

Daniel P. Sulmasy, Robert E. Ferris, and Wayne A. Ury, "Confidence and Knowledge of Medical Ethics Among Interns Entering Residency in Different Specialties," *The Journal of Clinical Ethics* 16, no. 3 (Fall 2005): 230-5.

## Confidence and Knowledge of Medical Ethics Among Interns Entering Residency in Different Specialties

*Daniel P. Sulmasy, Robert E. Ferris, and Wayne A. Ury*

**Daniel P. Sulmasy, OFM, MD, PhD**, is a Professor of Medicine and is the Director of the Bioethics Institute of New York Medical College in Valhalla, New York, and is the Sisters Charity Chair in Ethics and the John J. Conley Department of Ethics at St. Vincent's Hospital Manhattan in New York, [daniel\\_sulmasy@nymc.edu](mailto:daniel_sulmasy@nymc.edu).

**Robert E. Ferris, DO**, is an Empire Clinical Research Investigator at the General Clinical Research Center in Stony Brook, New York.

**Wayne A. Ury, MD**, is Chief of the Section of Palliative Medicine in the Department of Medicine at St. Vincent's Catholic Medical Centers, and is an Associate Professor of Medicine and Psychiatry and a Member at the Bioethics Institute of New York Medical College. © 2005, *The Journal of Clinical Ethics*. All rights reserved.

### INTRODUCTION

Many observers have noted the importance of ethics education during the critical, formative years of residency training.<sup>1</sup> However, the education of house officers in ethics has received little attention compared with the education of medical students in ethics. In particular, little is known about how the challenges of training house officers in ethics might differ among residencies in different specialties. In this study, we looked at the confidence and knowledge of the newest physicians (interns) in an attempt to assess their readiness and ability to tackle the ethical issues of contemporary clinical practice. Specifically, our objective for this study was to evaluate the ethical knowledge and confidence of interns who were beginning training in four different specialties: surgery, medicine, pediatrics, and combined medicine-pediatric residencies.

### METHODS

An anonymous questionnaire was used to assess interns' self-perceived confidence in addressing ethical issues and to test their knowledge of medical ethics. It was given to all interns entering surgery, internal medicine, pediatrics, or combined medicine-pediatrics programs at two northeastern U.S. academic medical centers: Georgetown University ( $N = 64$ ) and St. Vincent's Hospital Manhattan ( $N = 145$ ). The data from Georgetown were collected in the months of July and August in 1996. The St. Vincent's data were collected in the months of July and August between 1999 and 2001.

Interns' confidence levels and knowledge scores were obtained with two extensively used, previously validated, and reliable instruments.<sup>2</sup> The confidence scale, based on the work of Bandura and colleagues,<sup>3</sup> was based on a 5-point Likert scale; 1 = very low confidence; 5 = very high confidence. Interns were asked to rate their confidence on six items regarding their ability to (1) recognize a genuine ethical problem, (2) reach a sound ethical decision, (3) support their ethical decisions, (4) obtain genuinely informed consent, (5) proceed when a patient is incompetent, and (6) ethically care for the terminally ill. The confidence scale had a Cronbach's *alpha* (measure of internal consistency) of 0.81 for this sample.

The knowledge score was obtained using a test consisting of 16 questions regarding medical ethics. Question formats included case studies, ethics terminology, and local laws to assess both theoretical and practical knowledge of ethics. The test was based on consensus recommendations regarding medical ethics education<sup>4</sup> and was reviewed by a panel of experts for face validity.

Hypothesis testing was performed using Pearson correlation, two-tailed *t*-tests, one-way analysis of variance (ANOVA), and linear regression models. Calculations were performed using SPSS statistical software.<sup>5</sup>

## RESULTS

Of the 209 interns surveyed, 21 percent were in surgery programs, 65 percent were in internal medicine programs, 9 percent were in pediatrics programs, and 6 percent were in medicine-pediatric programs. The average age of an intern in our study group was 27 years old. Nearly 43 percent were women. Most (nearly 84 percent) reported having an ethics course in medical school. Regarding religious preferences, 29 percent described themselves as Roman Catholic, 21 percent as Protestant, 17 percent as Jewish, 16 percent as having other religious preferences, and 15 percent as having no preference (see table 1).

Overall, interns had somewhat low confidence in their medical ethics decision-making ability, with a mean confidence scale score of 3.30 (see table 2). Interns had the highest confidence in their ability to recognize an ethical problem and to obtain a genuinely informed consent (both with a mean confidence score of 3.59). Interns expressed the least confidence in their abilities to navigate the ethical issues involved in caring for patients who are incompetent (mean confidence = 2.79) and in caring for the terminally ill (mean confidence = 3.02).

Interns' knowledge scores were also low, with a mean knowledge score of 48.1 percent (see table 3). Interns scored the lowest on the question regarding the contents of the Hippocratic Oath, with only 10 percent answering correctly. Only 22 percent knew whether hospitals were required to have an ethics committee and only 22.5 percent knew whether the District of Columbia or the State of New York (as appropriate) had a living-will statute. Interns scored highest in knowing they had a legal duty to report impaired colleagues (82.3 percent). They also knew that the Netherlands is the European nation most tolerant of euthanasia. Roughly three-quarters of interns recognized the ethical issues involved in the *Tarasoff* case and could correctly answer regarding the provisions of the Patient Self-Determination Act.

In bivariate analyses, surgical interns had significantly higher confidence levels (3.54 v. 3.24,  $p < .01$ ), yet had significantly lower knowledge scores (42.2 percent v. 49.6 percent;  $p < .001$ ) compared with their nonsurgical colleagues. Jewish interns tended to have higher confidence (3.42 v. 3.28;  $p = .21$ ) and had significantly higher knowledge scores (52.4 percent v. 47.1 percent;  $p = .02$ ) compared with all other interns. Interns who rated their prior ethics training as excellent or better were significantly more confident (3.46 v. 3.21;  $p < .01$ ) but not more knowledgeable (47.3 percent v. 48.8 percent;  $p = .40$ ) than those who rated their prior training as only adequate or inadequate.

No significant associations were found between confidence or knowledge and age, gender, medical school, or medical school graduation year. Confidence and knowledge were uncorrelated.

In a linear regression model for confidence (see table 4), being a surgeon ( $p = .01$ ) and rating prior ethics training better than adequate ( $p = .02$ ) were independently associated with higher confidence.

In a linear regression model for knowledge (see table 5), being a surgeon was associated with lower scores ( $p < .001$ ), while being Jewish was associated with higher knowledge scores ( $p = .01$ ).

## DISCUSSION

We are unaware of any previous studies comparing the knowledge and confidence in medical ethics of house officers from different specialty train-

ing programs. In this study, we found that confidence and knowledge of medical ethics were generally low among entering interns. However, we found that surgical interns had more confidence despite less knowledge. In addition, we found that Jewish interns were more knowledgeable and tended to be more confident than their colleagues. Finally, we found that the perceived quality of a previous ethics course in medical school was associated with interns' confidence, but not with their knowledge.

Our findings regarding the ethics knowledge and confidence of surgical interns have not previously been reported, although one study did indicate more favorable psychosocial belief scores among graduating medical students who matched in primary care specialties compared with those who matched in surgical or support specialties.<sup>6</sup> This suggests that these characteristics are actually a result of self-selection. Likewise, since we surveyed interns at the very beginning of residency, our findings are likely to reflect self-selecting features rather than the result of residency training itself. The ethics knowledge scores we report here are lower than those reported by Angelos and colleagues<sup>7</sup> and Wenger and colleagues<sup>8</sup> in their studies of surgical house officers, but the studies are not strictly comparable, and this probably only means that our test asked more difficult questions.

The finding of relatively high confidence regarding the ability to address ethical issues despite relatively low knowledge of ethics is not unique to surgical interns. We have previously noted that internal medicine faculty report higher confidence than medical house officers, despite knowledge scores that are just as poor.<sup>9</sup> The belief that one can confidently address ethical issues without a solid fund of knowledge, whether on the part of house officers or the

**Table 1**  
**Sample characteristics (N = 209)**

Characteristic	Mean	No.	%
Age — years	27.2	--	--
Gender			
Female	--	89	42.6
Male	--	120	57.4
Medical school			
St. Vincent's	--	145	69.4
Georgetown	--	64	30.6
Ethics course in medical school	--	175	83.7
Type of residency			
Internal medicine	--	136	65.1
Pediatrics	--	18	8.6
Surgery	--	43	20.6
Medicine-pediatrics	--	12	5.7
Religious preference			
Jewish	--	36	17.2
Roman Catholic	--	60	28.7
Protestant	--	43	20.6
Other preference	--	34	16.3
No preference	--	32	15.3

**Table 2**  
**Confidence scale**

Item	Mean confidence	Standard deviation
Recognize a genuine ethical problem in medical management	3.59	±0.77
Reach a sound decision when facing a problem in clinical ethics	3.36	±0.75
Give reasons in support of ethical decisions	3.46	±0.82
Obtain genuinely informed consent	3.59	±0.88
Knowledge of how to proceed when a patient is incompetent	2.79	±0.87
Manage the ethical aspects of caring for the terminally ill	3.02	±0.85
Scale score	3.30	±0.59

**Table 3**  
**Knowledge score**

Item	% correct	S.d.
Definition of deontology	32.5	--
Legal hierarchy of surrogates	40.2	--
State/District has living will statute	22.5	--
Convictions for turning off ventilator	66.5	--
Moral hierarchy of surrogates	33.9	--
Euthanasia in the Netherlands	80.9	--
Contents of the Hippocratic Oath	10.1	--
Definition of utilitarianism	24.9	--
Issues in <i>Tarasoff</i> case	76.1	--
Minor Jehovah's Witnesses and the law	35.9	--
Natural Death Act	56.9	--
Reporting impaired colleagues	82.3	--
State/district law on ethics committees	22.0	--
Confidentiality and the <i>Tarasoff</i> case	68.4	--
Patient Self-Determination Act	75.1	--
Formal incompetency declarations	40.7	--
Mean total score	48.1	±12.6

Note: S.d. = standard deviation.

**Table 4**  
**Confidence: Linear regression model**

Parameter	Beta coefficient	P
Residency type Other v. surgery	0.183	.01
Perceived adequacy of previous ethics training*	0.165	.02

\* Dichotomized as inadequate/barely adequate v. excellent/so good that no further training is needed.

**Table 5**  
**Knowledge: linear regression model**

Parameter	Beta coefficient	P
Residency type Surgery v. other	- 0.248	< .001
Religious preference Non-Jewish v. Jewish	0.172	.01

attendings who function as their role models, can represent a significant barrier to effective ethics education.<sup>10</sup> The troubling fact that confidence can be high without adequate medical knowledge is not limited to ethics. Courses regarding invasive procedures have been shown to make house officers more confident without improving their knowledge.<sup>11</sup> Learning how to bridge the knowledge-confidence "gap" in medical education will require more research.

Our findings regarding religious preference and ethics knowledge and confidence corroborate findings from previous studies.<sup>12</sup> Perhaps the Talmudic tradition of ethical study has pervasive influence that generalizes beyond the tradition.

The finding that the quality of ethics education in medical school influences the confidence of incoming interns, but not their knowledge, also corroborates earlier findings.<sup>13</sup> While it is gratifying to know that medical school courses improve physicians' self-perceived efficacy regarding ethics, these findings suggest that more or better training may be needed to improve knowledge. This might include improvements in medical school ethics education, but the opportunities for ethics education during the critically important formative years of residency training might prove an even more fruitful time for ethics training.

Several studies have demonstrated that ethics education can be effective in improving residents' knowledge, confidence, and behavior.<sup>14</sup> Attention to ethical issues is now mainstream among bodies accrediting residency programs. The Accreditation Council for Graduate Medical Education lists professionalism among its uniform requirements, but it is up to each specialty to delineate how professionalism will be cultivated and assessed.<sup>15</sup>

Our findings suggest that further research might explore whether such training could be appropriately tailored to meet interns' differing backgrounds and the self-selecting characteristics that are associated with residency training in different specialties.

## ACKNOWLEDGMENTS

We are grateful to Andrew Bremberg who assisted in data collection and early analysis, to the program directors who allowed us to survey their interns, and to Marc Wallack, MD, for his review of an earlier draft of this manuscript.

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