Discussion

These two cases highlight an extremely important aspect of managing patients who have taken an overdose of a tricyclic antidepressant. Both patients developed asystole shortly after admission to hospital, and in neither case was a cardiodepressant drug given. Despite being given inotropic drugs both patients remained asystolic, and resuscitation was abandoned in the first case after 40 minutes. The second case was equally unresponsive although external cardiac massage and assisted ventilation were continued for three hours, when cardiac rhythm was re-established and cardiac output maintained.

The lesson to be learnt from these two cases is that asystole caused by a drug overdose does not carry the same prognosis as asystole secondary to acute myocardial infarction. Most patients who deliberately poison themselves have a healthy myocardium capable of returning to normal function despite prolonged external cardiac massage. In case 2 it must be presumed that sufficient metabolism and redistribution of imipramine took place during the three hours of external cardiac massage for the toxic effect on the myocardium to lessen and function return. Prolonged cardiac massage has also been successful in a child² and an adolescent³ both with circulatory collapse after imipramine overdosage. Although our second patient was older, it was possible to maintain an adequate cardiac output by prolonged cardiac massage, as shown by her subsequent recovery.

External cardiac massage should be given as long as necessary;

recovery after five hours of external cardiac massage has been reported.³ All junior doctors dealing with medical admissions should be aware of the treatment of severe tricyclic self-poisoning⁴ and remember that the ventricular tachycardia and asystole induced by these drugs have the same clinical consequences. Because most patients with tricyclic self-poisoning have a healthy myocardium before the event, the "intensive supportive treatment" should include continuing external cardiac massage and assisted ventilation for several hours rather than accepting the apparent hopelessness highlighted in case 1. This may help save the lives of many young adults who are otherwise given up for dead.

We thank Dr S J Pearce for allowing us to report on case 2.

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Alcohol and Alcoholism

Alcohol and work: a promising approach

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Worried by the increasing incidence of alcohol problems, the present Conservative Government is enthusiastic about the possibilities of responding to the problems in the workplace. Obviously, a policy that calls on employees and unions to act on their own initiative fits with Conservative philosophy and is preferred by them to intervention by central government in raising the tax on alcohol. But there are sounder reasons than mere philosophical compatibility for encouraging attempts to deal with alcohol problems at work.

As with so many other issues Britain has lagged way behind with this one. Programmes to deal with alcohol problems at work have existed in the United States since 1942,¹ and France,² Norway,³ and Australia⁴ have all taken initiatives that have only rarely been taken in Britain. But now, almost 40 years after the Americans, the Government has produced a pamphlet, *The Problem Drinker at Work*,⁵ that might prompt employers and unions to action. The pamphlet, like the Government "think tank" report before it,⁶ sets out the solid reasons why a response at work is so desirable. Firstly, most people with alcohol problems are employed, and those problems often first become

apparent at work. Secondly, certain occupations are known to be associated with an increased prevalence of alcohol problems.⁷ Thirdly, the costs to employers incurred through absenteeism, poor performance, lateness, sickness, and accidents are considerable.⁸ Fourthly, people whose livelihood is at stake are likely to be strongly motivated to overcome their problems. For all these reasons, much can be expected from responding to alcohol problems at work, and this article will look more closely at the association between work and alcohol problems and at the various strategies available for a response.

Occupation and alcohol problems

Most doctors are aware of the links between occupation and alcohol problems, not least because doctors themselves are one group with a high prevalence of such problems.^{9 10} The evidence for these links comes from several sources, none of them entirely satisfactory. Table I shows mortality from cirrhosis of the liver in various occupations: publicans have a rate 15 times higher than the average and doctors a rate three times higher. We know that today most cirrhosis results from alcohol abuse, and so this is strong circumstantial evidence of how various occupations drink, but we must remember that this is information about dead alcoholics; live ones may be different.

A second source of information is studies of particular occupations: few of these have been controlled, however, and most are impressionistic.⁷ The best early study was of 200 brewers in Austria¹¹: compared with controls the brewers had a significantly higher rate of liver damage and more were heavy drinkers. One interesting observation made in the study was that most of the brewers did not know of their liver damage. Some 10 years later Plant conducted a controlled study of workers in Edinburgh breweries and distilleries.¹² He found the same

TABLE I—Mortality from liver cirrhosis in various occupations (England and Wales 1970-2)

Occupation	Standardised mortality ratio
Publicans, innkeepers	1576
Deck officers, engineering officers, ships' pilots	781
Barmen, barmaids	633
Deck and engine-room ratings, barge and boatmen	628
Fishermen	595
Proprietors and managers in boarding houses and hotels	506
Finance brokers, insurance brokers, financial agents	392
Restaurateurs	385
Lorry drivers' mates, van guards	377
Armed forces (British and overseas)	367
Cooks	354
Shunters, pointsmen	323
Winders, reelers	319
Electrical engineers	319
Authors, journalists, and related workers	314
Medical practitioners	311
Garage proprietors	294
Signalmen and railway-crossing keepers	290
Maids, valets, and related service workers	281
Tobacco preparers and product makers	269
Metallurgists	266

Source: Plant.⁷

significantly higher alcohol consumption and damage in the workers in the drink trade, but there were other, less expected findings. For one thing, when those workers started in the drink trade they were already drinking more heavily than the controls and had poorer work records. Thus the drink trade was attracting those with a tendency towards heavy drinking. Another important finding was that as some workers changed their jobs so they changed their drinking habits: some heavy-drinking workers in the drink trade deliberately changed their jobs to drink less and succeeded in doing so.

Few other studies have been controlled, but Murray conducted one on doctors in Scotland.¹³ He showed that annual hospital discharge rates for alcoholism in Scotland were 3.3 times higher among doctors than among controls of social class I. Some argue that drink problems are common among doctors because medicine tends to attract the unstable,¹⁴ and others that it is because medicine is a particularly stressful occupation. Still weaker evidence of the links between occupation and alcohol problems comes from clinical and general population studies.⁷ Eight factors have been suggested to explain the links between occupation and alcohol problems (table II). This classification may suggest preventive strategies for limiting alcohol problems in particular occupations.

TABLE II—Factors linking occupation and problems with alcohol (taken from Plant⁷)

Factor	Examples of occupations affected
Availability of alcohol	Workers in the drink trade; caterers; business executives
Social pressure to drink	Coal miners; seamen; medical students; journalists
Separation from normal social or sexual relationships	Commercial travellers; seamen; oil-rig workers; service personnel
Freedom from supervision	Company directors; lawyers; general practitioners
Very high or low income	Doctors; the unemployed
Collusion by colleagues	Doctors; workers in the drink trade
Strains, stresses, and hazards	Coal miners; doctors; military personnel; actors; saxophonists
Preselection of high-risk people	Doctors; seamen; workers in the drink trade

Costs to industry

The costs of alcohol abuse to industry are many and various, and putting an exact figure on them is obviously difficult.⁸ One set of costs results from absenteeism, sickness, lateness, and reduced performance. A study of patients attending a community-based treatment clinic showed that 98% of those working lost time because of drinking—the average was 86 days a year—and 66% were often late for work.¹⁵ An American study of medical records of 10 000 subjects showed that those who abused alcohol had an absenteeism rate 2.5 times that of controls.¹⁶ One problem that complicates such studies is that sickness certificates—in Britain at least—rarely give alcohol problems as the cause of sickness even when they are the main cause: one study found that only 3% of the sickness certificates of alcohol abusers mentioned alcohol.¹⁷

Accidents are just as hard to cost. Sometimes one accident caused by alcohol can result in enormous costs: Seamen, who conducted a study of American railroad workers, described how one factor that prompted the study was a rail accident in 1973 that resulted from alcohol abuse and caused \$2m of damage.¹⁸ The large American study of medical records found that the accident rate among those who abused alcohol was three times higher than that in the control group.¹⁶ A French study found that 15% of accidents resulting in work stoppage among 20 000 workers were caused by alcohol.¹⁹ Studies from Britain are sadly lacking, and the Robens Report did not even examine alcohol as a cause of industrial accidents.²⁰

The study of American railroad workers gave some interesting insights into the day-to-day interaction of alcohol and work.¹⁸ Some 36% of 1300 employees had seen a co-worker drunk on duty in the past year, and 15% had experienced co-workers too drunk or with too severe a hangover to work. Furthermore, 60% said that they worked harder to cover up for a drunk co-worker, and only 14% would report him unless he did serious damage (7% would not report him even if he killed somebody).

Responding to alcohol problems at work

The Alcohol Education Centre, the National Council on Alcoholism, the Scottish Council on Alcoholism, and the Scottish Health Education Group have all tried to encourage British employers and unions to act on alcohol problems at work. Some companies, particularly a few in the drink trade,²¹ have responded, but they are still a very small minority. The booklet *The Problem Drinker at Work*, prepared jointly by the Health and Safety Executive, the Health Departments, and the Department of Employment, may stimulate some action. Experience from the United States suggests that much time is needed to encourage organisations to start programmes: of the 1 800 000 corporations in the United States, only about 3000 have programmes.¹

Programmes usually have three prongs: prevention, case identification, and referral or counselling. Different programmes have different emphases, but certain key points have emerged from the long American experience. Programmes developed in Britain cannot just be carbon copies of American ones because the circumstances are often so different, but much can still be learnt from American experience.

One golden rule seems to be that employers and unions must work together. Everybody stands to gain, but unions may be worried that programmes will deteriorate into mechanisms for firing drunks, whereas managers have sometimes seen such programmes as reflecting weakness.²² One corollary to this essential of co-operation is that the programme must apply to both blue- and white-collar workers: alcohol problems will be found in all sections of the work force.

Almost all programmes are based on a written policy, and it is important not only that this policy is agreed on in detail but also that it is "highly visible" so that everybody in the company knows that it exists. *The Problem Drinker at Work* gives detailed

suggestions on what such a policy should include.⁵ It must state that the objective is to help problem drinkers in the interests of health and safety at work, and it must spell out the organisation's intentions regarding confidentiality, job security, sickness benefits, pension rights, disciplinary procedures, and how the system will work.

Preventive measures will include not only education but also policies on drinking in the workplace and, in the case of the drink trade, on providing free drink to employees. A good policy, and one followed in France and Canada, may be to separate completely work and alcohol. The main part of most programmes, however, is the second stage of detecting problem drinkers. This is where responding to alcohol problems at work can really come into its own because one of the earliest signs of a drink problem is likely to be a deteriorating work performance. The earliest American programmes made a mistake: they called on supervisors to report employees who they thought had a drink problem. The failure of this approach was that people with drink problems could not be identified readily by physical and behavioural symptoms. If this policy is adopted only those employees with relatively severe drink problems will be identified.¹ A much better approach is for supervisors to report all workers whose performance deteriorates, and then for a suitably trained cadre to find out which of them have alcohol problems. American experience suggests that about two-thirds will.¹ Those that do not can be helped as well, however, and most American schemes no longer concentrate just on alcohol: they are now called employee assistance programmes rather than alcohol programmes. In this way those with other problems—mental or marital problems, for instance—are helped, and some of the stigma associated with alcohol problems is removed. The Americans have found also that many of those with drink problems will respond without any formal treatment, but a referral route should exist for those who need it.

The results of work-based programmes

Few of the American programmes have been satisfactorily evaluated.²³ There are formidable difficulties in conducting studies of outcome, which are similar to the difficulties inherent in evaluating any treatment programme (17 October, p 1043). Hore has gone as far as to say that a randomised controlled trial is impossible in such circumstances.²² Perhaps he is right, but studies where one factory with a programme could be compared with another without are surely possible. Ingenuity should allow some convincing study to be done.

Some evaluations have been carried out, several of them in terms that are familiar to industry—time and money. The New York Transit Authority, for instance, has about 35 000 employees and has been running a programme for many years. A study carried out in the 1960s showed that the saving in relation to sick pay was \$1.5m a year, and this was achieved for an expenditure of only \$65 000 a year.²⁴ Early returns from a General Motors programme have shown an 85% reduction in lost man-hours, a 72% reduction in accident and sickness benefits, and a 47% reduction in the number of sick leaves.¹

Another important measure of effectiveness is "penetration," or the number of people with alcohol problems that a programme reaches.¹ If a programme reaches only one man and then "cures" him it will have an impressive treatment-outcome rate but will be having no real effect if there are hundreds of workers with undetected problems. The American National Council on Alcoholism expects a good programme to reach 1.5-2.0% of its employees a year.¹ The Boston Post Office identified 8% of its employees as having drink problems in five years, while the Union Pacific Railroad identified more than 9% in four years.¹

These measures of money saved and penetration may or may not convince British employers and unions of the values of such programmes, but there do certainly seem to be strong pragmatic reasons for introducing a programme. William Dunkin of the American National Council on Alcoholism thinks that alcohol

programmes will eventually be seen to be as important in industry as safety programmes are today.¹

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What might be the cause of permanent halitosis?

There are many causes of halitosis, and a good account will be found in *Clinical Oral Medicine*.¹ They may be divided broadly into four groups. Probably the most common and the least troublesome are those associated with drying of the mouth—for example, after sleep or excessive speaking, with smoking, various items of diet, and with menstruation in women. They can usually be dealt with by the use of toothpastes or lozenges containing substances such as chlorophyll. Local conditions affecting mouth, teeth, pharynx, and sinuses need to be ruled out, as does chronic suppurative lung disease. General conditions such as diabetes and chronic liver and kidney disease should be readily excluded. If the answer is still not apparent then the cause is almost certainly psychological, and certain questions should be asked, such as, is the smell apparent to an independent observer and could the "halitosis" be a manifestation of a psychotic delusion (very rare)?—ALEX PATON, consultant physician, Birmingham.

¹ Gayford JJ, Haskell R. *Clinical oral medicine*. Bristol: John Wright, 1979:168-75.