

# Aspirin for Primary Prevention



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## KEYWORDS

- Aspirin • Cardiovascular disease prevention • Colorectal cancer prevention
- Guidelines

## KEY POINTS

- Studies of aspirin for primary prevention of cardiovascular disease suggest an approximate 22% reduction in risk of nonfatal myocardial infarction and for stroke, by approximately 14%.
- Aspirin use likely reduces risk of colorectal cancer and colorectal cancer mortality, although time to benefit is long (10–20 years).
- Aspirin increases the risk of gastrointestinal bleeding and hemorrhagic stroke, although both are uncommon events. There are no prospectively validated tools to assess bleeding risk.
- A recent mathematical modeling study incorporated cardiovascular disease and colorectal cancer benefits with bleeding risks; the greatest net benefit was seen among adults 50 to 59 with moderate to high cardiovascular risk.
- Updated US Preventive Services Task Force guidelines recommend aspirin for the primary prevention of cardiovascular disease and colorectal cancer among adults 50 to 59 who are at increased cardiovascular risk.

## INTRODUCTION

Salicylates have been used since antiquity to alleviate pain, fever, and inflammation. It was not until the mid 20th century, though, that physicians recognized aspirin's antithrombotic properties and began to use aspirin to prevent myocardial infarction (MI).<sup>1</sup> In

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the 1970s, insights into the cell biology of cancer led to the hypothesis that aspirin might also be an effective chemotherapeutic or chemopreventive agent.<sup>2,3</sup> Following these observations, a number of landmark clinical trials have evaluated aspirin for both the prevention of cardiovascular disease and cancer.

Today, aspirin continues to be widely used, particularly for cardiovascular disease prevention. Among adults 45 to 75 in the United States, 52% report taking aspirin daily. Daily aspirin use is common even among those who do not have a history of heart disease (47%).<sup>4</sup> Despite its popularity, aspirin for cardiovascular disease prevention has been controversial. In 2014, The Food and Drug Administration (FDA) advised that current evidence does not support the routine use of aspirin for primary prevention of heart attack or stroke.<sup>5</sup> The statement cited weak evidence for benefit for cardiovascular disease prevention as well as potential for harm from bleeding.

In contrast, the US Preventive Services Task Force (USPSTF) recently issued guidelines endorsing aspirin's use for primary prevention of cardiovascular disease and colorectal cancer in specific populations.<sup>6</sup> The USPSTF is an independent committee composed of experts who regularly review the medical literature and compile evidence-based recommendations for preventive service use in primary care. In 2016, the USPSTF recommended low-dose aspirin for the prevention of colorectal cancer and cardiovascular disease among adults ages 50 to 59 who have 10-year risk of at least 10% for cardiovascular disease. The USPSTF stated that adults 60 to 69 who have 10-year risk of at least a 10% for cardiovascular disease may also benefit, but the decision to initiate aspirin in that age group should be individualized. The task force's recommendations are summarized in **Table 1**.

To estimate 10-year cardiovascular risk, the USPSTF recommended using the American College of Cardiology/American Heart Association Atherosclerotic Cardiovascular Disease (ASCVD) risk calculator.<sup>7</sup> The patient characteristics used to estimate cardiovascular risk are described in **Box 1** and calculators are freely accessible online (<http://tools.acc.org/ASCVD-Risk-Estimator/>).<sup>8</sup> The risk calculator has several advantages including that it has been validated in US populations;

Table 1 Summary of USPSTF recommendations		
Population	Recommendation	Grade
Adults ages 50–59, ≥10% 10-y CVD risk	Initiate low-dose aspirin use.	B (The USPSTF recommends the service. There is moderate certainty that the benefit is moderate to substantial.)
Adults ages 60–69, ≥10% 10-y CVD risk	The decision to initiate low-dose aspirin use is an individual one.	C (At least moderate certainty that there is a small net benefit. USPSTF recommends selectively offering aspirin to individual patients based on professional judgment and patient preferences.)
Adults ages 40–49	No recommendation.	I (The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service).
Adults ages ≥ 70	No recommendation.	I (The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service.)

Abbreviations: CVD, cardiovascular disease; USPSTF, US Preventive Services Task Force.

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