Exit Survey of Senior Residents: Cost Conscious but Uninformed

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ABSTRACT

Background Cost awareness, to ensure physician stewardship of limited resources, is increasingly recognized as an important skill for physicians. The Accreditation Council for Graduate Medical Education has made cost awareness part of systems-based practice, a core competency of resident education. However, little is known about resident cost awareness.

Objective We sought to assess senior resident self-perceived cost awareness and cost knowledge.

Methods In March 2014, we conducted a cross-sectional survey of all emergency medicine, internal medicine, obstetrics and gynecology, orthopaedic surgery pediatrics, and medicine-pediatrics residents in their final year at Yale–New Haven Hospital. The survey examined attitudes toward health care costs and residents' estimates of order prices. We considered resident price estimates to be accurate if they were between 50% and 200% of the Connecticut-specific Medicare price.

Results We sent the survey to 84 residents and received 47 completed surveys (56% response rate). Although more than 95% (45 of 47) felt that containing costs is the responsibility of every clinician, and 49% (23 of 47) agreed that cost influenced their decision when ordering, only 4% (2 of 47) agreed that they knew the cost of tests being ordered. No residents accurately estimated the price of a complete blood count with differential, and only 2.1% (1 of 47) were accurate for a basic metabolic panel. The overall accuracy of all resident responses was 25%.

Conclusions In our study, many trainees exit residency with self-identified deficiencies in knowledge about costs. The findings show the need for educational approaches to improve cost awareness among trainees.

Introduction

The cost of care has become a frequent topic of discussion in health care and medical education, with active curricula and publication of educational methods.[1–6] The Accreditation Council for Graduate Medical Education has made cost awareness part of systems-based practice, a core competency of resident education.[7] However, there is evidence that attending physicians are underprepared to address the issue of cost of care with trainees.[8–11] Several educational curricula and interventions have been proposed to improve trainee cost knowledge.[1–3,12] Despite these efforts, there are limited data about senior-level residents' knowledge of medical costs to develop better interventions. This study sought to answer questions about graduating residents' knowledge of medical costs and their attitudes toward the importance of cost knowledge as they move forward in their careers. Institutions, including medical schools and residency programs, should understand the knowledge deficits of graduating trainees in order to design curricula to address these problems.

We conducted an exit survey of residents in multiple specialties in the final months of training. These trainees completed their residencies in the era of increasing cost-awareness education and national discussions on health care expenses. Our goal was to examine whether there was a lack of cost knowledge among this group of trainees, who are about to go into practice, and to determine their attitudes about their knowledge of costs.

Methods

Study Population

From March to April 2014, we invited all emergency medicine, internal medicine, obstetrics and gynecology, orthopaedic surgery pediatrics, and medicine-pediatrics residents in their final year of training at Yale–New Haven Hospital (the primary teaching affiliate of Yale School of Medicine) to complete a survey examining knowledge of and attitudes toward cost in health care. No senior residents were excluded from participation. All responses were confidential and deidentified.

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Editor's Note: The online version of this article contains the survey instrument used in the study.

TABLE
Resident Attitudes About Cost Awareness

Responses	Likert-Scale Mean ± SD (n = 47)
I know the costs of tests I order for my patients.	2.06 ± 0.79
I have adequate access to information about the costs of care I provide.	1.79 ± 0.72
I have received adequate education about costs of care before today.	2.13 ± 0.82
There is currently too much emphasis on costs of tests.	2.06 ± 0.60
Cost influences my decision when ordering tests.	3.34 ± 0.89
It is unfair to ask clinicians to be cost conscious and still keep the welfare of patients in mind.	2.49 ± 0.88
All patients should receive the same level of care regardless of cost.	3.51 ± 1.35
All patients should receive the same level of care regardless of ability to pay.	4.02 ± 1.19
The cost of a test is only important if the patient has to pay for it out of pocket.	1.79 ± 0.59
Cost to society is important in my decisions to use or not use a diagnostic test.	3.66 ± 0.81
My supervising attending consistently encourages me to consider costs when making ordering decisions.	2.70 ± 1.00
Trying to contain costs of care is the responsibility of every clinician.	4.28 ± .062
Patients want to know how much they will be charged for tests.	3.26 ± 1.17
More knowledge of costs would change my ordering.	3.72 ± 0.77

Study Design

We used an instrument developed from prior studies examining physician attitudes toward cost.[3,13] For the knowledge portion, we included commonly ordered inpatient laboratory and imaging tests. We asked residents to provide the Medicare price for each of these orders. The survey was created through Qualtrics (Qualtrics LLC, Provo, UT) and is available as online supplemental material.

This study was declared exempt by the Yale School of Medicine Institutional Review Board.

Analysis

We used a 5-point Likert scale for questions pertaining to attitudes toward cost. The survey was developed by the authors and did not undergo pilot testing. For the knowledge questions, we considered a resident's answer to be accurate if it was between 50% and 200% of the Connecticut-specific Medicare price. For laboratory tests, the price was obtained from the 2014 Medicare Laboratory Fee Schedule. For radiology tests, the price was obtained by summing values from the Medicare Physician Fee Schedule (for professional fees) and the Medicare Outpatient Prospective Payment System Fee Schedule (for facility fees). This range for establishing accuracy has been used in prior studies.[14] All analyses were performed using Stata SE version 13.0 (StataCorp LP, College Station, TX).

Results

In March 2014, we sent the survey to 84 residents and received 47 completed surveys back (56% overall response rate). A majority of residents (89%, 42 of 47) indicated that they placed orders on a daily basis.

Of the respondents, 96% (45 of 47) felt that containing costs in health care is the responsibility of every clinician. In response to the questions about their attitudes toward cost, although 49% (23 of 47) strongly agreed/agreed that cost influenced their decisions when ordering, only 4.3% (2 of 47) strongly agreed/agreed that they knew the cost of tests being ordered for their patients. A total of 70% (33 of 47) strongly agreed/agreed that more knowledge of cost would change their ordering, yet only 8.5% (4 of 47) strongly agreed/agreed that they had received adequate education about cost. Responses are displayed in the TABLE.

For the knowledge questions, no residents accurately estimated the price of a complete blood count with differential, and only 2% (1 of 47) were accurate on the cost for a basic metabolic panel. A total of 51% (24 of 47) accurately estimated the cost of a computed tomography scan of the abdomen and pelvis with and without intravenous contrast, and 36% (17 of 47) were accurate for an upright posterior-anterior and lateral chest x-ray. The overall accuracy of all resident responses was 25%. The accurate estimates for diagnostic test costs are shown in the FIGURE.

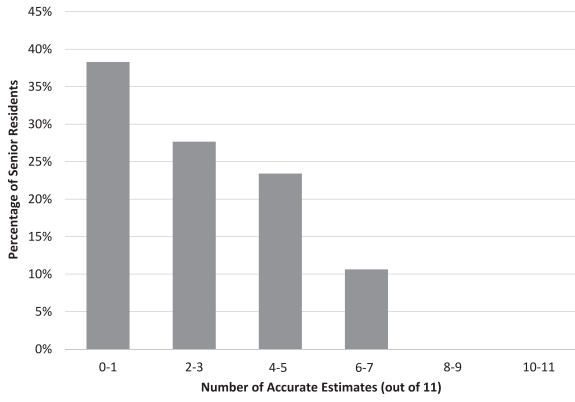

FIGURE
Senior Resident Price Estimation Accuracy for Lab and Imaging Tests

Discussion

In our study, senior residents expressed a common sentiment that cost either influenced their ordering patterns or would influence their ordering if they had enhanced education in this area. Only 4% of senior residents felt they knew the cost of tests being ordered, and the overall accuracy of estimated price was 25%. These findings suggest that graduating senior residents have reliable self-awareness of their own poor cost knowledge.

Our findings are consistent with other work that has been done on this topic. A study of internal medicine residents at the postgraduate year 1 and 3 levels reported that they were not adequately educated to understand medical costs.[3] The design of our study looked at trainees who had completed their training and was not confined to a single specialty. Remarkably, graduating residents still had poor understanding of the costs of frequently ordered tests, such as a complete blood panel with differential, even when applying a liberal definition of accuracy.

Educational activities that may improve trainee knowledge of experience can come in several forms. One study implemented a web-based educational intervention and found that there was a significant improvement in resident knowledge.[3] As early as medical school, curricula could be developed to include medical finance. During residency training, in-training examinations could be adapted to include some degree of cost knowledge. Additionally, passive forms of education, such as cost displays in electronic health record systems, could also help to advance trainee knowledge.

This study has several limitations. It was performed at a single institution and may not reflect trends nationally. The survey was not pilot tested and lacks evidence of validity, and respondents may not have interpreted the questions as intended. All of these reduce the ability to generalize the results to all graduating residents from these specialties. Finally, our study was done over a short period of time and only reflects a single point in time. It would be useful to know whether trainees' knowledge of medical costs change from year to year, which could be an area of future research.

Conclusion

To our knowledge, this is the first survey of graduating senior residents dedicated to assessing cost awareness. It shows that, despite a recent increase in cost-based education throughout residency, more than half of graduating residents from several specialties at our institution graduate with self-identified deficiencies in cost knowledge. These findings are consistent with those of prior studies showing low cost awareness in attending physicians and reaffirming the need for more education about costs during residency.

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