

INDIVIDUAL STUDIES

Suicide and barbiturate prescribing*

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Death from barbiturate poisoning in England and Wales during 1968 accounted for 30 per cent of the 4,584 suicide verdicts and 65 per cent of all the suicide deaths due to drugs. Twenty-six per cent of the 1,194 open verdicts and 70 per cent of all the open verdict deaths due to drugs were also from barbiturate poisoning (table I). It is probable that many lives would have been saved had the prescription of drugs been more carefully considered and supervised.

TABLE I
THE IMPORTANT DRUGS USED IN DEATH BY POISONING WHERE SUICIDE VERDICT OR OPEN VERDICT WAS ENTERED (1968)¹

	<i>Suicide verdict</i>			<i>Open verdict</i>		
	<i>N</i>	<i>Percent of all suicide drug deaths</i>	<i>Percent of all suicide deaths</i>	<i>N</i>	<i>Percent of all open verdict drug deaths</i>	<i>Percent of all suicide deaths</i>
Barbiturate alone	1256	65.2	27.4	315	69.8	26.4
Barbiturate in combination*	151	7.8	3.3	39	8.6	3.3
All deaths where barbiturates were taken	1407	73.0	30.7	354	78.4	29.7
Aspirins and other salicylates alone	172	8.9	3.8	22	4.9	1.8
Aspirin in combination	38	1.9	0.1	3	0.6	0.2
All deaths where aspirin was taken	210	10.8	3.9	25	5.5	2.0
Mandrax (methaqualone) alone	51	2.6	1.1	8	1.6	0.5
Mandrax in combination	23	1.2	0.5	3	0.6	0.2
All deaths where Mandrax was taken	74	3.8	1.6	11	1.2	0.7
All deaths from drugs	1926	100.0	42.0	451	100.0	38.0
All deaths	4584			1194		

*Carbrital is included in this category

In presenting these findings we wish to show how the prescribing of barbiturates and other sedatives may increase the risk of death by suicide. The findings probably

*Based upon evidence submitted to the Advisory Committee on Drug Dependence (Misuse of Barbiturates Subcommittee) of the Department of Health and Social Security, September 1970.

apply to a proportion of open verdict cases as well, for suicides may be classified under this heading when evidence of intent is lacking. The data is drawn from a retrospective clinical study of 100 cases of suicide.

We have examined the use of drugs in this sample, asking five broad questions:

1. Might other arrangements for the treatment of poisoning than the available ones have saved life in those dying through drug overdoses?
2. What evidence is there that patients were inappropriately treated with barbiturates or minor tranquilizers when antidepressants were indicated?
3. To what extent were the deaths from drug overdosage consequent on an impulsive act; an act which could not have been taken if the drugs concerned had not been available, in quantity, immediately?
4. What evidence is there that misuse of barbiturates contributed to an abnormal psychiatric state in the period shortly before death?
5. To what extent were the suicides receiving barbiturates in a prescription at the time they died?

The sample studied comprised 100 suicides obtained from coroners' inquests; the first 25 were collected consecutively in West Sussex between August 1966 and March 1967; the second 75 were collected consecutively in West Sussex and Portsmouth between December 1968 and January 1969.²

The facts about drug treatment were collected from the general practitioner or psychiatrist, supplemented by the executive council medical card and hospital notes. Facts about hospital admission were recorded from hospital notes. Information about clinical state was obtained by interviewing relatives, friends and medical attendants soon after the suicide. These descriptions were examined by a committee of three psychiatrists who made a diagnosis.

Facilities for treatment of poisoning cases

The Hill Committee³ made certain specific recommendations about the provision of services for poisoning cases. We have looked at our material to see in which cases death might have been averted if the recommendations had been adopted in the region we studied. Our findings are set out with the paragraph number of the relevant Hill Committee recommendation in parenthesis.

Fifty-six of the 100 cases of suicide were due to drugs. Nineteen of the 56 were found alive and subsequently died in the following circumstances:

Died before the doctor or an ambulance arrived	7
Died during the ambulance journey	2
Died in a general hospital undergoing treatment for poisoning	8
Died in a psychiatric hospital	2
	19

As far as we could judge there was only one example of delay in the arrival of a general practitioner after he had been called. He was telephoned twice, and one and a half hours elapsed between the first call and his attendance. Taking everything into consideration we felt that the person would probably have succumbed even without the delay. There was no unreasonable delay involving ambulances.

The Hill Committee (para 80) recommended that trained ambulance attendants with special equipment be made available for the transport of poisoned patients. There was no evidence in the two cases said to have died during the ambulance journey that different treatment by ambulance men might have saved their lives. It was more likely that they were both dead when placed in the ambulance but that no one in authority had said so.

The Hill Committee emphasized the importance of the ambulance service knowing

the name and location of the nearest hospital designated for the treatment of poisoning (para 80). In only one case did delay caused by lack of this knowledge by the *police* probably contribute to death. These were the circumstances:

A young man in despair because his wife would not return to him, impulsively took 40 Welldorm (dichloralphenazone) tablets, prescribed that day, while drinking at a country pub. His father-in-law, who was with him, rang the local police who did not say what to do but directed him to ring another police station in a nearby larger town. The police there misdirected him to the local cottage hospital which had no provision for casualty treatment. From there the patient was taken to a district hospital, though not the nearest one, but he died less than one hour after admission. Probably about two hours were lost in vain searches.

The Hill Committee stated that all cases of deliberate self poisoning should be referred to a designated poisoning treatment centre (para 85). The region we studied has five such centres serving a population of 650,000. No patient diagnosed as suffering from self poisoning died in a general hospital other than a designated poisoning treatment centre.

The Hill Committee recommended that poisoning treatment centres should be sited in hospitals with a psychiatric unit (para 86). The absence of such a unit in one poisoning treatment centre may have contributed to the death of one case. These were the circumstances:

A 72-year-old widow, under psychiatric treatment as an outpatient took an overdose of aspirin. Her stomach was washed out at the casualty department of the hospital designated as the poisoning treatment centre. The casualty officer judging that all the aspirin had been recovered transferred her to the area mental hospital 20 miles away at 9.00 pm. Five hours later she died of aspirin poisoning. The poisoning treatment centre did not have a psychiatric unit.

We concluded from these findings, that the arrangements for the transport and care of cases of self poisoning are satisfactory in this region and that improvements to them are unlikely to have an important effect on death from barbiturate and sedative self poisoning in cases of suicide. It seems probable that the same is true of other regions which have similar arrangements for poisoning treatment.

The omission of antidepressive drugs

In this section we will discuss our findings as they relate to diagnosis, attempting to demonstrate that the appropriate treatment of mental illness, and in particular depressive illness is likely to cause a reduction in the number of people who kill themselves with barbiturates and other sedative drugs.

1. Fifty-six of the 100 suicides killed themselves with drugs of some kind.
2. Forty-seven of these 56 killed themselves with barbiturates and sedative drugs (barbiturates 45, Mandrax (methaqualone) 1, Welldorm (dichloralphenazone) 1).
3. Nine of the 56 killed themselves with other drugs (aspirin 8, insulin 1).

We will present the facts regarding the diagnosis and medical treatment of the 47 poisoned by barbiturates, methaqualone and dichloralphenazone.

From table II it is clear that the major illness represented is depressive illness accounting for more than three quarters of the suicides.

Table III demonstrates that 85 per cent of these suicides had seen their general practitioners in the six weeks before they died. The median number of days between contact and death was ten days in each group, that is half had seen their general practitioner in the ten days before they died. It is clear that there was no lack of medical opportunity for suicide prevention. Four (9 per cent) cases were under psychiatric care at the time and table IV indicates the duration from last contact to death. Nearly 90 per cent, therefore, of the sample dying of barbiturate and sedative poisoning were not under psychiatric care but were being treated by their general practitioner. What drug treatment then were they having?

TABLE II
DIAGNOSTIC CATEGORIES FOR THE 47 SUICIDES
POISONED BY BARBITURATES AND SEDATIVE
DRUGS

	<i>N</i>	<i>Per cent</i> (<i>N</i> =47)
Diagnosed mentally ill ..	44	94
Diagnosed not mentally ill	3	6
	47	100
<i>Specific diagnosis</i>		
Depressive illness ..	32	68
Depressive illness + alcoholism	5	11
	37	79
Alcoholism	2	4
Other disorders ..	5	11
	44	94

TABLE IV
TIME BETWEEN LAST CONTACT WITH PSYCHIATRIST
AND SUICIDE FOR THOSE POISONED BY BARBITURATES:
(i) all 47 cases; (ii) those 37 diagnosed depression

	<i>All</i>	<i>Per cent</i>	<i>De- pres- sives</i>	<i>Per cent</i>
Up to 1/52 ..	4	9	2	5
1/52—3/12 ..	2	4	2	5
>3/12 ..	1	2	0	3
Not under psychiatric care ..	40	85	33	87
	47	100	37	100

It is clear that advantage was not taken of the opportunity to treat the depression. Considering the treatability of depressive illness with physical methods, particularly antidepressive drugs, we think it a reasonable conclusion that a proportion of the 27 not receiving them might still be living had these drugs been used. Why were they not used?

We believe it is largely because of the difficulty general practitioners may have in diagnosing a depressive illness and treating it effectively. This in turn is a consequence of the neglect of psychiatry at undergraduate medical schools. Educational programmes for general practitioners could fill this gap. The Department of Health and Social Security should offer strong inducements to enable general practitioners to attend postgraduate courses on psychiatry. Not only would this improve the standard of treatment of depressive disorders but it might also diminish the use of barbiturates and minor tranquillizers.

The use of barbiturates

In this section we will discuss the findings relating to the use of barbiturates, tranquillizers and sedatives by general practitioners in the treatment of the symptoms

TABLE III
TIME BETWEEN LAST CONTACT WITH GENERAL
PRACTITIONER AND SUICIDE FOR THOSE POISONED
BY BARBITURATES:

(i) all 47 cases
(ii) those diagnosed depression

	<i>All</i>	<i>Per cent</i>	<i>De- pres- sives</i>	<i>Per cent</i>
Up to 1/52 ..	22	47	18	49
> 1/52 < 2/52	7	15	5	14
> 2/52 < 6/52	10	21	8	22
> 6/52 < 12/52	2	4	2	5
> 12/52 < 52/52	4	9	3	8
> 1 year ..	2	4	1	3
	47	100	37	101

TABLE V
ANTI-DEPRESSANT DRUG TREATMENT OF SUICIDES
DIAGNOSED DEPRESSIVE ILLNESS DYING BY POISONING
WITH BARBITURATES WHO HAVE SEEN A GENERAL
PRACTITIONER IN THE THREE MONTHS BEFORE DYING
(THAT IS 90 PER CENT OF THE DEPRESSIVES)

	<i>N</i>	<i>Per cent</i> (<i>N</i> =33)
Prescribed anti- depressants	6	18
Not prescribed anti- depressants	27	82
	33	100

presented to them by this group of suicides. We particularly want to show the dangerous relation between impulsiveness and the availability of poisonous substances provided by doctors; the extent of long-term barbiturate taking and its harmful effects; the evidence implicating barbiturate intoxication with morbid pre-suicidal behaviour, and finally some miscellaneous observations about drug prescribing and forging of prescriptions.

1. *The impulsive suicide*

The limitation of drugs is unlikely to hinder the person determinedly bent on his own destruction, but there is undoubtedly a group of suicides who act on impulse, and whose impulse would not prove fatal if the drugs were not there or were not dangerous.

We have selected from our material a group who made no obvious previous preparation for their suicide and did not write a suicide note. This group is likely to contain a high proportion of people who acted on impulse. We examined the group to discover the source of their drugs, the quantity of barbiturates in their last prescriptions and the time elapsing between the receipt of the last prescription and death. Table VI summarises the results.

TABLE VI
ASPECTS OF BARBITURATE PRESCRIBING IN 17 'IMPULSIVE' SUICIDES

Source of drugs	<i>General practitioner prescription</i>	<i>Used spouse's drugs</i>	<i>Probably stolen</i>	<i>Psychiatrist prescription</i>	<i>Total</i>
	15	1	1	0	17
Time from last general practitioner prescription to death	<i>Up to 7 days</i>	<i>8—14 days</i>	<i>15—42 days</i>	<i>No prescription from general practitioner</i>	
	12	1	2	2	17
Number of grains of barbiturates present in last prescription	<i>Up to 50</i>	<i>51—100</i>	<i>101—150</i>	<i>151—200 NA</i>	
	2	7	3	3 2	17

General practitioners were the source of the drugs in 15 out of the 17 'impulsive' suicides. Psychiatrists were not represented as suppliers of drugs because none of the group was under psychiatric care at the time of death. All had received their prescriptions within six weeks previous to death, 12 within seven days and ten within four.

Two points of interest arise from this observation. The first concerns motivation. Could this proximity between supply of drug and suicidal act imply intention? This is unlikely for in none was it a first prescription; all were on a regular supply system, and ten of the 15 receiving barbiturates had been taking them for more than one year, seven for more than five years, and four more than ten years.

The second point concerns the mode of getting prescriptions. In seven of the 17 taking barbiturates the final prescription was elicited from the general practitioner by a telephone call to him or his receptionist, or by a note. A relative or the patient then collected the prescription. In one instance 12 G (180 grains) of barbiturate were collected in this fashion. The practice seems a common one and in chronic diseases

is undoubtedly a time saver for the doctor. Its continuance where barbiturates are concerned seems undesirable to us.

We were able to obtain fairly accurate estimates from the doctor of the last prescriptions' contents. The average amount of barbiturate each suicide received shortly before his death was 6.3 G (105 gr.). A legal limit on barbiturate prescribing* when introduced into Victoria, Australia, was accompanied by a drop in the male suicide rate from 18.9 per 100,000 to 16.9 and in the female rate from 11.1 to 8.5⁴.

A similar procedure in England on a voluntary experimental basis selecting some towns for the limitation of barbiturate prescribing and ecologically similar ones for controls would provide valuable evidence for any proposed statutory intervention.

2. Long term barbiturate prescribing

In this section we wish to discuss the long term use of barbiturates in the 100 suicides and the possible harmful consequences arising from this.

TABLE VII
THE DURATION OF BARBITURATE PRESCRIBING

< 1 year	1—2 years	2—5 years	5—10 years	> 10 years	N.K.	Not prescribed barbiturates	Total
17	3	12	9	10	1	48	100

Of the total sample, a half were taking barbiturates regularly, a third had been taking them for more than two years and ten per cent for more than ten years (table VII). They were being prescribed almost solely for the treatment of insomnia.

The studies of Oswald⁵ suggest that this group of people were almost certainly addicted to barbiturates, and their need to continue with them is the consequence of the withdrawal effect of disturbed sleep when the drugs are stopped or reduced. However, apart from the eight people who became seriously addicted and who will be described in the next section the harmful effects of this relatively mild addiction were not obvious to us. Nevertheless physiological studies do show brain function changes and impairment of performance⁶ with barbiturate use. Because of this people already handicapped with illness or social difficulties and needing to cope at their highest capacity may be further handicapped by chronic barbiturate intake.

There are two other less direct dangers arising from the over-use of barbiturates. The first concerns their use as a poison in the suicide act. This risk seems to us greater with the impulsive person and has been discussed already. The second danger, and a less obvious one, is that regular prescribing over months and years may lessen the doctor's vigilance when he does see the patient, or it may actually prevent doctor and patient seeing one another at a vital period. The patient receives a routine prescription from the receptionist, either himself, through a relative, or by post and does not have a consultation.

The conditions under which barbiturates were first prescribed and when patients became dependent are unknown to us. We had at first thought the psychiatric hospitals where their previous mental illness had been treated might be responsible but this proved not to be so. Probably all doctors should share the responsibility.

Our proposals for ameliorating this particular problem are rather limited. It became clear that most of the suicides taking barbiturates regard them as essential to good sleep. Any attempt to cut them down or replace them with something more

*The limit was 25 barbiturate tablets or capsules without the right to a repeat prescription before a further consultation.

innocuous, and such attempts were made, had met with strong resistance. The obvious requirement is a non-addictive, harmless hypnotic of comparable power to barbiturates if it is possible to separate "dependency" and effective sedation. The more practical alternative is the prevention of barbiturate dependence by controlling the initial treatment of insomnia. We think this can be achieved, first, by discovering in what circumstances people become addicted; then, secondly, an appropriate educational programme can be organized. We suspect that common causes will prove to be careless treatment of the insomnia that accompanies mild depressive episodes or other psychological upsets, and the routine prescribing of barbiturates during brief spells of hospital inpatient care.

A further finding of interest was the increase in the dose of barbiturates required by some suicides shortly before death. An attack of depressive illness seemed the cause of this, rather than the need to build up a surplus for the suicide act. The pre-existing habit of prescribing barbiturates for insomnia obscured the real significance of the change in sleep pattern.

3. *Excessive barbiturate prescribing*

There were eight instances of barbiturate being taken regularly in excessive doses and one where a normal dose was probably dangerous because of hepatic pre-coma.

As each of these cases presents rather unique features, we thought that brief accounts of each might be more valuable in illustrating some of the problems of barbiturate control than an attempt at generalization.

Case 1. A 53-year-old, childless, unemployed domestic cleaner lived with her husband. For many years, nervousness, tension, depression and phobias about meeting people had caused tipping and the over use of barbiturates and tranquillizers. On a number of occasions her husband found her 'high' having taken excessive barbiturates or alcohol. Shortly before her death she lost a valued job and could not find another.

Barbiturate, 400 G (6 gr.) daily, had been prescribed more or less continuously for more than five years. It was taken during the day, not at night, and the dose was never increased. The general practitioner had made many attempts to reduce the dose and to change to something more innocuous and failed. Psychiatric referral was declined. She collected a fresh prescription for 12 G (180 gr.) two days before her death. On that occasion she did not see the doctor, but that was unusual.

Case 2. A 44-year-old, married general practitioner who lived with her two children. A syndrome of 'hospital addiction' had been diagnosed in the past to account for many admissions with strange symptoms, and no demonstrable pathology. Psychiatric treatment had met with little success. Barbiturates had been taken in excess over at least eight years to relieve tension, depression and insomnia. On a number of occasions she was found unconscious, and on many more confused. She had been convicted of dangerous driving under the influence of drugs. Most of her supplies were obtained by self prescription.

Her death had been preceded by a drug free period of some months, but on the day before, she paid for a prescription of 300 gr. of Tuinal. A close friend's admission to hospital that day may have caused her to feel upset. The fatal barbiturate overdose may have been accidental and not suicide, for evidence of intention was weak.

Case 3. A married woman of 38 lived in the private hotel where she worked as a waitress at the time of her suicide. Both her husband and four children were separated from her because of her chronic personality problems; she was quarrelsome and neglectful. An anxiety state and various phobic symptoms commenced after the birth of her last child, when she was twenty-eight. Her illness was resistant to treatment despite periods of psychiatric care. She took large doses of barbiturates to alleviate the symptoms and had been regarded as addicted for the previous seven years. She had a shrewd general practitioner who provided her once a week with seven postdated prescriptions, one for every day. Each prescription was for Sodium Amytal 3 gr. \times 5 and chlorpromazine 100 mg \times 3. On the day preceding her death she added a nought to the 5 on one prescription, went to a different chemist and obtained 50 \times 3 gr. Sodium Amytal. While her usual doctor wrote out the number to avoid this type of forgery a locum had issued her most recent set of prescriptions and written the five in arabic numerals.

We felt that her death by barbiturate poisoning was more likely an accident than suicide. In the past she had forged prescriptions, taken large doses and on waking denied suicidal intention explaining her action as an attempt to avoid an unpleasant situation.

Case 4. A married nurse of 37 in good physical health lived with her husband who had multiple sclerosis. She had been unemployed for the past year probably because of personality problems, predominantly depressive mood changes and difficulty getting on with people. Addiction to barbiturates had been present for about two and a half years, first discovered when she stole 2,000 barbiturate tablets from her hospital and was dismissed. Since that time her general practitioner prescribed 100 Sodium Amytal 60 mg and 60 Nembutal 100 mg every two weeks. He saw her fairly regularly and prescribed them as a deliberate policy because of her manifest distress without them. Three psychiatric referrals, one in each of the preceding years, had not proved useful in getting the addiction controlled although there had been no period of sustained psychiatric treatment.

Case 5. A 76-year-old, childless, married woman, lived with her sister because her husband was in hospital. For ten years she took six grains of Tuinal at night but for the previous two years she took other barbiturates during the day as well. According to her general practitioner she took the husband's Sodium Amytal and also got drugs from other doctors. Drugs were also begged from her sister. The doctor said that he attempted to exchange her Tuinal at night for Mandrax or Welldorm but the patient would not have it. At the time of her death he was prescribing Tuinal and Sparine and the day time barbiturates were obtained elsewhere. The clinical picture was one of mild progressive dementia with depressive symptoms. The increase in drug taking may have been related to the depressive symptoms but this was not clear.

Case 6. A 45-year-old, single woman lived alone since the recent death of both parents. She was drawing sick benefit on psychiatric grounds but was actively looking for work. In the preceding seven years there had been four admissions for agitated depression, with reasonable response to treatment. At the time of death her drug treatment was amitriptyline 100 mg daily and Sodium Amytal 1 G (15 gr.) daily. This prescribing was recorded for the previous six months but had probably been going on for 12 months. She had not seen the doctor for seven months and obtained prescriptions on request from his receptionist. There had been a recent recurrence of her depressive symptoms.

Case 7. A 58-year-old widow living with her unmarried son. Her physical health was poor because of rheumatoid arthritis of crippling severity, chronic renal disease and high blood pressure. Paracetamol, Codis and Nembutal comprised the treatment since ACTH had been stopped three months before her death. At the time of her suicide by barbiturate poisoning she was taking between 360 mg and 450 mg (6 and 9 gr.) of Nembutal daily because of pain and misery. The general practitioner had decided against psychiatric referral as the depressive symptoms were explicable to him in terms of her pain. The consultant physician had recommended a referral.

Case 8. A 33-year-old single woman lived with her mother. She was unemployed because of borderline intelligence, choreo-athetosis and painful muscular spasms. These symptoms were the result of kernicterus (rhesus incompatibility). She had been seen by two neurologists and a psychiatrist and adequately investigated. However, the management had devolved upon her general practitioner who treated her with codeine for pain, glutethimide and Tuinal for sleeplessness. Shortly before her death she was taking both of these hypnotics during the day as well as at night. The prescriptions were fetched from the doctor's surgery by the mother. The doctor had not seen the patient in a consultation for a year. She took a fatal overdose of barbiturates after making some half-hearted gestures in the preceding months. Depressive symptoms had been present for three months.

Case 9. A 62-year-old widower lived with his uncle and his uncle's wife. The post-mortem report stated that he was in 'the last stages of cirrhosis of the liver'. His reported behaviour was consistent with hepatic pre-coma yet his general practitioner prescribed barbiturates for him, not having made the diagnosis, although he was aware that he had alcoholic cirrhosis. The dose given was 100—200 mg (1·5—3 gr.) at night and the liver's failure to metabolize this could have contributed to his confused state.

If we leave aside case 9, the man with liver failure, the remaining eight cases, all women, fall into two groups. One group comprises four people who took barbiturates to relieve tension, had been addicted to them for some years and in whom efforts at alleviation had failed. A nurse and a doctor were included in this group. We were impressed with the great difficulty of effectively limiting intake in these cases. The fact that we thought two verdicts may have been wrong and the deaths accidental, underlines that the danger is not only of suicide if excessive amounts of barbiturates are freely available. The general practitioner of case 3 who issued daily, unforgeable prescriptions, seems to have had the most successful approach to the problem's control, although it would now be too costly for the patient, because of prescription charges.

The other four cases had been taking large doses for a relatively short time and

three of them had clear-cut depressive illnesses. Had the illness been recognized and rigorously treated the outcome might have been different.

Conclusions

1. Measures to improve the Poison Treatment Centre are not likely to reduce the suicide rate further; nor are other measures aimed at improving the treatment of poisoning outside the hospital.
2. The education of general practitioners in the recognition and treatment of depressive disorders and alcoholism may have an important contribution to make in reducing suicide due to self poisoning.
3. Measures directed at the control of barbiturates are likely to save lives. These measures include:
 - (a) Reduction in the number and size of prescriptions for barbiturates
 - (b) Wrapping of tablets in tin foil or plastic blisters
 - (c) The use of non-barbiturate tablets when the drug treatment of insomnia is begun, or changed.
 - (d) Recalling by the general practitioner of unused barbiturate tablets when treatment is changed or stopped.
 - (e) Writing the prescription in such a way that forgery is impossible.
 - (f) The chemist's use of his commonsense when faced with requests for large or excessively frequent prescriptions for barbiturates.
 - (g) A general practitioner should not prescribe barbiturates without seeing his patient.
4. Research which could be undertaken by general practitioners:
 - (a) A suitably controlled trial of the effect of limiting barbiturate prescribing on death from barbiturate poisoning in selected urban areas.
 - (b) Trial of methods of limiting barbiturate prescribing in general practice.
 - (c) A retrospective study of how barbiturates are first prescribed and then continued.
 - (d) Research into the economic consequences of substituting other drugs for barbiturates.

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