Pediatricians’ Reports of Their Education in Ethics

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Objective: To study pediatricians’ assessments of the quality of their ethics education, the impact of various learning methods, and their confidence in confronting ethical dilemmas arising in pediatric practice.

Design: Cross-sectional survey.

Participants: Two hundred fifty physicians who completed pediatric or medicine/pediatric residency programs in 2004 were randomly selected from the American Medical Association Physician Masterfile. Evaluable responses were received from 150 of 215 eligible pediatricians (70%).

Results: Of 150 respondents, 44.7% rated their ethics education during residency as fair or poor. More than 80% reported that informal discussions with fellow residents and attending physicians had a moderate or major effect on their ethics education, whereas 53.3% reported that formal teaching conferences had a moderate or major impact. Most respondents (>60%) reported confidence in addressing 4 of 23 ethical challenges, a moderate proportion (40%-60%) reported confidence in addressing 8 of 23 ethical challenges, and fewer (<40%) reported confidence in addressing 11 of the ethical challenges. Areas associated with low confidence included ethics in end-of-life care and research ethics.

Conclusions: Efforts are needed to augment formal and informal ethics teaching during residency. Additional studies at both the individual physician and residency program levels are needed to improve the ethics education that pediatricians-in-training receive.

paring all electronic records with the paper originals.

...Washington). Before analysis, data were verified by com-

...elected from medical school from 1999 through 2001, we ran-

...dents who had a US mailing address. This list included 2742 phy-

...dents. Readings in medical journals, ethics texts, and the

...on respondents’ ethics education; 120 respondents (80.5%) and 134 respondents (89.3%), respectively, re-

...bership leadership and supervising attending physicians. Response options included “excellent,” “very

...e 5-point ordinal scale (“not at all confident,” “a little confident,” “moderately confident,” “confident,” and “extremely confident”). The ethical challenges included in the survey were selected based on
discussion among the authors and input from the staff of the Of-

...es for ethics from both residency leadership and supervising attend-

...participants were interviewed by an investigator (J.C.K.) about the clarity of questions, the ease of responding,

...e view the survey, pilot participants were interviewed by an investigator (J.C.K.) about the clarity of questions, the ease of responding, and the relevance of the 23 ethical dilemmas to their resi-

...dently selected 250 pediatricians for inclusion in our survey.

...The survey instrument consisted of 16 questions grouped into

...that the internal reliability of these questions was

...were asked to rate the impact of various learning methods on their education in ethics during resi-

...ed in ethics training programs. The sample reported spending more than 75% of their time on pa-

...college station, Texas).

... cartridge contained a coded identifier. Respondents returned the post-

...delivery tracking and to facilitate identifica-

...sponses. Packets addressed to a post office

...packet to nonrespondents. This packet was sent via Federal Ex-

...e 369

...diagnostics, (2) who had completed a US-based pediatric or com-

...t were coded as ineligible. Completed questionnaires were re-

...had completing the survey. Alternately, they could check an opt-

...ard contained a coded identifier. Respondents returned the post-

...e addresses. Of 250 pediatricians to whom questionnaires were mailed, addresses were
correct for 31. An additional 4 reported not having participated in pediatric or medicine/pediatric training programs and were coded as ineligible. Completed questionnaires were re-

...tents were asked to rate the relevance of the 23 ethical dilemmas to their resi-

...e confidential” or “a little confident”; “moderately confident”; and “con-

...ate. First, respondents were asked to rate the impact of various learning methods (eg, formal teaching confer-

...e respondents were asked, “In your practice as a pediatrician, how confident are you in your ability to confront the ethical challenges that may arise in the following situations?” This question was followed by descrip-
tions of 23 ethically challenging clinical situations that might arise during pediatric clinical care. Responses were on a 5-point ordinal scale (“not at all confident,” “a little confident,” “moderately confident,” “confident,” and “extremely confident”). The ethical challenges included in the survey were selected based on
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discussion among the authors and input from the staff of the Of-

...e quality of the ethics education they received during residency training, the

...The study was approved by the Children’s Hospital Boston
Committee on Clinical Investigation, which considered re-

...yses were primarily descriptive. The main study end point

...epidemiology and biostatistics at Harvard School of Public Health.

...the ethical challenges that respondents face.

...Sample size calculations were based on the width of the con-
fidence intervals around the estimates of proportions falling into each response category. With 100 responses, 95% confidence intervals around estimates of proportions would be no wider than ±10%. We estimated that we would need to mail ques-
tionnaires to 250 pediatricians to obtain 100 responses, based on an anticipated 50% response rate, a 10% ineligible rate, and a 10% undeliverable rate.

...yses were conducted using Stata 8 statistical software

...parents. Readings in medical journals, ethics texts, and the

...d treatment outcomes. Ethics education is a critical component of this curriculum and should be included in all residency training programs. Therefore, we designed surveys to evaluate pediatricians’ perceptions of the ethics education they received during residency training, the

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degree of support for ethics education offered by the leadership of their residency program, and the level of attention paid by attending physicians to the ethical dimensions of patient care (Table 3). Sixty-seven respondents (44.7%) rated the quality of the ethics education they received during residency as “fair” or “poor,” and 72 (48.0%) rated the support that their residency leadership offered for ethics education as “fair” or “poor.” The level of attention paid by supervising physicians to the ethical dimensions of patient care was rated “fair” or “poor” by 34 respondents (22.7%).

We created a “quality of ethics education” composite score by averaging the responses to the 3 questions listed in Table 3 (Cronbach $\alpha=0.87$). In bivariate analyses, respondents who reported that formal teaching conferences had a large effect on their education in ethics rated the quality of their ethics education higher than did other respondents (Spearman rank correlation $p=0.45$, $P<.001$). Similarly, respondents who reported that discussions with other residents ($p=0.24$, $P=0.04$), discussions with supervising attending physicians ($p=0.39$, $P<.001$), involvement in ethics consultations ($p=0.22$, $P=0.009$), and discussions with hospital ethicists ($p=0.26$, $P=.002$) had a large effect on their education in ethics rated the quality of their ethics education more favorably than did other respondents. The remaining learning methods were not significantly associated with residents’ ratings of the quality of their ethics education.

**CONFIDENCE IN CONFRONTING ETHICAL CHALLENGES**

Finally, respondents were asked about their confidence in their abilities to confront 23 ethical challenges arising in pediatric clinical practice (Table 4). More than 60% of respondents rated themselves as “confident” or “extremely confident” in their abilities to confront 4 ethical challenges. These included identifying the proper decision maker for a pediatric patient, delivering bad news, deciding whether to respect an adolescent...
Table 4. Physician Confidence in Addressing Ethical Challenges in Various Situations

<table>
<thead>
<tr>
<th>Situation</th>
<th>Not Confident/ A Little Confident</th>
<th>Moderately Confident</th>
<th>Confident/ Extremely Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussing newborn screening with parents of a newborn infant</td>
<td>6 (4.0)</td>
<td>26 (17.3)</td>
<td>118 (78.7)</td>
</tr>
<tr>
<td>Identifying the proper decision maker for a pediatric patient</td>
<td>1 (0.7)</td>
<td>42 (28.0)</td>
<td>107 (71.3)</td>
</tr>
<tr>
<td>Deciding whether to respect an adolescent patient’s request to withhold information from his or her parents</td>
<td>11 (7.3)</td>
<td>34 (22.7)</td>
<td>105 (70.0)</td>
</tr>
<tr>
<td>Receiving medical information from representatives of the pharmaceutical industry</td>
<td>10 (6.7)</td>
<td>36 (24.0)</td>
<td>104 (69.3)</td>
</tr>
<tr>
<td>Offering gifts or requests of payments to a patient</td>
<td>20 (13.3)</td>
<td>43 (28.7)</td>
<td>87 (58.0)</td>
</tr>
<tr>
<td>Responding to offers of gifts from representatives of the pharmaceutical industry</td>
<td>20 (13.4)</td>
<td>44 (29.5)</td>
<td>85 (56.7)</td>
</tr>
<tr>
<td>Obtaining informed consent for medical treatment from an adolescent patient without parental involvement</td>
<td>18 (12.0)</td>
<td>48 (32.0)</td>
<td>84 (56.0)</td>
</tr>
<tr>
<td>Deciding about the appropriateness of genetic tests for children at risk for an inherited condition</td>
<td>22 (14.7)</td>
<td>45 (30.0)</td>
<td>83 (55.3)</td>
</tr>
<tr>
<td>Discussing do-not-resuscitate orders with parents of a terminally ill child</td>
<td>29 (19.3)</td>
<td>45 (30.0)</td>
<td>76 (50.6)</td>
</tr>
<tr>
<td>Administering opioids for symptom relief to children near the end of life</td>
<td>38 (25.3)</td>
<td>42 (28.0)</td>
<td>70 (46.7)</td>
</tr>
<tr>
<td>Deciding whether an adolescent qualifies as an emancipated minor</td>
<td>16 (10.7)</td>
<td>60 (40.0)</td>
<td>74 (49.3)</td>
</tr>
<tr>
<td>Weighing the cost of therapy in deciding on treatment recommendations for an individual patient</td>
<td>25 (16.8)</td>
<td>63 (42.3)</td>
<td>61 (40.7)</td>
</tr>
<tr>
<td>Obtaining parents’ permission to enroll a child in a clinical trial</td>
<td>54 (36.0)</td>
<td>40 (26.7)</td>
<td>56 (37.3)</td>
</tr>
<tr>
<td>Requesting permission for autopsy from the parents of a patient who has died</td>
<td>46 (30.7)</td>
<td>52 (34.7)</td>
<td>52 (34.7)</td>
</tr>
<tr>
<td>Deciding whether to respect an adolescent patient’s refusal of recommended care</td>
<td>39 (26.0)</td>
<td>62 (41.3)</td>
<td>49 (32.7)</td>
</tr>
<tr>
<td>Discussing with parents whether to attempt resuscitation for a premature infant near the margin of viability</td>
<td>47 (31.3)</td>
<td>55 (36.7)</td>
<td>48 (32.0)</td>
</tr>
<tr>
<td>Requesting permission for organ donation from parents of a child diagnosed with brain death</td>
<td>57 (38.0)</td>
<td>46 (30.7)</td>
<td>47 (31.3)</td>
</tr>
<tr>
<td>Weighing authors’ financial relationships with study sponsors when reading reports of clinical trials</td>
<td>39 (26.2)</td>
<td>64 (43.0)</td>
<td>46 (30.7)</td>
</tr>
<tr>
<td>Performing a blood draw on a young child for purely research purposes</td>
<td>56 (37.6)</td>
<td>48 (32.2)</td>
<td>45 (30.0)</td>
</tr>
<tr>
<td>Making decisions about life-sustaining therapies for infants with severe neurocognitive disabilities</td>
<td>62 (41.3)</td>
<td>45 (30.0)</td>
<td>43 (28.7)</td>
</tr>
<tr>
<td>Obtaining consent to enroll in a clinical trial from an average 10-year-old</td>
<td>73 (48.7)</td>
<td>34 (22.7)</td>
<td>43 (28.7)</td>
</tr>
<tr>
<td>Deciding about withdrawing artificial nutrition and hydration for pediatric patients</td>
<td>81 (54.0)</td>
<td>40 (26.7)</td>
<td>29 (19.3)</td>
</tr>
<tr>
<td>Overall, how confident are you in your ability to address the ethical challenges that arise in your practice as a pediatrician?</td>
<td>9 (6.0)</td>
<td>58 (38.7)</td>
<td>83 (55.3)</td>
</tr>
</tbody>
</table>

aData are given as number (percentage) of participants. Results may not sum to total (n = 150) because of missing data.

A moderate proportion of respondents (40%-60%) rated themselves as “confident” or “extremely confident” in their abilities to confront ethical challenges. These included using opioids near the end of life, discussing do-not-resuscitate orders with parents of a terminally ill child, obtaining informed consent from adolescent patients without parental involvement, deciding whether an adolescent qualifies as an emancipated minor, deciding about the appropriateness of genetic testing, weighing the cost of therapy in deciding treatment recommendations, and responding to offers of gifts or receiving medical information from pharmaceutical representatives.

Fewer respondents (<40%) rated themselves as “confident” or “extremely confident” in their abilities to confront 11 ethical challenges. These included deciding about withdrawing assisted ventilation, deciding about withdrawing artificial nutrition and hydration, requesting permission for organ donation, requesting permission for autopsy, deciding whether to respect an adolescent’s refusal of recommended care, discussing whether to attempt resuscitation for a premature infant near the margin of viability, making decisions about life-sustaining therapies for infants with severe neurocognitive disabilities, obtaining parents’ permission to enroll a child in a clinical trial, obtaining consent from an average 10-year-old to enroll in a clinical trial, performing a blood draw on a young child for research purposes, and weighing authors’ financial relationships with study sponsors when reading reports of clinical trials.

EXPLORATORY BIVARIATE ANALYSES

The mean confidence score was 3.4 (SD, 0.8; range, 1.2-5.0). Among the demographic variables, sex was significantly associated with confidence; males had higher mean confidence scores than females (3.6 vs 3.3; P=.02). Also, pediatricians who reported working in academic settings had significantly higher mean confidence scores than other respondents (3.7 vs 3.3; P=.009). Higher confidence was associated with higher ratings of the overall quality of ethics education (ρ=0.38, P<.001), with greater support for education in ethics from residency leadership (ρ=0.27, P=.008) and greater attention paid to ethics by supervising attending physicians (ρ=0.23, P=.005).
We surveyed recent pediatric and medicine/pediatric residency graduates to explore their perceptions of their ethics education and to evaluate their confidence in confronting ethically challenging situations in pediatric practice. Three major findings emerge. First, many respondents rated the quality of the ethics education they received in residency as either “fair” or “poor.” Second, although more than half of respondents reported that formal teaching conferences had a large effect on their education in ethics, informal discussions with fellow residents or supervising attending physicians were rated as having greater impact. Third, respondents reported limited confidence in confronting several ethically challenging situations, especially with respect to issues that arise in pediatric end-of-life care and research ethics.

The results of this survey also suggest several provocative associations that merit further investigation. First, respondents who said that formal teaching conferences in ethics had a moderate or major effect on their education also reported that the quality of the ethics education they received was high. Second, respondents who gave positive ratings to the quality of their ethics education, and to the support that residency leadership and supervising attending physicians provided for teaching in ethics, reported greater confidence in their abilities to address the ethical challenges arising in pediatric practice.

Previous work conducted in diverse specialties indicates that residents, although receptive to education in ethics, may be dissatisfied with the ethics training they receive.14-15 In addition, on entering training, residents typically lack knowledge and confidence in ethics.6,7 Our data suggest that deficits in confidence persist even on completion of residency, thus reinforcing the concern that education in ethics during residency does not meet learners’ needs. In particular, despite the fact that end-of-life care has been identified by experts in multiple disciplines as a major learning objective for resident ethics education,8 the uncertainty respondents expressed about addressing ethical challenges in end-of-life care is consistent with the findings of others.6,7 For example, Solomon et al8 described limitations in knowledge regarding ethical guidelines for pediatric end-of-life decision making. Our data suggest the need to develop new strategies to achieve this objective.

Many authors, including Downing et al4 and Goold and Stern,5 have attempted to address this need and to guide curricula by elucidating the ethics content that would improve teaching in this domain. Also, several ethicists and educators have described efforts to implement novel curricula to address concerns about ethics education during residency.10-12

Our study has several limitations. First, the survey relies on pediatricians’ self-reports about their confidence and their educational experiences. It is therefore subject to recall, social desirability, and other biases associated with self-report. Second, the use of confidence, a subjective domain that is difficult to validate externally, as a primary outcome poses some challenges. Notwithstanding this concern, confidence remains a promising domain on which to focus because it has proven both predictive of behavior and responsive to educational interventions.11,13 Third, there is room for debate about whether all pediatricians should be confident in approaching the entire array of ethical dilemmas inherent in pediatric practice. It is possible that the lack of confidence in areas such as research ethics and end-of-life care represents either a lack of interest on the part of residents who know their careers will not involve these topics, limited experience with the topic during residency, loss of confidence among residents who no longer require such skills in their work, or the intrinsic difficulty of these subjects. The study raises the question of whether every pediatrician needs to be confident in addressing issues related to areas they are unlikely to face in their work.

Fourth, our data on the impact of various learning methods do not clarify whether a particular learning method had a lesser impact because it was not available to the respondent, or because it was available but was ineffective in achieving learning goals. Finally, owing to the anonymity of our respondents, we cannot assess variation among the particular programs our participants attended.

Nevertheless, our research findings have several important implications for residency program directors and others who develop ethics education for pediatric residents. First, they highlight the difficulty in fully evaluating whether residency program graduates are adequately trained in ethics so long as the objectives and content for this teaching remain undefined. Thus, there is a need for educators to clarify the core content of an ethics curriculum. The domains identified in our survey may prove useful as a starting point for developing such curricular objectives.

Second, our study demonstrates a need to augment the formal teaching in ethics that residents receive. The positive association between the impact of formal teaching conferences and reported quality of residents’ ethics education suggests the hypothesis that formal ethics teaching, including preplanned learning opportunities such as didactics, interactive case discussions, or small group learning, is one proper avenue to meeting pediatricians’ needs. A constructive response to these findings would be the development of a core curriculum for ethics and professionalism that residency programs nationwide could adopt for pediatric residents. Leadership from the American Academy of Pediatrics Committee on Bioethics, the Association of Pediatric Program Directors, and the Resident Review Committee could convene to define such a standardized curriculum. Such a curriculum should focus, among other topics, on ethical dilemmas related to pediatric research and to end-of-life care.

At the same time, the substantial impact that respondents ascribe to informal learning methods, such as discussions with other residents and with supervising attending physicians, highlights the need to understand and enhance these less structured aspects of the curriculum. Since supervising attending physicians clearly play a powerful role in ethics education for residents, providing opportunities for faculty development and learning in ethics will be important as well.
Finally, our study highlights the need to determine aspects of individual residency training programs that influence the ethics education received by trainees. Enhanced understanding of programmatic variables associated with better or worse outcomes in the domain of ethics is an essential next step. Such an understanding will form the foundation for interventions, at the residency program level, to increase the effectiveness of ethics education provided to residents.

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Author Contributions: Drs Kesselheim and Joffe had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Kesselheim, Johnson, and Joffe. Acquisition of data: Kesselheim and Joffe. Analysis and interpretation of data: Kesselheim, Johnson, and Joffe. Drafting of the manuscript: Kesselheim and Joffe. Critical revision of the manuscript for important intellectual content: Kesselheim and Johnson. Statistical analysis: Joffe. Obtained funding: Kesselheim. Administrative, technical, and material support: Joffe. Study supervision: Joffe.

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REFERENCES