Emergency Physician Knowledge, Attitudes, and Behavior Regarding ACEP's Choosing Wisely Recommendations: A Survey Study

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ABSTRACT

Objective: In 2013, the American College of Emergency Physicians joined the Choosing Wisely campaign; however, its impact on emergency physician behavior is unknown. We assessed knowledge, attitudes, and self-reported behaviors regarding the Choosing Wisely recommendations.

Methods: We performed a cross-sectional survey of emergency physicians at a national meeting. We approached 819 physicians; 765 (93.4%) completed the survey.

Results: As a result of the Choosing Wisely campaign, most respondents (64.5%) felt more comfortable discussing low-value services with patients, 54.5% reported reducing utilization, and 52.5% were aware of local efforts to promote the campaign. A majority (62.97%) of respondents were able to identify at least four of five recommendations. The most prevalent low-value practices were computed tomography (CT) brain for minor head injury (29.9%) and antibiotics for acute sinusitis (26.9%). Few respondents reported performing lumbar radiograph for nontraumatic low back pain (7.8%) and Foley catheter for patients who can void (5.6%). Respondents reported patient/family expectations as the most important reason for ordering antibiotics for sinusitis (68%) and imaging for low back pain (56.8%). However, concern for serious diagnosis was the most important reason for performing CT chest for patients with normal D-dimer (49.7%) and CT abdomen for recurrent uncomplicated renal colic (42.5%). A minority (3.8% to 26.7%) of respondents identified malpractice risk as the primary reason for performing low-value services.

Conclusions: Despite familiarity with Choosing Wisely, many emergency physicians report performing low-value services. Primary reasons for low-value services differ: antibiotic prescribing was driven by patient/family expectations, while concern for serious diagnosis influenced advanced diagnostic imaging. Greater efforts are needed to promote effective dissemination and implementation; such efforts may be targeted based on differing reasons for low-value services.

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Healthcare spending per capita in the United States is the highest in the world, and increasing attention has been placed on strategies to improve value. Emergency care accounts for 5% to 12% of healthcare costs nationwide, and annual emergency department (ED) visits and costs associated with an ED visit continue to increase.[1–4]

Value is defined as health outcomes achieved per dollar spent.[5] One approach to improving value is reducing cost, without affecting quality. Following this rationale, in 2013, the American College of Emergency Physicians (ACEP) joined the Choosing Wisely campaign by publishing a list of tests and procedures that physicians and patients should question, with the aim of reducing low-value tests and procedures.[6]

Early evaluations of the Choosing Wisely campaign across specialties have suggested modest gains and high regional variation in utilization.[7,8] A survey of 105 academic ED chairs and division chiefs found that most were aware of Choosing Wisely recommendations, but only half could recall specific recommendations, and very few discussed low-value services with their patients.[9] In a recent survey study, 85% of emergency physicians agreed that too many diagnostic tests are ordered in their own EDs, and 97% agreed that at least some of the advanced imaging tests they have personally ordered are medically unnecessary.[10] The main perceived contributors were fear of missing a low-probability diagnosis and fear of litigation; however, reasons for performing each specific test were not explored.

We aimed to assess the following outcomes among front-line practicing emergency physicians: knowledge of the Choosing Wisely campaign, self-reported frequency of low-value service utilization, and most important reason for performing low-value services. We hypothesized that a minority of emergency physicians could identify all recommendations and a majority order low-value services.

METHODS

Study Design, Setting, and Participants

We conducted a cross-sectional convenience sample survey of emergency physicians. Survey respondents were recruited at the ACEP Scientific Assembly in Boston, Massachusetts, in October 2015. We enrolled practicing attending emergency physicians or emergency medicine residents in their final year of residency. We excluded those who exclusively cared for pediatric patients. Potential respondents were recruited by first asking if they were emergency physicians practicing in the United States. Those who responded affirmatively were deemed eligible, so they were given information about the study and asked to complete the survey. Study staff manually recorded the number of nonrespondents, defined as eligible participants who declined to participate in the survey, and retained all incomplete and complete surveys. While assistants were available to collect completed surveys, we encouraged respondents to deposit completed surveys in a bin on the survey booth table to maintain anonymity. The booth remained open during all conference exhibit hall hours (6 hours per day for 3 days). In return for filling out the survey, participants were entered into a raffle to win a $100 gift card each day.

Survey Development

We developed a 41-item survey instrument (Data Supplement S1, available as supporting information in the online version of this paper) to assess emergency physicians' behaviors, attitudes and knowledge of ACEP's Choosing Wisely recommendations. The survey instrument was created by an academic emergency physician (MPL) with the assistance of senior researchers with content expertise (JDS) and expertise in survey design and administration (LDR). The survey was then separately reviewed by four clinical emergency physicians, who were interviewed regarding content and clarity. After modifying the survey based on feedback provided, we pilot-tested the survey with 10 emergency physicians with experience in both academic and community practice. Minor edits in formatting and language were incorporated before finalizing the survey for administration.

The final survey consisted of four sections: 1) demographic information, 2) self-reported practice behaviors, 3) most important reason for providing low-value services, and 4) knowledge and impact of Choosing Wisely recommendations. Questions assessing practice behaviors used five-point Likert-type scales used in prior surveys on similar topics; demographic fields were similarly based on prior surveys.[11] The survey first assessed practice behaviors using one- to two-sentence vignettes describing common ED clinical scenarios. When possible, we included similar language from the originally published Choosing Wisely recommendations (e.g., "low-risk per decision rules," "uncomplicated"). To minimize social desirability bias, the questions assessing practice behaviors and most important reason for ordering did not specifically mention

Choosing Wisely. To reduce survey length and response burden, we administered two versions of the survey, one containing the first set of five recommendations released in 2013 (Data Supplement S1, available as supporting information in the online version of record of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13167/full) and the other containing the subsequent five recommendations from 2014 (Data Supplement S2, available as supporting information in the online version of record of this paper, which is available at http://onlinelibrary.wiley.com/doi/10.1111/acem.13167/full), as well as a sixth false recommendation in each version to minimize availability bias. Based on pilot-test feedback, we excluded three recommendations from the survey section assessing reasons for low-value practices (pilot respondents unanimously reported "save time" as the reason to place Foley catheters in patients who can void and administer IV fluids prior to attempting oral hydration among pediatric patients with mild to moderate dehydration, while failure to initiate palliative care services was attributed to local availability).

Data Analysis

Trained abstractors entered completed survey data into a spreadsheet for analysis. Abstractors were blinded to the study hypotheses, and two computer-generated random 10% samples (79 surveys) were abstracted and duplicatively entered by two coordinators, with an inter-rater agreement of 99% across all survey items.

We defined complete surveys as those with responses to three or more demographic items and at least one other section; we report survey completion rates among eligible respondents overall and for each section in the results. We analyzed descriptive statistics and calculated means and percentages. To report frequency of test or procedure ordering, we collapsed the top two (often and always) and bottom two (rarely and never) responses for ease of interpretation. All analyses were performed using STATA 14.0 (StataCorp). The study protocol was reviewed and determined to be exempt by the institutional review board of our institution.

RESULTS

Characteristics of Study Subjects

Of the 819 emergency physicians who met the inclusion criteria, 765 (93.4%) completed the survey (45 nonrespondents, nine incomplete surveys). The mean age among respondents was 41.1 years (range = 24–78 years), and nearly two-thirds (64.4%) of respondents were male. Overall, 46.5% practice in community settings; 45.9% in academic-only settings; and 7.2% in managed care, urgent care, freestanding EDs, or other settings (Table 1). Respondents were from all 50 states.

Table 1
Characteristics of Participating Physicians (*N* = 765)

Demographics	
Age (y)	41.2 (24–80)
Male	493 (64.4)
Board-certified	490 (64.1)
Resident physician	158 (20.7)
Years in practice	9.6 (0–42)
Practice setting	
Community-based	356 (46.5)
Academics only	351 (45.9)
Freestanding ED	16 (2.1)
Urgent care	12 (1.6)
Managed Care/HMO	6 (0.8)
Other (e.g., VA)	21 (2.7)
Geographic region*	
Northeast	247 (32.3)
Midwest	112 (14.6)
South	196 (25.6)
West	100 (13.1)

Data are reported as mean (range) or number (%).
*110 (14.4%) respondents with missing or illegible geographic region. All other items with < 2% missing response rates.

Table 2
Impact and Knowledge of Choosing Wisely Campaign (*N* = 730)*

Variable	
Knowledge	
Identified ≤2 of 5 recommendations	156 (21.4)
Identified 3 of 5 recommendations	116 (15.9)
Identified 4 of 5 recommendations	172 (23.6)
Identified 5 of 5 recommendations	286 (39.2)
Correctly identified non-Choosing Wisely as false	131 (17.9)
Correctly identified 5 recommendations and non-Choosing Wisely as false	35 (4.8)
More comfortable discussing unnecessary tests and procedures with patients as a result of the Choosing Wisely campaign	463 (64.5)
Reduced ordering of unnecessary tests and procedures as a result of the Choosing Wisely campaign	391 (54.5)
Aware of efforts in my ED or hospital to promote the adoption of the ACEP's Choosing Wisely recommendations	377 (52.5)

Data are reported as number (%);.
**N* = 718 for bottom three questions.

Survey Results

Of the 730 respondents (89.1%) who completed the knowledge section, a majority (62.7%) were able to

identify at least four of five Choosing Wisely recommendations (Table 2). However, only 17.9% correctly identified the non-Choosing Wisely recommendation as false, of whom only 35 (4.8%) were also able to correctly identify five of five recommendations. Of the 718 respondents (87.7%) who completed the impact section, a majority (64.5%) of emergency physicians reported being more comfortable discussing unnecessary tests and procedures with patients and 54.5% report having reduced unnecessary tests and procedures as a result of the Choosing Wisely campaign, while 52.5% are aware of efforts in their ED or hospital to promote the Choosing Wisely recommendations.

All 765 respondents completed the behavior section. The proportion of emergency physicians who report frequently or always providing low-value services ordering ranged from 5.6% to 29.9% (Figure 1). The most frequent low-value service was head computed tomography (CT) for minor head injury in patients deemed low risk by decision rules (29.9%), followed by antibiotics for sinusitis (26.9%). The least frequent services were Foley catheter (5.6%) for patients who can void and lumbar radiography for nontraumatic back pain (7.8%). Nearly half (44.3%) of emergency physicians frequently or always initiate palliative or hospice care consults for patients with terminal cancer.

A total of 687 respondents (83.9%) completed the attitude section identifying reasons for low-value practices. Emergency physicians reported patient and family expectations as the most important reason for providing antibiotics for sinusitis (68%), imaging in nontraumatic back pain (56.8%), and head CT after minor head injury (40.8%; Figure 2). Concerns for serious diagnosis were more frequently reported as the most important reason for performing CT chest for patients with normal D-dimer (49.7%), CT abdomen for recurrent uncomplicated renal colic (42.5%), and CT head after syncope (33.5%).

A minority (3.8% to 26.7%) of emergency physicians identified reducing malpractice risk as the primary reason for providing low-value services across all recommendations. Fewer emergency physicians identified "reduce malpractice risk" as a primary reason for low-value services than "concern for serious diagnosis" or "patient or family expectations" across all recommendations.

DISCUSSION

While prior studies have shown that emergency physicians self-report avoidable diagnostic imaging, frontline emergency physicians' knowledge of specific Choosing Wisely recommendations and their use of low-value services corresponding to the campaign were not known. We conducted a survey of nearly 800 emergency physicians at a national meeting and found that emergency physicians report continuing to

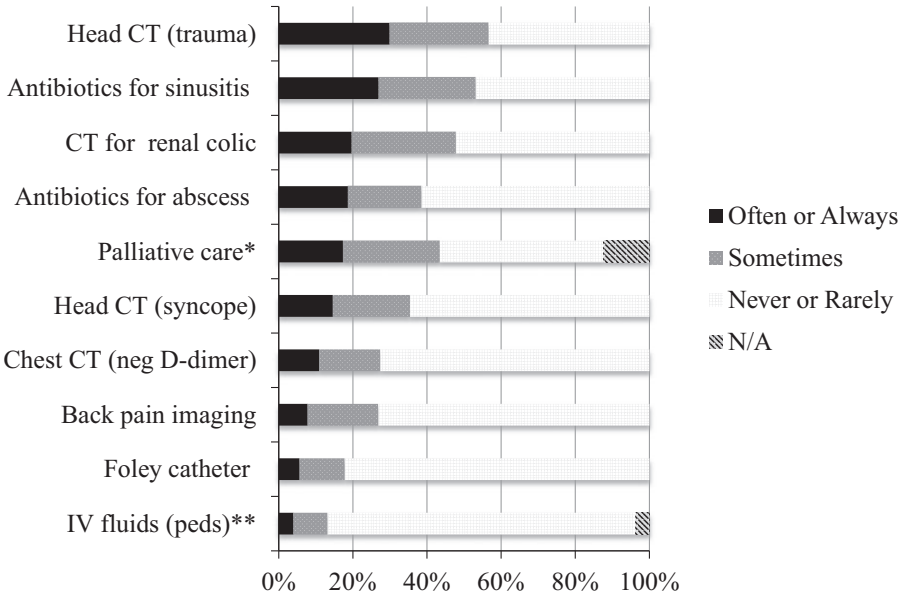

Figure 1. Prevalence of low-value services among emergency physicians regarding Choosing Wisely recommendations. Listed in order of most frequent low-value service. *Among respondents, 17.3% rarely or never, 26.1% sometimes, and 44.3% often or always refer patients who may benefit to palliative or hospice care, while 12.3% indicated palliative care services were not available in their hospital. **Among respondents, 4.1% rarely or never, 9.5% sometimes, and 86.4% often or always offer a trial of oral fluids before IV fluid hydration in pediatric patients with mild to moderate dehydration, while 3.8% do not care for pediatric patients. IV = intravenous.

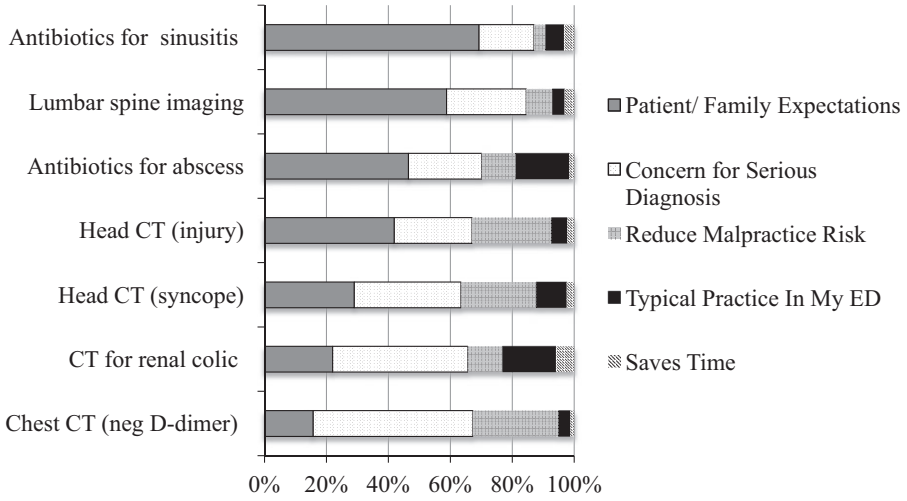

Figure 2. Most important reason for providing low-value services. Listed in order of descending frequency of patient/family expectations as primary reason. IV = intravenous.

perform low-value services despite Choosing Wisely recommendations. Notably, over half of respondents report that they sometimes, often, or always prescribe antibiotics for acute sinusitis and order a head CT for minor head injury despite being low risk per decision rules. Over two-thirds of emergency physicians correctly identified four or five of five recommendations; however, a greater proportion (82.1%) also incorrectly identified a false recommendation as being part of the campaign. Our findings suggest the Choosing Wisely campaign has generally improved awareness of low-value practices, but dissemination of specific clinical recommendations has not been effective, since a minority (less than 5%) of respondents correctly identified all five recommendations in addition to the false recommendation. This gap in knowledge may be a result of lack of knowledge translation activities after ACEP published Choosing Wisely. It is also possible that emergency physicians are more aware of low-value practices as result of other efforts unrelated to Choosing Wisely, such as media attention to out-of-pocket costs and radiation risk associated with CTs, but attribute this awareness to the Choosing Wisely campaign.

The two most frequently cited reasons for providing low-value services were "patient and family expectations" and "concern for serious diagnosis." Emergency physicians identified patient and family expectations as the most important reason for prescribing antibiotics (for both sinusitis and soft tissue abscess) and performing lumbar spine imaging. These findings suggest that interventions targeting different low-value practices may need to take different approaches. For example, tools to facilitate physician–patient communication may reduce utilization of services for scenarios in which emergency physicians identified patient and family expectations as an important factor. Shared decision making (SDM) is one tool has been shown to increase patient knowledge and activation while reducing costs, and prior studies have demonstrated the feasibility and acceptability of SDM in ED settings.[12–15] SDM has been effective in promoting ED discharge among low-risk ED patients with chest pain and decreasing antibiotic use for upper respiratory infections in primary care settings, but may be less effective in the management of low back pain and other diagnostic tests.[16–19] Further research is needed to determine whether SDM can safely and effectively reduce other low-value practices in ED settings. Alternatively, low-value practices for which emergency physicians identified "typical practice" as the most important reason may be amenable to performance improvement efforts, such as those pioneered at Intermountain Healthcare that identify best practice using local opinion leaders and clinical evidence, then reinforce practice using audit and feedback.[20–22] Data registries incorporating measures of cost-effective diagnostic imaging can support such audit and feedback. Finally, financial penalties tied to low-value practices through the CMS Merit-Based Incentive Payment System may also decrease low-value diagnostic testing.[23,24]

Emergency physicians most frequently cited "concern for serious diagnosis" as the primary reason for low-value services related to advanced diagnostic imaging. These findings have significant policy implications because the decision to perform advanced diagnostic imaging is one of the costliest decisions emergency physicians make, second only to the decision to admit.[25] Rates of ED advanced diagnostic imaging continue to increase, without evidence of improved

patient outcomes.[26–28] "Concern for serious diagnosis" as a motivation for advanced diagnostic imaging suggests clinicians may not know or trust the clinical guidelines against imaging and therefore may not know or trust the scientific evidence supporting these guidelines. Some clinicians may have a good understanding of the evidence base, but choose to deviate from guidelines and rely on patient clinical factors or "gestalt," as decision rules are imperfect. To address this, efforts are needed to improve dissemination and implementation of recommendations with strong evidence base, such as not performing CT to evaluate for pulmonary embolus in low-risk patients with a negative D-dimer and not performing CT head for patients with minor head injury who are low risk per clinical decision rules. For other recommendations, such as CT for renal colic, generating more clinical evidence or decision rules are a priority. Alternately, "concern for a serious diagnosis" may represent the tension between population-level evidence and individual patient or physician preferences to mitigate uncertainty. These findings are in line with prior studies inversely correlating emergency physician tolerance of uncertainty with likelihood to perform head CT for trauma patients and abdominal CT for patients with abdominal pain and that higher risk tolerance is associated with lower healthcare utilization and costs.[29–33] Further research on physician risk tolerance is needed to distinguish between fear of missing a serious diagnosis and fear of malpractice. While both contribute to the practice of "defensive medicine," interventions to assess and modify these risks are different; the former may be improved through education and patient-centered interventions, while the latter may require changes in professional and legal standards.[34–37]

Despite prior literature attributing low-value testing to malpractice risk and "defensive medicine," a small percentage of emergency physicians in our study cited "reduce malpractice risk" as the most important reason for delivering low-value practices.[38,39] These findings, in addition to prior studies showing little or no impact of state tort reform on healthcare utilization, suggest that additional interventions beyond tort reform may be needed to reduce low-value services.[40–42] In particular, more research is needed to identify effective strategies to deimplement low-value practices.[43] Reducing utilization of entrenched practices is complex and may require a combination of scientific evidence, cultural norms, patient and physician values, and policy and payment reforms.[44]

LIMITATIONS

Since this was a convenience sample and academic emergency physicians were overrepresented, it is possible that the results are not generalizable to all emergency physicians. However, given that participants were drawn from the largest general practice meeting in emergency medicine, the high response rates, and diversity of survey respondents, we feel that our findings represent the views of a representative proportion of U.S. emergency physicians. Given national attention to rising healthcare costs, it is possible that social desirability bias may have motivated respondents to minimize their self-report of low-value practice behaviors. However, this would have led to an underestimation of low-value services. Our results are also limited by the variable response rates to specific questions and sections. However, items with the lowest response rates (83.9%) were still higher than many previously published survey results. The inclusion of a sixth false recommendation in the knowledge section may have introduced habituation bias, which may lead to an overestimation of positive responses and an underestimation of negative response identifying the false recommendation; however, nearly one in five emergency physicians were still able to identify the false recommendation. We included results related to the Choosing Wisely recommendation to limit antibiotics after abscess incision and drainage despite more recent evidence of improved outcomes among patients who receive antibiotics, because the evidence was not yet published at the time of survey administration.[45] Finally, we assessed primary motivation for low-value services by presenting a limited selection of possible responses. An open-ended question or qualitative study may have been better suited to identify all potential motivations for low-value services; however, the objective of our survey was to identify the single most important factor for each clinical scenario and a qualitative study design would not have permitted us to query such a large sample size. We deliberately selected responses that are amenable to quality improvement efforts and have previously been identified as potential contributors to low-value practices, while excluding those perceived to rarely contribute, such as increased reimbursement.

CONCLUSION

In summary, most emergency physicians are aware of the Choosing Wisely campaign; however, a minority

of respondents correctly identified all recommendations, and a significant proportion reported performing low-value services. Concern for serious diagnosis and patient/family expectations were more often cited as important reasons for delivering low-value services. More work is needed to disseminate and deimplement low-value practices; our findings suggest that de-implementation efforts should be targeted to address specific reasons for low-value services.

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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/10.1111/acem.13167/full

Data Supplement S1. Survey final A.

Data Supplement S2. Survey final B.