SOME STATISTICAL TRENDS OF IMPORTANCE FOR PLANNING PSYCHIATRIC PROGRAMS IN NEW YORK*

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A knowledge of the statistical and epidemiological trends in emotional and mental disorder is basic to any plans for psychiatric service in a State such as New York.

Projections of surveys, special studies, and experiences with war-time induction into the armed forces provide data on prevalence and some information on incidence but institutional figures still remain perhaps the chief source of large scale figures bearing on the long-term changes which have been and are taking place in the field of psychiatry and which promise to transform the entire situation radically in the forseeable future.

Any interpretation of such institutional figures must be made with the reservation that they reflect only a part of the total picture. This part bears a relatively unknown relation to the total picture. Yet, taken with due reservations, these figures still seem to have implications which go far beyond institutional psychiatry and indeed seem to involve the entire field of future psychiatric service.

It will be the purpose of this paper to present a review of the New York State statistics in this field and to describe a number of important trends which seem to be reflected there, and especially those that have a bearing on the papers to follow, namely in child psychiatry, in geriatric psychiatry and those which have a bearing on the organization of a comprehensive system of psychiatric service.

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Population Growth

Perhaps the trend most publicized and best known in the recent past has been the abnormally rapid increase in the number of institutionalized patients, with overcrowding of facilities and general inability to keep pace with the expansion of need for more beds. Starting with a population of 22,000 in 1900, the New York State mental hospitals had almost doubled their population by 1925 and in the next 25 years they doubled it again, increasing from 40,000 in 1925 to 82,000 in 1950. Starting with 7,215 patients on their books in 1925, the state schools had grown to 23,191 by 1955. In the meantime, the cost of operating the institutions had risen even more rapidly, going from some 5 millions for State hospital operation in 1900 to a budget of 120 million in 1955-1956. The cost of the state school operation rose from 4 million in 1928 to 24 million in 1955-1956.

At first examination these figures show a deceptively simple pattern of rather smooth progressive expansion that seems to reflect a relatively fixed equilibrium of fairly static forces which might safely be projected for some distance into the future. These could be taken to indicate a degree of stability in institutional psychiatry but this is very far from the truth. The abrupt recent leveling off of the mental hospital population growth which will be described in another paper tonight is but one example of the marked shifts which have radically changed the institutional picture even in the last 25 years. The mental hospital system has changed and is changing rapidly in the composition of its admissions, in rates and causes of death, methods of treatment, rates of release and in the nature of its residual population. The population figures must be considered as the resultants of a highly dynamic equilibrium of forces, some of which are sufficiently powerful to change the total picture quite abruptly.

The Geriatric Problem

No phase of hospital work has attracted more attention than that which has to do with the aged. The population of New York State, aged 65 and over, has increased by some 400 per cent since 1904 but the patients in mental hospitals in this age group have gained even more rapidly going from 3,128 to 28,651 in the same period, or a gain of 900 per cent. It should be pointed out that of the 28,651 patients over 65,

less than half are cases of senile psychosis and cerebral arteriosclerosis. The other half are chronic cases, largely schizophrenic, who have become old in the institution after many years and are not really a part of the psychoses of advanced age. Nevertheless, the psychoses of the senium which comprised only 13.3 per cent of first admissions in 1912 when this figure was first recorded, had come to be 40 per cent of all first admissions by 1955 and the absolute number of such admissions had risen from 726 cases to 6,223. It is because of their high death rate that these patients who make up such a large part of the first admissions make up a much smaller proportion of the hospital resident population. However, this group too has changed over the years and their average age on admission has advanced over six years since 1920. Thus the average age for psychosis with cerebral arteriosclerosis was 64.8 on admission in 1920 and 71.2 in 1950, while the senile average age advanced from 73.6 to 78.7. By contrast the average age of about 32 years at first admission for dementia praecox remained essentially unchanged throughout the 30 year span.

In spite of this addition of six years to the average age on admission, the duration of life in the hospital for cases of senile psychosis increased from 1.8 years in 1925 to 2.1 years in 1955 and for the cerebral arteriosclerotic group it rose from 1.2 to 2.1 in the same period[1, 2]. This does not compare with the extension from 15.4 years to 23 years in dementia praecox, or the increase in paresis from 1.4 to 10.4 years. These figures are all based on cases of chronic psychosis dying in the hospital and do not include cases in remission and released to the community. Data on expectation of life after release from hospital are not available. Inasmuch as there were 4,050 deaths in patients 75 years and over in the mental hospitals in 1955, there is good reason to emphasize this advance of six years in average age on admission which could have been expected to bring a decreased average length of hospital life if advances in medicine had not more than compensated for it. Among the explanations for the increase of admissions past 75 is the possibility that this results from prolongation of life in persons of very advanced age in the general population, where modern therapy has held off the effect of terminal illnesses such as pneumonia leaving a larger number of severely incapacitated persons of this age who require care for a more prolonged period of time than was previously the case.

It is interesting that, in spite of the greater average age of such

TABLE I—AGE SPECIFIC FIRST ADMISSION RATES PER 100,000 OF THE GENERAL POPULATION FOR THE NEW YORK CIVIL STATE HOSPITALS, 1920 - 1956

Years	*Total*	*Age in Years*				
		Under 15	*15-24*	*25-44*	*45-64*	*65 and over*
1920	63.3	0.7	51.2	85.4	98.7	184.1
1930	71.8	1.8	51.9	85.8	110.4	242.4
1940	96.4	4.8	61.9	94.2	131.1	355.0
1950	105.5	7.2	84.5	93.9	115.2	414.9
1956	97.5	7.6	80.6	90.0	96.6	387.2

patients on their admission to the hospitals, their span of life has been somewhat prolonged and the age specific death rate for patients 65 to 74 has been cut from 175.5 per 1000 exposures in 1930 to 132.1 in 1956 and those over 75 fell from 321.3 to 299.3 in the same 26 year span.

Some further figures are available which have implications for possible future developments in geriatric admissions to mental hospitals in New York. Table I, which gives age specific rates, shows that admission rates for patients over 65 rose steadily from 184.1 per 100,000 in 1920 to 414.9 in 1950 declining again in 1956 to 387.2. The very large increase of these cases between 1930 and 1950 was due in part to the doubling of the basic rate of admission and in part to the doubling of the state's population over 65 in those 20 years. While it is sometimes assumed that the doubling of the base population was due entirely to prolongation of life, it is of interest to note that authorities in this field[2] seem to agree that only 20 per cent of the recent marked increase of the aged in the population was due to this cause and that the rest was due to waves of past immigration and to past fluctuations in the birthrate. The Director of the Bureau of Census[2] anticipates that this age range will increase by less than 50 per cent in the 20 years between 1955 and 1975 and that the national figure will go from 14.1 to 20.6 millions. From this, some estimate can be had of the potential for expansion of the present number of hospitalized aged although these figures are subject to revisions depending on improved methods of psychiatric prevention and treatment as well as advances which might result in further extensions of the life span.

TABLE II—MORTALITY DATA NEW YORK CIVIL STATE HOSPITALS
1920-1956

Year	Death Rates per 1,000 under Treatment*			Average Age at Death			Percentage of Deaths	
	Total	Dementia Praecox	CASSP†	Total	Dementia Praecox	CASSP†	Dementia Praecox	CASSP†
1920	79.7	36.5	320.4	54.6	49.1	70.9	24.6	26.3
1930	68.0	28.5	288.3	59.3	53.6	71.0	21.6	38.5
1940	64.2	22.2	268.6	64.9	53.3	73.1	17.6	54.3
1950	66.6	19.3	263.4	70.0	59.6	76.0	15.4	64.2
1956	67.9	18.7	257.6	73.1	63.8	77.8	14.4	66.8

* Resident patients at start of year plus admissions
† Cerebral arteriosclerosis and senile psychosis

THE PROBLEM OF CHILD PSYCHIATRY
(State Hospitals and State Schools)

On January 31, 1956 there were 962 patients below the age of 16 in the New York State Hospitals as compared with 695 the year before, and this growth represents a long term trend which has a psychiatric significance out of proportion to the smallness of the numbers involved. The reasons for this increase are not immediately apparent but the trend is clear in Table I which shows age specific rates. Similar trends have been reported from other states and from countries abroad. In 1920 the age specific admission rate for children under 15 was 0.7 per 100,000 of the population. This has increased over 10 fold and by 1956 had reached 7.6 per 100,000; it involves elements of juvenile delinquency and behavior disorders of a wide variety as well as childhood schizophrenia. Demographic figures[3] indicate that, if one uses the year 1940 as an index of 100 per cent, the total general population under 5 rose to 170.3 per cent in 1956 while those under 18 stood at 141 per cent and those over 65 at 159.7 per cent. Further important increases in the total childhood and adolescent population groups are predicted and therefore it may be expected that the pressure for admissions both in the state schools and in the state hospitals may continue to increase in the future, although here again changing medical techniques may over-

TABLE III—AVERAGE ANNUAL DEATH RATE PER 1,000 EXPOSURES* BY AGE GROUPS, NEW YORK CIVIL STATE HOSPITALS

Age Group	*1929-1931*			*1956*		
	Total	*Male*	*Female*	*Total*	*Male*	*Female*
Total	86.8	93.0	81.2	86.0	90.6	82.2
Less than 15	17.5	20.6	12.1	3.3	2.2	6.2
15-24	51.3	49.2	55.0	7.5	4.4	12.2
25-34	41.3	37.5	45.9	6.6	7.2	6.0
35-44	45.9	48.5	43.3	10.6	11.8	9.5
45-54	59.0	66.5	52.2	21.2	24.9	17.9
55-64	95.6	114.5	80.1	56.4	68.3	46.9
65-74	175.5	214.4	146.7	132.1	153.7	115.0
75 and over	321.3	380.0	286.8	299.3	354.9	266.9

*Exposures = Population + ½ Deaths in Period

weigh the influence of sheer increase of base population.

One of the strongest influences in the opposite direction has been a pronounced movement to train and educate the higher grade defectives in local non-residential schools. This is certainly a factor operating to select the more dependent and more handicapped for institutional care. The proportion of patients in the idioimbecile group resident in the state schools rose from 57.3 per cent in 1932 to 67 per cent in 1956 while the average age on first admission fell so that in 1955 over 50 per cent of the first admissions were under 10 years of age while only 15 years before this same group made up 25.8 per cent of the first admissions. Among first admissions the proportion of idioimbeciles rose from 40 per cent in 1940 to 60 per cent in 1955[1, 2].

OTHER STATISTICAL CHANGES OF IMPORTANCE FOR FUTURE PLANNING

Falling Death Rates. Table II shows how death rates have fallen in various mental disease categories over a 26 year period. This involves each disease entity and each age period (Table III). The addition of new methods of therapy promises still further reductions and will tend to increase the residual population of the hospitals and the schools.

Reduction of death rates to a fraction of the 1930 levels is seen in the younger age groups but there has been some reduction even in the oldest patients. A comparison of 1925 with 1955[1, 2] shows that while the total number of hospital patients had more than doubled, the deaths from tuberculosis had fallen from 417 to 119 and paretic fatalities had dropped from 573 to 107. Lobar pneumonia and other infectious disorders had shown a similar or greater fall while degenerative diseases accounted for the bulk of the fatalities in 1955.

Cost of Hospital Care. The annual per capita cost of patient care in the state hospitals rose from $189.00 in 1910 to $1,263.30 in 1956. The total operating budget for the Department of Mental Hygiene in 1956 was some $165,000,000 and over two thirds of this went for personal service, a proportion of cost which has increased with the passage of time and there is reason to believe that this will continue to go up in relation to other costs, sharing the rise of real wages which has taken place in the general labor market. Lines of activity which have been unable to compete with the industrial market have lost personnel progressively and an outstanding example of this is the field of domestic service which has shown a decrease of some 25 per cent between 1940 and 1950 at a time when the entire American labor force had gained about 28 per cent and some lines of work had gained 40 to 50 or more per cent[4].

A second factor in rising costs is the outstandingly greater degree of dependency and handicap among the patients. A larger and larger proportion are being admitted at the two extremes of life and these people require a very large amount of personal attention especially because of the rising number of cases with complicating physical disability.

Need for personnel has not been reduced by the newer methods of treatment, including the tranquilizing drugs. Restraint rates have fallen dramatically and hospital releases have gone up but personnel, adequate in training and numbers, remains an essential though costly ingredient in the therapeutic formula.

As a result of these advances the old-time state hospital "working patients" are rapidly disappearing and in their place must come more skilled and more efficient paid hospital employees; the whole aim of the organization has become a rapid turnover of patients and a decrease of the chronic bed load.

Summary

A review of institutional figures in New York State reveals the following important trends:

1. A marked relative and absolute increase in geriatric psychiatry.
2. An increase in child psychiatry with a large component of behavior disorder.
3. A continued change in the composition of the populations of institutions with changes in rates of admission for various disorders and improvements in rates of release, morbidity and mortality but a net tendency to an increase of dependency and handicap in the residual hospital population.
4. A steady rise of hospital costs.

Much of our over-all psychiatric planning for the future must be done in the absence of firm statistical data and it is abundantly clear that the total problem is vastly greater than might appear from institutional figures, and may be different in some respects. Nevertheless, the tendencies are so clear-cut and the numbers involved so significant that these trends seem to merit consideration in plans for the state's psychiatric program.

Finally, these facts have led to a reorientation of the institutions toward the new situation and have brought recognition of a need to find their proper place and most effective method of operation in the changing pattern of psychiatric services.

REFERENCES

1. New York State Department of Mental Hygiene. Annual report, 1925.
2. New York State Department of Mental Hygiene. Annual report, 1955.
3. *Studies of the aged and aging,* Volume VIII. Compiled by the Staff of the Committee on Labor and Public Welfare, United States Senate, December 1956.
4. *Health and demography.* U. S. Department of Health, Education and Welfare, Public Health Service, October 1956.