost-effectiveness of preventive services. We did not have the resources or time to replicate the National Commission on Prevention Priorities (NCPP) methodology. Rather, our goal was to provide updated contextual information about services on the 2012 list and information for services that emerged since 2012 to inform the prioritization process. We focused on systematic evidence reviews and documents generated by or for the USPSTF and ACIP and supplemented the information with targeted literature searches. Thus, gaps remain in our information, as conducting comprehensive searches and review of each individual CPS was not feasible in this project.

With respect to the prioritization process, we provided data for three criteria that TEP members could use for prioritization: mortality from the target condition, clinical preventable burden, and current receipt of the service within the U.S. context. We did not provide additional guidance to TEP members for how to consider these data in their prioritization nor did we limit TEP members from using other data or criteria (e.g., feasibility, availability, perceived effectiveness, or cost-effectiveness) for making their CPS ranking decision.

We adopted a definition of preventable burden characterized as health gained in terms of preventing morbidity and mortality if CPS are delivered as recommended. For preventable burden of disease, we used estimates of quality-adjusted life years (QALYs) saved as a common metric to allow for comparisons of CPS. QALYs are a health metric that has advantages but can raise some concerns.[25] Some concerns include that using QALYs may favor younger and healthier populations over older and disabled populations, QALYs might not reflect goals and priorities of individual patients, and methods used to determine the utility weights that underlie QALYs may not always capture the key attributes of a health condition.[25]

We did not identify a current (from within the past 5 years) data source for preventable burden of disease in terms of QALYs that used comparable methods and metrics across CPS. A wide range of publications from modeling studies have addressed preventable burden of disease for individual CPS, but the most recent publication that compared preventable burden across a range of relevant CPS and used a common methodology and metric was the updated NCPP work from 2017.[11] Since 2017, some recommendations have changed to expand the age range for some CPS, which might increase the potential preventable burden. For example, the

recommended age for colorectal cancer screening was lowered to 45, the recommended age for screening for prediabetes and diabetes was lowered to 35. Therefore, we acknowledge that the NCPP modeling from 2017 may underestimate the preventable burden achievable from following current recommendations for some CPS.

4.3 Future Opportunities

Additional research, data, and recommendations for future work in this area that TEP and Stakeholder Panel member suggested included the following:

- Explore various ways to conduct a prioritization effort, for instance, including a points-based grading system or creating multiple lists in which different criteria are prioritized (e.g., equity, actionability, uptake, who controls service delivery, cost-effectiveness, public priorities, political opportunities, payment/reimbursement)
- Obtain greater insight into what the public values related to preventive services; given that the current prioritization effort included minimal public and patient involvement
- Standardize how data related to CPS delivery are recorded and tracked, and how to access data already collected by payers
- Conduct research and collect data related to differential mortality, burden, receipt of CPS by race/ethnicity/ and geography to inform prioritization based on equity
- Further develop shared supports, team-based care, and shared decision making as mechanisms for strengthening the system for providing preventive services
- Fund implementation research and pragmatic intervention trials on delivering preventive services and followup services; this includes developing an understanding of whether there is an “ideal package” of services that could be comprehensively and consistently offered to patients
- Elucidate how the business model of primary care would need to change to accommodate the professionals and time required to provide long-term counseling for diet, physical activity, weight loss, smoking cessation, and other behavioral interventions
- Impact of coverage for clinical preventive services and how coverage for everyone (e.g., regardless of insurance or citizenship status) impacts health outcomes
- Fund outcome research on effective strategies for counseling for healthy diet and exercise for weight loss

4.4 Conclusions

We convened a technical expert panel to prioritize clinical preventive services. The panel identified 19 services as high priority and conditions defined by health behaviors comprised more than a quarter of the services. The panel highlighted potential uses for the list beyond AHRQ’s intended use, challenges with the process of prioritizing services, and concerns related to the use of a high-priority list. This included that some use cases for the list do not reflect a person-centered approach to healthcare. We recommend future efforts prioritizing CPS consider early patient, clinician, and other stakeholder involvement in defining the use cases for prioritization, identifying the most salient prioritization criteria, and being receptive to alternative approaches.

References

References

1. Mokdad AH, Ballestros K, Echko M, et al. The State of US Health, 1990-2016: Burden of Diseases, Injuries, and Risk Factors Among US States. *Jama*. 2018 Apr 10;319(14):1444-72. doi: 10.1001/jama.2018.0158. PMID: 29634829.

2. U.S. Preventive Services Task Force. Grade definitions. 2018. https://www.uspreventiveservicestaskforce.org/uspstf/about-uspstf/methods-and-processes/grade-definitions.

3. Benavidez GA, Zgodic A, Zahnd WE, et al. Disparities in meeting USPSTF breast, cervical, and colorectal cancer screening guidelines among women in the United States. *Prev Chronic Dis*. 2021 Apr 15;18:E37. doi: 10.5888/pcd18.200315. PMID: 33856975.

4. Yong PC, Sigel K, Rehmani S, et al. Lung cancer screening uptake in the United States. *Chest*. 2020 Jan;157(1):236-8. doi: 10.1016/j.chest.2019.08.2176. PMID: 31916962.

5. Borsky A, Zhan C, Miller T, et al. Few Americans receive all high-priority, appropriate clinical preventive services. *Health Affairs*. 2018 2018/06/01;37(6):925-8. doi: 10.1377/hlthaff.2017.1248.

6. Pham HH, Schrag D, Hargraves JL, et al. Delivery of preventive services to older adults by primary care physicians. *Jama*. 2005 Jul 27;294(4):473-81. doi: 10.1001/jama.294.4.473. PMID: 16046654.

7. McGlynn EA, Asch SM, Adams J, et al. The quality of health care delivered to adults in the United States. *N Engl J Med*. 2003 Jun 26;348(26):2635-45. doi: 10.1056/NEJMsa022615. PMID: 12826639.

8. Borsky A, Zhan C, Miller T, et al. Few Americans receive all high-priority, appropriate clinical preventive services. *Health Aff (Millwood)*. 2018 Jun;37(6):925-8. doi: 10.1377/hlthaff.2017.1248. PMID: 29863918.

9. Maciosek MV, Coffield AB, Edwards NM, et al. Priorities among effective clinical preventive services: results of a systematic review and analysis. *Am J Prev Med*. 2006 Jul;31(1):52-61. doi: 10.1016/j.amepre.2006.03.012. PMID: 16777543.

10. Maciosek MV, Edwards NM, Coffield AB, et al. Priorities among effective clinical preventive services: methods. *Am J Prev Med*. 2006 Jul;31(1):90-6. doi: 10.1016/j.amepre.2006.03.011. PMID: 16777547.

11. Maciosek MV, LaFrance AB, Dehmer SP, et al. Updated priorities among effective clinical preventive services. *Ann Fam Med*. 2017 Jan;15(1):14-22. doi: 10.1370/afm.2017. PMID: 28376457.

12. Coffield AB, Maciosek MV, McGinnis JM, et al. Priorities among recommended clinical preventive services. *Am J Prev Med*. 2001 Jul;21(1):1-9. doi: 10.1016/s0749-3797(01)00308-7. PMID: 11418251.

13. Mardon R, Fair S, Masters M, et al. Development of measure(s) of receipt of appropriate clinical preventive services by older adults: final report Westat. Rockville, MD: 2013.

14. Centers for Disease Control and Prevention. Vaccine recommendations and guidelines of the ACIP. Atlanta, GA; 2013. https://www.cdc.gov/vaccines/hcp/acip-recs/index.html. Accessed December 23, 2022.

15. U.S. Preventive Services Task Force. Recommendation topics. 2022. https://www.uspreventiveservicestaskforce.org/uspstf/index.php/recommendation-topics. Accessed December 23, 2022.

16. Krist AH, Davidson KW, Mangione CM, et al. Screening for unhealthy drug use: US Preventive Services Task Force recommendation statement. *JAMA*. 2020 Jun 9;323(22):2301-9. doi: 10.1001/jama.2020.8020. PMID: 32515821.

17. Davidson KW, Barry MJ, Mangione CM, et al. Screening for prediabetes and type 2 diabetes: US Preventive Services Task Force recommendation statement. *JAMA*. 2021 Aug 24;326(8):736-43. doi: 10.1001/jama.2021.12531. PMID: 34427594.

18. Davidson KW, Barry MJ, Mangione CM, et al. Aspirin use to prevent cardiovascular disease: US Preventive Services Task Force recommendation statement. *JAMA*. 2022 Apr 26;327(16):1577-84. doi: 10.1001/jama.2022.4983. PMID: 35471505.

19. Centers for Disease Control and Prevention. CDC WONDER. 2022. https://wonder.cdc.gov/. Accessed December 23, 2022.

20. Effective Health Care Program. EHC program topic nomination and selection. 2017. https://effectivehealthcare.ahrq.gov/about/epc/nomination. Accessed December 23, 2022.

21. Owens DK, Davidson KW, Krist AH, et al. Screening for Hepatitis C Virus Infection in Adolescents and Adults: US Preventive Services Task Force Recommendation Statement. *JAMA*. 2020 Mar 10;323(10):970-5. doi: 10.1001/jama.2020.1123. PMID: 32119076.

22. American Cancer Society. Colorectal cancer facts & figures 2020-2022. Atlanta, GA: American Cancer Society; 2020. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/colorectal-cancer-facts-and-figures/colorectal-cancer-facts-and-figures-2020-2022.pdf

23. Allison DB, Fontaine KR, Manson JE, et al. Annual deaths attributable to obesity in the United States. *JAMA*. 1999 Oct 27;282(16):1530-8. doi: 10.1001/jama.282.16.1530. PMID: 10546692.

24. Fiore M. Working to reduce the cancer burden caused by tobacco. 2017. https://www.cancer.gov/research/areas/public-health/michael-fiore-reducing-tobacco-cancer-burden. Accessed December 23, 2022.

25. Neumann PJ, Cohen JT. QALYs in 2018-advantages and concerns. *JAMA*. 2018 Jun 26;319(24):2473-4. doi: 10.1001/jama.2018.6072. PMID: 29800152.

26. Grossman DC, Curry SJ, Owens DK, et al. Screening for prostate cancer: US Preventive Services Task Force recommendation statement. *JAMA*. 2018 May 8;319(18):1901-13. doi: 10.1001/jama.2018.3710. PMID: 29801017.

27. Centers for Disease Control and Prevention. Data and statistics (WISQARS). 2021. https://www.cdc.gov/injury/wisqars/index.html. Accessed December 23, 2022.

28. Centers for Disease Control and Prevention. United States Cancer Statistics (USCS). 2022. https://www.cdc.gov/cancer/uscs/index.htm. Accessed January 6, 2023.

29. National Center for Health Statistics. National Vital Statistics System. 2022. https://www.cdc.gov/nchs/nvss/index.htm. Accessed December 23, 2022.

30. Centers for Disease Control and Prevention. Drug overdose deaths. 2022. https://www.cdc.gov/drugoverdose/deaths/index.html. Accessed December 23, 2022.

31. U.S. Department of Health and Human Services. The health consequences of smoking--50 years of progress: a report of the Surgeon General. Rockville, MD: 2014. https://www.cdc.gov/tobacco/sgr/50th-anniversary/index.htm

32. Turoff M, Linstone HA. The Delphi method-techniques and applications. 2002.

33. Siu AL. Screening for breast cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2016 Feb 16;164(4):279-96. doi: 10.7326/m15-2886. PMID: 26757170.

34. Nelson HD, Cantor A, Humphrey L, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for Breast Cancer: A Systematic Review to Update the 2009 U.S. Preventive Services Task Force Recommendation. Rockville, MD: Agency for Healthcare Research and Quality; 2016.

35. Owens DK, Davidson KW, Krist AH, et al. Medication use to reduce risk of breast cancer: US Preventive Services Task Force recommendation statement. *JAMA*. 2019 Sep 3;322(9):857-67. doi: 10.1001/jama.2019.11885. PMID: 31479144.

36. Owens DK, Davidson KW, Krist AH, et al. Risk assessment, genetic counseling, and genetic testing for BRCA-related cancer: US Preventive Services Task Force recommendation statement. *JAMA*. 2019 Aug 20;322(7):652-65. doi: 10.1001/jama.2019.10987. PMID: 31429903.

37. Nelson HD, Pappas M, Cantor A, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Risk Assessment, Genetic Counseling, and Genetic Testing for BRCA1/2-Related Cancer in Women: A Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2019.

38. U.S. Preventive Services Task Force. Screening for cervical cancer: US Preventive Services Task Force recommendation statement. *JAMA*. 2018;320(7):674-86. doi: 10.1001/jama.2018.10897.

39. Melnikow J, Henderson JT, Burda BU, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for Cervical Cancer With High-Risk Human Papillomavirus Testing: A Systematic Evidence Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2018.

40. U.S. Preventive Services Task Force. Screening for colorectal cancer: US Preventive Services Task Force recommendation statement. *JAMA*. 2021;325(19):1965-77. doi: 10.1001/jama.2021.6238.

41. Lin JS, Perdue LA, Henrikson NB, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for Colorectal Cancer: An Evidence Update for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2021.

42. Richardson LC, King JB, Thomas CC, et al. Adults who have never been screened for colorectal cancer, Behavioral Risk Factor Surveillance System, 2012 and 2020. *Prev Chronic Dis*. 2022 Apr 21;19:E21. doi: 10.5888/pcd19.220001. PMID: 35446758.

43. Siu AL, U.S. Preventive Services Task Force. Screening for depression in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2016;315(4):380-7. doi: 10.1001/jama.2015.18392.

44. O'Connor E, Rossom RC, Henninger M, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for Depression in Adults: An Updated Systematic Evidence Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2016.

45. Jonas DE, Crotty K, Yun JDY, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for Prediabetes and Type 2 Diabetes Mellitus: An Evidence Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2021.

46. Centers for Disease Control and Prevention. National Diabetes Statistics Report 2020: Estimates of Diabetes and its Burden in the United States. Atlanta, GA: 2020. https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf

47. Grossman DC, Curry SJ, Owens DK, et al. Interventions to prevent falls in community-dwelling older adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2018 Apr 24;319(16):1696-704. doi: 10.1001/jama.2018.3097. PMID: 29710141.

48. Guirguis-Blake JM, Michael YL, Perdue LA, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Interventions to Prevent Falls in Community-Dwelling Older Adults: A Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2018.

49. Krist AH, Davidson KW, Mangione CM, et al. Behavioral counseling interventions to promote a healthy diet and physical activity for cardiovascular disease prevention in adults with cardiovascular risk factors: US Preventive Services Task Force recommendation statement. *JAMA*. 2020 Nov 24;324(20):2069-75. doi: 10.1001/jama.2020.21749. PMID: 33231670.

50. O'Connor EA, Evans CV, Rushkin MC, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Behavioral Counseling Interventions to Promote a Healthy Diet and Physical Activity for Cardiovascular Disease Prevention in Adults With Cardiovascular Risk Factors: Updated Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2020.

51. U.S. Preventive Services Task Force. Screening for HIV infection: US Preventive Services Task Force recommendation statement. *JAMA*. 2019;321(23):2326-36. doi: 10.1001/jama.2019.6587.

52. Chou R, Dana T, Grusing S, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for HIV Infection in Asymptomatic, Nonpregnant Adolescents and Adults: A Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2019.

53. U.S. Preventive Services Task Force. Preexposure prophylaxis for the prevention of HIV infection: US Preventive Services Task Force recommendation statement. *JAMA*. 2019;321(22):2203-13. doi: 10.1001/jama.2019.6390.

54. Chou R, Evans C, Hoverman A, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Pre-Exposure Prophylaxis for the Prevention of HIV Infection: A Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2019.

55. Krist AH, Davidson KW, Mangione CM, et al. Screening for hypertension in adults: US Preventive Services Task Force reaffirmation recommendation statement. *JAMA*. 2021 Apr 27;325(16):1650-6. doi: 10.1001/jama.2021.4987. PMID: 33904861.

56. Guirguis-Blake JM, Evans CV, Webber EM, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for Hypertension in Adults: An Updated Systematic Evidence Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2021.

57. Meza R, Jeon J, Toumazis I, et al. Evaluation of the benefits and harms of lung cancer screening with low-dose computed tomography: modeling study for the US Preventive Services Task Force. *JAMA*. 2021 Mar 9;325(10):988-97. doi: 10.1001/jama.2021.1077. PMID: 33687469.

58. Curry SJ, Krist AH, Owens DK, et al. Screening for osteoporosis to prevent fractures: US Preventive Services Task Force recommendation statement. *JAMA*. 2018 Jun 26;319(24):2521-31. doi: 10.1001/jama.2018.7498. PMID: 29946735.

59. Viswanathan M, Reddy S, Berkman N, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening to Prevent Osteoporotic Fractures: An Evidence Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2018.

60. Mangione CM, Barry MJ, Nicholson WK, et al. Statin use for the primary prevention of cardiovascular disease in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2022 Aug 23;328(8):746-53. doi: 10.1001/jama.2022.13044. PMID: 35997723.

61. Chou R, Cantor A, Dana T, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Statin Use for the Primary Prevention of Cardiovascular Disease in Adults: A Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2022.

62. U.S. Preventive Services Task Force. Interventions for tobacco smoking cessation in adults, including pregnant persons: US Preventive Services Task Force recommendation statement. *JAMA*. 2021;325(3):265-79. doi: 10.1001/jama.2020.25019.

63. Patnode CD, Henderson JT, Coppola EL, et al. Interventions for tobacco cessation in adults, including pregnant persons: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2021 Jan 19;325(3):280-98. doi: 10.1001/jama.2020.23541. PMID: 33464342.

64. Cullen KA, Ambrose BK, Gentzke AS, et al. Notes from the field: use of electronic cigarettes and any tobacco product among middle and high school students - United States, 2011-2018. *MMWR Morb Mortal Wkly Rep*. 2018 Nov 16;67(45):1276-7. doi: 10.15585/mmwr.mm6745a5. PMID: 30439875.

65. Curry SJ, Krist AH, Owens DK, et al. Screening and behavioral counseling interventions to reduce unhealthy alcohol use in adolescents and adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2018 Nov 13;320(18):1899-909. doi: 10.1001/jama.2018.16789. PMID: 30422199.

66. O'Connor EA, Perdue LA, Senger CA, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening and Behavioral Counseling Interventions to Reduce Unhealthy Alcohol Use in Adolescents and Adults: An Updated Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2018.

67. Patnode CD, Perdue LA, Rushkin M, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Screening for Unhealthy Drug Use in Primary Care in Adolescents and Adults, Including Pregnant Persons: Updated Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2020.

68. U.S. Preventive Services Task Force. Behavioral weight loss interventions to prevent obesity-related morbidity and mortality in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2018;320(11):1163-71. doi: 10.1001/jama.2018.13022.

69. LeBlanc EL, Patnode CD, Webber EM, et al. U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews. Behavioral and Pharmacotherapy Weight Loss Interventions to Prevent Obesity-Related Morbidity and Mortality in Adults: An Updated Systematic Review for the U.S. Preventive Services Task Force. Rockville, MD: Agency for Healthcare Research and Quality; 2018.

70. Twentyman E, Wallace M, Roper LE, et al. Interim recommendation of the Advisory Committee on Immunization Practices for use of the Novavax COVID-19 vaccine in persons aged ⩾18 years - United States, July 2022. *MMWR Morb Mortal Wkly Rep*. 2022 Aug 5;71(31):988-92. doi: 10.15585/mmwr.mm7131a2. PMID: 35925807.

71. Oliver SE, Gargano JW, Marin M, et al. The Advisory Committee on Immunization Practices' interim recommendation for use of Moderna COVID-19 vaccine - United States, December 2020. *MMWR Morb Mortal Wkly Rep*. 2021 Jan 1;69(5152):1653-6. doi: 10.15585/mmwr.mm695152e1. PMID: 33382675.

72. Oliver SE, Gargano JW, Marin M, et al. The Advisory Committee on Immunization Practices' interim recommendation for use of Pfizer-BioNTech COVID-19 vaccine - United States, December 2020. *MMWR Morb Mortal Wkly Rep*. 2020 Dec 18;69(50):1922-4. doi: 10.15585/mmwr.mm6950e2. PMID: 33332292.

73. Mbaeyi S, Oliver SE, Collins JP, et al. The Advisory Committee on Immunization Practices' interim recommendations for additional primary and booster doses of COVID-19 vaccines - United States, 2021. *MMWR Morb Mortal Wkly Rep*. 2021 Nov 5;70(44):1545-52. doi: 10.15585/mmwr.mm7044e2. PMID: 34735422.

74. Oliver SE, Wallace M, See I, et al. Use of the Janssen (Johnson & Johnson) COVID-19 vaccine: updated interim recommendations from the Advisory Committee on Immunization Practices - United States, December 2021. *MMWR Morb Mortal Wkly Rep*. 2022 Jan 21;71(3):90-5. doi: 10.15585/mmwr.mm7103a4. PMID: 35051137.

75. Grohskopf LA, Alyanak E, Ferdinands JM, et al. Prevention and control of seasonal influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices, United States, 2021-22 influenza season. *MMWR Recomm Rep*. 2021 Aug 27;70(5):1-28. doi: 10.15585/mmwr.rr7005a1. PMID: 34448800.

76. Kobayashi M, Farrar JL, Gierke R, et al. Use of 15-valent pneumococcal conjugate vaccine and 20-valent pneumococcal conjugate vaccine among U.S. adults: updated recommendations of the Advisory Committee on Immunization Practices - United States, 2022. *MMWR Morb Mortal Wkly Rep*. 2022 Jan 28;71(4):109-17. doi: 10.15585/mmwr.mm7104a1. PMID: 35085226.

77. Liang JL, Tiwari T, Moro P, et al. Prevention of pertussis, tetanus, and diphtheria with vaccines in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep*. 2018 Apr 27;67(2):1-44. doi: 10.15585/mmwr.rr6702a1. PMID: 29702631.

78. Havers FP, Moro PL, Hunter P, et al. Use of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccines: updated recommendations of the Advisory Committee on Immunization Practices - United States, 2019. *MMWR Morb Mortal Wkly Rep*. 2020 Jan 24;69(3):77-83. doi: 10.15585/mmwr.mm6903a5. PMID: 31971933.

79. Dooling KL, Guo A, Patel M, et al. Recommendations of the Advisory Committee on Immunization Practices for use of herpes zoster vaccines. *MMWR Morb Mortal Wkly Rep*. 2018 Jan 26;67(3):103-8. doi: 10.15585/mmwr.mm6703a5. PMID: 29370152.

80. Anderson TC, Masters NB, Guo A, et al. Use of recombinant zoster vaccine in immunocompromised adults aged ⩾19 years: recommendations of the Advisory Committee on Immunization Practices - United States, 2022. *MMWR Morb Mortal Wkly Rep*. 2022 Jan 21;71(3):80-4. doi: 10.15585/mmwr.mm7103a2. PMID: 35051134.

Appendices

Appendix A: Detailed Methods

Stakeholder Panel

This project received guidance from a 30 member Stakeholder Panel (**Table A-1**) We recruited panel members from a core set of organizational types including federal agencies, health IT organizations, health systems, research/academia, nonprofit organizations, healthcare payers, state policy/public health, U.S. Preventive Services Task Force (USPSTF) (current or former members), Community Preventive Services Task Force (current or former members), and the Agency for Healthcare Research and Quality (AHRQ) Primary Care Learning Community. The Stakeholder Panel held two meetings, the first in September 2022 and the second in June 2023, where they provided input into the scope of the task and insights on our prioritization findings and suggestions about dissemination.

Table A-1. Stakeholder Panel Members

Name	Organization	Role	Type of Organization
Chethan Bachireddy, MD, MSc, FACP, AAHIVS	Harris Health	Chief Health Officer	Healthcare System
Nina Birnbaum, MD	Blue Cross Blue Shield Association of California	Medical Director, Health Transformation Acceleration	Payers
Maureen Boardman, MSN, FNP-C, FAANP	Little Rivers Health Care; Dartmouth Geisel School of Medicine	Director of Clinical Quality; Clinical Assistant Professor of Community and Family Medicine	AHRQ Primary Care Learning Community
David Carlson, PhD, MBA	Clinical Cloud Solutions	Solutions Architect	Health Information Technology
Stacie Carney, MD (1st meeting) **Lauren Alderson, MD (2nd meeting)**	OCHIN – nonprofit innovation center providing health IT support services	Chief Medical Information Officer (SC) Medical Informaticist (LA)	Health Information Technology
Sherrillyn Crooks, PA-C	Bureau of Primary Health Care, Health Resources, Services Administration	Senior Advisor	Federal Agency
Alison Cuellar, PhD	George Mason University	Vice Chair; Professor	Community Preventive Services Task Force (Current/Former Member)
David Dietz, EdD, MSW, MHSA	Division of Healthcare Delivery, Innovation Center, Centers for Medicare & Medicaid Services	Director	Federal Agency
Leslie Doroski McDowell, DNP, ANP-BC, RN	Wake Forest University/Northwest Area Health Education Center	Quality Improvement/ Curriculum Development	AHRQ Primary Care Learning Community

(continued)

Table A-1. Stakeholder Panel Members (continued)

Name	Organization	Role	Type of Organization
Shannon Dowler, MD	North Carolina Medicaid	Chief Medical Officer	Payers
Stacy Garrett-Ray, MD, MPH, MBA	Ascension	Senior Vice President and Chief Community Impact Officer	Healthcare System
Howard Haft, MD, MMM, CPE, FACPE	American Heart Association Ambulatory Quality Committee, formerly Maryland Department of Health	Senior Advisor	State Policy/ Public Health
R. Scott Hammond, MD, AAFP	Colorado Center for Primary Care Innovation	Board President and Co-Founder	AHRQ Primary Care Learning Community
Stephen Hoy, BS BA	Patient and Family Centered Care Partners	Chief Operating Officer	Nonprofit Organization
Mark P. Jarrett, MD, MBA, MS	Northwell Health	Senior Health Advisor	Healthcare System
Tom Keane, MD, MBA (1st meeting) **David Hunt, MD, FACS (2nd meeting)**	Office of the National Coordinator for Health Information Technology, Department of Health and Human Services	Senior Advisor (TK) Medical Director (DH)	Federal Agency
Jane Kim, MD, MPH	Veterans Health Administration, National Center for Health Promotion and Disease Prevention	Executive Director of Preventive Medicine	Federal Agency
Alex Krist, MD, MPH	Virginia Commonwealth University	Professor and Co-Director, Ambulatory Care Outcomes	USPSTF (Current/ Former Member)
Nivedita Mohanty, MD, MS	Alliance Chicago	Chief Research Officer	AHRQ Primary Care Learning Community
David M. Murray, PhD (1st meeting) **Robert McNellis, MPH, PA (2nd meeting)**	National Institutes of Health, Office of Disease Prevention	Associate Director for Prevention (DM) Senior Advisor (RM)	Federal Agency
Wanda Nicholson, MD, MPH, MBA	Milken Institute School of Public Health, George Washington University	Senior Associate Dean for Diversity, Equity, and Inclusion	USPSTF (Current/ Former Member)
Shilpa Patel, PhD	Center for Health Care Strategies	Associate Director for Health Equity	State Policy/ Public Health
Paul Reed, MD, RADML U.S. Public Health Service	Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services	Deputy Assistant Secretary for Health	Federal Agency

(continued)

Table A-1. Stakeholder Panel Members (continued)

Name	Organization	Role	Type of Organization
Matthew Sakumoto, MD	Sutter Health	Chief Medical Information Officer, Virtual-First Primary Care Physician	AHRQ Primary Care Learning Community
Julie Schilz, BSN, MBA	Primary Care Development Corporation	Senior Director	AHRQ Primary Care Learning Community
Louise C. Walter, MD	University of California San Francisco	Professor and Chief of Division of Geriatrics	AHRQ Primary Care Learning Community
Scott Young, MD	Kaiser Permanent Care Management Institute	Executive Director	Healthcare System
Judy Zerzan-Thul, MD, MPH	Washington Health Care Authority	Chief Medical Officer	Healthcare System
Anonymous	Major U.S. Payer	Chief Medical Officer	Payers
Anonymous	Centers for Disease Control and Prevention	Vaccine Policy Expert	Federal Agency

Environmental Scan

Guiding Questions

1. Which CPS should be on an updated high-priority list?
2. What contextual information about burden of disease, preventable burden of disease, uptake in current clinical practice, disparities (in prevalence or outcomes), and other variables can help inform an updated list?

Our goal was to give the expert panel updated background information on the previously designated high-priority clinical preventive services, as well as on any new ones for consideration. This was intended to facilitate the panel's discussions and decisions for updating the priority list. Our searches for this environmental scan were focused on information generated in the United States, prioritizing systematic evidence reviews and documents generated by or for the USPSTF and Advisory Committee on Immunization Practices (ACIP) and supplementing with targeted searches.

CPS Selection Criteria

Clinical preventive services (CPS) were chosen based on their relevance to U.S. adults age 35 years or older. **Table A-2** lists the CPS for consideration in an updated list. For a CPS to be potentially eligible, we required a grade A or B recommendation from the USPSTF or a recommendation from ACIP. Eleven CPS that were not on the prior high-priority list may warrant consideration, for example, screening for unhealthy drug use (B recommendation from the USPSTF in 2020), screening for prediabetes and diabetes (B recommendation from the USPSTF in 2021), screening for lung cancer (B recommendation from the USPSTF in 2021),

and coronavirus disease 2019 (COVID-19) vaccination (the prior list was developed before the COVID-19 pandemic). We consulted the Stakeholder Panel in September 2022 to review our list of potential CPS to consider for an updated list of high-priority CPS; the panel supported the CPS in **Table A-2**. Some CPS with an A or B recommendation from the USPSTF were not considered because they focused mostly on people younger than 35 years. Recommendations focused on pediatric populations, pregnant women, and young adults were not included. We did not include CPS targeting sexually transmitted infections other than HIV because the recommendations generally focused on people younger than 35 years, the preventable burden of disease was mostly for those younger than 35 years, and they were not on the prior list of high-priority CPS.[13]

Table A-2. Potential High-Priority Clinical Preventive Services for an Updated List

Category	Service	Source of Recommendation	On Previous List?	Previous USPSTF Grade(s)*	Current USPSTF Grade(s)†
Screening	Hypertension	USPSTF	Yes	A	A
	Breast cancer	USPSTF	Yes	B, C	B, C
	Cervical cancer	USPSTF	Yes	A, D	A, D
	Cholesterol	USPSTF	Yes	A, B	NA‡
	Colorectal cancer	USPSTF	Yes	A, C	A, B, C
	Prediabetes and type 2 diabetes	USPSTF	No	B	B
	HIV infection	USPSTF	Yes	A	A
	Lung cancer	USPSTF	No	B	B
	Osteoporosis	USPSTF	Yes	B, I	B, I
Screening and Counseling	Alcohol use	USPSTF	Yes	B	B
	BRCA-related cancer	USPSTF	No	B, D	B, D
	Cardiovascular disease§	USPSTF	No	B	B
	Depression	USPSTF	Yes	I	B
	Drug use	USPSTF	No	I	B
	Falls prevention	USPSTF	No	B, C	B, C, D
	Obesity	USPSTF	Yes	B	B
	Tobacco use	USPSTF	Yes	A	A
Preventive Medication	Breast cancer	USPSTF	No	B, D	B, D
	PrEP for HIV	USPSTF	No	N/A	A
	Statins for CVD	USPSTF	No	B, C, I	B, C, I
Vaccinations	COVID-19	ACIP	No	N/A	N/A
	Tetanus (Tdap, Td, Dtap)	ACIP	No	N/A	N/A
	Influenza	ACIP	Yes	N/A	N/A
	Pneumococcal	ACIP	Yes	N/A	N/A
	Zoster	ACIP	Yes	N/A	N/A

* The USPSTF assigns one of five letter grades (A, B, C, D, or I) to each of its recommendations. An A recommendation indicates a recommendation for the service and that there is high certainty that the net benefit is substantial. A B recommendation indicates a recommendation for the service and that there is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. A C recommendation indicates a recommendation to selectively offer or provide this service to individual patients based on professional judgment and patient preferences and that there is at least moderate certainty that the net benefit is small. A D recommendation recommends against the service (no net benefit or greater harm than benefit). An I statement indicates that the current evidence is insufficient to assess the balance of benefits and harms of the service.[2]
† Current USPSTF recommendation grade as of December 2022.
‡ Not applicable. The topic has been replaced by the Statins for Prevention of CVD topic.
§ This topic is counseling on healthy diet and physical activity for CVD prevention for adults with CVD risk factors.
Abbreviations: ACIP, Advisory Committee on Immunization Practices; BRCA, breast cancer gene; COVID-19, coronavirus disease 2019; CVD, cardiovascular disease; Dtap, diphtheria-tetanus-pertussis; HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis; Td, tetanus-diphtheria; Tdap: tetanus-diphtheria-pertussis; USPSTF, U.S. Preventive Services Task Force.

In contrast, three CPS that *were* on the prior list are no longer eligible (aspirin chemoprophylaxis, cholesterol screening, and prostate cancer screening). Aspirin chemoprophylaxis is no longer eligible for an updated list because the USPSTF changed its recommendation in 2022 (from a previous B recommendation) to a C recommendation for adults ages 40 to 59 years with a 10 percent or greater cardiovascular disease (CVD) risk and a D recommendation for adults age 60 years or older.[18] Cholesterol screening is no longer eligible because the USPSTF has replaced that topic with the Statins for Prevention of CVD topic. In addition, the scope of the updated list no longer considers D recommendations from the USPSTF (i.e., those with no benefit or net harm) because another scan and technical expert panel (TEP) within the overall AHRQ project is focused on the de-implementation of harmful and low-value services. Of note, the only D recommendation on the prior list was screening for prostate cancer (and the USPSTF updated its recommendation in 2018 to a C recommendation for men ages 55 to 69 years and a D recommendation for men age 70 years or older).[26]

Published Literature Searches

We conducted targeted searches for pertinent information about each potential high-priority CPS. We prioritized identifying high-quality systematic evidence reviews (e.g., those conducted for the USPSTF) to efficiently identify relevant evidence. Documents serving as sources of data included:

- USPSTF recommendation statements and supporting documents (evidence summaries and modeling studies published in *JAMA*, systematic evidence reviews published online on the USPSTF website,[15] and modeling studies conducted for the USPSTF)
- ACIP recommendations and supporting documents[14]
- Publications related to work of the National Commission on Prevention Priorities for the prior high-priority list of CPS (e.g., for estimates of clinically preventable burden)[11, 13]
- National survey data about the uptake of high-priority CPS for U.S. adults[5]
- CDC WONDER, CDC's publicly available data extraction platform that provides data on number of deaths and rates of deaths per 100,000 persons (by age category, for each year from 1999 through 2020) attributable to various health conditions (defined more

recently by 10th revision of the International Statistical Classification of Diseases and Related Health Problems coding)[19]

When those sources did not provide some of the information we sought to extract, or if those sources provided only older data, we conducted targeted searches via PubMed/MEDLINE to fill gaps. We limited our scope to information generated in the United States, aiming to prioritize the most relevant information for the TEP and to meet the overall AHRQ project goal of improving preventive services delivery in the United States.

Extraction of Information and Presentation of Findings

A single investigator extracted specific data elements for each CPS from documents identified by our searches into structured forms with prespecified categories and elements; a second person spot-checked for accuracy (**Table A-3**). We extracted pertinent information for the following categories: appropriateness (i.e., within our scope), importance (including prevalence, morbidity, and mortality of the relevant health condition), potential for significant improvement in health (regarding preventable burden of disease), uptake in current clinical practice, disparities (in prevalence or outcomes), and availability of workforce or supplies to deliver the service. The categories and data elements were developed by considering the prior work of the NCPP, AHRQ's Effective Health Care Program topic selection and prioritization criteria,[20] and project team and Stakeholder Panel meeting input.

Table A-3. Categories of Information Collection for Each Potential High-Priority Clinical Preventive Service

Category	Data Element Description
Topic and recommendation	Preventive service and recommendation of the USPSTF or ACIP
Appropriateness	Service is evident based, having an A or B grade recommendation from the USPSTF or a recommendation from ACIP, the service is screening, counseling, preventive medication, or immunization
Appropriateness	The preventive service should be provided in or referable from primary care
Importance	Disease burden: Prevalence
Importance	Disease burden: Morbidity
Importance	Disease burden: Mortality
Potential for significant improvement in health	Preventable burden of disease: Morbidity
Potential for significant improvement in health	Preventable burden of disease: Mortality
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible
Disparities	Disparities in prevalence of the target condition
Disparities	Disparities in outcomes resulting from the target condition or use of the CPS

Category	Data Element Description
Disparities	Disparities in receipt of the CPS
Availability	Availability of workforce or supplies to deliver CPS

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPS, clinical preventive services; USPSTF, U.S. Preventive Services Task Force.

We provide narrative and tabular summaries in the scan report. Figures or summary tables were created to show a comparison of the (a) burden of disease in terms of attributable mortality and (b) preventable burden of disease in terms of quality-adjusted life years (QALYs) saved from the CPS. Estimated annual mortality due to specific causes of death were obtained from data sources including the Center for Disease Control and Prevention's (CDC's) U.S. Cancer Statistics, CDC's Web-based Injury Statistics Query and Reporting System (WISQARS),[27] and the National Center for Health Statistics and from targeted searches of PubMed/MEDLINE.[23, 27-31] Estimates for QALYs saved from each CPS were primarily from previously published microsimulation modeling, supplemented by targeted searches to inform estimates for CPS that were not on the prior high-priority list.[11] Those microsimulations were based on a U.S. birth cohort of four million people and assumed that the CPS were delivered during the years of life for which the service was recommended. We filled in any gaps from previously published microsimulation modeling with our projections for CPS that were newly included in this scan (COVID-19 vaccination, screening for lung cancer, screening for prediabetes and type 2 diabetes, preexposure prophylaxis (PrEP) for HIV, preventive medications to reduce the risk of breast cancer, and BRCA). To do so, we used estimates of QALYs saved from other sources (when available), or we identified tiers with CPS having similar attributable mortality for the target condition along with our knowledge about the effectiveness, target age and population, and potential preventable morbidity of the CPS. For QALYs saved, we grouped services with similar clinically preventable burden into five tiers using the same clinically preventable burden ranges that were used by the NCPP in its clinically preventable burden scoring system.[11] The QALYs saved for the five tiers were as follows: greater than 700,000 (tier 5), 190,000 to 700,000 (tier 4), 70,000 to 190,000 (tier 3), 18,000 to 70,000 (tier 2), and less than 18,000 (tier 1). We categorized the uptake of CPS as high, intermediate, low, or uncertain. We considered uptake to be high if published literature indicated that more than two-thirds of eligible people received the service, intermediate if between two-thirds and one-third received the service, low if less than a third received the service, and uncertain if published data were conflicting or if we did not find reliable published estimates of uptake.

Key Informant Interviews

We conducted four key informant interviews (KIIs); three prior to TEP meeting 1 and one between meetings 1 and 2. KIIs were conducted via Zoom and lasted no longer than 60 minutes. We used tailored, semi-structured interview guides that consisted of four to six questions with additional probes. Each KII was recorded, and key findings from KIIs were added

as an addendum to the TEP Meeting Summary and incorporated into this final report. **Table A-4** provides the name and affiliation of the key informants for this topic.

Table A-4. Key Informant Names and Affiliations

Name	Organization and Title	Date of Interview
Kisha Davis, MD MPH	American Academy of Family Physicians Board of directors; Health Officer, Montgomery County, Maryland	February 9, 2023
Eugene Rich, MD	Senior health policy researcher, Mathematica; past president Society for General Internal Medicine	February 16, 2023
Michael Maciosek, PhD	Senior Research Investigator, HealthPartners Institute	February 23, 2023
Richard Zimmerman, MD MPH	Academic family physician, vaccine and vaccine policy researcher	March 23, 2023

Modified Delphi Process and Technical Expert Panel (TEP)

Technical Expert Panel

We recruited and managed a TEP to provide input on this topic, including prioritizing the candidate CPS. AHRQ required the TEP to include at least 10 experts in the topic area and 2 patient representatives. We gathered key information about potential TEP members and included their organizational name and type, title/role, contact information, link to professional biography, clinician type and specialty area (if applicable), area of expertise, gender, whether they openly identified as being part of a racial/ethnic minority group, and geography. We identified potential TEP members from AHRQ's Primary Care Learning Community, contacts at other federal agencies, independent panels such as the USPSTF, Community Task Force on Preventive Services, and the Advisory Committee on Immunization Practices, specialty medical societies, nonprofit health or public health organizations, and clinical health system leaders. We divided a list of 42 potential candidates into priority recruitment "waves" and AHRQ provided final approval for all individuals invited for participation. Recruitment occurred over several weeks via email and the final TEP panel included 12 members see (**Table A-5**), including two patient representatives.

Prior to each TEP meeting, the RTI project team worked with AHRQ to develop a detailed meeting agenda and presentation slide deck. The agenda for each meeting included introductions of TEP members and a description and rationale for this topic, discussion of the scan findings, introduction to the task at hand including addressing TEP member questions about the task, prioritization exercises using the modified Delphi process, process for receiving honoraria, and post-meeting followup tasks (if applicable).

Table A-5. Final Roster of Technical Expert Panel Members

Name	Organization and Title	Type of Organization
Douglas Campos-Outcalt, MD, MPA	University of Arizona, Mel and Enid Zukerman College of Public Health, Senior Lecturer	Research/ Academia
Marshall Chin, MD, MPH	University of Chicago, Richard Parrillo Family Distinguished Service Professor of Healthcare Ethics	Research/ Academia
Julie Eller, BS	Harvard T.H. Chan School of Public Health, Student PCORI, Chair, Clinical Evidence and Decision Science Advisory Panel	Patient/Consumer Representative
Diane Harper, MD, MPH, MS	University of Michigan, Professor Michigan Institute for Clinical and Health Research, HUB Research Director	Research/ Academia
Jody Hoyos, MHA	Prevent Cancer Foundation, Chief Executive Officer	Patient/Consumer Representative
Alex Krist, MD, MPH	Virginia Commonwealth University, Professor and Co-Director, Ambulatory Care Outcomes	USPSTF (Current/Former)
Bruce Landon, MD, MBA, MSc	Harvard Medical School, Professor of Health Care Policy	Research/ Academia
Robert McNellis, MPH, PA	National Institutes of Health, Office of Disease Prevention, Senior Advisor for Disease Prevention/Team Lead	Federal Agency
Mary Patricia Nowalk, PhD, RDN	University of Pittsburgh School of Medicine, Department of Family Medicine, Professor	Research/ Academia
Jim Stevermer, MD, MSPH	University of Missouri, Vice Chair of Clinical Affairs and Paul Revare MD Professor of Family and Community Medicine USPSTF	USPSTF (Current/Former)
Anonymous	Board of Directors, primary care specialty organization; Vice President for Nonprofit Health System serving underserved populations	Health System
Anonymous	Public Health Policy Expert	Federal Agency

Abbreviations: PCORI, Patient-Centered Outcomes Research Institute; USPSTF, U.S. Preventive Services Task Force.

Each TEP meeting was 3 hours long and was conducted virtually using Zoom. The meetings also utilized the XLeap virtual meeting platform to allow meeting participants to respond to discussion questions during and after the meeting and to engage in virtual dialogue between participants as they can view and respond to what other members share in real time. We used this tool to ensure that all TEP members had an opportunity to share their thoughts and fully participate in the meeting. We recorded TEP meetings via the Zoom platform and developed meeting summaries to document discussions.

Modified Delphi Process

The Delphi method is an iterative process that uses a systematic progression of repeated rounds of discussion and voting toward agreement among respondents.[32] The technique is recommended as a reliable means of determining consensus. For this topic, we implemented

a modified Delphi process that included two virtual meetings and two rounds of asynchronous review and comment (pre-meeting 1, between meetings 1 and 2).

We disseminated meeting materials 2 weeks ahead of the first virtual meeting, including an overview of the goals and objectives of this TEP, the meeting agenda, and the environmental scan. This prepared the TEP members for the discussion and prioritization exercises that occurred in the subsequent rounds of the Delphi process.

We facilitated Round 1 of prioritization during the first TEP meeting, held on March 2, 2023. In this meeting, we provided TEP members additional information about the rationale and scope of the project and AHRQ discussed the intended uses of the final prioritized list of CPS. We offered a brief presentation on key findings from the environmental scan and addressed TEP member questions about the scope of the project and the prioritization task at hand.

With respect to the prioritization process, we provided data in the environmental scan for three criteria that TEP members could use for prioritization: mortality from the target condition, clinical preventable burden, and current receipt of the service within the U.S. context. We did not provide additional guidance to TEP members for how to consider these data in their prioritization nor did we limit TEP members from using other data or criteria (e.g., feasibility, availability, perceived effectiveness, or cost-effectiveness) for making their CPS ranking decision.

After discussion, we asked TEP members to consider the list of 25 candidate services discussed in the scan and vote on each service as follows:

- Yes, move the service forward into the next round of prioritization;
- No, do not move the service forward into the next round of prioritization; or
- Need more information to determine if the service should move forward.

We limited the number CPS that any individual TEP member could vote “yes” to move forward to 20 services.

We conducted the voting anonymously using the XLeap platform. The TEP members unanimously agreed to move some CPS to the next round of prioritization (**Table A-6**). We calculated a “net score” for each CPS, which is the number of votes to move the service forward or need more information minus the number of votes to not move the service forward. Based on the net scores, we identified a natural cut point between the 19th and 20th ranked services. We did not move the six services falling below this cut point forward to the next prioritization round.

Table A-6. Round 1 Prioritization of CPS Results

Clinical Preventive Services Moving Forward After Round 1	Clinical Preventive Services Dropped After Round 1
Screening for unhealthy drug use	BRCA-related assessment, counseling, and testing
Screening for hypertension	Preventive medication to reduce risk of breast cancer
Counseling on healthy diet and physical activity for CVD prevention	Screening for lung cancer
COVID-19 vaccination	Singles vaccination
Screening for osteoporosis	Falls prevention interventions
Screening for prediabetes and diabetes mellitus	Tdap/Td vaccination
Screening for unhealthy alcohol use	
Weight loss interventions to prevent obesity-related morbidity and mortality	
Influenza vaccination	
PrEP for HIV infection	
Statin use for primary prevention	
Pneumococcal vaccination	
Screening for breast cancer	
Screening for cervical cancer*	
Screening for colorectal cancer*	
Screening for depression*	
Screening for hepatitis C virus infection in adolescents and adults*	
Screening for HIV infection*	
Tobacco smoking cessation counseling and medication*	

* Indicates services that TEP members unanimously voted to move forward into the next round of prioritization.
Abbreviations: BRCA, breast cancer gene; COVID-19, coronavirus disease 2019; CVD, cardiovascular disease; HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis; Td, tetanus-diphtheria; Tdap, tetanus-diphtheria-pertussis.

We facilitated Round 2 of prioritization asynchronously using the XLeap platform in the 2 weeks after the first meeting. We provided TEP members with instructions to rank order the remaining 19 services from 1 (most important) to 19 (least important). Eleven of 12 TEP members participated in the prioritization activity. Services ranked in position 1 were assigned 19 points, services ranked in position 19 were assigned 1 point, and services ranked in other positions were assigned points accordingly. For each service, we calculated the mean number of points across all TEP member. We then sorted the list of services from highest mean score (i.e., highest priority) to lowest mean score (i.e., lowest priority). **Table A-7** provides the Round 2 prioritization rankings.

Table A-7. Round 2 Prioritization Results for Clinical Preventive Services Sorted by Mean Score

Rank Order	Item	Mean Score	Normalized Standard Deviation*
1	Tobacco smoking cessation counseling and medication	15.55	0.18
2	Counseling on healthy diet and physical activity for CVD prevention	13.82	0.31
3	Screening for hypertension	12.27	0.32
4	Influenza vaccination	12.18	0.22
5	Weight loss interventions to prevent obesity-related morbidity and mortality	11.82	0.38
6	Statin use for primary prevention	11.36	0.23
7	Screening for colorectal cancer	11.18	0.23
8	COVID-19 vaccination	11.09	0.28
9	Screening for prediabetes and diabetes mellitus	10.64	0.25
10	Screening for depression	10.55	0.28
11	Screening for unhealthy alcohol use	10.00	0.26
12	Screening for cervical cancer	9.73	0.22
13	Screening for breast cancer	8.73	0.21
14	Pneumococcal vaccination	8.45	0.24
15	Screening for unhealthy drug use	7.64	0.24
16	Screening for hepatitis C virus infection in adolescents and adults	7.36	0.22
17	PrEP for HIV infection	7.09	0.27
18	Screening for HIV infection	6.82	0.16
19	Screening for osteoporosis	3.73	0.18

*Normalized standard deviation <0.2 reflects consensus and NSD >0.3 reflects dissent.
Abbreviation: COVID-19, coronavirus disease 2019; CVD, cardiovascular disease; HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis.

Tobacco smoking cessation counseling and medication had the highest mean score (15.55). The normalized standard deviation (NSD) for this service was 0.18, and a value less than 0.2 indicates consensus among TEP members that this service was a high-priority service. Screening for osteoporosis and screening for HIV infection had the lowest mean scores, 3.73 and 6.82, respectively. Both also had NSDs less than 0.2, indicating consensus.

Several services had NSDs greater than 0.3, indicating dissent among TEP members: Counseling on healthy diet and physical activity for CVD prevention (mean score 13.82), screening for hypertension (mean score 12.27), and weight loss interventions to prevent obesity-related morbidity and mortality (mean score 11.82), which ranked second, third, and fifth in terms of priority, respectively.

We provided findings from Round 2 of prioritization to TEP members prior to the second virtual meeting. During the asynchronous round of prioritization and during the second meeting, several TEP members shared their concerns about dropping screening for lung cancer after Round 1. Further, several key informants had suggested including screening for lung cancer on a high-priority list. So, we allowed the TEP members to anonymously vote on whether to reinstate lung cancer screening for consideration in the final prioritization round. The vote was tied, with six panelists voting to keep lung cancer screening off the list and six voting to put it back on. Because of our predetermined rule for resolving a tie, we did not include lung cancer in the final round of prioritization.

We facilitated Round 3 of prioritization during the second virtual meeting. We asked TEP members to complete two additional prioritization tasks. The first task was to make any final changes to their Round 2 rankings based on the meeting discussion. The second task was to translate their final CPS rankings into priority tiers as follows:

- Tier 1-services ranked in positions 1 through 5 on their list
- Tier 2-services ranked in positions 6 through 10 on their list
- Tier 3-services ranked in positions 11 through 15 on their list
- Tier 4-services ranked in positions 16-19 on their list

Based on the placement of each CPS in these priority tiers, we calculated the weighted priority score for each service by assigning 3 points for each TEP member ranking the service in the top tier (i.e., top 5); 2 points for ranking the service in the second tier (position 6 to 10); 1 point for each TEP member ranking the service in the third tier (11 to 15); and 0 points for each TEP member ranking the service in the bottom tier (position 16 or higher). The maximum score that a CPS could obtain was 36 and the minimum score possible was 0. The final prioritization results are in **Figure 2** and **Table 4** of the main report.

Appendix B: Detailed Data From Environmental Scan

The tables that follow are the detailed data that we compiled for the environmental scan.

B.1 Potential High-Priority Clinical Preventive Services Based on USPSTF Recommendations

Table B.1.1. Breast Cancer Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[33] Supporting Evidence Review for the USPSTF,[34] Supporting Citations[5, 11])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends biennial screening mammography for women ages 50 to 74 years (B grade recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Estimated to be the second most common cancer in women in the United States. According to lifetime risk estimates for the general population, 12.3% of women will develop breast cancer during their lives. An estimated 2,899,726 women were living with breast cancer in the United States in 2011. Incidence rates increased between 1975 and 2011 from 105 or 111 cases per 100,000 women (depending on whether cases are defined by invasive disease or invasive plus noninvasive disease together) to 165 cases per 100,000 women. This is due to the widespread diffusion of mammography screening.
Importance	Disease burden: Morbidity	The USPSTF found adequate evidence that mammography screening results in harms for women ages 40 to 74 years due primarily to diagnosis and treatment of noninvasive and invasive breast cancer that would otherwise have not threatened a women's health during her lifetime.

continued

Table B.1.1. Breast Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[33] Supporting Evidence Review for the USPSTF,[34] Supporting Citations[5, 11])
Importance	Disease burden: Mortality	Estimated to be the second leading cause of cancer death in women in the United States. Estimated to represent 40,290 deaths (6.8% of all cancer deaths) in 2015. The overall 5-year relative survival rate for breast cancer in 2006 was 90.6%. According to lifetime risk estimates for the general population, 2.8% of women will die from breast cancer. Mortality rates declined between 1975 and 2011 from 31 to 22 cases per 100,000 women.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	Clinically preventable burden: 70,000–190,000 QALYs saved, discounted Additional QALYs saved if adults currently receiving services (i.e., 75%) increased to 90%: 42,000 QALYs
Potential for significant improvement in health	Preventable burden of disease: Mortality	The USPSTF found adequate evidence that mammography screening reduces breast cancer mortality in women ages 40 to 74 years, with increasing numbers of breast cancer deaths avoided as age increases. Women ages 60 to 69 years benefited the most, while those ages 40 to 49 benefited the least. Over a 10-year period, screening 10,000 women ages 60 to 69 years will result in 21 (95% CI, 11 to 32) fewer breast cancer deaths. The benefit is smaller in younger women: Screening 10,000 women ages 50 to 59 years will result in 8 (95% CI, 2 to 17) fewer breast cancer deaths, and screening 10,000 women ages 40 to 49 years will result in 3 (95% CI, 0 to 9) fewer breast cancer deaths. Breast cancer deaths avoided per 10,000 women screened by repeat screening mammography over 10 years – N (95% CI) Ages 40–49 years: 3 (0–9) Ages 50–59 years: 8 (2–17) Ages 60–69 years: 21 (11–32) Ages 70–74 years: 13 (0–32)

continued

Table B.1.1. Breast Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[33] Supporting Evidence Review for the USPSTF,[34] Supporting Citations[5, 11])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Adults age 35 years or older receiving breast cancer screening Overall: 73.9%; Women: 73.9%; Men: N/A Adults currently receiving screening nationally: 75%
Disparities	Disparities in prevalence	Most women who develop breast cancer have no identifiable risk factors beyond sex and age.
Disparities	Disparities in outcomes	Black race is a risk factor associated with progression of ductal carcinoma in situ to subsequent invasive breast cancer. More African American women die each year from breast cancer than White women (about 31 vs. 22 breast cancer deaths per 100,000 women per year, respectively).
Disparities	Disparities in receipt of the CPS	Evidence of association between African American race and experiencing delays in receiving healthcare services for cancer, not receiving appropriate treatment, or not receiving treatment at all. African American women are also substantially underrepresented in RCTs of mammography screening. Evidence is lacking about effectiveness of breast cancer screening for older women age 75 years or older for whom potential benefit is less clear.
Availability	Availability of workforce or supplies to deliver the CPS	Widespread availability of mammography screening.

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CI, confidence interval; CPS, clinical preventive service; QALY, quality-adjusted life year; RCT, randomized controlled trial; USPSTF, U.S. Preventive Services Task Force; vs., versus.

Table B.1.2. Breast Cancer Preventive Medications: Data Extraction Elements

Category	Item Description	Extracted Data (Source: USPSTF Recommendation Statement[35])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends that clinicians offer to prescribe risk-reducing medications, such as tamoxifen, raloxifene, or aromatase inhibitors, to women who are at increased risk for breast cancer and at low risk for adverse medication effects (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Breast cancer is the most common nonskin cancer among women in the United States. In 2018, estimated that 266,120 new cases of breast cancer were diagnosed in women in the United States, representing 30% of all new cancer cases in women. An estimated 1 in 8 women will develop breast cancer at some point in their lifetime.
Importance	Disease burden: Morbidity	NR
Importance	Disease burden: Mortality	Breast cancer is the second leading cause of cancer death in the United States. In 2018, estimated that 40,920 women in the United States died of breast cancer, representing 14% of all cancer deaths in women. Based on data from 2008–2014, 5-year survival rate of breast cancer were estimated to be 89.7%, ranging from 98.7% when cancer is diagnosed at localized stages to 27% when diagnosis occurs in the context of distant metastases.

continued

Table B.1.2. Breast Cancer Preventive Medications: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Source: USPSTF Recommendation Statement[35])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	The USPSTF found convincing evidence that available risk assessment tools can predict the number of cases of breast cancer expected to develop in a population. However, these risk assessment tools perform modestly at best in discriminating between individual women who will or will not develop breast cancer over time. The USPSTF concluded with moderate certainty that there is a moderate net benefit from taking tamoxifen, raloxifene, or aromatase inhibitors to reduce risk of invasive breast cancer in women at increased risk. N cases of invasive breast cancer reduced (95% CI) Tamoxifen: 7 (4 to 12) Raloxifene: 9 (3 to 15) Aromatase inhibitors: 16 (8 to 24) N cases of ER+ breast cancer reduced (95% CI) Tamoxifen: 8 (4 to 13) Raloxifene: 8 (4 to 13) Aromatase inhibitors: 15 (8 to 20) N cases of ER- breast cancer reduced No difference between tamoxifen, raloxifene, or aromatase inhibitors and placebo N cases of noninvasive breast cancer reduced No difference between tamoxifen, raloxifene, or aromatase inhibitors and placebo
		N cases of vertebral fractures reduced (95% CI) Raloxifene: 7 (5 to 9) No difference between tamoxifen or aromatase inhibitors and placebo N cases of nonvertebral fractures reduced (95% CI) Tamoxifen: 3 (0.2 to 5) No difference between raloxifene or aromatase inhibitors and placebo
Potential for significant improvement in health	Preventable burden of disease: Mortality	No difference between tamoxifen and placebo in N cases of breast cancer mortality reduced No difference between tamoxifen, raloxifene, or aromatase inhibitors and placebo in N cases of all-cause mortality reduced

continued

Table B.1.2. Breast Cancer Preventive Medications: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Source: USPSTF Recommendation Statement[35])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Prescribing risk-reducing medications for breast cancer is uncommon among PCPs. Based on limited survey data, 10% to 30% (depending on medication type) of PCPs reported ever prescribing risk-reducing medications for primary prevention of breast cancer, and most had only done so a few times. The reported use of risk-reducing medications among women at increased risk for breast cancer is also relatively low (estimated to be 16.3%).
Disparities	Disparities in prevalence	Similar incidence of breast cancer among White and African American women (128.6 vs. 126.9 cases per 100,000 people, respectively) Incidence rates increasing among Asian/Pacific Islander, non-Hispanic African American, and Hispanic women, but remaining stable among non-Hispanic White and American Indian/Alaska Native women.
Disparities	Disparities in outcomes	African American women more likely to die of breast cancer than women of other races. African American women: 28.7 per 100,000 African American people White women: 20.3 deaths per 100,000 White people
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	However, the NCI Breast Cancer Risk Assessment Tool and the Breast Cancer Surveillance Consortium Risk Calculator are based on models tested in U.S. populations and are publicly available for clinicians and patients to use as part of the process of shared, informed decision making about taking risk-reducing medications for breast cancer. Downsides are 1) that they may be limited in their discriminatory accuracy of predicting which women will develop breast cancer and 2) that there is no single cutoff for defining increased risk for all women.

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CI, confidence interval; CPS, clinical preventive service; ER+, estrogen receptor positive; ER-, estrogen receptor negative; NCI, National Cancer Institute; NR, not reported; PCP, primary care provider; USPSTF, U.S. Preventive Services Task Force; vs., versus.

Table B.1.3 BRCA Risk Assessment, Counseling, and Genetic Testing: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[36] Supporting Evidence Review for the USPSTF[37])
Topic and recommendation	Preventive service and Recommendation of USPSTF or ACIP	The USPSTF recommends that primary care clinicians assess women with a personal or family history of breast, ovarian, tubal, or peritoneal cancer or who have an ancestry associated with *BRCA1/2* gene mutations with an appropriate brief familial risk assessment tool. Women with a positive result on the risk assessment tool should receive genetic counseling and, if indicated after counseling, genetic testing.
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	In the general population, BRCA1/2 mutations occur in an estimated 1 in 300 to 500 women (0.2% to 0.3% of the general population of women). In a meta-analysis of studies in which recruitment was based on family history of breast or ovarian cancer, BRCA1 mutation prevalence was 13.6%, BRCA2 mutation prevalence was 7.9%, and prevalence of either mutation was 19.8%.
Importance	Disease burden: Morbidity	Potentially harmful mutations of the *BRCA1/*2 genes are associated with increased risk for breast, ovarian, fallopian tube, and peritoneal cancer. In the general population, *BRCA1/2* mutations occur in an estimated 1 in 300 to 500 women and account for 5% to 10% of breast cancer cases and 15% of ovarian cancer cases. Mutations in the *BRCA1/2* genes increase breast cancer risk to 45% to 65% by age 70 years. Risk of ovarian, fallopian tube, or peritoneal cancer increases to 39% for *BRCA1* mutations and 10% to 17% for *BRCA2* mutations. For women in the United States, breast cancer is the most common cancer after nonmelanoma skin cancer. Estimated that 252,710 women were diagnosed with breast cancer in the United States (2017 data). Ovarian cancer is the fifth leading cause of cancer death in women in the United States. Estimated that 22,440 women died of ovarian cancer in the United States (2017 data).

continued

Table B.1.3 BRCA Risk Assessment, Counseling, and Genetic Testing: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[36] Supporting Evidence Review for the USPSTF[37])
Importance	Disease burden: Mortality	For women in the United States, breast cancer is the second leading cause of cancer death. Estimated that 40,610 women died of breast cancer in the United States (2017 data). Ovarian cancer is the fifth leading cause of cancer death in women in the United States. Estimated that 14,080 women died of ovarian cancer in the United States (2017 data).
Potential for significant improvement in health	Preventable burden of disease: Morbidity	NR
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Actual practices for *BRCA1/2* testing in the United States are unclear. The lack of screening effectiveness trials, differing interpretations of existing research among specialties; variability of insurance coverage; and direct-to-consumer advertising targeting patients, physicians, and health systems have resulted in highly variable clinical practices.
Disparities	Disparities in prevalence	Estimates of the prevalence of potentially harmful BRCA1/2 mutations vary by population. Compared with the general population of all women in the United States (0.2% to 0.3%), the estimated prevalence is elevated in women with cancer onset before age 40 years (6.0%) and in the general population of Ashkenazi Jewish women (2.1%). Additional data are needed from women of varying socioeconomic and racial/ethnic groups.
Disparities	Disparities in outcomes	Additional data are needed from women of varying socioeconomic and racial/ethnic groups.
Disparities	Disparities in receipt of the CPS	Additional data are needed from women of varying socioeconomic and racial/ethnic groups.

continued

Table B.1.3 BRCA Risk Assessment, Counseling, and Genetic Testing: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[36] Supporting Evidence Review for the USPSTF[37])
Availability	Availability of workforce or supplies to deliver the CPS	The availability of testing options has changed since the 2013 U.S. Supreme Court ruling that determined human genes are not patentable. Previously, *BRCA1/2* mutation testing in the United States was mainly conducted by one laboratory. Since the ruling, the number of testing options has significantly increased, with more than 80 multigene panels that include *BRCA1/2*, as well as tests marketed directly to consumers.

Abbreviations: ACIP, Advisory Committee on Immunization Practices; *BRCA1*, breast cancer gene 1; *BRCA2*, breast cancer gene 2; CPS, clinical preventive service; NR, not reported; USPSTF, U.S. Preventive Services Task Force.

Table B.1.4. Cervical Cancer Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[38] Supporting Evidence Review for the USPSTF,[39] Supporting Citations[11, 13])
Topic and recommendation	Preventive service and Recommendation of USPSTF or ACIP	The USPSTF recommends screening for cervical cancer every 3 years with cervical cytology alone in women ages 21 to 29 years. For women ages 30 to 65 years, the USPSTF recommends screening every 3 years with cervical cytology alone, every 5 years with high-risk hrHPV testing alone, or every 5 years with hrHPV testing in combination with cytology (cotesting) (A recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Cervical cancer incidence and mortality have substantially decreased since the introduction of screening programs more than half a century ago. The cumulative age-adjusted incidence from 2009 to 2013 was 7.5 cases per 100,000 women per year. There were an estimated 12,990 new cases of cervical cancer and 4,120 deaths in 2016. Rates of incident cervical cancer in Surveillance, Epidemiology, and End Results 2013 data have decreased from 7.9 to 6.8 cases per 100,000 people between 2004 and 2014.
Importance	Disease burden: Morbidity	NR
Importance	Disease burden: Mortality	Despite dramatic reductions in cervical cancer since the introduction of Papanicolaou (Pap) cytology testing in the United States, roughly 12,820 women were expected to develop, and 4,210 women are expected to die from cervical cancer in 2017. Overall cervical cancer mortality declined only slightly in the same time frame, from 2.4 to 2.3 deaths per 100,000 women. From USPSTF recommendation, the age-adjusted mortality rate over the same period was 2.3 deaths per 100,000 women per year. There were an estimated 12,990 new cases of cervical cancer and 4,120 deaths in 2016.

continued

Table B.1.4. Cervical Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[38] Supporting Evidence Review for the USPSTF,[39] Supporting Citations[11, 13])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	The current burden of cervical cancer is low compared with what it would be without cervical cancer screening, as is the current burden of vaccine-preventable childhood infectious diseases. QALYs saved if cervical cancer screening in women increased to 90% utilization: 14,000. Current utilization is 85%. CPB of 4 as determined by the evaluation for the NCPP.[11]
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Receipt in women ages 50–64 years: Cervical cancer, 22%. Overall median national receipt for eligible people, 24%.
Disparities	Disparities in prevalence	Annual age-adjusted cervical cancer incidence in the United States was 7.4 cases per 100,000 women and mortality was 2.3 deaths per 100,000 women (2011–2015), with the highest incidence among Black (8.4 per 100,000) and Hispanic (8.9 per 100,000) women.
Disparities	Disparities in outcomes	Black women had the highest mortality rate (3.7 deaths per 100,000 women). From the evidence review, mortality for Black (3.9 deaths per 100,000 people) and American Indian/Alaska Native women (3.2 deaths per 100,000 people) was greater than for White women (2.1 deaths per 100,000). A recent analysis of National Center for Health Statistics data (2000–2012) that adjusted for differences in the hysterectomy rate by race/ethnicity found much higher mortality disparities than previously recognized. For Black women, the corrected mortality rate rose to 10.1 deaths per 100,000 women (uncorrected rate, 5.7 deaths per 100,000 women). In contrast, the adjusted rate for White women was 4.7 deaths per 100,000 women. The study demonstrated that without the correction for hysterectomy, the disparity in mortality between races was underestimated by 44%. Correction for hysterectomy also indicated increasing cervical cancer mortality rates with age, particularly for Black women, with corrected mortality rates greater than 30 deaths per 100,000 women for Black women age 80 years or older.

continued

Table B.1.4. Cervical Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[38] Supporting Evidence Review for the USPSTF,[39] Supporting Citations[11, 13])
Disparities	Disparities in receipt of the CPS	In an analysis of 10,000 women in the National Breast and Cervical Cancer Early Detection Program, 44% with low-grade abnormalities in the two sequential Pap tests were followed up with colposcopy, while 56% were followed up with a third Pap test or not at all. American Indian or Alaska Native women had the highest percentages of a third Pap test, and non-Hispanic Black women had a higher percentage of no followup. More than half of the women studied were not followed up in accordance with established guidelines for management of abnormal cervical cytology. Even for women with access to services, clinician adherence to recommended screening varied by provider specialty, geographic location, personal characteristics, and knowledge and can also be influenced by patient expectations and preferences.
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPB, clinical preventive burden score; CPS, clinical preventive service; hrHPV, high-risk human papillomavirus; NCPP, National Commission on Prevention Priorities; NR, not reported; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.1.5. Colorectal Cancer Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[40] Supporting Evidence Review for the USPSTF,[41] Supporting Citations[11, 13, 42])
Topic and recommendation	Preventive service and Recommendation of USPSTF or ACIP	The USPSTF recommends screening for CRC in all adults ages 50 to 75 years (A recommendation). The USPSTF recommends screening for CRC in adults ages 45 to 49 years (B recommendation). In addition, the USPSTF concluded that the decision to screen for CRC in adults ages 76 to 85 years should be an individual one, taking into account the patient's overall health and prior screening history (C recommendation) and that screening should be discontinued after age 85 years.
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	CRC is most frequently diagnosed among people ages 65 to 74 years. It is estimated that 10.5% of new CRC cases occur in people younger than 50 years. Incidence of CRC (specifically adenocarcinoma) in adults ages 40 to 49 years has increased by almost 15% from 2000–2002 to 2014–2016. Approximately 94% of CRC diagnoses occur in adults older than age 45 years. However, cohort trends indicate that CRC incidence is decreasing only for those age 55 years or older and increasing among those younger than 55 years. The incidence of CRC has increased by 1 to 2% annually since the mid-1980s in adults ages 20−39 years and by 0.5 to 1.3% annually since the mid-1990s in adults ages 40−54 years. As a result, the incidence of CRC in people age 45 years in 2011 was comparable to the incidence in people age 50 years in 1992 prior to widespread screening (24.0 and 25.6 cases per 100,000 people respectively), although the incidence of CRC in people age 45 years has declined somewhat since 2011 (20.8 cases per 100,000 people in 2016).
Importance	Disease burden: Morbidity	NR
Importance	Disease burden: Mortality	CRC is the third leading cause of cancer death for both men and women, with an estimated 52,980 people in the United States projected to die of CRC in 2021

continued

Table B.1.5. Colorectal Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[40] Supporting Evidence Review for the USPSTF,[41] Supporting Citations[11, 13, 42])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	QALYs saved if CRC screening in women increased to 90% utilization: 110,000. Current utilization is 65%. CPB of 4 as determined by the evaluation for the NCPP.[11]
Potential for significant improvement in health	Preventable burden of disease: Mortality	Based on averaging estimates across the 3 CISNET models, if screening were performed from ages 45 to 75 years with one of the USPSTF- recommended strategies, an estimated 286 to 337 life years would be gained, an estimated 42 to 61 cases of CRC would be averted, and an estimated 24 to 28 CRC deaths would be averted per 1,000 adults screened. This finding translates to an estimated 104 to 123 days of life gained per person screened.
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Current utilization was estimated around 65% per documents supporting the most recent USPSTF recommendation; 69.4% of adults ages 50–75 years had been screened in a 2020 analysis of BRFSS data.
Disparities	Disparities in prevalence	Based on data from the National Cancer Database, the trend of increasing CRC diagnoses in adults younger than 50 years from 2004−2015 appeared to be similar for men and women; increases in CRC diagnoses in adults younger than 50 years were observed in White and Latino but not Black or Asian people. Black and Latino people have higher proportions of CRC diagnosed before age 50 years (14.0 and 18.3%, respectively) compared with White people (11.0%). Overall Black men and women have the highest incidence of CRC compared with other racial/ethnic subgroups. Black adults had the highest incidence of and mortality from CRC compared with other races/ethnicities. From 2013 to 2017, incidence rates for CRC were 43.6 cases per 100, 000 Black adults, 39.0 cases per 100,000 American Indian/Alaska Native adults, 37.8 cases per 100,000 White adults, 33.7 cases per 100,000 Hispanic/Latino adults, and 31.8 cases per 100,000 Asian/Pacific Islander adults.

continued

Table B.1.5. Colorectal Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[40] Supporting Evidence Review for the USPSTF,[41] Supporting Citations[11, 13, 42])
Disparities	Disparities in outcomes	Black men and women also had a disproportionately high mortality from CRC. This health disparity has increased in the past 20 years, illustrated by the fact that CRC incidence and mortality rates have decreased more among White people than Black people. The overall 5-year age-adjusted CRC-related death rate (2014–2018) is notably higher in Black, as well as American Indian and Alaska Native, people as compared with Latino and Asian Pacific Islander people: 22.5 deaths per 100,000 Black men and 14.8 deaths per 100,000 Black women, 18.4 deaths per 100,000 American Indian and Alaska Native men and 12.4 deaths per 100,000 American Indian and Alaska Native women, 14.0 deaths per 100,000 Latino men and 8.6 deaths per 100,000 Latina women, and 11.2 per 100,000 Asian or Pacific Islander men and 7.9 per 100,000 Asian or Pacific Islander women. Black adults had the highest incidence of and mortality from CRC compared with other races/ethnicities. CRC death rates in 2014 to 2018 were 18.0 deaths per 100,000 Black adults, 15.1 deaths per 100,000 American Indian/Alaska Native adults, 13.6 deaths per 100,000 non-Hispanic White adults, 10.9 deaths per 100,000 Hispanic/Latino adults, and 9.4 deaths per 100,000 Asian/Pacific Islander adults.
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; BRFSS, Behavioral Risk Factor Surveillance System; CISNET, Cancer Intervention and Surveillance Modeling Network; CPB, clinical preventive burden score; CPS, clinical preventive service; CRC, colorectal cancer; NCPP, National Commission on Prevention Priorities; NR, not reported; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.1.6. Depression Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[43] Supporting Evidence Review for the USPSTF,[44] Supporting Citations[11, 13])
Topic and recommendation	Preventive service and Recommendation of USPSTF or ACIP	The USPSTF recommends screening for depression in the general adult population, including pregnant and postpartum women. Screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate followup (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	MDD is a common and significant healthcare problem. In a study of U.S. women assessed in 2005, 9.1% of pregnant women and 10.2% of postpartum women met criteria for a major depressive episode. In 2016, 6.7% of adults in the United States age 18 years or older had experienced at least one major depressive episode in the previous year.
Importance	Disease burden: Morbidity	It is the leading cause of disability among adults in high-income countries and is associated with increased mortality due to suicide and impaired ability to manage other health issues. Depression has a major effect on QOL for the patient and affects family members, especially children.
Importance	Disease burden: Mortality	NR
Potential for significant improvement in health	Preventable burden of disease: Morbidity	QALYs saved if depression screening in women increased to 90% utilization: 45,000. Current utilization is 50%. CPB of 2 as determined by the evaluation for the NCPP.[11]
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR

continued

Table B.1.6. Depression Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[43] Supporting Evidence Review for the USPSTF,[44] Supporting Citations[11, 13])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Overall median national receipt for eligible people, <24%.
Disparities	Disparities in prevalence	The subgroups with the highest rates across a number of categories were women who were ages 19 years or younger (18.3% vs. 6.8% to 11.5% among age 20 or older), American Indian/Alaska Natives (17.5% vs. 8.6% to 14.0% for other race/ethnic groups), those with less than 12 years of education (13.4% vs. 8.0% with more than 12 years of education), unmarried women (12.7% vs. 11.5% in married women), and those with six to 13 stressful life events in the previous 12 months (24.2% vs. 8.0% to 14.4% with 0-5 events).
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPB, clinical preventive burden score; CPS, clinical preventive service; MDD, major depressive disorder; NCPP, National Commission on Prevention Priorities; NR, not reported; QALY, quality-adjusted life year; QOL, quality of life; USPSTF, U.S. Preventive Services Task Force; vs., versus.

Table B.1.7. Diabetes and Prediabetes Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[17] Supporting Evidence Review for the USPSTF,[45] Supporting Citations[11, 13, 46])
Topic and recommendation	Preventive service and Recommendation of USPSTF or ACIP	The USPSTF recommends screening for prediabetes and type 2 diabetes in adults ages 35 to 70 years who have overweight or obesity. Clinicians should offer or refer patients with prediabetes to effective preventive interventions. (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	According to the CDC 2020 National Diabetes Statistics Report, an estimated 13% of all U.S. adults (18 years or older) have diabetes, and 34.5% meet criteria for prediabetes. The prevalence of prediabetes and diabetes are higher in older adults. A more recent report from CDC scientists found that the number of people newly diagnosed with diabetes decreased from 2009 to 2017 (from about 1.7 million cases per year to about 1.3 million cases per year in 2017), after having increased from 1990 to 2009.
Importance	Disease burden: Morbidity	Diabetes is the leading cause of kidney failure, lower-limb amputation, and new cases of blindness among adults in the United States. It is also associated with increased risks of CVD, nonalcoholic fatty liver disease, and nonalcoholic steatohepatitis. Diabetes was estimated to be the third leading cause of years lived with disability in 2016.
Importance	Disease burden: Mortality	Diabetes is estimated to be the 7th leading cause of death in the United States, accounting for more than 80,000 deaths per year.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	NR
Potential for significant improvement in health	Preventable burden of disease: Mortality	Over 102,000 deaths per year from diabetes. NR how many of those are preventable.

continued

Table B.1.7. Diabetes and Prediabetes Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[17] Supporting Evidence Review for the USPSTF,[45] Supporting Citations[11, 13, 46])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Conflicting information from various sources described in the evidence report.
Disparities	Disparities in prevalence	Prevalence of diabetes increased with age and was higher among American Indian/Alaska Native, Hispanic, non-Hispanic Asian, and non-Hispanic Black people than among non-Hispanic White people. Age-adjusted estimates from the same data source for 2013–2015 showed a higher prevalence of diabetes among American Indian/Alaska Native people (15.1%), non-Hispanic Black people (12.7%), and people of Hispanic ethnicity (12.1%) than non-Hispanic White people (7.4%) and Asian people (8.0%).
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CDC, Centers for Disease Control and Prevention; CPS, clinical preventive service; CVD, cardiovascular disease; NCPP, National Commission on Prevention Priorities; NR, not reported; U.S. Preventive Services Task Force.

Table B.1.8. Falls Prevention: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[47] Supporting Evidence Review for the USPSTF[48])
Topic and recommendation	Preventive service and Recommendation of USPSTF or ACIP	The USPSTF recommends exercise interventions to prevent falls in community-dwelling adults age 65 years or older who are at increased risk for falls (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Falls are the leading cause of injury-related morbidity and mortality among older adults in the United States. In 2014, 28.7% of community-dwelling adults age 65 years or older reported falling, resulting in 29 million falls (37.5% of which needed medical treatment or restricted activity for a day or longer). In 2014, about 2.8 million older adults sought treatment in emergency departments for falls. About 800,000 older adults experiencing a fall were hospitalized. Risk for falls increased with age; in 2014, 27% of adults ages 65 to 74 years and 37% of adults age 85 years or older reported a fall.
Importance	Disease burden: Morbidity	In 2014, 28.7% of community-dwelling adults age 65 years or older reported falling, resulting in an estimated 33,000 deaths in 2015. In 2014, >90% of hip fractures were caused by falls.
Importance	Disease burden: Mortality	Falls resulted in an estimated 33,000 deaths in 2015. In 2014, >90% of hip fractures were caused by falls, and 25% of older adults sustaining a hip fracture died within 6 months.

continued

Table B.1.8. Falls Prevention: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[47] Supporting Evidence Review for the USPSTF[48])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	The USPSTF found adequate evidence that exercise reduced the risk for falls by a moderate amount. The USPSTF found adequate evidence that multifactorial interventions reduced the risk for falls by a small amount. Pooled analyses revealed statistically significant reductions in one fall-related outcome (number of falls) but not others (e.g., number of people experiencing a fall). The effect of interventions to prevent falls on functional status or QOL remains uncertain. The few trials reporting QOL, activities of daily living, or independent activities of daily living showed no benefit, but these studies used different scales, and few were adequately powered to detect differences in these outcomes.
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	NR
Disparities	Disparities in prevalence	People at high risk for falls included those with a history of prior falls or physical function or mobility limitation problems.
Disparities	Disparities in outcomes	Additional research is needed on the effectiveness of interventions in different age groups, in particular adults older than 85 years.
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPS, clinical preventive service; NR, not reported; QOL, quality of life; USPSTF, U.S. Preventive Services Task Force.

Table B.1.9. Healthy Diet and Physical Activity Counseling: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[49] Supporting Evidence Review for the USPSTF,[50] Supporting Citations[11])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends offering or referring adults with CVD risk factors to behavioral counseling interventions to promote a healthy diet and physical activity (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	CVD is the leading cause of death for both men and women in the United States (2020 data). CVD prevalence increased with age; among males, CVD prevalence was 7.5% among those ages 40 to 59 years, 25.1% among those age 60 to 79 years, and 43.3% among those age 80 years or older. Estimated that 54.2% of U.S. adults age 18 years or older are meeting leisure-time aerobic physical activity goals (2018 data). Only 24.0% are meeting both the aerobic and muscle-strengthening guidelines (2018 data). Only 12.2% of adults meet the daily recommendation of 1.5 to 2.0 cups of fruit each day and 9.3% of adults met the vegetable consumption target of 2.0 to 3.0 cups per day (2015 data).
Importance	Disease burden: Morbidity	NR

continued

Table B.1.9. Healthy Diet and Physical Activity Counseling: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[49] Supporting Evidence Review for the USPSTF,[50] Supporting Citations[11])
Importance	Disease burden: Mortality	CVD responsible for 840,678 (or 1 in 3) deaths (2016 data). CVD death rates highest in the South and lowest in the West of the United States between 2008 and 2010. Poor diet was the leading risk factor contributing to death in the United States (2016 data). Dietary factors were associated with 45.4% of deaths due to heart disease, stroke, or diabetes; high sodium, high intake of processed meats, and low fruit and vegetable intake were the dietary components conferring the highest risk (National Health and Nutrition Examination Survey 1999–2002 and 2009–2012 data).
Potential for significant improvement in health	Preventable burden of disease: Morbidity	Clinically preventable burden: >700,000 QALYs saved, undiscounted Estimated that 300,000 QALYs could be saved if percentage currently receiving recommended services increased to 90%.
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Rates of behavioral counseling referral to reduce CVD risk among those with elevated blood pressure or lipids in primary care remained low. Estimated that 58.6% of U.S. PCPs discussed physical activity with most of their patients with CVD risk factors (2015 data). Nearly all providers that reported discussing physical activity with their patients reported encouraging increased physical activity (98.5%), but only 8.1% actually referred at-risk patients to intensive behavioral counseling. Practitioner survey data found that physicians infrequently referred patients to specialists such as dietitians for tailored interventions and advice.
Disparities	Disparities in prevalence	CVD prevalence is higher in males (9.6%) than females (8.47%) and higher for African Americans (10.7% for males, 10.5% for females) than White people (9.76% for males, 8.1% for females among non-Hispanic White people; prevalence is comparable or lower for Hispanic people and Asian people).

continued

Table B.1.9. Healthy Diet and Physical Activity Counseling: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[49] Supporting Evidence Review for the USPSTF,[50] Supporting Citations[11])
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	Based on 2013 BRFSS data, an estimated 36.8% of U.S. adults met the criteria for the 2014 USPSTF recommendation for intensive behavioral counseling for CVD prevention in adults with risk factors, based on self-reported BMI of ≥25 and the presence of hypertension, dyslipidemia, or impaired fasting glucose. Adults age 65 years or older (56.4%), non-Hispanic Black people (43.3%), and men (40%) were most likely to meet criteria for behavioral counseling according to the existing USPSTF recommendation. Older people, women of any age and Hispanic people are less likely to meet either leisure-time aerobic physical activity or muscle-strengthening guidelines.
Availability	Availability of workforce or supplies to deliver the CPS	Cardiovascular risk can be characterized as the elevation of a single risk factor or can be quantitatively estimated from multivariate risk tools that are readily available in primary care.

Abbreviations: ACIP, Advisory Committee on Immunization Practices; BMI, body mass index; BRFSS, Behavioral Risk Factor Surveillance System; CPS, clinical preventive service; CVD, cardiovascular disease; NR, not reported; PCP, primary care provider; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.1.10. HIV Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[51] Supporting Evidence Review for the USPSTF,[52] Supporting Citations[11, 13])
Topic and recommendation	Preventive service and Recommendation of USPSTF or ACIP	The USPSTF recommends that clinicians screen for HIV infection in adolescents and adults ages 15 to 65 years. Younger adolescents or older adults who are at increased risk of infection should also be screened (A recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Approximately 1.1 million people in the United States are currently living with HIV. The estimated prevalence of HIV infection among people age 13 years or older in the United States is 0.4% (0.7% in males and 0.2% in females), and data from CDC's 2017 HIV Surveillance Report showed a significant increase in HIV diagnoses starting at age 15 years (compared with ages 13–14 years). The annual number of new cases of HIV infection diagnosed in the United States has decreased slightly in recent years, from about 41 200 new cases in 2012 to 38 300 in 2017. Approximately 15% of people living with HIV are unaware of their infection. It is estimated that people unaware of their HIV status are responsible for 40% of transmission of HIV in the United States.
Importance	Disease burden: Morbidity	NR
Importance	Disease burden: Mortality	More than 700,000 people have died of AIDS since the first cases were reported in 1981.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	QALYs saved if HIV screening in women increased to 90% utilization: 32,000. Current utilization is 20%. CPB of 2 as determined by the evaluation for the NCPP.[11]

continued

Table B.1.10. HIV Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[51] Supporting Evidence Review for the USPSTF,[52] Supporting Citations[11, 13])
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Current utilization is approximately 20%
Disparities	Disparities in prevalence	Groups disproportionately affected by HIV infection in the United States include men who have sex with men, Black/African American populations, and Hispanic/Latino populations. For example, the estimated overall prevalence of HIV infection in the United States is 0.4%, while the estimated prevalence among men who have sex with men is 12%. From 2012 to 2017, HIV diagnosis rates increased in adults ages 25 to 29 years and in the American Indian/Alaska Native population. Groups disproportionately affected by HIV infection in the United States included men who have sex with men and Black and Hispanic/Latino people. Between 2006 and 2009, there was a 21% increase in HIV incidence among people ages 13 to 29 years, driven largely by a 34% increase among men who have sex with men, the only risk group to experience a statistically significant increase in incidence during this period. In 2017, 31,239 (81%) HIV diagnoses were among adult and adolescent males (age 13 years or older), 7,401 (19%) among adult and adolescent females, and 99 among children younger than age 13 years. People ages 20 to 34 years accounted for half of the new diagnoses and had the highest incidence of HIV infection (25.6 to 32.8 per 100,000 people). Among adolescents, the annual incidence of HIV infection rose sharply from age 13 to 14 years (0.3 per 100,000 people) to age 15 to 19 years (8.1 per 100,000 people). When stratified by race/ethnicity, 43% of new diagnoses occurred in Black, 26% in White, and 25% in Hispanic/Latino populations. Among males, men who have sex with men are the most common transmission method (82%), followed by heterosexual contact (7.3%), injection drug use (4.4%), and both men who have sex with men and injection drug use (4.0%). Among females, heterosexual contact is the most common transmission method (86%), followed by injection drug use (14%).
Disparities	Disparities in outcomes	NR

continued

Table B.1.10. HIV Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[51] Supporting Evidence Review for the USPSTF,[52] Supporting Citations[11, 13])
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; AIDS, acquired immunodeficiency syndrome; CDC, Centers for Disease Control and Prevention; CPB, clinical preventive burden score; CPS, clinical preventive service; HIV, human immunodeficiency virus; NCPP, National Commission on Prevention Priorities; NR, not reported; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.1.11. HIV Prevention with Preexposure Prophylaxis (PrEP): Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[53] Supporting Evidence Review for the USPSTF,[54] Supporting Citations[11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	recommends that clinicians offer PrEP with effective antiretroviral therapy to people who are at high risk of HIV acquisition (A recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Approximately 1.1 million people in the United States are currently living with HIV. The estimated prevalence of HIV infection among people age 13 years or older in the United States is 0.4% (0.7% in males and 0.2% in females), and data from CDC's 2017 HIV Surveillance Report showed a significant increase in HIV diagnoses starting at age 15 years (compared with ages 13–14 years). The annual number of new cases of HIV infection diagnosed in the United States has decreased slightly in recent years, from about 41,200 new cases in 2012 to 38,300 in 2017. Approximately 15% of people living with HIV are unaware of their infection. It is estimated that people unaware of their HIV status are responsible for 40% of transmission of HIV in the United States.
Importance	Disease burden: Morbidity	NR
Importance	Disease burden: Mortality	More than 700,000 people have died of AIDS since the first cases were reported in 1981.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	NR
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR

continued

Table B.1.11. HIV Prevention with Preexposure Prophylaxis (PrEP): Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[53] Supporting Evidence Review for the USPSTF,[54] Supporting Citations[11, 13])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	NR
Disparities	Disparities in prevalence	Groups disproportionately affected by HIV infection in the United States included men who have sex with men, Black/African American populations, and Hispanic/Latino populations. For example, the estimated overall prevalence of HIV infection in the United States was 0.4%, while the estimated prevalence among men who have sex with men was 12%.3 From 2012 to 2017, HIV diagnosis rates increased in adults ages 25 to 29 years, as well as in the American Indian/Alaska Native population. Groups disproportionately affected by HIV infection in the United States included men who have sex with men and Black and Hispanic/Latino people. Between 2006 and 2009, there was a 21% increase in HIV incidence among people ages 13 to 29 years, driven largely by a 34% increase among men who have sex with men, the only risk group to experience a statistically significant increase in incidence during this period.17 In 2017, 31,239 (81%) HIV diagnoses were among adult and adolescent males (age 13 years or older), 7,401 (19%) among adult and adolescent females, and 99 among children younger than age 13 years. People ages 20 to 34 years accounted for half of the new diagnoses and had the highest incidence of HIV infection (25.6 to 32.8 per 100,000 people). Among adolescents, the annual incidence of HIV infection rises sharply from age 13 to 14 years (0.3 per 100,000 people) to age 15 to 19 years (8.1 per 100,000 people). When stratified by race/ethnicity, 43% of new diagnoses occurred in Black, 26% in White, and 25% in Hispanic/Latino populations. Among males, men who have sex with men were the most common transmission method (82%), followed by heterosexual contact (7.3%), injection drug use (4.4%), and both men who have sex with men and injection drug use (4.0%). Among females, heterosexual contact was the most common transmission method (86%), followed by injection drug use (14%).
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	NR

continued

Table B.1.11. HIV Prevention with Preexposure Prophylaxis (PrEP): Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[53] Supporting Evidence Review for the USPSTF,[54] Supporting Citations[11, 13])
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; AIDS, acquired immunodeficiency syndrome; CDC, Centers for Disease Control and Prevention; CPS, clinical preventive service; HIV, human immunodeficiency virus; NR, not reported; PrEP, preexposure prophylaxis; USPSTF, U.S. Preventive Services Task Force.

Table B.1.12. Hypertension Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[55] Supporting Evidence Review for the USPSTF,[56] Supporting Citations[5, 11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends screening for HTN in adults age 18 years or older with office blood pressure measurement. The USPSTF recommends obtaining blood pressure measurements outside of the clinical setting for diagnostic confirmation before starting treatment.
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	About 45% of the adult U.S. population has HTN, which is the most commonly diagnosed condition at outpatient office visits (2017–2018 data). HTN is one of the most important risk factors for CVD.
Importance	Disease burden: Morbidity	HTN is a major contributing risk factor for heart failure, myocardial infarction, stroke, and chronic kidney disease.
Importance	Disease burden: Mortality	NR
Potential for significant improvement in health	Preventable burden of disease: Morbidity	From Maciosek, 2017 Clinically preventable burden of 190,000–700,000 QALYs saved, undiscounted From Westat, 2013 Clinically preventable burden of >700,000 QALYs saved, undiscounted
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR

continued

Table B.1.12. Hypertension Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[55] Supporting Evidence Review for the USPSTF,[56] Supporting Citations[5, 11, 13])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	From Borsky, 2018 Estimated that 87.3% of all adults age 35 years or older are receiving HTN screening as indicated. From evidence review Blood pressure of adult patients was measured in 65.9% of clinic visits in the United States, but blood pressure measurement techniques in current clinical practice varied substantially from guideline-endorsed protocols (2016 data). Despite national guidelines recommending out-of-office confirmatory methods, survey data suggested that this is not common in current practice, with surveys showing that out-of-office measures were rarely ordered or available to clinicians. From Westat, 2013 Current screening utilization of 90%
Disparities	Disparities in prevalence	Black race is a risk factor for HTN. Higher prevalence in men (51.0%) than women (39.7%) (2017–2018 data). Higher prevalence in Black adults (51.7%) than White (43.6%) or Hispanic (43.7%) adults (2017–2018 data). 2017–2018 data too limited to estimate prevalence among Asian people, Native Americans, and Alaska Natives, but 2015–2016 data supported estimate of 25% prevalence among Asian people, the lowest prevalence of any racial/ethnic group.
Disparities	Disparities in outcomes	Lower blood pressure control rates among Hispanic adults (36.8%) compared with White adults (45.2%) (2017–2018 data). Higher blood pressure control rates among college graduates (47.1%), greater income (48.9% household income ≥$75,000), and health insurance (NR). Blood pressure control rate among uninsured was “exceedingly low” (22.2%).

continued

Table B.1.12. Hypertension Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[55] Supporting Evidence Review for the USPSTF,[56] Supporting Citations[5, 11, 13])
Disparities	Disparities in receipt of the CPS	Significantly more women (89.6%) than men (84.7%) age 35 years or older received HTN screening.
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPS, clinical preventive service; CVD, cardiovascular disease; HTN, hypertension; NR, not reported; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.1.13. Lung Cancer Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[17] Supporting Modeling Study for the USPSTF[57])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	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. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Estimated to be second most common cancer in the United States. An estimated 228,820 people diagnosed with lung cancer in 2020.
Importance	Disease burden: Morbidity	NR
Importance	Disease burden: Mortality	Estimated to be leading cause of cancer death in the United States. 135,720 deaths in 2020.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	Relative to the 2013 USPSTF screening program (A-55-80-30-15), CISNET modeling analyses suggested that annually screening people ages 50 to 80 years who have at least a 20-pack-year smoking history and currently smoke or have quit within the past 15 years. (A-50-80-20-15) would be associated with 6,918 life years gained vs. 4,882 life years gained per 100,000 people in the population ages 45 to 90 years over a lifetime of screening.

continued

Table B.1.13. Lung Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[17] Supporting Modeling Study for the USPSTF[57])
Potential for significant improvement in health	Preventable burden of disease: Mortality	The NLST reported a relative risk reduction in lung cancer mortality of 20% (95% CI, 6.8%-26.7%); a subsequent analysis of NLST data with additional followup and end point verification reported a relative risk reduction of 16% (95% CI, 5% to 25%). At 10 years of followup, the NELSON trial reported 181 lung cancer deaths among participants in the screening group and 242 in the control group (incidence rate ratio [IRR], 0.75 [95% CI, 0.61 to 0.90]). The NLST also found a reduction in all-cause mortality with LDCT screening compared with chest radiography (IRR, 0.93 [95% CI, 0.88 to 0.99]). Relative to the 2013 USPSTF screening program (A-55-80-30-15), CISNET modeling analyses suggested that annually screening people ages 50 to 80 years who have at least a 20-pack-year smoking history and currently smoke or have quit within the past 15 years. (A-50-80-20-15) would be associated with lung cancer mortality reduced by 13.0% vs 9.8% and with avoiding 503 vs. 381 lung cancer deaths. Patients with localized disease have a 59% 5-year survival rate compared with 32% for those with regional spread and 6% for those with distant metastases. By leading to earlier detection and treatment, screening for lung cancer can give patients a greater chance for cure.
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Uptake of lung cancer screening is low. One recent study using 2017 BRFSS data for 10 states found that 14.4% of people eligible for lung cancer screening (based on 2013 USPSTF criteria) had been screened in the prior 12 months.

continued

Table B.1.13. Lung Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[17] Supporting Modeling Study for the USPSTF[57])
Disparities	Disparities in prevalence	According to the NCI data accessed in 2021, African American/Black men have a higher incidence of lung cancer than White men, and Black women have a lower incidence than White women. Data suggested that Black people who smoke have a higher risk of lung cancer than do White people, and this risk difference is more apparent at lower levels of smoking intensity. One recent analysis of SCCS participants—a prospective cohort study designed to examine health disparities among a mostly low-income and African American population across 12 southeastern states—found that 17% of Black people who smoked were eligible for lung cancer screening based on the 2013 USPSTF eligibility criteria compared with 31% of White people who smoked. Also in the SCCS, among people diagnosed with lung cancer, a significantly lower percentage of Black people who smoked (32%) were eligible for screening than were White people (56%). Data also suggest that Latinx/Hispanic people who smoked accumulated fewer pack-years than White people who smoked.
Disparities	Disparities in outcomes	NR

continued

Table B.1.13. Lung Cancer Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[17] Supporting Modeling Study for the USPSTF[57])
Disparities	Disparities in receipt of the CPS	One recent analysis of SCCS participants—a prospective cohort study designed to examine health disparities among a mostly low-income and African American population across 12 southeastern states—found that 17% of Black people who smoked were eligible for lung cancer screening based on the 2013 USPSTF eligibility criteria compared with 31% of White people who smoked. Also in the SCCS, among people diagnosed with lung cancer, a significantly lower percentage of Black people who smoked (32%) were eligible for screening than were White people (56%). Latinx/Hispanic people who smoked accumulated fewer pack-years than White people who smoked, disproportionately affecting their eligibility for lung cancer screening. A strategy of annually screening people ages 50 to 80 years who have at least a 20-pack-year smoking history and currently smoke or have quit within the past 15 years (A-50-80-20-15) would increase the relative percentage of people eligible for screening by 87% overall—78% in non-Hispanic White adults, 107% in non-Hispanic Black adults, and 112% in Hispanic adults compared with 2013 USPSTF criteria (A-55-80-30-15). A strategy of screening people ages 50 to 80 years who have at least a 20-pack-year smoking history and currently smoke or have quit within the past 15 years (A-50-80-20-15) would increase the relative percentage of people eligible for screening by 80% in men and by 96% in women because they accumulate fewer pack-years than men.
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; BRFSS, Behavioral Risk Factor Surveillance System; CI, confidence interval; CISNET, Cancer Intervention and Surveillance Modeling Network; CPS, clinical preventive service; IRR, incidence rate ratio; LDCT, low-dose computed tomography; NCI, National Cancer Institute; NLST, National Lung Screening Trial; NR, not reported; SCCS, Southern Community Cohort Study; USPSTF, U.S. Preventive Services Task Force; vs., versus.

Table B.1.14. Osteoporosis Screening: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[58] Supporting Evidence Review for the USPSTF,[59] Supporting Citations[5, 11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in women age 65 years or older (B recommendation). The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in postmenopausal women younger than 65 years who are at increased risk of osteoporosis, as determined by a formal clinical risk assessment tool (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	By 2020, approximately 12.3 million individuals in the United States older than 50 years were expected to have osteoporosis. The prevalence of primary osteoporosis (i.e., osteoporosis without underlying disease) increases with age and differs by race/ethnicity.
Importance	Disease burden: Morbidity	Osteoporotic fractures, particularly hip fractures, are associated with limitation of ambulation, chronic pain and disability, loss of independence, and decreased QOL. 71% of osteoporotic fractures occur among women.
Importance	Disease burden: Mortality	21% to 30% of patients who experience a hip fracture die within 1 year.

continued

Table B.1.14. Osteoporosis Screening: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[58] Supporting Evidence Review for the USPSTF,[59] Supporting Citations[5, 11, 13])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	From recommendation statement With the aging of the U.S. population, the potential preventable burden is likely to increase in future years. From Maciosek, 2017 Clinically preventable burden: 18,000 to 70,000 QALYs saved, discounted
Potential for significant improvement in health	Preventable burden of disease: Mortality	With the aging of the U.S. population, the potential preventable burden is likely to increase in future years.
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Adults age 35 years or older receiving appropriate osteoporosis screening in 2014: Overall: 63.2%; Women: 63.2%; Men: N/A From Westat report: receipt of osteoporosis screening among women ages 65–74 years (N=23,175): 73.8%
Disparities	Disparities in prevalence	Women have higher rates of osteoporosis than men at any given age.
Disparities	Disparities in outcomes	Men have a higher fracture-related mortality rate than women.
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	Central DXA is the most commonly used bone measurement test used to screen for osteoporosis. Most treatment guidelines using bone mineral density—measured by central DXA—to define osteoporosis and the treatment threshold to prevent osteoporotic fractures. Peripheral DXA and quantitative ultrasound are measured with portable devices, have similar accuracy to central DXA, and may be less costly and more accessible than central DXA measurement.

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPS, clinical preventive service; DXA, dual-energy X-ray absorptiometry; NR, not reported; QALY, quality-adjusted life year; QOL, quality of life; USPSTF, U.S. Preventive Services Task Force.

Table B.1.15. Statin Use for CVD Prevention: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[60] Supporting Evidence Review for the USPSTF,[61] Supporting Citations[5, 11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends that clinicians prescribe a statin for the primary prevention of CVD for adults ages 40 to 75 years who have one or more CVD risk factors (i.e., dyslipidemia, diabetes, hypertension, or smoking) and an estimated 10-year CVD risk of 10% or greater.
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Prevalence of CHD increases with age and is higher in men than in women at the same age. Lifetime risks (through age 80 years) of CHD for 40-year-old men with a total cholesterol of 200, 200 to 239, and >240 mg/dL were 31%, 43%, and 57%, respectively, with 10-year cumulative risks of 3%, 5%, and 12% (1971 to 1996 data).
Importance	Disease burden: Morbidity	CVD is the leading cause of morbidity in the United States (2017 data).
Importance	Disease burden: Mortality	CVD is the leading cause of morbidity and death in the United States, resulting in more than 1 of every 4 deaths (2017 data). CHD is the single leading cause of death and accounts for 43% of deaths attributable to CVD in the United States (2020 data). Estimated 558,000 deaths caused by CHD and 109,000 deaths caused by ischemic stroke (2019 data). CHD caused 10% of deaths in people ages 25 to 44 years, 21% of deaths in people ages 45 to 64 years, and 25% of deaths in people age 65 years or older (2017 data).

continued

Table B.1.15. Statin Use for CVD Prevention: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[60] Supporting Evidence Review for the USPSTF,[61] Supporting Citations[5, 11, 13])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	NR
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	National median over 67% (2021 CMS quality benchmarks) Approximately 39 million Americans are treated with statins (2002 to 2013 data).
Disparities	Disparities in prevalence	Prevalence of CHD is higher in men than in women at the same age. In adults over age 20 years, prevalence of CHD varies by race/ethnicity, with prevalence from 2015 to 2018 estimated at 8.6% for American Indian/Alaska Native people, 6.7% for Black males and 7.2% for Black females, 6.8% for Hispanic males and 6.4% for Hispanic females, 5.0% for Asian males and 3.2% for Asian females, and 8.7% for White males and 6.0% for White females. Among both sexes, Black adults have highest CVD prevalence of any race/ethnicity.
Disparities	Disparities in outcomes	CHD mortality is higher in Black compared with White women and in Black compared with White men. Despite lower CHD prevalence among Asian American people aggregated as a whole, mortality due to ischemic CHD is higher among South Asian people compared with East Asian or White people.
Disparities	Disparities in receipt of the CPS	Statin use is higher among non-Hispanic White (58.3%) people compared with non-Hispanic Asian (49.2%), non-Hispanic Black (44.3%), or Hispanic (33.7%) people. Black adults are less likely to be prescribed statin therapy than White adults. Being uninsured alone or having multiple vulnerabilities (i.e., one or more of following: age 65 years or older, being a woman, being Black, area poverty level ≥10%, or being uninsured) are associated with lower likelihood of statin use.

continued

Table B.1.15. Statin Use for CVD Prevention: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[60] Supporting Evidence Review for the USPSTF,[61] Supporting Citations[5, 11, 13])
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CHD, coronary heart disease; CMS, Centers for Medicare & Medicaid Services; CPS, clinical preventive service; CVD, cardiovascular disease; NR, not reported; USPSTF, U.S. Preventive Services Task Force.

Table B.1.16. Tobacco Smoking Cessation: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[62] Supporting Evidence Review for the USPSTF,[63] Supporting Citations[5, 11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends that clinicians ask all adults about tobacco use, advise them to stop using tobacco, and provide behavioral interventions and FDA-approved pharmacotherapy for cessation to nonpregnant adults who use tobacco (A recommendation). The USPSTF recommends that clinicians ask all pregnant people about tobacco use, advise them to stop using tobacco, and provide behavioral interventions for cessation to pregnant people who use tobacco (A recommendation). The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of pharmacotherapy interventions for tobacco cessation in pregnant people (I statement). The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of e-cigarettes for tobacco cessation in adults, including pregnant people. The USPSTF recommends that clinicians direct patients who use tobacco to other tobacco cessation interventions with proven effectiveness and established safety (I statement).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	In 2019 (the most recent data currently available), an estimated 50.6 million U.S. adults (20.8% of the adult population) used tobacco; 14.0% of the U.S. adult population currently smoked cigarettes; and 4.5% of the U.S. adult population used electronic cigarettes (e-cigarettes). According to data from the National Vital Statistics System, in 2016, 7.2% of women who gave birth smoked cigarettes during pregnancy. Despite a reduction in tobacco product use in U.S. adults, during 2017–2018, the prevalence of current us of any tobacco product increased by 38% among high school students (from 19.6% to 27.1%) and by 29% among middle school students (from 5.6% to 7.2%).64

continued

Table B.1.16. Tobacco Smoking Cessation: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[62] Supporting Evidence Review for the USPSTF,[63] Supporting Citations[5, 11, 13])
Importance	Disease burden: Morbidity	Smoking during pregnancy can increase the risk of numerous adverse pregnancy outcomes (e.g., miscarriage and congenital anomalies) and complications in the offspring (including sudden infant death syndrome and impaired lung function in childhood).
Importance	Disease burden: Mortality	Tobacco use is the leading preventable cause of disease, disability, and death in the United States. In 2014, it was estimated that 480,000 deaths annually were attributed to cigarette smoking, including secondhand smoke exposure.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	Westat report (2013)[13]: QALYs saved if tobacco cessation counseling and brief cessation intervention in adults increased to 90% utilization: 460,000. Current utilization is 50%. CPB of 5 as determined by the evaluation for the NCPP.[11]
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	National median benchmarks from CMS (2021),[27] over 73% From Westat, overall service delivery rates by sex and age: Females 50–64, 79.5% Females 65–74, 84.8% Males 50–64, 76.1% Males 65–74, 82.8%

continued

Table B.1.16. Tobacco Smoking Cessation: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[62] Supporting Evidence Review for the USPSTF,[63] Supporting Citations[5, 11, 13])
Disparities	Disparities in prevalence	There are disparities in smoking behaviors associated with certain sociodemographic factors: smoking rates are particularly high in non-Hispanic American Indian/Alaska Native people; lesbian, gay, or bisexual adults; adults whose highest level of educational attainment is a GED certificate; people who are uninsured and those with Medicaid; adults with a disability; and people with mild, moderate, or severe generalized anxiety symptoms. Persistent disparities in tobacco use exist by age, sex, race/ethnicity, sexual orientation, education, income level, insurance and disability status, psychological status, and region. In 2019, prevalence of current tobacco product use was higher among those ages 25 to 44 years (25.3%), 45 to 64 years (23.0%), and 18 to 24 years (18.2%) than among those age 65 years or older (11.4%), and higher among males (26.2%) than females (15.7%). By race and ethnicity, current tobacco use prevalence was highest among American Indian/Alaska Natives (29.3%), followed by non-Hispanic adults of other races (28.1%), White people (23.3%), Black people (20.7%), Hispanic or Latino adults (13.2%), and Asian people (11.0%). Prevalence of tobacco use was also higher among adults who were lesbian, gay, or bisexual (29.9%) than among heterosexual adults (20.5%). Prevalence also varied by education and income levels: It was higher among adults who had a GED (43.7%) than among those who had completed any other levels of education (ranging from 26.4% in those with 0–12 year of education (with or without a high school diploma) to 8.7% in those with a graduate degree), and higher among those who had an annual household income of <$35,000 than among those with higher incomes (ranging from 15.1% in those with annual household incomes ≥$100,000 to 22.0% in those with annual household incomes between $35,000 and $74,000). In 2019, there was higher prevalence of tobacco product use among those who were uninsured (30.2%), those insured by Medicaid (30.0%), or had other public insurance (25.6%) than among people covered by private health insurance (18.0%) or Medicare only (11.4%). Prevalence was also higher among those who had a disability/limitation (26.9%) than among those who did not (20.1%), as well as among those who had GAD-7 indicating mild (30.4%), moderate (34.2%), or severe (45.3%) anxiety than among those indicating no or minimal anxiety (18.4%). Additionally, by U.S. region, the Midwest (23.7%) and South (22.9%) had higher prevalence of tobacco product use than the West (16.4%) or Northeast (18.5%).
Disparities	Disparities in outcomes	NR

continued

Table B.1.16. Tobacco Smoking Cessation: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[62] Supporting Evidence Review for the USPSTF,[63] Supporting Citations[5, 11, 13])
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CMS, Centers for Medicare & Medicaid Services; CPB, clinical preventive burden score; CPS, clinical preventive service; FDA, Food and Drug Administration;GAD-7, Generalized Anxiety Disorder-7; GED, General Educational Development; NCPP, National Commission on Prevention Priorities; NR, not reported; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.1.17. Unhealthy Alcohol Use: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[65] Supporting Evidence Review for the USPSTF,[66] Supporting Citations[5, 11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	Screening and Behavioral Counseling Interventions to Reduce Unhealthy Alcohol Use in Adolescents and Adults The USPSTF recommends screening for unhealthy alcohol use in primary care settings in adults 18 years or older, including pregnant women, and providing people engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce unhealthy alcohol use (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	High-risk drinking increased by almost 30% between 2001 and 2002 and 2012 and 2013. In 2016, an estimated 26.2% of adults age 18 years or older reported heavy-use (binge drinking) episodes, and 6.6% reported heavy drinking within the previous month; an estimated 7.8% of men and 4.2% of women met the criteria for AUD. Unhealthy alcohol use is relatively common and is increasing in adults. Based on the 2016 BRFSS Survey, 6.5% of adults reported drinking above recommended levels (≥14/7 drinks per week for men/women). In addition, according to data from the 2016 NSDUH, an estimated 14.6 million adults met the criteria for having AUD, representing 7.8% of men and 4.2% of women. Among adults age 18 years or older, 26.2% reported heavy-use episodes (≥5 drinks on the same occasion on ≥1 day in the previous month, also referred to as binge episodes), and 6.6% reported engaging in heavy drinking (≥5 drinks on the same occasion on ≥5 days) in the previous month.
		According to the NESARC, high-risk drinking increased by 29.9% between 2001 and 2002 and 2012 and 2013 among adults in the United States. Similarly, the prevalence of AUD increased from 8.5 to 12.7%, a 35.7% increase. The largest increases were seen in women (59.8% increase), Black people (55.8% increase), and adults age 45 years or older (61.9% to 75.0%). There are declining sex differences in prevalence of alcohol use.

continued

Table B.1.17. Unhealthy Alcohol Use: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[65] Supporting Evidence Review for the USPSTF,[66] Supporting Citations[5, 11, 13])
Importance	Disease burden: Morbidity	Alcohol use can exacerbate or cause a wide range of medical conditions commonly encountered in the primary care setting, including gastrointestinal, cardiopulmonary, dermatologic, reproductive, cancer, and neurologic conditions, among others.
Importance	Disease burden: Mortality	Unhealthy alcohol use is the third leading cause of preventable death in the United States. One of 10 deaths among adults ages 20 to 64 years can be attributed to excessive alcohol use. In the United States, from 2006 to 2010, an estimated 88,000 deaths each year were attributed to alcohol use, with an estimated 2.5 million years of potential life lost. Of these 88,000 deaths, 44% were from chronic conditions (e.g., alcoholic liver disease) and 56% were from acute conditions (e.g., injuries from motor vehicle collisions). Excessive alcohol use also contributed to 3.2% to 3.7% of cancer deaths, including breast, gastrointestinal, oral cavity, and neck cancer. Excessive alcohol use is one of the leading causes of premature mortality and is responsible for 1 in 10 deaths among working-age adults ages 20 to 64 years in the United States. From 2006 through 2010, the number of average annual alcohol-attributable deaths in the United States was 87,798 (27.9/100,000 population), with an estimated 2.5 million years of potential life lost. Overall, 44% of these deaths were due to chronic conditions (e.g., alcoholic liver disease) and 56% were due to acute conditions (e.g., motor vehicle traffic crashes). Men are more likely to die from alcohol-related causes than women—the age-adjusted death rate was 2.9 times higher in men than in women in 2013. Additionally, 5.1% of the global burden of disease and injury in disability-adjusted life years was related to alcohol.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	From Westat report: QALYs saved if alcohol misuse screening, brief intervention in adults increased to 90% utilization: 140,000. Current utilization is 10%. CPB of 3 as determined by the evaluation for the NCPP.[11]
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Current estimated utilization is 10% or less

continued

Table B.1.17. Unhealthy Alcohol Use: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[65] Supporting Evidence Review for the USPSTF,[66] Supporting Citations[5, 11, 13])
Disparities	Disparities in prevalence	Disparities exist among racial/ethnic minorities and underserved populations in terms of the prevalence of AUD and overall drinking patterns, as well as adverse health effects and consequences related to heavy alcohol use. The recent publication analyzing NESARC data from 2012 to 2013 referenced above found that the odds of developing an AUD of any severity in the previous 12 months was significantly higher among men (adjOR, 1.9 [95% CI,5 1.72 to 2.01]) versus women and among individuals living in urban cities (adjOR, 1.4 [95% CI, 1.20 to 1.55]) versus rural environments. A greater percentage of Native Americans (19.2%) reported AUD of any severity in the previous 12 months followed by Black people (14.4%) and White people (14.0%), but the difference in prevalence between races/ethnicities was not found to be significant. That same trend was seen among people with family incomes less than $20,000 per year (16.2%) versus those of higher socioeconomic status (12.7% to 14.0%). Drinking patterns have also been found to vary by race/ethnicity, with Hispanic people (17.2%) being shown to have the highest prevalence of binge drinking, followed by Black people (15.6%) and White people (14.8%). Additionally, Hispanic men are reported to have a higher drink maximum in a day (7.4) compared with White (7.0) and Black (4.9) men.
Disparities	Disparities in outcomes	Alcohol-related morbidity and mortality are also found to vary across racial/ethnic groups. Hispanic people and Black people have been shown to have a greater risk of developing liver disease compared with White people, and Hispanic men are reported to have the highest incidence of liver cirrhosis mortality compared with other races/ethnicities. Further, the incidence of alcohol-related esophageal cancer and pancreatic disease are higher for Black men than White men, and fetal alcohol syndrome and fetal alcohol spectrum disorders are more prevalent in Black people and Native American people. A review of peer-reviewed and national surveillance reports found that Native American people experience the highest rates of alcohol-attributable motor vehicle crash mortality, suicide, and falls compared with other racial/ethnic groups.
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; adjOR, adjusted odds ratio; AUD, alcohol use disorder; BRFSS, Behavioral Risk Factor Surveillance System; CI, confidence interval; CPB, clinical preventive burden score; CPS, clinical preventive service; NCPP, National Commission on Prevention Priorities; NESARC, National Epidemiologic Survey on Alcohol and Related Conditions; NR, not reported; NSDUH, National Survey on Drug Use and Health; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.1.18. Unhealthy Drug Use: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[16] Supporting Evidence Review for the USPSTF,[67] Supporting Citations[5, 11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends screening by asking questions about unhealthy drug use in adults age 18 years or older. Screening should be implemented when services for accurate diagnosis, effective treatment, and appropriate care can be offered or referred. (Screening refers to asking questions about unhealthy drug use, not testing biological specimens.) (B recommendation)
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	In 2018, an estimated 12% of U.S. residents age 18 years or older reported current unhealthy drug use in a national survey. Unhealthy drug use is more commonly reported by young adults ages 18 to 25 years (24%) than by older adults (10%) or adolescents ages 12 to 17 years (8%). In 2018, an estimated 5.4% of pregnant people ages 15 to 44 years reported unhealthy drug use in the last month. Adults age 18 years or older (10.5%) and adolescents ages 12 to 17 years (8.0%) more commonly reported cannabis use in the last month than nonmedical use of psychotherapeutic medications, including pain relievers (2.1% and 1.3% respectively) and opioids (1.2% and 0.7%, respectively). In both age groups, less than 1% reported use of heroin, cocaine, hallucinogens, inhalants, or methamphetamines in the last month.

continued

Table B.1.18. Unhealthy Drug Use: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[16] Supporting Evidence Review for the USPSTF,[67] Supporting Citations[5, 11, 13])
Importance	Disease burden: Morbidity	Drug use can cause many serious health effects that vary by drug type, administration mode, amount, and frequency of use, as well as pregnancy status. Opioid use can cause drowsiness, slowed breathing, constipation, coma, and fatal overdose. Stimulants such as cocaine can cause arrhythmias, myocardial infarction, seizures, and other complications. Marijuana use is associated with slowed reaction time; problems with balance, coordination, learning, and memory; and chronic cough and frequent respiratory infections. Injection drug use may result in blood-borne viral and bacterial infections. Drug use during pregnancy can increase risk of obstetric complications such as placental abruption, preeclampsia, and third trimester bleeding, as well as adverse fetal and infant outcomes such as spontaneous abortion, abnormal brain growth, preterm delivery, low birth weight, and neonatal abstinence syndrome. Drug use is also associated with violence, criminal activity, incarceration, impaired school and work performance, interpersonal dysfunction, and other social and legal problems.
Importance	Disease burden: Mortality	In 2017, unhealthy drug use caused more than 70 000 fatal overdoses.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	NR
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	NR
Disparities	Disparities in prevalence	Rates of current illicit drug use among those age 12 years or older in 2017 varied by race and ethnicity, with the highest rates among those reporting two or more races (17.1%) and American Indian or Alaska Native people (17.6%), followed by Black people (13.1%), White people (11.6%), Native Hawaiian or Pacific Islander people (10.4%), Hispanic or Latino people (9.8%), and Asian people (4.5%).
Disparities	Disparities in outcomes	NR

continued

Table B.1.18. Unhealthy Drug Use: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[16] Supporting Evidence Review for the USPSTF,[67] Supporting Citations[5, 11, 13])
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPS, clinical preventive service; NR, not reported; USPSTF, U.S. Preventive Services Task Force.

Table B.1.19. Weight Loss Interventions to Prevent Obesity-Related Morbidity and Mortality in Adults: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[68] Supporting Evidence Review for the USPSTF,[69] Supporting Citations[5, 11, 13])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The USPSTF recommends that clinicians offer or refer adults with a BMI of 30 or higher to intensive, multicomponent behavioral interventions (B recommendation).
Appropriateness	Service is evidence based, having an A or B grade recommendation from the USPSTF	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	More than 35% of men and 40% of women in the United States are obese. About 1 in 13 Americans has a BMI of more than 40 kg/m2 (Class III obesity). From 2005 through 2014, there was a significant increase in the rate of women with obesity but not men. When expanded to include overweight and obesity (BMI ≥25 kg/m2), the age-adjusted prevalence in 2011–2014 was 73.0% of U.S. men and 66.2% of U.S. women.
Importance	Disease burden: Morbidity	Overweight and obesity have been associated with an increased risk of CHD, type 2 diabetes, cancer, ischemic stroke, heart failure, atrial fibrillation/flutter, venous thrombosis, gallstones, gastroesophageal reflux disease, renal disease, and sleep apnea. Midlife obesity has been associated with later-in-life dementia. Obesity also increases the risk of developing osteoarthritis and is associated with functional disability. Some observational studies suggest that individuals with obesity, even those without comorbid diseases, may have a decreased QOL compared with individuals who are not overweight or have obesity. As a result of the increased morbidity, there is increased use of healthcare services and costs among individuals with obesity. The leading causes of death among adults with obesity include ischemic heart disease, type 2 diabetes, respiratory diseases, and cancer (e.g., liver, kidney, breast, endometrial, prostate, and colon cancer).
Importance	Disease burden: Mortality	Whether being overweight (BMI 25 to 29.9 kg/m2) is associated with increased mortality risk has been the subject of considerable public health debate.

continued

Table B.1.19. Weight Loss Interventions to Prevent Obesity-Related Morbidity and Mortality in Adults: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: USPSTF Recommendation Statement,[68] Supporting Evidence Review for the USPSTF,[69] Supporting Citations[5, 11, 13])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	QALYs saved if obesity screening in adults increased to 90% utilization: 540,000. Current utilization is 50%. CPB of 5 as determined by the evaluation for the NCPP.[11]
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	NR
Disparities	Disparities in prevalence	Using the standard definitions of BMI across ethnic groups, non-White adults have a higher prevalence of overweight and obesity than White adults. Among women, for example, the age-adjusted prevalence of obesity (BMI ≥30 kg/m2) is higher among non-Hispanic Black (57.2%) and Hispanic women (46.9%) than among non-Hispanic White women (38.2%). The difference in obesity prevalence is less marked among men (38.0% in non-Hispanic Black men, 37.9% in Hispanic men, and 34.7% in non-Hispanic White men). Rates of obesity among Asian Americans are lower than other groups (12.4% in women and 12.6% in men); however, when using an adjusted cutoff of greater than 25 kg/m2, rates are higher (43%) for U.S.-born Asian people than for non-Hispanic White people (36%).
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; BMI, body mass index; CHD, coronary heart disease; CPB, clinical preventive burden score; CPS, clinical preventive service; NCPP, National Commission on Prevention Priorities; NR, not reported; QALY, quality-adjusted life year; QOL, quality of life; USPSTF, U.S. Preventive Services Task Force.

B.2 Potential High-Priority Clinical Preventive Services Based on ACIP Recommendations

Table B.2.1. COVID-19 Vaccination: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: ACIP Recommendations[70-74])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	The Pfizer-BioNTech COVID-19 vaccine is recommended for people age 16 years or older under FDA's Biologics License Application. On December 19, 2020, after a transparent, evidence-based review of available data, ACIP issued an interim recommendation for use of the Moderna COVID-19 vaccine in people age 18 years or older for the prevention of COVID-19. On July 19, 2022, ACIP made an interim recommendation for use of the Novavax vaccine in people age 18 years or older as a primary 2-dose series vaccination for the prevention of COVID-19. On December 16, 2021, after reviewing updated vaccine effectiveness and safety data, ACIP made a preferential recommendation for the use of mRNA COVID-19 vaccines over the Janssen adenoviral-vectored COVID-19 vaccine in all people age 18 years or older in the United States. On August 15, 2022, ACIP recommended those age 50 years or older and those who are 12 years or older and immunocompromised should get a second booster dose.
Appropriateness	Service is evidence based, having a recommendation from ACIP	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	The emergence of SARS-CoV-2, the virus that causes COVID-19, has led to a global pandemic with substantial societal and economic impacts on individual people and communities. In the United States, more than 80 million cases and more than 986,000 COVID-19-associated deaths had been reported as of April 17, 2022. People age 75 years or older are at high risk for COVID-19–associated morbidity and mortality. As of December 20, 2020, the cumulative incidence of COVID-19 was calculated using age-specific population denominators from the U.S. Census. For this age group, there were 3,839 cases per 100,000 people, with a cumulative hospitalization rate of 1,211 per 100,000 and a mortality rate of 719 per 100,000.

continued

Table B.2.1. COVID-19 Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendations[70-74])
Importance	Disease burden: Morbidity	Throughout the pandemic, adults age 50 years or older have had higher hospitalization rates than younger age groups.
Importance	Disease burden: Mortality	The emergence of SARS-CoV-2, the virus that causes COVID-19, has led to a global pandemic with substantial societal and economic impacts on individual people and communities. In the United States, more than 80 million cases and more than 986,000 COVID-19-associated deaths had been reported as of April 17, 2022. People age 75 years or older are at high risk for COVID-19–associated mortality. As of December 20, 2020, for this age group: mortality rate of 719 per 100,000.
Potential for significant improvement in health	Preventable burden of disease: Morbidity	NR
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Variable and changing throughout the project period: As of April 18, 2022, more than 218 million people in the United States were vaccinated against COVID-19 and 99.5 million people had received a booster dose. As of fall 2022, more than 265 million people (about 80% of the U.S. population) had received at least one dose.
Disparities	Disparities in prevalence	The overall proportion of people age 75 years or older who live in a multigenerational household is 6%; the proportion among non-Hispanic White people is 4%, and the proportion among racial or ethnic minority groups is higher (non-Hispanic Black people, 10%; Hispanic or Latino people, 18%; non-Hispanic people of other races, 20%). Racial and ethnic minority groups, age 65 years or older, are underrepresented in the population, both overall and among COVID-19–associated hospitalizations, whereas COVID-19–associated hospitalizations among adults ages 50 to 64 years are more consistent with the underlying population. Moreover, underlying medical conditions that increase the risk for COVID-19 are more prevalent in racial and ethnic minority groups. A second booster recommendation for adults age 50 years or older may prevent COVID-19 among people from racial and ethnic minority groups and people with underlying medical conditions.

continued

Table B.2.1. COVID-19 Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendations[70-74])
Disparities	Disparities in outcomes	Racial and ethnic minority groups, age 65 years or older, are underrepresented in the population, both overall and among COVID-19–associated hospitalizations, whereas COVID-19-associated hospitalizations among adults ages 50 to 64 years are more consistent with the underlying population. Moreover, underlying medical conditions that increase the risk for COVID-19 are more prevalent in racial and ethnic minority groups. A second booster recommendation for adults age 50 years or older may prevent COVID-19 among people from racial and ethnic minority groups and people with underlying medical conditions.
Disparities	Disparities in receipt of the CPS	As of April 18, 2022, more than 218 million people in the United States were fully vaccinated against COVID-19 and 99.5 million people had received a booster dose. As of fall, 2022, more than 265 million people (about 80% of the U.S. population) had received at least one dose. There are noted disparities in booster vaccination trends by race or ethnicity among fully vaccinated people in the United States. Individuals who identified as multiracial, Asian, and White people have higher uptake of booster doses (72.3%, 68.5%, and 59%, respectively). However, there is a gap in uptake among people from some racial and ethnic groups including Native Hawaiian or Other Pacific Islander, American Indian/Alaska Native, Black, and Hispanic or Latino populations (47%, 45.1%, 44.4%, and 41.8%, respectively). Consequently, while the gaps for vaccine uptake were closed for primary series, disparities still remain for uptake of booster doses.
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; COVID-19, coronavirus disease 2019; CPS, clinical preventive service; FDA, Food and Drug Administration; mRNA, messenger RNA; NR, not reported; USPSTF, U.S. Preventive Services Task Force.

Table B.2.2. Influenza Vaccination: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[75] Supporting Citations[5, 11])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	Routine annual influenza vaccination is recommended for all people age 6 months or older who do not have contraindications. Balancing considerations regarding the unpredictability of timing of onset of the influenza season and concerns that vaccine-induced immunity might wane over the course of a season, particularly for older adults, vaccination is recommended to be offered by the end of October. For nonpregnant adults, influenza vaccination during July and August should be avoided unless there is concern that later vaccination might not be possible. Early vaccination might be associated with decreased vaccine effectiveness before the end of the influenza season, particularly among older adults. Vaccination should continue to be offered as long as influenza viruses are circulating and unexpired vaccine is available. To avoid missed opportunities for vaccination, providers should offer vaccination during routine healthcare visits and hospitalizations. No recommendation is made for revaccination (i.e., providing a booster dose) later in the season of people who have already been fully vaccinated for the season, regardless of when the current season vaccine was received. Providers should still offer influenza vaccination to unvaccinated people who have already become ill with influenza during the season because the vaccine might protect them against other circulating influenza viruses. When vaccine supply is limited, vaccination efforts should focus on administering vaccination to people at higher risk for medical complications attributable to severe influenza who do not have contraindications. These people include the following (no hierarchy is implied by order of listing): (1) all people age 50 years or older; (2) adults and children who have chronic pulmonary (including asthma), cardiovascular (excluding isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus); (3) people who are immunocompromised due to any cause (including but not limited to immunosuppression caused by medications or

continued

Table B.2.2. Influenza Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[75] Supporting Citations[5, 11])
		HIV infection); (4) women who are or will be pregnant during the influenza season; (5) residents of nursing homes and other long-term care facilities; (6) American Indian/Alaska Native people; and (7) people who are extremely obese (BMI ≥40 for adults). When vaccine supply is limited, emphasis should also be placed on vaccinating people who live with or care for such people, including the following: (1) healthcare personnel, including all paid and unpaid people working in healthcare settings who have the potential for exposure to patients or to infectious materials; (2) household contacts (including children age 6 months or older) and caregivers of children age 59 months or younger (i.e., younger than age 5 years) and adults age 50 years or older, particularly contacts of children younger than age 6 months; and (3) household contacts (including children age 6 months or older) and caregivers of people with medical conditions that put them at higher risk for severe complications from influenza. Healthcare personnel and people who are contacts of people in these groups (with the exception of contacts of severely immunocompromised people who require a protected environment) may receive any influenza vaccine that is otherwise indicated. People who care for severely immunocompromised people requiring a protected environment should receive either IIV4 or RIV4. An IIV4 or RIV4 is suitable for people in all risk groups, including adults age 35 years or older. LAIV4 is not recommended for some subpopulations among adults age 35 years or older, due to contraindications or precautions specified in Table 2 of the recommendation statement. Because recommendations for vaccination of this population might continue to evolve, clinicians should check current CDC guidance for up-to-date information.
Appropriateness	Service is evidence based, having a recommendation from ACIP	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	NR
Importance	Disease burden: Morbidity	NR

continued

Table B.2.2. Influenza Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[75] Supporting Citations[5, 11])
Importance	Disease burden: Mortality	NR
Potential for significant improvement in health	Preventable burden of disease: Morbidity	From Maciosek, 2017 Clinically preventable burden: 190,000–700,000 QALYs saved, discounted Additional QALYs saved if adults currently receiving services (i.e., 45%) increased to 90%: 100,000 QALYs From CDC 2021–2022 Prevention and Control of Seasonal Influenza with Vaccines MMWR During the six influenza seasons from 2010–2011 through 2015–2016, influenza vaccination prevented an estimated 1.6–6.7 million illnesses, 790,000–3.1 million outpatient medical visits, and 39,000–87,000 hospitalizations. During the severe 2017–2018 season, notable for an unusually long duration of widespread high influenza activity throughout the United States and higher rates of outpatient visits and hospitalizations compared with recent seasons, influenza vaccination prevented an estimated 7.1 million illnesses, 3.7 million medical visits, and 109,000 hospitalizations.
Potential for significant improvement in health	Preventable burden of disease: Mortality	From CDC 2021–2022 Prevention and Control of Seasonal Influenza with Vaccines MMWR During the six influenza seasons from 2010–2011 through 2015–2016, influenza vaccination prevented an estimated 3,000–10,000 respiratory and circulatory death each season in the United States, or about 18,000-60,000 deaths across all six seasons. During the severe 2017–2018 season, notable for an unusually long duration of widespread high influenza activity throughout the United States and higher rates of outpatient visits and hospitalizations compared with recent seasons, influenza vaccination prevented an estimated 8,000 deaths.

continued

Table B.2.2. Influenza Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[75] Supporting Citations[5, 11])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	From *Health Affairs* (Borsky, 2018) Adults age 35 years or older receiving influenza vaccination Overall: 48.7% Women: 51.0% Men: 46.3% From Maciosek, 2017 Adults currently receiving influenza vaccination nationally: 45%
Disparities	Disparities in prevalence	NR
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; BMI, body mass index; CDC, Centers for Disease Control and Prevention; CPS, clinical preventive service; HIV, human immunodeficiency virus; IIV4, inactivated influenza vaccine; LAIV4, live attenuated influenza vaccine; NR, not reported; QALY, quality-adjusted life year; RIV4, recombinant influenza vaccine, quadrivalent; USPSTF, U.S. Preventive Services Task Force.

Table B.2.3. Pneumococcal Vaccination: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[76] Supporting Citations[11])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	Use of 15-Valent Pneumococcal Conjugate Vaccine and 20-Valent Pneumococcal Conjugate Vaccine Among U.S. Adults On October 20, 2021, ACIP recommended PCV15 or PCV20 for PCV-naïve adults who are either age 65 years or older or ages 19 to 64 years with certain underlying conditions. When PCV15 is used, it should be followed by a dose of PPSV23, typically ≥1 year later.
Appropriateness	Service is evidence based, having a recommendation from ACIP	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	During 2018–2019, the incidence of all IPD in adults age 65 years or older was 24 per 100,000 population, and PCV13 serotypes accounted for 27% of cases; additional serotypes unique to PCV15, PCV20, and PPSV23 caused 15%, 27%, and 35% of IPD, respectively. In adults ages 19 to 64 years with certain underlying conditions, PCV13 serotypes accounted for 30% of IPD; serotypes unique to PCV15, PCV20, and PPSV23 caused 13%, 28%, and 43% of IPD, respectively
Removed Importance	Disease burden: Morbidity	NR
Importance	Disease burden: Mortality	NR
Potential for significant improvement in health	Preventable burden of disease: Morbidity	QALYs saved if pneumococcal immunization in adults increased to 90% utilization: 4,000. Current utilization is 70%. CPB of 2 as determined by the evaluation for the NCPP.[11]
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR

continued

Table B.2.3. Pneumococcal Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[76] Supporting Citations[11])
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	National median from 2021 CMS benchmarks, 44%
Disparities	Disparities in prevalence	NR
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CMS, Centers for Medicare & Medicaid Services; CPB, clinical preventive burden score; CPS, clinical preventive service; IPD, invasive pneumococcal disease; NCPP, National Commission on Prevention Priorities; NR, not reported; PCV, pneumococcal conjugate vaccine; PCV13, 13-valent pneumococcal conjugate vaccine; PCV15, 15-valent pneumococcal conjugate vaccine; PCV20, 20-valent pneumococcal conjugate vaccine; PPSV23, 23-valent pneumococcal polysaccharide vaccine; QALY, quality-adjusted life year; USPSTF, U.S. Preventive Services Task Force.

Table B.2.4. Tetanus Vaccination and Vaccinations Containing Tetanus: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[77, 78] Supporting Citations[11])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	A single booster dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine is recommended for children and adolescents ages 11–18 years and adults ages 19 to 64 years. After receipt of Tdap, booster doses of Td vaccine are recommended every 10 years or when indicated for wound management.
Appropriateness	Service is evidence based, having a recommendation from ACIP	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	Pertussis: During 1934–1943, before the introduction of childhood pertussis vaccination in the United States, an annual average of 200,752 pertussis cases and 4,034 pertussis-related deaths were reported. After introduction of whole-cell pertussis vaccine during the 1940s, the number of reported pertussis cases declined dramatically, reaching an historic low of 1,010 in 1976. Since the 1980s, there has been an overall trend of an increase in reported pertussis cases, especially among adolescents and adults. Although pertussis is cyclic in nature, with peaks in disease every 3 to 5 years, the peaks have gotten higher, notably in 2004 (25,827 cases), 2005 (25,616 cases), 2010 (27,500 cases), and 2012 (48,277 cases).

continued

Table B.2.4. Tetanus Vaccination and Vaccinations Containing Tetanus: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[77, 78] Supporting Citations[11])
		Tetanus: After the introduction of universal vaccination with TT vaccines in the mid-1940s, the incidence of reported tetanus in the United States declined by more than 98%, from 0.39 per 100,000 population in 1947, when national reporting began, to 0.01 per 100,000 population by 2016. The decline in incidence occurred across all age groups. Tetanus occurs primarily among older adults. 60% of cases occur in males. During 2001–2016, three neonatal tetanus cases and 459 nonneonatal tetanus cases were reported to the National Notifiable Diseases Surveillance System. Diphtheria: Reported diphtheria cases from all anatomical sites declined from approximately 200,000 in 1921 to 15,536 in 1940. This decline continued after the introduction of universal childhood vaccination in the late 1940s, and, in 1980, only two cases of diphtheria were reported. During 1996–2016, a total of 13 cases were reported.
Importance	Disease burden: Morbidity	Pertussis: Compared with all other age groups, infants younger than 12 months have substantially higher rates of pertussis disease, complications, and hospitalizations. The highest percentage of pertussis-related hospitalizations occurs among infants younger than age 2 months. Tetanus: During 2010–2016, the risk for tetanus disease was higher among people age 65 years or older than among people younger than age 65 years.
Importance	Disease burden: Mortality	Pertussis: Compared with all other age groups, infants younger than age 12 months have substantially higher rates of pertussis-related deaths. The highest percentage of pertussis-related deaths occurs among infants younger than age 2 months. Tetanus: Deaths from tetanus also declined similarly from 1947 to 2016. During 2010–2016, the risk for tetanus mortality was higher among people age 65 years or older than among people age 65 years or younger. Case-fatality ratio for reported tetanus in the United States declined from 18% (1998–2000) to 8.0% (2001–2016). Diphtheria: NR

continued

Table B.2.4. Tetanus Vaccination and Vaccinations Containing Tetanus: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation,[77, 78] Supporting Citations[11])
Potential for significant improvement in health	Preventable burden of disease: Morbidity	Clinically preventable burden: <18,000 QALYs saved, undiscounted
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	In 2015, for adults age 19 years or older, the proportion receiving any tetanus toxoid–containing vaccine (e.g., TT, Td, or Tdap) during the preceding 10 years was 62.1% (ages 19–49 years), 64.1% (ages 50–64 years), and 56.9% (age 65 years or older); Tdap coverage was 23.1%. Among pregnant women, Tdap coverage during the 2015–2016 influenza season was 48.8%. Based on 2015 data, 61.6% of adults ages 19–49 years received any tetanus toxoid–containing vaccination during the preceding 10 years (i.e., 2005–2014), 64.1% (ages 50–64 years), and 56.9% (age 65 years or older).
Disparities	Disparities in prevalence	NR
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	NR
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CPS, clinical preventive service; NR, not reported; QALY, quality-adjusted life year; Td, tetanus-diphtheria; Tdap, tetanus-diphtheria-pertussis; TT, tetanus toxoid–containing; USPSTF, U.S. Preventive Services Task Force.

Table B.2.5. Zoster Vaccination: Data Extraction Elements

Category	Item Description	Extracted Data (Sources: ACIP Recommendation Statements,[79, 80] Maciosek, 2017,[11] Borksy, 2018[5])
Topic and recommendation	Preventive service and recommendation of USPSTF or ACIP	From 2018 MMWR On October 25, 2017, ACIP recommended the RZV for use in immunocompetent adults age 50 years or older. ACIP also recommended use of ZVL, a single-dose live attenuated strain of VZV, for the prevention of herpes zoster in immunocompetent adults age 60 years or older. Two doses of the RZV vaccine are necessary regardless of prior history of herpes zoster or prior receipt of ZVL. Based on expert opinion, RZV should not be given less than 2 months after receipt of ZVL. Special populations: People with a history of herpes zoster should receive RZV. People with chronic medical conditions (e.g., chronic renal failure, diabetes mellitus, rheumatoid arthritis, and chronic pulmonary disease) should receive RZV. Screening for a history of varicella (either verbally or via laboratory serology) before vaccination for herpes zoster is not recommended. However, in people known to be VZV negative via serologic testing, ACIP guidelines for varicella vaccination should be followed. From 2022 MMWR On October 20, 2021, ACIP recommended two RZV doses for prevention of herpes zoster and related complications in immunodeficient or immunosuppressed adults age 19 years or older. As of November 18, 2020, the ZVL is no longer available for use in the United States. When possible, patients should be vaccinated before becoming immunosuppressed. Recombinant and adjuvanted vaccines, such as RZV, can be administered concomitantly, at different anatomic sites, with other adult vaccines, including COVID-19 vaccines.

continued

Table B.2.5. Zoster Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation Statements,[79, 80] Maciosek, 2017,[11] Borksy, 2018[5])
		Special populations: People with a history of herpes zoster should receive RZV. For immunocompromised adults with no documented history of varicella, varicella vaccination, or herpes zoster, providers should refer to the ACIP varicella vaccine recommendations for further guidance, including postexposure prophylaxis guidance. Providers should consider delaying RZV until after pregnancy. Clinicians may consider vaccination without regard to breastfeeding status if RZV is otherwise indicated.
Appropriateness	Service is evidence based, having a recommendation from ACIP	Yes
Appropriateness	The preventive service should be provided in or referable from primary care	Yes
Importance	Disease burden: Prevalence	The incidence of herpes zoster and related complications (including the most common complication of postherpetic neuralgia) increases with age. The risk for herpes zoster and related complications is generally higher in immunocompromised compared with immunocompetent adults, although there is heterogeneity within and across immunocompromised groups. The risk for herpes zoster among younger adults with certain immunocompromising conditions can be comparable to or higher than that in the general adult population age 50 years or older.

continued

Table B.2.5. Zoster Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation Statements,[79, 80] Maciosek, 2017,[11] Borksy, 2018[5])
Importance	Disease burden: Morbidity	From 2018 MMWR About 1 million cases occur each year in the United States. The incidence increases with age, from 5 cases per 1,000 population in adults ages 50 to 59 years to 11 cases per 1,000 population in people age 80 years or older. Postherpetic neuralgia, commonly defined as persistent pain for at least 90 days following the resolution of the herpes zoster rash, is the most common complication and occurs in 10%–13% of herpes zoster cases in people age 50 years or older. From 2022 MMWR The incidence of herpes zoster and related complications (including the most common complication of postherpetic neuralgia) increases with age.
Importance	Disease burden: Mortality	NR
Potential for significant improvement in health	Preventable burden of disease: Morbidity	Clinically preventable burden for single vaccine dose for adults age 60 years or older: <18,000 QALYs saved, discounted According to data from the ZOE-50 Phase III clinical trial, the efficacy of RZV for the prevention of herpes zoster was 96.6% (95% CI = 89.6–99.3) in people ages 50 to 59 years and 97.4% (95% CI = 90.1–99.7) in people ages 60 to 69 years. Using pooled data from both study arms (RZV and saline vaccine), vaccine efficacy was 91.3% (95% CI = 86.8–94.5) in participants age 70 years or older. Vaccine efficacy in the first year after vaccination was 97.6% (95% CI = 90.9–99.8) and was 84.7% (95% CI = 69.0–93.4) or higher for the remaining 3 years of the study in people age 70 years or older. Efficacy of RZV for prevention of postherpetic neuralgia was 91.2% (95% CI = 75.9–97.7) in adults age 50 years or older and 88.8% (95% CI = 68.7–97.1) in those age 70 years or older.

continued

Table B.2.5. Zoster Vaccination: Data Extraction Elements (continued)

Category	Item Description	Extracted Data (Sources: ACIP Recommendation Statements,[79, 80] Maciosek, 2017,[11] Borksy, 2018[5])
		Estimates of vaccine efficacy came from three studies, with vaccine efficacy of 68.2% (95% CI = 55.6%–77.5%) for autologous hematopoietic cell transplant recipients and 87.2% (44.3%–98.6%) and 90.5% (73.5%–97.5%) in post hoc efficacy analyses for patients with hematologic malignancies and potential immune-mediated diseases, respectively. The level of certainty for prevention of herpes zoster was type 2 (moderate). One study among hematopoietic cell transplant recipients reported vaccine efficacy of 89% (95% CI = 22%–100%) for prevention of postherpetic neuralgia and 85% (32%–97%) for prevention of herpes zoster–related hospitalization (certainty type 3 [low]). Estimated that 8 to 10 people receiving complete vaccination were needed to avert an episode of herpes zoster.
Potential for significant improvement in health	Preventable burden of disease: Mortality	NR
Uptake and current clinical practice	Frequency of providing the CPS for those who are eligible	Adults age 35 years or older received zoster vaccinations against shingles in 2014. Overall: 37.9%; Women: 38.9%; Men: 36.6%
Disparities	Disparities in prevalence	NR
Disparities	Disparities in outcomes	NR
Disparities	Disparities in receipt of the CPS	Because immunosuppression and immunodeficiency were contraindications for the previously available vaccine, ZVL (no longer available for use in the United States as of November 18, 2020) and RZV were originally recommended for immunocompetent adults age 50 years or older, there has been an unmet need for vaccination against herpes zoster in immunocompromised adults.
Availability	Availability of workforce or supplies to deliver the CPS	NR

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CI, confidence interval; COVID-19, coronavirus disease 2019; CPS, clinical preventive service; NR, not reported; QALY, quality-adjusted life year; RZV, recombinant zoster vaccine; USPSTF, U.S. Preventive Services Task Force; VZV, Varicella zoster virus; ZOE-50, Zoster Efficacy Study in Adults 50 Years of Age or Older; ZVL, zoster vaccine live.

Appendix C: Additional Results

Additional Detailed Results from Environmental Scan

Key findings of the scan include the following:

- Three causes of death (cardiovascular disease [CVD], tobacco smoking, and coronavirus disease 2019 [COVID-19]) attributable to health conditions within the scope of this scan were responsible for more total deaths than all of the other pertinent health conditions combined.
- Health conditions defined by behaviors (tobacco smoking, unhealthy alcohol use, and unhealthy drug use) comprised three of the top 10 causes of death. In addition, obesity (defined by body mass index [BMI]) was among the top four causes of death.
- The clinical preventive services (CPS) in the top tier for preventable burden of disease (based on estimated quality-adjusted life years [QALYs] saved) were counseling on healthy diet and physical activity for adults with CVD risk factors, weight loss interventions to prevent obesity-related morbidity and mortality, tobacco smoking cessation, and COVID-19 vaccination.
- Health conditions defined by behaviors (diet and physical activity, tobacco smoking, unhealthy alcohol use, and unhealthy drug use) comprised four of the 16 (25%) services in the top three tiers for preventable burden of disease.
- Some CPS that were not on the prior high-priority list were in the top three tiers for preventable burden of disease: counseling on healthy diet and physical activity for adults with CVD risk factors, COVID-19 vaccination, screening for lung cancer, statins for primary prevention of CVD (which replaced the cholesterol screening topic in U.S. Preventive Services Task Force [USPSTF] recommendations), screening for prediabetes and type 2 diabetes, and screening for unhealthy drug use.
- Current uptake is high for relatively few CPS. These include breast cancer screening, colorectal cancer screening, hypertension screening, osteoporosis screening, statins, tobacco smoking cessation interventions, and COVID-19 vaccination. For the other CPS, uptake is low, intermediate, or uncertain.
- Disparities in prevalence and outcomes for health conditions that are targeted by the CPS were common, usually with higher prevalence or worse outcomes for people from racial and ethnic minority groups.
- Information on availability of workforce or supplies to deliver CPS was typically unavailable in the documents reviewed.

Burden of Disease: Mortality

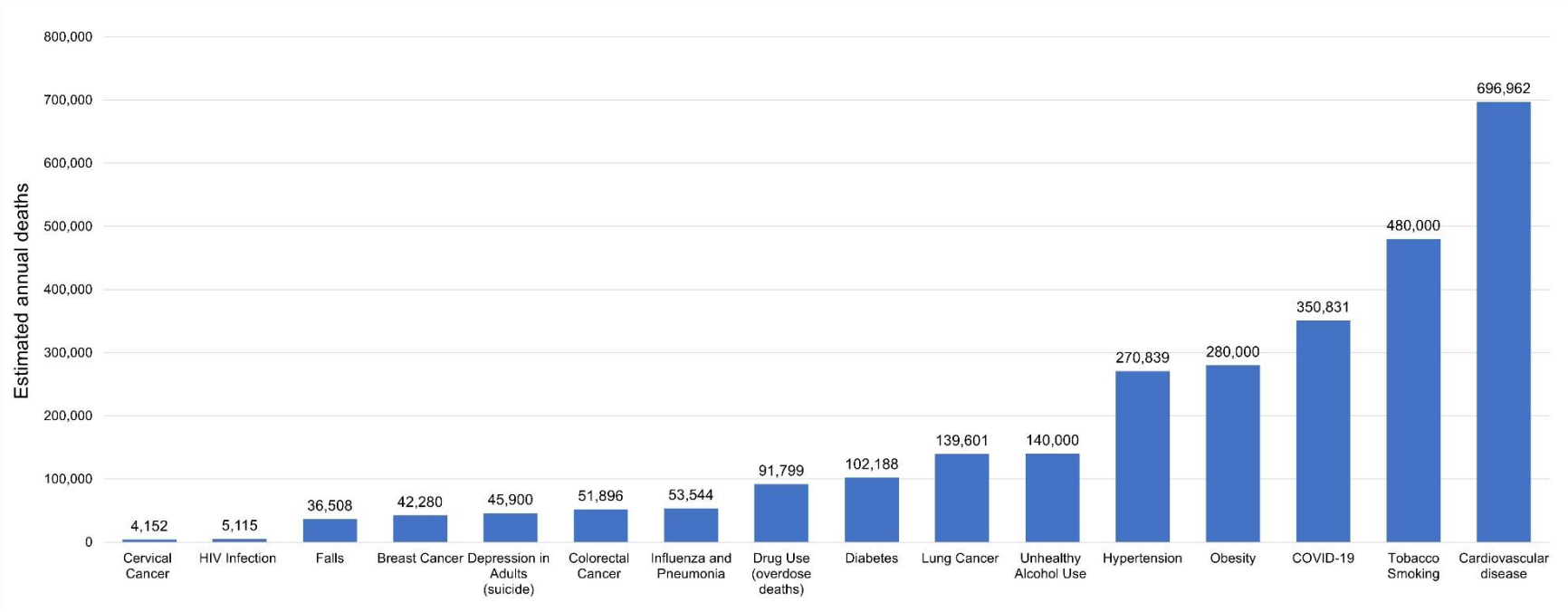
Figure C-1 displays the estimated annual number of deaths in the United States attributable to health conditions within the scope of this scan using data from 2019 or 2020 for most conditions. The top three causes of death in **Figure C-1** (CVD, tobacco smoking, and COVID-19) were responsible for more total deaths (over 1.5 million annually) than all of the other

conditions combined. Health conditions defined by behaviors (tobacco smoking, unhealthy alcohol use, and unhealthy drug use) comprise three of the top 10 causes of death and (combined) were responsible for more than 700,000 deaths annually. We separated each type of cancer by primary site (lung cancer, colorectal cancer, breast cancer, and cervical cancer), corresponding to screening recommendations. If all cancer types were combined, cancers would account for the sixth highest number of deaths annually, with a total of almost 238,000 deaths annually.

Of note, the annual number of deaths reflect the current benefits accruing from the uptake of preventive services. In other words, the number of deaths from each condition would be higher in the absence of current preventive services. For example, mortality from colorectal cancer has steadily declined over the past decades, in part due to screening.[22] Further, these data do not isolate *preventable* causes of death or age of death. Although, in theory, all deaths due to tobacco smoking, unhealthy alcohol use, and unhealthy drug use were preventable. In contrast, deaths due to cancer, for example, comprise those that may have been preventable through screening and those that were not.

The number of annual deaths for these conditions change somewhat from year to year, but there was relatively little change for most of them. The relative position in the figure did not change whether using 2019 or 2020 data (when data were available for both years), with the exception of COVID-19 (which only appears in 2020 data when the global pandemic began). We used data from 2019 or 2020 for most of the health conditions from the sources described in the Methods section. However, we were unable to find recent data for some conditions, and we used older data sources for obesity and tobacco smoking. For obesity, the published projections for deaths attributable to obesity cited come from 1990 to 1991 data.[23] Since then, the prevalence of obesity has substantially increased in the United States. Thus, the annual number of deaths attributable to obesity is likely an underestimate, although determining when to attribute deaths to obesity is challenging. For tobacco smoking, the published projections are from a 2014 Surgeon General's report.[24] In addition, some of the CPS have a corresponding number of deaths that is very low and not displayed on the figure (e.g., zoster).

Figure C-1. Annual Number of Deaths in the United States Attributable to Relevant Health Conditions*



* For the scope of this scan, relevant health conditions were required to be the target of a clinical preventive service that is supported by a grade A or B recommendation from the U.S. Preventive Services Task Force (USPSTF) or a recommendation from the Advisory Committee on Immunization Practices (ACIP). Data for this figure were from 2019 to 2020 for most conditions, although recent data were not available for some conditions (specifically, obesity and tobacco smoking).

Abbreviations: COVID-19, coronavirus disease 2019; HIV, human immunodeficiency virus.

Preventable Burden of Disease: QALYs Saved

Preventable burden was conceptualized as the health that can be gained, in terms of preventing morbidity and mortality, if CPS are delivered as recommended. Preventable burden is often reported as QALYs saved. We did not identify a current (from within the past 5 years) data source for preventable burden of disease in terms of QALYs that used comparable methods and metrics across CPS. A wide range of publications from modeling studies have addressed preventable burden of disease for individual CPS, but the most recent publication that compared preventable burden across a range of relevant CPS and used a common methodology and metric was the updated National Commission on Prevention Priorities work from 2017.[11] Since 2017, some recommendations have changed to expand the age range, which might increase the potential preventable burden. For example, the recommended age for colorectal cancer screening was lowered to 45, the recommended age for screening for prediabetes and diabetes was lowered to 35, and the recommended age for lung cancer screening was lowered to 50. Therefore, we acknowledge that modeling from 2017 may underestimate the preventable burden that could be achieved from following current recommendations for some CPS.

The preventable burden of various CPS organized from highest to lowest tier is provided in **Table C-1**. The preventive services in the top tier, with the estimated greatest number of QALYs saved, were counseling on healthy diet and physical activity for CVD prevention for adults with CVD risk factors, weight loss interventions, tobacco smoking cessation, and COVID-19 vaccination. Sixteen CPS were in the top three tiers. Health conditions defined by behaviors (diet and physical activity, tobacco smoking, unhealthy alcohol use, and unhealthy drug use) comprised four of the services in the top three tiers. Six CPS that were not on the prior high-priority list were in the top three tiers: counseling on healthy diet and physical activity for CVD prevention for adults with CVD risk factors, COVID-19 vaccination, screening for lung cancer, statins for primary prevention of CVD (which replaced the cholesterol screening topic in USPSTF recommendations), screening for prediabetes and type 2 diabetes, and screening for unhealthy drug use.

Table C-1. Clinically Preventable Burden Tiers Based on QALYs Saved

Service	Tier
Counseling on healthy diet and physical activity for CVD prevention*	5
Weight loss interventions to prevent obesity-related morbidity and mortality	5
Tobacco smoking cessation	5
COVID-19 vaccination*	5
Influenza vaccination	4
Screening for lung cancer*	4
Screening for colorectal cancer	4
Screening for cervical cancer	4
Screening for hypertension	4
Statin use for primary prevention*	4
Screening for prediabetes and diabetes mellitus*	3
Screening for unhealthy alcohol use	3
Screening for unhealthy drug use*	3
Screening for depression	3
Screening for breast cancer	3
Screening for Osteoporosis	3
PrEP for HIV infection*	2
Screening for HIV infection	2
Pneumococcal Vaccination	2
Preventive medication to reduce risk of breast cancer*	2
Falls prevention interventions*	1
Tdap/Td vaccination*	1
Shingles vaccination	1
BRCA-related risk assessment, counseling, and testing*	1

*CPS that was not on the prior high-priority list.
Abbreviations: BRCA, breast cancer gene; CPS, clinical preventive services; CVD, cardiovascular disease; COVID-19, coronavirus disease 2019; HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis; Td, tetanus-diphtheria; Tdap, tetanus-diphtheria-pertussis.

Uptake in Current Clinical Practice

Details of estimates for the uptake for each CPS are provided in **Appendix B**, and categories of uptake are listed in **Table C-2**. For some of the CPS, published literature indicates that current uptake is quite low (i.e., <20% or <30% of eligible persons receive the service). These CPS include preventive medications for breast cancer, cervical cancer screening, depression screening, HIV screening, lung cancer screening, and screening for unhealthy alcohol use. For healthy diet and physical activity counseling for CVD prevention, published data indicate exceedingly high rates for encouraging increased physical activity (99%), but that few clinicians

(<10%) referred at-risk patients to the intensive behavioral counseling that may be needed to obtain benefits.

Table C-2. Receipt of Clinical Preventive Services

Service	Receipt
Tobacco smoking cessation	High
COVID-19 vaccination*	High
Screening for colorectal cancer	High
Screening for hypertension	High
Statin use for primary prevention*	High
Screening for breast cancer	High
Osteoporosis	High
Influenza vaccination	Intermediate
Tdap/Td vaccination*	Intermediate
Pneumococcal vaccination	Intermediate
Counseling on healthy diet and physical activity for CVD prevention*	Low
Screening for lung cancer*	Low
Screening for cervical cancer	Low
Screening for unhealthy alcohol use	Low
Screening for depression	Low
PrEP for HIV infection*	Low
Screening for HIV infection	Low
Preventive medication to reduce risk of breast cancer*	Low
Weight loss interventions to prevent obesity-related morbidity and mortality	Uncertain
Screening for prediabetes and diabetes mellitus*	Uncertain
Screening for unhealthy drug use*	Uncertain
Falls prevention interventions*	Uncertain
Shingles vaccination	Uncertain
BRCA-related risk assessment, counseling, and testing*	Uncertain

*CPS that was not on the prior high-priority list.
Abbreviations: BRCA, breast cancer gene; CPS, clinical preventive services; COVID-19, coronavirus disease 2019; CVD, cardiovascular disease; HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis; Td, tetanus-diphtheria; Tdap, tetanus-diphtheria-pertussis.

For some CPS, uptake is relatively high. These CPS include breast cancer screening (over 75% of eligible adults have been screened), colorectal cancer screening (almost 70% of adults ages 50 to 75 have been screened), hypertension screening (over 87% of adults age 35 and older, although blood pressure measurement techniques may vary from guideline-endorsed protocols), osteoporosis screening (from over 63% to over 73%), statins (over 67%), tobacco

smoking cessation interventions (over 73%). For COVID-19 vaccination, uptake and clinical practice were changing rapidly from 2020 through 2022. As of April 18, 2022, more than 218 million people in the United States were vaccinated against COVID-19, and 99.5 million people had received a booster dose. As of fall 2022, over 265 million people (about 80% of the U.S. population) had received at least one dose. For CPS with high uptake, we note that these data are not reporting the percentage of people who remain up to date with screening for the duration of the age range when they are eligible for the CPS, rather, these are typically cross-sectional assessments of whether eligible individuals have received the service.

Uptake of some CPS was intermediate. These CPS include influenza vaccination (48.7% uptake for adults older than age 35 years), pneumococcal vaccination (national median around 44%), and tetanus immunization (56.9% to 64.1% across age groups).

For some CPS, we did not find published data on recent or current uptake. These CPS include BRCA risk assessment/counseling/genetic testing, screening for prediabetes and type 2 diabetes, falls prevention, screening for unhealthy drug use, weight loss interventions to prevent obesity-related morbidity and mortality in adults, and zoster vaccination.

Disparities in Prevalence and Outcomes

Details of disparities data extracted for each CPS are provided in Appendix A. Within the documents we reviewed, our scan found that it was common for publications to include notable disparities in prevalence and outcomes for health conditions that are targeted by the CPS in our scope, usually reporting higher prevalence or worse outcomes for people from racial and ethnic minority groups and for socioeconomically disadvantaged persons. This was the case for breast cancer, cervical cancer, colorectal cancer, COVID-19, diabetes, CVD, HIV, hypertension, lung cancer, obesity, smoking behavior, unhealthy alcohol use, and unhealthy drug use. Some topics also reported disparities by sex (e.g., higher prevalence of CVD and unhealthy alcohol use in males than females), age (e.g., higher mortality rates in persons age 65 years or older, for example, for COVID-19), sexual behaviors (e.g., higher prevalence of HIV in men who have sex with men; higher prevalence of tobacco use among adults who are lesbian, gay, or bisexual than among heterosexual adults), or socioeconomic factors (e.g., higher blood pressure control rates for college graduates and those with greater income; higher prevalence of tobacco use among adults who completed less education, have lower household incomes, are uninsured, have a disability/limitation, and live in the Midwest or South).

In addition, many source documents reviewed in our scan did not report information about disparities. For example, this was the case for screening for depression, influenza vaccination, pneumococcal vaccination, tetanus vaccination, and zoster vaccination.

Availability of Workforce or Supplies to Deliver the Clinical Preventive Service

We aimed to extract estimates of workforce or supplies available in the United States for each CPS, if it was reported in the scan documents. For example, for the screening for depression CPS, we might note information about available behavioral health services to provide diagnostic evaluation and treatment after a positive screening test. Or, for lung cancer screening, we might enter information about nationwide capacity to do all the low-dose computed tomography screenings that would be needed to screen everyone in the eligible groups. However, the information was consistently unavailable in the documents we reviewed.

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