FORECAST AND FOLLOW-UP

AN INVESTIGATION INTO THE CLINICAL, SOCIAL, AND MENTAL FACTORS DETERMINING THE RESULTS OF HOSPITAL TREATMENT

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THE PROBLEM

The investigation reported here is based on three previous publications (Querido, 1954; Weijel and Willemse, 1955; De Levita, 1958).

In the first of these it was determined how far somatic illness was accompanied by mental and/or social stress in a random sample of patients of a general hospital. Such stresses were present in a little over 50 per cent. of a sample of 200. An attempt to systematize various forms of stress resulted in the following classification: somatic, psychosomatic, psycho-somatic-social, and parallel problems.

In the second investigation an attempt was made to determine how the needs of a sample of hospital patients could be met if problems other than those arising from the somatic illness were found to be present. In this second sample (315 cases) it was found that 44 per cent. were suffering from tensions and stresses apart from the somatic complaint which had necessitated hospital admission. It was estimated that 12 per cent. needed psychiatric consultation in order to establish diagnosis and decide upon a programme of treatment, 15 per cent. needed psychiatric treatment after discharge, 27 per cent. needed supporting treatment by the family doctor, 41 per cent. needed after-care or case-work by a social worker, and 5 per cent. needed the care of a priest.

These results indicate that many patients admitted to a general hospital may be burdened by stresses which may or may not be interwoven with the somatic illness but may well impede the chances of complete recovery and so diminish the effect of the labours of the hospital staff.

The question therefore arises whether the chances

of recovery are better for patients unburdened by stresses than for patients who are bearing stresses they are unable to handle.

The answer might be found by carrying out a follow-up survey; if during the hospital stay it should be noted that some patients suffer from stress and others do not, an investigation of their condition some time after discharge might show a difference in the recovery frequency of the two groups.

De Levita (1958) ran such an investigation as a pilot study; he limited his sample of 376 patients to surgical cases and had only one contact with the patient, *i.e.* the follow-up visit, in which he both ascertained the degree of recovery and the presence or absence of stresses.

His conclusion was that 38 per cent. of his sample was not burdened by stress and that a significantly larger number of these patients had recovered, in comparison with the burdened group.

On the basis of these preliminary investigations it was decided to place the problem in a wider frame of reference and at the same time to attempt a numerical measurement. It was hoped that a method might be devised which might be used by the clinician in considering prognosis and therapy and might help him to forecast the result of the clinical endeavour more accurately.

The following questions were formulated:

- (1) Is it possible on the basis of a routine method to assess the presence of mental and (or) social stresses in a patient admitted for a somatic illness to a general hospital?
- (2) If so: is there a relation between this assessment and the condition of the patient as ascertained in a follow-up investigation?
- (3) Are the assessments under (1) and (2) related to the purely clinical assessment, *i.e.* diagnosis and prognosis?

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- (4) If relations under (2) and/or (3) are found to exist, is it possible to distinguish in the assessment under (1) factors which might play a specific role in these relations?

METHODS

(1) *Method of Integrative Assessment.*—The technique of the biographical case-history—in contrast to the ordinary case-history of clinical routine—will be familiar. Extensive talks with the patient, with relatives, and with persons from narrower and wider circles of contacts are necessary, supplemented by social and socio-medical data. Usually the number of working hours required for a biographical case-history is not less than 7, and normally it takes more than double this time. For scientific purposes this method may be indispensable, but it cannot be used as a routine procedure in the wards of a general hospital.

A method was therefore devised to enable a rapid assessment of the nature and intensity of the mental and social problems of the patient to be integrated with the clinical data. Furthermore this information was recorded in such a way that quantitative processing was possible.

To fulfil these conditions the so-called psychosocial case-history form described by Weijel (1958) was used. This form comprises a compact survey of the patient's life-history in which important and traumatic occurrences can be found without trouble, and allows the investigator if possible to gain an impression of the patient's life-attitude, ambitions, and aspirations, and the way in which these have been or are being fulfilled (see Appendix).

The completion and assessment of the psychosocial case-history was the task of a team of three (a general physician, a social worker, and a psychiatrist) working parallel to but independent from the ordinary hospital staff for the purpose of this investigation.

The general physician was a young man who filled the role of ward-doctor or family physician. It was his duty to establish and to maintain the contact with the patient and to interpret to those in the hospital who decide the fate of the patient, his human as well as his medical history. The psycho-social case-history was started within 48 hours of admission, and at the same time the general physician took note of the clinical findings. Next the case was discussed by the team. In some instances it was possible at this early stage to reach an opinion concerning the presence of stress and its nature; in others either the social worker or the psychiatrist felt the need of more extensive data. These might be provided by the general physician or the psychiatrist or social

worker might make his own investigation. After the required data had been gathered the team met again and this time attempted to reach a definite conclusion. Previous history and the patient's behaviour in former difficulties, his attitude towards actual problems, and his subjective expressions were taken into account.

A decision did not rest upon the question whether stress was adjudged to be present but upon the question whether the patient was hampered by his problems. When it was decided that the patient was not able to handle his problems and was hampered or burdened by them, the team used the expression *distress*. When problems were mentioned by the patient but the team judged that he was able to manage them, the expression *stress* was used. In this article, therefore, "distress" refers to social and/or psychic tensions too heavy for the patient to bear, while "stress" refers to tensions which are satisfactorily integrated in the patient's life-pattern. The term "somatic" means that no distress could be found or that the somatic illness was so serious that it dominated the entire picture. The type of "distress" was classified as follows: psychic only; psychosomatic; somatic with psychic parallel problems; somatic with social parallel problems; somatic with psychic and social problems.

Furthermore, the work of the team was observed by a psychologist, who followed its groupdynamic action and studied the way in which its judgment came into being. In this way it was possible to prevent the judgment of the team being distorted by the domination of any one member.

If it be agreed that the team's assessment may be considered as an integrated evaluation of the patients' problems the questions to be answered may be stated simply as follows:

- (1) What is the value of integrated and clinical assessments in relation to the patients' condition in the follow-up?
- (2) Does the integrated assessment contain specific elements, and if so, are these elements different from those which comprise the clinical prognosis?

(2) *Method of Follow-up Assessment.*—An attempt was made to visit the patient in his home 6 months after discharge. It was not always possible to keep exactly to this period, which in some cases extended to 18 months, the average being 7 months after discharge.

The follow-up investigation was carried out by a physician who knew the contents of the clinical case-history, but was unaware of the psycho-social data

and the team's assessment. In reaching a conclusion on the condition of the patient, objective data (behaviour, resuming of work) as well as subjective observations were taken into account. It was not intended that factors of stress should be examined again, and, although it was sometimes unavoidable to touch on these subjects during the visits, these findings were never used to change the original assessment of the team. The doctor undertaking the follow-up was unaware of the conclusions of the team and the team was not told about his conclusions to avoid bias in the later stages of their work.

There was some difficulty in formulating the follow-up assessment. The term "cured" could not be used, because it required a distinction to be made between anatomical, physiological, and functional cure, and between objective and subjective cure. For some time the term "benefit" was used, but this was finally rejected because it seemed to imply a too direct causal relationship between hospital admission and the later condition of the patient. Finally the neutral terms "satisfactory" and "unsatisfactory" were chosen, and these are used in the rest of this paper. Cases were assessed as "satisfactory" when the patient was:

- (a) free from any complaint;
- (b) suffering from typical residual complaints (pain in scar, etc.) only;
- (c) free from any complaint for a time but now showing sharply-defined symptoms which could not possibly be related to the illness for which he had been admitted to hospital.

The term "unsatisfactory" was used for all other cases, in which the patient was: (a) free from complaints for some time but now experiencing a return of the former symptoms; (b) suffering from complaints equal to or worse than those experienced before admission; (c) slightly improved but substantially unchanged; (d) suffering from a recurrence, with or without a complaint-free period.

(3) *Clinical Assessment.*—The general physician made a prognosis in consultation with the department physician in the light of the clinical case-history. An attempt was made to estimate the patient's chances of recovery as accurately as possible (recovery in the sense of a return of well-being and a disappearance of the symptoms which had led to admission) having regard to the medical, technical, and somatic side of the problem. This assessment was meant to show how far the illness was reversible. The prognosis was recorded as "favourable" or "unfavourable".

The various assessments to be compared may thus be designated as follows:

<i>Assessment</i>	<i>Good</i>	<i>Bad</i>
(1) Integrated	No stress or Stress	Distress
(2) Clinical	Favourable	Unfavourable
(3) Follow-up	Satisfactory	Unsatisfactory
(4) Integrated Clinical	Right Confirmed	Wrong Not confirmed

DIGEST OF DATA

From each patient the data from the social-psychological case-history, clinical case-history, team assessment, follow-up, and prognostic assessment were coded and transferred to punch-cards. For each patient investigated the following facts were known: age; sex; civil status; religion; diagnosis on admission and discharge; duration of complaints before admission; duration of hospital stay; number of former admissions; results of laboratory examinations; death, divorce, and remarriage of parents; evaluation of parents as educators; composition of family of origin and number among siblings; schooling and profession; hobbies; situation in own family; financial condition; dwelling situation; employment.

CLASSIFICATION OF PATIENTS

A psycho-social case-history was taken of about $\pm$ 2,200 patients, admitted to the Weesperplein Ziekenhuis in Amsterdam*. No selection of patients was made. All patients were investigated who were admitted as from February 1, 1955, with the following exceptions:

- (a) Patients younger than 15 and older than 65;
- (b) Patients who on admission were in poor condition, great pain, or obviously dying;
- (c) Patients who could be expected to remain only a very short time, for instance for tonsillectomy;
- (d) When admissions were very frequent every other patient was excluded.

* The Weesperplein Ziekenhuis is a municipal hospital of 320 beds with departments of internal medicine, surgery, ear-nose-and-throat diseases, gynaecology, rheumatism, and paediatrics. Practically all patients admitted are insured with the sick funds under the sick funds legal arrangements. They pay 2.6 per cent. of their income and receive without extra cost all kinds of medical care, including hospital treatment. Recommendations for admission may originate from the family doctor, consultant, or hospital out-patient department. Before admission, patients thus insured are screened by a controlling medical board with which the decision rests.

Follow-up visiting started in December, 1955, and towards the end of 1957 follow-up visits had been concluded in 1,650 cases, and it was decided to stop the investigation. Omitting patients who could not be found, 1,630 were left, and these make up the sample studied in this paper.

In evaluating the material, it was assumed that the factors investigated were independent of each other, but when the difference between the actual results and the results expected on the basis of this assumption was larger than could be explained by chance, the assumption was rejected in favour of the hypothesis that the factors were related.

Since the sample was judged to be very heterogeneous and a great number of factors might influence the result, *P* was fixed at a very low value, *i.e.* 0.1 per cent.

If in this way a relation was found to exist, its direction was determined on social and medical grounds on the basis of the figures; it was not attempted to calculate this direction.

Table I reviews various demographical data of the patients as compared with the population of Amsterdam.

This Table shows that the percentage of unmarried among the patients is half that among the general population. The percentage of married is the same

in both groups. The percentage of persons widowed or divorced is three times as high in the patient-group as in the general population. The difference between the relative number of unmarried is partly explained by the difference in composition of the younger age groups. The percentage of older people in the patient groups increases with age, so that the oldest patient group is twice as large as the same age group in the population. But, even if we assume that all widowed and divorced belong to this oldest age group, this cannot explain the concentration of those whose marriage had terminated among the hospital patients.

While the number of women in the general population exceeds the number of men, the relative difference is much larger in the hospital population. The presence of the department of gynaecology is not sufficient to explain this difference. In all Amsterdam hospitals we find an excess of female patients of 14 per cent., but the excess in the Weesperplein Ziekenhuis is even larger.

The denominational grouping is compared with the data given in by the last official census, but this comparison may be of little value since the way in which religious affiliations was inquired into may have been totally different.

TABLE I
DEMOGRAPHIC DATA

Civil Status ..	Unmarried				Married				Widowed and Divorced				Total	
	No.		Per cent.		No.		Per cent.		No.		Per cent.		No.	Per cent.
Patients Population (15-64 yrs)	267		16.4		1,055		64.7		308		18.9		1,630	100
	172,542		31.1		348,541		62.7		34,655		6.2		555,738	100
Sex	Male				Female								Total	
	No.		Per cent.		No.		Per cent.						No.	Per cent.
Patients Population (15-64 yrs)	630		38.7		1,000		61.3						1,630	100
	267,717		48.2		288,021		51.8						555,738	100
Age Group (yrs) ..	15-19		20-29		30-39		40-49		50-59		60-65		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Patients Population (15-64 yrs)	105	6.4	244	15.0	311	19.1	374	22.9	396	24.3	200	12.3	1,630	100
	58,913	10.6	134,000	24.1	123,914	22.3	112,520	20.3	92,923	16.7	33,468	6.0	555,738	100
Religion	None		Protestant		Catholic		Jewish		Others				Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.		Per cent.		No.	Per cent.
Patients Population (entire)	593	36.4	656	40.2	337	20.7	29	1.8	15		0.9		1,630	100
	363,355	45.2	218,184	27.2	187,458	23.3	5,269	0.7	29,328		3.6		803,594	100
Geographical Distribution ..	Old East		City		New West		North		Old West	Old South	New South		New East	
	1:286		1:359		1:389		1:407		1:425	1:434	1:530		1:540	
Ratio of Patients to Population ..														

The geographical distribution shows that most of the patients lived in the districts which were closest to the hospital.

Thus Table I indicates that the hospital population differs appreciably from the general population of Amsterdam. It is not impossible that the population of the Weesperplein Ziekenhuis differs from that of other hospitals. These are most interesting questions which must, however, be left at present.

RESULTS

TEAM ASSESSMENT COMPARED WITH FOLLOW-UP ASSESSMENT

In 871 of the 1,630 cases the team reached the conclusion that no particular distress was present; in 759 cases distress was found. This result is shown by age group in Table II, and by sex in Table III. The Tables show no relationship between the occurrence of distress and the age or sex of the patients.

TABLE II
TEAM ASSESSMENT BY AGE GROUP

Age Group (yrs)	Under 29		30-49		50 & Over		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
No Distress	181	51.9	353	51.5	337	56.5	871	53.4
Distress	168	48.1	332	48.5	259	43.5	759	46.6
Total	349	100	685	100	596	100	1,630	100

$$0.1 < P < 0.2$$

TABLE III
TEAM ASSESSMENT BY SEX

Sex	Men		Women		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.
No Distress	342	54.3	529	52.9	871	53.4
Distress	288	45.7	471	47.1	759	46.6
Total	630	100	1,000	100	1,630	100

$$0.5 < P < 0.7$$

The follow-up showed that 817 patients were in a satisfactory condition and 813 in an unsatisfactory condition. Table IV shows that more persons under the age of 50 were in a satisfactory condition than would be expected by chance, Table V shows that the follow-up was not related to sex, and Table VI shows a positive relationship between absence of distress and a satisfactory follow-up.

Tables II, III, IV, V, and VI suggest that the follow-up assessment is related to the team assessment but that the team assessment is not related to age. Therefore the relation that exists between follow-up assessment and age (Table IV) does not underly the relation found between follow-up assessment and team assessment. It has also been shown

that sex is proved unrelated either to follow-up assessment or to team assessment.

TABLE IV
FOLLOW-UP ASSESSMENT, BY AGE GROUP

Age Group (yrs)	Under 29		30-49		50 & Over		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory	205	58.7	353	51.5	259	43.5	817	50.1
Condition Unsatisfactory	144	41.3	332	48.5	337	56.5	813	49.9
Total	349	100	685	100	596	100	1,630	100

$$P < 0.001$$

TABLE V
FOLLOW-UP ASSESSMENT BY SEX

Sex	Male		Female		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory	341	54.1	476	47.6	817	50.1
Condition Unsatisfactory	289	45.9	524	52.4	813	49.9
Total	630	100	1,000	100	1,630	100

$$P < 0.01$$

TABLE VI
FOLLOW-UP ASSESSMENT RELATED TO TEAM ASSESSMENT

Team Assessment	No Distress		Distress		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory	592	68.0	225	29.6	817	50.1
Condition Unsatisfactory	279	32.0	534	70.4	813	49.9
Total	871	100	759	100	1,630	100

$$P < 0.001$$

The various types of distress were distributed in the sample as shown in Table VII.

TABLE VII
TYPE OF DISTRESS

Distress						
	Psychic	Psychosomatic	Somatic/Psychic	Somatic/Social	Somatic/Psychic/Social	
	61	132	354	67	145	759
Somatic (= No distress)						
Total						

Table VIII (overleaf) shows that these various types bore a steady relationship to condition at follow-up, so that no particular type of distress influenced the results of the follow-up investigation in any specific way, although the presence of any type of distress was closely associated with an unsatisfactory follow-up.

TABLE VIII
FOLLOW-UP ASSESSMENT RELATED TO TYPE OF DISTRESS

Distress	Psychic		Psychosomatic		Som./Psych.		Som./Soc.		Som./Psych./Soc.		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory	19	31.1	37	28.0	106	29.9	19	28.4	44	30.3	225	29.6
Condition Unsatisfactory	42	68.9	95	72.0	248	70.1	48	71.6	101	69.7	534	70.4
Total	61	100	132	100	354	100	67	100	145	100	759	100

CLINICAL DIAGNOSIS AND PROGNOSIS COMPARED WITH FOLLOW-UP ASSESSMENT

The diagnoses recorded on discharge from hospital were classified in sixteen groups (Table IX). In this way a reasonable number of groups of sufficient size could be obtained, most of which were sufficiently homogeneous. However, six groups were still too small for statistical work (1, 2, 6, 11, 14, 15). These are shown in the left-hand corner of Fig. 3; together they contain 178 of the 1,630 cases.

Table X (1) shows that a relationship exists between the remaining ten diagnostic groups and the condition at follow-up. It appears, however, that for two groups (*viz.* 3. Circulatory System, and 12. Rheumatism) the unsatisfactory follow-up is exceptionally high, and if these two groups are omitted, the total findings (Table X (2)) are appreciably altered.

It may therefore be concluded that in the large majority of cases no relation exists between clinical diagnosis and condition at follow-up; apart from these two exceptions (3 and 12), no single diagnosis

TABLE IX
DIAGNOSTIC GROUPS

Diagnosis	Number of Cases
1. Malignancies ..	18*
2. Respiratory Tract (mainly chronic, bronchitis, asthma) ..	47*
3. Circulatory Tract (mainly arteriosclerosis and hypertension) ..	106†
4. Sex Organs (sterility, benign tumours, prolaps, hypertrophy of prostate) ..	243
5. Urinary Tract (Kidney disease, cystitis) ..	52
6. Digestive Tract (except 7, 9, and 10) (mainly chronic enteritis, chronic colitis, diseases of liver and pancreas) ..	48*
7. Appendicitis (acute and chronic) ..	306
8. Herniae ..	136
9. Diseases of the Gall-bladder ..	189
10. Ulcus ventriculi and duodeni ..	102
11. Disturbances of the internal secretory system (diseases of thyroid and diabetes) ..	25*
12. Rheumatism (mainly chronic) ..	53†
13. Accidents ..	101
14. Psychiatric Diseases ..	5*
15. Observation (no definite diagnosis on discharge) ..	35*
16. "Other diagnosis" (diseases of blood, acute infections of respiratory tract, diseases of bones and muscles) ..	164
Total	1,630

* Groups totalling less than fifty patients were regarded as too small for valid statistical work. Omitted from Table X (1).
† Too heterogeneous. Omitted from Table X (2).

TABLE X
FOLLOW-UP ASSESSMENT RELATED TO DIAGNOSTIC GROUPS
(1) Omitting 1, 2, 6, 11, 14, 15

Diagnostic Group ..	3		4		5		7		8		9	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory	37	35	114	47	26	50	181	59	84	62	98	52
Condition Unsatisfactory	69	65	129	53	26	50	125	41	52	38	91	48
Total	106	100	243	100	52	100	306	100	136	100	189	100

(2) Omitting above plus 3 and 12

Diagnostic Group ..	10		12		13		16		(1) Total		(2) Total omitting Groups 3 and 12	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory	48	47	15	28	60	60	95	58	758	52.2	706	54.6
Condition Unsatisfactory	54	53	38	72	41	40	69	42	694	47.8	587	45.4
Total	102	100	53	100	101	100	164	100	1,452	100	1,293	100

$P < 0.001$ $0.02 < P < 0.05$

produces follow-up conditions which are significantly more or less satisfactory.

On the other hand there is a clear relation between prognosis and diagnosis, and one diagnostic group may produce more instances of favourable prognosis than another.

Table XI shows that a satisfactory follow-up condition is significantly related to a favourable prognosis.

TABLE XI
FOLLOW-UP ASSESSMENT RELATED TO CLINICAL PROGNOSIS

Clinical Prognosis	Favourable		Unfavourable		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory ..	660	58.5	157	31.1	817	50.1
Condition Unsatisfactory	468	41.5	345	68.9	813	49.9
Total	1,128	100	502	100	1,630	100

From the foregoing the following conclusions may be drawn:

- that diagnosis and condition at follow-up are not related (with two exceptions);
- that diagnosis and prognosis are related;
- that prognosis and condition at follow-up are related.

This leads to the conclusion that the elements which determine prognosis are distinct from those on which diagnosis is based.

This might be considered a rather cumbersome way of formulating the well-known fact that the same diagnosis may give rise to a favourable as well as an unfavourable prognosis, but this analysis was necessary in order to ascertain whether both aspects of the clinical judgment—diagnosis and prognosis—are similar, and if not which should be compared with the team assessment.

COMPARISON OF CLINICAL ASSESSMENT AND TEAM ASSESSMENT

A diagnosis might be regarded as a summary of the condition of the patient at a given moment; the integrated team assessment is also a summary of the type of distress from which the patient is suffering. Both assessments are in a sense "forecasts". When the elements on which diagnosis is based are given a dynamic character, a prognosis arises, and in the same way the designation "no stress" or "distress" is a forecast because it has an implication for the future. This investigation aims at testing both forecasts against the observations made at a follow-up examination.

Before the results of this comparison are discussed, it must be decided whether the two forecasts are identical, whether "no stress" means the same as "prognosis favourable" and "distress" means the same as "prognosis unfavourable".

"No stress" represents the judgment of the team that no tensions and conflicts are present in the patient which he is unable to manage. In this situation his chances of recovery depend solely on his bodily condition, and if on somatic grounds the clinical forecast is "favourable" the patient's prospects are good. In such cases "prognosis favourable" and "no stress" are identical, in the sense that they forecast the same result.

But if the clinical prognosis is "unfavourable", the team assessment of "no stress" is no longer identical with a favourable prognosis, and notwithstanding the fact that no serious tensions are found the chance of recovery may be small on somatic grounds. This situation was found in a number of patients and will be referred to later on.

"Distress" represents the judgment of the team that the patient is suffering from tensions and conflicts that he is unable to manage; in some cases the bodily illness is closely intertwined with these tensions, and in others the two groups of phenomena may be distinct. It is, however, judged improbable that the patient will recover as long as the tensions are present, or that he will reach a satisfactory condition even if a somatic recovery is achieved while the distress remains. Therefore, irrespective of the clinical prognosis of the somatic illness, the presence of "distress" implies that the chance of finding a satisfactory condition on follow-up is smaller than in cases of "no stress".

"No stress" thus signifies a favourable prognosis where this is not precluded by the somatic condition, but "distress" always signifies an unfavourable prognosis.

We have seen that the clinical diagnosis and the condition at follow-up are independent of each other. The same is true for the team assessment (*i.e.* the type of distress). The specific judgment of clinic and team are not represented in the follow-up assessment, but the clinical prognosis and follow-up assessment are correlated, and the same is true of the team assessment and the follow-up assessment.

Clinical Assessment and Team Assessment in General.—Table VII shows that 871 patients were judged by the team to be free of distress; of these 592 were found to be satisfactory at follow-up, and 279 unsatisfactory. Table XI shows that the clinical prognosis was favourable in 1,128 cases; of these

660 were found to be satisfactory at follow-up, and 468 unsatisfactory.

According to Table VI, 759 patients were judged by the team to be distressed; of these 225 were found to be satisfactory at follow-up, and 534 unsatisfactory.

Of the 502 patients for whom the clinical prognosis was unfavourable (Table XI), 345 were shown to be unsatisfactory at follow-up and 157 satisfactory.

Table VI and Table XI both suggest that there is a relationship between clinical forecast and team forecast on the one hand and the result of the follow-up investigation on the other hand, within our limit of probability of 0.1 per cent.

It will be clear, however, that there is a considerable discrepancy between Table VI and Table XI; the two forecasts do not seem to show the same degree of approximation to the actual follow-up findings; the accuracy of the two forecasts may be

compared by combining Tables VI and XI as in Table XIIIa.

This Table shows that a roughly equal number of patients were on follow-up found to be satisfactory and unsatisfactory. According to the team forecast, a satisfactory condition was expected in 53.4 per cent., and according to the clinical forecast in 69.2 per cent. The deviation of the clinical forecast from the actual state of affairs seems therefore to be considerably larger than the deviation of the team, but this reasoning is not quite sound, because the figures in Table XIIIa do not show whether any individual patient for whom a forecast was made in a given sense is the same patient for whom the follow-up condition is described in the same sense. The time relationship between confirmed and not-confirmed forecasts therefore differs from the totals shown in Table XIIIa. To meet this objection the cases were arranged diagrammatically as in Table XIIIb.

TABLE XIIIa
COMPARISON OF CLINICAL PROGNOSIS AND TEAM ASSESSMENT
SUMMARY OF TABLES VI AND XI

Condition at Follow-up	Total		Clinical Prognosis				Team Assessment			
			Favourable		Unfavourable		No Distress		Distress	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Condition Satisfactory	817	50.1	660		157		592		225	
Condition Unsatisfactory	813	49.9	468		345		279		534	
Total	1,630	100	1,128	69.2	502	30.8	871	53.4	759	46.6

TABLE XIIIb
COMPARISON OF CLINICAL PROGNOSIS AND TEAM ASSESSMENT
EVALUATION OF EACH SUB-GROUP

Condition at Follow-up ..	Satisfactory 817				Unsatisfactory 813			
Clinical Prognosis ..	Favourable 660 <i>right</i>		Unfavourable 157 <i>wrong</i>		Favourable 468 <i>wrong</i>		Unfavourable 345 <i>right</i>	
Team Assessment ..	No distress 497 <i>right</i>	Distress 163 <i>wrong</i>	No distress 95 <i>right</i>	Distress 62 <i>wrong</i>	No distress 168 <i>wrong</i>	Distress 300 <i>right</i>	No distress 111 <i>right</i>	Distress 234 <i>right</i>

TABLE XIIIc
COMPARISON OF ACCURACY OF CLINICAL PROGNOSIS AND TEAM ASSESSMENT

Accuracy	Right		Wrong		Total	
	No.	Per cent.	No.	Per cent.	No.	Per cent.
Clinical Prognosis	Favourable ..	660		468	1,128	
	Unfavourable ..	345		157	502	
	Total ..	1,005	61.6	625	1,630	100
Team Assessment	No distress ..	703		168	871	
	Distress ..	534		225	759	
	Total ..	1,237	75.9	393	1,630	100

The meaning of the evaluations "right" and "wrong" will be clear. Attention is drawn, however, to the penultimate team-evaluation. This group is assessed as "no stress" and "unsatisfactory follow-up", but the assessment is evaluated as "right" because this group comprises 111 patients with somatic illness with an unfavourable prognosis as has been confirmed by the follow-up. As stated above in such cases "no stress" does not imply a better chance of recovery.

The clinical and team forecasts obtained in this way are summarized in Table XIIC, which shows that the clinical forecasts were confirmed in 61.6 per cent of cases and the team forecasts in 75.9 per cent, the difference in accuracy thus demonstrated being only slightly smaller than apparent in Table XIIA.

This difference may be explained chiefly by the fact that a favourable clinical prognosis was frequently not confirmed; on the other hand the unfavourable team forecast also exceeds the results found on follow-up though by a smaller percentage.

Clinical Assessment and Team Assessment in Particular Diagnostic Groups.—It has been shown that the clinical forecast is related to diagnosis. The same is true for the team forecast. Since for the purpose of this investigation the prognosis was based on the somatic and medical-technical considerations only, a correlation between prognosis and diagnosis indicates that both are based on the same data. A correlation between the team assessment and the diagnosis may indicate that the team based its judgment also on somatic findings, but this result may also indicate that "distress" and "no stress" were not equally distributed throughout the diagnostic groups, or that there was a tendency on the part of the team to admit the presence of distress more readily in some diagnostic groups than in others.

To this question it is extremely difficult to find an exact answer. It was necessary for the team to take note of the clinical diagnosis, and its judgment may have been influenced beyond the limits of the exact data. On the other hand the hospital staff were influenced in their turn by the work of the team, which probably had little effect on diagnosis but may have affected treatment and therefore prognosis. For the purpose of this investigation, the team and the clinical staff worked separately and no co-ordination was sought, but in the 2-year period of the work a certain inter-reaction undoubtedly developed, and the extent of this cannot be ascertained. If, however, certain diagnostic groups show a specific deviation between clinical and team assessment some inkling of the effect of this inter-reaction might be obtained.

In Fig. 1 (overleaf) the total number of patients with a satisfactory follow-up on the diagonal is indicated by diagnostic groups in absolute figures. The circles mark the number of cases in which the clinical prognosis was favourable, and the triangles the number of cases in which no stress was found. The circle or triangle is situated closer to the diagonal the greater the number of confirmed forecasts.

In Fig. 2 (overleaf), the same is shown for cases with an unsatisfactory follow-up. In both diagrams the diagnostic groups which were too small have been discarded.

In Fig. 1 the triangles are situated roughly in a straight line, the only exception being Group 10 (stomach and duodenum) which shows that the deviation of the team forecast was constant with one exception. The circles, however, show a much more irregular picture, some approaching the diagonal more closely than the corresponding triangles and others being further away. In Groups 7, 8, and 9 (appendicitis, hernia, gall-bladder) the clinical forecast approaches the real state of affairs more closely than the team forecast. In Groups 4, 13, and 16 (sex organs, accidents, "other diagnoses") the deviation of both forecasts is about equal. In Group 10 (stomach and duodenum) the clinical forecast approaches the follow-up findings much more closely than that of the team.

Fig. 2, which shows these relations for cases with an unsatisfactory follow-up, is quite different. The deviation between the clinical and team forecasts is larger in most diagnostic groups. In all except Group 3 (circulatory tract) the unfavourable clinical prognoses differ markedly from the follow-up findings. The team forecast, however, shows the same deviation as in Fig. 1 (4, 7, 8, 9) or approaches the diagonal more closely (3, 10, 16) than the clinical forecast.

When Figs 1 and 2 are combined by adding all confirmed forecasts—favourable as well as unfavourable—for each diagnostic group (Fig. 3), the wider deviation of the clinical forecast remains visible; for practical purposes the integrative forecast is within the 70 per cent. line, Group 10 being the only exception. The clinical forecast is in no instance within the 70 per cent. line and is sometimes outside even the 60 per cent. line.

The crosses in Fig. 3 indicate the percentage of confirmed favourable forecasts. The distance between the cross and the corresponding circle or triangle indicates the discrepancy between favourable and unfavourable assessment and therefore the direction in which this forecast tends to deviate. When a cross coincides with a circle or triangle, the

FIG. 1.—Favourable forecast of clinic and team by diagnosis as confirmed by follow-up.

deviation in the forecast is equal on both sides (an equal number of non-confirmed favourable and unfavourable forecasts). If a cross is situated between the diagonal and a circle or triangle, then the forecast deviates towards the optimistic; if the cross is outside the corresponding symbol, then the forecast has been too pessimistic.

Fig 3 (overleaf) shows clearly that the clinical forecast as a rule is too optimistic; if the integrative forecast is at fault, the error is towards the pessimistic side.

The nature of the diagnosis may offer at least a partial explanation of these findings. Groups 4, 7, 8, and 9 (appendicitis, hernia, gall-bladder, sex organs) have this in common that medical-technical considerations usually allow a favourable prognosis. If the prognosis is based on the somatic condition, it will in the large majority of such cases be favourable. But the team forecast takes other elements into account. If distress is found, then, as Fig. 2 shows, it is highly probable that the unfavourable team forecast approximates more closely to reality

FIG. 2.—Unfavourable forecast of clinic and team by diagnosis as confirmed by follow-up.

(= follow-up finding) than the favourable forecast of the clinic, and the distress gives more weight to the forecast than does the somatic condition. An opposite state of affairs is shown in Fig. 1. Here the favourable clinical forecast is more frequently confirmed and the degree to which the team over-estimated the patients' stresses becomes apparent.

This deviation is nearly constant for all diagnostic groups except Group 10. The number of cases in Group 10 in which distress was found and in which the clinical prognosis was unfavourable, approaches

very closely to reality (Fig. 2), but distress was assumed to be present in several cases with a favourable prognosis in which it was not confirmed (Fig. 1). It may be surmised that in dealing with this group the team was strongly influenced by the diagnostic implications, and it is not improbable that this resulted in a reversal of proof. The team could not accept that a patient with a stomach or duodenal ulcer should not be suffering from stress and took the presence of the ulcer as a proof of the presence of tension. According to the follow-up, a considerable

FIG. 3.—All confirmed forecasts by diagnosis.

number of these assessments were wrong, and this is the only diagnostic group in which this happened. It is justifiable to say this because this example shows that a reversal of proof if it occurs shows clearly in the results.

As has been seen the team deviates in an almost constant way towards the pessimistic side; in Groups 3 and 12 (circulatory tract; rheumatism), however, the team assessment is more optimistic than that of the clinicians. Group 1 (malignancies) seems to show the same tendency but is too small for reliable comparison.

Unlike Groups 4, 7, 8, and 9, Groups 3 and 12 consist mainly of patients with unfavourable prognoses. In such cases it is irrelevant whether distress is present or not, and in them an unfavourable clinical prognosis is most often confirmed by an unsatisfactory follow-up.

Not all patients from Groups 3 and 12 show an unsatisfactory follow-up, but the number of confirmed favourable clinical forecasts is smaller than the confirmed favourable team assessments. Thus, even in cases of serious physical illness it may be important for the patient whether he is suffering

from extra stresses or not. The same seems to be true for the malignancies (Group 1). If no distress is present, the patient has a better chance of a satisfactory outcome than might be surmised from his physical condition alone. However, these groups are too small for final conclusions to be drawn.

These results demonstrate the existence of a marked difference in accuracy between the clinical prognosis based on the patient's medical condition and the team forecast which also takes into account the evaluation of psychic and social elements; these elements must therefore be regarded as indispensable in estimating the patient's chances of recovery.

SPECIFICITY

It has been shown above that the *type* of distress suffered by the patient has no specific influence on

his chances of recovery; it still remains to consider whether the *nature* of the distress is related to the chances of recovery. For this purpose the factors causing distress were classified as follows: quality of father and of mother as homemaker and educator; quality of family of origin; quality of patient's own family; dwelling situation; working situation; and miscellaneous difficulties. Each category may cover a score of different situations but for the sake of brevity no details are given here.

It was then observed whether patients in any one category had different results from the rest in the follow-up. Patients in one category of "distress" were compared with those in all other categories and also with patients who had the same complaint but only to the degree rated by the team as "stress". The results are shown in Table XIII. The first item of the Table gives in the first column the number of

TABLE XIII
FOLLOW-UP ASSESSMENT BY TYPES OF DISTRESS

Patients' Case-History	Follow-up Assessment	Patients suffering from one type of Distress (1)	Patients suffering from all other types of Distress (2)	Total (1) + (2)	Patients suffering from same type of stress as in Col. (1) (3)	Total (1) + (3)
Quality of Father	Satisfactory ..	62	163	225	140	202
	Unsatisfactory ..	177	357	534	74	251
	Total ..	239	520	759	214	453
Quality of Mother	Satisfactory ..	52	173	225	82	134
	Unsatisfactory ..	124	410	534	46	170
	Total ..	176	583	759	128	304
Quality of Family of Origin ..	Satisfactory ..	83	142	225	147	230
	Unsatisfactory ..	232	302	534	83	315
	Total ..	315	444	759	230	545
Health of Spouse	Satisfactory ..	41	109	150	72	113
	Unsatisfactory ..	132	244	376	45	177
	Total ..	173	353	526	117	290
Children	Satisfactory ..	18	161	179	24	42
	Unsatisfactory ..	52	391	443	20	72
	Total ..	70	552	622	44	114
Quality of Own Family	Satisfactory ..	65	121	186	49	114
	Unsatisfactory ..	178	275	453	30	208
	Total ..	243	396	639	79	322
Dwelling Situation	Satisfactory ..	38	180	218	68	106
	Unsatisfactory ..	76	421	497	20	96
	Total ..	114	601	715	88	202
Work Situation	Satisfactory ..	77	74	151	66	143
	Unsatisfactory ..	116	193	309	22	138
	Total ..	193	267	460	88	281
Miscellaneous Difficulties ..	Satisfactory ..	41	184	225	47	88
	Unsatisfactory ..	128	406	534	42	170
	Total ..	169	590	759	89	258
		All P-values > 0.001			All P-values < 0.001	

patients found to be satisfactory and unsatisfactory on follow-up who complained of the quality of their father and in whom this complaint was judged to be severe enough to be rated as distress. This number is set against that of the patients for whom any other type of distress was recorded (Col. 2). The third column shows the number of patients who had also complained about their father but in whom the team had not assessed this complaint as a distressing element.

The outcome of this comparison is remarkably uniform. When one type of distress is compared with all other types no relation is to be found with the follow-up result. But when one type of distress is compared with the same type of mere stress, a relationship exists without exception within the probability limit of 0.1 per cent. This confirms that the presence of distress has a decisive influence on the chance of recovery, but that the nature of the distress is immaterial.

Special attention was paid to the question whether there was any difference between the influence of recent occurrences of a serious nature and that of past occurrences, because a number of American workers (Engel, 1952; Litz, 1949; Bacon, Renneker, and Cutler, 1952; Miller, Lief, and Mittelman, 1953; Schmale, 1958) tend to show that recent losses are in some way connected with the onset of serious illness. If this were so it might be expected that persons admitted to hospital would show a higher frequency of loss of relatives than the general population, and that emergency admissions would show a higher proportion of losses and possibly other difficulties than non-urgent admissions. To eliminate the possible selective influence of emergency admissions the patients were noted who had suffered the loss of a near relative (parent, spouse, child) during the 12 months before admission. 82 of the total 1,630 patients were found to have suffered such a loss which is 5 per cent. The bereavement rate in Amsterdam was estimated at between 4 and 6 per cent. so that recent loss does not seem to be related to hospital admission.

DISCUSSION

This sample of a hospital population brings to mind the warning of Hill (1950):

"It is not too much to say that there is hardly any disease in which a hospital population must not be regarded with suspicion if it is desired to argue from the sample to the universe of all patients".

There are many reasons for limiting these conclusions to the present sample, but it cannot be denied that something useful may be abstracted from this sample and placed within the frame of reference of more general medical problems. One case of cholera in a 100-bed hospital will not allow the conclusion that one per cent. of the general population is stricken by cholera or even that one per cent. of all hospital patients is suffering from this disease; but it may be concluded from this one case that the health of the population is seriously threatened. I venture to think that this investigation, independent of the limits of the sample, permits the posing of certain questions concerning the efficiency of the hospital as a link in the chain of aids to health.

It may seem superfluous to demonstrate that the patient who is burdened by cares or conflicts in his private life, will conquer his illness less easily than somebody who is not so burdened. The phenomenon may be self-evident but its consequences remain formidable.

Our investigation has shown that a favourable clinical prognosis was made in 1,128 of 1,630 cases. This means that medical science offered the possibility of recovery to over 69 per cent., but our follow-up showed that only 660 of the 1,128 favourable prognoses were realized. Even if the phenomenon of "distress" is regarded merely as a plodding and worrying attitude to life or as a psychological peculiarity of the patient, it is plain that such a mental attitude on the part of the patient reduces the efficiency of the hospital by almost half.

This may be self-evident, but it does not have to be accepted as unalterable. Even without following Balint (1957), and postulating that doctor and patient together build the illness, nobody will deny that doctor and patient together bring about recovery. Our investigation has shown that half of the hospital patients to whom the physician may be able to open the way to recovery, are unable to follow him. Perhaps it is true that these people do not recover because they plod along more heavily than others, because their burdens are larger, or their feet less nimble, but in such cases it must be one aspect of therapeutic action to make their going more easy, to lighten the burden, or to smooth their way. The need to give this help (after-care, social work, case-work, psychotherapy, etc.) must be determined during the stay in hospital, and should be part of the therapeutic programme even if the help to be given is outside the sphere of the hospital itself.

SUMMARY

In a sample of 1,630 patients from a general hospital in Amsterdam it was attempted to assess how far they suffered from social and/or psychic stresses to the extent of impeding their well-being. This assessment (the integrated evaluation) as well as the clinical prognosis of the case was compared with the actual condition of the patient some time after discharge from hospital.

A significant difference in the chance of recovery was found to exist between patients who had to cope with problems apart from their physical illness and those who did not.

The forecast of recovery based on the integrated assessment had a higher degree of accuracy than the forecast based on clinical data alone.

These results obtained irrespective of diagnosis and of the nature of the tensions from which the patient was suffering.

- (1) By means of a team consisting of a general physician, a social worker, and a psychiatrist a routine method was developed of assessing the social and/or psychic tensions of patients admitted to a general hospital for a somatic illness.
- (2) This team "integrated" assessment shows whether in addition to his somatic illness a patient is suffering from tensions (distress) which impede his well-being.
- (3) A follow-up investigation showed a significant difference in frequency of recovery between distressed patients and patients without distress.

- (4) Forecasts of the chance of recovery based on the team assessments were more frequently confirmed by follow-up than clinical forecasts based on the patient's physical illness.
- (5) The social and psychic tensions amounting to "distress" were non-specific, and the distress was not related to any specific clinical diagnosis nor to specific traumatic occurrences in the patient's previous history or present situation.

It appears therefore that the team's integrated assessment of a patient's hope of recovery is more accurate than the clinical prognosis when both are measured against the follow-up result; this greater degree of accuracy may be due to the fact that the integrated assessment contains no specific elements and is more independent of diagnosis.

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APPENDIX

PROFORMA FOR PSYCHOSOCIAL CASE HISTORY

Date of Inquiry.....		Inquiry made by Dr.....	
No. of Case History.....	Dept.....	Ward.....	
Name		Unmarr. Marr. Div. Wid.....	
Address		Religion	
Age.....	Date of Birth.....	Date of Admission.....	
Diagnosis on Admission			

(contin.)

(contin.)

PARENTAL FAMILY

Are your parents still alive?
How old is (was) your own father (when he died)?
What was the cause of his death?
How old were you when your father died (disappeared)?
What was your father's occupation?
How old is (was) your own mother (when she died)?
What was the cause of her death?
How old were you when your mother died (disappeared)?
Were you brought up by your parents?
Were your parents usually in good health?
Was it your parents' only marriage?
Are your parents divorced (separated)?
Did father/mother marry again?
How many years has your father/mother been alone?
How were you brought up then, where, and by whom?
How many children did your own parents have and what is your place among them?
How many children were you actually brought up with and what was your place among them?
About how old were your parents when you were born?
How old were you when you left home?
When did you come to this city?

EDUCATION

Have you attended normal elementary school (up to what grade)?
How often did you repeat a grade?
Did you have any further schooling or vocational training?
Did you have a practical vocational training?
Have you any certificates? If so, which?
Have you done your military service? If rejected, why?

VOCATION

What sort of work were you doing before admission? (If disabled, since when?)
Which other occupations have you had?
In which occupation did you stay the longest time and how long was that?
How many jobs have you had?
In which did you stay the longest time?
Have you (or your husband) often been without work (owing to illness or unemployment)?
What was the longest time?
What is/was the occupation of your husband/fiancé; if disabled, since when?
Does your wife work? Since when, and what are her working hours?
What do you do in your spare time; what are your hobbies?

MARRIAGE

How old were you when you married or became engaged for the first time?
How many years older/younger is your wife/fiancée (husband/fiancé) than you?
Is your husband/wife usually in good health?
Have you been married/engaged more than once, and if so how was the first marriage (engagement) terminated?
(death, divorce?)
How long did the first (second) marriage last, and what were the intervals between them?
Was your husband/wife previously married?
When did your husband/wife die and of what?
Is the house large enough for your family? What space do you possess?

(contin.)

(contin.)

CHILDREN

How many children have you from this marriage?.....
 Have you children from other marriages, and how many?.....
 Has your husband/wife children from other marriages, and how many have been brought up by you?.....
 Are any of your children sick, disabled or dead?.....
 How old is your eldest and youngest child?.....
 How many unmarried children live with you?.....
 Have you any married children living with you?.....

ILLNESSES

How often have you been admitted to a hospital (for operation, observation)?.....
 For which illnesses and when?.....
 Have you ever been in a rest-home or sanatorium?.....
 Have you (or your husband/wife, children) ever been in contact with a psychiatrist, a child-guidance clinic, the Department for Mental Hygiene, other social agencies?.....
 How long have you had the complaints for which you have been admitted?.....
 Have you had other complaints such as migraine, persistent headache, asthma, hay-fever, hives, pleuritis, tuberculous ailments, stomach complaints, gall bladder complaints, intestinal complaints (colitis), heart diseases, high blood pressure, diabetes, goitre, rheumatic complaints (treated with radiation in any form), accidents, and backaches?.....
 Do you consult your family doctor often?.....

SUBJECTIVE QUESTIONS

How was the harmony in the parental family (alcoholism, poverty, orderliness)?.....
 Did you have a happy childhood or were there difficulties?.....
 Are you satisfied with your schooling and vocational training?.....
 Are you satisfied with your present job?.....
 Do you mean to live in better circumstances than your parents did, or do you expect to live in the same or a less fortunate situation?.....
 Do you have conflicts at work with superiors, colleagues, or subordinates?.....
 How is the harmony in your own family, with your children (and sons- and daughters-in-law)?.....
 How do you get on with your own family, your wife's/husband's family and your neighbours?.....
 Have you debts or hire-purchase difficulties?.....
 Are you able to pay for your diet?.....
 What is your average weekly income and that of your wife and adult children?.....
 What is your rent?.....

SUMMARY

By the General Physician:.....
 By the Social Worker:.....
 By the Psychiatrist:.....

CONCLUSION OF THE TEAM

No Stress	Stress	Distress
Som.	Psycho-Som.	Psycho-Som.-Soc.
Psych./Som.	Soc./Som./Psych.	
No Joint Conclusion		