

questioning by a competent and experienced investigator. Certain people will lie about their financial condition just as certain others will lie about their taxes or income returns. Experience has shown that in our clinic only 2 per cent. cannot be accepted at their face value, and, as stated, we do not believe that these 2 per cent. are particularly desirable patients for a private practice. It would require the services of a large number of full time workers to make any attempt at more than occasional home investigation, and it has been reckoned that such calls would cost, on an average, from 30 cents to 50 cents for each patient, or from \$6,000 to \$10,000 a year for our clinic. It must be recognized that a medical clinic is fundamentally a relief charity rather than a corrective one. As a matter of fact, the Washington University clinic spends nearly \$100 a month in the matter of investigation to avoid this so-called dispensary abuse, which is a sum, I venture to say, larger than is spent in any other clinic in the United States for the same purpose. We recognize that abuse to a certain extent does creep in, and the committee discussed the question with many physicians with the hope of obtaining some sensible and practical suggestions of methods of elimination. So far the criticism has been purely destructive in character.

At times the dispensary workers feel that the statements made by applicants are untrue. Recognizing that people will often balk at putting in writing what they have stated orally, a simple printed form to be signed stating that the applicant is unable to pay for medical services is desirable, under such circumstances.

It may not be out of place to discuss here the question of patients applying for treatment to the dispensary and not asking or expecting free treatment. Most of these have become dissatisfied with their physician and state frankly that they have lost confidence in him. Many tell stories of gross negligence and incompetence, even malpractice, on the part of the physician. Although most of these stories may be discounted as exaggeration on the part of the patient, it is nevertheless true that many have been "abused" by their physician. These persons do not ask free treatment; they ask only to be referred to a competent physician in whom they can have confidence. The dispensary has a definite moral obligation to the individual and to the community in these cases, and the dispensary admitting office refers them to members of its staff who are also practicing. In these cases the patient and physician do not come into touch with one another at the dispensary, and the patient is referred to the physician without his knowledge. No honest criticism can be directed against this method. The practice of physicians working in a dispensary referring patients to their private offices under the guise of more time required for proper treatment, etc., is an entirely different proposition, and is mentioned only to be condemned.

SUMMARY

Inquiry has shown that a definite standard of financial suitability for admission to free dispensaries has not been based on a study of the economic principles involved. There are two more or less distinct purposes for which dispensaries have been established, namely, for purposes of medical education and as a means of furnishing free treatment to the indigent poor. Each type of dispensary serves a purpose valuable in itself to both the medical profession and the public. Although it is natural to consider whether the

same standard of admission is suitable for each type of dispensary, no such difference has been used in working out the standard described in this paper. A basic income has been worked out for various types of families and individuals, below which patients should receive free medical services, and a classified scale is described for extending this standard for specified purposes.

The problem of dispensary abuse is in reality not so big as it is generally considered. Investigation shows that the actual percentage of abuse, where an effort is made to eliminate it, is small, and that but 2 per cent. of the patients being treated at the Washington University Dispensary are financially unsuitable for treatment. The various means so far suggested to eliminate this 2 per cent. are impractical.

St. Louis Children's Hospital.

A CRITICAL ANALYSIS OF OUTPATIENT WORK FROM THE POINT OF VIEW OF EFFICIENCY *

LOVELL LANGSTROTH, M.D.

SAN FRANCISCO

This statistical study of a number of records of the medical department of an outpatient clinic has been made in the hope that a consideration of the end-results of the various examinations and diagnostic procedures might make for greater efficiency in outpatient work. Such a clinic as the one in which these records were made is coming to do a larger and larger part of the medical work of the community and is, morally at least, responsible to the community for the speed and effectiveness with which it does the work. Time is an item of the greatest importance to these patients, particularly because its loss entails a much larger decrease in income to them than to those of a higher social status. For this reason the time element has been considered along with the other factors in estimating efficiency.

Three hundred and forty-eight records form the basis of this report. Cards were headed with the following questions, the records examined with these points in mind, the case number noted on the card, and the tables and conclusions made later.

1. Age.
2. Sex.
3. Number of visits necessary for diagnosis.
4. Visits after diagnosis.
5. Visits insufficient for diagnosis.
6. Diagnosis made.
7. Roentgen-ray examinations.
8. Von Pirquet tests.
9. Laboratory tests (sputum, stool, blood, kidney function, test-meal, Wassermann).
10. Referred to the hospital.
11. Referred to other departments of the outpatient department.
12. Benefited.
13. Returning after three months.

1. *Age*.—The curve plotted in the accompanying chart shows that the second and third decades present a larger percentage of attendance than any of the others. The curve reaches its summit at the third decade, with 23 per cent. of the whole number of patients, and then sinks steadily to the eighth.

* From the University of California Medical School.

Table 1 shows the frequency of the more common diseases in the different decades. Disease of the circulatory system and nephritis increase steadily in frequency with the age up to the seventh decade. Tuber-

TABLE 1.—FREQUENCY OF DISEASES BY DECADES

	Decade							
	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Number of cases.....	22	78	81	66	54	36	8	3
Percentages:								
Heart.....	..	7	9	13	25	41	37	33
Tuberculosis of lung....	9	11	9	12	11	8	12	
Syphilis.....	..	2	8	9	5	2		
Arthritis.....	13	3	8	12	9	13	25	
Nephritis.....	..	2	6	4	9	11	25	
Ulcer of stomach and duodenum.....	..	3	6	7	3	2		
Prostatitis and urethritis.....	..	3	4	1	3			
Thyroid.....	4	6	2	6	7			
Appendicitis.....	..	2	1	3	3	5		
Diabetes.....	..	..	..	..	11	11		
Carcinoma.....	..	..	..	3	3	2		
Pernicious anemia.....	..	..	..	..	3	2		
Cholecystitis.....	4	2	1	4				
Visits insufficient for diagnosis.....	27	17	9	9	5			

culosis is pretty evenly distributed throughout the whole series. Syphilis plays a proportionately greater part as a diagnosis between the ages of 30 and 50 than at other ages, and the same can be said of ulcer.

All the cases of diabetes and pernicious anemia are found in the sixth and seventh decades. A rather remarkable fact demonstrated is that the younger patients are much less liable than the older ones to return a sufficient number of times to permit of a diagnosis being made.

2. *Sex.* — There were 192, or 55 per cent., of male, and 156, or 45 per cent., of female patients.

3. *Number of Visits Necessary for Diagnosis.*

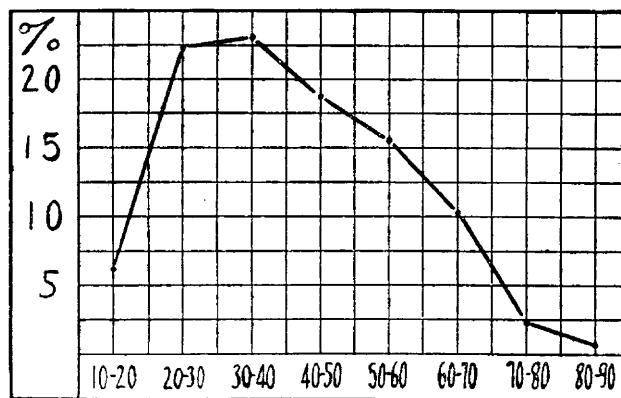
—An outpatient department is in the position of having to do a large amount of work speedily, but above all accurately. Because of reasons already mentioned, time is an important consideration to these patients, and, so far as possible, the aim should be to come to some definite conclusion as to the cause of the patient's symptoms with the minimum number of visits. If the cases are grouped according to the number of visits necessary for diagnosis, the results given in Table 2 are obtained.

The number of visits required proportionately by each of the more frequent diseases is given in Table 3. Eighty-four per cent. of the cases of tuberculosis of the lungs were diagnosed in three visits, a fairly good result considering the difficulty of determining whether a lesion in the lung is or has been tuberculous and whether it is or is not active. That so large a number should have had to come more than twice is due to the repeating of sputum examinations which proved negative on the first search for tubercle bacilli. The advisability of thus repeating the sputum examination is questionable, and the examiner would probably do better to rely on his history and physical findings, hav-

ing only one sputum examination to aid his clinical judgment. Disease of the heart or vessels was generally easily determined, the question here being just what part the kidneys played in the clinical picture. In many of these cases the phenolsulphonephthalein test was performed, this necessitating an extra visit. As will be shown later, this test is of doubtful benefit in the type of cases seen oftenest in the outpatient departments, and the extra visit which it requires might well be saved by its omission. Thyroid dystrophy, diabetes, appendicitis, syphilis and bronchitis were practically all diagnosed in two visits. Nephritis required usually two or three. Eliminating the phenolsulphonephthalein test here, too, would reduce the number of visits made by these patients by 40 per cent. Ulcer cases in which test meals and roentgenograms were taken as a routine required three or four visits, and this number does not seem too high when the amount of work necessary is considered. It seems possible, then, to reach in two visits a conclusion as to the cause of the patient's symptoms, in the commoner diseases, excluding, of course, ulcer.

4. *Visits After Diagnosis.*—Of the whole number, 133, or 38 per cent., returned after a diagnosis had been made. It is not possible to determine from the records just what percentage lived outside of this city,

but the impression is left that a definite number come from the country to the clinics merely for diagnosis and form a part of the 62 per cent. who never return. Another part is formed by those who are reassured when informed of the triviality of their complaint. Others fail to return after they have established the nature of their ailment because we can give them practically no assurance of any considerable benefit that will result. Much of the patient's attitude toward his disease



Percentage of attendance by decades: the ordinates represent the percentage of patients, the abscissas the decades. The second and third decades show a larger percentage of patients than any of the others.

is reflected from that of his physician. If the latter is hopeful of improvement, the patient will be correspondingly so. The introduction of the principle of focal infection has marked a great advance in therapy in that improvement may be looked for in cases which heretofore have been treated only symp-

TABLE 2.—NUMBER OF VISITS NECESSARY FOR DIAGNOSIS

Visit at Which Diagnosis Was Made	Number	Percentage of the Whole
First.....	95	27
Second.....	82	24
Third.....	45	12
Fourth.....	20	5
Fifth or later.....	13	3

tomatically. Many patients who are instructed to return from time to time but fail to do so could be brought back to the clinic by a follow-up system.

5. *Visits Insufficient for Diagnosis.* — Forty-one patients, or 11 per cent. of the whole number, did not make a sufficient number of visits to justify making

a diagnosis. This means a large loss of time and efficiency, part of which could be avoided. A certain portion of the responsibility for this falls on the physician either because he is unable to form a judgment as to the cause of the complaint or because he does not impress the patient with his ability to do so. A larger share, however, must rest with patients who, after taking whatever time is necessary for a preliminary examination, fail to return for completion of the work. Many of these people could be eliminated by the institution of an examining department to which the patient would be referred immediately after registration. Here a brief survey could be made without writing elaborate records, and, if the complaint did not merit further attention, the patient could be dismissed at once. This would sift out the greater part of the class who do not return a sufficient number of times for diagnosis, and at least assure that the more important cases received the proper time and attention.

6. *Diagnosis Made*.—A diagnosis was not found on sixty-eight, or 19 per cent. of the cards. Subtracting the number of patients who did not come sufficiently often to establish a diagnosis, there remain twenty-seven cases, or 7 per cent. of the whole number, in which a definite opinion could not be reached.

7. *Roentgen-Ray Examinations*.—Roentgenograms were made for eighty-four, or 24 per cent., of the patients. They play by far the largest part in the diagnosis of gastro-intestinal conditions, but large numbers have been taken to show joint lesions and in search for alveolar abscesses. In fifty-six cases, or 66 per cent., of those who had roentgenograms, the plates or screen examinations showed a pathologic process. The remaining plates were negative except so far as they helped to rule out certain conditions.

8. *Von Pirquet Tests*.—Tuberculin skin tests were done quite frequently in the first half of the series, and then almost completely abandoned. Altogether the test was performed on twenty-six patients, or 7 per cent. of the whole number. Table 4 shows the results.

In three cases the results are not recorded or the patients failed to return for a reading of the test. It

out sputum examinations, sometimes because there was no expectoration, and sometimes because it was considered desirable to place the patient in the tuberculosis clinic at the earliest possible moment. Generally it would seem best to make only one examination of the sputum.

(b) Stool examinations were made for forty-eight patients, or 13 per cent. of the whole. Pathogenic amebas were found three times, *Taenia uncinaria* and *Trichomonas* each once. Occult blood was found in

TABLE 4.—RESULTS OF VON PIRQUET TESTS

Von Pirquet Test	Final Diagnosis		
	Process Active	Process Arrested	No Tuberculosis
Slight.....	1	2	4
Moderate.....	4	0	3
Marked.....	1	2	2
Negative.....	0	0	4

ten cases. Five of these were ulcer, three were carcinoma, in one the diagnosis was doubtful, and in another the test showed the merest trace. The presence of occult blood in the stools while the patient was on a meat-free diet seems to have had great significance in this small series of cases.

(c) Blood examinations were made in thirty-two, or 9 per cent. of the total number. Among the patients on whom complete blood counts were made there were three cases of pernicious anemia, one case of chlorosis, one case of hemolytic icterus, and five cases of secondary anemia due, respectively, to uncinariasis, chronic tonsillitis, carcinoma of the pancreas, menorrhagia and Hodgkin's disease. Plasmodia were found twice. In all, about 31 per cent. of the blood examinations were negative in spite of the fact that the counts were made by the examining physician himself.

(d) The phenolsulphonephthalein test for kidney function was done twenty-six times, or in 7 per cent. of the cases. The time required by it can be ill afforded unless it gives definite and decisive information. It was used rather frequently during the first half of the series, and then given up almost entirely because it was felt that the results did not justify the expenditure of time. Although there were fourteen cases with a blood pressure of 160 or higher, and eleven of these had albumin in the urine, there was only one patient with hypertension who had a phenolsulphonephthalein excretion of under 50 per cent. in two hours. We must suppose that some of these cases had a certain amount of kidney damage, but the phenolsulphonephthalein test does not enable us to distinguish the mild nephritides from the simple hypertensions, at least not as demonstrated in this small series.

(e) Test meals were given in fifty-five cases, or in 15 per cent. of the whole number of patients. Except for ten cases in which the fractional method was used, the Ewald meal was employed as a routine and the stomach emptied in three quarters of an hour. On a number of the histories the data obtained are absent in part so that there remain but twenty-two cases in which the full results were satisfactorily recorded. Ten of these had a content of 100 c.c. or over, and among the ten there were six cases of ulcer, one case of pyloric stenosis, probably from an old ulcer, one case of perigastric adhesions, and one case with frequent blood in the stools and much nausea but a negative Roentgen-ray examination. Seventy per cent. of

TABLE 3.—PROPORTIONATE NUMBER OF VISITS REQUIRED

Disease	No.	Number of Visits for Diagnosis				
		1 per Cent.	2 per Cent.	3 per Cent.	4 per Cent.	4+ per Cent.
Tuberculosis of lungs.....	41	34	29	21	7	7
Circulatory system.....	50	50	34	12	4	
Arthritis.....	29	55	34	10		
Thyroid.....	13	61	23			
Diabetes.....	9	77	22			
Appendicitis.....	6	100				
Syphilis.....	16	31	68			
Bronchitis.....	7	57	42			
Nephritis.....	20	10	40	40		10
Ulcer.....	14	..	21	42	28	7

would seem that the von Pirquet test as done in this small series of cases was of no value except when negative.

9. *Laboratory Tests*.—(a) Sputum examinations were made for thirty-six patients, or 10 per cent. of the whole series. In some cases the examination was repeated two or three times. Tubercle bacilli were found only five times, influenza bacilli once. Thus there were about 83 per cent. of negative examinations, and in three cases the specimens were from patients with very evidently active tuberculosis. The diagnosis of active tuberculosis was made in twelve cases with-

the patients in the series with an abnormally high content were ulcer cases, 60 per cent. complained of vomiting, and 30 per cent. showed a residue in six hours by the Roentgen-ray examination. Twelve patients had a content of less than 100 c.c. Twenty-five per cent. of these were ulcer cases, 25 per cent. complained of vomiting, and none showed a six-hour residue by the Roentgen-ray examination. Of those that vomited, two were not stomach cases. Thus a stomach content of 100 c.c. or more in these patients was frequently accompanied by ulcer and by a history of vomiting, and the Roentgen ray often confirmed the delay in the passage of the stomach content to the duodenum. On the other hand, a content of less than 100 c.c. was infrequently accompanied by ulcer, and when there was a history of vomiting it was more often due to gallbladder or perigastric disease. The fractional method did not give results that justified the large expenditure of time.

(f) The Wassermann test was made on 169 patients, or 48 per cent. of the whole number. Syphilis was diagnosed in twenty-one, or 6 per cent. of the cases, six times when the test was negative. Among the fifteen who had a positive Wassermann test, eleven, or 73 per cent., showed signs that suggested syphilis at once, and four, or 26 per cent., though they did not show these signs, gave a history of a genital sore which would have led to a Wassermann test. These figures suggest that syphilis is discoverable in the history or in the physical examination in the vast majority of cases. Eighty-seven per cent. of the patients whose blood was tested had a negative report and did not present enough evidence to diagnose syphilis, though a certain number gave a history of a soft sore or had an enlarged spleen or fundus changes. The conclusion is evident that the complement fixation test was used in a great many cases for insufficient cause.

10. Twenty-nine, or 8 per cent., of the patients in this series were referred to the hospital for investigation or treatment. Twenty-two, or 74 per cent. of those admitted, were given an admission diagnosis which was corroborated or not made more definite in the hospital. The efficiency of the outpatient department, then, as regards cases which could be more fully investigated was roughly 75 per cent.

11. One hundred and ten, or 31 per cent., of the patients were referred to other departments of the outpatient department for examination and advice. A few of these cases were frankly not medical, but most of the number had been properly sent to the medical department for examination. Sending these patients for consultation is a very time consuming procedure, for it usually means that the patient is obliged to spend another morning to get the opinion of the department to which he is referred, and still another to report to the medical department again. This can be avoided by equipping the medical department so that the ordinary pelvic, prostatic, ophthalmoscopic and orthopedic examinations may be made without referring the patient to another department. In the greater number of cases the opinions thus obtained are sufficient for diagnosis and the patient can later be referred to the proper department for treatment when this is necessary.

12. It is found very difficult to obtain from records any definite idea of just what benefit, if any, is experienced by the patients. An examination of the 348 records shows that 130 have had some benefit from their treatment but that the remaining 218, or

62 per cent., cannot be said to have profited from their visits to the clinic. This number, of course, is largely made up of patients who failed to return a sufficient number of times for diagnosis, of those who for some reason could not return, of those suffering from conditions which by their nature were not liable to improvement or even to alleviation, and finally of those who unfortunately were incorrectly diagnosed. It is possible that early and thorough treatment of gonorrhea, prolonged treatment of syphilis, proper oral hygiene, and care of necrotic teeth will prevent the development of many cases of chronic arthritis, endocarditis and nervous and circulatory disease, so that in the next ten or twenty years the number of patients benefited will increase. The fact remains that 62 per cent. of the patients in this series failed to show any improvement.

13. In order to get an idea of the hold that the clinics have on the patients, the total period of time that they visited the department was noted. It was found that only sixty-one, or 17 per cent., returned after three months, in spite of the fact that they are urged to return from time to time for advice or further treatment, and that the ones who did return after this period were usually those on whom the examining physician had more or less of a personal hold. The speed with which the case was handled was also a factor.

CONCLUSIONS

It is obvious from an examination of the preceding figures that the number of cases is too small to determine the value of the different laboratory procedures. They are merely suggestive and might form the basis of future investigation in which a larger number of cases could be considered with these points in mind. Certain facts are brought out, however, and the following conclusions seem justified:

1. Thirty-eight per cent. of the patients failed to return after diagnosis. The introduction of a follow-up system would decrease this percentage.

2. Eleven per cent. of the patients did not return a sufficient number of times to justify making a diagnosis. The institution of a department for preliminary examination of the patients is suggested in order to assign the cases to the proper departments and to eliminate those who come for trivial causes.

3. There were twenty-seven cases, or 7 per cent., of the whole number, in which it was not found possible to make a definite diagnosis.

4. Seventy-five per cent. of the patients sent to the hospital for further examination or treatment had a correct admission diagnosis.

5. Much of the time lost in referring patients to other clinics for consultation might be saved by equipping the medical department for the commoner special examinations.

6. Only 38 per cent. of the patients in this series were benefited by their visits to the clinics.

7. Eighty-three per cent. of the patients did not return to the clinics after three months.

I feel that those who have taken an interested part in outpatient work will agree that there is here the same need for careful attention to detail and effectiveness as in hospital work, but that this is rarely given. The figures show that this work, when considered from the point of view of the end-results, is disappointing, and they are given with the hope of stimulating interest in outpatient work and raising its standard.

240 Stockton Street.