AN ANALYSIS OF FIFTH YEAR PAEDIATRIC TEACHING

Renee Skapinker

A Short Report Submitted to the Department of Paediatrics, Faculty of Medicine, University of the Witwatersrand Johannesburg, in partial fulfilment of the requirements for the Degree of Master of Medicine

Johannesburg 1987

DECLARATION

I declare that this is my own, unaided work. It is being submitted as partial fulfilment of the requirements for the degree of Master of Medicine (in the branch of Paediatrics) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.

Renee Skapinker

this day of ,1987

ACKNOWLEDGEMENTS

I wish to thank Professor Alan Rothberg and Professor Graham Mitchell, my supervisors, for their continual encouragement, support and guidance.

I would also like to thank the participants in the 1985 Neonatal Intensive Care Course for their help in making the study run so efficiently.

CONTENTS

FIGURES

TABLES

ABSTRACT

Much teaching in paediatrics is done at the patient's bedside. The clinical ward round should integrate all the pertinent features of the case. A prospective study was undertaken at the Johannesburg Hospital to evaluate such teaching. Twenty-two fifth year medical students and ten paediatric consultants were studied during the students' first exposure to clinical paediatrics. Analysis of the teaching showed that there were significant differences between ideal objectives set by the Department, what was actually taught during the clinical ward round and what students perceived as having been taught. Futhermore, consultants defined more objectives for the teaching session when this was done prior to the tutorial than after the tutorial. The correlation between objectives considered taught by consultants and those perceived by students as having been taught, was poorer when consultants defined their teaching objectives before the tutorials compared with when consultants defined their objectives after the tutorials. These findings indicate unrealistic expectations in terms of what tutors are able to cover in a ward round when the objectives are pre-defined. Further analysis of the data revealed a bias towards objectives which were inappropriate for students with limited clinical experience.

1. INTRODUCTION

1.1 BACKGROUND

Is it possible for an individual clinical teacher to have a significant effect on the skills and perceptions of individual students? This question, posed by Mahan and Shellenberg(1), must be addressed by teaching departments involved in the training of medical students. There are many teaching methods available to tutors of medical students, and the most appropriate method should be identified. The choice will depend on the goals of the tutors, the medical discipline and the curriculum in general. Furthermore, evaluation of the teaching program should be undertaken regularly in order to ascertain whether these goals are being achieved. The relationship between teaching methods, teaching objectives and evaluation is reciprocal and all three of these aspects will be discussed.

a.) Teaching methods

Available teaching methods include the following: bedside small group tutorials; clinical ward rounds; active participation of students in a patient care team; independent patient contact; small group discussions away from the bedside; utilization of role models and simulation; and video, audiotape and formal lectures. The benefits of bedside clinical teaching include:

1. The picture of the disease presented by the patient is realistic and correct, and students can follow the pathogenesis of the disease and the patient's response to therapy(2).
2. The patient contact motivates the students because this embodies the activity they perceive as being the ultimate aim of their education.

3.Students have contact with doctors who are regarded as role models. History-taking and clinical examination are taught directly by the role models(2).

4.Students seeing an afflicted patient benefit from subsequent contact with the same disease by being more easily able to recall the accumulated (applied) knowledge(2).

5.Bedside teaching involves small groups of students. Such groups tend to perform better than larger units(3).

Clinical teaching implies the acquisition of clinical skills and clinical competence by the students. It involves learning in the basic sciences and in clinical areas. Current teaching methods appear to have evolved over the years, with tutors adopting methods from observation of other clinical teachers(3). Many centres have shown concern about this informal acquisition of "teaching skills" and have organized workshops designed to educate tutors of medical students. Such programs have been found to be successful and worthwhile, and have had as a common objective the training of staff to become better clinical teachers(1,4,5).

b.) Teaching objectives

Educational objectives have been well defined as a statement of the competence a student is expected to achieve at the end of a course i.e. an intended outcome in terms of observable behaviour of the student(6). Once educational objectives have been defined, direction is provided for both the teacher and the student. It is then possible to rationally select appropriate teaching methods and to devise relevant examinations or other assessment

procedures(6). The advantage of stating objectives include both improved communication between students and teachers and between the teachers themselves. Presenting the students with clear and relevant objectives enables students to be better motivated and there is also evidence that students will learn more successfully(7). Stating objectives also helps teachers to communicate with each other, thereby promoting better integration within the teaching program. Curriculum planning i.e identifying areas in which a student should achieve competence, will also be improved(7). Selection of appropriate objectives should be influenced by the behaviour required by the student as well as the needs of the society served by the medical school. This includes epidemiological data such as morbidity and mortality, national and local health care needs and the health care system(8).

Two types of objectives have been described. These are general and behavioural objectives(9). The broad general objectives are defined by the department and represent an attempt to outline the direction a particular course will take. Words like "understand", "know", and "appreciate" are used. For the student, behavioural objectives are more specific. These behavioural objectives set out clearly the knowledge, skills and attitudes that teachers expect their students to have achieved at the end of the course. Specificity is achieved by the use of verbs such as "define", "describe", "list" etc(9). Objectives concerning the new behaviour a student will acquire have been futher classified by Bloom's "Taxonomy of Educational Objectives" (6,8). Objectives are identified in 3 areas:

1.) Cognitive: dealing with factual knowledge, understanding and reasoning skills.

2.) Psychomotor: dealing with technical skills, both motor and communicative.

3.) Affective: including objectives dealing with feelings, emotions, interests and attitudes.

Faculty goals have been drawn up by the Curriculum Committee of the University of the Witwatersrand Medical School(10). Teaching of a particular subject should be subservient to the general objectives of the medical school. It is thought that both teachers and students should play a significant role in the design and writing of objectives(8).

c.) Evaluation

The evaluation of student teaching can be done in relationship to the qualifying examination and to the curriculum in general. The qualifying examination is currently used to evaluate the clinical competence of the students. It should assess the cognitive, psychomotor and affective skills of the students. It should also adequately reflect the goals of the clinical teachers(7).

The appropriateness and effectiveness of the curriculum must also be evaluated. Curriculum evaluation is a well-defined concept. Coles defines it as "the gathering of information about part or all of an educational program or process for the purpose of making judgements about its merits on the basis of which development may occur"(11); i.e. evaluation is an enquiry into what is happening during an educational event and an assessment of that event. The evaluation must have as its objective the development of an improved curriculum. A model of curriculum evaluation has been suggested by Coles and Gale-Grant(11). This model addresses the problems involved in teaching medical students. It incorporates a definition of the goals of the teaching,

and allows analysis of the educational event; subsequently decisions and recommendations can be made and implemented, thereby bringing about educational development.

There are many problems which arise when undertaking research into education. The educational situation is characterized by numerous variables, only some of which can be identified and controlled or measured. This is because teaching and learning are complex, often subjective and highly variable phenomena which involve many dimensions of the human experience; emotional, physical, cognitive and attitudinal. Therefore, it has been suggested that the approaches used by the curriculum evaluator incorporate both quantitative and qualitative methods. The quantitative methods involve a scientific process in which attitude and rating scales, questionnaires, controlled studies and before-and-after tests are used and analysed. The qualitative methods involve interpretation of data, and make use of interviews, observations, diaries and self reports. The methods examine educational problems and processes as they are encountered and experienced in practice(11).

1.2 PAEDIATRIC TEACHING AT THE JOHANNESBURG HOSPITAL

Because of the complexities of the teaching-learning situation, any of the traditional evaluation and research methods will focus only on a small part of the teaching-learning experience. With this in mind, as well as the importance of clinical bedside teaching in the education of medical students, a study was designed to evaluate certain aspects of clinical teaching in paediatrics at the Johannesburg Hospital.

The teaching of paediatrics at the Johannesburg Hospital for students in their fifth year of medical training consists of 12 formal teaching rounds per week in addition to informal attendence at ward rounds and during "intake days". The formal teaching rounds are conducted by full-time and part-time paediatric consultants, all of whom have experience in both paediatrics and in clinical teaching. For the purpose of this study, their level of teaching skills was not considered to be a variable factor. The students are also involved in a one year lecture program covering important topics in paediatrics. Community Paediatrics is taught using videotape material, discussions and seminars as well as involvement with a child in the context of his\her family or in an institution.

2. METHOD

The population used in the study consisted of 22 fifth year medical students who were involved in their first ten week exposure to clinical paediatrics, as well as paediatric consultants involved in fifth year teaching. These students were randomly assigned into one of four groups (A,B,C,D). Student groups were taught by ten tutors; 5 full-time and 5 part-time paediatric consultants. Each consultant was involved in one tutorial per week to various combinations of student groups (e.g.A&B,A&C etc). For the duration of the study the student groups were constant for each tutor. The tutorials generally involved patient-related bedside discussions. The consultant need not have been familiar with the patient's condition or diagnosis prior to the tutorial.

FIGURE 1: QUESTIONNAIRE

*{ a/b) CONSULTANT'S QUESTIONNAIRE
*{ c) STUDENT QUESTIONNAIRE

DATE:..... CONSULTANT:.....

DIAGNOSIS OR SUBJECT OF TUTORIAL:.....

*{ a) THE STUDENT WILL LEARN }
*{ DURING THE ROUND b) THE STUDENT LEARNT } THE FOLLOWING:
*{ c) I LEARNT }

TO TAKE A FULL HISTORY WITH EMPHASIS ON THE.....SYSTEM

YES NO NOT APPLICABLE

TO ASSESS THE PATIENT'S GENERAL CONDITION (I.E. SICK/ DISTRESSED/
COMFORTABLE,ETC).....YES NO N/A
TO EXAMINE THE FOLLOWING ASPECTS:
GENERAL FEATURES OF THE CONDITION (E.G. JAUNDICE, PALLOR) YES NO N/A
SURFACE ANATOMICAL FINDINGS.....YES NO N/A
PALPATORY FINDINGS.....YES NO N/A
AUSCULTATORY FINDINGS.....YES NO N/A
TO COME TO A DIAGNOSIS.....YES NO N/A
TO UNDERSTAND THE MANAGEMENT OF THE ACUTE PROBLEM.....YES NO N/A
THE CHRONIC PROBLEM.....YES NO N/A
TO UNDERSTAND THE PROGNOSIS.....YES NO N/A
TO UNDERSTAND THE IMPLICATIONS OF THE DISEASE ON
THE LIFE OF THE CHILD AND FAMILY.....YES NO N/A

*{ a) THE STUDENT WILL LEARN }
*{ b) THE STUDENT LEARNT } THE FOLLOWING THEORETICAL ASPECTS:
*{ c) I LEARNT }

EPIDEMIOLOGY..... YES NO N/A
NORMAL PHYSIOLOGY..... YES NO N/A
PATHOPHYSIOLOGY..... YES NO N/A
PATHOLOGY..... YES NO N/A
LAB RESULTS..... YES NO N/A
X-RAYS..... YES NO N/A
OTHER SPECIAL INVESTIGATIONS..... YES NO N/A
EMBRYOLOGY..... YES NO N/A
BACTERIOLOGY..... YES NO N/A
GENETICS..... YES NO N/A

COMMENTS:.....

Questionnaire used to identify consultant objectives and student perception of what had been taught. The form is similar for consultant and student; however, as shown by items marked (*), format a) was used for the consultant pre-setting objectives, format b) for the consultant identifying objectives after the round, and format c) for student completion after the round.

2.1 Determination of departmental objectives

Twelve paediatric consultants (some of whom were involved in the rest of the study) were asked to complete a table setting out ideal teaching objectives for a fifth year ward round or clinical tutorial. The form to be completed offered a range of teaching objectives for a specific tutorial and were identical to those covered in the"pre-" and "post-tutorial" forms(Fig 1). These objectives included a comprehensive set of 21 items related to history-taking, examination, ability to make a diagnosis, understanding of management and prognosis, basic sciences related to the disease process, and use of the laboratory. The consultants were asked to assign objectives for the 11 conditions which were covered during the study tutorials. This was therefore a theoretical exercise not related to actual patients. The time limitation of one hour was emphasized. These objectives were designated "ideal" or "departmental" objectives.

2.2 Determination of tutor objectives

Two clinical tutorials were studied for each tutor. The tutorials to be examined were randomly selected during a four week period. Each tutor completed a form either before or after the tutorial, the sequence having been randomised. The form completed prior to the tutorial was designated the "pre-tutorial form" and offered the same range of teaching objectives used to define departmental objectives.(Fig 1). The "post-tutorial form" was completed by the tutor after the clinical teaching session. Tutors listed the items considered to have been taught during that tutorial period (Fig 1). The range of objectives covered in the "pre-tutorial" and "post-tutorial" forms were identical.

TABLE I: (*)PRIORITY RANKING OF CONSULTANT OBJECTIVES,INCLUDUNG DEPARTMENTAL OBJECTIVES (Figures represent percentage of consultants identifying objectives for discussion)

Objectives for tutorial	Departmental	Pre-Tutorial	Post-Tutorial	Students
General features	82	87	90	73
Make diagnosis	88	75	90	90
Assess condition	89	87	50	62
Acute therapy	81	75	60	70
Prognosis	82	50	50	54
History taking	98	50	20	29
Physiology/pathophys/pathology	83	79	57	56
Laboratory findings	74	64	60	57
Chronic therapy	51	38	70	63
Special investigations	48	62	80	62
Bacteriology	36	50	40	25
Epidemiology	27	15	10	25

(*) Low priority objective -set by <50% of consultants
Intermediate priority objective-set by 50-74% of consultants
High priority objective -set by >75% of consultants

2.3 Students' perceptions of objectives

After each tutorial all students completed a similar form in which they stated what they regarded as having been taught during that clinical session (Fig 1).

2.4 Assessment of objectives

A recent qualifying examination in paediatrics was then analysed to assess whether the above objectives were indeed being tested by the examinations. The examamination consisted of 20 "stations". Eight were concerned with clinical examination, history taking and assessment of the child and covered the cardiovascular, respiratory and neurological systems, examination of the neonate, abdominal examination and assessment of growth. Two stations covered history taking for developmental delay and immunization advice. Twelve stations were concerned with X-rays of the lungs, heart, abdomen and bones; acute treatment of gastroenteritis; diagnosis and acute treatment of worm infestation; interpretation of routine laboratory tests including full blood count, urea and electrolytes, cerebrospinal fluid, arterial blood gas, karyotypes; and the use and complications of commonly prescribed paediatric drugs.

3. RESULTS

3.1 Priority ranking of "departmental" objectives vs "pre-tutorial", "post-tutorial" and "student" objectives

The objectives were divided into "low", "intermediate" and "high" priority objectives(Table I). This was done by arbitrarily dividing the objectives into those identified by <50% of the consultants, 51-74% of the consultants

TABLE II: (#)PRIORITY RANKING OF CONSULTANT TEACHING OBJECTIVES-PRE-TUTORIAL VS POST-TUTORIAL

Objectives for tutorial	Set pre-tutorial			Set post-tutorial		
	High	Intermediate	Low	High	Intermediate	Low
General features	*			*		
Make diagnosis	*			*		
Assess condition	*				*	
Acute therapy	*				*	
Physiology/pathophys/pathology	*				*	
Special investigations		*		*		
Palpation		*			*	
Laboratory findings		*			*	
Prognosis		*			*	
Family effects		*			*	
History-taking		*				*
Surface anatomy		*				*
Auscultation		*				*
X-ray features		*				*
Bacteriology		*				*
Chronic therapy			*		*	
Epidemiology			*			*
Embryology			*			*
Genetics			*			*

(#)Low priority objective -set by <50% of consultants
Intermediate priority objective -set by 50-74% of consultants
High priority objective -set by >75% of consultants

and >75% of the consultants respectively. Of the 21 objectives, three related objectives were ultimately grouped together. These three were physiology, pathophysiology and pathology, as it was considered that the distinction between each of these depended on the consultants' interpretation of the objectives. The ranking of theoretical departmental objectives was then compared to that observed in the pre-tutorial and post-tutorial analysis, as well as to student perceptions of what had been taught during the tutorials. Seven objectives were considered to be high priority by the department and these included general features, making a diagnosis, assessing the condition, acute therapy, prognosis, history and physiology/ pathophysiology/ pathology(Table I). Only three objectives were considered low priority: special investigations, bacteriology and epidemiology. However when this was compared to the "post-tutorial" objectives only 3 were considered high priority i.e. general features; making a diagnosis and special investigations. History taking had dropped to being a low priority objective, while assessing the condition, acute therapy, prognosis, laboratory findings, chronic therapy and physiology/ pathophysiology/pathology were all considered to be of intermediate priority. There was thus a discrepancy between ideal objectives set by the Department and what was actually taught during the clinical ward round. There was also a discrepancy between the five high priority objectives set pre-tutorial when compared to the post-tutorial objectives(Table II).

The above findings were analysed using Spearman's rank correlation and Pearson's correlation tests to determine whether differences were significant. Analysis using Spearman's rank correlation showed that the most significant correlation was found between the post-tutorial and student

TABLE III: SPEARMAN'S RANK CORRELATION AND PEARSON'S CORRELATION.

	Dept vs Pre	Dept vs Post	Dept vs Students	Pre vs Post	Pre vs Students	Post vs Students
Spearman's:	0,5699*	0,0839	0,2990	0,4913	0,6486**	0,8986**
Pearson's:	0,6902**	0,2556	0,4755	0,6344*	0,6806**	0,8922**

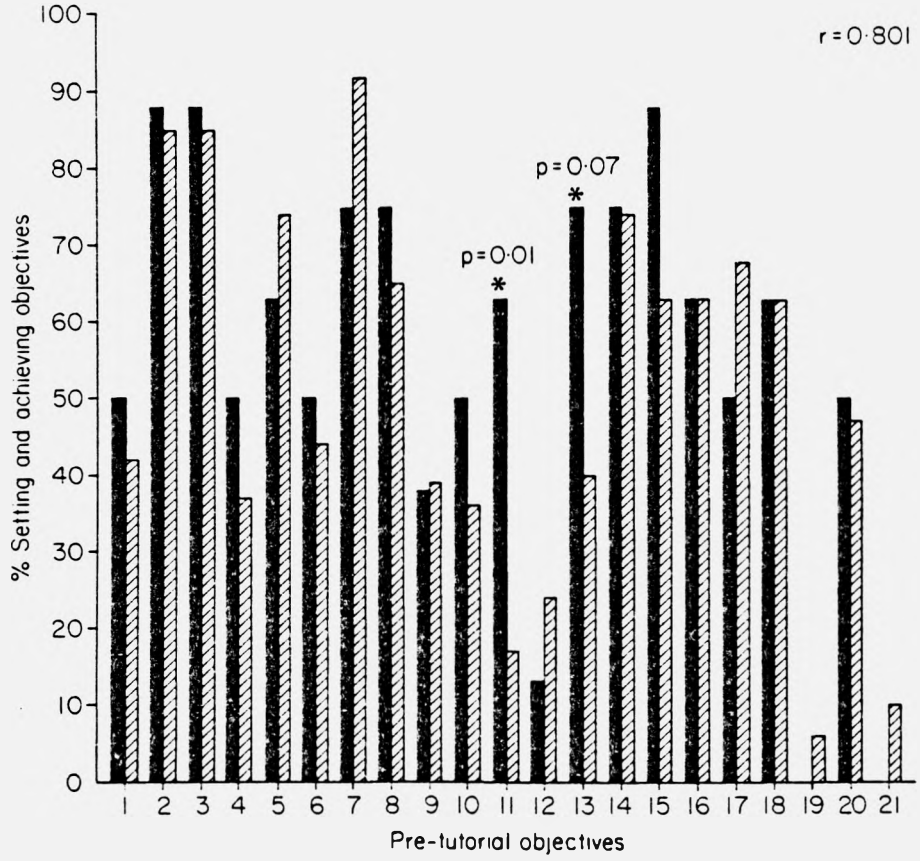
* $p<0,01$
** $p<0,05$

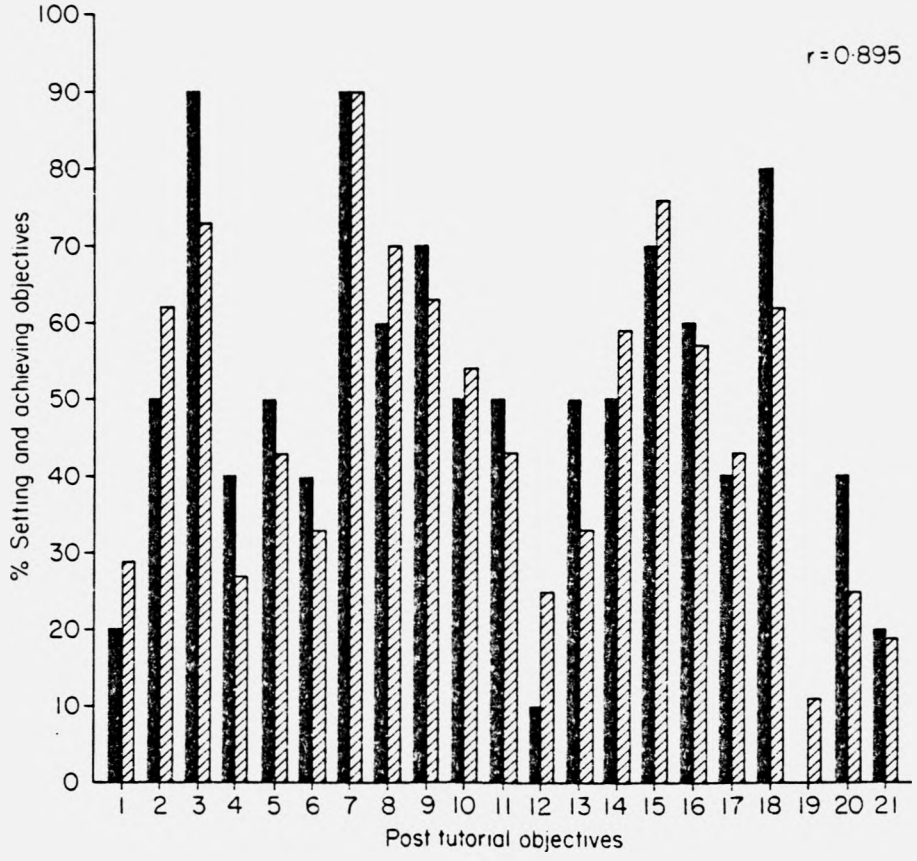
ranking ($r=0,8986; p<0,0001$). There was also a significant relationship between departmental objectives and the pre-tutorial ranking of objectives($r=0,5699$; $p=0,05$). However there was no correlation in priority ranking of objectives between departmental objectives and post-tutorial objectives($r=0,0839; p=0,8$); between departmental and student objectives($r=0.2990; p=0,35$) or between the ranking of pre-tutorial and post-tutorial objectives ($r=0,4913; p=0,1$). Further analysis using Pearson's test showed a significant correlation between departmental objectives and pre-tutorial objectives($r=0,6902; p<0,05$), but not between departmental and post-tutorial objectives or between departmental and student objectives. The most significant correlation however was again found when comparing post-tutorial objectives and student objectives($r=0,8922; p<0,0001$). These findings are summarised in Table III.

3.2 Number of tutors' objectives set before vs defined after the tutorial, vs departmental objectives.

More objectives were identified in the questionnaires completed before the tutorials than were defined in questionnaires completed after the tutorial ($12,8\pm3,2$ set before vs. $9,4\pm2,7$ defined after the tutorial). This difference was statistically significant($p<0,05$;t-test). Tutors who defined departmental objectives listed on average $10,2\pm2,5$ objectives. This number was significantly less than the number set pre-tutorially($p<0,05$;t-test), but not significantly different to the number of post-tutorial objectives.

Figure 2,3:Correlation between percentage of consultants ( ) identifying individual pre-tutorial objectives(Fig 2) and post-tutorial objectives(Fig 3); and percentage of students ( ) acknowledging that the objectives had been taught.
CODE TO OBJECTIVES: 1 History; 2 Assess condition; 3 General features: 4 Surface anatomy; 5 Palpation; 6 Auscultation; 7 Make a diagnosis; 8 Acute treatment; 9 Chronic treatment; 10 Prognosis; 11 Family effects; 12 Epidemiology; 13 Physiology; 14 Pathophysiology; 15 Pathology; 16 Laboratory findings; 17 X-Ray features; 18 Other investigations; 19 Embryology; 20 Bacteriology; 21 Genetics





3.3 Tutor:Student concurrence rate.

The tutor:student concurrence rate was defined as the percentage correlation between the objectives set by the individual tutors for each tutorial and the items perceived by the students as having been taught during that tutorial. A 100% concurrence rate would represent the situation where every objective set by the tutor had been perceived by the group of students as having been taught.

The mean concurrence rate between tutors' objectives and student perception of what had been taught was better when the tutors defined their objectives after the tutorial than before the tutorial (Pre-tutorial concurrence rate 60,5±9,0% vs. post-tutorial concurrence rate 75,0±16%). This difference was statistically significant ($p<0,05$;t-test)(Fig 2 and 3).

3.4 Examination

Analysis of the qualifying examination revealed that the students were assessed in terms of departmental or ideal objectives; i.e. the student was expected to know how to take a history, assess the condition, come to a diagnosis, understand the investigations and know something of the treatment of the condition as well as complications of the treatment.

DISCUSSION

Much, if not most paediatric teaching and learning takes place in a clinical setting. Clinical tutors embarking on their teaching rounds should first

decide on the objectives for the clinical ward round. Faced with a limited time period for clinical teaching, tutors need to establish priorities for the fifth year student. Tutors need to decide how much can practically and realistically be taught in one hour, what knowledge is important for fifth year students and how much a student can absorb in one hour. Should tutors cover an entire subject in one hour, or merely attempt to motivate students to do further reading around the subject? The study which was undertaken concentrated more on consultant objectives and priorities, and to a lesser degree on student perceptions of what had been covered during the clinical ward round. Five questions were addressed:

1. What does the department regard as important for fifth year students to know; and how does this compare with what is actually taught?
2. What do tutors think is important for fifth year students to know? This was considered both in terms of what conditions were actually discussed, as well as teaching objectives for each condition.
3. Is teaching affected by the tutor defining objectives for himself/herself before the tutorial?
4. What do students perceive as having been taught (and perhaps learnt) during clinical tutorials?
5. Do the final qualifying examinations assess departmental objectives for student teaching?

Usually a small group of students is taught by a tutor at the patient's bedside. A limitation imposed by this type of teaching is that the tutor can only teach on the patients available at the hospital during the teaching period. Under the present political system in South Africa the "teaching material" is further limited by the population group served by the hospital; for example, Johannesburg Hospital serves a First World population group and

thus the students are not exposed to, or taught on diseases prevalent in other population groups in South Africa. Furthermore, it is difficult for tutors to cover a complete topic in the limited time available. Therefore, the aims of the tutor should be to highlight important aspects of the topic and then to motivate the students themselves to learn more about the topic(10). Students should be given both direction and stimulation for learning(12). It has been stated that the clinical ward round should be practically orientated; it should demonstrate to students how to take a history from the parents and how to elicit the important physical signs of the condition. The clinical round should not concentrate on the more theoretical aspects of the case. However, when using patients for teaching clinical skills, one should not exclude discussion and learning about basic theoretical aspects of the disease. The clinical ward round as a teaching method thus affords a dynamic vertical integration of all pertinent features of the case, including clinical manifestations, pathophysiology, genetics and epidemiology (2).

The clinical setting is often not a planned session as the tutors are frequently introduced to the patient only a few minutes prior to the tutorial. Often the tutor notes only a few major points and then builds on this as the lesson progresses. The more experienced the teacher the greater the ability to carry out the impromptu task. Less-experienced tutors would obviously be more prepared for the teaching session if the case was known beforehand, thus allowing time to decide on what the student should learn from the case, what points should be highlighted and how the students would best be taught. Workshops aimed at the clinical tutor and designed to improve teaching skills have been implemented and found to be of use in several

centres (1,4,5).

Three basic principles of learning are described by Beard (12):

1. Teaching is facilitated when students know what they are to learn and why they are learning it.
2. Learning is individual to the extent that students differ in their rates of learning and the method of learning that is effective for them.
3. New learning is built on previous learning and cannot occur in the total absence of previous learning.

In a ward round one has little control over points 2 & 3 listed above. However, it is within the tutors' power to identify what the student is to learn and why it is relevant information; taking departmental objectives into account. It would therefore appear to be a reasonable principle to have tutors spend a few minutes before the tutorial preparing or structuring the teaching session.

The present study was designed to assess some aspects of clinical teaching of fifth year students. The value of goal-setting prior to a ward round was studied. Somewhat contrary to expectations, presetting of objectives was associated with a poorer achievement of goals than occurred when the tutor simply identified after the round what had been taught. While unexpected, this finding is nevertheless understandable, almost certainly indicating that when tutors were asked to preset objectives for a round they ran through the list and enthusiastically identified an unrealistic number of items. This overzealous setting of goals might also explain the poorer concurrence between objectives set and items perceived by students to have been taught when tutors preset objectives i.e. tutors may have set their sights too high

in terms of what could realistically be taught during the one hour session.

Concern over the apparent naivete in setting of objectives is compounded by the unexpectedly low priority ranking of several items on the list of objectives. Departmental objectives indicated a high priority ranking for history-taking, assessing and noting general features of the condition, making a diagnosis, acute treatment, prognosis and physiology/ pathophysiology/pathology. It is therefore disturbing to note the fall in priority ranking of several items eg history-taking, treatment, prognosis and physiology/pathophysiology/pathology when actual ward rounds were assessed. It is likewise disturbing to note that basic investigations such as X-ray and bacteriology are low priority items while other (special) investigations are high priority objectives. While one may argue that a bedside ward round should focus on clinical issues, and therefore items such as epidemiology, embryology and genetics should not be discussed, one may also make a strong case for inclusion of these objectives in a ward round. Unless students are shown applied epidemiology, embryology and genetics, they will continue to regard these aspects of disease as being of secondary importance.
The good correlation found between post-tutorial objectives and student objectives probably reflects the situation of tutors and students describing the same clinical ward round.

Conditions covered during the study tutorials indicate that although teaching material is limited by patient availability in the hospital, a broad spectrum of general paediatric topics is being covered. Although the study tutorials represented only 31% of the tutorials attended by the students during the 4

weeks, a wide range of topics in general paediatrics had been covered. These included nephritis, rheumatic fever, neonatal jaundice, leukaemia, hemiparesis, urinary tract infection, enuresis, convulsions, meningitis, asthma, stridor, tonsillitis and hepatitis.

Moreover, evaluation of the qualifying examinations tend to indicate that "high" priority departmental objectives are indeed being assessed in the examinations.

Results of the study have been discussed with members of the Department of Paediatrics. There is concern about the priority ranking of several of the objectives. It is felt that consultants must reach consensus on a) how much can realistically be taught during the round; and b) which of the objectives should be included; clearly history should be given a higher priority and special investigations should be downgraded, particularly in a ward round for fifth year students. Once these issues have been resolved and teaching practices have been modified it is the intention to repeat the study; in particular one would again ascertain if departmental objectives are being realised by tutors teaching on clinical ward rounds, and whether the priority ranking of teaching objectives have been altered. The question of how much students actually learn in clinical ward rounds should also be addressed.

REFERENCES

1. MAHAN J M & SHELLENBERG SYLVIA
   Changes in students' perceptions of clinical teaching as a result of general practice clerkships
   Medical Education 1983;17,155-158
2. McLEOD P J & HARDEN R M
   Clinical teaching strategies for physicians
   Medical Teacher 1985;7;21,173-188
3. COOPER DENISE, BESWICK WILMA & WHELAN G
   Intensive bedside teaching of physical examination to medical undergraduates: evaluation including effect of group size
   Medical Education 1983;17,311-315
4. STANLEY I M & WRIGHT H J
   A method of evaluating opportunistic teaching in clinical medicine
   Medical Education 1981;15,389-391
5. YONKE ANNETTE M
   The art and science of clinical teaching
   Medical Education 1979;13,86-90
6. Editorial
   Objectives in Medical Education
   Medical Education 1977;11,241-243
7. PUGH E W; LLOYD G J; MCINTYRE N
   Relevance of Educational objectives for Medical Education
   British Medical Journal 1975;3,688-691
8. SIMPSON M A
   Educational Objectives and Medical Education 1976
9. MITCHELL G & GEAR J
   Guidelines for writing objectives 1984
10. Faculty goals 1977
    MBBCh Undergraduate committee meeting
    August 1985 S85/1030 Item 85.19.1.1
11. COLES C R & GALE-GRANT JANET
    Curriculum evaluation in medical and health care education
    Medical Education 1985;19,405-422
12. COX K R & EWAN CHRISTINE
    Medical teacher. Churchill Livingstone 1982;chapters 9, 10 & 11