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# Validation of a Patient Classification Through Evaluation of the Nursing Staff Degree of Occupation

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**The instrument of evaluation of the degree of occupation of nursing staff is centered on the activities of the staff. It generates an index indicating how "busy" the staff is during a given shift on a particular unit. It can be used to validate a patient classification system by level of nursing resources requirements.**

AT THE HÔPITAL SAINTE-JUSTINE in Montreal, the research on patient classification systems for pediatric patients was spread over a five-year period. In a first stage, the nursing office chose to adjust Connor's[4] classification to a pediatric setting. Later, a research team took over in the framework of the IRODOM[5] project and produced a classification system which was used during two years in fourteen units of the hospital, even though it was not entirely satisfactory. In a third stage, the research team of the PRN 74 project[1-3] undertook a revision of the IRODOM classification and produced a new classification system, now implemented in the 25 pediatric units of the hospital.

Credit should be given to the IRODOM project researchers for having realized the lack of instruments for validating patient classifications and for having endeavoured to do something in that field. Even if their research could not be concluded, they are the ones who have set forth some of the ideas that served as a basis for devising the instrument of evaluation of the degree of occupation.

## Instrument of Evaluation of the Degree of Occupation: Basic Ideas

This instrument is based on the assumption that "staff tries to reply as best it can to identified needs in time at its disposal." Knowing that this same staff fixes priorities in the care it must give and that (according to worksampling) the day is made up of peak periods and quieter periods, the principle of the system is that to find out how busy the staff is, one has only to observe its activities at the end of peak periods. Indeed, it seems reasonable to think that, at the end of the peak periods, a member of the staff will be engaged in activities of varying degrees of priority depending on how busy they are. On the other hand, observations made during these peak periods will provide little information because, by the very nature of these periods, the staff is always occupied with priority tasks. The same rule applies inversely for the quieter periods. However, one should take into account that observations can

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easily be made at the beginning of the peak periods as well as at the end.

The method therefore consists of:

- making a grid of activities grouped into categories according to the priorities attributed to them by the staff and in weighting these different groups of activities
- making observations by means of this grid at the end of peak periods in order to find out what type of activities the staff were carrying out
- calculating a degree of occupation index on the basis of these observations weighted according to the groups of activities to which they pertain

The instrument is based on the priorities that the staff attributes to its activities in a given hospital. In order to obtain a measurement of the staff degree of occupation that corresponds to the actual practice of nursing, the priorities set by the staff are accepted as is rather than defined according to what they should be. So on one hand, the instrument can never be used as a means for measuring the quality of care and, on the other hand, it cannot be transposed from hospital to hospital without adjustments as it is supposed to reflect the practice of nursing in the setting where it is implemented.

### Development of the Instrument

The instrument was developed in the following stages:

i. An initial list of activities was drawn up.
ii. Activities were assigned priority ratings.
iii. Members of the nursing staff were consulted.
iv. Observation periods were determined.
v. A grid of activities was prepared.
vi. The grid of activities was weighted and the method for calculating the degree of occupation index was established.

An initial list representing the activities of the four categories of nursing staff (team leaders, nurses, nursing assistants nurses' aids) was drawn up by the nurses participating in the project. The list was prepared for each half-hour of the day. The various groups of activities as subdivided according to their priority ratings were then defined:

Group A: activities which must be carried out at that particular time and can be neither postponed nor neglected.

Group B: activities which can be slightly delayed (not more than one hour).

Group C: activities which can be postponed to a later time, but not to another day.

Group D: activities which can be postponed to another day when a day is very busy.

Group E: nonproductive activities, including:

- time devoted to meals and coffee breaks
- time for personal or social activities

Members of the above mentioned four categories of nursing staff, from units representative of the hospital, were consulted. Consultation was achieved through interviews and the use of the preestablished list of activities distributed by half-hours. A space had been provided on the list for personal remarks and observations.

- A first column served to indicate whether the activity was normally carried out during the half-hour in which it had been located;
- A space was allowed for adding any activities possibly omitted by the research team nurses;
- Five columns were provided so that a priority rating could be assigned to the various activities listed during each

half-hour, using letters A, B, C, D, and E corresponding to the five different groups of activities.

So that the information obtained would correspond to consistent conditions, the purpose of the task assigned to those nurses called upon to cooperate was explained at the beginning of the interviews as follows: "Establish the profile of a day regarded as normal, that is, a day when it is possible to render patients the care they require."

First of all, the results of the consultation were used in determining the periods of observation of nursing staff activities. Analysis of the answers of staff members from different units led to the selection of the following observation periods: 9:15 to 9:30 A.M., 10:45 to 11:00 A.M., 2:15 to 2:30 P.M., 3:20 to 3:30 P.M. Those periods correspond to the end of peak hours in the various units. The data obtained from work sampling in the framework of the IRODOM project confirmed that choice.[7]

Secondly, on the basis of the list of activities drawn up at the beginning by the research team and of the consultation results, the grids for observation of activities were set up for each period. The grid corresponding to the period 9:15 to 9:30 A.M. is presented in Figure 1.

A method for weighting observations had been developed by the IRODOM[7] team. It was devised so as to obtain an index of the degree of occupation for one day, on the basis of the type of activities carried out by each member of the nursing staff during the four periods of observation. According to this method, observation periods had the same representativeness, and observations respecting the various categories of staff had the same meaning. As to the weightings of each group of activities, a decreasing value from group A to group D had been established. Trials with different weightings (different intervals between the weights of the groups of activities) had shown that the intervals selected did not substantially affect final results. The same trials were repeated and led to the same conclusions. The weights selected for observations of the different groups of activities were as follows:

- Group A activities: 5
- Group B activities: 4
- Group C activities: 2
- Group D activities: 1
- Group E activities: 0

There is a two-point interval between groups B and C to emphasize the fact that the presence of activities from the last three groups as opposed to the first two is more significant as to the degree of occupation than is the presence of activities from Group B in relation to group A or from group D in relation to group C and from group E in relation to Group D.

The degree of occupation index for the staff of a unit on a given shift is therefore calculated in the following manner. During each observation period, every staff member is observed once at random. Hence a total of observations four times higher than the number of nursing staff present on the unit is obtained and the degree of occupation index DO is given by the formula:

$$DO = \frac{5a + 4b + 2c + d}{p}$$

where a is the number of observations pertaining to group A, b to group B, c to group C and d to group D while p is the number of nursing staff. Division by p makes the index independent of the number of staff, since the number of observations is directly proportional to that number.

### Method and Conditions of Utilization of the Instrument

The instrument is easy to use. The technique of observation is pseudoinstantaneous. The observer observes staff members at random but observations are not really instantaneous, however, because the observer is expected to write down the main activity of the person observed.

DATE: HOUR 9.15 STAFF ACTIVITIES GRID UNIT:

| ACTIVITY GROUP | ACTIVITIES | T.L. | N. | N.A. | AID. | TOTAL |
|---|---|---|---|---|---|---|
| "A" | ALL "CONTINGENCIES" A "STAT" FIXED TIME" | | | | | |
| | - EMERGENCY (TREAT., MED., PERFUSION, SAMPLE, REQUEST) | | | | | |
| | - PRE-OP CARE (PT., MED., RECORD) | | | | | |
| | - COMMUNICATION WITH R.N., T.L., TEAM MEMBERS | | | | | |
| | WITH PARENTS | | | | | |
| | WITH M.D. | | | | | |
| | WITH CHILDREN | | | | | |
| | - ADMIT NEW PATIENTS | | | | | |
| | - HELPING MD FOR TREATMENT AND/OR DRESSING | | | | | |
| | - MEDICATION: "STAT" OR AT FIXED TIMES. | | | | | |
| | - CHECK KARDEX, MEMO SHEET, BOARD | | | | | |
| | - SAMPLE AT FIXED TIME | | | | | |
| | BLOOD SAMPLE (N.P.O. PATIENT) | | | | | |
| | LATE BREAKFAST, AFTER TEST | | | | | |
| "B" | INSTALL OR REINSTALL I.V. | | | | | |
| | CHANGE OF POSITION ACCORDING TO PRE-ARRANGED TIMETABLE | | | | | |
| | VITAL AND/OR NEUROLOGICAL SIGNS | | | | | |
| | SAMPLE FOR ANALYSIS AND REQUEST | | | | | |
| | PUT ICE IN CROUPETTE | | | | | |
| | ERRANDS OUTSIDE THE UNIT (SPECIMEN) | | | | | |
| | PREPARATION OF FEEDING BOTTLES AND OR BABYFOOD | | | | | |
| | GIVE PHYSICAL CARE: BATH, MOUTH AND HAIR CARE | | | | | |
| | TAKE TEMPERATURE | | | | | |
| | WEIGH BABY | | | | | |
| | RUB DOWN & INSTALLATION, BEDS | | | | | |
| "C" | GENERAL SUPERVISION (PTS., AND/OR EQUIPMENT) | | | | | |
| | CHANGE CHILDREN AND/OR BED | | | | | |
| | GIVE PSYCHOLOGICAL CARE | | | | | |
| | MOTHERING | | | | | |
| | PLAY WITH CHILDREN (ROOM OR PLAYROOM) | | | | | |
| | TEACHING (PARENTS OR CHILDREN) E.G. INSULINE | | | | | |
| | CARRY OUT TREATMENTS: DRESSING, DRAINAGE, | | | | | |
| | LAVAGE OR IRRIGATION | | | | | |
| | WRITE UP OBSERVATIONS OR MEDICATION IN THE RECORD | | | | | |
| | GIVE BOTTLE | | | | | |
| | GIVE SNACK | | | | | |
| | WEIGH PATIENTS (OLDER CHILDREN) | | | | | |
| | COLLECTION OF SOILED LINEN | | | | | |
| "D" | HELP M.D. FOR PHYSICAL EXAMINATION | | | | | |
| | BE PRESENT DURING M.D.'S VISIT | | | | | |
| | DISCUSS - HEALTH PROBLEMS IN GENERAL | | | | | |
| | - STATE OF A PARTICULAR PATIENT | | | | | |
| | MEETING OF UNIT STAFF | | | | | |
| | TEAM MEETING | | | | | |
| | INSTRUCTION OUTSIDE UNIT (IN-SERVICE TRAINING) | | | | | |
| | SERVICE MEETING | | | | | |
| | READ NURSING JOURNALS | | | | | |
| | SHAMPOO (OLDER CHILDREN) | | | | | |
| | CUT PATIENTS' NAILS | | | | | |
| | FOLD LINEN IN ROOM | | | | | |
| | FOLD PAPER BAGS | | | | | |
| | SOCIALIZATION - AT DESK | | | | | |
| | - IN ROOM | | | | | |
| "E" | SOCIALIZATION (REST-ROOM) | | | | | |
| | SNACK | | | | | |
| | WAITING | | | | | |
| | READ NEWSPAPERS | | | | | |
| | ABSENCE FROM UNIT (PERSONAL TIME) | | | | | |

FIG. 1. Staff activities grid.

Knowledge of the staff, premises, and organizational pattern of the unit is most valuable to the observer. To obtain results consistent with reality, it is necessary that the nursing staff know nothing about the purpose of data collection. Finally, data must be collected during a period of normal operation of the unit: making observations when students or staff under training are present, as well as when the unit does not function with its usual staff should be avoided. Furthermore, the instrument is reliable only when the variation between supply and demand of care is reasonable. When the staff is completely overwhelmed or when the workload is clearly below average, use of the instrument is not advised. This last point will become clearer in the following pages.

### Validation of a Classification Instrument

The validity of an instrument lies in its ability to achieve what it is designed for: a classification instrument is valid if it predicts correctly patients' nursing requirements. So considering its different components, a classification system, is valid if it identifies correctly patients' needs (validity of checklist of assessment of needs) and if it correctly distributes patients between classes according to their nursing resources requirements on the basis of their identified needs (validity of the classification scheme) and if it correctly estimates the average requirements of nursing resources in each class (validity of the classification weighting). The output of each component being the input of the following, then when one is assessing the validity of the system on the basis of the output of its third component, *i.e.*, the estimated nursing requirements for the patient, one assesses the validity of all the system's components at the same time. Similarly, a validation study centered on the output of the system's second component (*i.e.*, the patient class) contributes only to the assessment of the validity of the system's first two components.

Moreover, validity studies of a classification can take different forms. To refer to Cronbach and Meehl,[5] categories into which validity studies can be divided are: predictive validity, concurrent validity, content validity, and construct validity.

The first two of these categories are criterion-oriented procedures. In these studies one wants to predict some criterion. If the criterion is available for comparison with the measure at the time of prediction, the investigator studies concurrent validity. If the criterion is obtained some time later, he is studying predictive validity. Concurrent validity studies are the most frequently encountered validity studies in the evaluation of classification. It has to be emphasized that what is evaluated is the validity of the systems' assessment needs check-list and scheme since the criterions used (patient classes) are the output of the classification systems' first two components. In these studies, the class of a sample of patients according to the classification system, is compared either with the class (criterion) of the same patients using another classification system or with the class of the same patients subjectively predicted by nurses on the basis of class prototypes. By class prototypes we mean the general and a priori definition of a class on the basis of which experts draw up the classification rules when building up a classification scheme.

For example, a class prototype could be as follows "Intensive care class: a group a acutely ill patients requiring intensive therapy and/or intensive nursing care. Frequent medical reevaluation is necessary so that an immediate adjustment of therapy can be undertaken. Intensive therapy is required by patients who . . . Intensive nursing care is for patients who. . . ."[8]

These two methods of testing the concurrent validity of a classification system are attractive because they are simple. However there are certain flaws.[1] The first as-

sumes the existence of another classification system already proved valid. However, if a number of classification systems exist, very few have been satisfactorily validated. To our knowledge, there is no existing classification system that is widely accepted. Comparison of the results of a classification with those (considered as criterion) of the subjective classification achieved by experienced nurses on the basis of class prototypes of the first classification is more interesting at first glance. It is based on the idea that an experienced nurse will always classify a patient correctly according to class prototypes because of her concrete comprehensive knowledge of the patients needs, whereas the classification instrument, designed *in abstracto* on the basis of those same prototypes, is necessarily limited in its evaluation of needs since, to remain practical, it can only retain a number of them, considered a priori, as good indicators of overall needs. Some research studies[6] show however that a subjective classification is not very reliable: two nurses classify the same patient differently on the basis of the same prototypes in a significant proportion of cases. Hence, such a classification can be considered as criterion only with a number of reservations. Therefore it seems that the problem of testing the validity of a classification system cannot be fully resolved by concurrent validity studies. So it seems advisable to supplement it with other validity tests; for example predictive validity tests.

A classification system is used to predict the nursing-care needs of patients during a 24-hour period. The measure (by chronometry or worksampling) of care received by a patient constitutes therefore, an outside criterion representing an observable and tangible event comparable to the amount of care required by the patient as predicted a priori by the classification system. It must be noted that such a test corresponds to a validation of the three components of the classification system. This procedure of predictive validation assumes that we accept the measures of care given as being adequately representative of the care required by patients. Here we agree with other authors in thinking, that if, on an average, there can be relatively little difference between the care given and care required, on the contrary as far as each patient is concerned the discrepancy can be quite considerable[11] (we have already written an article related to the study of this subject). In other words, we cannot unreservedly accept the measures of care given as criterion. Ideally, the studies of predictive and concurrent validity mentioned above should be supported by other validity studies.

Relying on the idea of "face or content validity" hardly helps to solve this problem. This method involves accepting the fact that a classification is valid if it seems credible to experts. It will not be discussed here in further detail because, as far as we know, no classification has been widely recognized by experts as a valid classification and also because an article[9] was devoted to that question by one of the authors.

So, to supplement criterion-oriented and face validity testing it seems advisable to try the last approach in validation, *i.e.*, construct validity assessment. According to Cronbach and Meehl:

> "Construct validation is involved whenever a test is to be interpreted as a measure of some attribute of quality which is not "operationally defined" . . . when an investigator believes that no criterion available to him is fully valid, he perforce becomes interested in construct validity because this is the only way to avoid the "infinite frustration" of relating every criterion to some more ultimate standard [p. 282]."[5]

The "construct validation" of a classification system can be interpreted in many ways. The construct that we have chosen to validate such a system is the "pressure" experienced by the nursing staff on a given day. We have, on the one hand constructed

the instrument for evaluating the staff degree of occupation DO to measure this tension directly. On the other hand, the classification system produces an estimate of staff required on a nursing unit during a given shift. If the classification is valid, the difference that exists between this estimated staff and the actual staff (the staff present on the unit) should also measure the pressure under which the staff is working. So if the classification is doing its job properly, the ratio R = estimated staff/actual staff should also be an index of the pressure exerted on the staff. If $R > 1$, estimated staff exceeds actual staff and therefore the pressure should be greater and vice versa.

Hence if there is a strong relationship between the indexes DO and R produced by the two instruments, the hypothesis of validity of those instruments cannot be rejected since the indexes, centered on the difference between supply and demand, are totally independent of one another. They are calculated on the basis of observations of different sources, that is observations centering on supply (staff) and observations centering on demand (patients).

How the degree of occupation index DO varies with the ratio R of estimated staff to actual staff will be examined by effecting a regression of DO on R. The hypothesis of validity of the two instruments cannot be rejected if:

Hypothesis 1: a ratio $R = 1$ produces identical degree of occupation indexes in the various nursing units of the hospital.

This means that evaluation of the workload, using the classification system, is uniform throughout the hospital. In other words, the classification does not favor some units at the expense of others.

Hypothesis 2: the slope of the regression line is positive, *i.e*, the degree of occupation increases with the ratio R.

Moreover, the regression shows which part of the variation of DO is accounted for by the variation of R and therefore the percentage of variation that can be removed from DO if nursing staff is allocated according to the estimations produced by the classification system.

The instrument of evaluation of the degree of occupation was used to validate the PRN 74[1] classification system. In order to carry out this validity test, the system was operated but the results were not used, that is, the patients were classified according to the classification but the project nurses were the only ones to know the staff estimates obtained on this basis and the nursing office continued to allocate staff to the units according to the traditional method. Knowing the estimated staff and the actual staff, the project nurses could therefore evaluate R for each day when activities of the staff were observed so as to calculate the index DO.

The validity test was effected while the classification was being implemented. Due to the short period of time at the disposal of the research team and due to the presence of students or staff under orientation in many units, the number of observations was relatively limited (23 observation days, 11 of which were in medicine and 12 in surgery).

Still the results of the test have been most satisfactory. They confirmed those of a similar test made earlier in the study with respect to the IRODOM classification. That more extensive study (72 observation days) is reported in detail in Chapter II of the research report.[1] Here only the validity test of the PRN 74 classification will be discussed. The basic data of the study are presented in Table 1.

Three regressions of DO versus R were made, one in Medicine, one in Surgery and one for the whole of the sample. The results appear in Figures 2, 3, and 4 and in the corresponding Tables 2, 3, and 4.

TABLE 1. Degree of Occupation Observed and Differences between Supply and Demand

| Type of Units | Day 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Medicine (0–6) | | | | | | | | | | | | |
| R | .95 | .71 | .91 | .75 | .86 | .73 | .81 | .81 | .82 | .88 | .82 | |
| DO | 10.5 | 6.1 | 8.1 | 7.7 | 10.7 | 6.4 | 7.7 | 8.3 | 9.9 | 8.7 | 8.5 | |
| Surgery (6 and over) | | | | | | | | | | | | |
| R | 1.1 | 1. | 1. | .99 | 1.1 | 1.1 | .71 | .97 | 1.1 | .91 | 1.1 | .87 |
| DO | 13.2 | 10.8 | 13. | 11.4 | 13. | 11.6 | 6.9 | 11.7 | 12.7 | 12.7 | 13.5 | 9.1 |

TABLE 2. Regression Results, Medicine: Age 0 to 6

| Source of Variation | Sum of Squares | D.F. | Mean Square | F |
|---|---|---|---|---|
| Total (uncorrected) | 803.3 | 11 | – | – |
| Mean | 781.04 | 1 | – | – |
| Total (corrected) | 22.3 | 10 | – | – |
| Regression | 13.16 | 1 | 13.16 | 12.95 |
| Residual | 9.14 | 9 | 1.02 | – |

NOTE: Mean R = .82; Mean DO = 8.43; Correlation coefficient $r_{RDO}$ = .77; Variance R = .0055; Variance DO = 2.23; $R^2$ = 59 per cent.

TABLE 3. Regression Results, Surgery: Age 6 and Over

| Source of Variation | Sum of Squares | D.F. | Mean Square | F |
|---|---|---|---|---|
| Total (uncorrected) | 1,666.25 | 12 | – | – |
| Mean | 1,624.59 | 1 | – | – |
| Total (corrected) | 41.66 | 11 | – | – |
| Regression | 29.06 | 1 | 29.06 | 23.06 |
| Residual | 12.6 | 10 | 1.26 | |

NOTE: Mean R = 1.00; Mean DO = 11.64; Correlation coefficient $r_{RDO}$ = .84; Variance R = .016; Variance DO = 3.79; $R^2$ = 70 per cent.

TABLE 4. Sample Regression Results

| Source of Variation | Sum of Squares | D.F. | Mean Square | F |
|---|---|---|---|---|
| Total (uncorrected) | 2,469.31 | 23 | – | – |
| Mean | 2,346.31 | 1 | – | – |
| Total (corrected) | 123 | 22 | – | – |
| Regression | 98.89 | 1 | 98.89 | 86.14 |
| Residual | 24.11 | 21 | 1.15 | – |

NOTE: Mean R = .91; Mean DO = 10.1; Correlation coefficient $r_{RDO}$ = .90; Variance R = .02; Variance DO = 5.6; $R^2$ = 80 per cent.

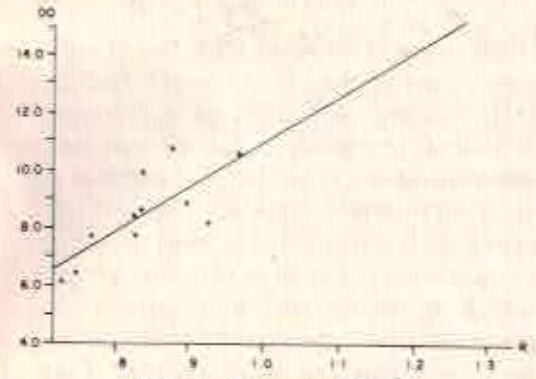

FIG. 2. Regression DO/R medicine; age 0 to 6.

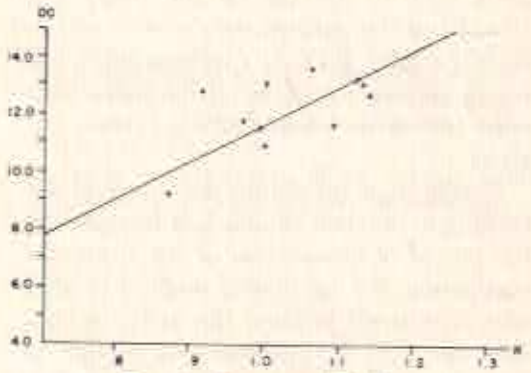

FIG. 4. Regression DO/R overall sample.

The regressions are all significant to 99 per cent (the hypothesis of a nil slope at the 99 per cent level can be rejected). Coefficients of correlation and $R^2$ are large: from .77 to .9 and from 60 to 80 per cent respectively. Finally, for $R = 1$, the degree of occupation estimated by the regressions in Surgery and Medicine are 10.7 and 11.1 respectively and their confidence intervals at the 95 per cent level are overlapping.

The small number of observations available made it necessary to include in the data some observations that appeared doubtful because they were not within "the validity zone" of the degree of occupation instrument. The validity zone of the instrument represents a set of values of R around point $R = 1$, where use of the instrument is relevant. Beyond this interval, that is, for values distinctly higher than 1 (not enough staff), or for values distinctly lower than 1 (too much staff), staff activities are much too "abnormal" or "perturbed" for the instrument to be still operational. Indeed, as devised, the instrument can only absorb reasonable deviations from what are considered normal conditions. It is considered (without being able to prove it mathematically) that such reasonable deviations correspond to the interval $(0.8 < R < 1.2)$. In a hospital providing high quality care, this validity zone should never be transgressed. In other words, it should be possible to meet at all times 80 per cent of identified needs and, on the other hand, sound management of a scarce resource requires that any overstaffing be limited to a maximum of 20 per cent.

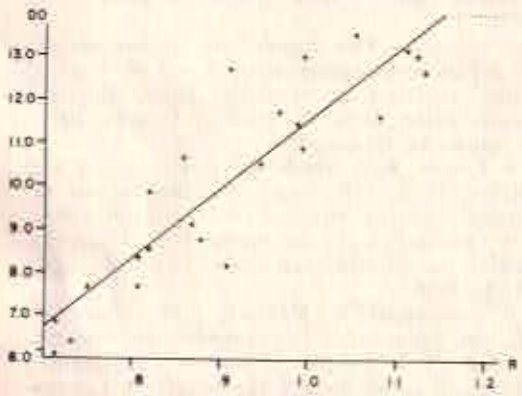

FIG. 3. Regression DO/R surgery; age 6 and over.

These results therefore confirm the two initial hypotheses. As far as the first is concerned, the fact that only two units were tested makes generalization on the basis of the results impossible. It can nevertheless be said that the regressions show that according to the estimates of staff required produced by the classification, the $R = 1$ ratio corresponds to non significantly distinct degree of occupation indexes in surgery and medicine. Because these units

differ both in the age (6 and over) and (0 to 6) of the patients they receive and in their specialty, there is a temptation to apply these conclusions to all the units. This must be verified, however, by further analysis.

Finally, it is interesting to note that according to the data obtained, at least during the period of observation of the degree of occupation, the traditional method of staff allocation tends to favor the units for children age 0 to 6 (medicine) in relation to those for children age 6 and over (surgery). While, on an average, the staff allocated to age 6 and over units equals the one estimated necessary by means of the classification (average R = 1), it exceeds by 18 per cent the one estimated necessary by the classification (average R = .82) in age 0 to 6 units. The degree of occupation observed shows that same tendency: the average DO equals 8.43 in medicine—age 0 to 6, for 11.64 in surgery—age 6 and over.

## Other Uses of the Instrument for Evaluation of the Degree of Occupation

As illustrated by the preceding considerations, the instrument may be used with the traditional procedure of staff allocation in order to see whether all units are dealt with fairly by the procedure. The existence of significant differences between the degrees of occupation observed in the various units would indicate a certain discrimination in the way units are staffed to meet the same demand.

While the instrument can be used for controlling the traditional staff allocation procedure, it has been devised primarily to control the procedure of evaluation of staff requirements on the basis of a patient classification system. The way the instrument is used is then the same as illustrated in section 4 with regard to the validation of the classification, as control is finally a periodical revalidation.

## Conclusion

The scope of the instrument for the degree of occupation is of course limited: there is no way of quantifying its accuracy; the indexes provided are relative ones, only indicative of an order but meaningless as far as an absolute value is concerned, the instrument can be used only when operating conditions are not at all or very slightly perturbed; it cannot take into account the quality of care or the rapidity of staff members in carrying out their activities. Considering those restrictions, the results obtained seem all the more remarkable. Even though the instrument may be improved, it is already operational in its present form and it constitutes an uncostly medium for validation and control of a patient classification system.

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