79%. The five year disease free survival also increased, from 48% to 85%,[15] showing for the first time a benefit in overall survival in addition to local control.

These studies have been criticised as patients were not randomised to receive hormone therapy alone, but nevertheless they offer hope that neoadjuvant and adjuvant therapy improves the outcome. A new trial instigated by the MRC and the NCI of Canada will look at the effect of hormone therapy with or without radiotherapy.

A recent review of 14 retrospective and six prospective randomised trials of hormonal therapy and radiotherapy concluded that, although the impact of combination treatment on overall and cancer specific survival was unclear, locoregional control, disease free survival, and biochemical control were all improved. It remains to be seen whether longer follow up and additional data from current trials will translate into a survival advantage.[16]

So we can conclude that adjuvant hormonal therapy improves local control, but the jury remains out as to whether there is also a survival advantage. There is still uncertainty about patient selection and the duration of adjuvant hormonal treatment. In many of the adjuvant studies hormonal therapy has been continued for two years. Antiandrogen therapy has significant side effects, and, although two years' treatment may improve local control, it will condemn the patient to two years of hot flushes, loss of sexual function, and decreased drive. In a disease that we may be palliating, but not curing, this is a significant cost.

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# Protecting whistleblowers

*Employers should respond to the message, not shoot the messenger*

Whistleblowers have been likened to bees[1]: a whistleblowing employee has only one sting to use, and using it may well lead to career suicide. In a survey of 87 American whistleblowers from both public service and private industry all but one experienced retaliation, with those employed longer experiencing more.[2] Whistleblowers face economic and emotional deprivation, victimisation, and personal abuse and they receive little help from statutory authorities.[3] Last month the *BMJ* held a conference to consider how medicine and its institutions should change to protect and empower whistleblowers.

Dr David Edwards, a general practitioner from Merseyside, gave a personal testimony of the dire consequences he suffered when he blew the whistle on his senior partner, Dr Geoffrey Fairhurst. Dr Fairhurst was funded by the pharmaceutical industry to conduct research on antihypertensive medication, but he was submitting forged consent forms and falsified electrocardiograms. When Dr Edwards challenged him about this misconduct, Dr Fairhurst launched a campaign to discredit Dr Edwards' concerns. In March 1996 the General Medical Council found Dr Fairhurst guilty of professional misconduct.[4] David Edwards was left with damaged morale, half a practice, and a huge bank loan to pay off singlehandedly.

There are many reasons why doctors remain silent in similar situations, though two in particular have impeded openness in the past. Firstly, the culture of medicine has been one in which you shouldn't let the side down, and in which whistleblowing is seen as "sneaking" on your colleagues. Secondly, confidentiality clauses in NHS trust contracts effectively gagged employees.[5] But the culture and the law are changing.

The president of the General Medical Council, Sir Donald Irvine, told the conference that the council's recent policies signal "a very fundamental change in medicine." Continuing professional development will focus on attitudes, interpersonal relationships, and managerial skills. Doctors will be regularly asked to demonstrate their competence, so that they are fit to practise throughout their lives. "Clarity about our professional values and standards," said Sir Donald, "offers the public by far the best chance of safe practice."

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Another key safety valve is the obligation to report dangerous colleagues. In a landmark determination in March 1994, Dr Sean Dunn was found guilty of misconduct because he wrote a reference for a colleague whose practice he knew was dangerous.[6] The council has made its position clear: whistleblowing is a core duty of doctors.

This cultural change has been strengthened legally by the Public Interest Disclosure Act 1998, which came into effect last July. The act has been described by United States legal campaigners as "the most far-reaching whistleblower law in the world."[7] It provides individuals in the workplace with full protection from victimisation when they raise genuine concerns about malpractice. Disclosures to the employer, to regulatory bodies such as the Health and Safety Executive, and even to the media are protected.

The independent charity Public Concern at Work, which offers free legal advice to concerned employees, believes that the act offers all doctors the opportunity to blow the whistle without endangering their careers.[8] Crucially, when a whistleblower is victimised or dismissed in breach of the act he or she can bring a claim to an employment tribunal for financial compensation. All awards will be uncapped and based on the losses suffered, including future loss of earnings. Though the act does not require organisations to set up whistleblowing procedures, its existence will encourage them to do so. NHS gagging clauses should become obsolete.

If whistleblowing is now encouraged and protected, should we as doctors have no hesitation in speaking out? The key to this is whether we are acting in good faith. Acts motivated by personal gain or vendetta are unlikely to succeed. Guy Dehn, director of Public Concern at Work, suggested that we should apply the "family test" before deciding whether to proceed. If we would not subject a family member to a particular colleague or service, then we have a duty to act. We should firstly raise the matter internally if possible. If this is unsuccessful in resolving concerns we should then discuss it with a senior colleague or an appropriate regulatory organisation. We do not need to invest enormous time and energy in gathering a mass of data to support our concerns. The whistleblower's role is to raise the matter, not resolve it.

Will whistleblowing still be necessary in a modernised NHS with its focus on quality and accountability? All the stakeholders—public, professionals, and regulators—hope not. Stephen Bolsin, the anaesthetist who raised concerns about paediatric heart surgery at Bristol Royal Infirmary, said that all doctors should receive regular, anonymous feedback on their individual performance so that they can "blow the whistle on themselves" before serious errors occur.[9] Professor Liam Donaldson, chief medical officer for England, gave his vision of a high quality NHS with built in mechanisms for the early recognition and open handling of problems. We should "applaud heroes, and hope they are among us, but to base our hope of remedy in ordinary systems on the existence of extraordinary courage is insufficient."[10]

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# Coping with bioterrorism

## *Is difficult, but may help us respond to new epidemics*

The terror attacks on the World Trade Center in Manhattan in 1993 and the Federal Building in Oklahoma City in 1995, together with the Sarin attack on the Tokyo subway in 1995, have forced upon America an unwanted awareness of its vulnerability to terror attack. So far there have been no biological attacks within the United States, but many feel that this may only be a matter of time. Recently the Institute of Medicine and the National Academy of Sciences have made recommendations for research that would help in managing chemical and biological terror attacks against the civilian community.[1]

There are specific problems that are unique to biological attacks. Firstly, whatever the agent, and however it is delivered, there will be time lags between exposure and onset of the first symptoms and the development of the full blown disease. Thus the disease will be dispersed before we become aware that an attack has occurred (assuming no public announcement by the terrorists). Since the population exposed in a large community will approach the health system in many different ways there may be no clumping of cases to trigger awareness of an attack.

Secondly, the early manifestations caused by virtually any of the biological agents will look identical clinically. It is currently impossible to distinguish viral from bacterial disease until a specific organ pathophysiology declares itself, and this will probably be true also for a biological weapon. Moreover, since many of the weapons will be viral, the virulence of the attack weapon will probably be missed until significant morbidity and mortality have occurred. As a result, if there is no announcement of an attack, many patients will become critically ill and die even if the agent is one for which there is a specific diagnostic test and treatment. Conversely, if an attack is announced, medical facilities

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