analyzed, concerns the treatment of stroke with a drug called nimodipine (one of a group of drugs called calcium antagonists). If it were possible to limit the amount of brain damage in patients who suffer a stroke, their chances of disability should be lessened. Beginning in the 1980s, nimodipine was tested for this purpose in stroke patients after some animal experiments had given encouraging results. Although a clinical trial in stroke patients published in 1988 suggested a beneficial effect, the results of several more clinical trials of nimodipine and other calcium antagonist drugs proved conflicting. When the accumulated evidence of clinical trials involving nearly 8,000 patients was reviewed, systematically, in 1999, no beneficial effect of the drugs was found (see Chapter 8, p102).[14] Since the use of nimodipine was apparently based on sound scientific evidence, how had this come about?

In the light of the results of research in patients, the findings from the animal experiments were scrutinized properly for the first time. Only when the animal studies were reviewed systematically did it become clear that the design of the animal experiments was generally poor and the results were beset by biases and therefore unreliable. In other words, there had been no convincing justification for carrying out trials in stroke patients in the first place.[15]

Aprotinin: effect on bleeding during and after surgery

Research funders, academic institutions, researchers, research ethics committees, and scientific journals are all complicit in unnecessary research (see Chapter 9). As we explained in Chapter 8, and as the first two examples of unnecessary research indicate, new research should not be designed or implemented without first assessing systematically what is known from existing research.

A shocking analysis published in 2005 focused on controlled trials of a drug called aprotinin to reduce bleeding during and after surgery. Aprotinin works. The shocking bit is that, long after s trong evidence had accumulated showing that the drug substantially reduces the use of blood transfusion, controlled trials continued to be done.[16] At the time of the analysis, the reports of 64 trials

had been published. Between 1987 and 2002, the proportion of relevant previous reports cited in successive reports of aprotinin trials fell from a high of 33% to only 10% among the most recent reports. Only 7 of 44 subsequent reports referenced the report of the largest trial (which was 28 times larger than the median trial size); and none of the reports referenced systematic reviews of these trials published in 1994 and 1997.

As the authors of the analysis emphasized, science is meant to be cumulative, but many scientists are not accumulating evidence scientifically. Not only are most new studies not designed in the light of systematic reviews of existing evidence but also new evidence is only very rarely reported in the context of updates of those reviews (see Chapter 8).

DISTORTED RESEARCH PRIORITIES

For most of the organizations supporting biomedical research and most of the researchers doing it, their stated aim is straightforward: to contribute information to improve people's health. But how many of the millions of biomedical research reports published every year really do make a useful contribution to this worthy cause?

Questions that are important for patients

Researchers in Bristol decided to pose a fundamental question: 'To what extent are questions of importance to patients with osteoarthritis of the knee and the clinicians looking after them reflected in the research on this condition?'[17] They began by convening four focus groups – of patients, rheumatologists, physiotherapists, and general practitioners, respectively. These groups were unanimous in making clear that they did not want any more trials sponsored by pharmaceutical companies comparing yet another non-steroidal anti-inflammatory drug (the group of drugs that includes, for example, ibuprofen) against a placebo. Instead of drug trials, patients wanted rigorous evaluation of physiotherapy and surgery, and assessment of the educational and coping strategies that might help patients to manage this chronic, disabling, and often painful condition more successfully.