

patients. No matter how thoroughly a new drug has been tested in experimental animals, possible species differences must never be forgotten in assessing its precise effect in man. As Mr. Hanbury, of the British Pharmaceutical Industry, has recently said, "there are innumerable examples of drugs of the utmost value, even penicillin itself, which have brought life and health to millions of people but serious trouble to the few. Vaccination against smallpox involves a grave risk to a

tiny minority, considered worth taking for the good of the majority. Even the use of the homely aspirin is by no means devoid of danger. Those who say that nothing short of complete safety will suffice are crying for the moon, and if their clamour were taken at its face value stagnation would be the sequel. The public which demands therapeutic progress must be prepared to accept some risk, though its degree and extent can be minimized by intelligent safeguards."

MISPLACEMENT OF THE ELDERLY IN HOSPITAL

A STUDY OF PATIENTS ADMITTED TO GERIATRIC AND MENTAL HOSPITALS

BY

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The need for development of hospital services for old people in relation to the growing number of persons of pensionable age is now widely known (*Lancet*, 1961). There is an increasing call for hospital accommodation, and very often the demand for beds exceeds the number available. Many facilities for the care of the elderly have been provided largely in advance of the assessed requirements, and consequently their value has been lessened by extending these facilities to patients who could more suitably benefit from alternative care and accommodation. A major obstacle in the development of these urgently needed services is the frequency with which old people are sent to the wrong hospital.

Evidence for Misplacement

Misplacement of the elderly in hospital has long been attributed to the lack of criteria for assessing the disabilities of old people and planning their disposal. The mental and physical changes of ageing cannot readily be separated, so there is difficulty in deciding whether a patient requires psychiatric or geriatric care. In old people the evaluation of cases where physical or psychological factors coexist is particularly difficult.

It has been shown (Affleck, 1947; Robinson, 1950; Kay and Roth, 1954; Kolb, 1956; Tewfik, 1956; Cross *et al.*, 1957; Cosin, 1958; Adams, 1959; Tec *et al.*, 1960; Townsend, 1962; McKeown, 1961; McKeown *et al.*, 1961) that in routine geriatric and mental hospital practice old people are often clearly misplaced. Many beds are occupied by patients who should have been admitted to a unit more fitting to their particular type of disability. Too many geriatric hospitals are filled with long-stay demented patients. Conversely, patients are being sent to mental hospitals when their sole psychiatric disorder is delirium due to severe physical disease. Between these extremes misplacement is seen in the medical wards where patients are admitted for investigation of physical complaints which may not be recognized as hypochondriacal concomitants to a primary depressive illness (Sargant, 1961), and in mental hospitals where debilitated and tractable old people who can only technically be called psychotic are admitted for chronic sick care. It is not in the best interests of an old sick person to be transferred from unit to unit, so that mental hospitals commonly retain patients who ought to be in

geriatric units, and, conversely, general and geriatric hospitals keep those who would be better placed in mental hospitals.

It was felt worth while to study the effects of misplacement of the elderly in hospital from two contrasting approaches: the first dealing with assessment of disabilities and the second with the consequence of these disabilities in respect of the type of hospital care the patient is given.

Using techniques previously described (Kidd, 1962) it has been shown that misplacement occurred to a considerable extent both in the mental hospital and in the geriatric unit serving the city of Belfast. Assessments of disability from physical illness and psychiatric illness respectively were made on 100 patients aged 60 and over admitted to each unit. The ratings were based on the possibility of clinical improvement, and by their use it was possible to evaluate the relative severity of the two types of disability. This allowed classification of each patient into one of four groups (Table I).

TABLE I.—*Distribution of the Two Hospital Samples by Assessed Categories*

	Mental Hospital Series (n = 100)	Geriatric Unit Series (n = 100)
Mental	57	20 { misplaced
Mental-physical .. .	19	14 { 34%
Physical-mental .. .	11 { misplaced	29
Physical	13 { 24%	37

The patients in the mental hospital series who were assessed as physical and physical-mental were medical cases and are therefore designated as "misplaced in choice of hospital." They account for 24% of the series. In the geriatric unit, patients assessed as mental and mental-physical were psychiatric cases and are also designated as "misplaced in choice of hospital"; these accounted for 34% of the total geriatric series. Thus it is apparent that a substantial proportion of the patients in each hospital were misplaced and would have been more appropriately placed in the other.

Obviously the most important factor in misplacement was the presence of overriding physical illness in the mental hospital patients and predominantly psychiatric illness in the geriatric unit patients. Analysis of the cases, however, revealed concomitant characteristics of

the misplaced patients, which can briefly be summarized as follows.

Factors associated with misplacement in both units were: age of 75 and over, being single or widowed, and low socio-economic status. In addition, many of those misplaced into the geriatric hospital had been admitted from welfare institutions or lodgings. Clinical features of misplacement here were restlessness, disorientation, and impaired ability to communicate. In the mental hospital many misplaced patients were transfers from acute medical wards. Impaired physical mobility and incontinence of urine were conspicuous.

Present Study

This study is concerned with a follow-up of the course and outcome after admission of the 100 patients in each hospital previously considered. Its aim is to examine what the consequences of misplacement are in regard to the patients' subsequent outcome.

When more than one year had elapsed since the last patient in both samples had been admitted to hospital, a second survey was carried out to note whether each patient had since been discharged, had been discharged but subsequently readmitted, had died in hospital, or was still under in-patient care.

Results

The age-and-sex distribution of the two samples from each hospital is shown in Table II. Women outnumber men, as they do in both the hospitals. The mental hospital series is younger than the geriatric unit series, but otherwise they are demographically alike.

Table III shows the outcome of correctly placed and misplaced patients of the two samples one year after admission. In both hospitals the largest numbers are in the discharge category. All those discharged from the mental hospital went home, while seven discharged from the geriatric unit went to welfare accommodation or private residential homes.

Of those who were not discharged, more of the mental hospital patients were still under hospital care than had died, while in the geriatric unit the reverse is true. Three of those still in the mental hospital had been discharged but subsequently readmitted before the survey year had elapsed. Of the 14 patients retained

in the geriatric unit three had been transferred to a long-stay annexe and four (two correctly placed, two misplaced) to psychiatric care; although they had left their original wards they were still under hospital care and could not justifiably be classified as discharges.

The mortality of misplaced medical cases in the mental hospital was nearly three times that of the correctly placed psychiatric cases ($\chi^2=9.4, P<0.01$), and the mortality of misplaced psychiatric cases in the geriatric unit was more than twice that of the correctly placed medical cases ($\chi^2=7.66, P<0.01$). In other words, the mortality of misplaced patients is significantly high wherever they are sent. Further, by comparing the figures for the medical and psychiatric cases in the two hospitals it can be shown that medical cases in the mental hospital have a higher mortality than correctly placed medical cases ($\chi^2=9.1, P<0.01$), and that psychiatric cases in the geriatric unit have a higher mortality than psychiatric cases correctly placed ($\chi^2=7.99, P<0.01$). This shows that not only do misplaced patients have a higher mortality than correctly placed patients in either hospital, but that they have a higher mortality than patients suffering from similar conditions who were admitted correctly.

Percentages of discharges and deaths throughout the period after admission are shown for medical cases in Fig. 1.

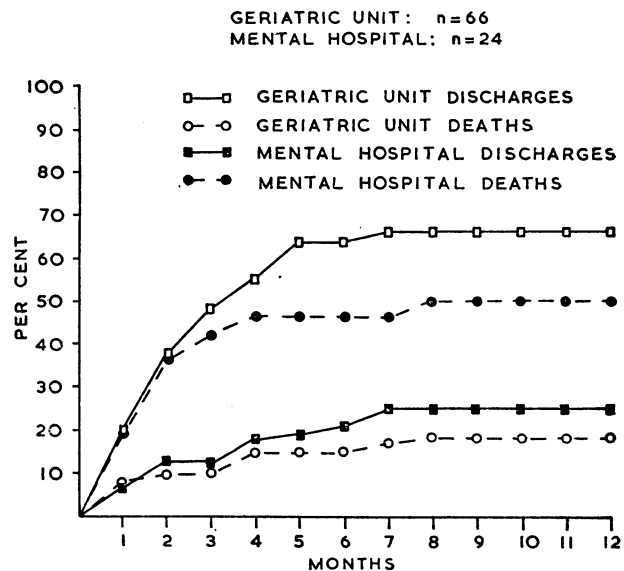


FIG. 1.—Medical cases; cumulative discharges and deaths after admission.

Medical patients who survived had a much higher chance of discharge if admitted correctly to the geriatric unit (67%) than if misplaced in the mental hospital (25%). The disparity between the mortality figures is shown: only 18% of those correctly placed died as against 50% of those misplaced. The percentages of geriatric unit discharges and mental hospital deaths rose sharply in the three months after admission, while the proportionately lower numbers of mental hospital discharges and geriatric unit deaths show a more gradual rise over a longer period.

Corresponding figures for the psychiatric cases in each hospital are shown in Fig. 2.

Psychiatric patients who survived show the same percentages of discharges, irrespective of the hospital they were in, and almost all of these occurred in the

TABLE II.—Age-and-sex Distribution of the Two Hospital Samples

Age	Mental Hospital Series			Geriatric Unit Series		
	Male	Female	Total	Male	Female	Total
60-	10	14	24	5	6	11
65-	7	10	17	6	5	11
70-	6	16	22	9	12	21
75-	10	12	22	9	11	20
80-	2	8	10	8	12	20
85+	2	3	5	4	13	17
All ages	37	63	100	41	59	100

TABLE III.—Outcome of Correctly Placed and Misplaced Patients of the Samples from the Two Hospitals One Year After Admission

Outcome	Mental Hospital Series			Geriatric Unit Series		
	Correctly Placed	Mis-placed	Total	Correctly Placed	Mis-placed	Total
Discharged ..	36	6	42	44	15	59
Retained ..	26	6	32	10	4	14
Died ..	14	12	26	12	15	27
All outcomes ..	76	24	100	66	34	100

first three months after admission. On the other hand, the mortality curve for correctly placed patients in the mental hospital rises slowly during the year to a final total of only 18.4% in the last month under survey, while for misplaced patients in the geriatric unit the total was 44%, most of whom died in the first three months.

Irrespective of placement, the percentage of discharges from the geriatric unit was 17% higher than from the mental hospital.

Effect of Age on Mortality.—It has previously been established (Kidd, 1962) that the mean age of the misplaced patients was older than the mean age of the correctly placed patients in both hospital series. To examine whether the high mortality recorded for the misplaced patients could be accounted for by age, mortality was tested against survival, comparing the misplaced patients with a randomly selected age-matched group of correctly placed patients. Of 58 misplaced patients 27 died; of 58 age-matched correctly placed patients 11 died ($\chi^2=10.01$, $P<0.01$). The misplaced patients therefore had a significantly higher mortality than the correctly placed patients of the same age distribution; from which it may be concluded that age is not a deciding factor in the high mortality among misplaced patients.

Effect of Mixed Disabilities on Mortality.—As the medical cases were made up of patients in physical and physical-mental categories, and psychiatric cases of those in mental and mental-physical categories (see Table I), those suffering from both physical and mental disabilities might carry a worse prognosis than those who were assessed as suffering exclusively from one or the other. To examine this, mortality was tested against survival, comparing the patients who were misplaced in each of the mixed categories with those with exclusively physical or exclusively mental disabilities. It was found that the mortality was the same, showing no significant departure from the expected ($\chi^2=0.76$, n.s.), from which it may be concluded that the presence of patients with mixed physical and mental disabilities does not account for the high mortality among misplaced patients.

Effect of Sex on Mortality.—Using similar statistical techniques it was found ($\chi^2=1.7$, n.s.) that sex differences did not influence the outcome in respect of the patients who were misplaced.

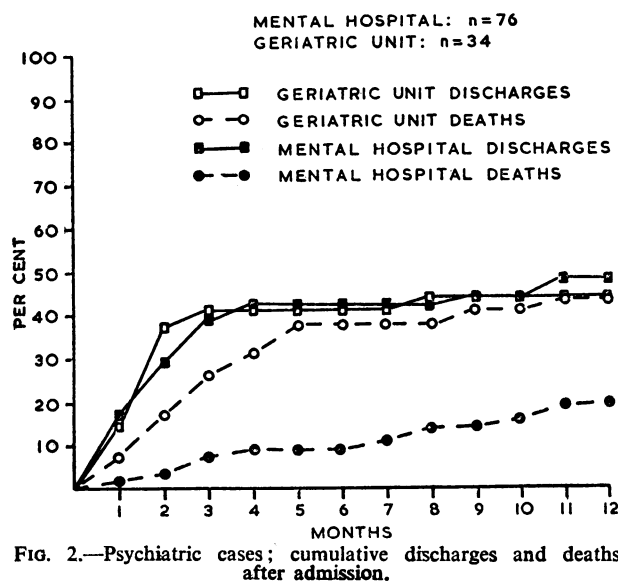


FIG. 2.—Psychiatric cases; cumulative discharges and deaths after admission.

Discussion

In Belfast, where beds are much in demand, out of 100 patients over the age of 60 admitted to the mental hospital 13 definitely should not have been and 11 probably should not have been. Of 100 patients admitted to the geriatric hospital, 20 definitely should not have been, and 14 probably should not have been. Since misplacement of old people has been so widely reported throughout the United Kingdom, it is likely that these figures are not unique to Belfast but reflect national trends at this time, which is that between one-quarter and one-third of all patients over the age of 60 are being sent to the wrong hospital.

The presence of a physical disorder in a mental patient or a mental disorder in a geriatric patient did not by any means indicate that the patient had been misplaced. Strict criteria were adhered to (Kidd, 1962), and in general terms a patient was considered to have been misplaced only if it was found that he manifested the sort of illness which could have been more suitably treated in the other hospital, or that the condition for which he was admitted was clearly of secondary clinical importance to the major disability found.

The most serious consequence of misplacement is the high mortality associated with it. Not only do misplaced patients have a higher mortality than correctly placed patients, in both the geriatric and the mental hospital, they also have a higher mortality than patients suffering from similar ailments who were admitted correctly. It has been shown that this cannot be accounted for by age, sex differences, or the presence of patients with mixed physical and mental disabilities, who might be thought to have a poor prognosis. It cannot be argued that as a group misplaced patients were more ill on admission than similar patients who were correctly placed: the distribution of deaths throughout the year suggests that such a generalization is invalid. This leaves the conclusion that misplacement itself brings about early death in significantly high proportions of old people admitted to hospital.

The outcome of misplaced patients who did not die is no less striking: those who were medical cases were more than two and a half times more likely to be discharged if they were admitted correctly than if they were sent to the mental hospital, while the same proportions of correctly placed and misplaced psychiatric cases were discharged. This suggests that correct placing of medical cases brings about better therapeutic results, which are reflected in the higher discharge figures, while placement does not at first seem relevant to discharge of surviving psychiatric cases. The percentage of discharges from the geriatric unit, however, is 17% higher than from the mental hospital, and when allowance is made for this it is clear that in both hospitals misplacement holds a poor outlook for discharge.

It is difficult to imagine any more drastic consequences from admitting old people to the wrong hospital than that so high a proportion of them should die, and that of those who survive so few should be discharged. It is worth while, therefore, to consider some of the likely pitfalls which favour misplacement of patients and its consequences. The misleading nature of the confusional state has attracted much attention. Kay *et al.* (1956) and Gibson (1961) have shown that there is a high mortality in mental hospitals among patients suffering from delirious states. Mental confusion is a common

complication of any disease in old people, and not, as often mistakenly thought, a diagnosis. Physical disease is to some extent important as a cause in all mental disorders in old age, and Roth (1960) has observed that physicians may be misled into viewing the psychiatric concomitants of a physical disease as a primary mental disorder. The inference is that confused patients are prone to be taken for the demented. This is understandable on Bleuler's (1951) premise that, although it is possible to tell by psychological observations that an organic condition exists, such observations alone do not reveal the location, path, or nature of the condition (except in the case of the phenomena usually regarded as the province of the neurologist). This diagnostic difficulty seems to be a strong factor in misplacement. Aronson (1958) has said: "In spite of convincing evidence to the contrary, the notion is still widespread that disorganized and confused states in senescent patients are caused by irreversible senile and arteriosclerotic changes in the brain."

Depression is common in the elderly. Between one-third and one-half of all patients aged 60 and over admitted to mental hospitals in this country suffer from it. In its overt and clinical form it is easily recognized, and these patients are referred early for psychiatric treatment. Unfortunately, it presents much more commonly at first as a milder and more atypical depressive state and the diagnosis may be missed. Very often a depressive illness has reached an advanced stage before the patient is felt to need psychiatric treatment. Similarly, where physical illness and depression coexist the unrecognized and untreated affective disorder may delay rehabilitative progress.

A lesser pitfall is that mental changes due to myxoedema or brain tumour may be viewed in the first instance as primary senile dementia. These conditions, however, are found to be rare in comparison with the confusional and depressive states, which are very prevalent.

Clinical difficulties alone are by no means wholly responsible for patients being admitted to the wrong hospital. Social factors play a dominant part in deciding which hospital a patient should go to, as do pressure from the family on the doctor concerned. Furthermore, daily it becomes more difficult for the general practitioner to secure a geriatric hospital bed for an elderly patient. The various authorities demand exacting standards, and in these circumstances the general practitioner, aware that his patient urgently needs chronic sick care, may refer him to a mental hospital, where admission may be more quickly arranged than from a geriatric unit waiting-list. Although this causes misplacement it can always be justified to some extent, since even slight intellectual impairment constitutes a degree of mental disorder, however physically ill the patient may be.

Preventive Measures

It is likely that misplacement in both geriatric and mental hospitals will persist unless direct measures are brought to bear in providing adequate criteria for patient-disposal.

The most crucial and difficult issue is the definition and classification of the elderly psychiatric case. In this study every patient could be fitted readily into the simple classification set out in Table I.

Cases in the exclusively physical and exclusively mental categories are normally instantly recognizable and their disposal should be clearly indicated, but in mixed categories of physical-mental and mental-physical, where there are both physical and mental disorders, decisions about correct hospital disposal can be very difficult to make. This, however, is made more simple when each type of disability is assessed in terms of the likelihood of clinical improvement: if the psychiatric disability has the poorer prognosis then the patient is mental-physical and should go to a mental hospital, but if the physical disability has the poorer prognosis, the patient is physical-mental and should go to a geriatric hospital. The relationship between classification and outcome in this study is evidence enough that this system has practical value. Moreover, it is easy to apply and it has the advantage that it can be employed equally well both by general practitioners and by physicians in geriatric units and observation centres. Most important, its use can be an effective means of preventing misplacement.

To prevent misplacement it is essential to know that it occurs so often and that it has such drastic consequences for the patients involved. These facts should provide the incentive for more stringent efforts to be directed at its control.

Misplacement can be further avoided by recognizing the sort of patient who gets sent to the wrong hospital and adopting as a simple guide the social and clinical characteristics associated with him.

The chances that a patient will be placed correctly diminish with age, those over 75 being especially liable to misplacement. It is therefore important to take particular care in assessing the very old patient. The single and the widowed have a much greater chance of being misplaced than those whose spouse still lives with them. In situations of this sort self-neglect is not uncommon and may favour physical breakdown, or loneliness and social isolation may predispose to psychological disorder. Often the clinical picture is a mixed one. Here, again, careful assessment is needed.

This is also true for elderly patients of low socio-economic status. Many old people from lodging-houses, diggings, and hostels are admitted to geriatric hospitals, and are then found to be more suitable patients for mental hospital care. When referring such patients it would be helpful to pay careful attention to their mental state, as with those who are restless or who appear to be confused. Similarly, frail, bedfast, or incontinent patients should be carefully assessed for physical disability rather than be directly referred to a mental hospital.

A comprehensive geriatric service is the ideal and logical solution to the problems of misplacement of the elderly sick. Burn (1959) has said that the main problem of the ageing population lies in finding the facilities and teamwork to tackle the mental and physical disabilities of old age adequately; and in agreement Roth (1960) has pointed out that it is important to establish geriatric centres where both full psychiatric and medical facilities are provided. It has been shown (Kidd, 1962) that 30% of the mental hospital patients and 43% of the geriatric unit patients needed joint care and would have benefited from the provision of a unit where psychiatrists and general physicians worked together. Centres of this sort would not only combine the best of both regimes of treatment for short-stay patients but would also act

as effective observation units where the correct disposal would be worked out.

Summary

The course and outcome of patients aged 60 and over admitted to the geriatric unit and the mental hospital serving the city of Belfast have been examined. Comparisons were made between those correctly placed and those misplaced—that is, those whose principal illness was one which would have been more appropriately treated in the other hospital.

The misplaced patients had a higher mortality in hospital than was found among the correctly placed patients. This was so in both hospitals. Also, their mortality was higher than that of patients suffering from similar ailments who had been admitted to the proper unit. Among the survivors, the misplaced patients were less often discharged than correctly placed patients. These differences were not accounted for by differences in age or sex, or by the seriousness of the illnesses. Patients with mixed physical and mental disabilities did not have an especially bad prognosis. Misplacement itself seemed to be directly responsible for the poor outcome of the patients. Reasons for this poor outcome are discussed, and ways of avoiding misplacement are outlined.

I am grateful to Dr. C. B. Robinson, resident medical superintendent, Purdysburn Hospital, Belfast, and Dr. G. F. Adams, physician-in-charge, Wakehurst House, Belfast City Hospital, who encouraged this work and permitted interviews with the patients under their care; and to them, and to Professor G. M. Carstairs, of the University of Edinburgh, for permission to publish these findings. Professor J. G. Gibson and Professor E. A. Cheeseman, of the Queen's University of Belfast, advised and guided the preparation of the first part of this survey, and Mrs. V. Stewart gave valuable help with the records.

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Opportunities offered by male nursing as a career for boys are outlined in *Nursing for Men*, a revised edition in the "Choice of Careers" series published by the Central Youth Employment Executive. Details are given about training and the conditions required for admission to the Index of Student Nurses. Information is also given about conditions of service, openings and prospects, opportunities for male nurses in H.M. Forces, the Prison Service, in territories overseas, and under the guidance of the World Health Organization. (H.M.S.O., 1s. 6d. net.)

SOME PROBLEMS OF HYPERPARATHYROIDISM*

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Osteitis Fibrosa

The problem posed by the only occasional coexistence of a specific bone disease, osteitis fibrosa generalisata, has not to my mind been sufficiently studied. Albright and Reifenstein (1948) clearly stated that there were two forms of primary hyperparathyroidism—that "with" and that "without" bone disease—and they further suggested that the patient's previous calcium intake was the factor determining whether he got the bone disease or not. They held that a high calcium intake could put any patient "with" bone disease into positive balance and eventually cure the bone disease, and that the patient's previous calcium intake therefore determined the state of his bones—low intake inducing bone disease, high intake preventing it. However, many clinicians have noted individual patients who did not appear to follow this rule, and the only systematic dietary survey (Dent, Hartland, Hicks, and Sykes, 1961) showed that the previous calcium intake of patients "with" bone disease did not differ from those "without" (Fig. 8). Others have argued that the duration of the disease was the significant factor, the bone disease taking a long while to develop and therefore being present only in long-standing cases, all cases being presumed to begin and, for some time, to remain "without" bone disease. A more plausible theory could be that the severity of the hyperparathyroidism was relevant, only the more severe ones—that is, with a higher parathormone production—getting the bone disease. Whichever of these theories one might favour, it is obvious that it would imply that the forms "with" and "without" bone disease must merge into one another without any sharp line of demarcation.

I have held for some while that none of these theories fit all the known facts, and that there must be some other reason for the presence or otherwise of the osteitis fibrosa. I put forward the following arguments relative to this point:

1. Most clinicians agree that it is nearly always possible to divide patients with proved primary hyperparathyroidism clearly into either the group with or into the group without bone disease on the basis of their bone x-ray films, and often purely on clinical grounds. When this is done it is found that the plasma alkaline phosphatase levels also divide into two groups—that is, a biphasic distribution—the patients with bone disease having raised levels, those without having normal levels (Dent and Harper, 1962). There is surprisingly little difficulty in making this grouping into two different "diseases." We think this would be more difficult to do if they all represented one single spectrum of a single disease of varying severity; indeed, the distribution should then be monophasic.

2. It has often been noted that patients with osteitis fibrosa tend to have a higher average plasma calcium. Many interpret this as a consequence of increased parathormone production. However, I would point out that the correlation is not a close one. Our data, for instance (Fig. 14), show

*Conclusion of the Humphry Davy Rolleston Lecture delivered to the Royal College of Physicians, London, on June 18, 1962.