

# STAT

FIRST OPINION

## Aspirin after a broken bone: health equity in a \$5 bottle

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There are few things more exciting for researchers than to mount and complete a clinical trial that could change the practice of medicine and save lives. That's what we experienced when The New England Journal of Medicine [published our findings](#) in January 2023 that aspirin was as effective at preventing life-threatening blood clots after surgery as was a far more expensive and more painful injectable blood thinner.

We and our colleagues thought that doctors and hospitals would immediately change their practice and switch to aspirin. This would improve health equity by providing a cheap treatment to people who can't afford the more expensive one, and would improve quality of life by swapping painful injections for taking two aspirin tablets a day. Unfortunately, change is taking longer than we thought.

When given a choice between two drugs that produce practically the same result in clinical trials, many doctors don't follow the latest evidence and instead turn to hospital policy, habit, and preference as a basis for decision making. But they should use a health equity lens on a care choice as often as possible.

The research involved colleagues at the University of Maryland School of Medicine, the University of Maryland Medical Center, and numerous other institutions that are part of the [Major Extremity Trauma Research Consortium](#). It compared the use of two treatments — aspirin and low-molecular-weight heparin (LMWH) — to prevent blood clots after a major bone fracture. Preventing clots, which can occur after a fracture, is important because they can cause life-threatening blockages that impede blood flow when they lodge in an artery in the lung (a pulmonary embolism), which can be fatal.

The study included more than 12,000 people who had fractures treated either surgically or non-surgically. They were randomly assigned to take either low-dose aspirin or LMWH twice a day while hospitalized, and continued to take their assigned medication after discharge if prescribed. Aspirin was conclusively proven to be just as effective as LMWH in preventing death from any cause at 90 days after the fracture. (People whose less-severe fractures are treated at urgent care centers are typically not prescribed aspirin or LMWH since they are at very low risk of developing blood clots.)

This result might seem relevant only to orthopedic surgeons, as most people don't read medical journals and will tend to follow a doctor's directions after a traumatic injury. But people find LMWH incredibly unpleasant to take. It's a shot injected into the abdominal wall, usually twice a day, generally for three to four weeks after the injury. Twelve doses of LMWH might cost anywhere between \$70 and \$300, depending on a variety of factors, while a bottle of 81 milligram aspirin with 200 tablets can be found for as little as \$5, and maybe as much as \$12 for a brand name. People with medical insurance are protected from the cost of LMWH, but those who are uninsured or underinsured have to pay out of pocket.

Although we don't have much data on how faithfully people took their medications after they were discharged from the hospital, and it was not part of the study, we [found in our previous research](#) that at least 20% of people who are prescribed LMWH after breaking a bone don't take it, which can increase the risk of a blood clot four-fold. We also know that being uninsured or having high co-pays decreases the likelihood of not filling a prescription for LMWH. About [10% of Americans](#) who sustain orthopedic trauma do not have health insurance, and those who have to self-administer the shots — people who don't have the benefit of a family member to help in their recovery — are four times more likely to skip the prescription.

From a health equity perspective, people with low-deductible commercial insurance who have a strong support network can afford the cost and burden of a LMWH prescription. Those who lack social support networks and/or financial resources, and those who don't have access to reliable transportation, are far more likely to skip the injectable drug and will run a significantly higher risk of a deadly blood clot forming in their body. Those people are [disproportionately](#) from racial and ethnic minority communities as well as poorer

communities. It's a factor that should be taken into account by doctors, hospitals, and everyone in the care chain.

About 15% of providers now prescribe aspirin for preventing blood clots after a fracture treated in the hospital, and 50% prescribe aspirin at discharge. But many hospital policies and guidelines haven't changed since the trial's results were published and, while some providers might prefer to prescribe aspirin, they aren't able to do so due to policies at their hospitals. Some providers also remain skeptical that these results might not apply to individuals at the highest risk of developing a blood clot, but the benefits of aspirin for blood clot prevention [also apply to high-risk patients](#).

Not every change in medicine needs to be a grand gesture. Small changes in practice, like substituting aspirin for LMWH, can provide profound improvements in health equity.

Many health systems, including ours — the University of Maryland Medical System — have made [major changes](#) in care standards that had used outdated or inaccurate race-based algorithms, including some highlighted in [an influential paper](#) from the New England Journal of Medicine that outlined how inequity is deeply embedded in clinical standards. There are also more common, everyday opportunities to consider, including the simple case of aspirin, the so-called miracle drug patented in 1899.

The “aspirin after bone fracture” story is just a single example of repurposing an existing intervention. We've seen other examples of this, such as repurposing the hypertension drug minoxidil to treat male pattern baldness or the use of the teratogenic drug thalidomide to treat a complication of leprosy. Repurposing aspirin to replace LMWH after a bone fracture may be a baby step on the road to health equity, but one that could prevent hundreds or thousands of unnecessary hospitalizations and deaths per year, as well as provide an easier recovery for anyone who has broken a bone.

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