Criteria for including study of specific conditions during clerkship training in internal medicine

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ABSTRACT

A survey was conducted of physicians in practice, to determine the criteria that would lead the study of a particular condition to be an important component of clerkship training in internal medicine. Four such criteria were suggested: the prevalence of the condition in practice, the urgency with which it requires attention, the severity in terms of morbidity and mortality and the cost effectiveness of the intervention. The responses suggest that those in practice see prevalence, urgency and severity as criteria of almost equal weight, but place cost-effectiveness on a much lower priority. Unexpectedly, those who have been in practice many years are more concerned about the role of the cost-effectiveness of the intervention than recent graduates. Also specialists see this as being a more important criterion that family practitioners. Those with a faculty position in academic medicine have views which are similar to those who do not. Thus, in attempting to design the ideal clerkship, there is a widespread view that the role of cost effectiveness in treatment should receive a lower priority in determining curriculum content than prevalence, urgency or severity. On the basis of these data, the request that there be increased weight of cost-effectiveness in determining curriculum content, will not receive strong endorsement from those in practice.

Keywords: *CLERKSHIP,CORE CURRICULUM, COST-EFFECTIVENESS, INTERNAL MEDICINE, PREVALENCE, SEVERITY, SURVEY, URGENCY*

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Introduction

In North America, undergraduate training in medicine is usually divided into two sections. The pre-clinical training, which occupies the earlier part of the curriculum, provides the students with the basic principles of clinical medicine. The second part, which concludes the undergraduate training, involves a series of clinical clerkships in medical and surgical specialties, in which the students spend various lengths of time working individually or in very small groups in an entirely clinical setting, under the guidance of a clinical preceptor. The sweeping changes which have occurred during the last twenty years in Medical Education in North America and elsewhere (1) have largely been confined to the pre-clinical part of the curriculum, although the clerkship has also come under scrutiny (2).

A review of clerkship training has been motivated both by pedagogical principles which have been re-discovered as a result of changes in pre-clinical education (3), and by changes in the nature of medical practice (4). Rapid changes in the perceived importance of health promotion (5), increased public demand for effective communication skills (6), the explosion in medical knowledge (7) and the reduced availability of in-patients for teaching purposes (8), have all resulted in a need for re-examination of the educational objectives for clinical undergraduate training. It is clear that in the available time and within the available educational resources, the students cannot learn everything, and this raises the question as to what students can be expected to know, what cases they should see and what conditions should be studied during the final two years of undergraduate training.

A variety of National bodies have provided reports which have highlighted the problems. The GPEP report in the United states (9), and the report of the General Medical Council (GMC) of the United Kingdom (10) both expressed the need for a limited core content in the medical curriculum. On the other hand, attempts at a systematic classification of what is important has

been handicapped by the lack of application of criteria for inclusion of any particular condition or topic. For example, educational objectives for the final year clerkship in internal medicine were determined in the University of Toronto (11). The core content was a list of thirty-two clinical problems and syndromes that the students might reasonably be expected to encounter during their clerkship in Internal Medicine. These conditions were identified by the Curriculum Committee, however the underlying reasons for selection were not defined. Another systematic approach was suggested by Milman et al. (12) who used the Delphi Survey approach to identify objectives for a family medicine clerkship. This provided consensus, but the reasons which caused the participants to identify one topic rather than another, were not investigated.

Thus, in an attempt to aid those re-designing the Internal Medicine clerkship, we have investigated what criteria might be employed in reaching a decision with regard to reasonable content in clinical education for this rotation. It seemed to us that there were varying levels of urgency in inclusion of material. For convenience, these were classified as follows:

1. ***Essential*** (during a clinical clerkship in medicine the students MUST gain clinical competence in this field)
2. ***Useful*** (it would be to the students advantage to gain this competence, but it is not absolutely essential at this stage)
3. ***Unimportant*** (students do not need to have this competence at this stage of training).

In order to determine what conditions fitted into the "essential" category, we speculated that issues of the severity the condition, its prevalence, the need for urgent attention and the cost-effectiveness of the intervention were all issues which might allow us to determine whether a particular topic was essential, useful or unimportant. We thus administered questionnaires to practicing physicians to determine which of these criteria carried most weight, and to determine whether other criteria for determining importance, could be advanced.

Methods

Questionnaires concerning their perceptions of the criteria for inclusion in a clerkship in Internal Medicine were sent to 270 physicians in the Province of Alberta in Canada. The participants were selected from a list of licensed practitioners, supplied by the College of Physicians and Surgeons of Alberta. On the basis of published approaches to survey data (13) and a preliminary survey, we concluded that useful data could be obtained if we had more than about seventy questionnaires returned, and the sample size was based on the concept that we would obtain about a 25% response rate. The participants were chosen to include both those with academic connections and those with no university affiliations, those in rural areas and those in cities, recent graduates and those with years in clinical practice, and to cover both specialists and family practitioners. Within these limits, the recipients were selected using systematic random sampling. In addition to the questionnaire, a covering letter was supplied, which described the overall aims of the study, and provided contact information should the recipient wish to obtain more information from the investigators.

The relevant portion of the questionnaire is provided as Appendix 1. The recipients were asked to rank each of the four criteria, prevalence, severity, urgency and cost-effectiveness in order of importance on a 4-point scale, with tied ranks permitted. In addition to questions about the four criteria which we had envisaged as being critical to the importance of any one condition, the recipients were also asked to provide demographic data, and to add any additional criteria which they felt should be considered when deciding on the appropriateness of an objective for clinical training in internal medicine. Additional questions on specific conditions were also asked; the results of this last investigation will be described in subsequent communications.

The questionnaires were mailed directly and a stamped addressed envelope was enclosed.

As the questionnaires were returned, the data were assembled and the relative weighting of the four criteria was compared for the whole sample and for various subsets of respondents. Data were analyzed by Analysis of Variance and Tukey's test, using the SPSS statistical package. A probability of less than 0.05 was regarded as significant. Data are expressed as the mean score for the group sampled. Error estimates represent the Standard Error of the Mean (SEM).

Results

From the 270 questionnaires distributed, 110 were returned giving a response rate of 41%. Since the return was higher than the 25% expected, no follow-up was conducted. The demographics of the respondents are shown in Table 1. The majority of those returning the questionnaire had been in practice for about ten years, were located

in a large city and were specialists. These data are similar to those for the population sampled, as is the gender split. Our sample was slightly biased in favour of the specialist, and consciously biased towards those with some responsibility to physician training.

Table 1 about here

The overall distribution of the factors we had suggested as important is shown in Table 2. In identifying the criteria for inclusion in an internal medicine clerkship, there was no significant difference in the overall ranking of prevalence, urgency and severity, although cost-effectiveness was ranked as being significantly less important ($P<0.05$).

TABLE 1: Respondents

Property		%
Year of Graduation	1961-70	13.2
	1971-80	35.5
	1981-90	30.3
	1991-00	21
Location of practice	Large City	61.5
	Small City	17.3
	Rural	21.2
Nature of practice	Family Medicine	42.2
	Specialty	57.8
Gender	Male	66
	Female	34
University affiliation	None	42.8
	Part-time	28.6
	Full time	28.6

Table 2 about here

Although the questionnaire invited the participants to list additional criteria which could be important in determining educational content during the clerkship years, no respondent added comments to this section.

When we examine the responses of the subsets of physicians who answered the questionnaire, some interesting findings emerge. Figure 1 shows the relationship between the perceived importance of cost-effectiveness and the year of graduation. The year of graduation of physicians is categorized into four decades from 1960 to 2000. The perceived importance of cost effectiveness was least among recent graduates, and greatest amongst those with extensive experience ($P<0.05$). There was no such difference in the other three criteria of prevalence, urgency or severity.

TABLE 2: Criteria for inclusion

Criterion	Mean score±SEM
Prevalence	3.00±0.112
Urgency	3.20±0.104
Severity	3.25±0.102
Cost effectiveness	2.00±0.112

Figure 1 about here

This same criterion was also dependent on the practice location; those practicing in a large city believed that cost effectiveness was a more important educational criterion than those practicing in smaller cities and in rural areas. These results are shown in Figure 2. Similar differences in perceived importance of cost-effectiveness were observed between specialists who rated this criterion at 2.45±0.13 and family practitioners who regarded it as less important at 1.58±0.12. Again, prevalence, urgency and severity were not rated differently between practice locations nor between specialists and family physicians.

Figure 2 about here

There were no significant differences in assessment of the importance of any criterion between males and females, nor between those with a university affiliation and those without. Among those with a responsibility for clinical teaching, there was no significant difference between full-time and part-time academic staff.

FIGURE 1: Perceived importance of cost-effectiveness vs. year of graduation

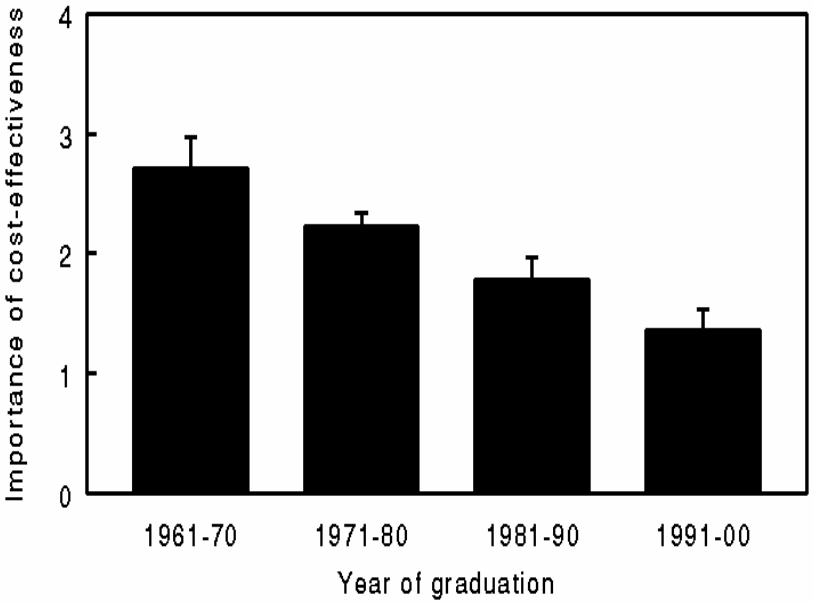
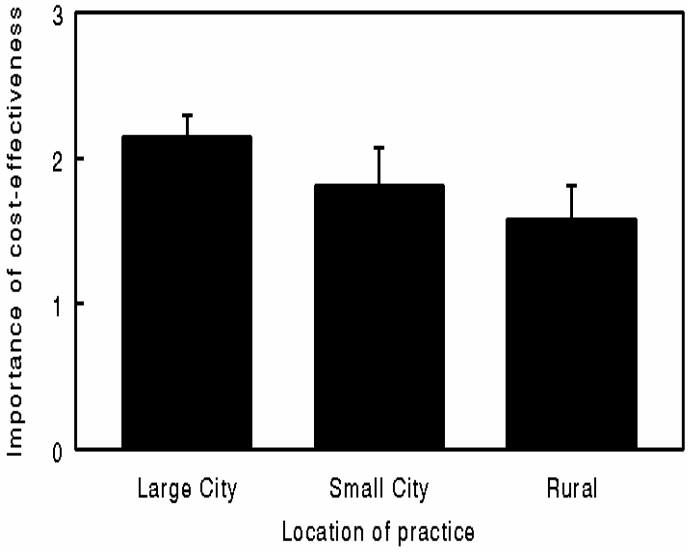


FIGURE 2: Perceived importance of cost-effectiveness vs. location of practice



Discussion

An early step in designing a curriculum is to identify the health care problems that will be addressed by the curriculum (14) because all the other steps in the curriculum development process depend on having a clear understanding of what performance can reasonably be expected of the graduating physician. These objectives are set by academic curriculum committees, licensing bodies and similar organizations, usually using broad input as to what is and is not important. This process is used routinely by test committees to define both the content and the competencies being tested. In the more restricted case of the clerkship in internal medicine, it is reasonable to ask not

only what has been selected for inclusion, but why it has been selected. Our hypothesis was that bodies who determine content, make decisions which are justified on the basis of various criteria which are rarely made explicit. For example, O'Neill and Dornan (15) provide a sensible list of core skills in drug prescribing, without making explicit what criteria went into the selections.

In considering what sort of things should be taken into account when planning an "ideal" internal medicine clerkship, it seemed to us that there were four important issues which should be considered. First the condition or the concept should represent a situation which was likely to be encountered frequently by the graduates. Thus the prevalence of the condition or the day-to-day utility of the concept can be used as one measure of the importance of educational objectives in that area. Hypertension or diabetes are clearly conditions which the students need to learn to manage; we should not weight the obscure so highly in our educational planning. The second issue concerns the urgency with which treatment is required. Physicians do not always have the luxury of extensive time for reflection, and the need to make rapid and appropriate decisions seemed to us to be a second criterion for inclusion. Thirdly, the issue of the severity of the disease could play a role in deciding the importance of specific objectives. Where the condition is associated with high rates of morbidity and mortality that can be influenced by appropriate medical intervention, it makes sense to emphasize these conditions. Rheumatoid arthritis is a condition which is medically very important, and which responds well to treatment, although it would not be rated quite so highly in terms of prevalence or urgency. Finally, we highlighted the area of cost-effectiveness. Most aspects of preventive medicine can be included in this category. We speculated that if an intervention is very costly or of questionable effectiveness, it might not make a lot of sense for the "undifferentiated physician" to spend much time on this aspect during their clerkship, although clearly such topics might be highly relevant to graduate training.

We thus sought views from physicians about the relative weights that these criteria should be given, using a sample which include academic and non-academic physicians, specialists and family practitioners, and both rural and urban practices. The survey was discussed extensively with those responsible for clerkship training, and modified after a brief pilot experiment. The sample was limited to the Province of Alberta, and, because we wished to use the data to develop educational strategies, contained a disproportionate number of those in academic medicine. With these restrictions, however, the sampling provided a reasonable reflection of the Province as a whole, where more than 50% of the total population reside in the large cities of Edmonton and Calgary.

The data provided some unexpected results. There was widespread agreement that issues of prevalence, urgency and severity should play a major role in defining the objectives in Internal Medicine, on the other hand, cost-effectiveness was seen of significantly lower priority. This occurred despite the fact that the Province has undergone stringent cost-cutting measures over the last few years, with an enormous public emphasis on effective fiscal management of health-care resources. It is important to note that the questionnaire did not seek information about the present realities of medical practice, but about what should be included in clinical undergraduate training. While, logically, these should provide a continuum, it seems that this aspect is regarded as having a lower priority in training.

Even more unexpected was the observation that physicians who graduated in the '60s were more concerned about the role of cost-effectiveness than recent graduates. We speculated before the data was collected, that recent graduates who have been subjected to a barrage of information about spiraling health care costs, would perceive the area as being more important than those who graduated in a time where more money for health care was available. We also felt it was possible that as the physicians aged, they would become more concerned about health issues than issues of money, since their own health might be more fragile, and their own financial situation might be more secure. In fact the trend is clearly the reverse of these predictions. The most plausible hypothesis to explain this observation is that as clinical experience increases, the reality of medical practice being limited by available financial resources, becomes clearer. This is, however, disturbing news for medical schools; there is little doubt that this suggests that the issue of cost-effectiveness needs to be addressed more completely during training, and that our attempts to provide this information have had little impact, vis-à-vis the accumulation of clinical experience.

The other data on the perceived importance of cost effectiveness in deciding the contents of the clerkship, were also surprising. City practice is in intimate contact with expensive tertiary care facilities, and this might be expected to lead to the observed distribution, however a more likely explanation is that almost all the specialists

practiced in a large city, and they clearly place more weight on the cost-effectiveness issue than family practitioners. We expected that the specialists, who often have academic responsibilities and perform expensive procedures themselves, might be biased against considering cost-effectiveness in training. On the contrary, they suggested that the matter be weighted higher than the family practitioners. Perhaps the awareness of how much in-hospital medical practice is influenced by fiscal constraints, increased the sensitivity of the specialists to the need for education in this area. Alternatively, the family practitioner tends to refer those who require expensive specialist treatment, and thus may pay less attention to the importance of cost-effectiveness in medical training.

We expected there to be some differences between academic and non-academic medicine, but no such differences appeared. The prediction that physicians out in the "real world" of clinical practice would see things differently from the "ivory tower" of academic medicine was not supported by this survey. In particular the issue of cost effectiveness was marginally of more concern to those in academic medicine, although this did not reach statistical significance. Similar whether the individual was a full-time member of the University staff , or a volunteer part-time member, did not affect their perception on any issue, including cost-effectiveness.

Finally, it is worth pointing out that there were no statistically significant differences between the various groups on matters of prevalence, urgency and severity. All these factors were considered of prime importance.

In conclusion, in deciding educational content for inclusion in an internal medicine clerkship, physicians practicing in a variety of environments placed the prevalence of the condition, the urgency with which treatment was required and the severity of the condition in terms of morbidity and mortality as being of equal weight, and far ahead of the cost-effectiveness of the treatment. If we are to make the issue of cost-effective medical practice a major part of our clerkship training, as the Government, business and the general public seem to require, there will need to be some changes in curriculum design for clerkship training.

The criteria identified here are not, of course, restricted to consideration of the content in an Internal Medicine clerkship, but may be applicable to other aspects of clinical training.

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