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Psychiatric bed utilization: 1896 and 1996 compared

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ABSTRACT

Background. 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 incidence and prevalence of service utilization over the course of a century.

Methods. We collected records on all psychiatric admissions from North-West Wales in 1894–1896 and 1996. These were assessed and diagnosed by the responsible sector area consultant.

Results. The data reveal substantially more patients admitted for all diagnoses in 1996, even when comparisons are restricted to detained patients. The incidence of hospitalization by detention for schizophrenia is slightly lower 1996 than in 1896 but the incidence of hospitalization is higher now than in 1996. The incidence of hospitalization by detention for non-affective disorder psychoses is the same in both 1896 and 1996 but there is a doubling of incidence of hospitalization. The incidence of hospitalization for bipolar disorders is similar in the two periods. Modern mental health services admit large numbers of personality disordered patients, where none were admitted 100 years ago.

Conclusions. Factors general to changing health care and expectations and others specific to mental health would appear to have led to the increase in rates of admissions observed in the modern period.

INTRODUCTION

The terms used to designate mental disorders barely go back more than 100 years but what of the disorders themselves? Did they come into existence just before the terms used to label them and the institutions used to treat them or have they existed for much longer? Answers to these questions may shed light on the nature of psychiatric disorders and point a way forward for further research.

At various times over the last 100 years, the rising asylum population was taken by some to indicate that the incidence of insanity was increasing (Hare, 1983; Healy, 1996). In the 1950s, the mental hospital in-patient population in some Western countries began to fall for the first time. Some have attributed this decline to administrative changes within psychiatry as well as the development of rehabilitation units and a more active approach towards patients, while others attribute the change to the advent of psychotropic medication (Grob, 1994).

Other claims have been made concerning the prevalence of particular psychiatric disorders. There have been disputes as to whether the incidence of schizophrenia was rising throughout the period (Hare, 1983, 1986; Scull, 1984). Competing theories have posited a viral aetiology, or social factors such as increasing urbanization and industrialization (Warner, 1985). More recent data indicate a reduced incidence of schizophrenia in recent years (Harrison *et al.* 1991; Suvisaari *et al.* 1999). Possible explanations for this include a cohort effect, administrative fiat or the rise of the more restrictive concept of schizophrenia found in

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DSM-III. An alternative is that there has been no change of incidence but that there have been changes in service utilization.

The ability to establish incidences or prevalences for psychosyndromes is confused by varying diagnostic fashions and patterns of service utilization. For example, it is argued that when outlined first by Kraepelin, dementia praecox was a disorder that affected younger men rather than women in a ratio of 3 to 1 and that it was supposed to lead to an inexorable decline, but the evidence for this from Kraepelin's own records is not conclusive (Jablensky *et al*. 1993). In the middle years of the twentieth century under the influence of Bleuler, a looser schizophrenia concept prevailed and greater numbers of patients with an equal sex ratio were diagnosed as having schizophrenia, not all of whom had a chronic, unremitting disorder (Cooper *et al*. 1969). Was there a real shift in the frequency and nature of the underlying condition? Was Kraepelin's concept closer to a natural morbid entity than Bleuler's or is the reality more complex?

Debates on these matters have lacked comparative figures for a variety of reasons. First, there has been a general increase in populations. Secondly, there has been a shift in populations, so that it becomes uncertain whether it is possible to draw a comparison between admissions to a rural asylum 100 years ago with admissions to an urban District General Hospital Unit now. Thirdly, a variety of geographical and financial factors make it difficult to determine how representative those who accessed a service a century ago or do so today are of the whole population of the mentally ill. Kraepelin's university clinic in Munich, for instance, selectively admitted informal patients on the basis of research interests, with chronic patients referred to the district hospital (Jablensky *et al*. 1993).

In North Wales, there are comprehensive and clear records from the Denbigh Asylum, from its opening in 1848 through to its closure in 1995. In addition, there has been an almost constant population in the sub-region of North West Wales (Gwynedd) both in terms of number as well as ethnic and social mix during this period. Furthermore, owing to geographical and financial constraints, service users both in 1896 and 1996 have only been able to access one point of service usage. Finally, the area remains largely rural, a not insignificant factor given the influence of urbanization on the apparent incidence and presentations of psychotic disorders. Accordingly, we set up a study to compare admissions from Gwynedd to the Denbigh Asylum in 1896 with admissions in 1996 to the District General Hospital (DGH) unit, which now delivers services for this area.

METHOD

Historical background

In the 1890s, while Anglicization was occurring rapidly throughout Wales, Gwynedd remained robustly Welsh speaking (Morgan, 1981). The economy was dominated by agriculture, fishing and extractive industries. Rail and road transport was increasing, and with them the need for metals, machines, implements, conveyances and men. For women, the census registered the main areas of employment as either 'wife of', or 'domestic services'. The population remained rural. Holyhead, Bangor and Caemarfon were the largest towns with over 10 000 inhabitants in 1901. They only have slightly more now.

In the 1890s extremes of poverty were still apparent, with the case notes sometimes referring to 'poverty' and 'privation', 'exhaustion' and 'ill-nourishment', as causes of insanity. There was a polarity between the vast majority of the working-class and the agricultural tenantry and a small landholding and professional elite. The middle classes had not developed to the extent found in English urban areas. By the 1990s the majority of people were employed in the tertiary sector, including middle-class occupations, yet unemployment and social exclusion remain. The number of patients recorded as having 'no occupation' is higher among the 1996 sample than it was a century ago.

The populations

The Denbigh Asylum, opened in 1848, catered for pauper and private lunatics (Michael & Hirst, 1999). It was common practice for the asylum to write to the various Poor Law Unions encouraging them to refer patients with mental illness. While clearly some insane patients still remained in Poor Law Infirmaries, by the end of the nineteenth century, this was a much smaller proportion of patients than it had been earlier.

In 1894, however, there was an accommodation crisis and the asylum wrote urging restraint in referrals. This led to less admissions in 1894 than in previous years or than in 1895 or 1896.

The asylum admitted patients with behavioural disturbances consequent on imbecility, dementia and organic disorders in addition to what would now be considered functional mental illnesses. There were no voluntary admissions. Committal was a judicial process requiring legal and medical certificates under the 1890 Lunacy Act. The patient was normally accompanied to the asylum by a Poor Law relieving officer or a policeman along with relatives, who gave an account to the medical officer of the patient's background, which included length of time ill, previous admissions and psychosocial factors of note. The asylum records are particularly extensive in duration, as well as comprehensive and consistent in content. The original clerk appointed in 1847 died in service 41 years later and his successor retired in 1940.

In 1891 the population of the area designated as Gwynedd in 1996 was 232109 and in 1996 it was 240683 (GBHD 1998). In 1896 admissions were organized by Unions, and the easternmost union. Conwy Union paid for some admissions from areas to the east of what was Gwynedd in 1996, giving in effect a slightly greater population than 232000. In contrast in 1996, some patients (< 10) from the east of Gwynedd were admitted to a neighbouring district general hospital, giving an effective population of Gwynedd for mental health purposes of approximately 235500. In 1891, there were 15378 people over the age of 65, in 1996, there were 46763 people. In 1891, there were 116924 people between 15 and 55 and in 1991 there were 119323 people in the same age band. In 10 year blocks between 15 and 65, these broke down as 39361, 30664, 25480, 21419 and 15386 in 1891 and 31344, 29837, 30321, 27821 and 27183 in 1991.

In 1896, there was nowhere else for sufferers with a mental illness to be hospitalized other than the Denbigh Asylum. In 1996, while a few patients from the eastern end of the county could access treatment in a neighbouring catchment area, this was a small minority of all patients. Also, unlike patients in other studies who had access to both public and private facilities (Evensen *et al.* 1994*a*, *b*), patients from North-West Wales essentially have had no access to separate private facilities in either 1896 or 1996.

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 divided into sectors with each sector covered by one consultant. Admissions could be through walk-ins, referral from the local DGH, referrals from general practitioners or the police, from mental health teams or through the sector consultant. Admissions consisted of general adult mental illness cases with childhood, adolescent, learning disabilities and dementia patients going elsewhere. This service was supported by support bed hostels, a generous provision of Elderly Mentally Ill assessment, respite and long-stay beds and separate services for childhood and adolescent disorders as well as learning disabilities.

The records

The records of all Gwynedd admissions to the Denbigh Asylum between 1 January 1894 and 31 December 1896 (henceforth the 1896 sample) were entered into a Microsoft Access Database (Michael, 1996). It was necessary to collect 3 years worth of data from the 1896 period to form a comparative sample as annual rates of admission were 15 times lower than now (see below).

Details of age, sex, marital and employment status, as well as diagnoses made in the 1890s and a full set of clinical notes were entered. The clinical notes included the certificates of admission, detailing the difficulties the patient was causing themselves or others, and the mental state and physical assessment of the admitting doctors as well as regular notes on the progress of the patient through to discharge or death.

The notes for the 1896 sample, which are more comprehensive than in other asylums of the period, were sufficiently detailed to permit consultant psychiatrists to make an ICD-10 diagnosis on each patient. Seven consultants were involved in delivering a sectorized service in Gwynedd in 1996. The procedure followed was to give the 1896 records to the consultant from whose sector they would now come. These consultants in addition made ICD-10 diagnoses on their 1996 patients. This method permitted some standardization of diagnostic biases in

both the 1896 and 1996 samples. For patients with primary admissions for neurotic disorders and substance abuse in 1996, secondary assessments of levels of personality disorder were also made.

In the case of the 1896 sample, it was possible to catalogue all previous and subsequent admissions of that patient. Where there were other admissions, the full details of presenting mental states and clinical course while in the asylum were included as an appendix to the 1896 record and clinicians made a diagnosis with data from all admissions available to them.

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'. Recovered patients had to have less than three admissions in the 3 years prior to the index 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 three or more prior admissions in the 3 year period before the index 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, seven patients designated as recovered in 1896 by their clinicians were redesignated as relieved on the basis of a further admission within a year of their apparent recovery.

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 1 year period. Secondly, we examined the hospitalized incidence rates for schizophrenia, non-affective disorder psychoses and bipolar disorders. Thirdly, we calculated the length of stay of patients and the numbers of prior admissions. Finally, we compared recovery and relief rates with the caveat that a differential mortality rate makes this comparison ambiguous. As noted above there was a markedly 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.

RESULTS

At the end of 1896, there were 667 beds in the asylum. Patients from North-West Wales accounted for approximately 40 % of these (267). In 1996, there were 60 acute mental illness beds, as well as 66 EMI assessment and respite beds, eight long-stay 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 North-West Wales.

Admissions 1896

From 1 January 1894, there were 56 admissions in 1894, 75 in 1895, 73 in 1896. These 204 admissions represent 196 individuals with an

Table 1. *Admissions to North Wales Asylum 1894–6: contemporary diagnoses*

Disease	Female	Male	Total
Mania	18	25	43
Acute mania	11	7	18
Subacute mania	8	12	20
Mania and epilepsy	2	1	3
Chronic mania and epilepsy		1	1
Mania and imbecility	3	7	10
Puerperal mania	1		1
Melancholia	26	21	47
Acute melancholia	2	1	3
Subacute melancholia	1		1
Melancholia with stupor	1	1	2
Melancholia and imbecility		1	1
Dementia	6	12	18
Acute dementia	1		1
Senile dementia	2	2	4
Dementia and epilepsy	2	4	6
General paralysis		9	9
And mania		1	1
And dementia		1	1
Epilepsy		1	1
Imbecility	1	1	2
Epilepsy and imbecility	1	1	2
No contemporary diagnosis	1		
Totals	87	109	196

Table 2. *Retrospective diagnoses for patients admitted in* 1894–6 *compared with contemporary diagnoses for patients admitted in* 1996

	1894–6					1996			
ICD-10 diagnosis	Female	Male	Total	*N* (per annum)	(%)	Female	Male	Total	(%)
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 dis (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)

average age of 41 years for both men and women. Sixty per cent of the admissions were single or widowed and 40% married. There were no gender differences between those who were single and those who were married.

The original and retrospective diagnoses are in Tables 1 and 2. It can be seen that the commonest retrospective diagnosis was for organic disorders. These were comprised of nine cases of epilepsy, 10 cases of infection of whom four had GPI and three tuberculosis, two admissions for uncomplicated imbecility, two choreiform disorders, one gastric tumour and three undiagnosable cases, of whom two died and one was discharged within weeks of admission.

In the 1896 sample, 101 individuals died in the asylum, 26 with pneumonia, 23 of tuberculosis, nine of heart disease, seven from exhaustion and 37 from other causes, including fits, injuries and strokes. The average annual death rate was 12% within a year of admission.

Admissions 1996

In the 1996 sample there were 737 admissions, from 542 individuals with a mean age of 40 years for men and 49 years for women. Seventy-two per cent of the sample were single, divorced, separated or widowed. Women were more likely to be married or cohabiting (31%) than men (23%).

Diagnoses of dementia and organic disorders have comparatively speaking disappeared (Table 2). The admissions for organic disorders in 1996 were for clinical states that could be expected to respond to psychotropic medication and those for dementia were for the management of functional disturbances super-imposed on the underlying disorder. Conversely, when the personality element in the substance abuse and neurotic disorder admissions is taken into account, 40% of admissions in 1996 had a significant personality component to them.

In addition to 737 admissions during 1996, there were 152 assessments that did not lead to admission. There were, furthermore, 307 assessments, following self-harm episodes, the onset of delirium or functional disturbances in the local hospital of which only 33 led to admission. There were 288 patients admitted to EMI assessment facilities or EMI long-stay beds for respite or long-term care. There were a further 149 adults admitted to support bed units for crises of various sorts or respite. In addition, there were a number of admissions to adolescent facilities for functional mental disturbances and to learning disabilities facilities for respite.

Of the 737 admissions, 131 individuals (73 males) were detained or detained within a week of admission. Of those detained, 28 were diagnosed with schizophrenia, 20 with another psychotic disorder, 41 as affective disorders, five

Table 3. *First admissions and admission prevalences for patients admitted in* 1894–6 *compared with patients admitted in* 1996

	Total individuals admitted, *N*			First admissions, *N*			Prevalence of admissions, *N*		
	1894–6		1996	1894–6		1996	1894–6		1996
ICD-10 diagnosis	Total	Per annum	Total	Total	Per annum	Total	Total	Per annum	Total
Organic disorder (F04–09)	33	11·0	10	29	9·7	4	33	11·0	17
Alcohol/drug-related 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

as demented, four as other organic disorders, eight as alcohol or drug related and 23 as personality disorder.

Comparative 1 year prevalences 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. Including 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 also included. Considering compulsory detentions only in 1996 gives a three-fold increase compared to 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 seven-fold difference in admission prevalence (see Table 3).

In 1896 there were no individuals receiving a contemporary diagnosis of personality disorder. Retrospective diagnoses yield four admissions. In 1996, 49 patients accounting for 83 admissions were diagnosed as having a personality disorder (Table 2). Fifty-nine patients, accounting for 86 admissions, were diagnosed with a neurotic disorder. Adjustment disorder accounted for 52·5% of admissions with a neurotic disorder diagnosis. Of the neurotic disorder patients 28 were also diagnosed as having a significant personality component to their problems. Personality disorders and neurotic disorders count for 25% of all admissions in 1996. Admissions with a diagnosis of dysthymia (F341) accounted for 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 *et al*. (1997).

Incidence of hospitalized psychiatric disorder

In the 1896 cohort, 24 of the schizophrenic patients presented for the first time, an average rate of detention of eight per annum. In 1996, 13 of the 58 schizophrenic patients presented for

the first time. Of the 13 schizophrenic patients presenting for the first time, four were detained under the mental health act. Two of these 13 fell in the 55–64 age group, whereas there had been none in this age group in 1896. The 1896 figures therefore fall midway between 1996 incidence figures for detention and for any admission.

In 1896, 37 of 41 non-affective disorder psychoses presented for the first time – a rate of 12 per annum. In 1996, 29 of 114 non-affective disorder psychoses presented for the first time. Of the 29 patients with any non-affective disorder psychosis presenting for the first time in 1996, 14 were detained under the mental health act. In 1896, two of these patients from the age bracket 55–90 were admitted for the first time, whereas seven from the same age bracket were admitted in 1996. On the basis of age standardization, four more patients could have been added to the non-affective disorder group in 1896. These figures point to equivalent rates for incidence of detention for all non-affective disorder psychoses between 1896 and 1996, with a modest increase in the incidence of hospitalization now.

Twenty patients in 1896 had a bipolar disorder (seven per annum). Eight patients were admitted for the first time, with a mean age of 39·1, giving an average incidence of hospitalization of three per annum. Of the 20 patients, 16 had more than one other episode; 12 had at least one previous episode and 11 at least one subsequent episode.

Of the 37 patients diagnosed with a bipolar disorder in 1996, 12 patients were detained. Six bipolar patients, with a mean age of 45·8 years, were first admissions, of whom two were detained. In both 1896 and 1996 groups, there was one patient with an onset of their disorder in the over 55 age group. These figures give a similar incidence of detention for bipolar disorders in 1896 and 1996 but a possible increased incidence of hospitalization now. Of the 1996 sample, 20 had more than three previous admissions and a further 11 had between one and three admissions.

The nature of the disorder of 1896 patients diagnosed here as having manic episodes as opposed to bipolar disorders differed in both character and clinical course to those patients diagnosed as having a bipolar disorder. A proportion of these manic episodes may have been overactive catatonic states but it would seem possible that some of those diagnosed as having manic episodes in fact did have a bipolar disorder. This may point to greater comparability in the incidence of hospitalization for serious bipolar disorders in the 1896 and 1996 samples.

Comparative recovery/relief rates

Subtracting 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 of 24%. Excluding the 32 deaths, the remaining 106 patients had a recovery rate of 50%, a relief rate of 30% and a 20% chronicity rate.

Of the 1996 sample of 542 individuals, 193 were discharged recovered (36%), 331 were relieved (61%), two were transferred to longer-stay facilities and 16 died between April 1996 and April 1998. It is not yet possible to establish comparative 5-year survival analyses for the two periods.

Table 4 gives the average number of prior admissions per patient. It is clear that there is a substantial increase for the 1996 sample. Against that can be set the comparatively briefer hospital stays in 1996. There are a number of problems with attempting to establish the likely number of bed-days occupied in a typical psychiatric career in 1896 compared to 1996. The 1996 figures pose problems in that neither previous admissions nor prior or subsequent admissions to support beds or other community beds are reflected in these figures. A significant proportion of the 1996 sample were discharged to facilities other than their home. A simple multiplication of frequency of admission by mean length of stay for the 1896 and 1996 samples will not therefore give a good indication of overall service usage for the different diagnostic groups. To accommodate for these difficulties in this paper, we have calculated the figures for the nineteenth century patients from the point of admission to the end of the subsequent year (i.e. to the end of 1895 for all patients admitted in 1894). Further work giving comparative survival analyses, in addition to tracking stays in other service beds is needed.

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

Table 4. *Average no. of admissions per patient and mean length of stay (LOS) by diagnostic group prior to and including study periods*

	1896		1996	
ICD-10 diagnosis	Average no. admissions per patient	LOS Mean	Average no. admissions per patient	LOS Mean
Dementias	1·1	390	1·9	18
Organic disorder	1·2	395	3·7	20
Alcohol/drug-related disorder	2·0	—	2·9	13
Schizophrenia	1·4	428	6·9	55
Delusional disorder	1·4	389	2·7	43
Other psychoses	1·4	395	5·2	39
Manic episode	1·2	362	4·8	33
Bipolar disorder	2·7	271	6·5	44
Depressive episode	1·1	288	3·5	30
Mood (affective) disorder	—	—	2·1	12
Neurotic disorder	2·0	—	2·9	17
Psychol./behav. disorder	1·0	—	2·4	26
Personality disorder	1·0	—	5·1	29
Mental handicap	1·0	—	3·5	68

(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 in 1996. 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 five on more than four 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 three previous and or up to three subsequent admissions or were referred to support bed facilities after discharge.

If patients died or were not discharged they cannot be readmitted. Patients with bipolar or depressive disorders, however, were almost always discharged alive in 1896. Comparing these groups in 1896 with a comparable group of possibly milder mood disorders in 1996 gives an average number of admissions per individual of 1·52 in 1896 in the 6 year time-frame surrounding 1894–1896 and 3·50 in a comparable time-frame around 1996. The 1996 figure does not include admissions to support bed units.

Bipolar patients in 1896 were more likely to be admitted for manic rather than depressive episodes. Their records indicate additional depressive episodes that were treated at home. It seems that unless the illness episode gave rise to delusions, hallucinations or dangerous behaviour, committal to the asylum did not take place. These figures therefore provide indicators of service utilization and community expectations rather than estimates of the frequency of medical conditions.

Causal attributions

The moral movement in mental health care was declining in influence by the end of the nineteenth century. In the early nineteenth century, it was common for clinicians in America and Britain, to note the influence of major life or major public events. In the later years of the century, clinicians were more likely to note the influence of heredity (Evensen *et al.* 1994*b*; Healy, 1991). In 1896, 29% of patients had a causal attribution of heredity in their notes, 20% had a previous attack of mental disorder noted as a significant contributory cause to their current admission, 13% had a prior episode of physical illness, 10% were linked to alcohol, 9% to mental anxiety or shock, 7% to a life event, 5% to pregnancy, the puerperium or the menopause and 3% to injuries at work or other accidents. The recording of a previous attack as a contributory cause for a current episode seems strikingly in keeping with 1996 thinking regarding the origins of mental illness episodes. This causal attribution has never been docu-

mented before as such a significant factor in clinical thinking of the period.

DISCUSSION

Our figures indicate that the number of admissions to a psychiatric bed is considerably greater now than it was in 1896. This is despite the smaller number of acute mental illness beds today. Even if comparisons are restricted to detained patients there is a three-fold increase in admissions in the present day. 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.

Given the current availability of supposedly effective treatments, one possibility is that the effects of modern treatments on the index conditions are more complex than has hitherto been accepted. Modern treatments clearly allowed the discharge of many patients in the 1950s and 1960s. These treatments have also meant that the prospects of discharge were much better for patients admitted in 1996 than in 1896. But use of these same treatments has from the start been associated with an increased number of readmissions, a proportion of which may be associated with discontinuation syndromes rather than illness relapse (Battegay, 2000).

There are other possibilities. The increase in psychiatric admission in North Wales started in the years surrounding the Second World War (Olsen, 1972). Comparable increases have been reported from other psychiatric hospitals (Mulholland, 1998). While our figures indicate that there may be a modest increase in the hospitalized incidence of serious mental illness, change on the scale found suggests that this change in service utilization does not stem from a change in the hospitalized incidence of the underlying disorders.

Clearly, the possibility of voluntary admissions since the 1930 Mental Treatment Act is one reason for a greater bed utilization now. However, it is notable that despite greater concern with civil liberties today, considerably fewer patients were detained 100 years ago than now. Other factors must therefore have played a big part in leading to the 15-fold increase seen today. Since the middle years of the twentieth century there has been a trend to professionalize care-giving that continues today. Where medications were once available over the counter, the advent of modern psychotropic drugs as well as the other pharmaceutical miracles in the rest of medicine coincided with legislation to make these agents available on prescription only. The National Health Service was established and in mental health, the years from 1930 saw the first outreach to the community with the establishment of out-patient clinics.

Table 5. *Discharges and deaths from NHS hospitals in Wales* 1955–1997

	Mental			
Year	Illness	Handicap	Other	Total
1955	5656	268	171430	177354
1957	5754	316	176412	182482
1967	9632	690	278127	288449
1977	11374	1132	330461	342967
1987	14157	1603	440660	456420
1997	17588	392	503073	521053

If professionalization of care-giving 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 17588 per annum. In the rest of the medical services generally there was an increase from 171430 to 503073 (see Table 5). The rise in admissions in psychiatry, therefore, was in line with, albeit slightly greater than, that happening in the rest of medicine. This differential between mental health and general medical services is emphasized if it is taken into account that a greater proportion (up to 30%) of general medical service contacts stem from a rising old age population. It would seem, therefore, that increased mental health service utilization stems both from a general increase in health service utilization factor as well as some specific mental health factor.

As regards the operation of a general factor, this may reflect either the medicalization of the psychiatric services, the professionalization of care-giving or a changing perception of the importance of both health and mental health. In any case, the 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 (Scull, 1984; Hare, 1986).

As regards a specific mental health factor, there are variations within the dataset that constrain interpretations and make it difficult to propose an all encompassing explanation for the changes. There are three groups of patients, where change in the pattern between 1896 and 1996 differs. First, there are those individuals with a non-affective psychosis and bipolar disorders, where the incidence of hospitalization for these conditions seems broadly similar between 1896 and 1996. Secondly, in the case of the non-bipolar affective disorders, the incidence and prevalence of hospitalization for these conditions has dramatically increased between 1896 and 1996. Thirdly, there are large numbers of people being admitted for conditions like personality disorders now, who were rarely if ever admitted in 1896.

The increase in rates of admissions to psychiatric beds in 1996 are only part of an equation that includes substantial numbers of other admissions to support bed facilities or to out of hours assessment or crisis intervention services. In addition to the 737 admissions, there were approximately a further 8000 mental health team assessments in the Gwynedd area. If we take depression, the indicators from our figures were that there were less than 60 admissions per million of the population for depressive disorders in 1896. In 1996, there were 500 in-patient admissions for depression per million, while epidemiological studies of 'depressive disorders' in the community have yielded figures of 50000 to 100000 per million (Kessler *et al*. 1994). This gives some impression of the potential service utilization now, although what has happened for depression is not typical of what has happened to other serious mental illnesses.

One possible factor that may be operative is the ease with which services can be accessed. In 1896, for geographical reasons it was not as easy to 'drop-in' as it is now. But, appeals to this factor need to be tempered with caution. In 1896 Gwynedd, the eastern end of the county was less than half the distance from the asylum than the more westerly ends. Rates of admission from the eastern end, however, were consistently fewer than from the western end.

As regards differences in length of stay in hospital between the two periods, these were considerably shorter in 1996 than they were in 1896. However, it is not inconceivable, given an earlier onset of service utilization for the functional psychoses in the modern period, if occupancy of community beds is included in the equation, that individuals with functional psychoses might occupy hospital beds for a greater period of time today in the course of a psychiatric career than they did during the nineteenth century. Further work will be needed to establish this point.

Our figures indicate that the grim reputation of the old asylums did not stem solely from the difficulty in ever emerging from their doors once admitted, by virtue of the chronicity of the patients' conditions and the unavailability of effective treatments. Given comparatively good recovery rates among survivors, it is clear that the reputation must have stemmed, at least in part, from the likelihood of dying within a short time of admission, either from organic disorders that led to admission or by virtue of contracting tuberculosis, pneumonias or other fatal disorders after admission (Hare, 1985*a*, *b*). Our figures are comparable to those reported by William Farr earlier in the nineteenth century, who found an 11% death rate for patients of the better classes, a 12% death rate for paupers in Hanwell and death rates of up to 21% for paupers in other establishments (Farr, 1975).

It would seem that there was clearly a gradual accumulation of patients with chronic functional mental illness in the asylums but our data suggest that this was considerably more gradual than is often thought. This accumulation would in all probability have been a much greater problem in circumstances where demented, learning disability patients and a variety of other chronic epileptic patients and others were mixed alongside patients with functional mental illnesses. Nevertheless, one surprising aspect of the 1896 data is the relatively good recovery rates for survivors, which bear comparison with modern rates. Today the availability of mental health teams and other community mental health workers means that patients in community settings are monitored regularly and changes in their mental state are always liable, therefore, to lead to admissions in a way that would have been less likely before. This is particularly the

case given lowered thresholds for admission and a comparative destigmatization of mental illness. Such patients should be easier to 'cure' but in fact seem not to be. This may indicate that the quality of modern remissions are not as secure as we like to think, or alternatively, we have become more demanding about the quality of clinical responses. A further possibility is that current treatments increase rates of relapse either in patients remaining on treatment or in those who discontinue and have consequent withdrawal induced disturbances.

The pattern seen in this study might be similar to ones that can be found in some third world countries. Studies in developing countries show a better rate of recovery for major psychoses (Warner, 1985; Jablensky *et al*. 1992). They also show a high death rate and a significant proportion of admissions have concommitant physical disorders (Mojtabai *et al*. 2001). Thirdly, in developing countries there are few or no admissions or personality disorders. Before simply assuming, however, that our picture is typical of conditions in the late nineteenth century and that the 1996 profile is typical of conditions now, further studies are required. It seems unlikely that mental states or rates of admission and readmission remained constant over 100 years from 1848 to 1948, any more than they should be expected to be invariant now. This study ideally needs to be supplemented by studies tracking on the one hand admissions to an asylum over the century prior to the Second World War and on the other the stability of modern diagnoses and practices. Notwithstanding operational manuals such as DSM-III and DSM-IV, how much is current service utilization influenced by therapeutic 'fashions' on the one hand, such as recovered memory therapies, and on the other the medicalization of conditions such as post-traumatic states?

These considerations raise the question of whether any study of this sort can get beyond service utilization factors to the 'real' illness entities that underpin utilization. It may be a mistake to think that any study could ever do so. The National Co-morbidity Study (NCS) in the United States has been criticized for reaching over-inflated estimates of psychiatric disorders by interviewing individuals in community settings, with interview techniques designed to elicit mental state features without considering the extent of any concomitant disability (see Regier *et al*. 1998). Judgements of disability have, however, both subjective and social components. Studies like this and the NCS, even if supplemented by genetic marker technology, will always in one sense resemble post-mortems in that both are as likely to indicate what human bodies in the one case and social bodies in the other can live with as they are to reveal what has afflicted them.

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