
Ethics education for medical house officers: long term improvements in knowledge and confidence

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Abstract

Objective – *To examine the long term effects of an innovative curriculum on medical house officers' (HOs') knowledge, confidence, and attitudes regarding medical ethics.*

Design – *Long term cohort study. The two-year curriculum, implemented by a single physician ethicist with assistance from other faculty, was fully integrated into the programme. It consisted of monthly sessions: ethics morning report alternating with didactic conferences. The content included topics such as ethics vocabulary and principles, withdrawing life support, informed consent, and justice. Identical content was offered simultaneously at the largest affiliated community hospital.*

Setting – *A multi-hospital university training programme from July, 1992 to June, 1994.*

Participants – *Thirty-nine HOs responded in '92. Thirty HOs from the same cohort responded in '94 (response rates=83% v 71%; P=0.19).*

Results – *The curriculum was well received, with 96% of HOs finding the sessions stimulating. Previously validated scales of knowledge and confidence were administered at baseline and at follow-up. The average knowledge score improved 14% (P<0.001).*

Confidence also improved, rising from 3.3 to 3.8 on a 5-point Likert scale (P<0.001). These findings were independent of age, gender, religion, and prior education. The only attitudinal change was an increase in the proportion of residents who thought that ethics should be a required part of residency training (57% v 80%, P=0.05).

Conclusion – *This curriculum appears practical, popular, and effective. It should be readily transferable to other institutions.*

Until recently, work in medical ethics education has focused on medical students, rather than on house officers.^{1,2} And across the board, little attention has been paid to the effectiveness of ethics programs.^{3,4} In one of the few attempts to study the effectiveness of

ethics education for house officers, several years ago we conducted a randomised, controlled trial of a special ethics education programme for internal medicine house officers.⁵ To our disappointment, we were unable to demonstrate any impact on their knowledge after one year.

Building on our past experience, we have implemented a new and different programme in ethics education for medical house officers at another institution. Our objectives in this study were to evaluate the impact of *this* programme on the knowledge, confidence, and attitudes of the house officers.

Methods

This study took place at a single, urban, university-based, categorical internal medicine residency training programme. There are four major affiliated hospitals, including the university hospital. There had been no prior programme in ethics education for this residency. The study was approved by the Georgetown University Medical Center Institutional Review Board.

Our design was a prospective, before and after cohort analysis, following house officers from the beginning of their first and second postgraduate years in July, 1992 until just before the completion of their second and third postgraduate years in June, 1994. We surveyed their knowledge, confidence, and attitudes regarding medical ethics at baseline and at follow-up.

INTERVENTION

This curriculum is characterised by a philosophy of "mainstreaming". That is to say, rather than, as in our previous programme, creating special sessions for ethics, we now use the regular noon-time slots for didactic lunch conferences every other month. The topics covered are arranged on a two-year cycle, so that material missed or forgotten from the first year is repeated in the third year, but there is less repetition of the same topics year to year. During alternate months, one session of morning report is dedicated solely to the discussion of actual ethics cases of concern to the house staff. There is a parallel programme at the largest affiliated community hospital,

Key words

Ethics; postgraduate medical education; house officers; knowledge; confidence.

so that house officers at these two sites get the same material. Part of the overall curricular design also includes occasional teaching through the ethics consultation service, occasional medical grand rounds on ethics, and sporadic other conferences. The programme enjoys the full support of the department chair.

Conferences covered a wide variety of topics over two years, such as the ethics of cost control in medicine, brain death and related states, and competency assessment. While covering specific topics, the style of presentation was highly interactive and made clinically relevant. The only material that repeats annually is the lecture on "Do Not Resuscitate" orders and the lecture on vocabulary and principles. The subjects covered are shown in table 1.

Recognising that curriculum is a much broader experience than simply what is covered in lectures, we should point out that role-modelling is enhanced by the fact that while the bulk of the teaching is carried out by one physician-ethicist, several others participate. Importantly, we also gave feedback to the house staff about their performance on the baseline survey at about the midpoint of the two-year curricular intervention.

INSTRUMENT

Our instrument was an anonymous questionnaire modified slightly from an instrument we had developed and used in a previous setting.⁶ It consisted of three parts. The first part was a 21-item knowledge-test, modelled on our reliable previous instrument. This test had face validity before a panel of experts. The second part was a six-item confidence-scale, modelled on the social learning theory of Bandura.⁷ According to this theory, behavioural change is mediated by the acquisition of knowledge, skills, and perceived self-efficacy (or "confidence") in one's ability to perform the task. Our confidence-scale has

had high internal consistency in several previous settings.^{5 6 8} The third part was an eight-item survey of attitudes regarding a variety of ethical issues. We also obtained demographic data, self-reported attendance, and evaluations of the programme. The complete instrument is available upon request.

ANALYSIS

Because of ethical concerns, we guaranteed the anonymity of the responses. Consequently, we cannot link individual respondents. We therefore report differences between the cohort as a whole, before and after the intervention. Categorical variables were analyzed using the Chi-square test, continuous variables were analyzed using the Student's *t*-test. Correlations are reported as Pearson's *r*.

Results

We had good response rates, with 83% (39/47) responding in 1992 and 71% (30/42) in 1994 ($P=0.19$). The denominator was lower in 1994 since several house officers had transferred out of the programme. However, the two groups of respondents did not differ in such demographic characteristics as gender (62% v 58% men), or religion (36% v 32% Catholic). The only significant difference was that two years later the house officers were two years older (mean age=27 v 29 years, $P<0.001$).

The average number of sessions attended over two years was four, excluding grand rounds. Given the nature of our programme, with rotations to two hospitals without an ethics curriculum and frequent rotations on such services as intensive care units, plus the emergency needs of patients that sometimes preclude attendance at conferences, this was not surprising. In addition, morning report, including ethics morning report, was open only to post-graduate year (PGY) II and III house officers, not PGY I.

The sessions were well received. Ninety-six per cent found them either extremely stimulating or stimulating, and 88% found them either extremely useful or useful. Forty-nine per cent thought the number of sessions was adequate to their needs, while 42% thought they needed more frequent ethics sessions. Eight per cent thought there were already too many ethics sessions.

Overall, knowledge improved by 14%, from 49% correct in 1992 to 57% correct in 1994. Scores improved on 15 of the 21 items. Significant improvements were noted in all categories of questions. This included (1) knowledge of theory and principle, such as knowledge of the content of the Hippocratic Oath; (2) knowledge of landmark cases such as that of Elizabeth Bouvia;⁹ and (3) knowledge of pertinent laws, such as the fact that Washington, DC law has nothing to say about feeding tubes (see table 2).

Knowledge scores for the 1994 sample were not significantly associated with age, gender, medical

Table 1 Conference topics

Date	Topic
Aug 1992	Grand Rounds: Cost control
Sep 1992	Ethics morning report
Oct 1992	Do not resuscitate (DNR)
Nov 1992	Ethics morning report
Dec 1992	Vocabulary and principles
Jan 1993	Ethics morning report
Feb 1993	Brain death
Mar 1993	Ethics morning report
Apr 1993	Competency and consent
May 1993	Grand rounds: advance directives
Jul 1993	DNR orders (advanced life support)
Aug 1993	DNR orders
Sep 1993	Ethics morning report
Oct 1993	Vocabulary and principles
Nov 1993	Ethics morning report
Dec 1993	Confidentiality
Jan 1994	Ethics morning report
Feb 1994	Justice and medicine
Mar 1994	Ethics morning report
Apr 1994	Withholding and withdrawing
May 1994	Ethics morning report

Table 2 Knowledge of ethics: specific items before and after ethics education

Question	% Correct (1992)	% Correct (1994)	Chi-square P value
1 Durable Power of Attorney in DC	87	90	0.72
2 Cruzan case*	82	80	0.83
3 Patient Self-Determination Act	77	93	0.07
4 Relationship of law and ethics	77	87	0.30
5 Euthanasia in Netherlands	77	80	0.76
6 Convictions for turning off ventilators	74	90	0.10
7 Issue in Tarasoff case**	74	70	0.79
8 Confidentiality and Tarasoff case**	69	60	0.63
9 Legal hierarchy of surrogates	49	53	0.71
10 Formal incompetency declarations	46	40	0.61
11 Feeding tubes and DC law	44	80	0.002
12 Living wills in DC, MD, VA	41	56	0.20
13 Bouvia case†	38	67	0.02
14 Moral hierarchy of surrogates	36	50	0.24
15 DC law on ethics committees	33	53	0.10
16 Minor Jehovah's Witnesses and the law	33	27	0.55
17 Definition of utilitarianism	28	13	0.14
18 Reporting impaired colleagues	23	27	0.73
19 Contents of Hippocratic Oath	18	37	0.08
20 Definition of deontology	15	23	0.40
21 Ethical systems that prohibit lying	5	7	0.78
Total per cent correct (95% CI)	49 (45 to 52)	56 (53 to 60)	0.008 (t-test)

*Case of young woman in permanent vegetative state; family wanted to remove feed tube.

**Case of a disturbed man who threatened to kill his girlfriend; psychiatrist kept confidential.

†Case of a quadriparetic woman who asked to starve herself to death while under hospital care.

school (dichotomised as Georgetown v other), religious denomination, or frequency of attendance at religious services.

Overall, comparing 1992 to 1994, there was a mean increase in confidence from 3.3 to 3.8 on our 1 to 5 scale. Confidence tended to increase for each individual item on the scale, including the ability to recognise a genuine ethical problem, ability to reach an ethical decision, ability to justify the reasons for an ethical decision, ability to obtain a valid informed consent, and especially in ability to address ethical issues in caring for incompetent patients and ability to address the ethical issues involved in caring for the terminally ill (see table 3). This scale proved reliable again, with Cronbach α scores of 0.76 and 0.81 for the 1992 and 1994 samples, respectively.

Confidence scores for the 1994 sample were not associated with age, gender, medical school, religious denomination, or frequency of attendance at religious services.

In 1992, we sampled all three postgraduate years to look for a baseline maturation profile. There was no significant correlation in the baseline survey of

Table 3 Confidence in addressing ethical issues

	Mean scores on 1 to 5 scale (95% confidence interval)	
	July, 1992	June, 1994
Overall score	3.3 (3.2 to 3.5)	3.8 (3.7 to 4.0)/
Recognise	3.7 (3.5 to 3.8)	4.1 (3.9 to 4.3)*
Decide	3.5 (3.3 to 3.7)	3.6 (3.4 to 3.9)
Justify	3.4 (3.2 to 3.7)	3.7 (3.5 to 4.0)
Consent	3.4 (3.1 to 3.6)	4.0 (3.7 to 4.3)*
Incompetents	2.9 (2.6 to 3.2)	3.7 (3.4 to 3.9)/
Terminally ill	3.2 (2.9 to 3.4)	3.9 (3.6 to 4.2)/

*P < 0.001.

√P < 0.0001.

1992 between postgraduate year and either knowledge ($r=0.10$, $P=0.47$) or confidence ($r=0.10$, $P=0.47$).

In the 1994 sample, knowledge and confidence scores were significantly correlated with each other ($r=0.31$, $P=0.01$). In addition, while not statistically significant, those attending the mean of four sessions or more had slightly higher confidence (3.93 v 3.79) and slightly higher knowledge scores (11.91 v 11.79) in 1994.

Only one attitude item changed significantly over the two years. By 1994, 80% of the house officers thought that ethics should be a required part of their training, as opposed to 57% in 1992 ($P=0.05$).

Attitudes did not change significantly over the two years regarding other topics such as the extent of the physician's duty to treat HIV-infected patients, with 20% reporting in 1994 that they believed that physicians should be legally required to treat HIV-infected patients who request their services, and 10% reporting this strong belief in 1992 ($P=NS$). Sixty per cent thought it was highly morally questionable to limit access to dialysis on the basis of age in 1992, while 52% expressed this attitude in 1994 ($P=NS$). Twenty-nine per cent thought there should be some legal limits on abortion access in 1992, and 36% expressed this attitude in 1994 ($P=NS$). In 1992, 37% thought that lying to patients was justified on rare occasions in 1992, while 51% expressed this attitude in 1994 ($P=0.15$).

Discussion

We conclude that knowledge and confidence improved significantly, if modestly, over the first two years of our programme, that attitudes remained essentially unchanged, and that the curriculum was well received.

The major limitation of the study was that it was not controlled. One must therefore be cautious about causal inferences. None the less, a causal role between the curriculum and the results seems the best explanation for what happened. Several indirect sources support this conclusion.

First, as a historical control, in our previous study, we demonstrated that even with implementation of a

different ethics education programme in a special controlled setting, we were only able to increase confidence, not knowledge.⁵ This suggests that knowledge of ethics does not increase during residency without exposure to an effective curriculum.

Dose effect

Second, in the present study, at baseline there was no evidence of a maturation effect. Knowledge and confidence were uncorrelated with postgraduate year (PGY) before the introduction of our curriculum. In fact, in our previous study at another institution, while confidence was uncorrelated with PGY, knowledge was actually *negatively* correlated with PGY.⁵ This further suggests that knowledge and confidence do not rise importantly as a function of PGY independent of an effective ethics education programme.

Third, the distribution of knowledge scores in our present before and after samples is such that these results cannot be explained by suggesting that the less ethically astute house officers left while the more ethically astute stayed. Only 19 of the 39 house officers scored 11 or higher out of 21 questions in 1992, while 24 of 30 scored 11 or higher in 1994.

Fourth, while the numbers are small and not statistically significant, there is some suggestion of a dose effect. Those attending more sessions scored higher.

Finally, knowledge and confidence tended to go up together. This suggests that those who knew more were more confident, implying that we may have bridged the knowledge-confidence gap we have reported in earlier studies.^{5,8} In fact, these values for confidence improved to the high levels that we have previously noted for faculty confidence.⁸ On an even more encouraging note, the house officers' improvement in confidence was accompanied by an improvement in knowledge to levels surpassing that of faculty.

Several factors might account for the apparent success of this programme compared to our previous trial. One might simply be that the instructors have gained experience and are more effective. A second might be the impact of "mainstreaming" the curriculum. When subjects are treated as special and require special sessions, the material may be perceived as less important and not part of the core. When a subject has support from the department chair and becomes part of the core material, the new subject achieves a prominence that suggests that it is important to learn. It is also possible that the specific feedback sessions (which occurred during the October, 1993 vocabulary and principles session) had a significant impact on knowledge. Finally, we cannot rule out the possibility that site-specific factors or an increasing interest in ethics on the part of house officers made them more receptive to learning. These questions would suggest a need to try to replicate these findings elsewhere.

These results appear to confirm our previous finding that ethics education increases confidence. We have also demonstrated, to the best of our knowledge for the first time, that house-officer knowledge of ethics increases over long-term observation during residency in the setting of a programme in which ethics education has been "mainstreamed". While modest, a 14% increase over baseline levels of knowledge for the entire cohort is encouraging. It is not known whether further improvements will be noted as the programme becomes more established and the teaching diffuses out through house officer to house officer teaching.

Our programme incorporates the "5 Cs" of *clinically*-based teaching, using *cases* as the focus, establishing *continuity* throughout the medical curriculum, *co-ordinating* the teaching with the learners' other objectives, and utilising *clinicians* as instructors and role models.¹⁰ It has several unique features, but it is quite practical. It does not require special house-officer experiences, such as retreats. Nor does it require inordinate amounts of house staff and faculty time. And it appears to be popular among the house staff. This means that it overcomes many of the barriers to ethics education for house officers noted by faculty who teach ethics in this setting.¹¹ These features may make it a model for those interested in incorporating specific training in ethics into their internal-medicine training programmes.

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News and notes

Summer Seminar in Health Care Ethics

The Summer Seminar in Health Care Ethics will be held at the University of Washington, Seattle, Washington, USA, from August 4-8 this year. It is sponsored by the Department of Medical History and Ethics, School of Medicine, University of Washington, and is directed to physicians, nurses, social workers, chaplains, teachers, and others involved in the care of patients or the education of providers. The annual Summer seminar provides an intensive introduction to the concepts, methods, and literature of health care ethics. Albert Jonsen, faculty and chairperson in the Department of Medical History and Ethics, will lead the seminar, and Linda Emanuel, Vice President for Medical Ethics at the American Medical Association, and Ezekiel Emanuel, of Harvard University, will be the guest faculty.

The seminar is designed sufficiently to familiarise health care professionals with the field of bioethics, and to provide participants with skills and information sufficient to enable them to make competent ethical decisions in clinical situations.

The University of Washington School of Medicine designates this continuing medical education course for *approximately 30 hours of Category 1 of the Physician's Recognition Award of the American Medical Association.*

For information on specific objectives, and to receive a seminar brochure with full details and registration form, contact: Marilyn J Barnard, Program Coordinator; Medical History & Ethics; Box 357120; School of Medicine; University of Washington; Seattle, WA 98195-7120; Phone: (206) 616-1864; Fax: (206) 685-7515; E-Mail: mbarnard@u.washington.edu