

STEPWISE PROGRESS DOESN'T HIT THE HEADLINES

'Science itself works very badly as a news story: it is by its very nature a subject for the "features" section, because it does not generally move ahead by sudden, epoch-making breakthroughs. It moves ahead by gradually emergent themes and theories, supported by a raft of evidence from a number of different disciplines on a number of different explanatory levels. Yet the media remain obsessed with "new breakthroughs".'

Goldacre B. *Bad Science*. London: Fourth Estate, 2008, p219.

to improve within 24 hours, and within a week the tumour had shrunk sufficiently for the baby to open an eyelid. After six months of treatment the haemangioma had melted away. Over the following year the doctors went on to use propranolol in a dozen children with similar success. These impressive results have been replicated by other doctors in small numbers of children and propranolol is now being studied further in larger numbers of infants.^{7,8}

MODERATE TREATMENT EFFECTS: USUAL AND NOT SO OBVIOUS

Most treatments do not have dramatic effects and fair tests are needed to assess them. And sometimes a treatment may have a dramatic effect in some circumstances but not in others.

Although vitamin B12 is undoubtedly effective for pernicious anaemia (see above), dispute continues to this day about whether patients need quarterly or more frequent treatment. That question will only be answered by carefully controlled tests comparing the options. Moreover, whereas the pain relief with hip replacements is dramatic, the relative merits of different types of artificial hip joints are far more subtle, but may nevertheless be important – some may wear out faster than others for example. With laser

treatment of portwine birthmarks (see above), there is also still much to learn. Whilst this treatment remains the 'gold standard', research continues into why some lesions re-darken after several years, and on the effects of different types of lasers, possibly combined with cooling of the skin.^{9,10}

And while aspirin substantially reduces the risk of death in patients suffering a heart attack if given promptly on diagnosis, whether taking aspirin to prevent heart attacks and strokes does more harm than good depends on whether patients have underlying cardiovascular disease. The benefits – reduction in the risk of heart attacks, strokes, and death from cardiovascular causes – need to be balanced against the risks – bleeding, especially the type of stroke caused by bleeding into the brain, and bleeding from the gut. In patients who already have cardiovascular disease, the benefits of the drug greatly outweigh the risks. But in otherwise healthy people, the benefits of aspirin do not clearly outweigh the risk of bleeding (see Chapter 7).¹¹

WHEN PRACTITIONERS DISAGREE

For many diseases and conditions, there is substantial uncertainty about the extent to which treatments work, or about which treatment is best for which patient. That doesn't stop some doctors having very strong opinions about treatments, even though those opinions may differ from one doctor to the next. This can lead to considerable variation in the treatments prescribed for a given condition.

In the 1990s, Iain Chalmers, one of the authors, while holidaying in the USA, broke an ankle and was treated by an orthopaedic surgeon. The surgeon put the leg in a temporary splint, and said that the next step, once the swelling had subsided, would be a lower leg plaster cast for six weeks. On returning home a couple of days later, Iain went to the local fracture clinic, where a British orthopaedic surgeon, without hesitation, dismissed this advice. Putting the leg in plaster, the British surgeon said, would be wholly inappropriate. In the light of this obvious professional uncertainty, Iain asked whether he could participate in a controlled comparison to find out which treatment was better.