proportion of total energy from sweetened drinks. Another approach to dietary change focuses on reshaping long-term food preferences.[7] However, there are insufficient data to judge the potential benefits of altering food preferences or sensory specific satiety.

The rapid rise in childhood obesity has been mirrored by an explosion of sedentary leisure pursuits for children such as computers, video games, and television watching.[8] Increased general activity and play rather than competitive sport and structured exercise seem to be more effective.[9] Adherence may be improved by making the activity enjoyable, increasing the choice over type and level of activities, and providing positive reinforcement of even small achievements. Being active may also compete with snacking and thereby make diet adherence easier.

There is experimental evidence that self monitoring and goal setting result in greater short term weight losses.[7–10] In establishing both short and longer term goals it is important to make them specific, measurable, challenging, yet achievable. Contracts can be used to help maintain focus on specific behavioural goals and provide a structure for rewarding desired changes.

Three key settings for implementing childhood obesity management support programmes have been identified: the family, the school, and primary care. The provision of education on eating and lifestyle behaviour to parents has been shown significantly to reduce the prevalence of obesity in children of participating families.[10] By directing preventive efforts at the family of susceptible children there is the added bonus that all members of the family are likely to benefit. Holding classroom lessons on nutrition and physical health was accompanied by improvements in indices of fitness and body fat levels.[11] Nevertheless, maintaining these programmes in the school curriculum in the long term has proved difficult owing to competition for school time, the need for teacher supervision, and financial limitations.

The delivery of programmes through primary care has received little formal assessment, and its potential role seems to be undervalued and underused.[12] Frequent contact with health professionals from an early age has been identified as an important strategy for effective management of obese children through the provision of advice, encouragement, and support for adopting healthy household eating and exercise patterns at an early stage in life.[12]

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Doctor as murderer

Death certification needs tightening up, but it still might not have stopped Shipman

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Harold Shipman, a general practitioner from Greater Manchester, has been convicted of murdering 15 of his patients. Inevitably, his conviction raises serious concerns for clinicians, patients, and society. How could such crimes go undetected? What lessons can be learnt and can similar murders by doctors be prevented in future?

Serial killers in health care like Shipman and Beverly Allitt are particularly shocking because they damage the trust that exists between clinicians and their patients. In 1993 Allitt, a nurse working on a paediatric ward, was convicted of murdering four children, attempting to murder three, and causing grievous bodily harm to six.[1]

Like many singlehanded doctors, Harold Shipman had over 3000 patients in his care. His patients seemed to like him. Until the suspicions began to gather that eventually led to his prosecution, few concerns were raised about his clinical competence. Evidence emerged that he had falsified the notes of some of his patients, but this was not incompetent record keeping: rather, it was done to conceal his crimes.

In 1976 Shipman was convicted of several offences relating to the misuse of pethidine, and this conviction was reported to the General Medical Council. Shipman sought treatment and no further action was taken. This conviction adds to all the other concerns raised, although no evidence of recent drug misuse has been presented. Moroever, it important not to appear to conclude that drug misusers turn into serial killers. Since the 1970s new procedures have been put in place by the GMC to deal with substance misuse, and other health problems, though a further review may be warranted.

Shipman murdered his patients with injections of diamorphine. Various regulations govern the prescription, storage, recording, and destruction of controlled drugs by doctors and are there to prevent misuse. More

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stringent regulations could deny patients and doctors access to the drugs necessary to alleviate pain and suffering. Separate arrangements are in place to detect unusual patterns of prescribing by NHS general practitioners (PACT—prescription analysis and costing tool), but budgetary rather than clinical concerns usually trigger these. Morphine and diamorphine are not expensive drugs.

Having murdered these patients, Shipman issued a certificate of the cause of death, which in every case was accepted by the registrar. Should his crimes have been detected at this stage? Doctors attending patients during their last illnesses must issue a certificate giving the cause of death to the best of their knowledge. The information on death certificates is often not accurate, especially when compared with information from necropsy.[2 3] Many patients die of chronic disease and characterising the immediate cause of death might require investigations that seem meddlesome.[2] An underlying acceptance of the limits of accuracy when certifying the cause of death is one factor that allowed Shipman to go undetected for so long.

None of the deaths with which Shipman was charged was reported to the coroner. Coroners (or procurators fiscal in Scotland) make their own rules on the categories of death they require to have reported to them, and the Registrar of Births, Marriages, and Deaths is the only person with a legal duty to report deaths to the coroner. The BMA has repeatedly argued that although in practice doctors do report deaths directly to the coroner, a statutory duty should be placed on them to do so in specified circumstances and that these circumstances should be defined and agreed nationally. Similar duties should be imposed on nurses and undertakers if they suspect that the death warrants investigation.[4]

There are safeguards, to detect crime, when a body is cremated, but their effectiveness is questionable. For deaths not being investigated by the coroner, permission to cremate must be applied for. The doctor who issued the death certificate must complete a form and a second doctor who has been registered for at least five years must sign a confirmatory certificate. Both doctors must see the body and the second doctor must discuss the circumstances of the death with the first. These forms are then inspected by crematorium medical referees who must be satisfied that the cause of death has been definitely ascertained.[3] No specific training is required either for the second doctor or for crematorium referees. Ironically the Brodrick Committee, which reported in 1971 on death certification and the coronial system, recommended abolishing these safeguards because it doubted their necessity.[5] This move was opposed by the BMA.

It would be unnecessary and intrusive if all deaths were to be investigated by a coroner. It is tempting to think that Shipman may have been detected sooner if all those who died at his hand had undergone necropsy—indeed, Shipman made determined efforts to avoid necropsies. Nevertheless, necropsies, though likely to raise questions, may not have revealed the cause of the deaths unless suspicion was high. In only 5% of hospital deaths can necropsy show findings that are incontrovertibly incompatible with life.[6]

In the absence of suspicion, possibilities such as insulin poisoning cannot be excluded without complex toxicological analysis. Poisoning with potassium may go undetected without access to a blood sample taken immediately after collapse. Even deaths due to smothering are unlikely to be detected at necropsy.[6] When the bodies of Shipman's patients were eventually exhumed, evidence of morphine was found in some. Yet if a more robust system had been in place, making necropsies more likely, Shipman might simply have used means other than morphine to kill his patients.

Some hospital clinical and pathology departments hold regular audits of deaths. Similarly, many group practices also conduct audits of recent deaths. In primary care these are often triggered by staff stress after a difficult illness or the death of a patient with dependent relatives, suggesting how far removed is the thinking behind these audits from the suspicion necessary for a forensic examination of a suspicious death. A group practice of five doctors will have about 100 deaths a year, over half of them occurring in hospital and most of the rest in nursing homes, hospices, or residential homes. A singlehanded general practitioner will expect to have less than five deaths annually in the patient's home.

Systems for regular revalidation of all doctors have been agreed, and systems of clinical governance are being put in place across the NHS. Yet it is questionable whether, had these systems been in place at the time, Shipman would have been identified sooner. Deficiencies have long been recognised in the legal systems surrounding death.[3 4 7] More rigorous procedures for certification and registration should at least make detection more likely and investigation more efficient and straightforward. Trust in doctors, fundamental to an effective relationship with patients, has been undermined by this case. The profession must respond robustly to show that trust is well founded.

Nevertheless, although lessons can be learnt and procedures tightened up, no guarantees can be given that any doctor, nurse, or other clinician could not if sufficiently determined and perverse repeat Shipman's crimes. In the investigation following the Allitt murders the Clothier Committee concluded that "a determined and secret criminal may defeat the best regulated organisation in the pursuit of his or her purpose."[1]. It is difficult to envisage any set of laws or regulations that will guarantee that the acts of a criminal as experienced, knowledgeable, cool, and determined as Shipman can be prevented in the future.

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