



## Does an ASA a day really keep the doctor away?

**Clinical Question: Is ASA effective for reducing cardiovascular events in patients without pre-existing cardiovascular disease?**

**Bottom Line: Three recent large, randomized, controlled trials (RCTs) of moderate risk, elderly, and diabetic patients do not support use of ASA for primary prevention. The potential absolute benefit of ~1% (only found in one study) is offset by similar increase in major bleeding. All-cause and cancer mortality was either unchanged or increased with ASA. Routine use of ASA for primary cardiovascular prevention should be discouraged.**

### Evidence:

- Three large, high quality, placebo controlled RCTs of ASA 100 mg/day.
  - ARRIVE: RCT of 12,546 patients at moderate cardiovascular risk [10-year risk 10-20% (mean 17%)].<sup>1</sup> Predominantly males (70.5%), mean age 64 years. After 5 years:
    - No difference in:
      - Composite cardiovascular events: 4.3% versus 4.5% placebo.
      - Mortality: 2.6% in each arm.
    - Increased major gastrointestinal bleeds with ASA: (hemodynamic compromise or requiring transfusion) 0.3% versus 0.1% placebo; Number needed to harm (NNH)=345.
  - ASCEND: RCT of 15,480 diabetics (94% type 2), mean age 63 years, 63% males.<sup>2</sup> After 7.4 years follow up, patients on ASA had:
    - Decreased composite cardiovascular events: 8.5% versus 9.6% placebo, Number needed to treat (NNT)=91.
    - Increased fatal or major (requiring hospitalization, transfusion or surgery) bleeds: 4.1% versus 3.2% placebo: NNH 112.
    - No difference: all-cause mortality or cancer incidence.
  - ASPREE: RCT of 19,114 elderly patients (median age 74 years) primarily from Australia.<sup>3,4</sup> After 4.7 years (trial stopped for futility), patients on ASA had:
    - No difference in:
      - Composite cardiovascular events: 3.5% versus 3.9% placebo.<sup>3</sup>
    - Increased:
      - Fatal or major bleeds: 3.8% versus 2.8% placebo;<sup>3</sup> NNH 98.
      - All-cause mortality: 5.9% versus 5.2% placebo;<sup>4</sup> NNH 143.
      - Cancer deaths: 3.1% versus 2.3% placebo;<sup>4</sup> NNH 125.

**Context:**

- Systematic reviews published prior to and after these studies found similar results.<sup>5-7</sup>
- Cancer, including colon, was either unchanged<sup>1,2</sup> or worse with ASA.<sup>4</sup>
- Guideline groups have different recommendations regarding ASA for primary cardiovascular prevention.<sup>8-10</sup>
- Up to 47% of adults over 45 years old use ASA; predominantly for primary cardiovascular prevention.<sup>11,12</sup>
- In secondary prevention (patients with established CVD), ASA benefits do outweigh risks.<sup>13</sup>

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**Disclosures:**

Authors do not have any conflicts of interest to declare

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