

first of all, of securing the right sort; secondly, of obtaining an efficient amount of work from them, and thirdly, of keeping them in our employment. It appears to me that we would do well if we could induce our boards to agree to have some place or make some provision for those employees when they leave the service of the hospital. I think, too, that provisions should be made for the employment of married people in certain of the departments. That would tend toward steadiness and keep employees in the service. Besides, they should be well paid, well housed and well fed. It would be much better if we could have buildings especially for them in which we would not need to put more than one, or at most two, in a room. If we would seek to pay our employees well, make good provision for them while we have them and, at the end of their term of service, if possible, have a farm or some place where we could send them and maintain them for the rest of their days or give them an annuity it would tend to give the hospitals and the community at large a much better service.

DR. JOHN A. HORNSBY, Chicago: Some years ago the other large hospitals of Chicago complained to my board of directors that I was disorganizing conditions of employment for other hospitals because I was paying from three to five dollars a month more for wages than they were. My excuse was that I wanted the best and I could afford none other than the best and that in order to get them I would have to pay for them. I did that, but I did not seem to get any of the best of it and after a while I concluded that something else was wrong. So about that time we moved our nurses into a new home and concluded to fix up a building for the female help. I have never been able to do anything with employees except to pay them wages, and never have had the same wages in the same hospital for the same class of employment at any time. We have in our hospital now orderlies who are getting twenty-five dollars a month, and men who are doing precisely the same service who are getting fifty dollars a month. They are living in the house and under exactly the same conditions of employment, but in the one case a fifty dollar man has been there for years, knows the technic of the institution, and has proved honest and will do four times the work of the other man and do it four times better. I have never had any trouble satisfying the twenty-five dollar man that it was a fair deal and that he could get his fifty dollars too whenever he earned it. It seems to me that only by that sort of competition can we get hospital help. I have not had good luck with orderlies from the United States Army.

MISS HARRIET S. HARTY, Minneapolis: We thought of a plan some four or five years ago of increasing the wage of an employee if he stayed one year; also giving that employee two weeks' vacation under pay. We have a houseman who has been with us two years, and this year we increased his salary five dollars and he remarked that he would never go away. We have a home for female employees outside of the hospital grounds.

DR. H. B. HOWARD, Boston: The civil service rule presupposes that there are a great many people who wish the positions; that is, that there is a waiting list. As a matter of fact, if you have civil service examinations when there is not a long waiting list, it will hamper you terribly in filling your positions.

A Thought for the Aged.—A cheering thought as we advance in life is that many illustrious examples show the possibility of conserving the intellectual and moral character to a great age. Isaac D'Israeli said that there has been no old age for many men of genius. Titian and Michael Angelo among artists, Voltaire and Littré, Goethe and von Ranke among literary men, Palmerston, Thiers, Beaconsfield and Gladstone among statesmen, Wilks and Paget in the medical profession, testify to this, and there is reason to believe that not only is advanced age consistent with mental activity of a high order, but that such mental activity tends to the preservation of the body and makes for happiness as well as for longevity. The advice of Cicero is sound, that "old men of all things should especially be careful not to languish out their days in unprofitable idleness."—Saundby: Old Age.

FACTORS INFLUENCING HOSPITAL COSTS *

THOMAS HOWELL, M.D.

Superintendent, New York Hospital
NEW YORK

The question which I am asked to discuss is this: "Why is it that, while hospitals are slowly but surely establishing certain standards of excellence and are attaching to these standards certain specific uses and pretty well-defined prices as to cost, and in this way are approaching uniformity in the cost of institutional maintenance, there is such a wide difference in the per diem cost as there is at present—one dollar per day in some hospitals and three dollars and more in others."

Before proceeding to discuss this question I think that we should have a clear understanding as to what the average cost per patient per day actually means, as printed in the annual reports of the hospitals. It is not computed after the methods which factories employ in ascertaining the cost of their products. The great difference between factory costs and hospital costs is that hospitals make no charge for investments in buildings and grounds or for depreciation of plant.

As the per capita costs published by hospitals represent merely the operating costs and do not take into consideration investment in grounds, buildings and equipment, or depreciation, it is apparent that, while these figures may be of use for comparative purposes, they do not represent the actual costs. If the omitted items were included it would be shown that the actual daily average cost is from 50 to 75 per cent. greater than the published one. The hospital which has a published cost of \$2.60 per day would be found to have an actual cost of \$4.50 a day. In other words, the average cost per patient per day as computed by hospitals is in reality only about 60 per cent. of the true cost.

The hospitals which I am asked to discuss, one with an operating cost of one dollar a day and the other of three dollars, represent the two extremes. The one dollar a day hospital represents the so-called city hospitals operated generally in connection with almshouses and restricted by parsimonious city governments to small annual appropriations. It goes without saying that in most of these hospitals the features characteristic of almshouses are likely to prevail. The hospital with the average cost of three dollars a day or more, represents a very restricted class of wealthy hospitals in which the practicing of economy is not so essential as it is with the average run of American hospitals. These two classes of hospitals are in no wise comparable and not being representative they may be omitted from this discussion.

Taking representative hospitals, we shall find that the hospitals operated by cities and also a fairly large percentage of those privately operated have costs per patient per day of from \$1.25 to \$2.00, while other hospitals, also mostly private ones, will have costs of from \$2.00 to \$2.75 a day. These are the two typical classes of hospitals. Both are well managed; both are doing good work, and to the superficial observer there is no apparent reason why it should require \$2.50 a day to care for a patient in one and only \$1.50 a day in the other.

Anyone visiting these institutions will be struck with the similarity of the buildings and equipment. Their furnishings are almost identical. There are the same

* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

white iron beds, the same nickel-plated sterilizers, the same instrument cabinets, the same operating-tables, the same wheel stretchers and about the same kitchen, engine and laundry equipment. In other words, hospital equipment is pretty well standardized.

The initial cost of equipment is probably somewhat greater in the \$2.50 a day hospital, but as equipment does not have to be renewed annually it does not figure appreciably in the operating cost.

What, then, are the factors which do influence the average cost per patient per day? I should enumerate them as follows: location of the institution, amount of scientific work done, number of employees and salaries paid, medical school connection, proportion of private room patients to ward patients, service rendered, including food, attendance, etc.

LOCATION

In think it will be conceded that the environment of an institution will to a considerable extent determine its expenses. The hospital located in a large city where standards are high will cost more to maintain than one in a small city, just as it costs the average family more to live in the big cities than it costs in the small cities or the country.

Life in great cities is complex. All sorts of complications tend to increase the costs. These affect the hospitals.

The standards maintained by the leading hospitals of a city determine to a large extent the standards of their sister institutions. The former set the pace. The others cannot afford to lag too far behind. The weaker ones must progress if they wish to maintain their reputations, and they must maintain their reputations in order to obtain support.

These things affect the municipal as well as the private hospitals. I think it will be found that municipal hospitals in large cities are likely to have a much higher per capita cost than do municipal hospitals in small cities. In fact, their cost is frequently higher than that of privately operated hospitals in small cities.

The per diem cost in Bellevue and its allied hospitals, Fordham, Harlem and Gouverneur, vary from \$1.70 to \$2.30 per patient per day.

Hospitals located in the South, other things being equal, should have lower costs than those located in the North. Ordinarily food and labor are cheaper in their locality and their expenditures for coal are much less. It costs the Winnipeg General Hospital, for example, over twenty-eight cents per patient per day for coal while the Charity Hospital of New Orleans spends less than three cents per patient per day for this item.

EMPLOYEES AND SALARIES

I think it will be found that the pay-rolls of hospitals are the most influential factor in determining the average cost per patient per day. The hospital with a small average cost will be found to be operating with few employees and perhaps paying them small wages. The hospital with the high per capita cost will be found to have a larger number of employees and to pay better wages.

In the institution with the low per capita cost the proportion of employees to patients is about two employees to three patients, whereas, in the institution with the large cost the proportion will be about three employees to two patients.

I know of institutions with 250 beds with pay-rolls of from \$3,500 to \$4,000 a month, and I know of other

institutions with the same bed capacity with pay-rolls of from \$10,000 to \$12,000 per month. In other words, one class of hospital pays out in salaries and wages about fifty cents per patient per day, and the other about \$1.20 per patient per day. These are representative well-managed American institutions.

I know of other institutions in which the cost per patient per day for salaries and wages is twenty-eight cents, which is too low, and of others in which it is \$1.50, which is too high.

Municipal hospitals outside of the large cities are quite likely to have small pay-rolls. One reason for this is that the annual appropriation by the city government is kept down to the smallest possible amount. Another reason is that certain city officials and their clerks do, without cost to the hospital, work that private hospitals must pay for. For instance, the city treasurer handles the hospital's money, the city auditor audits its accounts and does part of its bookkeeping, the city collector collects its bills and the police department operates its ambulance system.

The hospital with a cost of \$1.20 per patient per day for salaries and wages will give to its patients better service than does the hospital with a cost per patient per day of only forty-five or fifty cents. It will employ more nurses and more orderlies and its housekeeping will be better done. It will employ a competent chef and serve better food. It will maintain first-class pathologic, hydrotherapeutic, social service, Roentgen-ray and ambulance departments. It will furnish first-class telephone, front door, clerical and elevator service day and night. It will employ skilled mechanics and its up-keep will be so excellent that depreciation of the plant will not be appreciable.

It is generally recognized that the structural conditions of a hospital plant are a big factor in determining operating expense. A modern hospital built with reference to convenience and economy of operation will be much less expensive to maintain than one occupying old, poorly planned buildings.

Many hospitals have been built piecemeal. The result is a hodge podge, inconvenient to administer and requiring an excessive number of employees.

SCIENTIFIC WORK

Hospitals which do high-class scientific and educational work are bound to have higher costs than those institutions which do only routine clinical work. They will have a large paid staff doing laboratory and research work. A large intern staff will be necessary, and probably a number of paid, resident-staff men will be employed. All of these men will be furnished with board and lodging, and the salaries paid the men in the pathologic, bacteriologic, chemical and Roentgen-ray laboratories, and those paid the salaried resident staff doing clinical work will amount to a considerable sum. The outlay for laboratory supplies and instruments of precision will influence somewhat the per capita cost.

Hospitals having a reputation for doing high-class scientific work are likely to enjoy the confidence of the public to such an extent that they will have, from a medical point of view, a more important class of cases. The urgent demand on the part of patients for beds in these institutions will result in convalescent patients being discharged early to make room for the more critically ill. The beds will be kept filled with acute cases. Patients suffering with serious or obscure diseases cost more to care for than patients suffering with minor

disorders. They require much more care and attention from doctors and nurses.

In the other class of hospitals in which the demand for beds is not so great many of the patients are afflicted with diseases of a more or less chronic nature, are allowed to remain in the institution for long periods, and, in a sense, are little more than boarders and make small demands on the nursing and medical staffs. Patients of this class require much less in many other ways than do acute cases. For instance, they require little laundry work as compared with acute cases. Hospitals catering to this class will get along with about one-half as many laundry employees, and the linen not being washed so often lasts much longer. Neither do these patients require such varied and expensive diets as do those acutely ill. Numerous other items of expense are similarly influenced.

AFFILIATION OF HOSPITALS WITH MEDICAL SCHOOLS

The hospital which is connected with a medical school usually does more for its patients than does the hospital without such connections, and this results in increased cost. I have no statistics of American hospitals covering this point, but the average cost per bed occupied throughout the year in the London hospitals connected with medical schools is about \$600, and in those without medical schools \$550.

PRIVATE ROOM SERVICE

The larger the proportion of private room to ward patients the larger will be the average cost per patient, as the cost of caring for a private room patient is usually double the cost of caring for a ward patient. This is one reason why municipal hospitals generally have a lower per capita cost as, ordinarily, they have no accommodations for private patients.

A number of hospitals provide paid resident staffs for their private service, thus materially increasing their pay-rolls.

There is a general belief that large institutions should have lower per capita costs than small ones. As a matter of fact, it does not work out this way in practice. The big institutions are generally conducted on broader lines than are the small ones; they have more varied activities. While they buy in larger quantities and are thus enabled to obtain somewhat better prices, it is much more difficult for them to enforce economies and to prevent waste. In the small institutions the superintendent is able personally to supervise most of the details and to enforce frugality in the use of hospital supplies. In the large institutions responsibility is divided. And as economy in purchasing supplies does not influence the per capita cost nearly so much as economy in using supplies the smaller hospitals usually have lower costs.

Some hospital officials assert that their physicians are extravagant and attempt to explain their high per capita costs in this way. This accusation ordinarily is unjust and not borne out by the facts. A study of the expenditures of a number of hospitals with a per capita cost of about \$1.50 a day showed an average cost per patient per day for medical and surgical supplies of fifteen cents, while an equal number of hospitals with a per capita cost of \$2.50 a day showed an average cost of nineteen cents per patient per day for these items. In other words, the hospitals with the higher per capita costs spent only four cents more per patient per day for medical and surgical supplies, leaving ninety-six cents of their excess cost to be otherwise accounted for.

The question has been raised as to whether or not it is practicable to standardize hospital costs. It seems to me that any attempt to do so must meet with failure. I can understand how the costs of individual institutions can be standardized, but I cannot understand how it is possible to apply cost standardization to hospitals as a body in view of the fact that the work done by them and the conditions surrounding them vary so greatly. It would be just as reasonable to attempt to standardize the costs of two watch factories, one of which is producing a fifty dollar watch, and the other a one dollar watch.

The wise hospital superintendent will try to obtain a reasonable per capita cost for his particular institution, not so high that it will invite charges of mismanagement and extravagance nor yet so low that it suggests parsimony and inadequate care of patients.

He will not attempt to make the expenditures of his hospital conform closely in all details with those of some other hospital, or group of hospitals, as he will recognize that each institution, owing to its peculiar conditions and the character of the demands made on it, is more or less a law unto itself.

12 West Sixteenth Street.

ABSTRACT OF DISCUSSION

DR. CLEVELAND H. SHUTT, St. Louis: In comparing our public hospitals with those of Europe, I think that the situation has been satisfactorily explained by the statement that the differences are due entirely to the governmental differences of the country. European institutions are controlled by more or less permanent influences; our institutions are subject to fluctuating influences; consequently, we cannot establish standards and feel that they will be maintained indefinitely.

The question of how we are to establish satisfactory permanent systems for municipal institutions ought to be solved by this and other allied societies interested in hospital work. We know of a number of cities which have expended immense sums of money, in some cases millions, for institutions, and the results have not been, to say the least, a source of pride. We know of cities that have spent moderate sums of money and have enjoyed good management for a period of a few years and then they begin to have unsatisfactory results. In only one or two of our American cities has a city institution of great size given continuously satisfactory service. I think that the Boston City Hospital can be cited in particular. This is a situation which ought to be corrected. I do not pretend to have a solution of the problem, but I have thought of a number of points on which I should like to offer suggestions.

The only way that we can obtain permanency of system for our American institutions is by establishing a medical service in them which will be so satisfactory to the people and profession that they will not permit a retrogression.

The essayist outlined a splendid and proper line of executive control, namely, a board of directors or trustees who shall have complete and full control of the institution in every particular—in the selection of superintendents, erection of buildings, purchase of supplies and appointing of all classes of employees, including the medical staff.

After a body of this kind is organized they should first give the best treatment to the patients who come to the institution. How can this be done? I believe it has been worked out with eminent satisfaction in a number of European hospitals, especially in Vienna, Berlin and London. In England the college hospital has proved eminently satisfactory. In Europe the best medical men in the community have charge of sections of public institutions of which they have full charge and for which they are responsible. The chief

practically has control of the appointment of his associates and they form a complete and independent organization for each department. There is opportunity for continuous development of good men for the institution and this gives the public the proper confidence in the institution.

Some of the best men in every community are willing and anxious to engage in public hospital service, provided they can be assured of permanency of position and freedom of opportunity for scientific advancement.

Every city, of course, has its local conditions. A city which has only one medical college can work out its public hospital organization without much trouble. There may be difficulty in installing the hospital-college plan, because certain medical men may have positions of medical influence and may hesitate, in the beginning, to accept an inferior position, but this is, I think, for the medical profession to consider seriously. I believe that we hospital men should decide what we would like to do, then go before the medical profession stating that we desire their assistance in establishing something which is going to be permanent for them, for us and for the community, stating that it is going to require some sacrifice on their part in the beginning. I believe that medical men will sacrifice willingly, because I have seen a demonstration recently in my own city, in the reorganization of one of the universities there in which the entire faculty resigned. The majority of them could have held their positions without any question, but they simply resigned for the good of the cause. They said to the board of directors, "You gentlemen appoint a new faculty with the idea of securing as good men for the school as the facilities and accommodations will attract."

MR. W. B. STRATTON, Detroit: Just a suggestion on the matter of plumbing in connection with the hospital. I find that the plumbing boards of this country have developed thoroughly along certain lines, but have not as yet taken up the plumbing of hospitals except to put out catalogs and mark "hospital plumbing" on them. "Hospital plumbing" is their ordinary every-day office-building and hotel plumbing picked out as though it would do for a hospital. I would suggest to the surgeons that they try to think out what they consider ideal in the way of fixtures. They will find the plumbing trade ready to meet them.

THE PSYCHOPATHIC HOSPITAL IDEA *

E. E. SOUTHARD, M.D.
BOSTON

Naturally we are still much occupied with preaching the gospel of psychopathic hospitals in America, since, after all, the realization of our long-cherished ideals is extremely recent (Psychopathic Ward of University of Michigan Hospital, 1906; Psychopathic Department of Boston State Hospital, 1912; Phipps Psychiatric Clinic of Johns Hopkins Hospital, Baltimore, 1913). Nor is the foundation work, which led to the establishment of these three somewhat similar but in many ways contrasted institutions, a matter of very ancient history.

To be sure, Griesinger's idea was early implanted in some American minds. My colleague, Dr. D. H. Fuller, has called my attention to Dr. Pliny Earle's utterance¹ of 1867.

* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

* Being Contributions of the Psychopathic Hospital, Boston, Mass., No. 1913-26. Bibliographical Note.—The previous Psychopathic Hospital Contribution entitled, "A Study of Human Behavior" by Prof. M. Yerkes, will appear shortly in the Boston Medical and Surgical Journal.

1. Earle, Pliny: The Psychopathic Hospital of the Future, address at laying of the corner stone of the General Hospital for the Insane of the State of Connecticut, June 20, 1867, Utica, N. Y., 1867.

Carbon agglomerated is charcoal. Carbon crystallized is diamond. What charcoal is to the diamond, such I believe, is the psychopathic hospital of the present compared with the psychopathic hospital of the future. . . . When the defects which I have mentioned shall have been thoroughly remedied by a comprehensive curriculum, a complete organization, a perfect systematization, an efficient administration, the charcoal now just ready to begin the process of crystallization will have become the diamond and the world will possess the psychopathic hospital of the future.

The movement which interests us is more modern. I think especially of Mosher's Pavilion F; of the New York Lunacy Commission's Pathological (later Psychiatric) Institute; of the institution of modern clinical laboratories at Danvers and Worcester, Mass., and at the Government Hospital for the Insane, Washington, D. C. Earlier still we must remember Cowles' work of introducing the seminary idea into insane hospitals and of encouraging science of several sorts in their laboratories, of the early Germanizing and later individual stimulation of American psychiatry by Adolf Meyer, of the extraordinary address of S. Weir Mitchell² at a meeting not so long ago of the American Medico-Psychological Association, which awoke echoes all about. Back of all this the university and modern scientific movement have contributed in ways impossible here to trace.

I embraced the opportunity to speak before the new Section on Hospitals of the American Medical Association because I knew that many, if not most, of its members would be practical men in charge as a rule of general hospitals. From my general hospital experience I know how important are the proper arrangements for the insane in general hospitals, and I wish to urge unconditionally that their superintendents look to it either to give their insane patients proper accommodations within general hospitals or to spend time and energy getting their local communities to establish proper psychopathic hospitals.

Some of the best general hospital superintendents I have ever known have blinked this problem. Most of you are quite cognizant that excited and delirious patients are not getting proper treatment in general hospitals. The excuse for drugging and tying down the excited and delirious in general hospitals is that other patients are prevented from suffering thereby! The justification for chemical and mechanical restraint is therefore the greatest good to the greatest number.

The reply is simple. There is no excuse for not treating the excited and delirious in general hospitals by the methods long since elaborated in hospitals for the insane. These methods—hydrotherapy, special attendance, isolating-rooms and common sense—can all be supplied in general hospitals except hydrotherapy and isolating-rooms. I have no doubt that all will agree that this proper technic of therapy is not applied in more than a handful of general hospitals, if in so many as a handful, in America.

This topic is so much in my mind that I must be given leave to introduce my notion of the varied functions of the psychopathic hospital herewith. I would call especial attention to forthcoming work by Dr. Donald Gregg, who will give a statistical foundation for my statements, discussing the mortality of delirium tremens in general and insane hospitals, in a communication to be presented at the first annual conference of the Psychopathic Hospital in Boston. I beg leave here to quote Gregg's conclusions:

2. Mitchell, S. Weir: Address before the Fiftieth Annual Meeting of the American Medico-Psychological Association, Philadelphia, 1894; Proc. Am. Med.-Psychol. Assn., 1895, 1.