THE CARE OF THE CHRONIC SICK—V* (INVESTIGATION OF 393 PATIENTS SEEKING ADMISSION TO A HOSPITAL FOR THE CHRONIC SICK)

BY

C. R. LOWE, M.D., D.P.H.

Lecturer in Public Health, Department of Social Medicine,
University of Birmingham

In an investigation of patients in the largest hospital for the chronic sick in the Birmingham region the problem of disposal was considered against the background of recent legislation (Lowe and McKeown, 1949; McKeown and Lowe, 1950). When the need for frequent medical attention and for skilled nursing were used as criteria of suitability for hospital admission it was evident that about three-fifths of the patients could be cared for outside hospital if essential complementary facilities (domestic service, simple nursing, and occasional medical attention) were made available. It was recognized, however, that results based on the present hospital population were unacceptable as an accurate guide to future policy, and this inquiry was undertaken in an attempt to correct the previous estimates. It was hoped that examination of the medical condition and social circumstances of patients seeking admission to hospital would indicate (a) the proportions of applicants for whom regional hospital boards and local authorities are respectively responsible, and (b) the additional facilities required to meet the obligations of local authorities.

The data were recorded by investigation of all new patients for whom admission to Dudley Road Infirmary† was sought between October 10 and December 22, 1949. Details of social and domestic circumstances were recorded in the home by an almoner within twenty-four hours of the request for admission; medical data were recorded by one of five consultants after examination of the patient either at home or shortly after admission to hospital. With the full social and medical data before him, the consultant in each case finally made a decision in respect of disposal.

During the period of the inquiry there were 393 applications for admission. Thirty-two patients refused to enter the infirmary, still associated in their minds with the nineteenth-century workhouse, and relatives eventually made alternative arrangements for them. Twenty patients died at home before they could be examined, and six were admitted to general hospitals. The analysis which follows is based on the remaining 335 patients (161 men and 174 women) for whom the requisite examinations were completed.

Disposal of the Chronic Sick

Table I gives the disposal suggested for the 335 patients seeking hospital admission. Criteria used were those previously applied to the hospital population at Dudley Road Infirmary.

(a) General hospital (40%). Patients who needed skilled nursing and/or medical attention once a week or more frequently. These patients were acutely ill or needed hospital investigation, or were in the terminal stages of malignant disease.

*This research was assisted by a grant from the Birmingham University Students' Social Services Fund.

Parts I, II, and IV appeared in the *British Journal of Social Medicine* for July, 1949, and April and July, 1950, and Part III in the *British Medical Journal* of February 11, 1950.

†Formerly called Western Road Infirmary.

TABLE I.—Suggested Disposal of 335 Patients Seeking Admission to a Hospital for the Chronic Sick

	Regional Hospital Board		Local Authority		Total
	(a) General Hospital	(b) Mental Institution	(c) Long-stay Annexe	(d) Own Home	
Males ..	74 (46.0%)	11 (6.8%)	48 (29.8%)	28 (17.4%)	161 (100%)
Females ..	62 (35.6%)	23 (13.2%)	31 (17.8%)	58 (33.4%)	174 (100%)
Total ..	136 (40.6%)	34 (10.1%)	79 (23.6%)	86 (25.7%)	335 (100%)

(b) Mental institution (10%). Patients who needed personal supervision because of their abnormal mental state.

(c) Long-stay annexe (24%). Patients not requiring skilled nursing or weekly medical attention who could not be kept in their own homes.

(d) Own home (26%). Patients who could be cared for at home.

As stated above, patients were allocated to the four groups by one of five consultants. To check the consistency of standards the data in each case were later examined by one of the physicians who had not seen the patient, and a second opinion was given in respect of disposal without knowledge of the earlier decision. There was almost complete agreement about patients considered suitable for (a) general hospital or (b) mental institution, but there were substantial differences of opinion about the division of the remainder between (c) long-stay annexe and (d) their own home. Table I is based on the first decision—that is, upon the view of the consultant who examined the patient. It may be noted that the differences, though important in relation to the work of local authorities, do not affect the main conclusion, which is that regional hospital boards and local authorities are each responsible for about half the chronic sick for whom admission to hospital is requested.

Patients assigned to each of the four classes are considered separately and in more detail below.

(a) General Hospital

Before accepting the conclusion that some of the chronic sick should be cared for in general hospitals, hospital authorities will no doubt want to be satisfied, first, about the kind of attention needed, and, secondly, that the numbers are such that the responsibility can be discharged without serious embarrassment to their traditional work. Table II classifies the 136 "hospital" patients according

TABLE II.—Classification of Patients Suitable for General Hospital

Diagnosis	Males	Females	Total
Acute illness	43	29	72 (52.9%)
Cerebral thrombosis	9	13	
Cardiac failure	19	5	
Bronchopneumonia	11	2	
Other conditions*	4	9	
Needing investigation	19	20	39 (28.7%)
For carcinoma	9	10	
For other reasons†	10	10	
Terminal stages of malignant disease	12	13	25 (18.4%)
Totals	74	62	136 (100%)

* Acute illness, other conditions: unexplained acute illness (2 cases), acute enteritis (2 cases), leg gangrene, empyema, uraemia, ischio-rectal abscess, acute glaucoma, recent fracture of spine, recent fracture of femur, suppurative parotitis, acute myeloid leukaemia.

† Needing investigation, other reasons: fractured spine, tuberculosis, peripheral neuritis, cerebral syphilis, steatorrhoea, leg ulcer, pleural effusion, etc.

to the nature of their requirements: 53% were acutely ill, 29% required investigation as in-patients, and 18% were in the terminal stages of malignant disease.

These patients clearly require attention best provided in a general hospital. Acute illness in the elderly patient has of course distinctive features which have made general hospitals reluctant to accept this commitment; for example, 40% of the 136 patients were incontinent. But the fact that incontinence will sometimes respond to treatment is an additional consideration in favour of their admission. The data suggests that numbers will not be formidable if alternative arrangements can be made for the remaining 60% of the patients (considered not to require care in a general hospital), as well as for the swift transfer of patients who neither die nor recover.

(b) Mental Institution

One-tenth of all applications were in respect of patients in need of constant supervision because of their mental condition, and Table III classifies them according to the

TABLE III.—*Classification of Patients Suitable for a Mental Institution*

Diagnosis	Males	Females	Total
Senile dementia (no other pathology)	10	18	28 (82.4%)
Old hemiplegia	1	2	3 (8.8%)
Psychosis	—	2	2 (5.9%)
Other	—	1*	1 (2.9%)
Total	11	23	34 (100%)

* A woman of 82 with a fungating carcinoma of breast and no evidence of secondaries.

diagnosis. Two patients, both women, were psychotics, but most (82%) were demented senile patients for whom no more specific diagnosis was made. More than half of these old people were both bedfast and incontinent; they are typical of the class of patient which places the heaviest nursing burden on existing hospitals for the chronic sick.

A recent Ministry of Health circular to hospital boards (R.H.B. (50) 26) considers some of the difficulties of caring for the aged who are mentally infirm. It suggests that large general hospitals should provide short-stay units for diagnosis and short-term treatment; after a period a few patients may be well enough to return home, a few more may require certification, but most will need alternative accommodation. For these the circular suggests long-stay annexes associated with mental hospitals, with hospitals for the chronic sick, or with general hospitals. The suggestion that these annexes should be within the grounds of mental hospitals is unlikely to be attractive to patients or their relatives, but wherever they are sited the problem of staffing will be formidable, since the care of the aged who are also mentally infirm is among the least attractive of medical and nursing commitments.

(c) Long-stay Annexe

About one-quarter of the cases were considered suitable for admission to a long-stay annexe. Because of their social circumstances these patients could not be kept at home, yet their medical and nursing requirements were not such as would justify admission to a general hospital.

TABLE IV.—*Classification of Patients Suitable for a Long-stay Annexe*

	Males	Females	Total
"Senility" (no pathology)	14	10	24 (30.4%)
Cardiac conditions	13	4	17 (21.5%)
Carcinoma	10	2	12 (15.2%)
Old cerebral thrombosis	6	4	10 (12.6%)
Other conditions*	5	11	16 (20.3%)
Total	48	31	79 (100%)

* Other conditions: 8 with disease of C.N.S. (post-encephalitic Parkinsonism, paralysis agitans, motor neurone disease, disseminated sclerosis, Huntington's chorea); 6 with advanced arthritis; 2 with old fracture of femur.

Table IV classifies them according to their medical condition, and it may be noted that about one-third had no pathological lesion and suffered merely from infirmity associated with advanced age. A few patients had incurable malignant disease, and the remainder were partially incapacitated by other illnesses.

Two questions arise in relation to the suggested disposal. The first is whether the nursing requirements constitute a sufficient reason for admission to hospital. The information in Table V underlines this question, for it shows that

TABLE V.—*Mobility and Continence of Patients Suitable for a Long-stay Annexe*

	Bedfast	Sitting Out of Bed	Ambulant	Total
Continent	26 (32.9%)	12 (15.2%)	18 (22.8%)	56 (70.9%)
Incontinent	17 (21.5%)	2 (2.5%)	4 (5.1%)	23 (29.1%)
Total	43 (54.4%)	14 (17.7%)	22 (27.9%)	79 (100%)

54% were bedfast and 29% incontinent. Clearly such patients need more attention than can be offered in the typical municipal home for the aged; equally clearly they do not belong in the wards of a general hospital.

The second question is whether any of the 79 patients in this group could be cared for at home. This was out of the question in the case of 23 patients who had no home and were living in lodgings, municipal homes, or common lodging houses; in the remaining 56 cases the decision rested on the judgment of the consultant that personal circumstances prohibited home care, even assuming the availability of complementary services.

(d) Own Home

As shown in Table I, roughly one-quarter of all requests for admission were in respect of patients considered suitable for care at home, and Table VI gives particulars of

TABLE VI.—*Classification of Patients Suitable for Care at Home*

	Males	Females	Total
"Senility"	5	20	25 (29.1%)
Cardiac conditions	6	8	14 (16.3%)
Old cerebral thrombosis	8	9	17 (19.8%)
Carcinoma	3	6	9 (10.4%)
Other conditions*	6	15	21 (24.4%)
Total	28	58	86 (100%)

* Other conditions: 10 with advanced disease of C.N.S. (post-encephalitic Parkinsonism, paralysis agitans, disseminated sclerosis, motor neurone disease, unexplained paraplegia); 5 with diabetes; 2 with terminal illness (too ill to move); 4 others—suprapubic cystostomy, varicose ulcer, bronchopneumonia (recovering), dermatitis herpetiformis.

their medical condition. From a medical point of view this group is very similar to the previous one, and, since the two have been separated solely on consideration of personal circumstances, it is necessary to examine specific requirements in detail. Information of this kind is provided in Table VII, which gives particulars of the medical, nursing, and domestic assistance needed by these patients.

They need little medical attention: a few (7%) require visiting more than once a week, but the majority (61%) could be supervised by visits once a fortnight, or less often. It seems reasonable, therefore, to suggest that these services are within the compass of the general practitioner.

Skilled nursing is required by 16%, simple nursing by 41%, and no nursing by 43%. It may be recalled that in our investigation of chronic sick in hospital all patients needing skilled nursing were assigned to the hospital group. This was in fact the only reasonable decision where the

TABLE VII.—*Services Required by Patients Suitable for Care at Home*
Medical Supervision

	Daily	More than Once a Week	Weekly	Fort-nightly	Monthly	Total
Males ..	—	1	10	14	3	28
Females	3	2	18	21	14	58
Total	3 (3.5%)	3 (3.5%)	28 (32.5%)	35 (40.7%)	17 (19.8%)	86 (100%)

Nursing

	Skilled Nursing Required		Simple Nursing Required (Daily)	No Nursing Required	Total
	Daily	Twice Weekly			
Males ..	3	1	8	16	28
Females	9	1	27	21	58
Total	12 (14.0%)	2 (2.3%)	35 (40.7%)	37 (43.0%)	86 (100%)

Domestic Help

	All Day	Half-day	2-3 Times Weekly	Not Required	Total
Males ..	4	3	15	6	28
Females	11	20	15	12	58
Total	15 (17.4%)	23 (26.8%)	30 (34.9%)	18 (20.9%)	86 (100%)

examination was conducted in hospital without detailed knowledge of domestic circumstances, but in the present inquiry, in which most patients were seen at home, it was permissible to be somewhat more flexible. Of the 14 patients who required skilled nursing, six were diabetics having daily insulin injections, five needed care of pressure sores or of varicose ulcers, four were acutely ill, and one required daily attention to a suprapubic cystotomy. It was considered practicable to provide these services through the home nursing service of the local authority. Simple nursing (for 35 patients) comprised washing, dressing, feeding, lifting in and out of bed, with, in the case of bedfast patients, attention to bowels and bladder and prevention of pressure sores. In cases which required no nursing (37 patients), requests for hospital admission were entirely determined by domestic circumstances.

Table VII also indicates that most patients (79%) need some kind of domestic assistance, although only a few (17%) require continuous help. These requirements could be met in part through local provision of hot meals and a laundry service. The investigation exposed deficiencies in such essentials as beds and bed-linen; 22 homes had no bed suitable for an invalid. In 12 cases difficulties were financial in origin, and supplementary funds from the National Assistance Board would have made it possible for the household to deal with its own problem.

Personal Circumstances

Since social circumstances of the chronic sick have a considerable bearing on the question of disposal, information in respect of the patients examined may be considered briefly. Of patients in Dudley Road Infirmary 92% were 60 and over; 88% of the applicants for admission were 60 and over, and 68% were 70 and over (Table VIII). About one-quarter of these old people were living alone or in lodgings, municipal homes, and common lodging houses (Table IX), and additional domiciliary services are therefore unlikely to meet their difficulties.

To maintain a reasonable standard of home care for an invalid a bath and an adequate supply of hot water are essential. Less than one-fifth of the houses visited attained

TABLE VIII.—*Age and Sex Distribution of Patients Investigated*

Age:	30-39	40-49	50-59	60-69	70-79	80-89	90 and Over	Total
Males	— (—)	8 (5.0%)	12 (7.4%)	38 (23.6%)	66 (41.0%)	37 (23.0%)	— (—)	161 (100%)
Females	2 (1.2%)	7 (4.0%)	10 (5.8%)	31 (17.8%)	89 (51.1%)	30 (17.2%)	5 (2.9%)	174 (100%)
Total	2 (0.6%)	15 (4.5%)	22 (6.5%)	69 (20.6%)	155 (46.3%)	67 (20.0%)	5 (1.5%)	335 (100%)

TABLE IX.—*Domestic Circumstances and Marital Status*

	Living in Own House				Living as Guest of Member(s) of Family	Living in Lodgings, Municipal Home, or Common Lodging House	Total
	Alone	With Spouse Only	With Lodgers	With Member(s) of Family			
Single ..	3 (7.9%)	— (—)	3 (7.9%)	6 (15.8%)	12 (31.6%)	14 (36.8%)	38 (100%)
Married ..	2* (1.8%)	56 (49.1%)	4 (3.5%)	46 (40.3%)	6 (5.3%)	— (—)	114 (100%)
Widow(er), divorced, or separated	34 (18.6%)	— (—)	21 (11.5%)	53 (28.9%)	39 (21.3%)	36† (19.7%)	183 (100%)
Total ..	39 (11.7%)	56 (16.7%)	28 (8.4%)	105 (31.3%)	57 (17.0%)	50 (14.9%)	335 (100%)

* Two women with husbands in mental hospitals.

† Includes one widow admitted to the infirmary from the streets; she had been evicted from her lodgings.

TABLE X.—*Water Supply*

Bath		No Bath		Total
Hot-water System	No Hot-water System	Indoor Water Supply	Outdoor Water Supply Only	
60 (19.6%)	24* (7.8%)	201 (65.7%)	21 (6.9%)	306† (100%)

* Bath but no hot-water system (bath filled from cooker or fire).

† Excludes 29 patients—28 in municipal homes and common lodging houses, 1 no home (admitted from streets).

this standard (Table X), and in many cases (29%) outdoor sanitation was shared with neighbours.

It is difficult to appreciate the degree of squalor and misery that these figures represent, and indeed some of the living conditions were almost unbelievably bad. They indicate that the social problem created by the increasing number of chronic sick extends beyond the difficulty of providing adequate medical and nursing services. If the rising demand for hospital accommodation is to be stemmed, a steady improvement in national housing standards is as important as the provision by local authorities of specific services.

Discussion

The data examined suggest that regional hospital boards and local authorities are responsible for about equal numbers of patients applying for admission to hospitals for the chronic sick. This conclusion rests on two assumptions: (a) that regional hospital boards accept only patients who need hospital care or who require supervision because of their abnormal mental state; and (b) that local authorities provide for all other patients in their homes or in long-stay annexes.

Since the allocation of responsibility for the long-stay annexe to local authorities may provoke differences of opinion it is necessary to be clear about the kind of patient suggested for admission. About one-quarter of the patients examined required only simple nursing and domestic service, but because of social circumstances could not be cared for at home. They cannot be admitted to the typical municipal home for the aged, which does not provide simple nursing, nor do they need the skilled attention which justifies hospital admission. If hospitals for the chronic

sick continue in their present form, such patients will of course be admitted to them; but if patients are to enter hospital only when they require skilled attention, some alternative to the general hospital or municipal home will be needed. The long-stay annexe is the alternative suggested, and it will be necessary to assign responsibility for it either to regional hospital boards or to local authorities. It is here placed under local authorities only because this seems consistent with Section 21 of the National Assistance Act. A different decision would of course alter the proportions indicated above, and would assign to regional hospital boards three-quarters of the patients applying for admission to hospital.

Summary

The personal circumstances of 393 patients seeking admission to a hospital for the chronic sick were investigated by a social worker; 335 of these were examined by a consultant who considered the problem of disposal in the light of social circumstances and medical requirements. Cases were recommended for care as follows: (a) In a general hospital (40%): patients who needed skilled nursing and/or medical attention once a week or more frequently. (b) In a mental institution (10%): patients who needed personal supervision because of their abnormal mental state. (c) In a long-stay annexe (24%): patients not requiring skilled nursing or weekly medical attention who could not be kept in their own homes. (d) At home (26%): patients who could be cared for at home.

If local authorities provide the long-stay annexe they will be responsible for about one-half the patients seeking admission to hospital; if they do not, they will be responsible for about one-quarter—that is, only for patients who could remain at home. According to this decision regional hospital boards must accept one-half or three-quarters respectively in the two cases.

The maintenance of one-quarter of the patients in their own homes requires the provision of domiciliary medical and nursing services, and of a more complete domestic service than is now available.

I am very glad to acknowledge my indebtedness to the five physicians who provided the clinical records: Drs. G. Hearn, F. G. Marson, K. May, L. Nagley, and Professor A. P. Thomson (who suggested the investigation); and to Mrs. E. M. Sagrott, who did most of the work of the social survey with help from the almoners of the Birmingham United Hospitals.

REFERENCES

- Lowe, C. R., and McKeown, T. (1949). *Brit. J. soc. Med.*, **3**, 110.
McKeown, T., and Lowe, C. R. (1950). *British Medical Journal*, **1**, 323.

The Brussels Treaty Public Health Committee, set up in application of Article II of the Treaty, as a part of the efforts to be made by the five signatory powers—Belgium, France, Luxembourg, Netherlands, and the United Kingdom—to raise the standard of living of their peoples, held its sixth session in Edinburgh on September 7, 8, and 9, 1950, under the chairmanship of Sir Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland. The committee began the study of the protection of the civil population from the health point of view in time of emergency. In the matter of the health control of sea traffic the committee decided to recommend the five Governments to introduce, from March 1, 1951, onwards, a uniform system which will enable the five countries to be treated as one single territory in this respect, as has been achieved under the uniform system for control of air traffic which has been in operation since February 1, 1950. The committee took note of the very useful results obtained from the visits of health personnel organized in 1949–50, during which period 40 doctors and specialists from the five countries travelled in the other Brussels Treaty countries to learn about current methods as well as the general administrative structure of public health services in those countries.

RADIOLOGICAL AND PATHOLOGICAL CORRELATION OF MILIARY TUBER- CULOSIS OF LUNGS IN CHILDREN WITH SPECIAL REFERENCE TO CHOROIDAL TUBERCLES

BY

J. L. EMERY, M.D., D.C.H.

Pathologist, Children's Hospital, Sheffield

AND

J. LORBER, M.B., M.R.C.P.

Lecturer in Child Health, University of Sheffield

Since the description of the radiological appearance of the lungs in miliary tuberculosis by Klieneberger (1908), Otten (1908), and Presuhn (1908), the diagnosis of this condition during life has become almost exclusively based on radiological findings. As early as 1911 Assmann (1911b) regarded the diagnosis of miliary tuberculosis as a triumph of x-ray examination. Most reference books offer no alternative method of diagnosis, and the impression gained is that this method is generally satisfactory. Nevertheless, some books recognize that the disease may be present for weeks before the typical snow-storm appearance develops, and that sometimes there is no radiological evidence of the disease at all (Amberson, 1947; Hill, 1948; Kayne *et al.*, 1948; Nelson, 1948). Similar views are expressed by Axén (1941), Davis (1942), Gratzek (1941), and Rigler (1949). The literature refers to many unexpected necropsy findings of miliary tuberculosis where previous radiographs of the chest were negative (e.g., Baggenstoss *et al.*, 1947; Lincoln, 1947; Löffler and Piotti, 1948; Rigler, 1949; Rubie and Mohun, 1949).

Three previous papers concerning the pathological and radiological correlation of miliary tuberculosis have been noted (Bronson *et al.*, 1934; Steiner, 1937; Chapman and Whorton, 1946). A fourth study correlated clinical and pathological findings, without specifying radiographs as the method of clinical diagnosis (Lewison *et al.*, 1931). These four studies deal almost exclusively with adult material (Table I).

TABLE I.—Pathological and Radiological Correlation of Miliary Tuberculosis (Previous Work)

Author	Total Positive at Necropsy	Diagnosed by Radiographs
Bronson <i>et al.</i> (1934)	9	5 (56%)
Steiner (1937)	46	22 (48%)
Chapman and Whorton (1946) ..	63	16 (25%)
		Diagnosed in Life
Lewison <i>et al.</i> (1931)	96	75* (78%)

* 9 further cases diagnosed in life did not have miliary tuberculosis at necropsy.

Specific treatment is now available for miliary tuberculosis. The earlier treatment is instituted the better are the results, and early diagnosis is therefore essential. This study is an attempt to investigate the accuracy and speed of the present methods of diagnosis.

Material and Methods

In a consecutive series of necropsies between January, 1947, and August, 1949, the pathological diagnosis of miliary tuberculosis was established in 52 children under 14. Tuberculous meningitis was present in all but two cases. During the same period 11 children died of