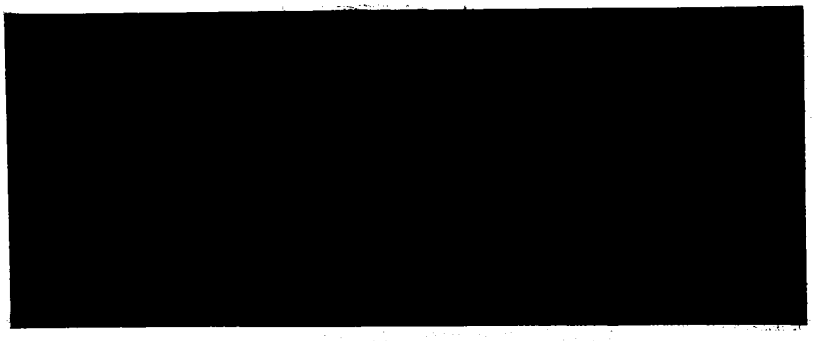
CASPE
RESEARCH

King Edward's Hospital Fund,
14, Palace Court, Bayswater,
London W2 4HS,
Telephone : 01-229 8739

# COST PLANNING for NURSING SERVICES



CASPE Research are exploring Clinical Accountability, Service Planning and Evaluation in the N.H.S.



CASPE RESEARCH PROJECT

King's Fund College

# COST PLANNING
# for
# NURSING SERVICES

A Report of a Day Seminar held at the King's Fund College on 28 May 1981

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## INTRODUCTION - THE SEMINAR'S OBJECTIVES

Dr. Iden Wickings opened the seminar by welcoming those present and then referred to the objectives for the day that had been in the minds of the CASPE Research staff when the day was planned. These objectives were to review some of the current initiatives in the nursing field in the U.K. to see what methods could wisely be incorporated in the new financial systems being tested in those Districts currently working with CASPE, which included Brent, East Birmingham, Oldham and Southend. He defined cost planning essentially in the terms of the economist's definition of an Opportunity Cost - the value of the alternatives of other opportunities which have to be forgone to achieve a particular thing. In the context of the seminar therefore, interest was being concentrated on formal systems to aid the review of the costs and relative benefits of different parts of a district's nursing services.

Dr. Wickings pointed out that this concentration on the opportunity costs of redeploying the existing nursing resource was becoming ever more relevant now that all developed countries were finding it necessary to slow down the rate at which total health care expenditures had been growing. In 1977 there were more than twice as many hospital nurses as in 1949 but it would be foolhardy to expect the growth of recent years to continue:

| Nurses and midwives per 100,000 population in the U.K.(1) | | |
|---|---|---|
| 1974 | - | 621.7 |
| 1977 | - | 770.1 |

The chilling reality that there would almost certainly be less growth in nursing staff numbers in the future emphasised the need for improved cost planning but such restrictions must also be seen in the light of various research reports which had clearly demonstrated the especial value of nursing care compared with other resources eg. Cochrane et al (2) and Proctor et al (3). Nonetheless, the consideration of the opportunity costs of different ways of deploying or managing the nursing resources within a District deserved to receive more attention in the future than it had in the past. The distinguished speakers invited all had experience to draw on that was directly relevant to this question.

References

(1) OHE Compendium of health statistics, 3rd edition, 1979

(2) Cochrane, A.L., Leger, A.S. and Moore, F.
Health Service 'Input' and Mortality 'Output' in developed countries. Journal of Epidemiology & Community Health, 1978; 32: 200-205

(3) Proctor, J., Stein, G. and Milne, R. (Dept. of Political Economy, University of Glasgow) 'A Comparative Analysis of Hospital Performance: General Hospitals in Scotland' - Awaiting Publication.

LIST OF PARTICIPANTS

| | |
|---|---|
| J. Aitken Esq | Senior Nursing Officer (Personnel)<br>Southend Health District |
| D. Banks Esq | Charge Nurse(Psychiatry)<br>Southend Health District |
| Miss J. Beare | Nursing Officer(Renal Unit)<br>East Birmingham Health District |
| N. Bellamy Esq | Nursing Officer(Psychiatry)<br>Southend Health District |
| Mrs. V. Bull | Director of Nurse Education<br>Southend Health District |
| E.A. Camp Esq | District Finance Officer<br>Southend Health District |
| Miss M. Cattermole | Senior Tutor(Midwifery/Education)<br>Southend Health District |
| Miss C.M. Chapman | Director of Advanced Nursing Studies<br>Welsh National School of Medicine |
| T. Coates Esq | Nursing Officer(General Division)<br>Southend Health District |
| R. Coddington Esq | Senior Nursing Officer<br>Southend Health District |
| J.M. Coles Esq | Operational Research Scientist<br>CASPE Research |
| Mrs. J.A. Davies | Senior Nursing Officer(Staff Officer to D.N.O.)<br>East Birmingham Health District |
| Miss J. Day | Regional Nurse(Service Planning)<br>Trent Regional Health Authority |
| A. Dickenson Esq | Nursing Officer(General Division)<br>Southend Health District |
| Miss T.R. Dowd | Community Midwife,<br>Southend Health District |
| A. Etti Esq | Senior Tutor (Runwell Hospital)<br>Southend Health District |
| Miss J.F. Flindall | Area Nursing Officer<br>Oxfordshire Area Health Authority |
| Miss C. Hancock | Area Nursing Officer<br>Camden and Islington Area Health Authority |
| Miss V.E. Hanson | District Nursing Officer<br>Southend Health District |

| | |
|---|---|
| Mrs. V.J. Harris | Acting Area Nurse(Planning)<br>Oldham Area Health Authority |
| Mrs. A. Harrison | Health Visitor<br>Southend Health District |
| C.V. Hobson Esq | Nursing Officer(Community)<br>Southend Health District |
| S. Indran Esq | Senior Assistant Management Accountant<br>Brent Health District |
| Ms. V. Little | Planning Administrator<br>NHS Financial Information Project |
| Mrs. B. Long | Nursing Officer(Community)<br>Southend Health District |
| Miss N.M. Lyne | District Nursing Officer<br>Ealing Health District |
| Miss I. MacPherson | Research Fellow<br>Department of Social and Economic Research<br>Glasgow University |
| Miss G. Markwell | Nursing Officer(General Division)<br>Southend Health District |
| Miss M. McKenna | Nursing Officer(General Division)<br>Southend Health District |
| Miss R. Midson | Ward Sister(General Division)<br>Southend Health District |
| R. Milne Esq | Lecturer, Department of Political Economy<br>Glasgow University |
| Dr. B. Moores | Tutor, University of Manchester<br>Institute of Science and Technology |
| J. Moy Esq | Nursing Officer(Psychiatry)<br>Southend Health District |
| Miss M.E. Pendry | Acting District Nursing Officer<br>Brent Health District |
| Miss J. Plant | Area Nursing Officer<br>Cleveland AHA |
| D. Read Esq | Nursing Officer(Community)<br>Southend Health District |
| Mrs. P. Riley | Senior Tutor, School of Nursing<br>East Birmingham Health District |

| | |
|---|---|
| Mrs. E. Rossati | Ward Sister(Psychiatry)<br>Southend Health District |
| K. Rundle Esq | Assistant District Finance Officer<br>Brent Health District |
| R. Stern Esq | Research Team Leader<br>Southend Health District |
| W.A. Telford Esq | District Nursing Officer<br>East Birmingham Health District |
| Mrs. B. Tomenson | Research Team Leader<br>Oldham AHA |
| Miss S.E. Webber | Senior Nursing Officer(General)<br>Southend Health District |
| Mrs. J. Westcott | Acting Research Team Leader<br>East Birmingham Health District |
| Mrs. J. Whalley | Ward Sister(Psychiatry)<br>Southend Health District |
| Dr. H.I. Wickings | Project Coordinator<br>CASPE Research |

## FINANCIAL AND PLANNING INFORMATION FOR NURSE MANAGERS

Miss Josephine Plant, Area Nursing Officer Cleveland Area Health Authority, took as her starting point a quotation from the excellent document "Orthopaedic Services - Waiting time for outpatient appointments and inpatient treatment" - the report of a working group chaired by Professor Duthie.

> "It is or should be universally recognised in the Health Service that no clinical unit will ever properly establish a claim to increased resources from a limited overall provision of hospital facilities until those who direct its affairs have satisfactorily established that they are already using the resources they have to the best possible advantage and will be able to make full and efficient use of whatever else it may prove possible to allocate to them."

She said that while this quotation, and indeed the whole report was related to orthopaedic services, the philosophy and thinking behind it could be applied to all NHS activity whether hospital or community service, preventative or curative activity; existing or planned future provision.

Miss Plant emphasised that financial information for nurse managers must be useful at least on two levels:-

1) For present financial control
2) For future planning

1) Financial control

She pointed out that delegation of the responsibility for controlling the nursing budget to levels closer to clinical activity than the District or Area Nursing Officer had not been uniform nationally. However, it appeared that the intentions of the present Government were that delegation would become mandatory to at least one level down. This movement appeared to make sense when one considered that most NHS revenue expenditure was triggered either directly or indirectly by clinical activity - although Miss Plant was not certain how far one could define preventative medicine as clinical activity. Thus it seemed logical to delegate financial control to a level at which expenditure was incurred and at which one might therefore assume decisions could be influenced.

However, Nursing was an hierarchically organised service, and as currently constituted tried to achieve more than the one objective of direct patient care. Without ever having defined in measurable terms what is meant by "the quality of nursing care," the profession nonetheless strive to improve it!

Running the primary objective of high quality nursing care a very close second was the objective of providing basic nurse training which carried with it the constraints on nurse allocation imposed by the General Nursing Council. In addition there was a responsiblity to ensure that trained nurses are kept up to date with modern thinking and advances in the treatment and care of patients. Miss Plant pointed out that with the exception of midwifery there was no statutory right to study leave in the nursing service with the result that post basic training and inservice training may not be adequately financed to cover both course fees and expenses, and replacement staff. She thought it unlikely that the situation would be contemplated whereby the level of manager to whom budgetary control is delegated would also carry the responsibility for that budget. She believed that Chief Officers would always be held accountable for budgetary control, but looking at the nursing service in isolation, while student and pupil nurses remain an integral part of the nursing team she did not think it would be possible or desirable to remove final control and accountability from the nurse at Chief Officer level.

It followed that financial information for the Nursing Service must be useful and comprehensible at more than one level of management. Indeed different levels of management would require different information. Miss Plant said that when she was a District Nursing Officer, budgetary control was delegated to SNO level though information was given also to Nursing Officers. The Inservice and Post basic education budget was delegated to the nurse responsible for that activity.

(i) The total bid for the nursing budget

was built up on an historical basis with future predictions added as the exercise progressed;

(ii) The budget for basic nurse training

was separately identified, and was a compromise between manpower planning exercises to determine their future needs for trained staff, the adequacy of the clinical experience

for training purposes and the adequacy of the existing numbers of trained staff for the supervision and teaching of nurses in training;

(iii) The budgets for the service SNOs areas

were then identified. Information required at this level, having agreed the basic training budget, was the programme of learner allocation for clinical experience, and the clinical workload expected, based on the previous year's experience. Within guidelines relating to minimum numbers of staff in various grades, the SNOs agreed with the Divisional and District Nursing Officers a budgetary bid based on Nursing Auxiliaries, Enrolled Nurses, Staff Nurses, Ward Sisters/Charge Nurses and Nursing Officers - or the relevant grades in the Community. Other posts which would be of benefit to all were also agreed by nurse managers as being a proper charge on the nursing budget, e.g. Personnel, Inservice Training, Staff Health, Infection Control. By involving all nurse managers in the build up of the Nursing Budget, their commitment to it was obtained, and when in the following financial year they received their monthly statements, they knew how those statements were computed and were able to take action to keep within their budgets.

Miss Plant described one of the first problems encountered with this system which was the SNO who said: "How can I be overspent when I am understaffed against the establishment on which I know my budget is based?" Total numbers employed was only one of the variables influencing the level of expenditure - the mix of different grades, the level of enhanced hours payments and the level of overtime payments all contributed to the overall position, and the financial information to nurse managers needed to be sensitive enough to indicate which variables were contributing to the overspending, and whether any remedial action being taken was effectively contributing to a reduction of the overspending. She explained that the first time a nursing budget was formulated, it would probably be on the basis of:-

STANDARD NUMBER W.T.E. x STANDARD MIX OF GRADES AT STANDARD RATE OF SALARY

By substituting ACTUAL for STANDARD in the above equation one could progress through a series of formulae leading from the budget in the standard formula to actual expenditure and by so doing reveal how the variables have contributed to any over or under - spending. Warning

signals for the future might also become apparent. For example, an over-spending on numbers employed might be masked because of recruitment of nurses to lower grades than planned, and furthermore, that those nurses were recruited at the bottom of the salary scale. Failure to take remedial action at this point could result, in a year or two's time, in an over-spending trend which was likely to be extremely difficult to correct.

Ideally, therefore, monthly budgetary statements to Nurse Managers, as well as providing details of the cost of staff in post by grade, should also include a variance analysis of the over and under-spendings attributable to:-

Total number employed
Overtime payments
Mix of grades
Enhanced payments
Basic rate payments

and in summary state the net over or under-spending for the appropriate portion of the year.

Miss Plant suggested that for this system to be meaningful, budget holders needed to be in control of around 200 staff working in homogeneous areas where the variables can be seen to be applicable. In her own experience, Community and Midwifery seemed to have the majority of their staff at the top of the salary scale, and over-spendings were thus incurred, whereas over-spendings in Theatres and Psychiatry were attributable to overtime payments.

It was likely that for this system to be implemented the Finance Department would require more clerical time and/or computer facilities.

2. Financial and Planning Information for the Future

In February of this year, Christine Hancock was reported in the Nursing Press as saying that the Nursing Profession failed to make the best use of the nurses it had; "We waste", she said, "and the waste is considerable."

Miss Plant said that more recently at a conference on Manpower Planning, it seemed to her that by the end of the day plenty of ideas had been put forward about the information which could be collected, collated and analysed - all good, useful information which would highlight what was happening in the labour market; which would in turn help in formulating recruitment policies and policies aimed at retention of staff. The unanswered fundamental questions were more difficult -

> "What is nursing?
> Who sets nursing objectives and how are they set?
> To what extent can the nursing service control its own workload and to what extent should we continue to plan for expansion in the nursing services when we know from existing data if not from personal observation that the resources we have are not being used optimally?
> Can we afford to have nurses staffing empty beds?
> Can we afford the increased morbidity associated with poor nursing care?"

If the supply side of the equation was "poor nursing", the demand side of that equation would be "more nursing". Thus the first sort of information needed by nurse managers concerned the standards of nursing care. Were the Nursing Policy and Procedure Manuals regularly updated in the light of the latest research results and modern practice? If the answer here was 'YES' then the follow-on question should be: "Are these policies and procedures known and being practiced by the nursing staff?". Miss Plant suggested that perhaps in the light of recent events at Bromsgrove General Hospital it was no longer necessary to underline this aspect of the responsibility of a nurse manager. Having carefully studied what the General Nursing Council has to say about its requirements to safeguard nurse training, the nurse manager should collect information, discuss and form policies about the appropriate mix of staff to undertake the care of the patients.

The type of questions to be considered include:-

(a) Is it appropriate to employ SRNs to do all the bed baths which could perhaps be undertaken by Nursing Auxiliaries?

(b) If one could employ three auxiliaries or two SRNs at Ward Sister grade - which would be the better buy in terms of speedier recovery for patients?

(c) When bidding for next year's budget, should we bid for quality or quantity?

Miss Plant said that management tools such as Nurse/Patient Dependency study calculations could be used to help in assessing a requirement for pairs of hands, and referred to the fact that in the Northern Region they had undertaken an evaluation of the Aberdeen Formula which had been generally well accepted. However, it should be remembered that Nurse/Patient Dependency Studies provide only part of the answer, and she suggested that they were of limited use across an area as large as a Region. She found the most worrying statement in the whole of the Northern Region's report to be:-

"Computer programmes now exist ..... for the determination of Regional dependency values ...." She pointed out that one of the tables in the report gives the Range and Regional Average Dependency by specialty, and in one instance the average dependency is 0.68 with a range across the Region of 0.29 - 1.00. This highlighted the need for nurse managers to ensure that they are aware of their own local circumstances. If nursing budgets were allocated for that specialty on the basis of the Regional Average Dependency, then locally the result could be considerable under or over funding - either of which would waste resources - on the one hand by having too many nurses for the workload generated and on the other by having too few nurses which could result in poor nursing - generating a need for more nursing rather than more nurses. This would have the effect in all probability of a longer duration of patient stay. Patients who stay in hospital for a longer than average length of time are of course likely to have a higher proportion of that stay in a semi-convalescent state, thus reducing their average dependency on the nursing staff, but perhaps making a significant contribution to high ward occupancy levels.

In Miss Plant's view, estimates of nursing establishments based on dependency studies needed supplementing by a critical review of the use of resources. This could easily be obtained from SH3 data. This was, however, produced in the form of a sheet of figures relating to average available beds, average length of stay, numbers of deaths and discharges by specialty, etc. (see Figure 1).

Figure 1

DATA FROM SH3 RETURN

| | AVERAGE DAILY NUMBER OF AVAIL. BEDS | AVERAGE DAILY BED OCCUP. DURING YEAR | DISCHARGES/ DEATHS DURING YEAR | AVERAGE DURATION OF STAY IN DAYS |
|---|---|---|---|---|
| SPECIALTY A | 76.0 | 20.4 | 2367 | 3.1 |
| SPECIALTY B | 53.0 | 16.5 | 1117 | 5.4 |
| SPECIALTY C | 81.0 | 64.0 | 2970 | 7.9 |
| SPECIALTY D | 118.0 | 88.3 | 2789 | 11.6 |

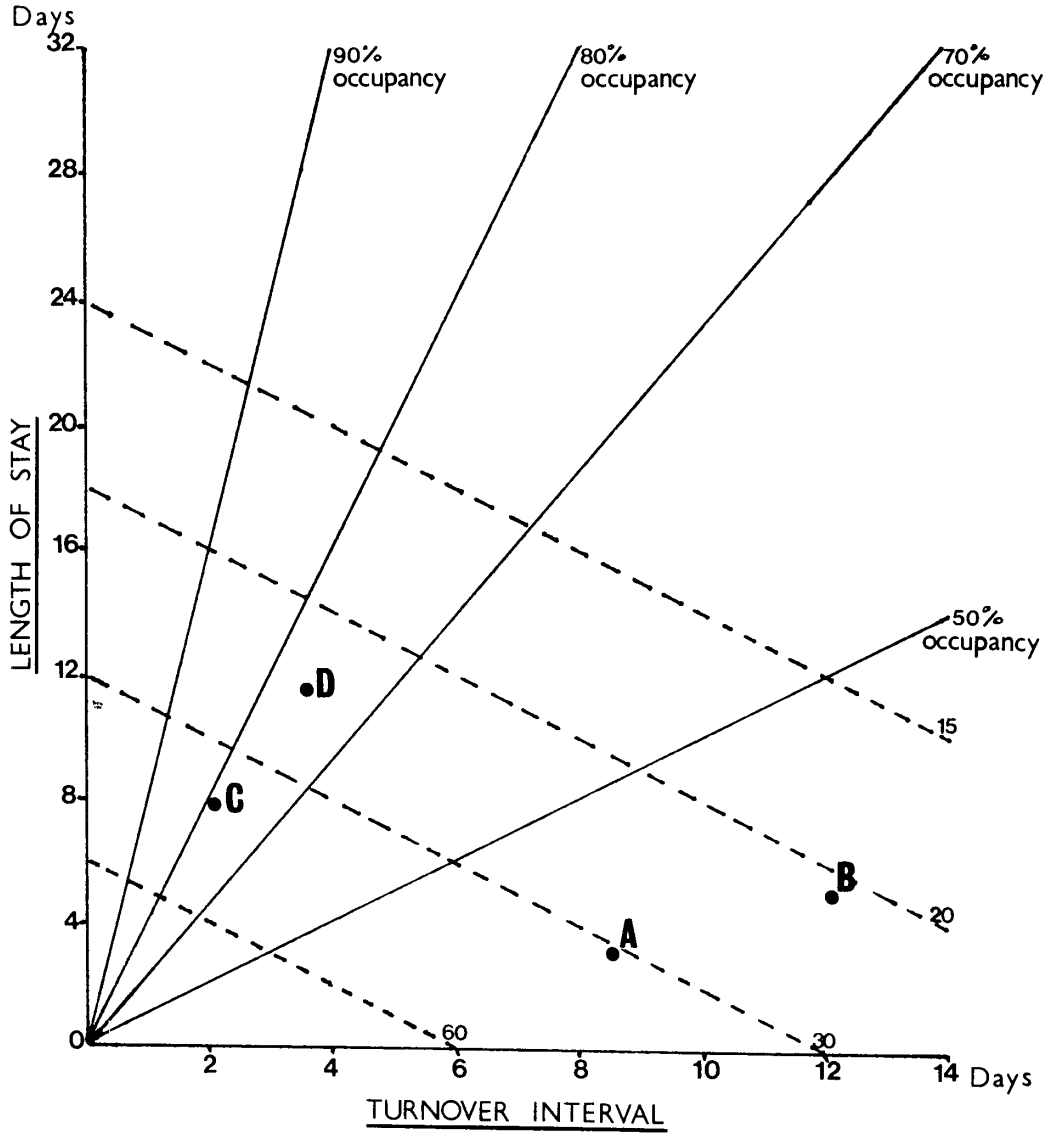
She personally found diagrams easier to understand and explained how to use a basic formula (see Figure 2) to turn SH3 figures into a diagram or scattergram (see Figure 3)

Figure 2

| | |
|---|---|
| Basic Formula to plot scattergram | T = (A - O) x 365÷ D |
| Specialty A | T = (76 - 20.4) x 365 ÷ 2367<br>T = 8.57 |
| Specialty B | T = (53 - 16.5) x 365 ÷ 1117<br>T = 11.93 |
| Specialty C | T = (81 - 64) x 365 ÷ 2970<br>T = 2.09 |
| Specialty D | T = (118 - 88.3) x 365 ÷ 2789<br>T = 3.89 |

T= Turnover Interval
A= Average no. of available beds
O= Average no. of occupied beds
D= Annual no. of deaths & discharges

## BARBER JOHNSON DIAGRAM For Specialties 'A', 'B', 'C', 'D'.




Ratio LOS : TOI = 2:1

------15 (20,30,60) = Points of constant number of discharges per available bed.

$T = (A - O) \times 365 \div D$ where T = Turnover Interval
A = Average no. of available beds
O = Average no. of occupied beds
D = Annual no. of deaths & discharges

Miss Plant explained that from the Barber Johnson Diagram for the four specialties A.B.C.D. it was easy to see that for Specialty A a bed was empty, on average, for more than eight days between the discharge of one patient and the admission of the next (turnover interval), a little

in excess of thirty patients went through each bed in a year and that the bed occupancy was well below 50%.

Specialty B was in a very similar position except that the turnover interval was even longer and fewer patients went through each bed in a year. Without reducing the level of service, there should be room in these two specialties for bed closures. Alternatively, close scrutiny might reveal ways of increasing the activity in these areas. It could be seen that specialties C and D, which had shorter turnover intervals, higher bed occupancies and average lengths of stay for these specialties, did not appear to offer cause for concern.
Careful study of such data could well suggest ways of rationalising the use of existing resources, such that not only was a surplus of nurses created which would be sufficient to cover the demand quantified by use of the Aberdeen Formula, but also sufficient slack in the system might be discovered to enable the DMT to agree an improvement or extension of service to a locally deprived group of patients.

In her own Area, when faced with the prospect of implementing the 37½ hour week without, in their opinion, the ability to recruit the "replacement" staff, this kind of analysis was undertaken for all the hospitals in the area in order to define the scope for rationalisation to cover any remaining deficit in staffing on April 1st, 1981. As a purely paper exercise and based on the obviously false assumption that all beds were interchangeable - i.e. that one could nurse Lassa Fever in the next bed to a premature baby - it was found that the 37½ hour week could have been implemented with no replacement nursing hours by closing beds surplus to requirement. Of course the reality was somewhat different, but when cash limits and the shorter working week came together it was acknowledged that resources were being wasted and some rationalisation indeed had taken place. The Finance Officers were quite quick to calculate the degree of rationalisation required to achieve the desired savings!

Financial Information for planning purposes

Miss Plant said that she pinned her hopes on the Standard Accounting System and the developments which were expected to flow from it such as specialty costing and disease costing. However, this would not take care of the equally necessary exercise of investment appraisal by which it should be possible to determine that the sum identified from SAS data as the probable cost of providing a given service is, in the context of that Health Authority, being used in the most cost effective manner.

In conclusion, Miss Plant said that although she had spoken at some length about measurement of nursing care and the accounting of nursing costs, the introduction of a changed clinical policy or new technique could throw the best predictions awry. Over the last two or so years the introduction of METRONIDAZOLE (Flagyl) into the management of appendicitis and colorectal surgery had dramatically cut the general surgeon's demand for resources. The simultaneous introduction of stable knee and hip joint prostheses had led to an escalation of demand for nursing care on orthopaedic wards.This changed mosaic of hospital provision posed a challenge both to the nurse managers and to the nurse educators - neither of whom were ever consulted before the clinical scientists made their new discoveries.

DISCUSSION

Discussion focussed on the difficulty of obtaining cost and statistical information about all the care given to a particular episode - i.e. treating the patient to a conclusion. It was suggested that transferring a patient to a pre-convalescent hospital could give a misleading length of stay in the acute ward while overall costs may not be lessened by the transfer. It was agreed that the relative costs of the various care options were important factors to consider, but that the potential underuse of particular grades of staff should be borne in mind. An extension of these difficulties, imposed by the NHS Financial systems, was that only the cost to the Authority was considered and not the cost to the patient and the community.

The relationship between the various administrative statistics and a measurement of workload (in turn demanding staff resources) was questioned. An increase in % occupancy or decrease in length of stay may require more nurses rather than being the result of an increased establishment. It was generally agreed though that movements in these measures should provoke a critical examination of the use of capital and revenue resources, in particular the possible use of 5 - day wards.

## SOME OBSERVATIONS ON COSTS OF PROVIDING A NURSING SERVICE

Dr. Brian Moores, Tutor, Institute of Science and Technology, University of Manchester, began by putting forward four propositions around which his talk would be based. These were that:-

(i) the NHS compared with the rest of the economy has relatively few monitoring tools which are used effectively;

(ii) the nursing service is not as well managed as it could be;

(iii) NHS managers in general have not picked up and used many of the published techniques or analyses that are available and directly relevant to them;

(iv) nurse managers should recognise their responsibilities for organising services and long-term planning on a more far-reaching basis than they do at present.

Expanding on item (iv) in particular he said that it was perhaps ironic that there was a considerable vocal concern about getting more nurses back to the bedside with the RCN pressing for Professional Accountability while the medical profession was moving towards more accountability to society. On the whole he favoured statistical monitoring rather than peer group reviews and said that measuring certain facets of work could give one a feel of the situation and the relationships between the inputs and quality of care. By way of example, a number of slides were shown relating to a study of two mental handicap hospitals which suggested that staff in a better staffed hospital tended to express more optimism about the effect of care on patients and also to provide better care. Figures 1 and 2 reproduce those two slides.

Figure 1

Statement: Despite any amount of training only a very few high grade patients could hope to hold down a job in the community

No. of Respondents

| | Disagree | Uncertain | Agree |
|---|---|---|---|
| Hospital A | 15 | 15 | 84 |
| Hospital B | 40 | 11 | 57 |

Figure 2

Patient Activity Patterns in the Industrial Therapy Unit of the two hospitals

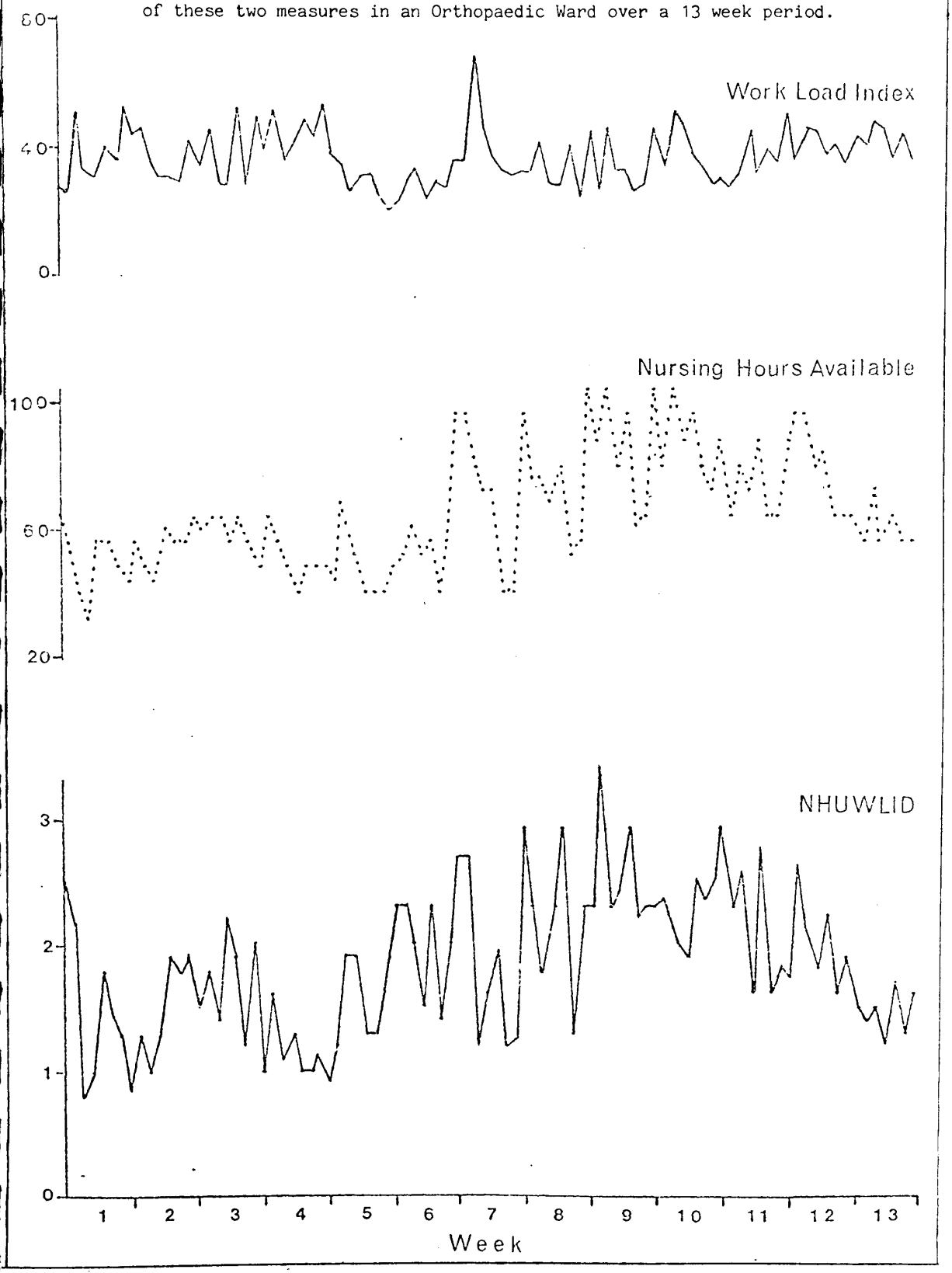
| | Adaptive Act. | Maladaptive Act. |
|---|---|---|
| Hospital A | 52% | 48% |
| Hospital B | 72% | 28% |

Dr. Moores then focussed his attention on workload in the nursing service and the allocation of nurses by grade to meet this workload. He quoted figures taken from a national sample of hospitals which showed that 62% of trainees felt that they were frequently allocated to wards before covering the appropriate theory in block and that 55% said that first year trainees were occasionally or frequently left in sole charge of a ward at night. Looking at the information on a more detailed level, graphics were presented (Figure 3 for example) showing for a particular ward, daily fluctuations in workload and the nursing hours available. Matching the hours available to the workload would have produced a ratio of the two quantities which was constant over time. However, the actual ratio (NHUWLID) showed more variation than either workload or nursing hours suggesting a mismatch within the allocation. Further analysis could determine whether the variation could be explained by an inability to provide the appropriate number of staff in different weeks (possibly due to bad planning of holidays or student nurse allocation) or within weeks due to unsatisfactory off duty rotas. He suggested that a major cause was the variability in the number of student nurses available for ward duties each week and to support this showed a graph where the number of trainees available for ward duty in a hospital fluctuated between 220 and 310 and another where the number assigned to the medical wards ranged from a low of 16 to a high of 82! Improved planning could lead to a more stable situation which would avoid too few or too many learners being allocated to wards, either of which was bad for training.

Measurements of nurse dependency were often used to improve the allocation process and this was a better method than allocation by patient numbers. Dr. Moores, however, felt that nurse dependency figures were better used in a relative setting, i.e. Ward A needs twice the level of nursing (Ward A v Ward B) today as against yesterday rather than in determining the actual level of nursing required. He thought that the future of dependency studies lay in moving away from "boxing" patients into categories e.g. Medium Care, Self Care, etc. and moving towards schemes with a task orientation as for example the very successful scheme devised at Montreal (PRN80) which is widely adopted in North America. In this way appropriate standards of care would be agreed, together with an approximate amount of time - that nurses, by grade, if appropriate, could be expected to spend on each task. This could form the basis of a data bank which would be used to assess an appropriate nurse allocation.

Figure 3

Fluctuations in Nursing Hours Available Nursing Work Load and the ratio of these two measures in an Orthopaedic Ward over a 13 week period.



Dr. Moores stressed the importance of learning from Research findings and that nurse managers should require their implementation by their Authorities. The positive role of monitoring systems such as those concerning nurse allocation, through encouraging staff and reinforcing the views of good managers as to their capabilities, was emphasised.

The question of how many nurses there should be and whether the NHS was training the appropriate number was then considered. Research in the United States had shown that increasing the number of nurses did not necessarily lead to more nursing per patient, and research at St. Mary's, Paddington, had suggested that instead of the prevailing ratio of 1 qualified nurse to 3 trainees a more affective ratio would be 3 qualified nurses to 1 trainee together with an appropriate number of nursing auxiliaries. This would provide a more appropriate mix of the ward with tasks being carried out by trained staff where necessary and would remove the learner nurse from being responsible for a whole ward during the night. At present learner nurses provide up to 75% of the direct patient care below sister level. It was pointed out that in order to produce a qualified nurse, an Authority had to forego an opportunity cost of about £7000 over three years and the student nurse should not be looked on as a source of cheap labour. Dr. Moores said that 14,000 new SRNs were produced annually to "top up" a work force of 92,000 and that a major objective of nurse managers should be to change the qualified:learner ratio by training fewer nurses, but ensuring their retention in the service. A third of those that enter nursing at 18 will have left within the first ten years with a proportion rejoining in later life. He asked whether the time was right to consider a change in the recruitment strategy.

In summary Dr. Moores stressed the relationships between quality of care and workload and between quality and cost. Nurse managers should spell out the quality of care to be provided for the finance available and should then ensure that available quantitative techniques are used to monitor the use of the nursing resource. In some areas a radical approach to the existing methods could well be needed.

DISCUSSION

Discussion on Dr. Moores' paper centred on the current pattern of recruitment and training and the opportunities, if any, that existed for change. There was general agreement that the policy of attracting young girls, aged 18 say, into the service, may have increased the problems of wastage that nursing experienced. The problem of achieving a large, stable and qualified

workforce would be exacerbated over the next ten years since, due to population factors, the labour market from which nursing currently attracts recruits will reduce by around one-third. It was agreed that the nursing service had to be presented as an attractive proposition to would-be recruits and that in attracting different types of person, flexibility in training and work opportunities were of great importance. The fact that nursing as a profession employed a substantially lower percentage of married women than comparable jobs should be examined and it was suggested that attempts should be made to remove the barriers which exist at present e.g. unsocial hours etc.

## 'TIME OUT'- THE COSTS AND BENEFITS OF PROVIDING INFORMATION ON THIS TOPIC

### 1. Introduction

Mr. Bert Telford, District Nursing Officer, East Birmingham Health District, introduced his presentation on the subject of 'Time-Out' as follows:-

'Time-Out' from work, whether it be sickness, short-term absence, or just plain annual leave, had long been a headache for management. In recent years it had become a problem of increasing importance, as the amount of time lost from work, for whatever reasons, had increased.

There was no simple reason for, nor indeed complete answer to the problem. Some writers had indicated the major reasons as being the stresses and strains of the Western industrialised society, the Welfare State, and a change in social attitudes towards work.

Mr. Telford said that whilst accepting all these facets of the problem, nurse managers would perhaps appreciate that more local factors, which they could influence to some degree, were possibly worth more attention. For example, morale factors, management attitudes, and the working environment. As far as management was concerned, 'Time-Out' fell into two broad categories - that which managers could to a greater degree control (e.g. annual leave) and that which they could not (e.g. sickness). He explained that his presentation would be biased towards this latter element, or 'Uncontrolled Time-Out', but it had to be accepted that one may well have an influence on the other.

### 2. Some uses and benefits of the information

He believed that if staff were made aware of the fact that management was monitoring 'Time-Out', and managers did nothing more than inform staff, then the amount of 'Uncontrolled Time-Out' would fall. This had been demonstrated in projects researching sickness/absence, but the reduction had always been transient.

A system which monitored 'time-out' and produced relative information, appropriate to an individual manager's needs, along with an educative programme for the managers on how to use the information could not only cause the initial reduction in 'Time-Out' to take place, but could help to keep that level down. The system described in 'Time-Out' - A Matter for Management'(1) had produced information required by various levels of management, and the uses and benefits of the information tended to

fall into several categories.

3. Allocation, control and monitoring

Information relating to a Management Unit could indicate if staff generally, or specific grades of staff, were having a higher than acceptable rate of 'Time-Out'. If it was general, some questions to be asked included:-

(a) Is it related to the management style of the manager?

(b) Is there a lack of management support?

(c) Is it a busy unit with a consistently high workload and associated pressures, or conversely, are there too many staff for the work available?

In any of these cases, it could be that the staff are expressing an informal solution to the problem, and one could rightly be sayingto senior managers: "Why, and what is being done about it?"

Mr. Telford said that one of the important aspects of 'Time-Out' information was that a manager clearly knew the number of grades of staff actually available to do the work, and could possibly assess whether it was pressure or boredom. Compatible information on the use of Bank Nurses, hours extra to contract, and overtime would speed up the diagnosis. He referred to the fact that it had been said that high absence rates were a prelude to labour turnover, but he believed it could equally be said that perhaps it helped prevent turnover by acting as the escape valve.

If a particular grade of staff was highlighted by the information, consideration could be given as to whether it could be a problem of skill mix? Or perhaps in a unit or area certain staff were not being deployed or utilised effectively? This could apply to overskill as well as underskill situations.

Uncharacteristic 'Time-Out' rates in groups could indicate problems, but this was more significant and appropriate at the level of the individual staff member. It was here that patterns of 'Time-Out', as against total time lost, were important, for this type of information might be required for counselling, or even disciplinary proceedings.

In addition a change in the attendance pattern of an individual could indicate personal problems or ill health, and wise counselling, or referral

to an Occupational Health Department, could be beneficial, showing staff that management was interested and actually cared!

Senior managers could monitor all units under their control, could make comparisons between grades and units, and the information could act as a sensor of the morale or health of their part of the organisation.

4. Planning

Mr. Telford believed that a vital aspect of a nurse manager's job was to review existing, and consider future staffing levels. In order to make a realistic assessment of this need, appropriate allowances needed to be built into establishment budgets. The use of retrospective information showing trends was useful for this type of exercise, but care needed to be taken to ensure that ineffective, or even bad management, is not unfairly advantaged. Although the 5% norm for sickness, etc. was questionable, making an allowance based on a bad performance record would only encourage bad practice.

He said that managers had to make short-term decisions by forecasting annual leave, study leave, etc., but the uncontrolled element must also be considered in even short-term forecasting. This was perhaps particularly important in specialist units where even 'a pair of qualified nurse hands' could be of no help at all.

Too aften nurses just 'coped', but in doing so they allowed standards to fall and there must come a time when patients could be considered at risk. The use of 'Time-Out' information, plus overtime and hours extra to contract reports, could assist nurse managers in planning for a more effective use of staff, and help in getting the best value from the budget.

5. Some special uses including administrative procedures

Mr. Telford suggested that the Occupational Health Department should not only monitor individuals, but also groups of staff and units within the total organisation.

The individual's attendance record might well be discussed as part of an appraisal interview. Similarly, the individual record could also be used in disciplinary situations. Special note of an individual having time out as a result of an accident at work was likely to become more important with recent legislation and, of course, the Pay Office would

require details of any time out that affects an individual's pay.

6. Financial benefits

A major benefit of this scheme must be the very large notional cash savings that could be made by effectively using a 'Time-Out' system. Although the cash was notional, there was a very real saving in whole-time equivalent staff at work, who may otherwise not be there, but in any case could be being paid. Mr. Telford said that in the East Birmingham Health District the gain was almost 3%, and so real was it, that the Finance Officer made a case to the District Management Team to reduce the nursing budget by some 26 whole-time equivalent staff.

7. What does it cost?

The costs of any information system would obviously vary with the system being introduced. The costs discussed by Mr. Telford were therefore only relevant to the 'Time-Out' work at East Birmingham Health District, but would obviously give some guide as to the possible sums involved.

At the time his District changed from a manual system to a computerised system, there was no 'in-house' facility available and a decision was made to develop a 'Time-Out' system using the computer agency facilities of Comshare.

The budget was initially £8000 for the financial year 1979/80, funded from savings in the Nurse Management structure. The initial capital cost involved a special revenue allocation of £1200 for the purchase of a Terminal/Printer and the installation of a GPO Modem with a recurring rental of £160. All on-line phone calls were at local call rates and although they ran at approximately 90 mins./week in the first year, since major programme changes were undertaken in January 1981, the system had been operating at less than 60 mins.terminal time.

In order to minimise the cost of the exercise, they used the overnight-run facility for most routine reports, but the immediate print facility was used as and when considered necessary.

The total expenditure to Comshare in 1979/80 was £7092, made up of -

| | | |
|---|---|---|
| Development costs | £2,645 | |
| Storage | £1,415 | |
| Running | £3,032 | |
| Total | £7,092 | 1979/80 |

The expenditure in 1980/81 was somewhat different, insofar as several unit changes were made and development for other disciplines took place, after which a System's Analyst from Comshare 'tidied up' the system to make it run on a more cost effective basis. For the first twelve months a conscious decision had been taken not to use an Archive facility for storage, but that was changed after testing the 52-week run programme. This facility, although having a 'transfer cost', was more economic than normal storage charges. The budget for 1980/81 was improved from £8000 to £11,500 by other economies, and the total expenditure was £11,753.95. The start budget was not improved for price levels throughout the year, and had this been so, then there would have been a reasonable underspend.

The expenditure for 1980/81 was made up as follows:-

| | | |
|---|---|---|
| 1. | Inputting and converting all the records from the Manual System to make the information compatible | £3,201.50 |
| 2. | Running original system April/Dec. | £3,798.14 |
| 3. | Development expenditure + 3 months new programme | £3,164.02 |
| | Medical Records staff | 803.52 |
| | Portering staff | 582.05 |
| 4. | Account supervision/line printing etc. | 204.72 |
| | | £11,753.95 |

Mr. Telford explained that if no further development was to take place, and no Ad Hoc or special research interrogations of the system allowed, then the nursing system could run within a Budget of £3,400.00 for total Agency costs. This would allow for weekly/monthly/quarterly and annual reports, with the monthly selection of information based on the most recent four months' usage.

The re-design of the system had not only streamlined the mechanical/technical aspects of the work, it also gave the opportunity to change from standard reports to an 'a la carte' style choice of report for all or any specified unit or units.

The advantages of using an Agency for development work were readily obvious, but a distinct advantage was that it instilled a discipline into the user to look for what was'needed' as against what was 'wanted'. This process of education took over twelve months in East Birmingham as initially the development was running to budget targets, and it was not

until the second year that more emphasis was placed on the cost effective aspects of the system.

Mr. Telford concluded that as a cost effective exercise, he had yet to find an equal, as for the expenditure of some £10,000 (nursing elements) there had been a real saving of some 26 whole-time equivalent staff - now at the bedside. In financial terms, using a 2% reduction in the time-out factor, this amounted to some £124,000 and they were on the way to making that 3%.

REFERENCE

(1) "TIME-OUT – A MATTER FOR MANAGEMENT" - A case study describing a computerised sickness and absence system; W.A. Telford, District Nursing Officer, East Birmingham Health District, October 1980.

DISCUSSION

The first questioner following the presentation asked how difficult the system had been "to sell" to those collecting the raw data and whether a 'positive' approach to the feedback rather than a 'negative' time away from work, was more beneficial. Motivation had not proved difficult since there had been an identified absence problem which the system was designed to examine and the clerical procedures involved decreased with the introduction of the computer.

In a wider context the use of information systems in assisting nurse managers to examine performance and workload was discussed. Mr. Telford said that his system was used in a biannual review of establishment at which staff availability, hospital statistics and the nursing process were looked at together at one time.

## RE-ALLOCATION OF NURSING RESOURCES: SOME QUESTIONS TO BE ASKED

Miss Christine Chapman, Director of Nursing Studies, Welsh National School of Medicine, observed that during the day's proceedings considerable time had been spent considering aspects of the cost of providing nursing services within the NHS. Obviously, when considering any form of expenditure, whether personal or organisational, value for money was a prime requirement. It was with this cost-benefit idea in mind that certain questions needed to be asked.

She said it was surprising that, although nurses comprise the largest 'input' factor in terms of manpower in the National Health Service, the role they filled, the techniques they used and the training they received have rarely been scrutinized in an objective manner.

Indeed, there was widespread belief amongst nurses, doctors and other health care administrators that if only there were more nurses,then patients would receive a higher level of individualised care, techniques would improve, wastage of staff would fall and complaints would be a thing of the past. The implication was, therefore, that if there was sufficient money spent on nursing services all wrongs would be righted, patient care would be of a higher quality, less complications would occur and both nurses and patients would have a higher level of satisfaction. If improved care resulted in earlier discharge from hospital, cost per patient, especially the 'hotel costs' would fall, waiting lists would be reduced and morbidity and mortality rates would probably fall. Despite the increased cost of the nursing budget the National Health Service might receive benefits in excess of the costs and therefore the increase in nursing input would be 'worth it'.

It was with this idea in mind, that there was an ideal ratio of nurses to patients,that many dependency studies had been carried out. (Barr et al 1973). Such studies had to make decisions regarding what they considered essential care for specific categories of patients and then assess how many nurses per patient they considered were required to achieve that level of care. Miss Chapman said that although this approach was helpful, there could be problems, and this was an area where she believed questions should be asked.

The level of care seen as acceptable was largely based on professional experience (not necessarily a bad thing) but was rarely supported by research. Even where research had been carried out (Norton,D & Exton-Smith, A 1962) the findings were frequently ignored and as a result patients' pressure areas still get 'rubbed' with soap, water, spirit or anointed with varying mixtures, many of which were

more closely related to black magic than science.

One example of these studies resulting in the Aberdeen Formula (Cameron et al 1976) recommended the following standard:-

"It is considered that the frequency in 24 hours stated below of the main nursing procedures will provide an acceptable standard of basic nursing care for all helpless bedfast or chairfast patients.

1. Washing of hands and face - three times.
2. Care of hair - three times.
3. Oral hygiene - two hourly.
4. Feeding as required - e.g. with hourly nourishment and/or food at meal times.
5. Bed making - once in 24 hours or more frequently if necessary, e.g. after incontinence, excessive perspiration or restlessness. In addition attention is required to ensure the patient's comfort in bed, e.g. by adjustment of pillows, back rest, bed clothes, bed appliances, etc. Patients should also be assisted from bed to chair and back to bed.
6. Attention to pressure areas - two hourly.
7. Bathing - once daily, including attention to nails and feet - whether immersion or bed bath.
8. The giving of toilet utensils when required followed by washing of hands and/or attention to genital area. This includes the use of commode or sani-chair.
9. Washing of hair - once a week for long-stay patients.
10. Shaving of male patients - daily. When possible this should be undertaken by non-nursing staff.

(a) It is understood that routine (four-hourly) procedures will be undertaken less frequently during patients' normal sleeping hours.

(b) The frequency of procedures noted above will give an acceptable standard of basic nursing care for the average helpless patient, but particular circumstances may dictate an increased frequency for any or all of these procedures."

Miss Chapman said that this acceptable standard of basic nursing care for totally helpless bedfast or chairfast patients accepted that variations might be needed, for example in item 5, but even this could become too rigid and 'routinised'. So the first question was - were all the nursing tasks carried out necessary for optimum patient comfort and satisfaction? Were some omitted that might be more beneficial, for example what about an allocation of time to talk to the patient?

Finally, how much nursing care did patients need? Some studies (Barr et al 1967) have shown that many patients are able to carry out 'self care' while in hospital. Other studies have shown that patients may be kept in

hospital or asked to return for treatment or dressings which could be done at home by community nurses (Hockey 1968). In view of the cost of hospitalisation, transport costs and time lost from work, this was probably not an efficient or effective way of delivering care, although the cost to the community, family and relatives could not be ignored.

Miss Chapman referred to another interesting aspect of most of these studies which was that little consideration was given to the grade of staff who should carry out the tasks. One of the beliefs held by many nurses was that some tasks were basic care and could be carried out by the untrained (auxiliary) or learner nurse, while others were technical and required the skill of the qualified nurse. Indeed, in these days of financial stringency, arguments were put forward for providing more nursing auxiliaries to carry out basic care as they are less costly in terms of salary levels, thus reducing the number of trained staff. It may be assumed that the SRN can encompass both the care described as 'basic' and that described as 'technical' so the obvious solution to fragmentation of care is that all patients should be cared for by State Registered Nurses!

However, it took 3 years to prepare an SRN and only 2 years to train an SEN and in most hospitals and in some areas of the community, the two were virtually interchangeable. Sy why train SRN's?

Experiments at the Loeb Centre in New York were relevant in this context. There, all care was carried out by trained nurses with assistance from aides or clerical staff. The result had been greater efficiency in care and a reduction in the time spent in hospital. Miss Hall, who initiated this pattern of care, asserted that "Unification, rather than fractionalization of nursing care, is the distinctive mark of quality nursing which can hasten recovery and rehabilitation." Obviously, if patients recovered more quickly with more skilled nursing care, then in terms of cost-effectiveness, such care might be cheaper in the long run. Miss Hall also commented that "hospitalisation should provide the patient with an environment of permissiveness and nurture where he could learn about himself, evaluate his resources and the liabilities with which he must cope." Rehabilitation was thus seen as something achieved by the patient through a learning process, the teaching of patients being another aspect of nursing care. Miss Chapman referred to McFarlane(1975) who said nurses needed to re-think their contribution to patient care so that they no longer considered some tasks 'beneath them'. However, if care could be as efficiently carried out by the untrained as the trained nurse, then the trained nurse might no longer

be needed in her present role. At the other end of the scale was the view that nurses should extend their role taking on many of the tasks at present the province of the doctor. There was no doubt that nurses could do this and as far as a cost-benefit analysis relating to doctor versus nurse cost, it would be a cheaper way of getting the job done, but what would nurses need to give up in order to take on these other tasks? Nurses had to decide whether they wished to be the main caring profession or was it their aim to become physicians' assistants. If the latter, then they required a different educational programme.

Probably even more important, because of the need to leave the clinical field if promotion was desired, bedside nursing was seen by the neophyte as having low status. Prestige lay either in the performance of skilled technical tasks, some of which were really the province of the doctor, or in managerial positions. Indeed, it could be said that many nurses never carried out the job for which they were trained, that is the skilled care of the sick. Instead, on qualification they saw their place 'in the office' completing paper work tasks for which they had had no training.

Another question therefore was, what was the nurse's role and who should fill it? Miss Chapman hastened to add that this was not a case of a demarcation dispute, but the need to assess realistically the contribution made by all grades of staff, the relative cost and benefit in terms of patient care, and satisfaction.

Education was the way in which nurses were prepared to fill their role and if, as discussed, this role was ill defined, then it was inevitable that questions needed to be asked about the type of courses provided.

Entrants to nursing ranged from those with a minimum of general education to university graduates and courses varied from 2 years' practical instruction with a small knowledge content, to 4 year degree courses. Needless to say, the first type of course was the least expensive, so how could any one be sure they obtained value for money in providing the other levels.

Miss Chapman went on to say that the rapidly developing use of the Nursing Process had emphasised the need for a logical problem solving approach to the nursing diagnosis of patient need, the planning of care and the evaluation of nursing intervention. Such activity demanded an individual who had been taught to think objectively, had knowledge of possible alternative courses of action and accepted responsibility for such actions.

All this was a far cry from the handmaid of the doctor approach, but did all nurses need this ability , or only team leaders?

Although there was considerable variation in the cost of courses, it was important to take account of their wastage rates, both prior to and following qualification. Figures were difficult to obtain and wastage from all courses had dropped since the advent of widespread unemployment. At the present time it was approximately 16% from courses leading to SRN and 10% from courses leading to a degree in nursing. Possibly more significant, however, was the fact that studies of Graduates from Manchester and Edinburgh (Marsh 1978) had shown that after 10 years, 75% were still in nursing, and a further 15% expected to return to nursing which gave a wastage rate of 10%. Numbers taking these courses were small, but the trend appeared to be continuing. Comparable wastage rates following registration from traditional courses were difficult to obtain, but appeared to be in the range of 23%-82% a year depending on grade (Redfern, S.J. 1980). At this level, it was obvious that, although the undergraduate course was more expensive initially, the expense was recouped in the longer professional contribution of the graduate.

Miss Chapman suggested that one must therefore question present patterns of nurse education. Was it appropriate for the task to be performed and did it produce practitioners who would continue in the profession?

Much publicity had been given to the next question raised by Dr. Gerard Vaughan as to whether it would be more efficient to spend money on more sophisticated equipment than more nurses. Despite the emotion such a question raised, it was reasonable. Perhaps more effective hoists would not only enable less nurses to lift more patients, but would also reduce the number of back injuries and therefore reduce nurse wastage through sickness.

In summary, therefore, Miss Chapman said, questions needed to be asked regarding the nurse's task, education and the grades of staff used in providing care for patients. If the standard of nursing care was to improve and if resources were to be used efficiently and effectively, then research must be carried out. Decisions made relating to patterns of care, manpower deployment and educational programmes must be based on knowledge of research findings not on guesswork, idealised or unrealistic policies must be dropped.

Perhaps because modern nursing received its impetus from middle class Victorian ladies it was often considered vulgar to discuss money in the same breath as patient care. The harsh realities of the present day could take no account of such sensibilities and indeed Florence Nightingale had no inhibitions when it came to finance.

Evaluation of performance always caused heartache and while it was often said that professionals could only have their performance judged by other professionals and that personal accountability was their hallmark, nevertheless nurses must learn to recognise that resources were not limitless, that choices were made as to their deployment and that these choices needed to be based on factual information rather than intuition, or tradition.

Scrutiny of nursing practice was inevitable, both by government and local management. Nursing needed to put its house in order, so that whatever the decisions, they could be seen as rational in terms of the results achieved. Cost-benefit analysis was essential if standards were to be raised.

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DISCUSSION

Discussion opened on the role of the graduate in nursing. There were both advantages and disadvantages to graduate nurse training. It could be shown that wastage among graduates was much less than among nurses as a whole, but that if the feeling developed that nurses had to be university-trained many highly suitable candidates for training would be lost. It was suggested that the smaller wastage may be due to the expectations of the graduate nurse being better met both in training and after qualification, but there was a call for the funding of all trainees to be separately identified to relieve pressure of the service-providing part of the budget.

The emphasis of the points made highlighted the need for a more flexible approach to training. It was suggested that different training/teaching options had not been researched or where they had been the research had not been applied by management . Joint appointments between clinical and research establishments was suggested as a possible improvement.

General Discussion

A number of themes underlay the period for general discussion. Firstly, it was agreed that there was a need to examine critically what nurses were doing at present. It was said that many hours of nursing care were being used inappropriately and that it was all too easy to slip into routine work without analysing the benefit to patient care. If nursing resources are not to be threatened, there is a need for nurse managers to be able to argue in positive terms on the benefits of their current procedures and the additional benefits to accrue from any increase in resources. Miss Janet Day was asked to talk briefly on the Trent formula which each year was being used to assess the best deployment of available staff using resource information (nos. of beds, nos. of nurses) by specialty. It was stressed that the technique, although based on regression, was specific to the Trent region and should be carefully adapted for use elsewhere. It was generally felt that only limited research had taken place into nursing organisation at specialty level as opposed to clinical nursing or district planning.

Turning to the question of wastage, discussion centred on the need to match individual expectations with the training and experiences offered by the service. Various types of wastage (by Unit, by District etc.) were identified and it was agreed that the conservation of Nursing skills within the service was of prime interest. Speakers felt that wastage during training could be reduced by adopting a more flexible approach to the formal training requirements and that within limits the syllabus could be adapted to "stretch" students as appropriate. The performance of routine tasks was seen as basic education but the importance of training in patient care as well as organisational skills was stressed. On this latter point, the use of ad-hoc enquiries as well as reported research results was emphasised. Examples given included:-

nurse allocation in psychiatric wards when patients are at occupational therapy;

time spent in accompanying patients to theatre;

appropriateness of meal times to nursing shifts.

In discussing what might be done to improve the identified deficiencies, members felt that the day's discussions should influence their thoughts on in-house training (both Basic and Post-Basic) and their Management

Training should receive equal emphasis with Clinical Training at Sister level. A general debate on budget flexibility between education and service headings led to a further consideration on the possible devolution of budgets. Although there was some divergency of views it was generally felt that some devolution was possible providing it was within guidelines and/or parameters set by the Chief Officer who was accountable to the Authority. Delegation of responsibility requires that top managers should highlight 'ground rules' and should produce an effective monitoring system.

POSTSCRIPT - What have we learned ?

In the introduction I spelled out the seminar's objective as being to review some of the current initiatives in the UK that could contribute to improved cost planning of nursing services. In particular, I stressed the need for better techniques to be developed for reviewing, and then optimising, the costs and benefits of different ways of deploying any given level of nursing resource within a District. So what has emerged during the seminar ?

Miss Plant has clearly given these matters much thought. She has concluded

(i) that budgets are needed for the service SNO's areas

(ii) that nurse/patient dependency studies are useful but must be supplemented by

(iii) a recurrent review of the pattern of work of the various specialties, as revealed by the standard SH3 data already collected, usefully analysed in 'Barber Johnson' form; and

(iv) that the specialty and disease costing techniques now being widely developed should significantly improve the financial information available for planning future nursing services.

Dr. Moores also favoured statistical reviews. These could reveal, for instance, when morale and results were actually better in units with higher staffing levels, and equally where this might not be so. He argued the case for

(v) better matching between workload levels and staffing levels (and he showed some techniques to analyse these)

(vi) patient dependency figures being used within Districts for comparison but perhaps not between Districts

(vii) a move towards task orientation as the basis for a data bank used to assess nurse allocations

(viii) a reconsideration of the trained/untrained nurse ratios, particularly because an Authority had to forego an opportunity cost of about £7000 to produce a qualified nurse - students were not 'cheap labour'.

In this context we noted that the labour market from which nurse recruits come will fall by nearly one-third over the next ten years.

Mr. Telford showed the value of an efficient monitoring system to control 'time-out' - both the planned and unplanned absences of staff. In his own District there had been marked improvements with consequent real savings. He recommended that

(ix) small computers should be used to maintain records of staff numbers and absences

(x) the data should relate specifically to nursing managers' units

(xi) monitoring the data could show where extra support was needed

(xii) a real increase in the time that nurses are available for work can follow the production of this data, and this benefit greatly outweighed the costs involved.

Miss Chapman, our final speaker, raised important questions concerning how levels of care should be assessed. She pointed out that nurses were not always good at applying the results of research. In particular

(xiii) more studies of the cost effectiveness of different patterns of delivering nursing care are needed

(xiv) the existing designs of nurse training courses must be reconsidered - graduate courses might be more economical in the long run

(xv) it was reasonable and necessary to consider what aspects of nursing work might be covered in different ways, even by sometimes having better equipment instead of more nurses.

In the general discussion which concluded the day, the main themes seemed to be that

(xvi) nurse managers must learn to identify and quantify the costs and benefits of different patterns of nurse deployment

(xvii) more emphasis must be given to the conservation of nursing skills within the service, by the reduction of wastage

(xviii) management training should receive an equal emphasis to clinical training at ward sister level

(xix) budgetary devolution was here to stay, but this required top managers to highlight the ground rules and to monitor effectively.

Conclusion

There is much to be learned from the advances that were described. The common theme was simple: that effective nurse management at the higher levels is already dependent upon numerate systems. We saw that without these, it is impossible to monitor and evaluate existing services objectively or to plan properly for the care that the new DHAs should be providing. With proper analyses, however, the 'opportunity costs' of different skill mixes at the bedside, and varied patterns of training, can be reviewed. In these ways, the rapidly growing financial and recruitment pressures on the nursing service during the next decade can be at least minimised and perhaps even turned to advantage.

Iden Wickings PhD
Project Coordinator - CASPE Research