Choosing Wisely® in Preventive Medicine

The American College of Preventive Medicine's Top 5 List of Recommendations

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The Choosing Wisely® initiative is a national campaign led by the American Board of Internal Medicine Foundation, focused on quality improvement and advancing a dialogue on avoiding wasteful or unnecessary medical tests, procedures, and treatments. The American College of Preventive Medicine (ACPM) Prevention Practice Committee is an active participant in the Choosing Wisely project. The committee created the ACPM Choosing Wisely Task Force to lead the development of ACPM's recommendations with the intention of facilitating wise decisions about the appropriate use of preventive care. After utilizing an iterative process that involved reviewing evidence-based literature, the ACPM Choosing Wisely Task Force developed five recommendations targeted toward overused services within the field of preventive medicine. These include: (1) don't take a multivitamin, vitamin E, or beta carotene to prevent cardiovascular disease or cancer; (2) don't routinely perform prostate-specific antigen–based screening for prostate cancer; (3) don't use whole-body scans for early tumor detection in asymptomatic patients; (4) don't use expensive medications when an equally effective and lower-cost medication is available; and (5) don't perform screening for cervical cancer in low-risk women aged 65 years or older and in women who have had a total hysterectomy for benign disease. The Task Force also reviewed some of the barriers to implementing these recommendations, taking into account the interplay between system and environmental characteristics, and identified specific strategies necessary for timely utilization of these recommendations.

(Am J Prev Med 2016;▮(▮):▮▮▮–▮▮▮)

Introduction

Significant waste exists in the U.S. healthcare delivery system.[1] Overtreatment, or overuse of healthcare services, contributes a substantial amount to the overall waste. The estimated financial cost to the U.S. healthcare system due to overtreatment in 2011 was between $158 billion and $226 billion.[2] Many efforts to increase quality and safety and lower costs of U.S. health care abound. Systemic ways to address overuse and inappropriate care have not always effectively reached consumers in a positive and timely way. A key example is when discussions of harmful or unnecessary care at the end of life devolve into discussions of "death panels." The old adage of "more is better" is no longer applicable in evidence-based medicine. However, determining what is overused and, more importantly, how to effectively communicate to providers and patients who are within a system of entrenched practices, remains a challenge. Several strategies for studying ineffective services have been proposed. These strategies encourage focus on studies that will provide greatest value. Prioritization has been recommended for studying services that have a weak evidence base, entail a significant financial burden, have efficacious alternatives and known significant harms, and are likely to have strong stakeholder support.[3]

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0749-3797/$36.00
http://dx.doi.org/10.1016/j.amepre.2016.03.009

A significant proportion of the U.S. population receives low-value services. For example, a 2014 study involving more than 1.3 million Medicare beneficiaries estimated that between 25% and 42% of beneficiaries received low-value services, which constituted between 0.6% and 2.7% of overall annual spending.[4] Concurrent with overuse of low-value services is the underuse of highly effective, evidence-based services. For example, colorectal cancer screening is only performed in 50%–60% of eligible patients, and significant socioeconomic disparities exist. However, despite the underuse, there is also concurrent misuse and overuse of the same screening modalities.[5] A large Medicare cohort study suggested significant overuse of colonoscopy in certain populations.[6]

The Choosing Wisely® campaign was initially conceived by the National Physicians Alliance in partnership with the American Board of Internal Medicine. In 2012, a national campaign was launched.[7] The idea behind this initiative was that the medical specialty societies would self-identify the areas of waste specific to their field and broadly share their recommendations with providers and the public. Their goals include:

- Start a national conversation about eliminating medical waste.
- Call attention to unnecessary tests and procedures.
- Describe lack of patient benefit and potential harm.

Specialty societies thus created "lists" of inappropriate or overused procedures and technologies that would enable patients and providers to have discussion about avoiding unnecessary services and encouraging safe and appropriate care. Since then, more than 70 medical specialty societies have joined the campaign and created their "Top 5" recommendations for improving care through decreasing unnecessary procedures or services. By partnering with *Consumer Reports* and many others, recommendations are disseminated through several consumer pathways.

The American College of Preventive Medicine (ACPM) has joined the efforts of the Choosing Wisely initiative and set forth to identify five overused services within the field of preventive medicine.

Methods

The ACPM Prevention Practice Committee, responsible for practice guidelines and statements from the College, created a Choosing Wisely Task Force to lead the development of these recommendations. Task Force members consist of select Prevention Practice Committee members and additional ACPM members solicited through ACPM's biweekly e-newsletter, *Headlines*. Initial consideration of ACPM's recommendations was based on the Choosing Wisely guidelines, which include:

- Each item should be within the specialty's purview and control.
- Procedures should be used frequently or carry a significant cost.
- There should be generally well-accepted evidence to support each recommendation.
- There should be a transparent process.

The Task Force then decided upon additional principles for the proposed recommendations, including:

- Recommendations should easily be understood by the general public.
- Recommendations should provide a significant opportunity for cost containment.
- Recommendations should include at least one for broader policy.
- Recommendations should cover a range of preventive medicine interventions (i.e., not be limited to one type of disease or body system).

The Task Force utilized an iterative process. Each Task Force member developed two to three recommendations based on their individual evidence searches. Conversations ensued to further discuss the recommendations, supporting evidence, and the supporting arguments for adopting specific recommendations. The top ten recommendations were selected after sending an electronic survey to the Task Force members. Subsequently, the top ten recommendations were prioritized by the Task Force. These recommendations were presented to the entire Prevention Practice Committee for their consideration, who then prioritized the top five recommendations. The top five recommendations were selected and presented to the ACPM Executive Committee for final approval. The ACPM released their recommendations through the American Board of Internal Medicine Choosing Wisely Campaign in February 2015.

Results

The ACPM Choosing Wisely recommendations are summarized in Table 1.

Recommendation #1: Don't Take a Multivitamin, Vitamin E, or Beta-Carotene to Prevent Cardiovascular Disease or Cancer

Cardiovascular disease (CVD) (24.6%) and cancer (23.3%) are the top two leading causes of death in the U.S.[8] Vitamin supplementation has been proposed in CVD and cancer prevention because dietary supplements are theorized to address the mechanisms of oxidative stress and inflammation that are found in both diseases.[9] In the U.S., vitamin supplementation is a multibillion dollar industry with estimated sales of $32.5 billion in 2012.[10] Dietary supplements are used by approximately half of U.S. adults and many use them with the intent to

Table 1. American College of Preventive Medicine's Choosing Wisely® Recommendations

1. Don't take a multivitamin, vitamin E, or beta carotene to prevent cardiovascular disease or cancer.
2. Don't routinely perform PSA-based screening for prostate cancer.
3. Don't use whole-body scans for early tumor detection in asymptomatic patients.
4. Don't use expensive medications when an equally effective and lower cost medication is available.
5. Don't perform screening for cervical cancer in low-risk women aged 65 years or older.

PSA, prostate-specific antigen.

"improve" (45%) or "maintain" (33%) overall health.[11] A multiethnic survey in Hawaii and Los Angeles found that 76% of participants believed their dietary supplements were as important as prescription medications.[12]

In 2014, the U.S. Preventive Services Task Force (USPSTF) released recommendations regarding the efficacy, benefits, and harms of vitamin supplementation among healthy adults without nutritional deficiencies.[9] The underlying systematic review found four good-quality RCTs (n=28,607) and one good-quality cohort study (n=72,337) that showed inadequate evidence on the benefits and harms of multivitamin supplementation in reducing CVD and cancer. Review of six good-quality RCTs (n=112,820) found adequate evidence that beta carotene supplementation does not reduce the risk of CVD or cancer. However, supplementation with beta carotene increases the risk for lung cancer among current heavy smokers or asbestos-exposed individuals. For vitamin E, six RCTs (n=120,335) demonstrated adequate evidence that vitamin E supplementation does not reduce the risk for CVD or cancer.

The USPSTF concluded that the current body of evidence shows no benefit and potential harm from vitamin supplementation among healthy adults without nutritional deficiencies. Yet, patients are going to considerable expense in aggregate on these supplements that may be offering no benefit and, in some cases, causing harm. Given the fact that vitamin use among consumers occurs largely because of personal choice rather than healthcare provider recommendation,[11] consumer education, at the individual provider–patient level and on a population level, is needed.

The ACPM recommendation aligns with the USPSTF recommendation.

Recommendation #2: Don't Routinely Perform Prostate-Specific Antigen–Based Screening for Prostate Cancer

American men are estimated to have a 16% lifetime risk of being diagnosed with prostate cancer and a 3% risk of dying from prostate cancer.[13] As a result, screening for prostate cancer has been widely recommended. However, with the recent reports of two large RCTs of prostate cancer screening,[14,15] both the USPSTF[13] and the Canadian Task Force on Preventive Health Care[16] have recommended against routine screening for prostate cancer, with each Task Force concluding that the harms clearly outweigh any potential benefit.

There is a slight possible benefit of reducing one death due to prostate cancer by screening 1,000 symptom-free men aged 55–69 years for at least 10 years. However, the risks of false positives for these same 1,000 men would lead to an estimated 178 men with a false-positive test result, with four of these men experiencing biopsy complications severe enough to require hospitalization. In addition, of the 102 men estimated to be diagnosed with prostate cancer, 33 are estimated to be overdiagnosed (i.e., the detected cancers would not have caused illness or become clinically apparent in the absence of screening) and, as such, most of these men would be expected to undergo treatment and experience associated complications, such as urinary incontinence and sexual dysfunction.

Black men have much higher incidence and death rates from prostate cancer than other ethnic groups. It is unclear if screening in this higher-risk subgroup would result in a different risk to benefit ratio. Black men were under-represented in the large trials and the USPSTF stated there is insufficient evidence in this subgroup to make a different recommendation than for the general U.S. population.

In summary, these false-positive results and over-diagnoses lead to unnecessary biopsies and treatment, significant adverse effects, and decreased quality of life. As a result, men should only consent to being screened for prostate cancer after they clearly understand the associated benefits and risks. This conclusion is also consistent with the updated 2013 recommendations by the American College of Physicians.[17]

Decision aids may be effective ways to engage men in a conversation about the risks and benefits of prostate cancer screening, such as this one developed by the Agency for Healthcare Research and Quality: www.effectivehealthcare.ahrq.gov/ehc/decisionaids/prostate-cancer/.

Recommendation #3: Don't Use Whole-Body Scans for Early Tumor Detection in Asymptomatic Patients

Whole-body scanning with a variety of techniques (magnetic resonance imaging, single photon emission computed tomography, positron emission tomography, and computed tomography [CT]) is marketed by some to screen for a wide range of undiagnosed cancers. However, there are no data suggesting that these imaging studies will result in improved morbidity or mortality. An RCT of total-body screening of asymptomatic people with CT found a high rate of abnormal findings (64%) and no cancers, although it only included 50 subjects. They concluded that a large study looking at mortality was not feasible.[18] A retrospective study of 1,192 patients had similar findings, including a high abnormality rate; 86% of subjects had at least one abnormality and 37% of the subjects were recommended for further evaluation. But, it is unclear if these additional abnormalities and further evaluations lead to improvements in patient outcomes.[19] However, there are no data suggesting that these imaging studies will either improve survival or the likelihood of finding a tumor.

Whole-body scanning has a series of potential harms. For example, risk of false-positive findings that can result in unnecessary testing and procedures with additional risks, exposure to radiation including any resulting follow-up testing, the possibility of developing a cancer from unnecessary radiation, and the associated costs of the imaging. A 2005 cost-effectiveness analysis[20] of screening whole-body CT found that, with favorable assumptions, it may result in a possible additional 6 days of life expectancy, with an incremental cost-effectiveness ratio of $151,000 dollars per life year gained. Approximately one third of the costs were related to false positives. Another economic analysis that examined the cost effectiveness of adding chest CT to CT colonography found this to be not cost effective.[21]

Unnecessary imaging, particularly in those with a long life expectancy, would increase long-term risks of developing future cancers. A 2013 study examining the impact of pediatric CT scans found that the 4 million CT scans performed on children are estimated to result in 4,870 future cancers.[22] In adults, based on 2007 data, authors estimated that 29,000 future cancers are related to CT scanning.[23] If CT screening in asymptomatic persons was found to significantly improve morbidity and mortality, then the potential to offset both the long-term harms of radiation, as well as the costs, exists. However, the data do not suggest this is the case at this time.

Though the number of patients exposed to marketing of whole-body scanning is likely small, such practices are likely to result in little benefit to patients, cause significant harms, and waste money and healthcare resources. Therefore, whole-body scanning is neither recommended by medical professional societies for asymptomatic individuals, nor is it a routinely practiced screening procedure in healthy individuals.

Recommendation #4: Don't Use Expensive Medications When an Equally Effective and Lower-Cost Medication is Available

On average, the cost of a generic drug is 80%—85% lower than the brand name product, although they are required by the U.S. Food and Drug Administration to have the same active ingredients, strength, and similar effectiveness as brand name drugs.[24]

However, studies have demonstrated that physicians are not familiar with drug costs. One systematic review[25] found that cost accuracy is low, with less than 50% of physicians' estimates being accurate by "any definition of cost accuracy." They also found doctors consistently underestimated the cost of expensive treatments and overestimated the cost of inexpensive products. In addition to physicians' relative ignorance of costs, factors such as multiple differing pharmacy benefit plans add challenge to the ability of physicians and patients to choose the least expensive alternative.

Patients also prefer brand name drugs to generics. Although they believe that generics are safe, effective, and are of better value, and that Americans should use more generics, for their own health only 37.6% prefer to take generics.[26]

Significant cost savings could be achieved by increasing utilization of generic over brand name drugs,[27] with an estimate that for every 10% increase in the use of generic cholesterol drugs, Medicare costs could be reduced by $1 billion annually.

Related to the cost issue, there is intriguing evidence that the use of generics is associated with important health outcomes related to better adherence. A 2014 article assessing medication adherence among more than 90,000 Medicare beneficiaries revealed higher adherence to generic statins compared with brand name statins, which resulted in a lower composite outcome of hospitalization and death.[28]

The combination of pharmaceutical marketing, direct-to-consumer advertising of brand name drugs, patient preferences to take brand name drugs, and lack of physician familiarity with the costs of drugs results in significant barriers to increasing the utilization of generic versus brand name drugs.

Recommendation #5: Don't Perform Screening for Cervical Cancer in Low-Risk Women Aged 65 Years or Older and in Women Who Have Had a Total Hysterectomy for Benign Disease

Routine annual Pap smears have long been considered an essential component of "well woman care." However, there is increasing evidence that the harms of over-screening women, with excess frequency, at the extremes of age, and when no cervix is present, outweigh the benefits of frequent, or persistent, screening.

The USPSTF performed a systematic review of the literature[29] examining the efficacy and safety of cervical cancer screening (with Pap smears and human papilloma virus screening). For women aged over 65 years with adequate prior screening, the benefit of Pap smears is little to none, but the harms are at least "small." The USPSTF makes a "D" recommendation against screening women aged over 65 years that are at low risk for cervical cancer and have had negative results from prior screenings.

Healthcare professionals should make this decision on a case by case basis, but once a patient stops receiving screenings, in general they should not restart screenings. Screening for women in this population provides little to no benefit, as the incidence and prevalence of cervical disease declines for women aged 40–50 years.

In women who have had a hysterectomy for benign disease, and do not have a history of cervical cancer or high-grade cervical lesions, cervical cancer screening provides no benefits to these patients and may subject them to potential risks from false-positive results, including physical (e.g., vaginal bleeding from biopsies) or psychological (e.g., anxiety) distress.

Discussion

Barriers to Implementation

Physicians are ultimately responsible for performing and ordering many unnecessary tests and services, but in general they do not consider themselves as having a "major responsibility" for controlling rising healthcare costs. However, in one study, 89% of providers believed that "doctors need to take an active and more prominent role in limiting use of unnecessary tests."[30] Many evidence-based clinical practice guidelines exist that can help in encouraging appropriate utilization. Although guidelines can promote uniformity and uptake of evidence-based services, there is a surprisingly low adherence to clinical practice guidelines.[31,32] Multiple and sometimes conflicting guidelines can also serve to lessen provider's adherence to evidence-based practice.

Both physicians and patients experience barriers to adoption of recommended best practices in health care. Barriers include the characteristics of clinical practice guidelines, implementing professionals, patients, and the environment.[33] Direct-to-consumer advertising[34] and a booming market for over-the-counter supplements also strongly influence requested and provided medical services.

There is evidence on how guidelines are interpreted by providers and what qualities improve the likelihood of implementation and adherence, such as being easy to understand, feasible, and with few resource needs.[33] One of the benefits of the Choosing Wisely campaign is the straightforward nature of the recommendations, their acceptability by provider groups, given that they are physician specialty group–driven, and the direct-to-consumer component of the work to translate this both to providers and patients. A lack of physician awareness of the existence of guidelines or their content clearly relates to poor uptake. The publicity associated with Choosing Wisely and the respective dissemination among specialty groups make these recommendations highly accessible.

Though *Consumer Reports* and other partners are working extensively on translating this work to consumers, physician specialty groups must be aware of the provider attitudes that may serve as barriers, including lack of agreement with the guidelines, lack of self-efficacy (lack of training or experience to implement), lack of outcome expectancy, and practice inertia/lack of motivation to change.[31]

Research suggests that medical providers are continuously influenced by the practice habits and clinical standards they learn early in their career.[35] Physicians use heuristics to rapidly and reliably address complex medical problems. These heuristics or "rules of thumb" may include expensive diagnostic algorithms or use of tests with questionable benefits, such as prostate-specific antigen screening or body scans, but physicians have also learned to practice defensive medicine to avoid being sued. This also results in overuse of expensive medical prescriptions and procedures.[36]

Anecdote and heuristics may also present barriers to implementation of scientifically determined best practices. Both patients and their physicians often latch onto a compelling story or personal experience or, for physicians, what they learned in training, to guide treatment decisions. This may occur even in the setting of scientific evidence to the contrary.[37]

System and Environmental Characteristics

The clinical practice environment is complex and includes additional influencers such as organizational

constraints, available resources, staffing, leadership support, economic context, political context, and professional social context.[31-33]

Inefficiencies in structural, administrative, or information system design may adversely impact the ability of physicians and their patients to utilize recommended best practices.[38] Healthcare providers may score low on certain Healthcare Effectiveness Data and Information Set measures, but overuse inappropriate or unnecessary services to improve their quality standards.[38,39] Hence, Healthcare Effectiveness Data and Information Set quality measures largely fail to address overuse.[39]

Several barriers including, but not limited to, lack of support from peers and leadership and insufficient time and resources have resulted in failure to implement evidence-based practice within the clinical setting,[33] but this is also influenced by the clinical culture, regulatory policies, and financial incentive/disincentives[31,32] that the provider and patient may not have the ability to influence. There are also financial incentives, whether related to physician ownership interests in imaging and laboratory facilities or procedures that provide high remuneration, which may encourage overuse of such services.[39]

Direct-to-Consumer Advertising for Prescription Medications and Over-the-Counter Supplements

In a 2003 survey, the U.S. Food and Drug Administration found that direct-to-consumer advertising impacted physician's prescribing behaviors. According to the survey, about half of all physicians reported pressure to prescribe, and 9% reported that a patient had attempted to influence their treatment in a manner that would have been harmful to the patient. Primary care physicians felt more pressure to prescribe than specialists, with 22% of primary care physicians feeling "somewhat" or "very pressured" to prescribe a certain drug, compared with 13% of specialists. In addition, approximately 73% of primary care physicians and 63% of specialists felt that their patients came to the appointment expecting a prescription. The survey also found that only 40% of physicians believed their patients understood the risks and possible negative effects of certain drugs, and 65% believed that their patients were confused about the relative risks and benefits of direct-to-consumer advertised drugs.[34]

By contrast, when interviewing patients, the survey found that only 5%−6% said they expected a prescription because of an advertisement they saw in a magazine or on TV. However, approximately half of patients reported that their doctor prescribed the specific drug they asked about. This interplay between physician perceptions and patient expectations may stifle dialogue around the use of less expensive or more appropriate medications.[34]

Even without a physician prescription, many patients self-prescribe supplements, with only 23% taking a multivitamin based on the suggestion of a healthcare provider.[11] Physicians may have less power over reducing unnecessary purchasing and consumption of supplements because it is mostly consumer driven. Use of multivitamins and nutraceuticals is supported by extensive advertising and the embedded cultural belief that vitamins help to improve health, despite a lack of evidence demonstrating this in the general population.

Strategies to Encourage Appropriate and Timely Utilization of Recommendations

American consumers have a habitual overuse of health care. Sustained, effective communication is necessary to change patient expectations while maintaining high levels of satisfaction, and deterring litigation that may promote the overuse of services in defensive medicine.[40,41] The partnership with *Consumer Reports* and a multitude of other organizations can greatly assist the translation of the challenging concept of "less is more" and avoidance of tests that are widely performed, which may serve to improve health. Likewise, many physicians and other providers may show resistance to changing their practice habits, even if such changes result in more cost-effective, patient-centered care. Strategies to encourage changes in provider practice may include incorporation of Choosing Wisely recommendations into clinical practice guidelines, quality-assessment and quality-improvement programs, and electronic medical record tools.

Consensus-based clinical practice guidelines are formulated by various specialty societies and healthcare agencies with the purpose of improving quality of care and may or may not have taken cost effectiveness into account. There is evidence that well-crafted guidelines can improve clinical practice. However, there are barriers that may reduce provider utilization of clinical practice guidelines, including general resistance to change, loss of professional autonomy, economic disincentives, perceived threat of litigation, inadequate skill set, lack of decision support technology, "does not apply to my patient," and guidelines that are out of date or rapidly changing.[42] Choosing Wisely recommendations may be developed into clinical practice guidelines that overcome these barriers by meeting "The 8 High Cs," described in the article as being: clear, concise, comprehensive,

consensual, cost sensitive, credible, contemporary, and centered on patients.[42]

It must be emphasized that specific Choosing Wisely recommendations may not be applicable to all patients. Providers must make clinical care decisions with their best judgment and in consultation with their patient. However, this patient–provider relationship may be affected by linkages between clinical practice guidelines and pay or quality ratings.[43] Properly crafted guidelines have been shown to benefit quality of patient care, but diligence must be exercised in the process of developing any Choosing Wisely recommendations into guidelines.[43,44]

Choosing Wisely recommendations can be a fertile ground for translation into measurable activities with quality indicators. Such data points may be incorporated into quality-assessment and quality-improvement programs, such as the Centers for Medicare and Medicaid Services Physician Quality Reporting System and National Committee for Quality Assurance practice standards.[40] Third-party payers may use lists and guidelines from specialty societies when making coverage, payment, and utilization management decisions. This is not the intent of Choosing Wisely per se, but payers and state agencies seek quality-improvement metrics from a variety of sources.

Physicians may also use tools available in electronic health record systems when making clinical decisions during treatment. The ways that options are presented in a decision matrix, particularly the determination of default selections, have been shown to significantly influence choices of the decision maker. Decision aids and prompts in electronic medical records have been similarly demonstrated to affect practice behavior among physicians. A 2013 study by Probst and colleagues[45] suggests that the judicious use of defaults and available selections may steer providers toward ordering lower-cost and expert-recommended services.

Ultimately, physician culture and practice are impacted as new generations of providers are trained from the beginning with a focus on appropriate stewardship of medical resources and avoiding overuse of tests or procedures. Training medical students and residents to practice evidence-based medicine and to effectively communicate with their patients about appropriate use and overuse will be crucial. There is good evidence that some elements of practice patterns, including costs of patient care, are impacted by residency training norms.[35] Ensuring that Choosing Wisely and similar approaches are built into medical education and residency training will be important to positively shift the culture of medicine.

Conclusions

Most of the focus on preventive medicine is about underuse of preventive strategies and services. Discouragement of clinical preventive services thus needs to be approached with extreme caution. *Consumer Reports* has developed patient-friendly resources based on Choosing Wisely recommendations to inform and empower patients when discussing a treatment plan with their physician.[46,47] However, preventive medicine and primary care physicians must recognize their essential role in limiting the use of unnecessary tests and procedures in the face of countervailing barriers as described in this paper. Physicians and their patients should have an open dialogue when contemplating the use of clinical preventive services that are frequently overused. Ongoing partnership with effective consumer education groups will be essential for stressing the importance of encouraging appropriate preventive services while discouraging unnecessary and redundant preventive services.

The authors wish to thank the following additional members of the Choosing Wisely® Task Force for helping to develop the recommendations: David Niebuhr, MD, MPH, MSc; Dom Cirillo, MD, PhD; John Matulis III, DO, MPH; Karyn Singer, MD, MPH; Kate Lichtenberg, DO, MPH; Talat Danish, MD, MPH; Tanya Phares, DO, MPH; and Valerie King MD, MPH. The authors would also like to thank Anita Balan, BA, MCHES, ACPM, for her assistance in the preparation of this manuscript. The views expressed are the authors' and do not reflect the views of the authors' federal or state agencies or private institutions. The American College of Preventive Medicine (ACPM) Prevention Practice Committee and the ACPM Board of Regents have reviewed and approved the content of this manuscript. The manuscript was not peer reviewed, but underwent editorial review by the *American Journal of Preventive Medicine*.

About ACPM: Founded in 1954, the ACPM is a professional medical society of more than 2,700 members employed in research, academia, government, clinical settings, and other entities worldwide. As the leader for the specialty of preventive medicine and physicians dedicated to prevention, ACPM provides a dynamic forum for the exchange of knowledge, and offers high-quality educational programs for continuing medical education and maintenance of certification, information and resources for ongoing professional development, and networking opportunities. For more information, please visit us at: www.acpm.org/.

No financial disclosures were reported by the authors of this paper.

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