

## Vandenbroucke JP (2003). Aspirin: an unanticipated beneficial effect.



© Jan P Vandenbroucke, Department of Clinical Epidemiology, Leiden University Hospital, Leiden University Medical Center, CO-P, PO Box 9600, 2300 RC Leiden, The Netherlands. E-mail: [j.p.vandenbroucke@lumc.nl](mailto:j.p.vandenbroucke@lumc.nl)

On 9 March 1974 the *British Medical Journal* carried two articles reporting an unanticipated beneficial effect of an old drug, aspirin. Aspirin's predecessor, willow bark, had been used for centuries to reduce fever and pain (Stone 1763). Now the two papers in the *British Medical Journal* suggested that it also reduced the risk of myocardial infarction (heart attack).

### Cite as:

Vandenbroucke JP (2003). Aspirin: an unanticipated beneficial effect. JLL Bulletin: Commentaries on the history of treatment evaluation ([www.jameslindlibrary.org](http://www.jameslindlibrary.org)).

The two papers were different and had different origins. One paper reported a British randomized controlled trial ([Elwood et al. 1974](#)) that had been organised partly because coagulation researchers had shown that aspirin inhibits blood clotting slightly, and partly because one or two clinicians had the impression that people taking aspirin might be less likely to suffer a myocardial infarction (Elwood 1997).

The other paper emerged from the [Boston Collaborative Drug Surveillance Group \(1974\)](#), one of the systems that had been set up to detect side-effects of drugs in an early stage (see [McBride 1961](#)). This was one variant of "post marketing surveillance" whereby large numbers of patients admitted to hospital were screened for the use of drugs before and during hospitalisation. The main reason for this set-up was to see whether any diseases were caused by any of the drugs used. When trying to study the side-effects of aspirin - mainly bleeding - the investigators found to their surprise that people who took aspirin were less likely to die from myocardial infarction. The results were based on large numbers and statistically significant, but were they true?

The US investigators hesitated before going public with their findings, but once they heard from the British controlled trial they contacted the investigators to discuss the data. The result was that the British researchers stopped their trial prematurely, and the two groups published their respective reports in the same issue of the *British Medical Journal* ([Elwood et al. 1974](#); [Boston Collaborative Drug Surveillance Group \(1974\)](#)).

An issue of the journal two decades later carried three papers reporting [systematic reviews](#) of the many controlled trials that were conducted subsequently, which left no doubt about the importance of aspirin for reducing cardiovascular disease ([Antiplatelet Trialists Collaboration 1988](#)).

This is an instance of detection of an unanticipated beneficial effect of treatment. Beneficial effects that are unanticipated will be discovered when a new drug is used in people who also suffer from another disease, and when it is found that the other disease is improved. As with unanticipated adverse effects of drugs, it is usually astute clinicians who see that an existing ailment in a patient is unexpectedly cured or improved when the patient takes a drug for another unrelated disease. Older examples of such detection are drugs for psychosis that lowered serum cholesterol, anti-tuberculous drugs that enhanced mood. More recent examples are antidepressants that helped people to stop smoking, and a drug investigated for the treatment of high blood pressure, which suddenly had men reporting that they had more satisfying sexual relationships with their partners. Such reports of unanticipated beneficial effects, however interesting and ingenious, always need thorough and unbiased renewed investigation.

### References

Antiplatelet Trialists, Collaboration (1988). Secondary prevention of vascular disease by prolonged anti-platelet treatment. *BMJ* 296:320-331.

Elwood P (1997). Cochrane and the benefits of aspirin. In: Maynard A, Chalmers I, eds. *Non-random reflections on health services research*. London: BMJ Publishing Group, 109-111.