Evaluating Cost Awareness Education in US Pediatric Emergency Medicine Fellowships

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Objectives: The Accreditation Council for Graduate Medical Education mandates pediatric emergency medicine (PEM) fellowships to incorporate medical care cost teaching into the curriculum; however, there are no studies evaluating cost awareness of PEM fellows. Our objectives were to evaluate cost education during fellowship and assess fellows’ knowledge and attitudes regarding costs.

Methods: We conducted an anonymous electronic survey of US PEM fellows in April-June 2009.

Results: We received 161 (63%) of 253 responses. Respondents represented all 3 years of training and all regions of the United States. Asked if the Accreditation Council for Graduate Medical Education requires cost education, 35% responded no, and 44% were uncertain. More than 80% of fellows reported no formal cost education. More than 65% believed physicians should receive cost education during fellowship, and 75% felt the current amount of education is insufficient.

Pediatric emergency medicine fellows showed low accuracy and considerable variability when estimating costs of tests and medications. Median fellows’ estimate for a complete blood count was $50 (interquartile range, $55), where actual cost is $32. Only 23% were within 25% of the true cost. Similarly, the proportions of fellows estimating within 25% of actual cost were small for electrolytes (10%), blood culture (12%), and erythrocyte sedimentation rate (22%). The same held true for the following medications: trimethoprim-sulfamethoxazole (28%), Ceftriaxone (12%), and cefixime (10%). Ability to predict costs did not improve the following medications: trimethoprim-sulfamethoxazole (28%), Ceftriaxone (12%), and erythrocyte sedimentation rate (22%). The same held true for 25% of actual cost were small for electrolytes (10%), blood culture (12%), and erythrocyte sedimentation rate (22%). The same held true for 25% of actual cost were small for electrolytes (10%), blood culture (12%), and erythrocyte sedimentation rate (22%).

Conclusions: Pediatric emergency medicine fellows report little formal teaching on cost issues, and their ability to estimate costs is poor. However, they are receptive to more education on this important issue.

Key Words: cost, medical economics, graduate medical education, education research

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Studies in the United States have shown that physicians overutilize laboratory and other diagnostic measures, contributing to rapidly rising health care costs. In 2009, US national health expenditures totaled $2.4 trillion, the largest percentage of gross domestic product spent on health care in any major industrialized country, with $206 billion of that spent on children in 2004. The enormity of these costs has brought scrutiny to medical expenditures. To address these issues, the Patient Protection and Affordable Care Act created a mandate to provide “affordable, quality health care for all Americans,” reducing the growth in health care spending, and encourage physicians to provide high-quality, efficient, cost-saving health services. There is evidence to suggest that physicians are not sufficiently aware of the costs of diagnostic tests and treatments. A recent systematic review showed that estimates for diagnostic and nondrug therapeutic costs were poor among physicians, irrespective of specialty, level of training, and country. A median of only 33% of physicians was within 20% to 25% accuracy in cost estimates. Surveys of physicians report that only a small proportion have received any formal education, contributing to their lack of cost knowledge. To date, we have found no studies evaluating pediatric emergency medicine (PEM) fellows’ education on cost awareness.

The Accreditation Council for Graduate Medical Education (ACGME) requires that subspecialty fellows have training in systems-based practice, which is the ACGME sixth core competency. It states that all residents, including PEM fellows, “must demonstrate an awareness of and responsiveness to the larger context and system of health care... to provide optimal health care.” This includes incorporating “considerations of cost awareness and risk-benefit analysis in patient care and/or population-based care as appropriate.”

The objective of our study was to investigate the degree to which costs of medical care are a part of PEM fellowship education. Specifically, we aimed to describe the formal and informal education on the topic of cost and evaluate the knowledge, skills, and attitudes among PEM fellows regarding the costs of care provided in the emergency department (ED).

METHODS

Study Design

We performed a cross-sectional survey study of PEM fellows enrolled in a US ACGME-accredited PEM fellowship. Participants were surveyed between April and June 2009.

Study Procedures

The local institutional review board approved our study protocol with exempt status and waived written informed consent. We obtained PEM fellow e-mail addresses via publicly listed e-mail addresses on program Web sites, PEM program directors or administrators, or cofellows. The list of fellowships and directors is published on the American Medical Association Web site and in the journal Pediatric Emergency Care. We sent fellows an e-mail invitation with a unique link to the survey. Fellows were given the option of participating or opting out. Responding to the survey implied consent, as explicitly stated in the survey invitation.

Survey Monkey™ is a commonly used Web-based survey tool. Our group used this platform to distribute individual but confidential links to the survey to PEM fellows. Survey Monkey™ has the ability to keep track of participants while keeping the link between the respondent and the questionnaire hidden.
We used the method of Dillman et al21 of 3 reminder e-mail invitations at 1, 3, and 7 weeks, as well as other survey techniques22 such as issue salience, assurance of confidentiality, easy access to survey, university sponsorship, and incentive upon completion, to enhance our response rate. Upon conclusion of the questionnaire, each participant was provided with a monetary gift card, although the authors remained blinded to study participation.

Study Questionnaire

The study investigators developed the survey based on published literature evaluating cost awareness.6–12,14,15 All questions were pilot tested on 18 PEM attending physicians and refined for clarity.

The survey consisted of 29 questions, organized into 5 sections: (i) demographics, including age, sex, level of training, US region of training, prior medical experience, and primary insurance carrier (Medicaid, private, or self-pay/no insurance) of their respective patient population, (ii) assessment of formal and informal education in cost, (iii) perceived knowledge of costs, (iv) actual knowledge of costs, and (v) attitudes regarding cost awareness and education during PEM fellowship.

Survey questions included closed-ended categorical questions, as well as open-ended questions allowing fellows to estimate cost without any guiding figures. Unidirectional Likert-type questionnaire items used a balanced 5-point scale, with the middle point on the scale being “neutral.”

On the final question of the survey, a free-text box, we solicited exceptional cases where cost played a role using the following stem: “Please share any memorable experiences (positive or negative) during your fellowship training in which the cost of medical care played a role in your decision making or management” (see Appendix A: PDF of survey).

Definitions

The Agency for Healthcare Research and Quality from the US Department of Health and Human Services defines overall health care costs as the charges and payments collected for all persons from each payment source for each medical event they experience in a year.23 However, for simplification and the purpose of our study, we used a general working definition of “cost” as the total direct monetary “charge” or “fee” for the service provided (ie, a procedure or therapy) or the “price” of a medication. We did not assess indirect (eg, loss of productivity) or intangible (eg, pain and suffering) costs. Cost accuracy was defined as within 25% of the true cost, consistent with prior literature.6–15

We obtained costs of laboratory tests from Quest Diagnostics, one of the largest national laboratory and diagnostic testing networks.24 We contacted 3 Quest facilities in different geographical regions (Northeast, Midwest, and Western United States) and averaged the cost for each test. No price differed by more than a few dollars. However, despite using national sources of information, some variability in cost among geographic regions was inevitable.

Medication costs varied, depending on type of medication, form, dose, and length of treatment. We attempted to limit disparities by presenting clinical scenarios in which most variables were predetermined. For example, we asked, “A 14-month-old boy is diagnosed with a urinary tract infection. He does not currently have insurance, and his mother requests the least expensive antibiotics. If this mother purchased medication at a national retail chain pharmacy such as CVS or online at a Web site such as Drugstore.com, approximately how much would the generic oral form of cefdinir be for a 10-day course?”

We obtained cost estimates for medications via Drugstore.com and Epocrates (whose pricing information is based on information from the Department of Health and Human Services) and determined an average cost. On Drugstore.com, in its Pharmacy section, under Drug Prices, one can choose the medication, form, and total amount of medication needed based on weight-based dosing and length of treatment course. We established this average cost ±25% as our “accurate” cost range. If a participant’s estimate fell in this range, he/she was judged “accurate” in our analyses.

Statistical Procedures

We described the results of our 5-point rating questions (6/29 survey questions) using descriptive statistics for noncontinuous data including medians and interquartile ranges (IQRs). Cross-tabulations were tested for statistical significance using the χ2 test. We planned a priori 2 cross-tabulations: that having a training or work experience in a foreign country might be associated with different cost awareness and that the ability to estimate costs changes with level of training. Continuous data (eg, estimates of cost) were reported with mean ± SD, except when not normally distributed, where we reported medians (IQR). Statistical comparisons used an α = 0.05 with all tests.
RESULTS

Demographics

From April to June 2009, we received 161 (63%) of 253 responses (Fig. 1), 96% of which had all questions answered. We present fellow demographics in Table 1. Fifty-three percent of the fellows reported mainly Medicaid coverage for their patients, and 40% had a relatively equal payer mix of Medicaid, private insurance, and self-pay.

Cost Education in Fellowship

Thirty-five percent of PEM fellows believed the ACGME does not require cost education, whereas a further 44% of the respondents were uncertain. More than 80% of PEM fellows reported little formalized teaching of cost issues during their fellowship training, estimating a median of 2 hours (range, 0–20 hours [IQR, 1–4]). The majority (90%) had never received any written or verbal evaluation regarding their knowledge of medical care costs.

As estimated how often discussions of cost were initiated out of their last 20 ED patients, fellows reported a median of 1 time (IQR, 0–2) in 20 patients whether initiated by themselves, their attending physician, or others.

We asked fellows to name resources they used to obtain cost information. Most common sources included other physicians (58%), online/electronic databases (58%), pharmacists (55%), and, less commonly, social workers (24%) and printed publications (12%). The most common online sites reported included pharmacy Web sites (Target, Drugstore.com, etc), drug manufacturer Web sites, and other Web sites found through Google searches. Some participants referred to online hospital formularies and drug-specific programs such as Micromedex, Epocrates, UpToDate, and Lexi-Comp/Lexi-Drugs.

Fellows’ Evaluation of Self and Attending Physician’s Cost Knowledge

The following percentage of PEM fellows rated their own cost estimation ability as “very poor” to “fair” (74% for medications, 76% for laboratory tests, 72% for imaging studies, and 79% for medical supplies).

Sixty-six percent of fellows rated their attending physicians’ knowledge of costs as “very poor” to “fair” and 26% as “good” to “very good” (8% with “no opinion”). Only 15% of fellows reported that their attending physicians “frequently” or “always” used cost considerations in their decision making, whereas 83% reported “rare” or “occasional” use (2% with no opinion).

Ability to Estimate Costs

Fellows showed low accuracy and considerable variability when estimating costs of tests and medications (Table 2). The

<table>
<thead>
<tr>
<th>TABLE 2. PEM Fellow Cost Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test or Drug</strong></td>
</tr>
<tr>
<td>CBC</td>
</tr>
<tr>
<td>BMP</td>
</tr>
<tr>
<td>ESR</td>
</tr>
<tr>
<td>Blood culture</td>
</tr>
<tr>
<td>TMP-SMX</td>
</tr>
<tr>
<td>Cefixime</td>
</tr>
<tr>
<td>Cefdinir</td>
</tr>
</tbody>
</table>

*Cost estimates obtained from Drugstore.com and Quest Diagnostics. N = 155–156.*

CBC indicates complete blood count; BMP, basic metabolic panel; ESR, erythrocyte sedimentation rate; TMP-SMX, trimethoprim-sulfamethoxazole.
proportions within 25% of the actual cost for laboratory tests were small, and a similarly low accuracy was found for commonly used urinary tract infection medications. Generally, PEM fellows underestimated the costs of oral medications but overestimated laboratory test costs (Fig. 2).

Actual ability to estimate costs was not different across the 7 tests/medications we studied, when stratified by year of fellowship training (first year: 14.7% accurate [SD 35%], second year: 13.5% [34%], third year: 19.0% [39%]; \( \chi^2 P > 0.10 \)).

The fellows without prior training or work experience outside the United States were more likely to rate themselves “poor” to “very poor” in their cost estimation ability, 62% compared with 46% of those with experience abroad; however, the composite measure of their actual accuracy showed the opposite pattern, favoring the fellows without experience abroad to a statistically significant degree: 17% versus 12% (95% confidence interval for difference 0%–11%).

**Attitudes Regarding Cost Awareness and Education**

Fellows mainly agreed (93%) that emergency medicine physicians should be aware of costs of the medical care they provide, with 88% agreeing on the importance of learning about these costs during PEM fellowship training (Fig. 3). However, 80% did not feel the amount of education they were currently receiving adequate. Sixty-four percent agreed that physicians should use cost as a factor in their medical decision making; a small proportion (10%) disagreed.

**Qualitative Themes**

We asked fellows to share their experiences, both positive and negative, regarding the role that costs of medical care played in their decision making or management. Approximately 20% of the fellows responded, and 5 major themes emerged (Table 3). Fellows expressed concern regarding costs of outpatient medications, the inability of patients to afford them, and how this may lead to treatment failures and return ED visits, along with the costs involving physician behavior of ordering of tests and imaging studies in the ED.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Frequency (n = 34), n (%)</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The inability of uninsured families to afford medical care, mainly medications, was a major concern for fellows.</td>
<td>9 (26)</td>
<td>“I’ve had a few parents bring up concerns regarding out-of-pocket costs due to recent loss of insurance.”</td>
</tr>
<tr>
<td>The cost of outpatient antibiotics influenced the choice of medication prescribed.</td>
<td>11 (32)</td>
<td>“Many pharmacies have a list of 10 or so free antibiotics, which I prescribe for patients with no insurance.”</td>
</tr>
<tr>
<td>The inability to pay for outpatient medication led to treatment failures, repeat visits to the ED, and hospital admissions.</td>
<td>4 (12)</td>
<td>“Many patients have lost insurance and can no longer afford cefdinir for UTI, so we are seeing a lot of returns with persistent UTI.”</td>
</tr>
<tr>
<td>Reflexive test ordering, regardless of the cost, was observed.</td>
<td>4 (12)</td>
<td>“[We see] numerous children who present with severe asthma exacerbations because they ran out of meds at home…. In rare cases, [I] admit them if they can’t afford care for the next 24 h at home.”</td>
</tr>
<tr>
<td>Cost played a role in utilization of imaging studies.</td>
<td>6 (18)</td>
<td>“I fight with attending physicians about sending viral studies—many people have a very low threshold to order the tests, without realizing that our laboratory charges $800 to run RSV/flu.”</td>
</tr>
</tbody>
</table>

**TABLE 3. Fellows’ Experiences With Cost**

**FIGURE 3. Pediatric Emergency Medicine fellow attitudes regarding cost education.**
DISCUSSION

In our study, PEM fellows report receiving very little education during their fellowship training regarding medical care costs in the ED. They have low confidence in their fund of knowledge and ability to estimate costs and show low accuracy in actual cost estimation. On an encouraging note, fellows were cognizant of the importance of cost education and were willing to receive more. In the free-text portion of the survey, we identified several of the fellows’ main concerns regarding the impact of cost on ED decision making and management. Issues included the inability to afford medical care and subsequent treatment failures, the influence of cost on choice of prescribed medications and utilization of imaging studies, and reflexive test ordering regardless of cost.

One component of the problem is that many practicing emergency medicine physicians themselves have poor knowledge of costs. Multiple studies in the literature report ED physicians correctly estimate costs only 20% to 30% of the time with mean error in cost estimates ranging from 40 to greater than 200%. In our survey, fellows rated their attending physicians’ cost knowledge as “fair.” As attending physicians serve as educators of fellows, it begs the question of how well informed the teachers themselves are.

We used a criterion of ±25% of the true cost estimate, specified a priori, as done in numerous prior studies. It was very uncommon for fellows to meet this standard, be it for medications or laboratory tests. We readily acknowledge the imprecision of these estimates, given that we had difficulty specifying a perfectly credible reference standard. However, even if our estimates of their ability are conservative by a factor of 2 or 3, fellows’ accuracy still leaves much to be desired.

Despite reports showing poor physician knowledge of cost, there is little literature examining the amount and type of cost education during medical training. In a landmark 1998 report, the Association of American Medical Colleges, which oversees accreditation of US medical schools, acknowledged this need for cost education of medical students: “They must apply the principles of cost-effectiveness in making decisions about the utilization of limited medical resources... and demonstrate knowledge of... financing and delivery of health care.” More recent systematic reviews of health economics, cost-containment, and cost-effectiveness curricula in graduate medical education concluded that cost curricula in graduate medical education among internal and family medicine, surgical, pediatric, and emergency medicine residents are lacking. Our study examines 1 subspecialty, PEM, and finds cost education in fellowship training still insufficient.

The difficulty in ascertaining precise estimates of component costs hints at the complexity in developing a cost curriculum. Our difficulties in carrying out this survey are illustrative. We found it far from straightforward to determine the costs of medications and imaging studies. Using costs of imaging studies as an example, the Medicare fee schedule provided only reimbursement figures, and these differed widely by region, on the scale of hundreds of dollars for a single imaging event. An average national estimate does not necessarily translate to local figures. In the end, we excluded questions regarding cost of radiological studies from our final analysis; however, medication and laboratory test costs were also subject to differences based on geography and bundling with professional fees and other associated costs. The opacity and confusion surrounding medical costs should be formally addressed as a systems-based practice issue that our fellows (and other physicians) will encounter throughout their careers. Education on costs, even delivered in a variable and imperfect manner, is part of the mandate for training future physicians who are equipped both to maximally aid their patients on an individual level and to make our medical systems more efficient and effective for the populations we serve in resource-limited environments.

CONCLUSIONS

In our national survey of PEM fellows, we found the majority of fellows reported little or no cost education during fellowship training and that actual knowledge of medical care costs by fellows was poor. However, fellows recognized the increasing significance of health care costs and appeared receptive to more teaching. Cost education must be made an integral part of PEM fellowship training. More studies are necessary to determine the most effective strategies to accomplish this valuable curriculum change. Further investigations could look at the greater impact of cost education on clinical and financial outcomes.

ACKNOWLEDGMENT

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REFERENCES


APPENDIX A. PDF OF SURVEY.

Evaluating Cost-Awareness Education in U.S. PEM Fellowships

1. Personal Demographic Information

You may choose to share demographic information about yourself (Optional).

1. Age

2. Gender

- Male
- Female
## Evaluating Cost-Awareness Education in U.S. PEM Fellowships

### 2. Fellowship/Institutional Demographic Information

Please share demographic information about your fellowship training and institution.

#### 1. Type of Training

- Pediatrics -PEM fellowship
- Emergency Medicine -PEM fellowship
- Other

#### 2. Level of Training

- First-year fellow
- Second-year fellow
- Third-year fellow
- Other

#### 3. Have you ever trained or worked in health care outside of the United States?

- No
- Yes

#### 4. Region of U.S.

- Northeast (CT, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT)
- Southeast (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV)
- Midwest (IA, IN, IL, KS, MI, MN, MO, ND, NE, OH, SD, WI)
- Southwest (AZ, NM, OK, TX)
- West (AL, CA, CO, ID, MT, NV, OR, UT, WA, WY)

#### 5. Patient Insurance Mix

- Mostly medicaid
- Mostly private
- Mostly self-payers
- Relatively equal mix
- Unsure
Evaluating Cost-Awareness Education in U.S. PEM Fellowships

3. Fellowship Curriculum

1. As far as you know, is education on costs of medical care mandated in the ACGME curriculum for PEM fellowship training?

☐ No
☐ Yes
☐ Unsure
Evaluating Cost-Awareness Education in U.S. PEM Fellowships

4. Cost-Awareness Education

1. During your fellowship, have you ever had a lecture or conference in which the main emphasis was on the costs of diagnostic tests, therapeutic procedures or medications?
   - No
   - Yes
   - Unsure

2. If Yes, approximately how many hours of cost education have you had?

3. During your fellowship, have you ever received a written or verbal evaluation regarding your knowledge of costs of medical care?
   - No
   - Yes
   - Unsure
5. Teaching in the Emergency Department

1. Of the last 20 patients you have cared for in the ED, approximately how many times was the discussion of medical care costs initiated by the following people?
   - Attending
   - Patient/Family
   - Self
   - Other

2. If Other, please specify the other sources below.
Evaluating Cost-Awareness Education in U.S. PEM Fellowships

6. Resources

1. During fellowship, which of the following resources have you used to obtain cost information?  
   (Check all that apply)
   - Written/printed publications
   - Online/electronic resources
   - Other physicians
   - Pharmacist
   - Social worker
   - None
   - Other (Please specify)

2. If you have used any WRITTEN resources to obtain cost information, please specify which resources below.
   ...

3. If you have used any ONLINE resources to obtain cost information, please specify which resources below.
   ...


Evaluating Cost-Awareness Education in U.S. PEM Fellowships

7. Attendings’ Knowledge and Attitudes

1. Overall, how would you assess your average attending’s knowledge of medical costs?
   - Very Poor
   - Poor
   - Fair
   - Good
   - Very Good
   - No Opinion

2. Overall, how would you assess your average attending's use of medical costs in his or her decision-making?
   - Never uses cost information to make decisions
   - Rarely uses ...
   - Occasionally uses ...
   - Frequently uses ...
   - Always uses ...
   - No Opinion
### Evaluating Cost-Awareness Education in U.S. PEM Fellowships

#### 8. Ability to Estimate Costs

1. Please rate your ability to accurately estimate costs of medical care you provide in the ED.

<table>
<thead>
<tr>
<th></th>
<th>Very Poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imaging studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical supplies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Evaluating Cost-Awareness Education in U.S. PEM Fellowships

#### 9. Laboratory Costs

Please answer the following question based on your current knowledge, without consulting other sources of information.

**1. At a national medical laboratory, such as Quest Diagnostics, how much would the following tests cost?**

<table>
<thead>
<tr>
<th>Test</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete blood count</td>
<td></td>
</tr>
<tr>
<td>Basic metabolic panel (or Chem 7)</td>
<td></td>
</tr>
<tr>
<td>Erythrocyte sedimentation rate</td>
<td></td>
</tr>
<tr>
<td>Blood culture</td>
<td></td>
</tr>
</tbody>
</table>
Evaluating Cost-Awareness Education in U.S. PEM Fellowships

10. Imaging Costs

Please answer the following question based on your current knowledge, without consulting other sources of information.

*1. According to Medicare fee schedule, how much would the following imaging studies cost, not including professional (interpretation) fees?

<table>
<thead>
<tr>
<th>Imaging Study</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest x-ray (PA and lateral views)</td>
<td></td>
</tr>
<tr>
<td>Abdominal ultrasound</td>
<td></td>
</tr>
<tr>
<td>Head CT</td>
<td></td>
</tr>
<tr>
<td>Brain MRI</td>
<td></td>
</tr>
</tbody>
</table>
Evaluating Cost-Awareness Education in U.S. PEM Fellowships

11. Medication Cost Scenario 1

Please answer the following question based on your current knowledge, without consulting other sources of information.

1. A 14 month old boy is diagnosed with a UTI. He does not currently have insurance and his mother requests the least expensive antibiotics.

If this mother purchased medication at a national retail chain pharmacy such as CVS or on-line at a website such as drugstore.com, approximately how much would the GENERIC oral form of each of these medications cost for a ten-day course?

(Brand names included in parenthesis only to aid you in identification of the generic form of the medication.)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethoprim/Sulfamethoxazole (Bactrim)</td>
<td></td>
</tr>
<tr>
<td>Cefixime (Suprax)</td>
<td></td>
</tr>
<tr>
<td>Cefdinir (Omnicef)</td>
<td></td>
</tr>
</tbody>
</table>
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12. Medication Cost Scenario 2

Please answer the following question based on your current knowledge, without consulting other sources of information.

**1. You are administering a dose of antibiotic to treat a 9 year old girl with cellulitis.**

Approximately how much does the GENERIC form of each medication cost for a single intravenous dose given in the ED?

*(Brand names included in parenthesis only to aid you in identification of the generic form of the medication.)*

- Cefazolin (Ancef) IV
- Ampicillin/Sulbactam (Unasyn) IV
- Vancomycin IV
- Clindamycin IV

[Checkboxes for answers]
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13. Medication Cost Scenario 3

Please answer the following question based on your current knowledge, without consulting other sources of information.

*1. You are treating a 15 year old male with a migraine headache.

Approximately how much does the GENERIC form of each medication cost for a single intravenous dose given in the ED?

*(Brand names included in parenthesis only to aid you in identification of the generic form of the medication.)*

<table>
<thead>
<tr>
<th>Medication</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>One liter bag Normal Saline IV</td>
<td></td>
</tr>
<tr>
<td>Ketorolac (Toradol) IV</td>
<td></td>
</tr>
<tr>
<td>Metoclopramide (Reglan) IV</td>
<td></td>
</tr>
<tr>
<td>Ondansetron (Zofran) IV</td>
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14. Attitudes

Please choose the level at which you agree or disagree with the following statements.

1. Emergency medicine physicians should be aware of costs of the medical care they provide.
   - Strongly Disagree
   - Disagree
   - Neutral/No Opinion
   - Agree
   - Strongly Agree

2. It is important to learn about costs of medical care provided in the emergency department during PEM fellowship training.
   - Strongly Disagree
   - Disagree
   - Neutral/No Opinion
   - Agree
   - Strongly Agree

3. The amount of education regarding medical care costs during PEM fellowship training is adequate.
   - Strongly Disagree
   - Disagree
   - Neutral/No Opinion
   - Agree
   - Strongly Agree

4. Physicians should use knowledge of costs in their medical decision-making.
   - Strongly Disagree
   - Disagree
   - Neutral/No Opinion
   - Agree
   - Strongly Agree
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15. Personal Experience

1. Please share any memorable experiences (positive or negative) during your fellowship training in which the cost of medical care played a role in your decision-making or management.