

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.<sup>9,10</sup>

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).<sup>11</sup>

### 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.

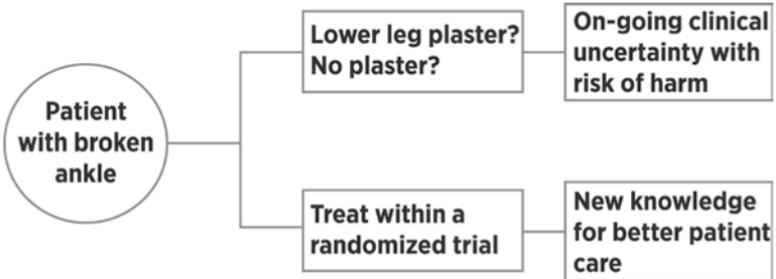
In the 1990s, Iain Chalmers, one of the authors, while holidaying in the USA, broke an ankle and was treated by an orthopaedic surgeon. The surgeon put the leg in a temporary splint, and said that the next step, once the swelling had subsided, would be a lower leg plaster cast for six weeks. On returning 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.

The British surgeon answered that controlled trials are for people who are uncertain whether or not they are right – and that he was certain that he was right.

How can such a pronounced difference in professional opinion come about, and what is a patient to make of this? Each surgeon was certain, individually, about the correct course of action. Yet their widely divergent views clearly revealed uncertainty within the profession as a whole about the best way to treat a common fracture. Was there good evidence about which treatment was better? If so, was one or neither surgeon aware of the evidence? Or was it that nobody knew which treatment was better (see Figure).

Perhaps the two surgeons differed in the value they placed on particular outcomes of treatments: the American surgeon may have been more concerned about relief of pain – hence the recommendation of a plaster cast – while his British counterpart may have been more worried about the possibility of muscle wasting, which occurs when a limb is immobilized in this way. If so, why did neither surgeon ask Iain which outcome mattered more to him, the patient? Two decades later, uncertainty continues about how to manage this very common condition.<sup>12</sup>

There are several separate issues here. First, was there any reliable evidence comparing the two very different approaches being recommended? If so, did the evidence show their relative effects on outcomes (reduced pain, or reduced muscle wasting, for example) that might matter to Iain or to other patients, who might have different preferences to his? But what if there was no evidence providing the information needed?



**What should a doctor do?**

### **FACING UP TO UNCERTAINTIES: A MATTER OF LIFE AND DEATH**

'Failure to face up to uncertainties about the effects of treatments can result in avoidable suffering and death on a massive scale. If when diazepam and phenytoin were introduced as anticonvulsants for eclampsia they had been compared with magnesium sulphate – which had been in use for decades – hundreds of thousands fewer women would have suffered and died. Similarly, if the effects of systemic steroids for traumatic brain injury had been assessed before this treatment became widely adopted, tens of thousands of unnecessary deaths could have been avoided. These are just two examples of many that might have been used to illustrate why doctors have a professional responsibility to help address uncertainties about the effects of treatments.'

Chalmers I. Addressing uncertainties about the effects of treatments offered to NHS patients: whose responsibility? *Journal of the Royal Society of Medicine* 2007; 100: 440.

Some clinicians are clear about what to do when there is no reliable evidence about the effects of alternative treatments and are prepared to discuss this uncertainty with patients. For example, one doctor who specializes in caring for people with stroke, commented that, although research evidence shows that his patients would fare better if cared for in a stroke unit, it remained uncertain – for many types of patients – whether they should receive clot-busting drugs (see also Chapter 11, p139). When discussing treatment options with his patients he explained that these drugs may do more good than harm, but they may – for some patients – actually do more harm than good. He then went on to explain why, talking to a patient for whom the balance of risk and benefit was unclear, he felt he could only recommend this treatment for them within the context of a carefully controlled comparison, which should help to reduce the uncertainty.<sup>13</sup> Uncertainties about several aspects of clot-busting drugs persist.<sup>14</sup>