Awhile back I wrote a comprehensive article on aspirin and how it works, and discussed scenarios of risks and benefits. This post aims to add a few details to the case for aspirin.

**Benefits vs harms of aspirin**

A paper in BMC Medicine, “Benefit-harm analysis and charts for individualized and preference-sensitive prevention: example of low dose aspirin for primary prevention of cardiovascular disease and cancer”, attempts to provide a risk/benefit analysis of aspirin based on age, sex, and individual preferences.(1)

Most of the previous research on aspirin and its risk/benefit ratio focused on heart attacks. Because aspirin prevents the formation of blood clots, it has efficacy against heart attacks, and for the same reason, it can cause major bleeding. Hence aspirin has both benefits and risks.

Previous research did not take into account its anti-cancer activity, which was discovered only recently. So the analysis needs to change.

The authors of the study cited above set up a website, Benefit-Harm-Balance, which allows the user to input age, sex, and preferences, and get a table that shows whether taking aspirin is likely to be beneficial, or to be harmful.

Following is a screenshot of my own calculations. Male, age 61, and with my preferences indicated on the sliding scales. (Seems a little weird: who doesn’t want to avoid cancer, heart attacks, and G.I. bleeds?)
For men age 20 to 69, the site indicates that without any previous gastrointestinal problems, risk of a major bleed over ten years is from 0 to 3% without aspirin. Previous problems range from upper GI pain to uncomplicated ulcers to complicated ulcers. According to a calculator, one recommended by the site but that I don’t necessarily trust, my ten-year risk of a heart attack is 6%. (I don’t trust the calculator because it uses total cholesterol as a major part of its calculation, and it doesn’t ask for my BMI or whether I exercise, both large determinants of risk.)

Following is a table of my results.
With risk of GI bleed on the vertical axis (the ordinate) and risk of MI (myocardial infarction, i.e. heart attack) on the horizontal access (the abscissa), you calculate whether aspirin is more likely to be beneficial or harmful. In my case, I'm in the green zone, meaning I should take it for the primary prevention of cancer and heart attack.

Obviously, others will get different results depending on their circumstances. As an example, the table skews highly red (don't take it) for those age 45 to 54, and is completely green for those age 75 to 84. (See first image above.)

As mentioned, due to uncertainties in heart attack risk, the chart should be taken with a grain of salt. For that matter, lots of uncertainties exist in cancer and bleeding risk. For instance, I believe my cancer risk is lower than average, so that my benefits from aspirin may be lower than for the average person.

Go ahead, set it up for yourself and see how you do.

**Aspirin and the decline of cancer**

The death rate from cancer has declined 23% in the past 21 years, according to the [American Cancer Society](https://www.cancer.org). Reasons given include less smoking and better cancer screening, including colonoscopies.

I wonder whether aspirin use isn’t responsible for some of the decline.

Allegedly, about 50 million Americans take a low-dose aspirin daily. (2)
“Allegedly”, because I don’t know where that number comes from. Many of these have been taking it for decades, more than long enough to see anti-cancer effects, which kick in 3 to 5 years after starting to take it.

After 5 years of taking low-dose (“baby”) aspirin, risk of death from cancer decreases by as much as 50%, average of 34%. *(3)*

There are approximately 300 million people in the U.S., so about 1/6, or 16.7% of people take aspirin.

If their death from cancer decreased 34%, then aspirin accounts for .34/.167 = 2% decreased cancer in the population as a whole. That’s a very rough calculation of course.

Since cancer deaths decreased 23%, then about 10% of the decline in cancer can be attributed to use of low-dose aspirin. Remarkable, I’d say, and I haven’t seen anyone attribute any of the decline to aspirin.

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