J. Roy. Coll. Phycns Vol. 12 No. 5 October 1978

The Health of Doctors: a Review

ROBIN M. MURRAY, MD, MRCP, MRCPsych, MPhil

Senior Lecturer, Institute of Psychiatry, London

PHYSICAL ILLNESS IN DOCTORS

Do doctors, perhaps because of their life-style, long hours of work or close contact with disease, suffer more illness than the general population? Certainly there are occasional circumstances in which a doctor's work may endanger his physical health. Infection can be a hazard. Reid (1957) noted that pathologists had an increased risk of tuberculosis, but this no longer appears to be the case (Harrington and Shannon, 1975). Hepatitis reached epidemic proportions in European dialysis units in 1968-69; 61 units reported outbreaks and one surgeon out of 88 affected staff died (Druckker *et al.*, 1968). Paediatricians are notoriously prone to minor infections, and some women doctors may be at risk of having deformed children as a consequence of exposure to rubella or to halothane during pregnancy (Knill-Jones *et al.*, 1972; Harrington, 1975).

Ionising radiation shortened the lives of many of the pioneers of radiology, but two classic studies by Court-Brown and Doll (1958) in Britain, and Seltser and Sartwell (1965) in America showed that the danger existed only for older radiologists who started work before modern protective measures were introduced. Recently, attention has turned to a possible increased mortality from Hodgkin's disease; Vianna *et al.* (1974) found the mortality rate from this disease among New York doctors to be 1.8 times that expected, but Smith *et al.* (1974) could detect no excess mortality in a large study of British doctors.

In the USA death from heart disease has been more common in the doctor population than in control populations (Emerson and Hughes, 1926; Dublin and Speigelman, 1947; Dickinson and Martin, 1956). Morris and his colleagues (1952) showed that, in the early post-war years, general practitioners were twice as likely as other British doctors to develop a myocardial infarct. More recently, deaths from heart disease have been declining in British doctors, and doctors under 54 years are now less likely to die of ischaemic heart disease and myocardial degeneration than the general population (Doll and Peto, 1976).

Whether doctors have an overall life expectancy different from that of the general population can be ascertained by examining the statistics published by the Registrar General on Occupational Mortality. These use, as a measure of risk, the Standard Mortality Ratio (SMR), which is the ratio of observed deaths in a population divided by those expected from the national death rates, standardised for age and sex, and multiplied by 100. The figures given in the latest report of

Table 1. Studies of mentally ill doctors – general aspects.

	Duffy and Litin (1964)	a'Brook *et al.* (1967)	Vincent *et al.* (1969)	Pond (1969)	Small *et al.* (1969)	Franklin (1977)	Jones (1977)
Subjects	93 in-patients	192 in-patients and out-patients	93 in-patients	83 in-patients and out-patients	40 in-patients	100 in-patients	100 in-patients
Source	Mayo Clinic, USA	St Andrews and Atkinson Morley Hospitals, and Prof. Curran's private clinic, UK	Homewood Sanatorium, Canada	Maudsley and Priory Hosps. and Prof. Pond's private clinic, UK	Indiana Medical Center, USA	The Retreat, UK	Pennsylvania Hospital, USA
Period	1956-63	1954-64	1960-67	2 years in the 1960s	1952-65	1965-74	1965-75
Doctors : non-doctors	1 : 64	1 : 82 and 1 : 42	1 : 44	–	–	–	1 : 96
Mean age	54 years	44 years	51 years	45 years	42 years	–	45 years
Male : female ratio	–	9 : 1	14 : 1	4 : 1	19 : 1	–	8 : 1
Divorced/separated	–	8%	13%	7%	10%	–	–

the Office of Population Censuses and Surveys (Registrar General, 1978) show that, overall, doctors have an SMR of 81 – that is, they are 19 per cent better off than the general population. American studies have reached similar conclusions (Emerson and Hughes, 1926; Dickinson and Martin, 1956). In the most recent of these, Williams *et al.* (1971), using the cohort method, found significantly fewer deaths among doctors than among the general population, while Everson and Fraumeni (1975) reported a similar deficit in expected deaths among medical students and young doctors.

Williams *et al.* (1971) believed that much of this improved survival can be attributed to the highly selective process that admits primarily healthy individuals from the middle and upper social classes to medical school. Thereafter, members of the profession have the benefits of high socio-economic status and easy access to competent and, if necessary, highly specialised medical care. However, knowledge of health risks may also contribute. Doll and Peto (1976) have documented the beneficial effects of declining cigarette consumption among British doctors. In 1951, the cigarette consumption for doctors was similar to the national average, but by 1971 it had fallen to between one quarter and one half of that of the general population, and the SMR for doctors from lung cancer was 35 per cent of that expected (Registrar General, 1978).

MENTAL ILLNESS IN DOCTORS

The Registrar General's figures (1978) demonstrate that there are only three major conditions from which doctors are more likely to die than the general population. These, and their respective SMRs, are suicide (335 per cent), cirrhosis (311 per cent), and accidents (180 per cent). Since at least two of these have psychological origins, recent interest has turned from the physical to the mental health of doctors.

One method of obtaining information about doctors' mental health is to study doctors treated for mental illness, and in the past 14 years seven major series of such doctors have been published. These are summarised in Tables 1 and 2. The doctor-patients who were studied came from three different types of institution – private hospitals, teaching hospitals, and the personal clinics of well-known professors. These are all likely to have preferentially attracted sick doctors, which may explain the over-representation of doctors in their patient populations, and also why the authors became interested in the problem. These series are not strictly comparable among themselves since some contain both in-patients and out-patients while others contain only in-patients. Nevertheless, there are interesting similarities, including the mean age of the doctor-patients, which ranged from only 42 to 54 years, and the rates of divorce and separation, which varied from only 7 to 13 per cent. The difference in the male to female ratio between the British and North American series is explicable in terms of the greater percentage of women in medical practice in Britain.

Table 2. Studies of mentally ill doctors – diagnostic aspects.

	Duffy and Litin (1964) %	a'Brook *et al.* (1967) %	Vincent *et al.* (1969) %	Pond (1969) %	Small *et al.* (1969) %	Franklin (1977) %	Jones (1977) %
Affective psychosis	21	28	14	28	15	40	24
Alcoholism	51*	12	27	20	18	20	5
Drug dependence		17	30	?	15	10	5
Neurosis	20	16	14	21	?	17	52
Schizophrenia	7	9	5	12	52†	2	6
Personality disorder	7	13	4	?	?	4	3
Organic psychosis	9	5	5	7	?	8	1

* Includes secondary diagnosis.
† Category of 'schizophrenic reactions'.

In spite of differences in the diagnostic criteria employed, some trends in diagnosis emerge. Drug addiction and alcoholism were disturbingly common, and 51 per cent of the Mayo Clinic doctor-patients were addicted to drugs or alcohol. The percentage diagnosed as having affective psychosis ranged from 21 to 40 per cent, but the percentage considered to have a schizophrenic psychosis was only 2 to 12 per cent. (Small *et al.* (1969) used a category of 'schizophrenic reactions', which included non-psychotics.) Similarly, personality disorder and organic psychosis were relatively seldom diagnosed.

These results may have been distorted by the special position that doctors occupy in relation to psychiatric treatment. Not only can doctors treat themselves or seek psychiatric advice informally but, if they have a particular complaint, they may, because of their professional awareness, seek out a doctor or hospital with particular expertise in that condition. Consequently these studies cannot give accurate information about the frequency of different illnesses.

Pond (1969) appreciated this and, indeed, demonstrated considerable differences in the age, sex, occupational status and specialty pursued by doctors seen at the three institutions he studied (Maudsley Hospital, Priory Hospital and his personal clinic). Unfortunately, the authors of the other studies give no indication that they understood how potentially unrepresentative their patients might have been.

An Epidemiological Study

To obtain a more representative sample, Murray (1977) studied the admissions to and discharges from all Scottish hospitals of male doctors aged 25 years and over, and compared them with the figures for all non-medical Social Class I males. The overall mean annual first admission rate was 449 per 100,000 for male doctors

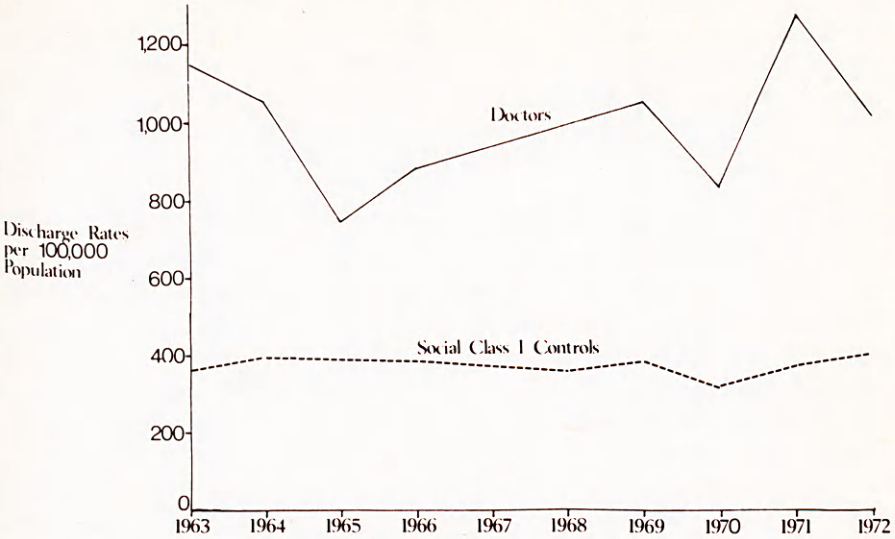

Fig. 1. Discharge rates from all Scottish in-patient psychiatric beds 1963-1972.

and 205 per 100,000 for non-medical Social Class I males. The rates were higher among doctors for all diagnostic categories except personality and behaviour disorders, but the differences between doctors and non-doctors were not significant for schizophrenia, senile and pre-senile psychosis, other psychosis and neurosis. The greatest disparities were in the rates for drug dependence, alcoholism, and depression, which were all significantly more common among the doctors.

Overall discharge rates were similarly higher among doctors, the greatest differences being in drug dependence and alcoholism between the ages of 45 and 54 years. As can be seen in Fig. 1, there were no significant trends in rates between 1963 and 1972.

Drug Dependence

Many investigators have emphasised that drug dependence is an occupational hazard for doctors. Norwood East (1949) found that of the 383 known addicts in the UK at that time, 82 were doctors. Over a 25-year period in New York State, 0.5 per cent of all licensed physicians were reported as addicts to the Bureau of Narcotics Control (Vaillant *et al.*, 1970).

In addition to the series of psychiatrically ill doctors previously reviewed, in all of which drug addiction was common (Table 2), there have also been specific studies of drug-dependent doctors (Pescor, 1942; Wall, 1958; Modlin and Montes, 1964). Putnam and Ellingwood (1966) followed up 68 addicted doctors discharged from Lexington Hospital; the major drugs of addiction were morphine,

Table 3. Major studies of suicide among American doctors.

Authors	Period	Source of data	No. of doctors' suicides	Annual rate for doctors	General population rate	Ratio of doctors' rates to general population rates
Emerson and Hughes (1926)	1925	AMA records	61	45.4	–	–
Dublin and Spiegelman (1947)	1938-1941	AMA records	326	39.0	37.6	1.04 : 1
Dickinson and Martin (1956)	1949-1951	AMA records	191	31.1	30.3	1.03 : 1
Blachly *et al.* (1968)	1950-1961	Death Certificates in Oregon	8	30.3	32.4	–
Freeman (1967)	1895-1966	AMA obituary notices for psychiatrists	203	–	–	–
Craig and Pitts (1968)	1965-1967	AMA obituary columns and files	228	38.4	34.1	1.13 : 1
Blachley *et al.* (1968)	1965-1967	AMA obituary columns	249	33	38.4	0.85 : 1
De Sole *et al.* (1967)	1965-1968	AMA obituary columns	291	33	38.4	0.85 : 1
Rose and Rosow (1973)	1959-1961	Death Certificates in California	48	77	38	2.02 : 1
Steppacher and Mausner (1974)	1965-1970	AMA obituary columns and files	530	♂ = 30.9 ♀ = 33.6	–	1.15 : 1 3.2 : 1

mepiridine, and barbiturates. Green *et al.* (1976) summarised this literature, and emphasised the aetiological combination of predisposing personality disorder and the easy availability of drugs. Hill *et al.* (1968), using the Minnesota Multiphasic Personality Inventory, found that addicted doctors scored as more psychopathic than control doctors, but less so than non-medical addicts.

Alcoholism

Two studies published in 1976 dealt specifically with alcoholic doctors. Bissell and Jones (1976) interviewed 98 American doctors who were members of Alcoholics Anonymous (AA) and had been abstinent for a minimum of one year, while Murray (1976) followed up alcoholic doctors who had been treated at a London postgraduate hospital. From these two studies it appears that only a minority of alcoholic doctors have a family history of alcoholism or psychiatric disorder. Their pre-alcoholic careers range from repeated failure to spectacular success. Among British alcoholic doctors a surprisingly high proportion have graduated from Scottish or Irish medical schools, and such graduates are similarly over-represented among doctors appearing before the Disciplinary Committee of the General Medical Council on charges arising out of alcohol abuse (Cargill, 1976).

Alcoholic doctors accumulate many of the same sequelae of their addiction as alcoholics without medical qualifications. Upper alimentary disorder, delirium tremens, marital breakdown, and drunken-driving offences are especially common. Although police are reluctant to arrest a doctor, Bissell and Jones (1976) reported that their 98 physicians had accumulated a total of 219 arrests and 170 jailings. A doctor's physical symptoms and outrageous social behaviour are very often wrongly attributed to organic disease, with resultant unnecessary investigations.

In terms of absolute numbers of affected doctors alcoholism is much more important than drug dependence in Britain. It is also the mental disorder most likely to hazard a doctor's care of patients, and to involve him with his professional disciplinary body (American Medical Association, 1973; General Medical Council, 1974; Merrison Committee, 1975).

Depression and Suicide

All studies of mentally ill doctors have emphasised the frequency of affective disorder (Table 2). Recently, Welner and Clayton (1978) interviewed a series of practising women doctors, selected at random, and found the frequency of present or past depression to be astonishingly high. The frequency of suicide by doctors also attests, by implication, to a high prevalence of depression.

The ten major epidemiological studies of suicide among American doctors have had highly contradictory results (Table 3). The best known is that of Blachly and his colleagues (1968) who reviewed all the obituary notices in the *Journal of the American Medical Association* between 1965 and 1967. Two hundred and forty-nine suicides were reported, giving an annual suicide risk for doctors of 33

per 100,000, close to the average for all-white males in the USA. Using the same source Steppacher and Mausner (1974) reviewed all suicides between 1965 and 1970, and found that the rate among male physicians was approximately 1.15 times that of the total male population.

The weakness of these and other studies based on the American Medical Association's records is that they assume the accuracy of the records. Rose and Rosow (1973) have exposed their inaccuracy by employing a computerised review of all death certificates of males in California to establish an annual suicide risk for doctors of 77 per 100,000, twice that of the general population. Only half the deaths that they knew to be by suicide appeared as such in the *Journal of the American Medical Association.*

Several investigators have commented on the relatively young age at which doctors tend to kill themselves. Steppacher and Mausner (1974) noted that the rates among male doctors are highest between the ages of 45 and 64 years, whereas in the general population the highest rates are in the elderly. Half the suicides in male doctors studied by Rose and Rosow (1973) occurred between the ages of 35 and 54 years. Women doctors appear to be particularly prone to suicide. Craig and Pitts (1968) found a fourfold excess of suicide among women doctors compared with the general population, and Steppacher and Mausner (1974) reported a rate for female physicians three times that expected on the basis of population statistics.

British doctors have not shared their American colleagues' fascination with the suicide rate in their own profession. However, the Registrar General's reports on occupational mortality in the United Kingdom have consistently shown that doctors are especially liable to take their own lives. The latest report (1978) shows the risk for doctors to be 335 per cent that of the general population.

There have been numerous suggestions as to why doctors should have an increased risk of suicide, but among the most plausible have been the ready availability of drugs, and that doctors lose their fear of death through familiarity with it. Rose and Rosow (1973) examined these hypotheses by studying other groups exposed to the same factors. They found that all health-care workers (e.g. nurses, dentists, physiotherapists) were twice as prone to suicide as other professional workers, suggesting that contact with disease and death was a critical factor. Doctors committing suicide showed a marked preference for drug overdosage (55 per cent compared with 21 per cent among the general population), suggesting that access to drugs may be important.

Aetiology of Mental Illness in Doctors

Medical Students. Medical students, being a captive population, have been much studied. Ironside (1966) considered that 13 per cent of New Zealand medical students in their fifth year needed psychiatric care. Pitts *et al.* (1961) believed that 6 of the 40 sophomores they studied at medical school were psychiatrically

ill, while Hunter and his colleagues (1964) reported that 18 per cent of medical students sought help from the psychiatric student health services during their undergraduate careers.

Davies and his colleagues (1968) surveyed students in seven Australian medical schools and concluded that 11 per cent of the men and 24 per cent of the women in the first year had significant neurotic symptoms. These figures were lower than the English general population means for the test they employed – the Eysenck Personality Inventory. However, there was a steady increase in neuroticism in both males and females as they progressed through medical school.

Stress in Medicine. Do sick doctors break down because of the special stress incurred in medical practice? Cramond (1969) used the Neuroticism Scale Questionnaire in a survey of all local doctors whose names appeared in the South Australian Medical Register. Responses were received from 810 doctors (54 per cent) and demonstrated that those who had care of patients were more anxious than non-clinical doctors, e.g. pathologists, and the general population. Cramond contrasted this with Australian medical students who, he claimed, were less anxious and had fewer psychiatric symptoms than other students; on this rather flimsy basis he concluded that doctors experience a rise in anxiety on assuming clinical responsibility. Cramond's questionnaire also included items concerning the most stressful areas of clinical practice. The doctors reported that their greatest sources of anxiety were therapeutic failure, diagnostic difficulties, the impact of work on their family life, and the death of young patients.

Pre-selection of Vulnerable Individuals. Vaillant and his colleagues (1970, 1972) have published the results of a much more methodologically sound study. This investigation began over 30 years ago when 268 college sophomores were chosen on the basis of their good health and academic success to be studied intensively by a university health service. The assessments carried out at this time included ratings of their psychological stability and the quality of their childhood. By chance, 46 of these students went on to medical school, and these, plus 79 control students who did not, were followed up by questionnaire every two years for the next three decades. Doctors, especially those involved in direct patient care, were more likely than controls to report being unhappily married and requiring to resort to psychiatric treatment; 36 per cent of the doctors admitted to high drug use as against 22 per cent of the controls. The development of these difficulties appeared to be strongly associated with life adjustment before medical school. The doctors who developed most problems were those with the most unsatisfactory childhoods, and those who had shown most instability at college.

Interspecialty Differences

There are considerable intellectual and emotional differences between doctors who enter different specialties. Walton and Last (1969) demonstrated that among students attending Edinburgh University those with the best academic records

tended to enter the basic sciences; potential surgeons were less academically able, but more extroverted and low on anxiety, while potential general practitioners tended to be more anxious and to have failed more examinations than any other group. Students considering a career in psychiatry were more reflective and able to tolerate ambiguity (Walton, 1969).

Davies and Mowbray (1968) studied 139 fifth-year medical students at the University of Melbourne, and noted that students who expressed a positive interest in psychiatry were likely to have high scores on the Thinking-Introversion and Complexity Scales of the Heist Omnibus Personality Inventory. Mowbray and Davies (1971) also investigated personality differences between 207 postgraduate doctors in different specialties. Surgeons and psychiatrists were significantly more extroverted than physicians, while physicians were significantly more neurotic than surgeons. By contrast, Cramond (1969) found that among postgraduates the two most anxious groups were surgeons and general practitioners.

Investigators have questioned whether a doctor's specialty increases his likelihood of mental illness. a'Brook and his colleagues (1967) claimed that psychiatrists were over-represented among their doctor out-patients, but attention has already been drawn to the defects in their study. Waring (1974) administered the General Health Questionnaire to 83 psychiatric trainees and 35 medical postgraduates. Twenty-two per cent of the psychiatric trainees had a score 'in the range of a probable case of non-psychotic emotional illness' compared with only 3 per cent of non-psychiatric trainees. Among psychiatrists, Kreitman (1962) noted that the analytically orientated scored as showing more neurotic tendencies than the organically orientated. Kreitman wondered whether increasing awareness of psychodynamic processes renders doctors more willing to admit their own problems.

If psychiatrists are, indeed, more prone to mental illness, this may be either because the more unstable are attracted into the specialty, or because the practice of psychiatry may be more emotionally demanding than other specialties (Halleck and Woods, 1962). The studies already reviewed do not support the conclusion that those interested in psychiatry are particularly abnormal but, since they studied only very limited aspects of personality, they by no means rule out this explanation. There is an equal paucity of evidence in support of the alternative explanation. One study suggested that junior psychiatrists experience an increase in depression during their first year of training (Pasnau and Bayley, 1971), while another (Worby, 1972) considered their risk of breakdown greatly increased. These findings await confirmation.

Suicide has also been studied in relation to specialty. Blachly *et al.* (1968) claimed that the annual suicide risk ranged from 10 per 100,000 in paediatricians to 61 per 100,000 among psychiatrists, but the sampling and statistics used in this investigation have been discredited (Rose and Rosow, 1973). Nevertheless, much has been made of this study, and others have offered anecdotal evidence in favour

of psychiatrists being a high risk group (Freeman, 1967; Pond, 1969; Pausnau and Russell, 1975). By contrast, Rose and Rosow (1973) failed to find a single psychiatrist among their 48 doctors dead by suicide, and Kelly (1973) found the suicide rate among junior psychiatrists to be similar to that of trainees in other specialties.

Pathologists have been studied rather less than psychiatrists. Harrington and Shannon (1975) calculated that they had a particularly high incidence of suicide, but these authors may have been misled by using out-of-date control figures.

Treatment and Outcome

It is peculiarly difficult to treat sick doctors. Doctors find it extremely hard to adopt the patient role, and their psychiatrists often find it impossible to adhere to the consistent therapeutic policies they apply to other patients (Duffy and Litin, 1964; a'Brook *et al.*, 1969; Small *et al.*, 1969). Duffy and Litin (1964) further believe that this 'special patient' status frequently acts to the patient-doctor's detriment. Vincent *et al.* (1969) found doctors very reluctant to accept treatment and claimed 'all [studies] concur in the extreme reluctance of physicians to admit and to seek help for emotional problems'; 19.6 per cent of the doctors treated by them were admitted under a compulsory certificate compared with only 5.5 per cent of controls. However, Murray (1977) found no difference in the frequency with which his doctors and controls were certified.

Since doctors often discharge themselves precipitately from treatment (a'Brook *et al.*, 1967; Vincent *et al.*, 1969) there have been few studies of outcome. Small *et al.* (1969) found that of 40 doctors admitted to hospital ten years previously, only 23 had returned to active medical practice, and 5 had committed suicide. Murray (1976) followed up 36 alcoholic doctors for a mean period of 63 months, reporting that 4 killed themselves and 1 died from cirrhosis. Only 7 completely overcame their drinking problem and, of the 29 alive at follow-up, only 8 were practising satisfactorily. The outlook for less seriously ill doctor-patients treated as outpatients would presumably be less gloomy. Certainly Bissell and Jones (1976) consider the prognosis for alcoholic doctors to be quite good, and Green *et al.* (1976) were successful in rehabilitating 72 per cent of their drug-dependent physicians.

Adverse Effects on Patients

It is extraordinarily difficult to estimate the frequency with which patients suffer as a consequence of the mental illness of their doctors. The potential for harm of such doctors was tragically brought to the public attention in September 1972 when a schizophrenic doctor killed three children in a Blackpool hospital. A number of authors have also given illustrative case histories of actual or imminent harm to patients.

a'Brook and his colleagues (1967) describe the paranoid doctor who 'had been

grossly and obviously deluded for months before admission, doing his rounds on foot because he believed articles were stolen from his car, and expressing the belief that Freemasons were persuading the local chemists to dispense prescriptions incorrectly'. Shapiro and Shale (1975) collected 13 cases including 'a family physician [who] frequently saw children alone, asking parents and his nurse to remain outside the examining room. Two young women revealed that he had abused them sexually when they were children'. A number of cases have also come to light in evidence presented to the Merrison Committee into the Regulation of the Medical Profession (1975). One such case was a doctor 'who piled all the drugs in the surgery into a bucket which he then put in the surgery waiting room, with a label requesting patients to help themselves and not bother him'. The General Medical Council (1973) considers that 'some harm has resulted to patients from the existence of psychiatric illness in a doctor, although evidence does not suggest that this has often occurred'. Nevertheless, the American Medical Association (1973) has been sufficiently concerned to issue guidelines for dealing with the mentally sick doctor, and the Merrison Committee (1975) has made a number of recommendations for changes in the British machinery for dealing with potentially dangerous doctors.

This article is based on a paper read at the General Meeting of Members on 'The Health of Doctors' held at the Royal College of Physicians in February 1978.

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