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## Service utilization in 1896 and 1996: morbidity and mortality data from North Wales

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*The 1896 and 1996 populations of North-West Wales are similar in number, ethnic and social mix and rurality, enabling a study of the comparative prevalence of service utilization, as well as the morbidity and mortality associated with mental illness in 1894–96 and 1996. The 1996 data reveal a 15 times greater prevalence of admissions for all diagnoses, and three times greater prevalence of admissions by detention, compared with 1896. Patients now spend more time in a service bed than they did 100 years ago. Death as a direct consequence of mental illness is commoner now than 100 years ago. There is therefore a major disjunction between the rhetoric and the reality of mental health service utilization. General factors related to changing health care and expectations and specific factors linked to mental health appear to have led to an increased rate of service utilization in the modern period.*

**Keywords:** *history; mortality and morbidity from mental illness; psychiatry; rates of detention; service utilization; 19th century; 20th century*

### Introduction

Psychiatric texts regularly contain graphs showing that the hospital population of mental hospitals in the Western world rose from the time of the opening of

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the asylums around the 1840s through to 1955. The inpatient population in the UK rose progressively year on year despite changes in legislation such as the Lunacy Act of 1890 or the Mental Treatment Act of 1930 and despite a range of other psychosocial interventions of one sort or the other. By 1955 the inpatient population in the UK stood at 155,000 people.

From 1955, following the introduction of chlorpromazine, this inpatient figure started falling rapidly and progressively, resulting in a graph with its apex at 1955. This image dominates psychiatric practice today. Politicians may not have closed the asylums because of evidence such as this but, when required to justify their actions in closing the asylums, this is the evidence that is appealed to. This is also the evidence that, more than any other, is portrayed in the media as the basis for our current supposedly community-oriented policies of care towards the mentally ill (Porter, 2002).

The argument that a range of administrative changes happening in the asylums at the time might have contributed toward this decline have little impact. Few know, for instance, that after the introduction of chlorpromazine the asylum population in Japan quadrupled – indicating that there is no necessary connection between the new biological treatments in psychiatry and de-institutionalization (Healy, 2002). The image of a graph with its apex in 1955 remains the image that commands the intellectual high ground and dictates both clinical practice and research priorities.

The North Wales Hospital was no exception to the general United Kingdom pattern. From the year of its opening in 1848 through to 1948, the inpatient population in the North Wales Hospital rose exactly in parallel with the general rise in the asylum population. But, in contrast to elsewhere, for a number of reasons the asylum and psychiatric services in North-West Wales offer opportunities to establish what was happening in Western psychiatry between 1840 and the present day. First, compared with elsewhere, NW Wales did not have a general increase in its population over this period. A census of the population broken down by age in 1891 showed that there were 232,000 people, and in 1991 there were 241,000 in the same area. For the critical age groups between 15 and 55, the respective populations were 117,000 and 119,000 people. Second, while there has been a shift in populations, so that it becomes uncertain whether it is possible to compare admissions to a rural asylum 100 years ago with admissions to an urban DGH Unit now, this did not happen in NW Wales.

Third, in other areas a variety of geographical and financial factors make it difficult to determine if those who accessed a service a century ago or do so today are representative of the whole population of the mentally ill, but geography and finance have conspired in NW Wales to ensure that patients effectively had only one point of access to services in both 1896 and 1996. Any geographical map of North Wales makes it clear that the areas being served are locked in by the Irish Sea on one side and the Snowdonian mountain range on the other. In 1896 it was simply not possible to access

easily any other service within a hundred miles, other than the asylum at Denbigh. Similar constraints applied in 1996 with the extra proviso that National Health Service requirements meant that any patients from NW Wales accessing a service elsewhere in the country were liable to be returned for treatment. In 1896 NW Wales was one of the poorest areas of the country, and it remains so today. There was an essentially negligible amount of private practice in 1896, and this was still so in 1996.

These features of NW Wales have permitted us to institute a study of service utilization over 100 years. The first results were reported recently (Healy, Savage, Michael, Harris, *et al.*, 2001), and we now extend this study by reporting data on lengths of stay in care in the 1896 and 1996 populations, as well as 5-year mortality rates in the two populations.

## Methods

In NW Wales there are comprehensive and clear records from the Denbigh Asylum, from its opening in 1848 through to its closure. The historical background to the asylum, the populations involved in this study and the methods of data entry are set out in Healy *et al.* (2001).

As the number of admissions from NW Wales to the Denbigh Asylum was considerably lower in 1896 than in 1996, we have collected admissions from 1894, 1895 and 1896 into an 1896 sample; the annual figures presented below are means of the figures for these three years.

In the mid 1990s admissions from NW Wales were to a 60-bed District General Hospital (DGH) Unit, the Hergest Unit. At the time of this project, this unit had seven adult mental illness consultants delivering a sectorized service. It was a high morale service with few staff vacancies, a low bed occupancy rate (80%) compared to UK standards and well established and well functioning mental health teams.

## Diagnosis

The 1896 and 1996 records from what would now be termed different sectors were given to the sector consultant looking after the geographical area from which the patients would now come. This meant that whatever biases an individual consultant may have applied to the 1996 sample was also applied to the 1896 sample.

The 1896 records contained the details of the behaviour and symptoms which had led to certification, as well as relatively clear descriptions of the mental and physical state of the patient at the time of admission, followed in most cases by detailed notes of the subsequent hospital stay. In the case of patients with prior or subsequent admissions, we were able to track down all earlier records back to 1865, and all further admissions through to 1940. When making a diagnosis on the 1896 sample, the sector consultants had all prior and subsequent records available to them, and accordingly diagnostic

judgements were made on the overall career of the patient rather than simply on the details of the presenting mental state.

The 1996 comparative sample consisted of all admissions to a 60-bed DGH psychiatric unit, between 1 April 1996 and 31 March 1997. The area is sectorized with each sector covered by one consultant. Admissions could be through walk-ins, referral from the local DGH, referrals from general practitioners, from the police, from mental health teams or through the sector consultant. Admissions consisted of general adult mental illness cases (childhood, adolescent, learning disabilities and dementia patients went elsewhere). This service had access to support bed hostels, a generous provision of Elderly Mentally Ill (EMI) assessment, respite and long stay beds, and separate services for childhood disorders and learning disabilities.

The traditional methodological caveat about diagnosis in historical epidemiology concerns the validity of diagnoses made on a deceased sample. For the purposes of this argument, however, patients were categorized in such broad diagnostic groups – psychosis, affective disorder, personality disorder, and delirium or dementia – that this factor plays as restricted a role as can be expected in a study of this kind. We have not sought diagnostic refinements beyond these broad groups and we believe the data make it clear that there would have to be some extraordinary bias to overturn the results obtained using this approach.

An unrecognized methodological concern, however, must lie with the contemporary sample. Recent research (Bush, Fink, Petrides, Dowling and Francis, 1996) suggests that up to 10% of patients going through a DGH unit today will have catatonic features. Catatonia, which has been obituarized extensively, in fact appears not to have gone away but, incredibly, modern psychiatrists simply do not see quite bizarre and striking features of the mental states of their patients under their noses.

As part of a study to estimate career lengths of stay in psychiatric facilities, we conducted a study between 1 October 1998 and 30 November 1998 aimed at mapping total career bed usage in a cohort of patients passing through the Hergest Unit (see below). Simultaneously, this sample of patients was screened for catatonic features. A comparable group of patients admitted to a regional psychiatric facility in Hyderabad, India, during the course of two weeks in March 1999 was also screened. Both groups had 13% of patients with catatonic features. Modern diagnostic procedures, it seems, do not capture these clinical features.

### *Analysis of data*

We first compared the per annum admission rate in the 1896 and 1996 samples. We defined admission prevalence as the number of individuals admitted in a one-year period. Second, we examined the hospitalized incidence rates for schizophrenia, non-affective disorder psychoses and bipolar disorders. Third, we calculated the length of stay of patients and the numbers of prior admissions.

Fourth, we sought figures for both mean length of stay and overall usage of service beds by disease cohorts. Finally, we compared recovery, relief and mortality rates from the two samples.

As noted above, there was a similar age distribution between the populations in 1896 and 1996 across the 15–65 age groups, and in particular for the 15–55 age groups. As the 15–65 age groups account for the ages of origin for our incidence figures for syndromes other than dementia, we have only supplied the numerators for the main syndromes.

Based on criteria used in the 1896 sample, we developed operational criteria to categorize the course of the illness. In both 1896 and 1996 samples, there were four possible outcomes for patients. They could be discharged ‘recovered’; such patients had to have less than 3 admissions in the 3 years prior to the first admission, to be discharged home with a clinical diagnosis of recovery recorded in their notes and no admission during the year after discharge. A second possibility was to be discharged ‘relieved’, in which case the clinical notes recorded that the acute symptoms had passed but the patient was not back to normal and was discharged to a hostel (1996) or to the workhouse or lodgings (1896). Such patients characteristically had 3 or more prior admissions in the 3-year-period before the first admission and/or an admission in the year after discharge. A third option was discharge ‘not improved’. Finally, patients could die in care. Using these operational definitions, 7 patients designated as recovered in 1896 by their clinicians were re-designated as relieved on the basis of a further admission within a year of their apparent recovery.

In order to compare death rates between the samples, we followed the 1896 patient group after discharge into the community. It was clear from the records that some of those discharged relieved or not improved had in fact been discharged to die. All patients discharged were tracked in the 1896 and 1996 samples to 5 years from the end of the sample period. Rates are therefore expressed in terms of 5-year mortality rates. The 5-year mortality rates of the 1996 cohort were established by following up these patients through to 31 March 2002.

In order to establish the number of bed days occupied in 1896, we accessed all prior records of this cohort of patients and summed their lengths of stay. For the 1996 cohort we adopted the following procedure. In the case of all 112 patients admitted in October and November 1998 in North Wales, as part of the catatonia prevalence study outlined above, we accessed all prior records, and from these established the length of stay in any mental health service bed at any stage in their previous psychiatric career; these beds included hostel beds or any other bed paid for by the health service. From the mean lengths of stay in 1998 and the total length of stay for all bipolar disorder patients as a group, all non-affective psychotic patients as a group, all personality disorder patients as a group, etc., it was possible to construct an index linking length of stay in 1996 with career psychiatric service bed

usage for each cohort of patients. Median lengths of stay in 1996 for each diagnostic cohort were multiplied by the length of stay factor for that diagnosis.

## Results

At the end of 1896 there were 667 beds in the asylum. Patients from NW Wales accounted for 267 of these. In 1996 there were 60 acute mental illness beds, as well as 66 EMI assessment and respite beds, 8 longstay and 31 hostel beds, and 42 beds in registered residential care. There were a further 216 registered residential care for the elderly beds and an unknown number of other elderly residential care beds. Finally, there were 140 beds in a regional hospital for learning disabilities, of which 56 were occupied by patients from NW Wales.

Details on the numbers of patients admitted in 1896 and 1996 have been provided previously (Healy *et al.*, 2001). A summary of these data and the diagnoses of patients is given in Tables 1 and 2. Comparative data on the incidence of service utilization for the major psychosyndromes have also been provided previously (Healy *et al.*, 2001).

### *Comparative prevalence of hospital admissions*

The 1896 figure minus dementias (28), organic disorders except GPI (29) and mental handicap (3) gives an average admission prevalence of 48 per annum for functional mental illness from 45 individuals. This contrasts with an admission prevalence of 713 (total minus 24 dementias) from 522 individuals in 1996. There were 6.7 admissions then for every 100 now, a 15-fold increase. The inclusion of dementias and learning disabilities does not shift the ratio in favour of the present day, if the admissions for dementia or learning disabilities to all facilities in 1996 are taken into account. Considering compulsory detentions only in 1996 gives a 3-fold increase compared with 1896.

Focusing on the seriously mentally ill (SMI) groups in both samples – excluding dementias, organic psychoses, learning disabilities, alcohol and drug dependence, personality disorders and behavioural/neurotic problems – gave 42 individuals per annum diagnosed with SMI in 1896, with a mean age of 40 years; in 1996 there were 294 individuals with a mean age of 48.7 years. Of these 294, 111 had depressive episodes, 114 psychotic episodes and 69 other affective episodes. This is a 7-fold difference in admission prevalence (see Table 2).

In 1896 there were no individuals receiving a contemporary diagnosis of personality disorder, neuroses or behavioural disorders. Retrospective diagnoses yields 4 admissions. In 1996, 49 patients accounting for 83 admissions were diagnosed as having a personality disorder. Fifty-nine patients, accounting for 86 admissions, were diagnosed with a neurotic disorder and 52.5% of these had

TABLE 1. *Retrospective diagnosis for patients admitted in 1894–96 compared with contemporary diagnosis for patients admitted in 1996*

ICD-10 diagnosis	1894–96					1996			
	F	M	Total no.	No. p.a.	% of total	F	M	Total no.	%
Dementias (F00-03)	5	23	28	9.3	14.3	15	5	20	3.7
Organic disorder (F04-09)	11	22	33	11.0	16.8	5	5	10	1.8
Alcohol/drug related disorder (F10-19)	–	2	2	0.7	1.0	33	63	96	17.7
Schizophrenia (F20-20.9)	16	11	27	9.0	13.8	17	41	58	10.7
Delusional disorder (F22-22.9)	3	4	7	2.3	3.6	10	14	24	4.4
Other psychoses (F23-24, F28-29)	–	5	5	1.7	2.5	8	15	23	4.2
Schizoaffective disorder (F25)	–	2	2	0.7	1.0	4	5	9	1.7
Manic episode (F30-30.9)	13	15	28	9.3	14.3	12	6	18	3.3
Bipolar disorder (F31-31.9)	10	10	20	6.7	10.2	25	12	37	6.8
Depressive episode (F32-F33.3)	23	14	37	12.3	18.9	71	40	111	20.5
Mood (affective) disorder (F34)	–	–	–	–	–	8	6	14	2.6
Neurotic disorder (F40-49)	2	–	2	0.7	1.0	32	27	59	10.9
Psychol. /behav. disorder (F50-59)	1	–	1	0.3	0.5	8	1	9	1.7
Personality disorder (F60-66)	–	1	1	0.3	0.5	22	27	49	9.0
Mental handicap (F66.1)	3	–	3	1.0	1.5	1	1	2	0.4
No F classification	–	–	–	–	–	–	3	3	0.6
Total	87	109	196	65.3	100	271	271	542	100



TABLE 2. *First admissions and admission prevalences for patients admitted in 1894–6 compared with patients admitted in 1996*

ICD-10 diagnosis	Total no. admitted		No. first admissions			Prevalence of admissions*			
	1894–96		1894–96			1894–96		1996	
	Total	Mean p.a.	Total	Mean p.a.	Total	Mean p.a.	Total		
Organic disorder (F04-09)	33	11.0	10	29	9.7	4	33	11.0	17
Alcohol/drug rel.disorder (F10-19)	2	0.7	96	1	0.3	55	2	0.7	121
Schizophrenia (F20-20.9)	27	9.0	58	24	8.0	13	30	10.0	82
Delusional disorder (F22-22.9)	7	2.3	24	7	2.3	7	8	2.7	32
Other psychoses (F23-24,28-29)	5	1.7	23	5	1.7	10	5	1.7	27
Schizoaffective disorder (F25)	2	0.7	9	1	0.3	1	2	0.7	12
Manic episode (F30-30.9)	28	9.3	18	24	8.0	9	28	9.3	25
Bipolar disorder (F31-31.9)	20	6.7	37	8	2.7	6	23	7.7	53
Depressive episode (F32-F33.3)	37	12.3	111	33	11.0	56	38	12.7	141
Mood disorder (F34-34.9)	–	–	14	–	–	9	–	–	16
Neurotic disorder (F40-49)	2	0.7	59	1	0.3	32	2	0.7	86
Psychol./behav. disorder (F50-59)	1	0.3	9	1	0.3	8	1	0.3	9
Personality disorder (F60-66)	1	0.3	49	1	0.3	14	1	0.3	83
Mental handicap (F66.1)	3	1.0	2	3	1.0	–	3	1.0	5
No F classification	–	–	3	–	–	2	–	–	4

\* No. individuals admitted in a one-year period

TABLE 3. *5-year recovery, relief and mortality rates, 1896 and 1996*

	1896 sample	1996 sample
Recovered	37%	30%
Relieved	16%	52%
Chronically hospitalized	17%	4%
Dead	30%	14%

adjustment disorder; 47% were also diagnosed as having a significant personality component to their problems. Personality disorders and neurotic disorders accounted for 25% of all admissions in 1996. Admissions with a diagnosis of dysthymia (F341) represented a further 2% of the total. In the case of a majority of individuals admitted for substance abuse problems, secondary diagnoses of personality disorder were made. Adding these groups together, admissions with a significant personality element accounted for 40% of all admissions. These figures are in line with those reported by Dowson, Sussams and Grounds (1997).

#### *Comparative recovery, relief and mortality rates*

Subtracting from the 1896 totals the 28 dementias and 33 organic disorders, who would not now be admitted to a DGH unit, left 138 subjects. These had a recovery rate of 38%, a relief rate of 23% and a chronicity rate of 17% with a death rate in hospital of 24%. Excluding the 32 deaths, the remaining 106 patients with serious mental illness had a recovery rate of 50%, a relief rate of 30% and a 20% chronicity rate. Of the 1996 sample of 542 individuals, at the point of discharge 193 were deemed to be recovered (36%), 331 were deemed relieved (61%), 2 were transferred to longer-stay facilities.

Deaths within DGH units are comparatively rare now. To standardize the mortality from mental illness in 1896 and 1996, it is necessary to follow subjects up over a defined period of time. Following patients with serious mental illness from 1896 into the community, it became clear that from the total cohort of seriously mentally ill patients, 30% had died in a 5-year period from first admission. Many of those discharged relieved had in fact been discharged to die from tuberculosis or other infections contracted in hospital. The final figures for recovery, relief, chronicity and mortality for the 1896 sample based on this 5-year follow-up are shown in Table 3.

A similar exercise for the 1996 sample produced a 14% 5-year death rate and outcomes as laid out in Table 3. The greatest number of deaths in the

TABLE 4. *Average number of admissions/patient, mean length of stay in days (LOS) by diagnosis and total LOS per diagnostic cohort in 1896 and 1996*

	1896			1996		
	Average no. admissions/patient	Median LOS/patient	Career LOS/cohort to death or final discharge	Average no. admissions/patient	Median LOS/patient	Interim career LOS/cohort to death or final discharge
Schizophrenia	1.4	817	31729	6.9	37	27394
Other psychoses	1.4	236	10417	4.1	25	41496
Bipolar disorder	2.7	265	9700	6.5	40	34839
Depressive episode	1.1	204	12991	3.5	22	82251
Personality disorder*	1.5	236	13194	3.3	11	66290

\* Here, this includes personality disorder, neurotic disorders and substance misuse

1996 sample came predictably from older patients in the age range over 70. However, a substantial number came from the 15- to 55-year-old age groups ( $N = 24$ ; 4.4%). Of these the greatest single cause of death was death by suicide (9) followed by death from an illegal substance overdose (3). In total, therefore, in these age groups 54% of deaths stemmed from the patients' mental illness.

In scrutinizing 2892 records from NW Wales between 1875 and 1915, there were only 3 inpatient suicides and two suicides from patients recently discharged; the hospital recorded all suicides of patients who were discharged against their advice. The recent United Kingdom survey of suicides in psychiatric patients suggests that a comparable volume of patients today would give rise to 10 inpatient suicides and 240 suicides in the course of the year following discharge. Standardizing for length of stay might be expected to yield up to 100 inpatient suicides from a comparable volume 1996 sample (Department of Health, 1999).

#### *Comparative lengths of stay*

Table 4 gives the average number of prior admissions per patient for both 1896 and 1996 samples. It is clear that there is a substantial increase in the admission rate for the 1996 sample. Against that can be set comparatively briefer hospital stays in 1996.

In 1896, 84% of the patients were admitted for the first time. Of the total sample, 16% had a previous admission and 14% a subsequent one. From the

serious mental illness group, 47 (58%) were admitted for the first and last time in 1896, while the remaining 33 (42%) had other admissions. In 1996, 25% of patients were admitted for the first time. Of the 737 admissions, 195 were repeat admissions that year (26%). Of these, 130 patients were readmitted once during the 12 months of the study, 47 were readmitted twice, 14 three times and 5 on more than 4 occasions. In addition, 311 patients had a previous admission (60%) and 110 had at least one subsequent admission to the Hergest Unit (20%). This figure excludes those patients referred to the day hospital, support bed units or EMI units after discharge from the acute services. Of the 294 SMI individuals in 1996, 24% were first admissions. The remaining 76% had up to 3 previous and/or up to 3 subsequent admissions or were referred to support bed facilities after discharge.

Table 4 presents the mean length of stay of patients from different diagnostic categories during the course of their stay in hospital, including stays beyond the study period. This table also presents data using the index detailed in the Methods section. In the case of the 1896 sample, it has been possible to produce a reliable figure for bed-days occupied by each diagnostic cohort. In the 1996 cohort, the extrapolation yields figures that hold up to the end of 1996. These patients will go on to spend a further period of time in hospital. Ongoing analysis of the bipolar cohort of patients in the period from 1875 to 1914 compared with the modern period supports the validity of the figures drawn from this sample.

## Discussion

This analysis extends the previous analysis of this database by offering figures on the length of stay of modern patients and their mortality rates. It does so in sets of historical and modern populations of service users almost completely free from economic or clinical selection factors.

As regards length of stay, the figures can be expressed as follows. Where an annual cohort of patients with schizophrenia were likely to spend 400 years (1896 cohort days scaled up to 1 million people) in a hospital bed in 1896 per million population, every million people today will have a schizophrenia cohort who at the time of writing will have already spent that length of time in a service bed and this cohort will spend several hundred more years in a service bed before they die. In the case of depression, any million population will have in their midst a cohort of depressed patients who have already spent 1000 years in a service bed. This cohort will spend a great deal more years in service beds before they die.

As regards mortality rates, it appears that, while patients in 1996 are less likely to die in the 5-year period after admission to a psychiatric facility, they are more likely to die eventually from their mental illness than they were in 1896. These figures are so much at odds with the contemporary rhetoric of mental health service delivery that they call for explanation.

First, there is the rather obvious point that the treatments we now have relieve rather than cure the conditions for which they are given. In 1956, just after chlorpromazine had been introduced, the NIMH organized a symposium under the auspices of Jonathan Cole and Ralph Gerard to discuss how to evaluate the impact of treatments like chlorpromazine and how to progress new drug development. The meeting endorsed the need for randomized trials, rating scales and all the paraphernalia of modern psychiatry (Cole and Gerard, 1959). A rare dissenting view came from Evarts of the NIMH who argued that, but for some accidents of history, chlorpromazine might have been celebrated as a treatment of dementia paralytica (Evarts, 1959). If asked to build on chlorpromazine's utility for dementia paralytica, the field would then be advocating clinical trials and rating scales and drug development approaches of the sort that were being proposed for chlorpromazine in schizophrenia. This, he argued, would have produced a therapy, research and pharmaceutical establishment that probably would have been inimical to the recognition of the fact that penicillin rather than chlorpromazine was the cure for dementia paralytica. The figures from this study suggest that mental health services may have fallen rather dramatically into the pit that Evarts outlined in 1956.

In the light of these data, the changes demonstrated in RCTs for modern treatments stand quite clearly as evidence of treatment effects rather than evidence of efficacy. Modern treatments clearly allowed the discharge of many chronically hospitalized patients in the 1950s and 1960s, and contribute to shorter lengths of stay now than formerly, but from the start the use of these same treatments has been associated with an increased number of readmissions, a proportion of which may be associated with discontinuation syndromes or other complicating factors linked to treatment rather than illness relapse (Battegay, 2000).

Modern treatments therefore appear to have set up a revolving door. As a consequence, a more accurate image of mental health service delivery to the image of hospital populations that has its apex in 1955 would be a graph showing a steep rise in admission rates, starting in the 1950s and possibly reaching a plateau in the 1980s. In this regard, the findings from our study have been replicated in other studies (Mulholland, 1998). The current study offers an element of quantification lacking in other studies.

A second factor is the professionalization of care-giving during the period under consideration. If this professionalization plays a part in the growing number of admissions in mental health, then that increase might be reflected in an increased number of admissions to the rest of the medical services. In Wales in the period from 1955 to 1997 there was an increase in discharges and deaths from mental illness beds from 5656 to 17,588 per annum. In the rest of the medical services generally, there was an increase from 171,430 to 503,073 (Healy *et al.*, 2001). The rise in admissions in psychiatry, therefore, was in line with – albeit slightly greater than – that happening in the rest of medicine.

During this period we have made drugs available on prescription only and have otherwise forced patients through a funnel in order to access medical care. It may well be that the true incidence and prevalence of the serious mental illness was just the same in 1896 as now, but that service utilization is dramatically greater now. Indeed, as the increase cuts across all illness groups, it seems less likely to stem from a change in the virulence of the illnesses and more likely to stem from other factors. These data offer some support to Scull's thesis that increased psychiatric bed occupancy/usage reflects an extension of services rather than an increase in hospitalized incidence of the index conditions (Hare, 1986; Scull, 1984).

However, while there may be a general factor affecting both mental health and general medical services, a greater proportion (up to 30%) of general medical service contacts stem from a rising old age population, with an associated set of morbidities, and this is not found in psychiatry. In contrast, there is apparently an explosion in the apparent incidence of mental disorders in young persons, with depression and ADHD leading to a much greater increase in mental health service utilization than is found among young persons for general medical service utilization.

As regards differences in length of stay in hospital between the two periods, the first admissions were considerably shorter in 1996 than they were in 1896. However, patient cohorts appear to spend longer in a service bed now than they did 100 years ago. This might arise for a number of reasons. First, there is an earlier onset of service utilization for the functional psychoses in the modern period. Second, aside from the flagship DGH beds, mental health services provide a range of community, hostel or other long-term hospital beds that are not typically factored into calculations of bed usage – although the increase in service usage proposed here holds true even when comparisons are limited to DGH unit beds only. Third, notwithstanding an increased rate of death by suicide, patients now are likely to live longer than they did in 1896.

The critical question, then, is whether the service utilization we have now is a good thing. In the rest of medicine iatrogenic injury and death is recognized as being one of the leading causes of injury and death (Lazarou, Pomeranz and Corey, 1998). It is clear from the figures reported here that in some respects this holds true for mental illnesses also. To what extent we simply do not know. The rhetoric of service delivery appears to preclude such considerations. There is some evidence, however, that life expectancy for schizophrenia has been falling in recent years (Osby, Correia, Brandt, Ekbohm and Sparen, 2000), and considerable evidence that modern anti-psychotic drugs may lead to increased rates of suicide in schizophrenia (Healy, Harris, Tranter, Gutting, Austin and Roberts, in press).

The figures on mortality from mental illness in the nineteenth century reported here update the paradigmatic figures reported by William Farr (1975), who found death rates of 11% for patients of the better classes, 12%

for paupers in Hanwell and up to 21% for paupers in other establishments (Healy *et al.*, in press). Our 30% 5-year mortality figures for serious mental illness come from a population that had a 12% mortality rate in the year after admission. Grim though these figures are, when set against the modern comparator figure of a 14% mortality rate over 5 years the figures from the 1890s do not look bad, if it is taken into account that effective antibiotics would have led to a dramatic drop in the 1896 mortality figures.

One surprising aspect of the 1896 data is the relatively good recovery rates, which bear comparison with modern rates. Several factors may account for this. First, the availability of mental health teams today is trumpeted as a means of keeping patients out of hospital, but the regular monitoring of changes in mental state in current climates of risk management are always liable to lead to admissions that might have been less likely 50 years ago. This is particularly the case given a comparative destigmatization of mental illness. Second, the assumption that patients admitted earlier or with less severe problems should be easier to 'cure' may in fact not hold true. Third, the quality of modern remissions may not be as secure as we like to think, or alternatively we have become more demanding about the quality of clinical responses. Finally, current treatments may increase rates of relapse either in patients remaining on treatment or in those who discontinue and have consequent withdrawal-induced disturbances.

This study of service utilization factors makes no attempt to get at any 'real illness entities' that may underpin utilization. In one sense, studies like this will always resemble post-mortems, in that both are as likely to indicate what social bodies in the one case and human bodies in the other can live with, as they are to reveal what has afflicted them.

Whatever the relation between increased service utilization and illness entities, the relationship between service utilization and the number of psychiatrists is one that is amenable to further investigation. There were, for example, no forensic psychiatrists in Britain in 1966 whereas there are now over 250. This increase parallels an increase in the number of patients now locked up in secure facilities compared with 1966. Just as the increase in the number of cardiologists and cardiac surgeons leads to an increasing number of coronary artery bypass operations and other such procedures despite an absence of evidence that many of these procedures are effective, it might be naïve to think we could have expected that a massive increase in the number of psychiatrists would ever lead to anything other than the treatment of more patients than ever before.

## Notes

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