Research in epidemiology and community health in the medical curriculum: students' opinions of the Nottingham experience

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SUMMARY Medical students in Nottingham all complete an honours Bachelor of Medical Sciences course in one department including a research project. The honours programme in community health is described, with results from a survey of the 122 graduates since the medical school started. The 98 (80%) responses showed high levels of satisfaction and gain from the programme, the great majority regarding the course as valuable, enjoyable, and giving both research skills and skills in interpersonal relationships.

Two unusual features of the Nottingham Medical School curriculum are the importance placed on community health sciences and the fact that every medical student does a research project which leads to a Bachelor of Medical Sciences degree with honours. This paper describes the honours year programme in community health and reports on a survey of all students who have experienced this course since the medical school started in 1970. The Nottingham curriculum has been described recently.¹ After 5½ terms, including 91 hours of community health teaching, students enter the honours year programme, choosing one of seven departments. In community health, this programme consists of a 6 week course in research methods, a supervised project lasting 18 weeks, and 6 weeks of seminars which currently are on early diagnosis and international health. Thus students electing community health spend most of an academic year studying the subject in depth. After this experience students move to full time clinical study, including further community health teaching.^{1 2}

The survey

In the spring of 1985, questionnaires were sent to the last known address of all students who had completed the honours year in community health since the first such group in 1973. Of 122 students, 98 (80%) replied. A four page anonymous questionnaire was used, including structured and open questions, and these were coded by a research assistant (AL). The results

were assessed within three time periods; 1973 to 1977, 1978 to 1981, and 1982 to 1985. The first two periods correspond to the beginning and maturing of the medical school, increasing gradually from 40 to 130 students in the intake years. Students graduating from 1982 onwards experienced the effects of changes in leadership, staffing, and an increasing emphasis on analytical epidemiology and on clinical aspects even in the first two years.

Results

It was shown (table 1) that a majority of students were positively attracted to Nottingham by both the honours programme and the community emphasis; that they thought the programme very valuable, both as general education and as a training for medicine; and that it affected their skills and attitudes. Most students were glad that they had had to do the honours year and felt they had gained particularly from community health. In regard to career decisions, 46 ventured no opinion, being mainly still clinical students; of those responding, most said it had had some effect.

A comparison of graduating classes (table 2) showed that the proportion of students responding favourably has increased over time for all questions except a change in attitudes. The largest increases have been in the proportion of students keeping an interest in their project and publishing or presenting it. The proportion of high classification degrees has increased

Table 1 Students' perceptions of the Honours B Med Sci programme from closed questions: numbers of respondents (total = 98)

Selection factors:	Very Positive	Positive	No influence	Negative
Influence on choice of medical school of the Honours programme?	18	48	32	0
Influence on choice of medical school of the community emphasis?	29	47	22	0
Value of the Honours year:	Very	Fairly	Not very	Not at all
How valuable was your experience?	55	35	8	0
How worthwhile, in terms of future as a doctor? (non-response = 5)	41	37	11	4
How useful in terms of general education?	56	37	4	1
General impressions:	Glad	No opinion	Prefer conventional	
Glad you had to do an honours year?	86	6	6	
	Yes	No		
Made a difference to practical or personal skills? (non response = 1)	81	16		
Made a difference to attitudes?	57	41		
Gained from community health?	85	13		
	Great deal	Some	Not at all	No opinion
Influenced choice of career posts	7	25	20	46

Table 2 Students' perceptions of B Med Sci programme by year of graduation

	Year graduated B Med Sci		
	1973-77	1978-81	1982-85
Total respondents	28	34	36
Percentage responding:	%	%	%
Very valuable in general	46	53	67
Very worthwhile for future as doctor	39	32	53
Very useful as general education	50	58	61
Glad I did it	86	85	92
Difference to practical or personal skills	79	79	89
Difference to attitudes	64	44	67
Gained from community health	87	79	97
Kept interest in project	46	50	78
Published or presented project	13	21	53
*Final degree classification: % with first or upper second class degree			
All community health students	43	59	81
All students	57	69	74

*Based on all students, including non-responders; 122 community health, 1085 total students

throughout the medical school but has increased slightly more in community health.

In regard to skills gained through the programme (table 3), the most frequently mentioned was skills in research methods, but many students mentioned improvements in interpersonal skills, such as the ability to talk to patients. Many students also reported a change in their attitudes; these changes, where

Table 3 Skills gained and attitudes changed: 98 respondents

	Number of comments		
	Research methods	Interpersonal skills and confidence	Role of medicine
Skills gained	51	34	4
Attitudes changed	26	12	13
Gained specifically from community health	29	26	33

described, were in increasing their respect and appreciation for the value of research, the importance of good interpersonal and doctor-patient relationships, and the aspects of medicine beyond hospital based care. In regard to perceived gains from community health rather than other departments, similar numbers of comments referred to the role and scope of medicine, research methods, and interpersonal skills and confidence.

In open questions, students were asked which aspect of the course gave them the most satisfaction and which the least, which topics they particularly liked and which they particularly disliked. The responses were coded by the topic and whether these were positive or negative comments.

The aspects receiving the most positive comments were the project work (53 comments) and the independence given by the programme (41), followed by research methods (21), discussions of the role of medicine, relating to the emphases put on prevention,

the community approach, and Third World health (17), the seminars which covered a wide range of issues (18), interpersonal relationships (8), and staff relationships and supervision (7).

There were fewer negative comments (123) than positive comments (175). These referred to research methods (31), and various other parts of the teaching (30), the research project (27), problems of relationships with staff and of supervision (17), and the pressure of the course (10). The open questions were analysed by year but no large differences were seen.

Discussion

The response rate of 80% is reasonably high for a study of this nature. While non-responders might over represent those with a negative experience of the department, the marks and degree classifications gained by non-responders were typical of the whole group, and most failures to respond probably represent failure to locate graduates because of incorrect addresses, temporary work or elective assignments. Graduates of the programme are self selected for their interest in community health, as for the great majority (89 of 98) this was their department of choice for the honours year. Most of these students had been attracted to Nottingham both by the existence of the honours programme and by the community emphasis of the whole course. Even so, the levels of satisfaction expressed are very high, the great majority of students feeling that the experience was worthwhile and one that provided them with new skills and changed attitudes. Only 52 respondents felt able to comment on the influence of the year on their choice of career post, the others still being students, but of these the majority (62%) said the programme had some influence. Five students gave their career choice as community medicine, three as Third World medicine, and two as research or academic medicine; so most of these influences related to the choice between general practice and hospital medicine, or more general issues.

The open-ended questions showed that students valued the independence offered, the research projects, and the interpersonal skills and confidence engendered by working with patients. The department's policy has been to encourage the students to use their own initiative, either by developing their own ideas or developing a project from a general outline suggested by the department. Laboratory based departments often give a more restricted choice of topic. The nature of community health research, including the options of working outside Nottingham and outside the United Kingdom, demands that the student carries out his field work

with much less direct supervision than can be given in a laboratory based discipline. This provides greater opportunities for the committed and industrious student, but also the possibility of a greater workload and a more difficult project than might arise from a laboratory based study. Most projects involve extensive patient contact, again not always found in laboratory based projects, not only through the research itself, but also as arrangements are made for students to visit clinics, operating theatres, and general practice units to see patients and physicians and to gain a background knowledge of their subject.

The considerable although smaller number of negative comments concerning the project relate to its difficulty, length and workload, to issues of supervision and staff relationships, and to the fact that many projects do not produce clear or important results. The students' opinions confirm our impression that the projects are challenging and demanding, and encourage independence and clinically related skills, but consequently demand a lot from the student and from the supervisor. The survey results indicate that care must be taken to ensure that projects are realistic, and that supervisor-student relationships are good.

More negative than positive comments applied to the research methods courses, which are quite difficult and concentrated. However, many students indicated that part of their satisfaction was gained from being able to apply such methods, and most respondents put research methods as the main skill they had gained from the year.

It is relevant that 29 students, including 17 of the 36 graduates in the 82-85 phase, gave research methods as something gained particularly from community health, as all other departments teach their own research methods to the same level. The comments show that these students feel that the methods they have learnt are positively useful in their further careers, and since 1981 greater emphases have been put on the application of epidemiological methods to clinical issues, and to critical evaluation of current medical literature.

The differences in responses by year give indications of the effect of changes in the department's orientation. The results are similar from 1973-77 and 1978-81, during which time the department had a similar orientation and structure. Students graduating since 1982 have experienced a greater emphasis on analytical epidemiological methods and their relevance to current clinical problems. The proportion of students who keep an interest in their project work, and who publish or present it, has increased. While more recently graduated students are referring to a shorter time period in regard to maintaining interest, the increase in publications may underestimate the difference as some graduates complete presentation or

publication of their work some years after graduating. The increase in the proportion of projects published or presented reflects a deliberate policy change to encourage this and to subject the proposed protocols to close scrutiny to maximise the value of the project. Projects published between 1983 and 1985 are referenced 3 to 19.

In summary, we conclude that the opportunity to study community health and epidemiology in depth during the medical undergraduate programme is attractive to many students on entry and is regarded as useful and enjoyable by the great majority of those who experience it. The programme not only provides skills in research techniques but also increases the students' self confidence and skills in interpersonal and doctor/patient relationships. The work done is seen as relevant to clinical medicine, provides a continuing interest for many graduates, frequently allows the student to publish or present some original work, and often influences their career development.

We are grateful primarily to Emeritus Professor EM Backett, whose efforts led to high priority being given to this programme in the medical school, to all previous members of the department's staff, and to the many others who have assisted in the conduct of these projects. We are grateful also to all the graduates who responded to this survey.

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Note:

In references 3 to 19, undergraduates' names are indicated thus*.