Measuring learning by trainees in general practice

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SUMMARY. Twenty simulated consultations with patients having a respiratory illness were carried out by 20 trainees at the start and finish of a training year in general practice, using the same method as used in a previous study of principals in general practice.

During the course of the year, the trainees as a group closely approached the behaviour—in the defined terms of the study—of principals as a group. The trend was more marked for doctors on a three-year training programme than for those on a one-year programme.

In 11 cases direct comparison between trainee and trainer was possible. It was difficult to identify changes in behaviour as being due to either group influences or individual trainer influences, but it appeared that atypical trainers do not necessarily produce atypical trainees and typical trainers do not prevent the development of individuality in trainees.

The technique of simulated consultation may assist the difficult task of evaluating training for general practice.

Introduction

Approved postgraduate training is soon to be mandatory before becoming a principal in general practice. This training will certainly include at least a year in an approved training practice and also an element of hospital training in addition to the present pre-registration posts. In most regions, day-release or half-day release programmes supplement either or both of these components. Although much thought has been given to the selection of training practices and trainers (Irvine, 1972) and to the construction of relevant programmes of hospital training, there has been little evaluation of the effect of each part of training in producing the still undefined " good general practitioner ".

Aims

We tried first to examine if the use of simulated patient consultations could identify changes in the clinical behaviour of general-practice trainees between the start and finish of their year in practice.

Secondly, we sought to find out if observed changes could be related to the known behaviour of the trainer to whom the trainee has been attached, or to the trainee's previous hospital experience.

Method

Precise clinical records were collected from ten patients with new episodes of respiratory

illness. The patients were selected to reflect the expected frequency of presenting symptoms in general practice and each differed in one or more significant features. Unknown to the participants each patient was included twice; on one occasion the doctor was asked to " consult " with a view to making a diagnosis and on the other occasion to consult with a view to deciding treatment.

Thus 20 consultations took place, the age groups of the patients, presenting symptoms, and the types of decisions asked for being intermingled. The consultations took the form of an interview. Fuller details of the method, with the complete rules for the experiment and additional clinical details about the patients selected, have been published describing the results of administering this same series of simulated consultations to 20 principals in the Aberdeen area (Howie, 1974).

In this study, each of the 20 general-practice trainees starting their year in practice in August or September 1973 in the Aberdeen area conducted the group of 20 simulated consultations within four weeks of starting his training year and again during the last two months of his training year.

No discussion of the results of the first series of consultations took place until after the second series had been completed. Eight of the trainees were in their third year of a formal vocational training programme; the other 12 were taking a training year in general practice with a wide variety of previous experience, i.e. a senior academic post in obstetrics, experience as a registrar in anaesthetics, a registrar in paediatrics, two years as an anatomy demonstrator, and no experience beyond house-officer pre-registration posts.

It was possible to compare the results of the simulated consultations of 11 of the trainees with those of their trainers who had participated in the parallel study of 20 principals referred to above.

Analysis

Behaviour was assessed in several ways. Firstly note was made of the total number of items of information requested by each doctor at each consultation and subsequently the information requested was analysed according to whether it related to symptomatic enquiry, physical examination, or enquiry into past medical history or social features, such as occupation or smoking habits. Owing to the results of the early analyses, particular attention was given to requests to have the temperature taken and for information relating to signs and symptoms not normally associated with respiratory or cardiovascular illness and to the management decisions of laboratory investigation and antibiotic use.

Secondly, note was made of items of information requested by a majority of participating trainees at given consultations. This was defined as the " standard information " required in that clinical situation for direct comparison with the previous results from the study of the principals' consultations.

Thirdly an attempt was made to weight the clinical behaviour of each doctor studied. Each request for information made during each doctor's series of 20 consultations was allocated to one of 12 categories (five relating to features of symptomatic enquiry, five relating to features of physical examination, one to past history and one to social history). A rank order of the frequency of the use of each category was constructed for each doctor and each group of doctors. As well as being possible to identify individual doctors' patterns of behaviour, group patterns became identifiable for principals, for trainees at the start and finish of their training year and for trainees on a one-year programme compared with those on a three-year programme. It was then possible to compare the behaviour and changing behaviour of individual doctors with other individual doctors or groups of doctors.

Results

Information requested

At the start of their year in practice the trainees required an average of 205 items of information to complete the 20 simulated consultations. The range lay between 98 and 446 items, the standard deviation around the mean being 78 items. Comparable figures for the principals were a mean of 134 items with a range of 88 to 201 items and a standard deviation of 34. The difference in standard deviations, reflecting the difference in scatter within the two groups, is significant ($F=4.58$).

At the end of the training year the trainee average had been reduced to 156 with a range of 92 to 332 and a standard deviation of 58. Thus the scatter of numbers of items of information requested had been substantially reduced although the increase over that of the principals was still significant ($F=2.87$). All but one trainee requested less information at the second series of consultations. The mean reduction of 49 items per trainee was highly significant ($t=4.2$, $p<0.001$).

Analysis of the changing nature of the information requested during the year showed substantial reductions under all headings, particularly marked in requests for information on symptoms not normally related to respiratory or cardiovascular illness (for example dysuria and abdominal pain).

The requests for information about items of physical examination fell from an excess over the principals of 56 per cent to an excess of 18 per cent. In this section the greatest fall was in requests for the temperature to be taken, the excess over principals falling from 140 to 28 per cent.

The decision to prescribe an antibiotic was taken at 135 consultations at the start of the year and 143 at the end of the year (the figure for principals was 133), but the use of laboratory tests fell from 31 to eight (principals 19). These findings are summarised in table 1.

TABLE 1

ITEMS OF INFORMATION REQUESTED WHEN CARRYING OUT 20 SIMULATED CONSULTATIONS BY 20 TRAINEES (1) COMMENCING, AND (2) COMPLETING THEIR GENERAL-PRACTICE TRAINING, AND (3) 20 PRINCIPALS IN GENERAL PRACTICE

Requests for items of information relating to:	*Trainees*				*Principals* (3)
	Starting year (1)		*Completing year* (2)		
Symptoms	1,668	(*56*)	1,231	(*15*)	1,070
Signs	1,994	(*56*)	1,513	(*18*)	1,282
Background information	441	(*33*)	377	(*14*)	332
Patient's temperature	212	(*141*)	113	(*28*)	88
Symptoms/signs unrelated to R.T.I./C.V.S. illness	238	(*167*)	101	(*13*)	89
Management decisions to:					
Prescribe an antibiotic	135	(*1.5*)	143	(*8*)	133
Arrange investigation	31	(*63*)	8	(—*58*)	19

(Figures in parentheses represent the percentage excess of requests by trainees over requests by principals.)

Collection of information in individual clinical situations

The items of information regarded as necessary by a majority of trainees for each case were identified. At the start of the year 143 such " standard " items were found for the series of 20 consultations (compared with 72 for the principals). This fell during the year to 99 items. The greatest drop was in making a diagnosis in an adult patient with tonsillitis where the number of standard items fell from six to two (the same figure as that for

principals). The widest margin between trainees at the end of their year and the principals was in the making of a diagnosis in an adult with a 'flu-like illness (eight items as against five).

In the four clinical situations where there was a majority view against the use of antibiotics the number of items of standard information requested fell little (29 items to 26; principals 12) whereas in the six situations where the majority prescribed antibiotics, the figure closely approached that for principals (41 to 27; principals 21). Both at the start and finish of the year a decision to prescribe an antibiotic in a given situation required less information than a decision not to prescribe an antibiotic for the same patient.

Comparison of behaviour of individual and grouped doctors

Using the third group of criteria for assessment of behaviour described, it appears in the limited context of the present study that trainees as a group become very similar to principals as a group during the course of the training year in practice rank correlation co-efficient $R=0\cdot74$ rising to $R=0\cdot92$). The correlation was stronger for vocational trainees on three-year courses than for one-year trainees.

Of the 20 principals, four were noted to differ significantly in their behaviour ranking from the group of principals as a whole; seven of the 20 trainees differed significantly from principals as a group at the start of the practice year and six differed significantly at the end, five appearing as different both at the start and finish. All were one-year trainees. Two of the three-year vocational trainees thus became significantly more like the group of principals and one significantly less like the group.

The 11 trainees who could be studied alongside their trainers in the group of principals were looked at in further detail. Only one correlated significantly with his trainer at the start of the year, whereas five did at its completion. Of the remaining six, three became more like their trainers and three less like their trainers during the year. Eight of the 11 correlated well with the complete group of principals at the start of the year and nine of the 11 correlated well at the end of the year.

The use of antibiotics of four trainees differed materially from the use of antibiotics of their trainers at the start of the training year. At the end of the year two of these trainees had adopted what was both their trainers' and the group of principals' prescribing habits; one had adopted his principal's habits against those of the group and the fourth had resisted his principal's habits in keeping with those of the group.

Discussion

Validity of the method

The objective evidence supporting the validity of this method has been presented in a previous report (Howie, 1974). Subjective support comes from the trainees' reactions to the discussion of their own personal results at the end of the second series of interviews. It is also of interest that the trainers of the two slowest trainees and of the second quickest trainee expressed concern about the corresponding problems in the practice and found the results of the simulated consultation helped them tackle their various difficulties without sitting-in on consultations—a process many find awkward.

Interpretation of the results

The first aim of this paper was to see whether the method of simulated patient consultation was able to help identify clinical behaviour and its change in trainees at different points in the training year. Within the imposed restricted framework it appears to have been able to do so for a relatively simple physically-based part of general-practice work. The mechanism is simple and many developments of it should be feasible.

The second aim was to comment on the relationship of changes in trainee behaviour to the behaviour of principals in general and, where possible, of individual trainers in particular. Not surprisingly, only limited conclusions can be drawn, but it does appear that trainees as a group become remarkably like principals as a group during their year in general practice. Atypical principals do not appear to obstruct this process and typical principals do not appear to prevent trainees adopting idiosyncratic tendencies.

The fact that trainees from a three-year scheme ended their year closer to principals than did trainees from a one-year scheme appears to have been due to the atypical behaviour of a minority of the second group. However, assuming that the method has produced a valid assessment of behaviour, the failure of the five atypical one-year trainees to adopt the group pattern of principals during the training year is a finding that invites comment.

Two trainees appear to have become much too brief in history taking and physical examination while three carried out what the principals would regard as an excess of irrelevant physical examination and history taking. Our subjective impression is that these are correct assessments. Should the trainers have recognised these difficulties? Should these trainees, two of whom rarely attended the trainee release course, have recognised in discussion with their peers that their consulting methods were different?

Conclusions

We have described a method of assessing clinical behaviour which may have relevance to helping assess progress and needs in training for general practice. Before this method—or for that matter any other method—can be used to comment on the comparative benefits of different training programmes or of different styles of trainer, much clearer definition of what precisely are the criteria of good general practice must be agreed by the profession and its teachers.

References

Howie, J. G. R. (1974). *British Medical Journal*, **2**, 540–543.

Irvine, D. H. (1972). *Teaching Practices*. Reports from General Practice No. 15. London: *Journal of the Royal College of General Practitioners*.

INTRAUTERINE-DEVICES AND HEAVY PERIODS

" The commonest side effect of use of an intrauterine contraceptive device (IUD) is abnormal uterine bleeding, usually as excessive or prolonged menstrual loss. IUDs may increase the incidence of menorrhagia at least fivefold in otherwise healthy women, and this symptom leads to removal of the device in up to 14 per cent of all users. Intermenstrual spotting occurs in about one-third of women. To try to reduce the incidence of side effects various modifications in the shape of the IUD have been tried, but recent studies have confirmed that all types of device increase menstrual loss, some even doubling this, though with the newer copper-covered devices the increase is said to average less than half. "

Reference

British Medical Journal (1976). Editorial, **1**, 304.