Are Emergency Medicine Residents Prepared to Meet the Ethical Challenges of Clinical Practice? Findings from an Exploratory National Survey

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ABSTRACT

Background: Although the Accreditation Council for Graduate Medical Education and the American Board of Emergency Medicine require clinical ethics education in residency training, instruction varies widely. We assessed the educational preparedness of trainees in emergency medicine to address ethics challenges common to their field.

Methods: The survey assessed two outcomes: 1) knowledge of specific ethical challenges and 2) perceived educational preparedness, across five ethics areas: 1) informed consent and decisional-capacity assessment, 2) surrogate decision making, 3) interpretation of advanced directives, 4) withdrawing and/or withholding life support, and 5) presumed consent for emergency treatment. Clinical vignettes, revised through expert panel review and pilot testing, were utilized to evaluate these areas. The final instrument was administered via Web link to emergency medicine residents and recent graduates through adverts within Emergency Medicine Residency Association and Society for Academic Emergency Medicine (SAEM) newsletters and social media platforms. Additionally, targeted e-mails through the Council of Residency Directors in Emergency Medicine, the Clerkship Directors of Emergency Medicine, and the SAEM Ethics Committee listservs encouraged survey distribution. Analyses involved one-way analysis of variance for overall knowledge scores and chi-square tests for categorical outcomes. Multivariable regression models tested associations between respondent characteristics and outcomes.

Results: There were 302 participants of which 34% reported having a dedicated ethics module within their residency curriculum. The mean ($\pm$ SD) knowledge score was 59.7% ($\pm$ 12.8%); assessing decisional capacity was the most difficult topic for respondents as only 1% both correctly addressed the general issue and identified the correct plan of action. Participants having a dedicated ethics module perceived themselves better prepared, although there was no association between having a dedicated ethics module and knowledge scores.

Conclusions: Gaps in clinical ethics knowledge appear prevalent among emergency medicine trainees, and few programs have dedicated ethics modules. Greater study is needed to understand and remedy clinical ethics knowledge shortfalls.

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Just as every physician confronts cases where managing the clinical manifestations of a patient's disease is particularly challenging, so too does every physician encounter situations where the ethical dimensions of a case prove difficult to address. Consequently, alongside clinical instruction, medical ethics training is part and parcel of both undergraduate (UME) and graduate medical education (GME). Indeed both the Liaison Committee on Medical Education¹ (LCME) and the Accreditation Council for Graduate Medical Education² (ACGME) mandate that medical training include instruction in clinical ethics. Although the mandate exists, unified curricula remain elusive in both UME and GME, in part because the goals of ethics education are ambiguous. Some educators and theorists argue that moral character and virtue development should be the focus of teaching, while others see specific reproducible behaviors when confronted with cases as the objectives of ethics instruction.³

Over the past few decades as medical ethics has evolved into an academic field of inquiry and a clinical discipline, scholars have given increased attention to educational pedagogy and curricular evaluation. Arguably, a focus on ethics in medical education began with the DeCamp report in 1985.⁴ This report advocated for a rigorous, dedicated curriculum for clinical ethics in medical school education and promoted a principle-based approach to ethical deliberation. Indeed, broadly speaking, most UME stresses Beauchamp and Childress' four principles—respect for patient autonomy, physician beneficence toward patients, physician duty of nonmaleficence toward patients, and distributive justice, as the model for ethics adjudication.⁵ The American Medical Association embellishes on this by detailing other principles, e.g., professionalism and competency, which should inform physician behaviors.⁶ GME curricula on medical ethics^{7–10} are often clinically focused and case based.¹¹ For example, in 2015, the Romanell report authored by several leading physicians, medical educators, and bioethics faculty¹² set out behavior targets as new objectives for ethics education in both undergraduate and graduate training across all specialties. These consensus-based objectives are demonstrable, align with the LCME and ACGME requirements, and include the ability to think critically and systematically through ethical problems using bioethical principles and articulate ethical reasoning to others coherently and respectfully.

With regard to emergency medicine–related ethics instruction, the Society for Academic Emergency

Medicine (SAEM) has published a “Guide to Teaching Ethics in Emergency Medicine Residency Programs,” which details topics and skills that learners must master to address common ethics issues within clinical practice.¹³ These include maintenance of confidentiality, identifying appropriate surrogate decision makers, techniques for end-of-life care conversations, and providing informed consent. The American College of Emergency Physicians (ACEP) has also developed a code of ethics that incorporates virtues alongside principles to equip practitioners with the knowledge base needed for the ethical practice of emergency medicine.¹⁴

Despite requirements from accrediting bodies, and extant guides and curricular objectives advanced by leading authorities within the specialty, there is scant research on ethics education during residency training. To date we are unaware of any broad-based studies documenting the various approaches used to teach ethics to residents, nor of any evaluations of these varied ethics curricula. In light of the scarcity of published data, we sought to assess the educational preparedness of emergency medicine trainees and recent graduates. We desired to evaluate their ability to identify ethical challenges and address them appropriately. Additionally, we sought to assess resident and graduate perceptions of the adequacy of residency ethics education.

METHODS

Design

This study represents a collaboration between the SAEM (through its ethics committee), the Council of Residency Directors in Emergency Medicine (CORD), the Clerkship Directors of Emergency Medicine (CDEM), and the Emergency Medicine Resident's Association (EMRA). Members from each organization collaborated to design and deploy the survey instruments. The study was declared exempt by the institutional review board of the Biological Sciences Division at the University of Chicago.

Survey Instrument

Studies, reports, and guidelines discussing medical ethics education within emergency medicine were gathered using Ovid MEDLINE, EBSCO ERIC, SCOPUS, and CINAHL databases. A list of the most common clinical ethics topics uncovered by this literature review as well as those covered in the Romanell

report and SAEM Ethics Curriculum guide were discussed at meetings of the SAEM Ethics Committee, which is composed of academic emergency physicians with special interests and expertise in emergency medicine ethics. Some hold advanced degrees in ethics, many actively participate in clinical ethics consultation services, and all are involved in ethics research and education. Based on consensus, and in consultation with leaders at CORD and CDEM, five ethics topics were felt to be the most germane to clinical practice. These areas were: 1) obtaining informed and/or acting on the basis of presumed consent, 2) determining medical decision-making capacity, 3) identifying appropriate surrogate decision makers, 4) interpreting advance directives, and 5) the decision to withhold life support. Each topic was the focus of knowledge assessment via the clinical vignettes described below.

A draft survey instrument incorporating clinical vignettes modified from the American Medical Association *Journal of Ethics*^{15–17} was presented to the SAEM Ethics Committee by project leaders. This expert panel reviewed the instrument to assure that the clinical vignettes were specific and realistic, to reduce ambiguity within question stems, and to come to agreement as to which proposed ethical action was in line with emergency medicine ethics. After this expert panel review, cognitive pretesting was performed with 15 emergency medicine residents at different levels of training to further clarify question stems. Thereafter pilot testing with another 30 emergency medicine residents occurred at two programs to assess the time it took to complete the survey and to obtain data on the distribution of potential participant responses. Based on these latter data, confusing clinical vignettes were removed, i.e., those where no individual could identify the correct ethics issue and/or action. The final survey was approved by representatives from the SAEM Ethics Committee, CORD, CDEM, and EMRA. A version of the survey instrument is included in Data Supplement S1 (available as supporting information in the online version of this paper, which is available at <http://onlinelibrary.wiley.com/doi/10.1002/aet2.10120/full>).

Vignettes

As outlined above, adapted clinical vignettes^{15–17} assessed five ethics topics that emergency medicine physicians routinely encounter. The cases presented were as follows:

The case involving *identification of a surrogate decision maker* describes a woman living in an assisted

living facility for individuals with intellectual disabilities. This patient is described as being able to perform normal living activities, but she often needs assistance with shopping, cooking, and financial matters. She arrives to the emergency department with her brother and the treating clinician needs to assess who the appropriate decision maker is. (Data Supplement S1, Case 1).

The *interpretation of advance directives* scenario presented a patient with multiple terminal illnesses. Her medical record notes a 15-year-old advance directive in which she indicates that should she not be able to make decisions about her care, she wanted the benefit of all available medical interventions to preserve her life. The patient's next of kin was not mentioned in the advance directive but is present now and says that they have never discussed end-of-life care. The clinicians must decide whether to follow the next-of-kin's advice or the advance directive (Data Supplement S1, Case 2).

Finally, the *withholding life support* scenario describes a patient with end-stage heart failure who arrives without a pulse to the emergency department and no advance directive. While the attending physician believes that resuscitation is not appropriate given that the chances of a meaningful outcome are slim to none, he must decide whether withholding resuscitation is ethically justifiable and within his purview (Data Supplement S1, Case 3).

The *presumed consent* scenario described a case in which an intubated patient is brought into the Emergency Department. This patient is in severe cardiogenic shock and receiving chest compressions. As the attending is preparing for lifesaving procedures, a nurse inquires as to whether consent from family members must be obtained (Data Supplement S1, Case 4).

Two cases focused on capacity determination. The first involved *decisional capacity assessment of a surrogate decision maker*. The case described an intubated patient with a moderate subdural hemorrhage who is unable to make clinical decisions while his wife appears intoxicated and insists that the patient does not need and would not want the proposed procedures (Data Supplement S1, Case 5). The second involved *decisional capacity assessment of a patient* where a patient initially provides consent for a lumbar puncture, but later is unable to recall the previous conversation or understand the details of the procedure (Data Supplement S1, Case 6). In both of these cases

the treating clinician must decide upon the appropriate course of action.

Dependent Variables

Each vignette was followed by three questions that comprised the two outcome domains. *Ethical knowledge* was assessed by two multiple-choice questions: the first asked respondents a general question regarding ethical issue at hand and the second inquired about the most ethically prudent action. *Perceived educational preparedness*, i.e., perceived adequacy of residency training to address the ethical issue described in the vignette, was asked through a single-item question asking “How well did your residency training prepare you to deal with ethical issues regarding X,” rated along a 5-point Likert-type scale (from very poorly to very well).

Independent Variables

These included respondent characteristics such as age; sex; ethnicity; medical school of matriculation; and sociodemographic data about residency training, years in practice, and prior ethics training.

Participants and Recruitment

The survey was administered electronically through a Web link to a REDCap¹⁸ interface hosted at the University of Chicago. A link to the survey was distributed along with an e-mail cover letter through CORD listservs to program directors, via CDEM listservs to clerkship directors, requesting that they distribute the e-mail and link to their current residents and recent graduates. The cover letter was presented on SAEM letterhead and contained CDEM, CORD, and EMRA logos as well as signatures from leaders from each of the groups. The EMRA newsletter was used to distribute the cover letter and survey link directly to residents as well. Additionally, an advert for the survey was broadcast via social media channels for SAEM, CORD, CDEM, and CORD where possible. Finally, SAEM Ethics Committee members distributed the cover letter to program directors at their respective residency programs. To incentivize responses, participants were entered into a raffle to receive either a \$20 Amazon gift card or a signed copy of Iserson's *Ethics in Emergency Medicine*.¹⁹ Current and former emergency medicine trainees (up to 5 years out of training) in the United States attending ACGME-certified programs were eligible to participate. Respondent date of birth was the unique identifier used to prevent multiple submissions from the same individual.

Data Analyses

Participants who reported being greater than 5 years out of training ($n = 35$) were excluded from analysis. Response categories were collapsed into adjacent categories, where appropriate, when they contained less than 5% of the total sample. Any vignette in which less than 10% of respondents were able to correctly answer both knowledge questions was included in descriptive analyses but not in multivariable modeling. Complete case analysis was used for multivariable modeling (described below). We evaluated the ethical knowledge outcome domain at two levels: the individual case level (to identify areas of weakness) and the overall level. Responses to the two ethics knowledge questions were used to generate an overall knowledge score by summing the total number of correct responses and converting the result to a 100-point scale with each correct response yielding 8.33 points. Overall perceived preparedness was similarly generated by averaging across all the cases for an overall rating.

We first examined the relationship between presence of a dedicated ethics module in residency training and our outcome measures using one-way analysis of variance for continuous outcomes and chi-square test for categorical outcomes. We performed multivariable regression analysis to estimate the effect of having a dedicated ethics module in residency training on our outcomes, adjusting for appropriate sociodemographic variables. Our model building strategy consisted of a forward selection process, with significance required to enter the model set at $\alpha = 0.10$. We used ordered logistic regression for the individual case vignette self-rated preparedness and knowledge measures and linear regression for our overall knowledge score outcome. The regression coefficients for the ordered logistic regression models were converted into odds ratio (OR) to ease interpretation.

RESULTS

Our findings are presented below according to the best practices noted by the Checklist for Reporting Results of Internet E-Surveys.²⁰

Demographic Characteristics of Survey Respondents

There were a total of 302 survey respondents, of which 75.1% ($n = 217$) were current trainees and 34% ($n = 98$) reported having a dedicated ethics module in their residency training. Among trainees there was a near-equal distribution by training year. About

Table 1Demographic characteristics of the *Resident's Knowledge of Ethics Issues in Emergency Medicine* survey respondents (N = 302)

Characteristic	N (%)
Sex (n = 289)	
Male	175 (60.6)
Female	114 (39.4)
Race/ethnicity (n = 289)	
White	226 (78.2)
Other	23 (8.0)
Asian	21 (7.3)
Hispanic or Latino	19 (6.6)
EM training (n = 289)	
Resident	217 (75.1)
Attending physician	57 (19.7)
EM fellow or other	15 (5.2)
Year of EM practice (n = 280)	
PGY 1	83 (29.6)
PGY 2	70 (25.0)
PGY 3 or 4	64 (22.9)
0–5 years postresidency	28 (10.0)
6–10 years postresidency	16 (5.7)
>10 years postresidency	19 (6.8)
Dedicated ethics module in residency training? (n = 289)	
Yes	98 (33.9)
No	100 (34.6)
Unsure	91 (31.5)

one-third of respondents (33.9%, n = 98) recalled a dedicated ethics module in their residency curriculum (Table 1).

Ethics Knowledge and Associations With Participant Characteristics

The mean ($\pm$ SD) ethics knowledge score, out of 100 points, was 59.7% correct ($\pm$ 12.81%). When examining the individual questions, the largest disparity existed in the case involving assessing decisional capacity of a surrogate decision maker. Almost all (98.4%, n = 185) respondents were able to correctly assess the decisional capacity of the surrogate decision maker as deficient, but few (1.6%, n = 3) were able to correctly identify the appropriate course of action (Table 2). Presumed consent proved to be the easiest case for participants, with 84.4% (n = 162) of respondents correctly answering both questions (Table 3).

Analysis of variance testing revealed lack of a significant association between presence of a dedicated ethics module in residency training and overall knowledge score (p = 0.546). Similarly, multivariate models assessing associations between participant characteristics and

Table 2

Overall Score and Percentage of Respondents Who Provided Correct Answers

Mean Overall Score of 100 (n = 181)		59.71
Case	Individual Responses	% Correct
Identifying a surrogate decision maker	General issue (n = 218)	16.97
	Select action (n = 219)	87.21
Interpretation of advanced directives	General issue (n = 201)	26.87
	Select action (n = 201)	37.31
Withholding life support	General issue (n = 192)	61.46
	Select action (n = 192)	46.88
Presumed consent	General issue (n = 192)	91.67
	Select action (n = 192)	91.67
Decisional capacity assessment of a surrogate decision maker	General issue (n = 188)	98.40
	Select action (n = 188)	1.60
Decisional capacity assessment of a patient	General issue (n = 186)	96.24
	Select action (n = 186)	58.60

Table 3

Percentage of Respondents Correctly Answering Both Knowledge Questions and Perceived Preparedness, by Ethics Case

Case	% Correct	Perceived Preparedness*
Identifying a surrogate decision-maker (n = 218)	14.22	3.10 $\pm$ 0.78
Interpretation of advanced directives (n = 201)	19.40	3.04 $\pm$ 0.78
Withholding life support (n = 191)	35.60	2.90 $\pm$ 0.76
Presumed consent (n = 192)	84.38	3.38 $\pm$ 0.91
Decisional capacity assessment of a surrogate decision-maker (n = 187)	1.07	3.22 $\pm$ 0.87
Decisional capacity assessment of a patient (n = 186)	56.45	3.17 $\pm$ 0.82

*Data are reported as mean $\pm$ SD.

knowledge scores revealed that there were no significant predictors for overall ethics score, nor for any specific pattern of significant associations across vignettes (results not shown). Notably, participants who perceived themselves better prepared from residency training to deal with informed consent issues had 1.81 times higher odds of correctly answering questions regarding presumed consent (OR = 1.81, 95% CI = 1.04–3.14) than those who reported feeling less prepared (see Table 4).

Self-reported Preparedness for Ethical Vignettes

Across cases the mode response for participants was that their residency prepared them “fairly well” to deal with the ethics issue at hand (see Table 4).

Table 4
Multivariable Ordered Logistic Regression Modeling of Correct Responses to Ethical Cases

Predictor	Identification of a Surrogate Decision Maker (<i>n</i> = 143)		Interpretation of Advanced Directives (<i>n</i> = 138)		Withholding Life Support (<i>n</i> = 134)		Presumed Consent (<i>n</i> = 134)		Decisional Capacity Assessment of a Patient (<i>n</i> = 130)	
	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value
Dedicated ethics module	2.09 (0.79–5.52)	0.14			0.53 (0.26, 1.10)	0.09			0.51 (0.25–1.02)	0.06
Year of training	0.61 (0.34–1.08)	0.09	0.75 (0.48–1.17)	0.20						
Type of program	2.03 (0.76–5.44)	0.16	1.64 (0.73–3.68)	0.23						
Sex			2.11 (1.04–4.31)	0.04*						
Preparedness for the case							1.81 (1.04–3.14)	0.04*		

*Significant at $\alpha = 0.05$

Participants who had a dedicated ethics module had greater odds of perceiving better overall preparedness than those who had no dedicated module ($p = 0.0000$). Among participant characteristics, women had significantly lower odds of greater perceived preparedness for vignettes involving informed consent (OR = 0.46, 95% CI = 0.23–0.93) and assessing patient decisional capacity (OR = 0.38, 95% CI = 0.18–0.80; see Table 5).

DISCUSSION

Emergency medicine is a complex specialty fraught with clinical scenarios where difficult ethical decisions must be made quickly and often with incomplete information. Consequently, emergency medicine trainees should be exposed to both ethical principles and to the relevant ethical guidelines for the most common ethical challenges they would face in practice. By the time trainees graduate to becoming independent attending clinicians they should have confidence in their clinical ethics knowledge and ability to address common ethical concerns in emergency medicine.²¹ Recognizing the need for bioethics knowledge and skills, leading emergency medicine organizations advocate for dedicated instruction within residency training.²² Our exploratory study of current emergency medicine trainees and recent graduates revealed that only a third (34%) reported having a dedicated ethics module within their residency curriculum. We also found ethics knowledge to be wanting with the mean score being 59.7%, despite participants perceiving themselves to be fairly well prepared to deal with specific ethics issues in clinical practice. Although participants having a dedicated ethics module perceived

themselves better prepared, there was no association between having a dedicated ethics module and knowledge scores.

With respect to ethics knowledge, we found marked heterogeneity in responses with participants better at identifying the ethical issue at hand and determining the appropriate course of action for some topics than others. This result is consistent with what has been observed in UME^{11,23} and GME in other specialties.^{8,24,25} While some variability is expected, our study suggests inadequate demonstration of core knowledge of medical ethics guidelines and principles that should be relevant to every emergency physician. Examining the variance in ethics knowledge across cases allows for generating hypothesis for further study. For example, respondents performed best in the area of presumed and informed consent. This may reflect the fact that trainees are frequently exposed to this topic, or alternatively that this ethics area has relatively concrete conditions and guiding principles. In contrast while many respondents were able to identify the absence of “decision-making capacity,” almost no respondents were able to determine the appropriate subsequent course of action in the clinical vignette. While this may reflect a poorly constructed question, our survey was developed by experts and pilot tested with faculty and residents for clarity. Hence it is possible that surrogate decision making and capacity assessment with respect to surrogate decision makers might be less focused on during residency training. Future studies should identify what ethics topics are covered in extant residency curricula so as to better delineate how lack of training correlates with difficulties in determining how to deal with common ethical challenges in emergency medical practice.

Table 5
Multivariable Ordered Logistic Regression Models of Self-reported Preparedness for Ethics Cases

Predictor	Identification of a Surrogate Decision Maker (n = 143)		Interpretation of Advanced Directives (n = 138)		Withholding Life Support (n = 134)		Presumed Consent (n = 134)		Decisional Capacity Assessment of a Surrogate Decision-maker (n = 131)		Decisional Capacity Assessment of a Patient (n = 130)	
	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value
Dedicated ethics module	2.49 (1.25–4.94)	0.01*	6.91 (3.12–15.33)	0.00*	4.20 (2.05–8.61)	0.00*	2.48 (1.25–4.93)	0.01*	3.37 (1.67–6.78)	0.00*	3.79 (1.80–7.96)	0.00*
Year of training	0.80 (0.64–1.00)	0.05*										
Sex			0.60 (0.30–1.18)	0.14	0.56 (0.28–1.12)	0.10	0.46 (0.23–0.93)	0.03*			0.38 (0.18–0.80)	0.01*

*Significant at $\alpha = 0.05$

While respondents who reported receiving dedicated ethics training in their residency program demonstrated greater confidence in handling ethics issues, there was no significant difference in their knowledge scores. This suggests that current education being provided by residency programs may succeed in improving familiarity for these concepts, but may not provide adequate education or experience to successfully navigate these issues in a clinical setting. Although only the self-reported presence or absence of ethics training was assessed, it is likely given the results of our study that there is significant heterogeneity between training programs. Previous studies have demonstrated that a standardized curriculum including case-based discussions and medical simulation may improve familiarity with the ethical principles as well as ability to handle these issues in a clinical setting.^{26,27} Simulation affords the opportunity for thoughtful conversations about the complex ethical issues affecting emergency medicine physicians in a protected manner, outside the busy clinical learning environment.^{28,29} We suggest that program directors consider using this modality to teach core ethics guidelines and have residents practice their skills in dealing with such scenarios.

LIMITATIONS

Our findings must be interpreted in light of several limitations. First our respondent sample may be affected by selection bias as our multichannel sampling methods cannot guarantee that every emergency medicine resident or recent graduate received a survey request. For this reason it is impossible to calculate a true response rate for the survey, and we do not assert that our respondent pool was fully representative of emergency medicine trainees and recent graduates. In addition, slightly over half of our respondent pool was within their first 2 years of residency training. Accordingly, this group may not have yet experienced planned ethics educational modules skewing our results toward finding greater knowledge shortfalls. At the same time, however, our sample also included a significant number of fellows and attendings (>25%) who may have had additional ethics training thus bolstering their ethics knowledge. Thus we suggest that our findings are broad and qualitative in nature; they speak to the need for greater emergency medicine ethics training in residency training and beyond.

Aside from issues related to the sample, the design of the survey instrument introduces a few limitations.

Illustratively, our survey forced individuals to select a single “best” answer reflecting the most appropriate course of action. This forced choice does not wholly reflect the complex nature of practice where ethical issues might be nuanced and multiple courses of action can be justifiable based on context. Nonetheless we addressed this complexity by determining the best course of action to be that which SAEM Ethics Committee members had consensus over. Our proxy for “correct” action thus serves as a quasi-recommendation by an expert group, although other actions might be ethically defensible. Thus the knowledge score should be interpreted with some caution. In addition, these cases and our findings have the potential to stimulate discussion among physicians and in residency programs as to what sorts of variability in practice are ethically justified. In related fashion, our survey was limited in the topics it could cover, and thus it is possible the educational preparedness related to other important ethical issues may be higher (or lower). Future studies should cover a broader range of ethics topics, e.g., assent versus consent in pediatric patient decision making, the rights of the jailed/arrested, etc., to specify specific knowledge gaps.

Recall bias is also a potential issue that can detract from our findings. Those respondents who did better on some cases may have remembered having dedicated ethical training, while those who did more poorly may have had it but not remembered it. Moreover, graduates several years out of residency training may not have accurately recalled specific topics covered in training, nor recalled having a dedicated ethics module, thus biasing our results toward a lower sense of preparedness. We acknowledge that since a full third of respondents were unsure of whether they had such a module our statistical models could have yielded different results if a portion of these participants moved into either the camp having, or not having, a dedicated ethics module. Future studies may improve upon our analyses by comparing responses from programs known to have such a module with those known to not have one.

CONCLUSIONS

Current trainees and recent graduates of Accreditation Council for Graduate Medical Education–accredited emergency medicine training programs in the United States demonstrate significant heterogeneity in their ability to address common ethical challenges. Gaps in clinical ethics knowledge appear prevalent among

emergency medicine trainees, and few respondents recall dedicated ethics modules in their training program. Emergency medicine programs should be aware of this gap in education and work toward providing an ethics curriculum covering commonly encountered topics and opportunities for trainees to practice these skills in active settings such as case-based discussions and simulation.

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Supporting Information

The following supporting information is available in the online version of this paper available at <http://onlinelibrary.wiley.com/doi/10.1002/aet2.10120/full>

Data Supplement S1. Case vignettes.