

# The impact of three years' ethics teaching, in an integrated medical curriculum, on students' proposed behaviour on meeting ethical dilemmas

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**Objective** To evaluate the impact of 3 years' ethics teaching (30 hours mainly small group teaching in year 1, 14 hours mainly lecture-type teaching in years 2 and 3) on students' proposed behaviour on encountering ethical dilemmas.

**Design** Cohort design.

**Setting** University of Glasgow Medical School.

**Subjects** A cohort of 111 students entering Glasgow University's new learner-centred, integrated medical curriculum; where ethics learning is formally assessed in years 1 and 5 only; in October 1996.

**Main outcome measure** Student answers consistent with consensus professional judgement on the ethical dilemmas posed by the vignettes of the Ethics and Health Care Survey Instrument.

**Results** The instrument was completed pre- and post-year 1 and post- year 3 by 77%(85) of the cohort. There is a significant increase in the number of consensus answers given following the first year of the curriculum,

but no further improvement was found. The odds ratio for giving the consensus answer post- year 1 relative to pre- year 1 was 1.42, 95% Confidence Interval (1.19, 1.71),  $P = 0.0001$ . Comparing post- year 3 to pre- year 1, odds ratio 1.30 (1.08, 1.57),  $P = 0.0062$ . Post- year 3 compared to post- year 1, odds ratio 0.91 (0.76, 1.10),  $P = 0.34$ .

**Conclusions** While small group ethics teaching can be effective in developing students' normative identification with the profession of medicine, its effectiveness is dependent on the amount of small group teaching provided. The lack of formal assessment in years 2 and 3 is also felt to contribute to the lack of impact. This information will inform future curriculum development.

**Keywords** Education, medical, undergraduate/\*methods; medical, ethics/\*education; curriculum; professional competence; Great Britain.

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## Introduction

Most United Kingdom medical schools now include medical ethics teaching in their undergraduate curricula.<sup>1</sup> Despite the increased activity in this field, few evaluation studies have been undertaken.<sup>2,3</sup> Outcome evaluation studies have employed a number of methodologies and produced conflicting evidence on the effectiveness of ethics teaching.<sup>2-12</sup> Most have concentrated on determining the effect of discrete medical ethics courses provided early in the curriculum.<sup>2,4,6,7,9</sup> Where longitudinal studies have taken place, the main

approach has been to measure students' moral reasoning using instruments based on Kohlberg's cognitive moral development theory.<sup>8,10,11</sup> This is limited, as it requires researchers to adopt a particular theory of moral development, and does not present students with actual ethical dilemmas. The incorporation of case vignettes into evaluation instruments, allowing assessment of students' proposed behaviour on encountering ethical dilemmas, has been the approach favoured for outcome evaluation in recent years.<sup>7</sup>

In October 1996 Glasgow University introduced a learner-centred, problem-based, integrated medical curriculum. The curriculum has medical ethics and law as one of the vertical themes running throughout the five years. Its introduction provided an opportunity to study longitudinally the effect of ethics education on students' proposed behaviour on facing ethical dilemmas. The impact of ethics teaching in the first year of

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### Key learning points

Small group teaching, in an integrated curriculum, can be effective in developing students' normative identification with the profession of medicine.

Its effectiveness appears to be dependent on the amount of small group teaching provided.

The teaching of medical ethics and law, as with all other core curricular subjects, should be formally assessed.

Glasgow's new curriculum has been previously reported.<sup>13</sup> This paper examines the effect of 3 years' ethics teaching.

### Format of ethics education in the first 3 years of the Glasgow medical curriculum

The UK Consensus statement, on the teaching of medical ethics and law in UK medical schools, has made a number of recommendations.<sup>14</sup> The curricular aims, and design of teaching in medical ethics and law in Glasgow's new curriculum are consistent with this approach.

Learning begins in first year as 1 of 9 domains of the Vocational Studies course.<sup>13</sup> Vocational Studies, which runs throughout the first 3 years of the curriculum, is an innovative course, which complements the Problem-Based Learning (PBL) core. It is designed to facilitate the development of professionally responsible attitudes and skills required by students for clinical practice. The aims of the ethical component of Vocational Studies are:

- 1 To encourage students to become familiar with the general theories of medical ethics, law and professional behaviour;
- 2 To enable students to apply these theories to cases presented not only in the PBL core and Vocational Studies, but also in the more clinical years of the curriculum and eventually in practice;
- 3 To ensure that students are aware of their legal, ethical and institutional obligations in clinical reasoning.

To achieve these aims, the students participate in a variety of activities. In first year the main activity is small group discussion (groups of 8 students) of cases and underpinning theory, facilitated by the same clinical tutor throughout the year. The tutors, most of whom are general practitioners, usually have no particular

expertise in medical ethics, but have been trained by the ethicist responsible for the course, and are encouraged to use their professional expertise to complement their training. For each of these 3-hour sessions learning objectives are provided along with prompt sheets and background material. The small group sessions are complemented by 1-hour plenary seminars, where students have the opportunity for interactive discussion with ethicists, legal experts and members of other relevant disciplines. In years 2 and 3 plenary seminars become the main teaching method used.

The topics covered in Vocational Studies ethics sessions are shown in Table 1. The emphasis of the teaching in each year is as follows:

Year 1 – Issues and concepts in medical ethics.

Special reinforcement on autonomy as informed consent and confidentiality (legal and theoretical).

Core values of medicine.

Year 2 – Issues, concepts and theory of medical ethics.

Year 3 – Issues, concepts and theory.

Legal issues, oaths, institutional rules and guide-lines.

Figure 1 indicates that the core issues form the heart of the ethics programme stimulating interest in an issue, and concretising it as a case study. Discussion of relevant concepts promotes generalisation of issues for example; the issue of refusal of treatment is conceptually addressed in an exploration of autonomy. Accompanying this, students are given the opportunity to explore tools and develop methods of decision-making. These cover meta-ethical theories which encourage flexibility and sensitivity to other views, while promoting practical, deliberate decision-making that is either within the laws and standards relevant to medicine, or are carefully considered, well-supported dissenting positions.

Assessment of students' learning in medical ethics is incorporated into the first MB exam, as part of the modified essay and short notes component. Questions relating to ethics do not feature in the second or third MB exams.

### Aim of the study

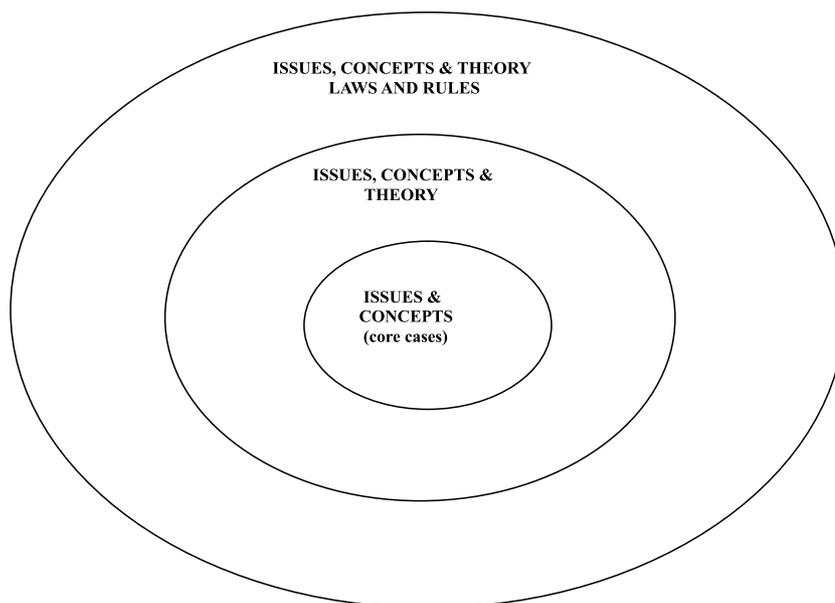
The aim of the study was to judge the impact of 3 years' ethics teaching, in an integrated medical curriculum, on students' potential behaviour when facing ethical dilemmas.

### Method

A cohort design was adopted.

**Table 1** Ethics sessions in vocational studies

<b>YEAR 1</b>		
SESSION 1:	Plenary	– The core values of medicine
SESSION 2:	Residential weekend	– Moral imagination
SESSION 3:	VS small groups	– Futility vs. utility: What is the aim of medicine?
SESSION 4:	Plenary	– Medical, legal and ethical issues related to alcohol
SESSION 5:	VS small groups	– Autonomy and consent
SESSION 6:	Plenary	– Autonomy and consent: the legal perspective
SESSION 7:	PBL	– Organ donation
SESSION 8:	VS small groups	– Vulnerabilities: patients' and doctors'
SESSION 9:	VS small groups	– Disclosure and confidentiality
SESSION 10:	VS small groups	– Patient records
SESSION 11:	VS small groups	– Abortion
SESSION 12:	VS small groups	– Informed consent and research
SESSION 13:	Plenary	– Core values revisited
<b>Year 2</b>		
SESSION 15:	VS small groups	– Infertility
SESSION 16:	Plenary	– Rationing
SESSION 17:	VS small groups	– Screening for Down's syndrome
SESSION 18:	Plenary	– The value of a life
SESSION 19:	Plenary	– Family law, family ethics
SESSION 20:	Plenary	– Race and gender in medical ethics and law
<b>Year 3</b>		
SESSION 21:	Plenary	– Oaths, codes and regulations
SESSION 22:	Plenary	– Euthanasia and quality of life
SESSION 23:	Workshop	– Euthanasia and quality of life
SESSION 24:	Plenary	– Dealing with medical mistakes
SESSION 25:	Plenary	– Law and ethics in mental health



**Figure 1** Schema of ethics programme

## Subjects

111 students from the first year of Glasgow University's new medical curriculum participated in the first 2 stages of the study.<sup>13</sup> At the end of the third year of the curriculum their continuing status was checked from university records. Six students had left the course, been excluded, or were repeating a year. The remaining 105 were invited to participate in the next stage.

## Instrument

The Ethics and Health Care Survey Instrument,<sup>13</sup> consisting of 12 case vignettes which include an ethical dimension, was used. Nine of the 12 cases feature 'consensus problems', about which there is broadly-shared, responsibly warranted agreement among specialists in medical ethics. This is important as doctors are often faced with ethical dilemmas in which there is broad agreement in the literature, coupled with statements by professional organisations, and must be aware where consensus exists. The topics covered by, and the issues involved in the consensus vignettes are shown in Table 2.

The other cases feature 'knife edge problems', about which professional judgements were scarce or divided. Their inclusion in the instrument is important, however, as it demonstrates to students that not all ethical problems will have a course of action that can be shown to be professionally favoured by reference to official professional standards and to the medical ethics literature.

In addition to asking students to choose 1 of the pre-set answers to the case vignettes, it also requires them to state their reasons for their chosen response. This helps to determine whether students recognise the issues involved, and their reasoning about the issues. To determine the effectiveness of the teaching again only the answers given to the consensus questions were considered in the analysis. The purpose was to measure whether, and to what extent, the judgement of medical students was moving towards the consensus judgement of informed professionals.

The Ethics and Health Care Survey Instrument was completed by the cohort pre- and post-year 1. At the end of year 3 those remaining in the medical course were sent the instrument, with an accompanying letter requesting their further participation. There was no compulsion for students to undertake this evaluation; their participation was entirely voluntary. The students were assured of this in the letter, and of the confidentiality and anonymity of their responses. A consent form was attached to the instrument. At the end of the

summer recess, before the beginning of year 4, non-respondents were identified and sent a reminder letter containing a further Ethics and Health Care Instrument.

Each student's pre- and post-year 1 response to the consensus questions had been tabulated on an Excel spreadsheet, along with details on the variables age and sex. Their post-year 3 responses were added to the spreadsheet.

## Analysis

This paper focuses on the analysis and presentation of the results of the students' responses to the pre-set answers to the consensus questions. The analysis of the data on students' justifications of their answers will be the subject of future papers.

## Statistics

Statistical analyses were performed using S-Plus v4.5. Simple comparisons of the answers given to each consensus question between pairs of time points were made using McNemar's test. The effect of time on the responses of each student to all 9 questions were estimated using logistic regression analysis, adjusting for the degree of difficulty of the question, and for the correlation between different time points in the responses of each student to each question. The terms included in the model were an intercept, 8 dummy variables to account for differences between questions, and 2 dummy variables to estimate the changing probability of giving the consensus answer at the 3 time points. To allow for the likely correlation between the responses by each student to each question, a generalised estimating equations approach was used<sup>15</sup> with each student-question combination representing a homogeneous unit, within which responses were assumed to be correlated. In other words, the response of a student to a particular question at any time point would be correlated with the response he/she gave to the same question at the other time points.

## Results

77%(85) of the cohort ( $n = 111$ ) completed the Ethics and Health Care Instrument at the end of year 3. Their representativeness in relation to the entire class was established by comparison, using university records, of their composition in terms of age, sex, percentage of overseas students, and students holding previous degree(s). For the respondents and the whole class there was very little difference in mean age (respondents:

**Table 2** The topics covered by, and the issues involved in, the consensus vignettes

<b>Vignette 1</b>	Request for withdrawal of treatment by a competent, paralysed patient who has required a ventilator to keep her alive for 3 years and who has no hope of recovery.
<b>Issues</b>	Patient autonomy, competence Withdrawal of treatment Legal precedents Active voluntary euthanasia or passive voluntary euthanasia Beneficence → paternalism Justice (a broad issue re right to die)
<b>Vignette 2</b>	Whether to inform a patient with poorly controlled epilepsy, who is opposed to abortion and birth control, about a new medication that carries a 10% risk of severe birth defects.
<b>Issues</b>	Patient autonomy, competence Deliberate withholding of treatment Right to know Beneficence, non-maleficence → paternalism Professional guidelines
<b>Vignette 4</b>	How to respond to a seriously injured patient who requires immediate surgery and blood transfusion, but due to her religion (she is a devout Jehovah's Witness) will not consent to transfusion thereby greatly reducing her chance of survival.
<b>Issues</b>	Patient autonomy vs. professional autonomy Respect for others' beliefs Beneficence, non-maleficence → paternalism Rights Truth and trust Duty to treat emergencies Professional guidelines
<b>Vignette 5</b>	Whether to report an HIV-positive prostitute who refuses to refrain from acting in ways that could transmit the virus to her clients.
<b>Issues</b>	Patient autonomy Confidentiality Disclosure of information in the interest of others Paternalism and trust < – > beneficence and non-maleficence Professional guidelines
<b>Vignette 6</b>	Whether to refer a 15-year-old Catholic patient for a termination without her parents' consent.
<b>Issues</b>	Patient autonomy, competence Confidentiality Disclosure of information Legal precedents Professional guidelines
<b>Vignette 8</b>	How to respond to the request for information about her prognosis by an intelligent, terminally ill 12-year-old patient with leukaemia whose parents are adamant she should not be informed of her terminal status.
<b>Issues</b>	Patient autonomy, competence legal vs. philosophical view of age Information sharing and trust Legal precedents
<b>Vignette 9</b>	Whether, as the only doctor on a remote island, to accept an inappropriate invitation to dinner with a patient of the opposite sex.
<b>Issues</b>	Professional relationships with patients Professional guidelines
<b>Vignette 10</b>	Whether to 'blow the whistle' on a colleague who disregards the wishes of a patient to be resuscitated because she had signed a previous advance directive asking not to be resuscitated.
<b>Issues</b>	'Whistle-blowing' on colleagues Patient advocacy Autonomy Professional guidelines
<b>Vignette 12</b>	Whether to report a taxi driver, recently diagnosed with epilepsy and who continues to drive, to the authorities.
<b>Issues</b>	Professional guidelines Patient's legal requirement Beneficence and non-maleficence vs autonomy > paternalism Duty to society → justice

21 years 10 months, class: 21 years 9 months), and percentage of overseas students (respondents: 7%, class: 4%). Sex distribution and those having a previous degree were almost identical.

Table 3 shows the total number of consensus answers given at each time point. There is a visible increase in the number of consensus answers given following the first year of the curriculum, but no further improvement resulted from exposure to the next 2 years.

Analysis of the responses to individual questions, for which no correction has been made, demonstrated a shift towards consensus, following year 1, for questions 5, 6, and to a lesser extent 8 (Table 4). There was no significant change in the number of students giving consensus answers for any question following years 2 and 3. Over the 3 years, there is evidence of a move towards consensus on questions 5 and 6.

Logistic regression was used to quantify the shift in proportions of students giving consensus answers at the 3 time points. Whether or not the consensus answer was given by each student, to each question at each time point was the response. There were potentially 2295 responses (85 students  $\times$  9 questions  $\times$  3 time points), but on 14 occasions the response was missing, leaving 2281 responses for analysis.

The odds ratio for giving the consensus answer post-year 1 relative to pre-year 1 was estimated at 1.42, with a 95% Confidence Interval of (1.19, 1.71),  $P = 0.0001$ . Comparing post-year 3 to pre-year 1, the odds ratio was 1.30 (1.08, 1.57),  $P = 0.0062$ . Post-year 3 compared to post-year 1, the odds ratio was 0.91 (0.76, 1.10),  $P = 0.34$ . Compared to pre-year 1, there were significant increases in the numbers of consensus answers at the end of year 1. After the third year of the curriculum there was a slight, but not statistically significant decrease in the probability that students would give consensus answers.

## Discussion

This study suggests that the first year of Vocational Studies had a positive impact on students' potential behaviour on facing ethical dilemmas. The second and third years, however, did not impact to the same extent. Analysis of individual vignettes indicated that the areas of autonomy, confidentiality and consent, the main thrust of the first year teaching, were the areas where there was the greatest movement towards the consensus judgement of informed professionals.

While a statistically significant increase in the probability of giving the consensus answer, from 63% to 70% pre-year 1 to post-year 1, would not appear at first glance to be substantial from a contextual point of view, particularly where most of the increase comes from change in 2 vignettes, one has to bear in mind the interrelationship of the vignettes (Table 2) and take into consideration that students rarely start their ethical learning from a position of having little or no knowledge, or having few opinions on ethical matters. In vignettes 1, 2, and 4 students scored highly (75%, 81%, 93%) on the pre-test, making significant improvement post-test more difficult to detect. Students also scored reasonably well pretest on vignettes 5 and 6 (49% and 62%). Vignettes 8, 9, 10, and 12 seems to contradict the thesis that students start their learning from a position of having reasonable prior knowledge with students scoring 16%, 38%, 46%, and 41%, respectively, pre-test. However, from students' written justifications for their decision on vignette 8; where the issues overlap with those in vignettes 1, 2, 4, 5, and 6; the patient's age seems to have adversely influenced students' performance pre- and post-test, with students viewing her age as a barrier to competence. Vignettes 9, 10, and 12 cover issues where students are unlikely to have had a great deal of prior knowledge or experience. The lack of significant improvement post-year 1 is

		Number of consensus answers							Mean	(SD)
		3	4	5	6	7	8	9		
Pre-Year 1	N	3	12	22	25	13	10	0	5.7	1.31
	%	4	14	26	29	15	12	0		
Post-Year 1	N	0	6	17	24	20	17	1	6.3	1.24
	%	0	7	20	28	24	20	1		
Post-Year 3	N	0	7	18	25	23	11	1	6.2	1.19
	%	0	8	21	30	27	13	1		

**Table 3** Numbers of consensus answers given at each time point, with mean and standard deviation

**Table 4** Numbers of consensus answers for each question, comparing pre-year 1 with post-year 1, and post-year 1 with post-year 3

Question	Pre-year 1	Post-year 1		p1	Post- year 1	Post-year 3		p2	p3
		N	C			N	C		
1	N	8	5	0.73	N	6	5	1	0.61
	C	3	69		C	4	70		
2	N	0	3	1	N	1	1	0.22	0.51
	C	2	79		C	5	77		
4	N	10	5	0.73	N	8	5	0.77	1
	C	3	64		C	7	62		
5	N	7	17	0.035	N	6	7	1	0.035
	C	6	53		C	7	63		
6	N	17	21	0.0009	N	15	6	0.45	0.0066
	C	4	42		C	10	53		
8	N	51	13	0.064	N	43	13	1	0.12
	C	5	14		C	13	14		
9	N	30	13	0.52	N	25	14	0.54	0.15
	C	9	32		C	10	35		
10	N	18	15	0.7	N	19	11	0.69	1
	C	12	39		C	14	40		
12	N	21	12	0.85	N	26	9	0.66	0.44
	C	14	35		C	12	35		

P-values are p1 = pre-year 1 vs. post-year 1; p2 = post-year 1 vs. post-year 3; p3 = pre-year 1 vs. post-year 3  
C = Consensus answer; N = Non-consensus answer.

perhaps not surprising in view of there being no formal teaching on these issues during year 1. However the lack of improvement in these vignettes post-years 2 and 3 is disappointing.

These findings, however, should be viewed in the context of the findings of previous studies. Self *et al.*<sup>10</sup> using Rest's Defining Issues Test (DIT), found an increase in the moral reasoning skills of students following ethics teaching in the first year of the curriculum. Correcting for the expected rise in DIT scores associated with a further 3 years education at this age and level, there was no further improvement in the moral reasoning skills of female students and a deterioration in the moral reasoning skills of male students by the end of the curriculum. Similarly Hebert *et al.*<sup>5</sup> measuring ethical sensitivity amongst medical students in different years of the curriculum, found an increase in sensitivity between years 1 and 2, but a decrease in the later years of the curriculum.

Cohort studies are particularly appropriate in research on human growth and development.<sup>16</sup> They allow the researcher greater opportunity to observe trends and to distinguish 'real' changes from chance occurrences. The study, like most cohort studies, suffered from sample mortality. However, those who remained appear to be representative of the year as a whole. Cohort studies can also suffer from 'control effects'. This was a threat in a situation where the same instrument was used on 3 separate occasions. However the time interval of 1 year between the first and second stages, and 2 years between the second and third stages of the study made this less likely, particularly as students received no feedback on what the 'correct' answers are, or on how they performed individually. In addition, 3 of the 12 vignettes are non-consensus vignettes for which there is no 'correct' answer.

Cohort studies can also suffer from the interaction of biological, environmental and intervention influences.

In medical curricula, the longer students are exposed to the curriculum and the process of 'moral enculturation', the greater the risk of students' ethical development being detrimentally affected.<sup>17</sup> This may have had some bearing on the failure of years 2 and 3 to impact on students to the same extent as year 1. However, the amount and type of ethics teaching; 30 h of mainly small group teaching in year 1, compared with 14 h of mainly lecture-type teaching between years 2 and 3; are likely to have had an influence on the results. The small group process facilitates transformative learning,<sup>18</sup> an effective approach to bioethics teaching.<sup>19</sup> Self *et al.*<sup>4</sup> demonstrated that teaching medical ethics can increase students' moral reasoning skills and that these increases come more from exposure to small group case-study discussion than from lecture-based courses. Our previous study showed small group teaching to be more effective than lecture and large group teaching in developing students' normative identification with the profession of medicine.<sup>13</sup> There is also empirical evidence to suggest that while small group teaching significantly increases moral reasoning skills, this effect only occurs where students are exposed to 20 or more hours of small group teaching.<sup>11</sup> Had years 2 and 3 contained a greater amount of small group ethics teaching a more favourable impact on students' performance may have resulted.

While questions relating to ethics were included in the first MB exam, they did not feature in the second or third MB exams. The General Medical Council<sup>20</sup> and the UK Consensus statement<sup>14</sup> both recommend that ethics and law should be formally assessed as with all other core subjects within the curriculum. Changes in assessment task can produce marked changes in student learning behaviour.<sup>21</sup> The failure to include questions relating to ethics in these exams may have influenced students' learning behaviour detrimentally, particularly where there is a strong exam-orientation among students.<sup>22</sup>

This paper has implications for the future planning of ethics teaching in the Glasgow curriculum. The amount of small group teaching provided in years 2 and 3 needs to be re-addressed, and ethics should be formally assessed in the second and third MB exams.

## Contributors

JG conceived and designed the study, collected data, supervised data analysis and wrote the paper. LS and JM were involved in the conception and design of the study, and its ongoing management. They interpreted data and contributed to the writing of the paper. AMcC

was responsible for data analysis and contributed to the writing of the paper.

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