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## Opportunities for Pharmacists and Student Pharmacists to Provide Clinical Preventive Services

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### ABSTRACT

Pharmacists and student pharmacists can play an important role in providing clinical preventive services as specified by the United States Preventive Services Task Force (USPSTF). The USPSTF guidelines provide evidence-based recommendations about clinical preventive services for the general population. The purpose of this paper is to provide information to pharmacists and student pharmacists developing and implementing preventive health care services. Examples of successful pharmacy-based programs are also provided. Pharmacists and student pharmacists can provide preventive health care interventions by conducting screenings, providing education, and making referrals.

### INTRODUCTION

Preventive health care aims to improve health through prevention, early detection, and appropriate treatment of diseases. The United States Preventive Services Task Force (USPSTF) guidelines provide evidence-based recommendations about clinical preventive services for the general population. The USPSTF is an independent panel of national experts in prevention and evidence-based medicine that strives to improve the health of Americans through recommendations related to screening, counseling, and preventive medicine. Recommendations that are classified as A (high certainty of benefit) or B (high certainty of moderate benefit or moderate certainty that the benefit is moderate to substantial) should be routinely provided to all individuals within the defined patient population.<sup>1</sup> Increasing emphasis is being placed on provision of preventive services, particularly with the implementation of the Patient Protection and Affordable Care Act (PPACA), which requires that health care insurers cover the cost of preventive services with no cost sharing.<sup>2</sup>

The USPSTF guidelines, national disease state guidelines, and literature describing the implementation of services in pharmacies can be used by pharmacists and student pharmacists as resources to help develop and implement new

services. Pharmacists and student pharmacists can deliver preventive health care interventions through conducting screenings, providing education, and making referrals. The purpose of this paper is to share examples and provide implementation guidance for pharmacists and student pharmacists interested in adopting USPSTF A and B recommendations in the general, non-pregnant, adult population.<sup>3</sup> The examples highlighted in this paper are not exhaustive, but are meant instead to provide a diverse range of instances in an effort to stimulate ideas for similar or extrapolated services that pharmacists and student pharmacists could provide to advance population health.

Opportunities for pharmacists and student pharmacists to conduct screening and provide education and referrals based on current USPSTF recommendations (through November 30, 2016) to the general, non-pregnant, adult population are summarized in Tables 1 and 2. The reader should note that the USPSTF defers recommendations regarding immunizations to the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP). Additionally, the USPSTF provides recommendations for pregnant women and children/adolescents, which are outside of the scope of this paper.

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## PHARMACY-BASED PREVENTIVE SERVICES

*Alcohol misuse: screening and counseling*

Topic	Alcohol misuse
Target population	Adults 18 years of age and older
Recommendation	Screen for alcohol misuse and provide persons engaged in risky or hazardous drinking with behavioral counseling interventions to reduce alcohol misuse
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>Alcohol misuse screening tool such as: <a href="#">Alcohol Use Disorders Identification Test (AUDIT)</a>, <a href="#">Alcohol Use Disorders Identification Test – Consumption (AUDIT-C)</a>, or a single question screening (e.g., “How many times in the past year have you had 5 [for men] or 4 [for women and all adults older than 65] or more drinks in a day?”)</li> <li>Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Alcohol misuse: Screening and behavioral counseling interventions in primary care</a></p> <p><a href="#">Alcohol-use disorders: Diagnosis, assessment and management of harmful drinking and alcohol dependence</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>Risky alcohol use is defined as more than 4 drinks on any day or 14 drinks per week for men or more than 3 drinks on any day or 7 drinks per week for women.</li> <li>The alcohol misuse screening tools take between 1-5 minutes to administer and have adequate sensitivity and specificity.</li> <li>Behavioral counseling interventions may be face-to-face, web-paged, via telephone or use written self-help materials. Examples of cognitive behavioral strategies include action plans, drinking diaries, stress management, and problem solving. Interactions that occur more than one time and are between 6-15 minutes each have the best evidence of effectiveness while interventions less than 5 minutes in length have limited effect.</li> </ul>	

## Example:

A study conducted in London, England showed that those with hazardous drinking behavior who participated in a 5-minute counseling session with a community pharmacist reduced drinking by 10%. In this pilot study, 40 participants completed a drink diary and answered questions regarding their alcohol use at a community pharmacy using a validated tool from the World Health Organization. Pharmacists reviewed the results of the diary and tool with the participant in either a 5- or 15-minute counseling session, asked the patient how he/she felt about personal drinking habits, and provided information about the harmful effects of alcohol. Participants completed another drink diary one week later. Participants who had identified hazardous drinking behaviors had reduced alcohol consumption by an average of 2.8 units per week. The length of the counseling session had no significant effect on alcohol consumption.<sup>4</sup>

*Aspirin preventive medication*

Topic	Aspirin use
Target population	Adults aged 50 to 59 years who have a 10% or greater 10-year cardiovascular risk, are not at increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years
Recommendation	Low-dose aspirin use is recommended for prevention of cardiovascular disease and colorectal cancer
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>Risk Assessment tools: <a href="#">10-year risk of heart attack in men</a></li> </ul>
Guidelines	<a href="#">USPSTF recommendation: Prevention of cardiovascular disease with aspirin</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>Aspirin is a salicylate derivative with antiplatelet and non-steroidal anti-inflammatory effects used in primary prevention of myocardial infarctions in men and ischemic strokes in women.</li> <li>The mechanism of sex related differences is unknown, however, there appear to be differences in aspirin metabolism, differences in rates of myocardial infarction and stroke, and aspirin resistance.</li> <li>A pharmacist can play a role in identifying patients at high risk of cardiovascular events. Factors such as upper gastrointestinal complications, non-steroidal anti-inflammatory drug use, anticoagulant use, and overall cardiovascular health can help guide the decision to start aspirin.</li> <li>The risks and benefits of continued therapy should be revisited at least every 5 years.</li> <li>Aspirin 81 mg daily or 325 mg every other day is recommended; higher doses are not more effective but do increase the risk of bleeding.</li> <li>Concurrent use of non-steroidal anti-inflammatory drugs (NSAID) and/or anticoagulant medications may increase upper gastrointestinal (GI) bleeding risk.</li> <li>To ensure aspirin's cardiovascular protective effects and prevent interactions, separate aspirin and NSAIDs by at least 2 hours.</li> </ul>	

## Example:

A study was done in 8 New York state community pharmacies to determine whether a program administered by student pharmacists could increase the number of patients with diabetes receiving aspirin therapy. Student pharmacists completing an advanced practice pharmacy experience (APPE) in 1 of the 8 locations completed assessment sheets for each patient, faxed recommendations to physicians as needed, and counseled patients as appropriate. Eighty-two percent of physicians contacted with recommendations responded to the student pharmacists, and aspirin therapy was initiated in 67% of eligible patients.<sup>5</sup>

*Blood pressure screening*

Topic	Blood pressure screening
Target population	Adults 18 years and older
Recommendation	Conduct screening
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>• Sphygmomanometer</li> <li>• Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Blood pressure in adults (hypertension): screening</a></p> <p><a href="#">Evidence-based guideline for the management of high blood pressure in adults, 2014</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>• High blood pressure increases the risk of heart attacks, strokes, kidney failure, and death. Treatment lowers the risk the complications.</li> <li>• High blood pressure is usually defined as <math>\geq 140/\geq 90</math> mmHg.</li> <li>• Nonpharmacologic treatments include reducing sodium intake, potassium supplementation, increased physical activity, weight loss, stress management, and reduced alcohol intake.</li> <li>• Factors that should be taken into account when deciding whether to initiate pharmacotherapy include blood pressure, age, and comorbid conditions.</li> <li>• The USPSTF recommends obtaining measurements outside of the clinical setting for diagnostic confirmation before starting treatment.</li> </ul>	

## Example:

The impact of pharmacy-based screening for high blood pressure was demonstrated by a project at a community pharmacy in Iowa. All individuals aged 18 and older who came into the pharmacy during the time period of the project were offered a blood pressure screening at no cost. Individuals were referred to their primary care providers (PCP) if the reading was high. Sixty-two percent of individuals screened had blood pressure readings greater than 140/90 mm Hg, and 36% of those referred to a PCP had a medication change.<sup>6</sup>

*Breastfeeding counseling*

Topic	Breastfeeding counseling
Target population	Pregnant women and new mothers
Recommendation	Provide interventions during pregnancy and after birth to support breastfeeding
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>• Patient resources, such as those from <a href="#">The U.S. Department of Health and Human Services Office on Women's Health</a>, <a href="#">the Office of the Surgeon General</a>, or <a href="#">La Leche League International</a>.</li> </ul>
Guidelines	<a href="#">USPSTF recommendation: Primary care interventions to support breastfeeding</a> <a href="#">Policy statement from the American Academy of Pediatrics on breastfeeding and the use of human milk</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Breastfeeding provides benefits for both the child (e.g. reduced risk of acute otitis media, asthma, diabetes) and the nursing mother (e.g. reduced risk of breast cancer, ovarian cancer, type 2 diabetes).</li> <li>• Education should be focused on increasing both rates and duration of breastfeeding.</li> <li>• Educational interventions can include discussing the benefits of breastfeeding, providing practical support and advice on how to breastfeed, and providing psychological support.</li> <li>• Pharmacists can provide direct education to patients, as well as provide referrals to other breastfeeding support networks.</li> <li>• Breastfeeding is contraindicated in certain maternal and fetal conditions and circumstances, such as certain medication use. Additionally, not all women are able to breastfeed. Therefore, individual factors and preferences must be considered.</li> </ul>	

## Example:

The *Well Babies at Walgreens* program provided breastfeeding support for patients at Indiana Walgreens pharmacies. A professional lactation consultant met with patients in private rooms at the pharmacy. Pharmacists at those stores also received training to enhance their knowledge about breastfeeding so they would be able to appropriately respond to questions from patients who arrived at the pharmacy at times when the lactation consultant was not present.<sup>7</sup>

*Depression screening*

Topic	Depression screening
Target population	General adult population, including pregnant and postpartum women.
Recommendation	Screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up.
Implementation considerations	
Supplies	<ul style="list-style-type: none"> <li>• Depression screening tool, such as the <a href="#">Patient Health Questionnaire (PHQ-9)</a></li> <li>• Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up</li> <li>• Protocol to assess patient risk of suicidality and plan to ensure access to emergency services</li> </ul>
Guidelines	<a href="#">USPSTF recommendation: Screening for depression in adults</a> <a href="#">Adult depression in primary care</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Persons at increased risk for depression include those with other psychiatric disorders, family history of depression, chronic medical diseases, unemployed, have lower socioeconomic status, or female gender.</li> <li>• PHQ-9 is a nine question assessment that can be completed in less than 5 minutes. A score of five or more indicates that depression is possible; therefore a referral for diagnosis, treatment, and follow-up should be provided.</li> <li>• Some clinicians screen all patients using the first two items of the PHQ-9. If the patient responds positively to either question, the PHQ-9 is given.</li> <li>• All individuals who may interact with patients should have clear instructions regarding their role when interacting with a suicidal patient.</li> <li>• Treatment for depression may include psychotherapy and/or medications based on the severity of the symptoms, psychosocial stressors, comorbid conditions, and patient preference.</li> </ul>	

## Example:

Pharmacists in Ohio developed, implemented, and evaluated a program to screen patients aged 18 years or older for depression in 32 community pharmacies located in grocery stores. The pharmacists utilized the Patient Health Questionnaire (PHQ). For patients screening positive on the PHQ, the longer PHQ-9 was then administered. Patients screening positive on the PHQ-9 were then referred to their PCP. Pharmacists followed-up with these patients. Of the 3,726 patients screened, 25% met criteria per the PHQ-9 to be referred to their PCP; upon pharmacist follow-up, 60% of those had begun or had changes in therapy. Pharmacists identified 5 patients who had suicidal thoughts and referred them for urgent treatment.<sup>8</sup>

*Diabetes screening*

Topic	Diabetes mellitus type 2 screening
Target population	Adults with elevated blood pressure
Recommendation	Screen for type 2 diabetes in asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mmHg.
Implementation considerations	
Legal requirements	Obtain a Clinical Laboratory Improvement Amendments (CLIA) waiver through the State Department of Health and complete a <a href="#">Form 116</a>
Supplies and protocols	<ul style="list-style-type: none"> <li>• Appropriately sized blood pressure cuff</li> <li>• Blood glucose testing supplies, such as a glucometer and test strips or hemoglobin A1C testing device</li> <li>• Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up</li> <li>• Patient resources, such as from the <a href="#">National Diabetes Education Program</a></li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Diabetes mellitus (type 2) screening</a></p> <p><a href="#">American Diabetes Association guidelines 2016</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>• This recommendation applies to people without symptoms of diabetes, such as polyuria, polyphagia, or polydipsia. Symptomatic individuals should be screened regardless of blood pressure.</li> <li>• Screening tests include fasting plasma glucose (diabetes is defined as <math>\geq 126</math> mg/dL), 2-hour postload plasma glucose (<math>\geq 200</math> mg/dL), and hemoglobin A1C <math>\geq 6.5\%</math>). The fasting plasma glucose test is the easiest, fastest, and most economical to perform. It is recommended that this test be repeated on another day before a diagnosis is made, especially if the results are borderline.</li> <li>• Long term complications of diabetes mellitus type 2 include both microvascular (e.g., retinopathy, nephropathy, neuropathy) and macrovascular (e.g., peripheral vascular disease, coronary artery disease, and cerebrovascular disease) events.</li> <li>• Metabolic syndrome occurs when a person has three or more of the following: abdominal obesity, elevated triglycerides, low HDL, elevated blood pressure and elevated fasting glucose. This syndrome increases the risk of cardiovascular events.</li> </ul>	

Example:

A pilot test was performed in Australia to determine the utility of community pharmacists in screening patients for type 2 diabetes and referring patients as needed to PCPs. Thirty pharmacies participated in the program and within 3 months had screened 1286 patients using either a checklist or a blood glucose test. Patients at risk for type 2 diabetes were determined by both methods and referred to PCPs as appropriate.<sup>9</sup>



*Falls prevention in older adults*

Topic	Falls prevention in older adults
Target population	Community-dwelling adults aged 65 years or older who are at increased risk for falls
Recommendation	Exercise or physical therapy and vitamin D supplementation
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for evaluation and follow-up</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Falls prevention in older adults: Counseling and preventive medication</a></p> <p><a href="#">Centers for Disease Control and Prevention: Injury prevention &amp; control</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>Factors to evaluate include history of falls, mobility issues, and the Get-Up-and-Go test which is a timed test that requires rising from a chair, walking, and sitting back down.</li> <li>The American Geriatric Society recommends evaluating fall risk annually.</li> <li>It is recommended that adults participate in at least 150 minutes per week of moderate-intensity or 75 minutes per week of high intensity exercise, as well as strength activities twice weekly, and balance training at least three days per week.</li> <li>The recommended amount of vitamin D supplementation is 600 units per day for adults 51-70 years of age and 800 units for adults older than 70 years or those at high risk for falls.</li> <li>The American Geriatrics Society recommends evaluating all prescription and over-the-counter agents to determine whether they may increase the risk of falls.</li> </ul>	

## Examples:

While the USPSTF stops short of recommending further specific interventions related to other medications, other peer-reviewed recommendations, as well as a report by the CDC, suggest additional interventions for fall prevention that is targeted at medication assessment by a pharmacist or healthcare professional, with medication adjusted or modified by a physician or nurse practitioner.<sup>10,11</sup>

Examples of pharmacist interventions have been described in the literature, specifically noting the ability of a pharmacist to intervene to prevent falls through the use of an electronic health record (EHR) or through the medication therapy management (MTM) process.<sup>12-15</sup>

*Folic acid supplementation*

Topic	Folic acid supplementation to prevent neural tube defects
Target population	All women of childbearing potential
Recommendation	All women planning or capable of pregnancy take a daily supplement containing 0.4 to 0.8 mg (400 to 800 mcg) of folic acid.
Implementation considerations	
Supplies	Free materials about folic acid can be obtained from: <ul style="list-style-type: none"> <li>• <a href="#">National Birth Defects Prevention Network: National Birth Defects Prevention Month</a></li> <li>• <a href="#">Centers for Disease Control and Prevention: CDC-INFO on Demand: Publications</a></li> <li>• <a href="#">National Birth Defects Prevention Network: Folic Acid Awareness Week</a></li> </ul>
Guidelines	<a href="#">USPSTF recommendation: Folic acid to prevent neural tube defects</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Sufficient amounts of folic acid before conception and during early pregnancy has been shown to reduce the risk of neural tube defects (NTD), such as anencephaly and spina bifida, by 50-70%.</li> <li>• For most women of childbearing potential, 400-800 micrograms daily is the recommended daily dose.</li> <li>• While there are food sources of folic acid, most women do not get enough folic acid through diet alone.</li> <li>• Nearly half of all pregnancies in the U.S. are unintended. Therefore, all women capable of becoming pregnant should be advised to take a multivitamin or folic acid tablet containing 400-800 micrograms of folic acid daily.</li> <li>• Women with certain risk factors should be advised to take higher doses in the months prior to conception. This includes women with diabetes (usually 4-5 mg/day), using anti-epileptic drugs (usually 4 mg/day), or who have experienced a previous NTD-affected pregnancy (usually 4 mg/day).</li> <li>• In the U.S., disparities in rates of NTD persist with Hispanic women experiencing a greater number of pregnancies affected by NTD when compared to non-Hispanic white women. One reason is that Hispanic women are less likely to eat foods fortified with folic acid.</li> </ul>	

Example:

A partnership was formed between a managed Medicaid plan, an MTM platform, and academic investigators to develop and implement education-based targeted medication reviews (TMRs) focused on three areas of preconception care, including folic acid use. Community pharmacists in Ohio who participated in the MTM platform and had a female patient in the managed Medicaid plan provided education on folic acid use, provided necessary follow-up with her PCP, documented, and billed for this service. Within 19 weeks of launching the TMRs, 1149 pharmacists in 818 pharmacies had participated in the program. Over 1400 TMRs for education about folic acid use were completed with a 69% success rate.<sup>16</sup>

*Healthful diet and physical activity behavioral counseling*

Topic	Healthful diet and physical activity behavioral counseling
Target population	Adults 18 years and older who are overweight or obese and who have additional cardiovascular disease risk factors (hypertension, dyslipidemia, impaired fasting glucose, or metabolic syndrome).
Recommendation	Offer or refer individuals to intensive behavior counseling interventions to promote healthful diet and physical activity
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>• <a href="#">Online body mass index (BMI) calculator</a> or <a href="#">BMI chart</a></li> </ul>
Guidelines	<a href="#">USPSTF recommendation: Healthful diet and physical activity counseling</a> <a href="#">Managing overweight and obesity in adults: Systematic evidence review from the obesity expert panel, 2013</a>
<p>Clinical pearls</p> <ul style="list-style-type: none"> <li>• Overweight is defined as a BMI of 25.0-29.9 and obesity is defined as a BMI of 30.0 and higher.</li> <li>• A reduction in calories of 500-1,000 kcal/day can help achieve a weight loss of 1-2 pounds /week</li> <li>• A low calorie diet of 1,000-1,200 kcal/day is reasonable for most women, while a low calorie diet of 1,200-1,800 kcal/day should be chosen for most men for weight loss.</li> <li>• Fewer than 30% of daily calories should come from fat, with saturated fatty acids making up only 8-10% of total calories.</li> <li>• Lean animal and plant protein should make up around 15% of total daily calories.</li> <li>• Total carbohydrates should make up about 55% of daily calories. Generally 20-35g of dietary fiber should be consumed.</li> <li>• 30-45 minutes of physical activity 3-5 days/week should be encouraged initially, with a long-term goal of ≥30 minutes of moderate-intensity physical activity on most, if not all, days of the week</li> <li>• In order to help patients change behaviors, it is essential to build a partnership with the patient and make the patient an active participant in setting goals regarding behavioral changes.</li> <li>• Helping patients monitor progress and focus on positive steps toward achieving goals can help keep patients motivated to continue pursuing dietary and exercise goals.</li> </ul>	

## Example:

A study was performed to evaluate the effectiveness of an education intervention program provided by pharmacists and student pharmacists to female patients of an Ohio community health center with an on-site 340B pharmacy. The educational intervention consisted of a pre-test, 10-minute educational counseling session, post-test, and satisfaction survey. A pharmacist or student pharmacist met with each patient individually. The patient received education about cardiovascular disease; risk factors; lifestyle modifications such as nutrition, physical activity, and smoking cessation; and symptoms of myocardial infarction. Patients were also screened for hypertension and/or hyperlipidemia. Patient-friendly educational materials and information on available pharmacy clinical services were provided to patients as needed. After the counseling session, correct responses for 6 of 8 knowledge-based questions were statistically significantly improved from pre-test to post-test. Ninety-seven percent of patients indicated the program was “useful” or “very useful”.<sup>17</sup>

*Human immunodeficiency virus (HIV) and Hepatitis C screening*

Topic	Human immunodeficiency virus (HIV) infection screening
Target population	Adolescents and adults 15-65 years of age
Recommendation	One time screening plus repeat screenings for those at high risk
Implementation considerations	
Legal requirements	Follow current federal, state, and local laws regarding reporting of cases  Obtain a Clinical Laboratory Improvement Amendments (CLIA) waiver through the State Department of Health and complete a <a href="#">Form 116</a>
Supplies and protocols	<ul style="list-style-type: none"> <li>• Protocol for CLIA-waived screening testing to take place in the community pharmacy</li> <li>• Protocol to connect patients for confirmatory testing, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up as appropriate</li> </ul>
Guidelines	<a href="#">USPSTF recommendation: HIV infection: Screening</a>  <a href="#">Centers for Disease Control and Prevention HIV screening and testing</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Active injection drug users and men who have sex with men are considered to be at very high risk for new HIV infection.</li> <li>• Behavioral risk factors include unprotected intercourse; having sexual partners who are HIV-infected, bisexual, or injection drug users; or exchanging sex for drugs or money</li> <li>• No optimum time interval for HIV screening exists. Consider screening at least annually for those at very high risk, and those at increased risk may be screened every 3-5 years, but use clinical judgment and most recent literature when recommending screening intervals.</li> <li>• Positive rapid screening tests should be confirmed using conventional diagnostic methods.</li> </ul>	
Topic	Hepatitis C screening
Target population	Adults born between 1945 and 1965 and persons at high risk for infection
Recommendation	Screening for persons at high risk for infection and a one-time screening for adults born between 1945 and 1965
Implementation considerations	
Legal requirements	Follow current federal, state, and local laws regarding reporting of cases  Obtain a Clinical Laboratory Improvement Amendments (CLIA) waiver through the State Department of Health and complete a <a href="#">Form 116</a>

Supplies and protocols	<ul style="list-style-type: none"> <li>● CLIA-waived hepatitis C test</li> <li>● Protocol to connect patients for confirmatory testing, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up as appropriate</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Hepatitis C: Screening</a></p> <p><a href="#">HCV guidance: Recommendations for testing, managing, and treating hepatitis C</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>● Hepatitis C is the most common chronic blood borne pathogen in the United States</li> <li>● High risk populations include past or present injection drug use, sex with an injection drug user, or blood transfusion before 1992</li> <li>● Anti-HCV antibody testing must be followed by confirmatory polymerase chain reaction testing in order to detect chronic hepatitis C infection</li> <li>● There is inadequate evidence to support knowledge of positive status as a means for reducing high-risk behaviors</li> <li>● Potential harms for screening include anxiety, patient labeling, and feelings of stigmatization</li> <li>● Medications are available manage and potentially cure hepatitis C in some patients</li> </ul>	

Examples:

Opportunity to screen for chronic infectious diseases, such as hepatitis C and human immunodeficiency virus (HIV), is gaining attention in community pharmacies.<sup>18</sup> For example, a pilot was conducted by the CDC where confidential HIV tests were offered at 21 different sites (18 of which were community pharmacies) in the U.S.<sup>19</sup> Following a standardized training program, personnel performed both on- and off-site testing, resulting in 1.6% of tests as reactive and therefore necessitating referral and confirmatory testing. Staff-patient interaction time required a median 4 minutes for pretest counseling/consent, 3 minutes of posttest counseling, and 23 minutes waiting for test results (when testing staff could be engaged in other work activities). The FDA’s approval of the first oral HIV home test kit represents an additional option for enhancing patient access as it provides a result within 20 minutes.<sup>20</sup> Pharmacists have indicated that patient counseling (explaining the testing procedure, laying the foundation of the pharmacist-patient relationship, etc.) would be valuable when the OTC HIV test is purchased.<sup>21</sup>

*Intimate partner violence screening*

Topic	Intimate partner violence screening
Target population	Women of childbearing age
Recommendation	Screen women of childbearing age for intimate partner violence (IPV), such as domestic violence, and provide or refer women who screen positive to intervention services
Implementation considerations	
Legal considerations	Providers should be aware of state and local reporting requirements and be familiar with requirements in the privacy regulations of the federal Health Insurance Portability and Accountability Act, which require that patients be advised on health information use and disclosure practices.
Supplies and protocols	<ul style="list-style-type: none"> <li>Screening instruments such as <a href="#">Hurt, Insult, Threaten, Scream</a> (HITS; English and Spanish versions); Ongoing Abuse Screen/Ongoing Violence Assessment Tool (OAS/OVAT); Slapped, Threatened, and Throw (STaT); Humiliation, Afraid, Rape, Kick (HARK); Modified Childhood Trauma Questionnaire–Short Form (CTQ-SF); and Woman Abuse Screen Tool (WAST).</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Intimate partner violence</a></p> <p><a href="#">ACOG Committee Opinion No. 518: Intimate partner violence</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>The term “intimate partner violence” describes physical, sexual, or psychological harm by a current or former partner or spouse.</li> <li>While all women are at potential risk for abuse, factors that elevate risk include young age, substance abuse, marital difficulties, and economic hardships.</li> <li>Interventions may include counseling, home visits, information cards, referrals to community services, and mentoring support which may be provided by clinicians, nurses, social workers, non-clinician mentors, or community workers. Counseling generally includes information on safety behaviors and community resources.</li> </ul>	

Examples:

Surveys have assessed attitudes and needs of patients, pharmacists, and student pharmacists regarding feasibility and acceptability of screening for intimate partner violence (IPV) in pharmacies. For example, an online survey of 60 women in Mississippi showed that 33% thought IPV screening should occur in pharmacies.<sup>22</sup> A survey conducted with U.S. community pharmacists found a willingness to conduct IPV screening with targeted patients and an interest in continuing education on IPV.<sup>23</sup> In another study, nearly 90% of student pharmacists from 1 school in New York surveyed thought IPV was “relevant” to their pharmacy careers and specified areas such as legal and liability issues as educational needs.<sup>24</sup>

*Obesity screening and management*

Topic	Obesity screening and management
Target population	All adults
Recommendation	Screen all adults for obesity. Clinicians should offer or refer patients with body mass index (BMI) of 30 kg/m <sup>2</sup> or higher to intensive, multicomponent behavioral interventions
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>• <a href="#">Online body mass index (BMI) calculator</a> or <a href="#">BMI chart</a></li> <li>• Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Obesity in adults</a></p> <p><a href="#">Managing overweight and obesity in adults: Systematic evidence review from the obesity expert panel, 2013</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Screening may include evaluating BMI and/or waist circumference. Overweight is classified as a BMI of 25.0-29.9 kg/m<sup>2</sup> and obese is ≥30 kg/m<sup>2</sup>. A high waist circumference is ≥40 inches for men and ≥35 inches for women.</li> <li>• Weight loss therapy is recommended for patients with BMI ≥ 25 kg/m<sup>2</sup> or a high-risk waist circumference plus two or more risk factors, including hypertension, diabetes mellitus (type 2), family history or established cardiovascular disease, cigarette smoking, high LDL cholesterol, low HDL cholesterol, impaired fasting glucose, age (male ≥ 45 years, female ≥ 55 years), and sleep apnea.</li> <li>• Intensive, multicomponent behavioral interventions can lead to an average weight loss of 8.8 to 15.4 pounds while improving glucose tolerance and risk factors for cardiovascular disease.</li> <li>• When weight loss is not achievable, the goal should be to prevent further weight gain; this may be appropriate for overweight patients (BMI 25–29.9 kg/m<sup>2</sup>) not otherwise at high risk.</li> <li>• Dietary therapy: caloric intake reduction by 500 – 1,000 calories per day (kcal/day)</li> <li>• Physical activity: moderate intensity exercise ≥ 30 minutes on most days increased slowly with care to avoid injury; reduces risk of CHD, lowers body fat, and prevents decrease in muscle mass due to weight loss.</li> <li>• Behavior therapy: stress management, stimulus control, and cognitive restructuring.</li> <li>• Pharmacotherapy: may be appropriate if patient failed weight loss after 6 months only and patient has BMI ≥ 30 kg/m<sup>2</sup> or BMI &gt; 27 kg/m<sup>2</sup> with risk factors</li> <li>• Surgery: may be appropriate for well-informed and motivated patients with severe obesity (BMI ≥ 40 kg/m<sup>2</sup>) or a BMI ≥35 kg/m<sup>2</sup> with serious comorbid conditions.</li> </ul>	

## Examples:

Published studies have shown the impact of pharmacists in screening patients for obesity, though usually the screening was conducted as part of a broader program targeting diabetes or cardiovascular disease. Studies have also examined potential models for pharmacists to deliver services to assist in weight loss, either independently or as part of an interdisciplinary team. Several successful pharmacy-based weight loss programs have been described in the U.S. and other countries.<sup>25</sup>

*Osteoporosis screening*

Topic	Osteoporosis screening
Target population	Women 65 years and older and in younger women whose fracture risk is equal or greater than that of a 65-year-old white woman who has no additional risk factors
Recommendation	Screen for osteoporosis
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>● Bone mineral densitometer</li> <li>● Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up as appropriate</li> <li>● <a href="#">Osteoporosis patient education</a></li> <li>● Protocol to assess patient risk of falls (e.g., <a href="#">STEAD!</a>) and plan to ensure proper medication administration and lifestyle changes (<a href="#">NOF Prevention</a>)</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Screening for osteoporosis in adults</a></p> <p><a href="#">ACE Medical guidelines for clinical practice for diagnosis and treatment of postmenopausal osteoporosis</a></p> <p><a href="#">National Osteoporosis Foundation Clinician's guide</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>● Health providers should counsel patients on osteoporosis non-modifiable risk factors (i.e. age, gender, and history of fractures) and modifiable risk factors (i.e. proper intake of calcium and vitamin D, regular weight bearing exercise, smoking cessation, body mass index, nutrition, estrogen deficiency, frequency of falls, and decreased alcohol intake)</li> <li>● T-scores compare a patient's bone density to that of a healthy 30-year old. Lower T scores are indicative of lower bone density.</li> <li>● Z-scores compare a patient's bone density to that of others of the same age, sex, and weight. The Z-score tends to be less negative than the T-score and is merely used for relative comparative measures to peers, NOT used to diagnose osteoporosis or osteopenia.</li> <li>● Upon screening for osteoporosis, a T-score of less than -1 necessitates referral for diagnosis, treatment, and follow-up to primary care services.</li> <li>● Treatment for osteoporosis may include lifestyle changes and/or medications based on the severity, history of fractures, and patient preference.</li> </ul>	

## Examples:

Published literature has documented the potential opportunities to deliver osteoporosis screenings in U.S. pharmacies. Several different approaches can be used; most pharmacies have reported a fee-for-service model to collect a cash payment from screening participants, which often ranges anywhere from \$10-\$35.<sup>26-28</sup> Patients can self-refer to the service or can be referred by their PCP.<sup>27-29</sup> Patients found to be high risk, according to the specific bone densitometer used, should be referred for follow up and further screening with a physician.



*Sexually transmitted infections behavioral counseling*

Topic	Sexually transmitted infections: behavioral counseling
Target population	Sexually active adolescents and adults who are at increased risk for sexually transmitted infections (STIs). Also included are adults with current STIs or other infections, persons with multiple sex partners, or persons who do not use condoms
Recommendation	Refer to intensive behavioral counseling interventions to prevent STIs
Implementation considerations	
Supplies and protocols	Follow current federal, state, and local laws regarding reporting of cases
Guidelines	<a href="#">USPSTF recommendation: Sexually transmitted infections: Behavioral counseling</a> Centers for Disease Control and Prevention <a href="#">Sexually transmitted diseases treatment guidelines, 2015</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Behavioral and psychosocial services are an integral part of holistically assisting individuals suffering from STIs.</li> <li>• Behavioral counseling interventions lasting at least 30 minutes and providing basic information about STIs and STI transmission are most effective. It is also important to assess the risk for transmission and provide patient specific recommendations such as condom use, safe sex, problem solving, and goal setting techniques, as appropriate.</li> <li>• Patients who test positive for an STI should be counseled regarding behavioral, psychosocial and medical implications at the point of care or referred for timely medical care.</li> <li>• Referrals to substance abuse programs must be discussed and provided.</li> <li>• Depending on state laws, partners may be required to be notified regarding the potential infection and connected with resources available for screening, post-exposure prophylaxis therapy, and additional medical care. Pharmacists should be familiar with the state laws governing the management of sex and injection-drug partners.</li> </ul>	

Example:

In a study performed in Lima, Peru, pharmacy workers were randomized to either receive training and materials for prevention and management of sexually transmitted infections (STI) (intervention group) or management of diarrhea (control group). Pharmacy workers received education on STI/HIV prevention counseling and information on 4 STI conditions. They also received supportive materials including referral cards that patients could give to their partners and condoms that could be distributed to patients. Through the study, it was determined that training of pharmacy workers was feasible and significantly improved their practices in regards to prevention and management of STI.<sup>30</sup>

*Skin cancer behavioral counseling*

Topic	Skin cancer behavioral counseling
Target population	Children, adolescents, and young adults ages 10 to 24 years who have fair skin
Recommendation	Counsel individuals about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>• <a href="#">CDC Skin Cancer Prevention Fact sheets</a></li> <li>• <a href="#">American Academy of Dermatology Free resources</a></li> </ul>
Guidelines	<a href="#">USPSTF recommendation: Skin cancer behavioral counseling</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Behavior change interventions should be focused on activities proven as effective in reducing ultraviolet (UV) radiation exposure.</li> <li>• UV radiation results from exposure to the sun during midday hours and from artificial sources including indoor tanning.</li> <li>• Behaviors to emphasize include the use of at least one ounce of broad-spectrum water resistant sunscreen with a sun-protection factor of 15 or greater applied at least every 2 hours or after swimming/sweating, wearing protective clothing including hats, avoiding exposure to the sun during midday hours (10 a.m. to 3 p.m.), and never exposing oneself to indoor tanning.</li> <li>• Patients should utilize all behaviors to minimize risk.</li> <li>• Sunscreen should not be used in infants under 6 months of age; protection from sun via shade, clothing, or by staying indoors should be recommended.</li> </ul>	

Example:

Pharmacists in 54 pharmacies from 3 large pharmacy chains in California were randomized to receive training regarding skin cancer prevention or no training. After the intervention, skin cancer prevention counseling rates rose significantly among those pharmacists in intervention group (from 0% to 67%). In addition, over 10,000 educational brochures about skin cancer were distributed during the study period.<sup>31</sup>

*Statin preventive medication*

Topic	Statin use
Target population	Adults age 40-75 years with no history of CVD, 1 or more CVD risk factors, and a calculated CVD risk of 10% or greater (lesser evidence for CVD risk of 7.5-10%)
Recommendation	Use a low- to moderate-dose statin for the prevention of CVD events and mortality when: 1) age 40-75 years; 2) have 1 or more CVD risk factors (dyslipidemia, diabetes, hypertension, or smoking); AND 3) have a calculated 10-year risk of a cardiovascular event of 10% or greater.
Implementation considerations	
Legal requirements	If you intend to perform point-of-care cholesterol testing as a part of a dyslipidemia risk factor assessment, obtain a Clinical Laboratory Improvement Amendments (CLIA) waiver through the State Department of Health and complete a <a href="#">Form 116</a>
Supplies and protocols	<ul style="list-style-type: none"> <li>• Access to the <a href="#">ASCVD Risk Estimator</a></li> <li>• Cholesterol machine and supplies for testing</li> <li>• Resources such as <a href="#">patient education</a></li> <li>• Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up</li> </ul>
Guidelines	<a href="#">USPSTF Recommendation: Statin use for primary prevention of CVD</a>  <a href="#">ASCVD Risk estimator</a>  <a href="#">2013 ACC/AHA Guideline on the treatment of blood cholesterol</a>
Clinical pearls	
<ul style="list-style-type: none"> <li>• Increased risk include any one of the following risk factors: dyslipidemia, diabetes, hypertension, or smoking</li> <li>• The goal is to reduce the risk of cardiovascular events.</li> <li>• Identification of dyslipidemia and calculation of 10-year CVD event risk requires universal lipids screening in adults aged 40-75 years.</li> </ul>	

## Example:

Given that the above recommendation on statin use were just released at the time of this writing, examples from the literature may not use this framework exactly. However, pharmacists have been participating in preventive care related to cholesterol management for many years. For example, pharmacists in a medical center in California were incorporated in a “walk-in” lipid screening program, where patients referred themselves to the service and paid an out-of-pocket fee of \$20. Of the patients screened, 34% had high values but had not been previously diagnosed with a lipid abnormality. Overall, 50% of those screened required an intervention by the pharmacist. Patients were referred to their PCP as needed for follow-up.<sup>31</sup> Additional studies on lipid management by pharmacists have also been conducted with varied approaches, yet positive outcomes.

*Tobacco use counseling and interventions*

Topic	Tobacco use counseling and interventions
Target population	Adults 18 years and older
Recommendation	Ask about tobacco use and provide tobacco cessation interventions to those who use tobacco products.
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>Resources: patient education posters, <a href="#">patient education</a>, <a href="#">SmokeFree website</a>, 1-800-QUIT-NOW (1-800-784-8669)</li> <li>Patient referral information: Quitline cards or Fax-to-Quit forms</li> <li>Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for further treatment and follow-up</li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Tobacco use in adults</a></p> <p><a href="#">AHRQ Treating tobacco use and dependence</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>Techniques such as <a href="#">the 5A's</a> or <a href="#">Ask-Advise-Refer</a> are appropriate for primary care or pharmacy settings. Engaging pharmacy technicians to support and help initiate discussions on smoking cessation at drop-off, pick-up, and drive-thru areas may mitigate the increased pharmacist time spent on non-dispensing roles.</li> <li>Nicotine withdrawal effects include: irritability, anxiety, difficulty concentrating, restlessness, increased appetite, impaired task performance, drowsiness, fatigue, sleep disturbances, and nicotine craving.</li> <li>Peak nicotine withdrawal presents approximately 1 to 4 days after smoking discontinuation and effects diminish in intensity over 2-4 weeks. Nicotine craving may persist intermittently for months to years and may be triggered by stressful situations or observing others smoke.</li> <li>A combination of both non-pharmacologic (counseling, abrupt cessation, hypnotherapy, acupuncture, etc.) and pharmacologic smoking cessation therapy is preferred if appropriate for the patient. Three FDA-approved pharmacologic therapies include nicotine replacement therapy (i.e. nicotine gum, patch, lozenge, nasal spray, and inhaler), psychotropic medications (i.e. bupropion), and partial nicotinic receptor agonists (i.e. varenicline).</li> <li>Electronic cigarettes should not be recommended as tobacco cessation aids.</li> </ul>	

Examples:

Pharmacists can play an important role in decreasing tobacco use, either as part of a team or as a stand-alone service. Evidence shows that engagement of multiple health professionals increases readiness to quit smoking.<sup>33</sup> Previous studies have also demonstrated great success implementing smoking cessation programs in the community pharmacy setting. One popular tobacco cessation intervention model which addresses the lack of time barrier is the Ask-Advise-Refer (AAR) model.<sup>34</sup> The ARR model includes asking patients about tobacco use, advising patients to quit, and referring patients to quitlines (1-800-QUIT-NOW) for further assistance. Pharmacy technicians can be involved in the Ask and Refer process where responsibilities could include asking patients about tobacco use, documenting interaction outcomes, notifying pharmacists of the need for patient interventions, and faxing completed referral forms to quitline services.<sup>35</sup>

*Tuberculosis screening*

Topic	Tuberculosis screening
Target population	<p>Asymptomatic adults at increased risk for infection should be screened for latent tuberculosis infection (LTBI).</p> <p>Populations at increased risk for LTBI include persons who were born in, or are former residents of, countries with increased tuberculosis prevalence and persons who live in, or have lived in, high-risk congregate settings (e.g., homeless shelters and correctional facilities). As local demographic patterns may vary across the U.S., clinicians should consult their local or state health departments for more information about populations at risk in their community.</p>
Recommendation	The USPSTF recommends screening for latent tuberculosis infection (LTBI) in populations at increased risk
Implementation considerations	
Supplies and protocols	<ul style="list-style-type: none"> <li>• Appropriate supplies for testing (e.g., syringe, tuberculin purified protein derivative)</li> <li>• Protocol to connect patients, including those without a primary care provider, to an appropriate health care professional for diagnosis, treatment, and follow-up</li> <li>• <a href="#">Resources for health care providers and patients are available from the CDC</a></li> </ul>
Guidelines	<p><a href="#">USPSTF recommendation: Tuberculosis screening</a></p> <p>ATS/CDC/IDSA <a href="#">Tuberculosis treatment guidelines</a></p>
Clinical pearls	
<ul style="list-style-type: none"> <li>• As many as 13 million people in the US have LTBI, which can become active and multiply.</li> <li>• Some patients will require a 2-step tuberculin skin test (TST), and pharmacists should be adequately trained to identify patients that meet criteria for the 2-step TST.</li> <li>• Screening with the TST requires that patients return 48-72 hours after administration of the skin test for results interpretation.</li> <li>• The interferon-gamma release assay (IGRA) test is a blood test for LTBI which may be useful in certain circumstances, such as when the patient may be unlikely to return for TST interpretation.</li> <li>• Positive results may necessitate reporting; follow-up with a qualified health care professional to evaluate need for treatment is highly important.</li> </ul>	

## Example:

The success of community pharmacy-based tuberculosis (TB) testing was demonstrated in New Mexico, where pharmacists were given the authority to order, give, and evaluate tuberculin skin tests (TSTs). Over approximately a 2-year period, 25 pharmacists administered 606 TSTs; a 3.1% positive rate was observed, and these patients were referred to physicians.<sup>36</sup>

### OPPORTUNITIES FOR EDUCATION AND/OR REFERRAL

Examples of USPSTF recommendations that pharmacists and student pharmacists could provide education and referrals for are outlined in Table 2 and include screenings for abdominal aortic aneurysms, BRCA, breast cancer, cervical cancer, chlamydial infection, colorectal cancer, gonorrhea, hepatitis B, lung cancer, and syphilis and prescribing breast cancer preventive medications. Typically, these services are outside of a pharmacist's scope of practice or may not be feasible in a pharmacy setting. However, pharmacists practicing in certain sites or under certain provisions (such as collaborative practice agreements, as described below) may be able to directly provide prescriptions or referrals, per scope of practice.

Even if the service is not being offered directly in the pharmacy, there is an opportunity to provide education on the topic and facilitate referrals to clinics that do provide the service for patients who meet the criteria for the target populations specified by the USPSTF as good candidates for the service. Pharmacists need to consider how they will identify patients in need of education and/or referral services. For example, if a community pharmacy decided to implement a program related to colorectal cancer screening, a protocol may be developed so that a pharmacy technician adds a note in the computer system for all patients aged 50-75 years. When the note appears at the medication pick-up window, the pharmacist can discuss the screening with the patient. The pharmacy may wish to post signs to make patients aware of the initiative. Additionally, it may be useful to have patient-friendly literature available as well as a list of providers in the area who offer the service.

### IMPLEMENTATION STRATEGIES

Health care professionals have access to a number of resources that may be helpful when considering implementation of preventive services. The USPSTF website offers comprehensive, accurate, and up-to-date information for health professionals and patients regarding clinical and community preventive services. Recommendations can be sorted by document title, type of material, or recommendation title.<sup>37</sup> The Agency for Healthcare Research and Quality (AHRQ) also provides an electronic Preventive Services Selector (ePSS) tool that can be used to access the latest USPSTF recommendations based on a patient's age, gender, pregnancy and sexual activity status, and tobacco use. This tool allows a health care professional to quickly generate a comprehensive list of all USPSTF-recommended clinical preventive services for an individual patient.<sup>38</sup>

Although the need for preventive care is recognized and the pharmacists' role in providing preventive care is clearly important, the implementation process can seem difficult. As

described in this paper, many examples of successful pharmacy-based preventive services exist. These examples, as well as others found in the literature, often include discussions of labor, technology, time, and other resources needed for success in initiating a specific preventive service. For instance, it may be wise to consider the potential for utilization of pharmacy technicians in the workflow and management of such programs to ensure efficiency and ease of implementation.<sup>39,40</sup> As pharmacists look to expand non-dispensing services offered, similar approaches to implementing preventive care services as those published in the literature can be followed.

There may be innovative ways in which pharmacists can play a greater role in providing clinical preventive services. Pharmacists should be aware of different approaches to practice that allow them to perform at the highest ability of their training and education.<sup>41</sup> For example, collaborative practice agreements (CPA) are one tool by which pharmacists develop formal practice relationships with other health care professionals.<sup>42,43</sup> CPA allow pharmacists to collaborate with another health care professional in a way that allows practice beyond the pharmacist's traditional scope of practice, but still within the training and education of that pharmacist. CPA have also been recommended as a pathway to new service implementation.<sup>44</sup> While ideal elements of CPA have been developed, state laws and regulations regarding CPAs are inconsistent.<sup>42,43</sup>

Opportunities to provide clinical preventive services also exist for pharmacists and student pharmacists who practice in novel settings. For example, Murphy et al. describe the implementation of a comprehensive preventive care program by pharmacists in the setting of an employee health and wellness clinic. By using the ePSS tool, pharmacists accessed a list of all preventive services recommended for an individual. Using a systematic approach, each applicable A and B recommendation from the USPSTF was addressed using point-of-care testing (POCT), screening questionnaires, educational tools, or referrals to other health care providers.<sup>45</sup>

Regardless of practice setting or methods to implement these services, pharmacists and student pharmacists need to be aware of some important considerations. First, legal considerations may be applicable. For example, pharmacists may find there are some additional state or local requirements for POCT or other services. Licensure, recordkeeping, and other legal ramifications may also exist depending on the type of initiative offered in the pharmacy, particularly if it involves POCT. Secondly, it may be prudent to investigate professional liability insurance coverage and obtain additional riders if necessary. Thirdly, a documentation system must be in place.

Finally, billing for such services may be quite complex and multifaceted. Resources are available to not only help with a general understanding of billing, but also to support overall program implementation.<sup>40,46-48</sup>

### CONCLUSION

Preventive health care services such as the clinical preventive services recommended by the USPSTF offer the opportunity to improve the health of populations and decrease health care costs. Pharmacists and student pharmacists are well-positioned to implement USPSTF recommendations, either through direct delivery of services or by providing education and referrals to other health care providers. Many examples of successful pharmacy-based delivery of clinical preventive services have been published, providing insight and guidance to those interested in initiating such services at their practice site.

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**Table 1.** USPSTF A and B recommendations (through November 30, 2016) for the general, non-pregnant, adult population that pharmacists and student pharmacists may be able to provide

Topic	USPSTF Recommendation	Grade
Alcohol misuse: screening and counseling	The USPSTF recommends that clinicians screen adults age 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse.	B
Aspirin preventive medication	The USPSTF recommends initiating low-dose aspirin use for the primary prevention of cardiovascular disease and colorectal cancer in adults aged 50 to 59 years who have a 10% or greater 10-year cardiovascular risk, are not at increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years.	B
Blood pressure screening	The USPSTF recommends screening for high blood pressure in adults aged 18 years or older. The USPSTF recommends obtaining measurements outside of the clinical setting for diagnostic confirmation before starting treatment.	A
Breastfeeding counseling	The USPSTF recommends interventions during pregnancy and after birth to promote and support breastfeeding.	B
Depression screening	The USPSTF recommends screening adults for depression when staff-assisted depression care supports are in place to assure accurate diagnosis, effective treatment, and follow-up.	B
Diabetes screening	The USPSTF recommends screening for abnormal blood glucose as part of cardiovascular risk assessment in adults aged 40 to 70 years who are overweight or obese. Clinicians should offer or refer patients with abnormal blood glucose to intensive behavioral counseling interventions to promote a healthful diet and physical activity.	B
Falls prevention in older adults: exercise or physical therapy	The USPSTF recommends exercise or physical therapy to prevent falls in community-dwelling adults age 65 years and older who are at increased risk for falls.	B
Falls prevention in older adults: vitamin D	The USPSTF recommends vitamin D supplementation to prevent falls in community-dwelling adults age 65 years and older who are at increased risk for falls.	B
Folic acid supplementation	The USPSTF recommends that all women planning or capable of pregnancy take a daily supplement containing 0.4 to 0.8 mg (400 to 800 mcg) of folic acid.	A
Healthy diet and physical activity counseling	The USPSTF recommends offering or referring adults who are overweight or obese and have additional cardiovascular disease (CVD) risk factors to intensive behavioral counseling interventions to promote a healthful diet and physical activity for CVD prevention.	B

Topic	USPSTF Recommendation	Grade
Hepatitis C virus infection screening	The USPSTF recommends screening for hepatitis C virus (HCV) infection in persons at high risk for infection. The USPSTF also recommends offering one-time screening for HCV infection to adults born between 1945 and 1965.	B
HIV screening	The USPSTF recommends that clinicians screen for HIV infection in adolescents and adults ages 15 to 65 years. Younger adolescents and older adults who are at increased risk should also be screened.	A
Intimate partner violence screening	The USPSTF recommends that clinicians screen women of childbearing age for intimate partner violence, such as domestic violence, and provide or refer women who screen positive to intervention services. This recommendation applies to women who do not have signs or symptoms of abuse.	B
Obesity screening and management	The USPSTF recommends screening all adults for obesity. Clinicians should offer or refer patients with a body mass index of 30 kg/m <sup>2</sup> or higher to intensive, multicomponent behavioral interventions.	B
Osteoporosis screening	The USPSTF recommends screening for osteoporosis in women age 65 years and older and in younger women whose fracture risk is equal to or greater than that of a 65-year-old white woman who has no additional risk factors.	B
Sexually transmitted infections behavioral counseling	The USPSTF recommends high-intensity behavioral counseling to prevent sexually transmitted infections (STIs) in all sexually active adolescents and for adults at increased risk for STIs.	B
Statin preventive medication	The USPSTF recommends that adults without a history of cardiovascular disease (CVD) use a low- to moderate-dose statin for the prevention of CVD events and mortality when all of the following criteria are met: 1) they are aged 40 to 75 years; 2) they have 1 or more CVD risk factors (ie, dyslipidemia, diabetes, hypertension, or smoking); and 3) they have a calculated 10-year risk of a cardiovascular event of 10% or greater.	B
Skin cancer behavioral counseling	The USPSTF recommends counseling children, adolescents, and young adults ages 10 to 24 years who have fair skin about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer.	B
Tobacco use counseling and interventions	The USPSTF recommends that clinicians ask all adults about tobacco use, advise them to stop using tobacco, and provide behavioral interventions and U.S. Food and Drug Administration (FDA)-approved pharmacotherapy for cessation to adults who use tobacco.	A
Tuberculosis screening	The USPSTF recommends screening for latent tuberculosis infection in populations at increased risk.	B

**Table 2.** USPSTF A and B recommendations (through November 30, 2016) for the general, non-pregnant, adult population for which pharmacists and student pharmacists may serve as a source of education and/or referral

Topic	USPSTF Recommendation	Grade
Abdominal aortic aneurysm screening	The USPSTF recommends one-time screening for abdominal aortic aneurysm by ultrasonography in men ages 65 to 75 years who have ever smoked.	B
BRCA risk assessment and genetic counseling/testing	The USPSTF recommends that primary care providers screen women who have family members with breast, ovarian, tubal, or peritoneal cancer with one of several screening tools designed to identify a family history that may be associated with an increased risk for potentially harmful mutations in breast cancer susceptibility genes (BRCA1 or BRCA2). Women with positive screening results should receive genetic counseling and, if indicated after counseling, BRCA testing.	B
Breast cancer preventive medications	The USPSTF recommends that clinicians engage in shared, informed decision-making with women who are at increased risk for breast cancer about medications to reduce their risk. For women who are at increased risk for breast cancer and at low risk for adverse medication effects, clinicians should offer to prescribe risk-reducing medications, such as tamoxifen or raloxifene.	B
Breast cancer screening	USPSTF recommends biennial screening mammography for women aged 50 to 74 years.	B
Cervical cancer screening	The USPSTF recommends screening for cervical cancer in women ages 21 to 65 years with cytology (Pap smear) every 3 years or, for women ages 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years.	A
Chlamydial infection screening	The USPSTF recommends screening for chlamydial infection in all sexually active nonpregnant young women age 24 years and younger and for older nonpregnant women who are at increased risk.	A
Colorectal cancer screening	The USPSTF recommends screening for colorectal cancer using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults beginning at age 50 years and continuing until age 75 years. The risks and benefits of these screening methods vary.	A
Gonorrhea screening	The USPSTF recommends that clinicians screen all sexually active women, including those who are pregnant, for gonorrhea infection if they are at increased risk for infection (that is, if they are young or have other individual or population risk factors).	B
Hepatitis B screening	The USPSTF recommends screening for hepatitis B virus infection in persons at high risk for infection.	B
Lung cancer screening	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography in adults ages 55 to 80 years who have a 30 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
Syphilis screening	The USPSTF strongly recommends that clinicians screen persons at increased risk for syphilis infection.	A