

ORIGINAL RESEARCH

Hospitalist Attitudes Toward the Assessment and Management of Dyspnea in Patients With Acute Cardiopulmonary Diseases

Mihaela S. Stefan, MD^{1,2,3*}, David H. Au, MD, MS⁴, Richard A. Mularski, MD, MCR, MSHS⁵, Jerry A. Krishnan, MD, PhD⁶, Eduard T. Naureckas, MD⁷, Shannon S. Carson, MD, MS⁸, Patrick Godwin, MD⁶, Aruna Priya, MS¹, Penelope S. Pekow, PhD^{1,9}, Peter K. Lindenauer, MD, MSc^{1,2,3}

¹Center for Quality of Care Research, Baystate Medical Center, Springfield, Massachusetts; ²Division of General Internal Medicine, Baystate Medical Center, Springfield, Massachusetts; ³Tufts Clinical and Translational Science Institute and Tufts University School of Medicine, Boston, Massachusetts; ⁴Pulmonary Division, Harborview Medical Center, University of Washington Medicine, Seattle, Washington; ⁵Center for Health Research & Department of Pulmonary and Critical Care Medicine, Kaiser Permanente Northwest, Portland, Oregon; ⁶University of Illinois–Jesse Brown VAMC, Chicago, Illinois; ⁷Division of Pulmonary and Critical Care, University of Chicago Medical Center, Chicago, Illinois; ⁸Division of Pulmonary and Critical Care Medicine, University of North Carolina School of Medicine, Chapel Hill, North Carolina; ⁹University of Massachusetts Amherst, School of Public Health Sciences, Amherst, Massachusetts.

BACKGROUND: Dyspnea is a common symptom in patients hospitalized with acute cardiopulmonary diseases. Routine assessment of dyspnea severity is recommended by clinical guidelines based on the evidence that patients are not treated consistently for dyspnea relief.

OBJECTIVE: To evaluate attitudes and beliefs of hospitalists regarding the assessment and management of dyspnea.

DESIGN: Cross-sectional survey.

SETTINGS: Nine hospitals in the United States.

MEASUREMENTS: Survey questions assessed the following domains regarding dyspnea: importance in clinical care, potential benefits and challenges of implementing a standardized assessment, current approaches to assessment, and how awareness of severity affects management. A 5-point Likert scale was used to assess the respondent's level of agreement; strongly agree and agree were combined into a single category.

RESULTS: Of the 255 hospitalists invited to participate, 69.8% completed the survey; 77.0% agreed that dyspnea

relief is an important goal when treating patients with cardiopulmonary conditions. Approximately 90% of respondents stated that awareness of dyspnea severity influences their decision to intensify treatment, to pursue additional diagnostic testing, and the timing of discharge. Of the respondents, 61.0% agreed that standardized assessment of dyspnea should be part of the vital signs, and 64.6% agreed that awareness of dyspnea severity influences their decision to prescribe opioids. Hospitalists who appreciated the importance of dyspnea in clinical practice were more likely to support the implementation of a standardized scale.

CONCLUSIONS: Most hospitalists believe that routine assessment of dyspnea severity would enhance their clinical decision making and patient care. Measurement and documentation of dyspnea severity may represent an opportunity to improve dyspnea management. *Journal of Hospital Medicine* 2015;10:724–730. © 2015 Society of Hospital Medicine

Dyspnea, defined as a “subjective experience of breathing discomfort,”¹ is the seventh most frequent reason adult patients present to the emergency room and the most frequent cause for emergency room visits in patients 65 years or older.² Moreover, dyspnea is experienced by 49% of patients hospitalized with a medical condition^{3–5} and by 70% of patients who are seriously ill.⁶

Based on evidence that patients are not treated consistently and effectively for relief of their shortness of

breath, the American College of Chest Physicians (ACCP) statement on dyspnea management in patients with advanced lung or heart disease recommended that patients should be asked to rate their dyspnea, and the rating should be routinely documented in the medical record to guide management.⁷ Although clinicians may question the utility of routine assessment of dyspnea using a standardized scale, studies have found that the prevalence of dyspnea reported from chart review is much lower than when patients are directly interviewed.⁸ This may be the result of underrecognition of dyspnea or poor documentation by physicians, or that patients may not communicate their symptoms unless the physician specifically asks. As is the case with pain, routine assessment of dyspnea severity could lead to improved clinical management and greater patient-centered care. However, unlike in the case of pain, regulatory bodies, such as the Joint Commission for Accreditation of Healthcare Organization, do not require routine dyspnea assessment.⁹

*Address for correspondence and reprint requests: Mihaela S. Stefan, MD, Department of Medicine, Baystate Medical Center, 759 Chestnut Street, 2nd Floor, Springfield, MA 01199; Telephone: 413-704-8121; Fax: 413-794-8054; E-mail: Mihaela.Stefan@baystatehealth.org

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Currently, there are more than 40,000 hospitalists in the United States, and the vast majority of hospitals with >200 beds have a hospitalist group.¹⁰ Hospitalists care for over 60% of inpatients¹¹ and play a major role in the management of patients with acute cardiopulmonary diseases. If standardized approaches for the assessment and documentation of dyspnea are to be implemented, hospitalists would be a key stakeholder group for utilizing enhanced clinical information about dyspnea. Therefore, we evaluated attitudes and practices of hospitalists in regard to the assessment and management of dyspnea, including the potential benefits and challenges related to the implementation of standardized assessment. We hypothesized that hospitalists would believe that a dyspnea scale for assessment of severity could improve their management of patients with cardiovascular diseases. Further, we hypothesized that physicians who agreed with the general statement that dyspnea is an important clinical problem would be more likely to believe that routine dyspnea assessment would be valuable.

METHODS

Study Sample

We invited 255 attending hospitalists from 9 geographically and structurally diverse hospitals to complete a survey about the assessment and management of dyspnea. The 9 hospitals represent range of practice environments including 4 academic medical centers, 2 community teaching and 3 nonteaching hospitals, 1 Veterans Administration hospital, and 2 staff-model HMOs (see Supporting Table 1 in the online version of this article). The survey was distributed online using REDCap (Research Electronic Data Capture), a secure web-based interface application.¹² A coinvestigator who was a pulmonary critical-care physician at each site sent an initial email to their hospitalist groups that alerted them to expect a survey from the principal investigator. This notification was subsequently followed by an email invitation containing an informational cover letter and a link to the online survey. The cover letter stated that the completed surveys would not be stored at the local sites and that all the analyzed data would be deidentified. Nonrespondents were sent reminders at 2 and 4 weeks after the initial mailing. A \$25 electronic gift card was provided as a gesture of appreciation for their time. The survey was conducted between September 2013 and December 2013.

The study was approved by the Baystate Health Institutional Review Board, Springfield, Massachusetts, with a waiver for written informed consent.

Questionnaire

We developed a 17-item instrument based on a review of the dyspnea literature and a prior ACCP survey.¹² Questions were piloted with 4 hospitalists at a single institution and modified to improve face validity and

clarity (see Supporting Information in the online version of this article for the full survey).

Hospitalists were asked to consider the care of patients admitted for acute cardiopulmonary disease, including heart failure, chronic obstructive pulmonary disease, and pneumonia. A series of 5-point Likert scales were used to assess the respondents level of agreement with statements related to the following domains: the importance of dyspnea in clinical care, the potential benefits and challenges of routine dyspnea assessment (statements such as: "Having a standardized assessment of dyspnea severity would be helpful in management of patients with cardiopulmonary diseases." "Dyspnea assessment by a scale should be part of the vital signs for patients with cardiopulmonary diseases."), and management of dyspnea (questions regarding the use of opioids and other non-pharmacological therapies). Additional questions were asked about current assessment practices (questions such as: "How often do you assess severity of dyspnea?" "What is your approach in assessing dyspnea?" with options of choosing a categorical or numerical scale), if dyspnea is assessed in their institution by nurses and how often, and the influence of dyspnea severity assessment on their management. The survey had 1 question that solicited comments from the participants: "If you don't think that it would be useful to have a standardized dyspnea assessment, please tell us why."

Data Analysis

Responses to survey questions were summarized via counts and percentages in each response category. Adopting the methodology used in the ACCP consensus statement, strongly agree and somewhat agree were combined into a single category of agreement. We also presented percentage of responses in the 2 levels of agreement (strongly agree and somewhat agree) for each question in a bar graph.

Associations between tertiles of physicians' time in practice and attitude toward dyspnea were evaluated via χ^2 or Fisher exact test.

To examine how answers to the first 2 questions, which assessed attitude toward importance of dyspnea in clinical care, affect answers to the remaining questions, we grouped respondents in 3 categories (strongly agree, agree to these questions, do not agree) and tested the associations using χ^2 or Fisher exact test.

All analyses were performed using SAS version 9.3 (SAS institute, Inc., Cary, NC) and Stata release 13.1 (StataCorp, College Station, TX).

RESULTS

Overall, 178 (69.8%) of 255 identified hospitalists completed the survey, and all 9 participating hospitals had a response rate greater than 50%. The median number of years in practice was 6 (range, 0–38 years).

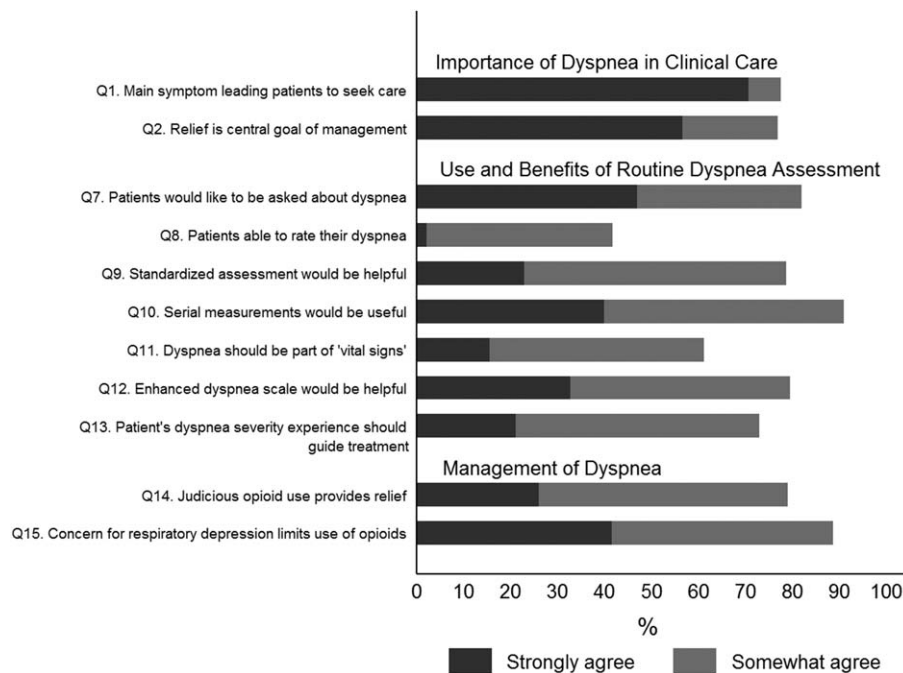


FIG. 1. Attitude and practices regarding dyspnea assessment and management.

A majority (77.5%) of respondents agreed with the statement that dyspnea is 1 of the major symptoms of patients with cardiopulmonary disease, and that its treatment is central to the management of these patients (77.0%) (Figure 1).

Attitude and Practices Surrounding Dyspnea Assessment

When asked about their current assessment of dyspnea, a majority (84.3%) of the hospitalists stated that they assess dyspnea on a daily basis; two-thirds indicated that they use a categorical scale (ie, no shortness of breath, improved or worsened compared with a prior date), and one-third indicated that they ask whether the patient is dyspneic or not. Fifty-six percent of hospitalists stated that dyspnea is regularly assessed by nurses in their hospital.

The majority of respondents agreed (78.6%, 23.0% strongly and 55.6% somewhat agree) that standardized assessment of dyspnea severity, using a numeric scale and serial measurements as part of the vital signs, would benefit the management of patients with cardiopulmonary diseases. Furthermore, 79.6% (33.0% strongly and 46.6% somewhat agree) reported that using a dyspnea scale that included information to further characterize the patient-reported experience, such as the level of distress associated with dyspnea, would be helpful in management.

Approximately 90% of the hospitalists indicated that awareness of dyspnea severity has an influence on clinical decision making, including whether to intensify treatment of underlying conditions, to pursue additional diagnostic testing, or to modify discharge timing. Additionally, two-thirds of hospitalists agreed that awareness of dyspnea severity influences their

decision to add opioids, whereas only one-third prescribed nonpharmacologic symptom-oriented treatment (Table 1).

Forty-two percent of the respondents agreed that patients are able to rate their dyspnea on a scale (2.3% strongly agree and 40.0% agree), and 73.0% indicated that patient experience of dyspnea should guide management independent of physiologic measures such as respiratory rate and oxygen saturation (Figure 1).

Several potential barriers were identified among the 18 participants who did not think that a standardized assessment of dyspnea would be beneficial, including concerns that (1) a dyspnea severity scale is too subjective and numerical scales are not useful for a subjective symptom (19.0%), (2) patients may overrate their symptom or will not be able to rate their dyspnea using a scale (31.0%), or (3) categorical description is sufficient (31.0%).

Practices in Dyspnea Management

Seventy-nine percent of respondents agreed with the statement that judicious use of opioids can provide relief of dyspnea (26.1% strongly and 52.8% agreed), and 88.7% hospitalists identified the risk of respiratory depression as 1 of the barriers for the limited use of opioids. The majority of physicians (60%–80%) considered nonpharmacologic therapies effective for symptomatic treatment of dyspnea, including in the order of agreement: noninvasive ventilation, relaxation techniques, cool air/fan, use of pursed lip breathing, and oxygen for nonhypoxemic patients (Table 1).

TABLE 1. Responses of Hospitalists to Questions Regarding Current Assessment and Management of Dyspnea

	Frequency (%)
When caring for patients with acute cardiopulmonary diseases, how often do you assess severity of dyspnea?*	
At admission	66 (37.1)
At discharge	59 (33.2)
Daily until discharge	150 (84.3)
More often than daily	58 (32.6)
Which description best characterizes your approach to assessing dyspnea severity?	
I don't regularly ask about dyspnea severity	3 (1.7)
I ask the patient whether or not they are having shortness of breath	50 (28.3)
I ask the patient to rate the severity of shortness of breath using a numeric scale	4 (2.3)
I ask the patient to rate the severity of shortness of breath using a categorical scale (eg, somewhat SOB, no SOB, improved or worsened compared with a prior date)	120 (67.8)
When is dyspnea severity assessed and documented by nursing at your hospital?*	
Dyspnea is not routinely assessed	60 (33.7)
At admission	30 (16.9)
Daily	43 (24.2)
Each shift	64 (36.0)
Awareness of dyspnea severity affects my management by:*	
Influencing my decision to intensify treatment of the patient's underlying condition	170 (95.5)
Influencing my decision to pursue additional diagnostic testing	160 (89.9)
Influencing my decision to add pharmacologic-based, symptom-oriented treatment for dyspnea, such as opioids	115 (64.6)
Influencing my decision to add non-pharmacologic-based, symptom-oriented treatment for dyspnea, such as fans or pursed lip breathing technique	58 (32.6)
Influencing my decision regarding timing of discharge	162 (91.0)
Which of the following nonpharmacologic therapies are effective for the relief of dyspnea?*	
Pursed lip breathing	113 (63.5)
Relaxation techniques	137 (77.0)
Noninvasive ventilation	143 (80.3)
O ₂ for nonhypoxemic patients	89 (50.0)
Cool air/fan	125 (70.2)
Cognitive behavioral strategies	101 (56.7)

NOTE: Abbreviations: SOB, shortness of breath. *Survey respondents selected all that apply, so these numbers are not mutually exclusive.

Physician Experience and Attitudes Toward Dyspnea Management

When we stratified hospitalists in tertiles of median years of time in practice (median [range]: 2 [0–4], 6 [5–8] and 15 [9–38]), we did not find an association with any of the responses to the questions.

Attitude Regarding the Importance of Dyspnea in Clinical Care and Responses to Subsequent Questions

Respondents who strongly agree or agree that dyspnea is the primary presenting symptom in patients with cardiovascular condition and that dyspnea relief is central to the management of these patients were

more likely to believe that patients would like to be asked about their dyspnea (61.2% vs 30.2% vs 29.7%). They also had a more positive attitude about the usefulness of a standardized assessment of dyspnea and the inclusion of the assessment of dyspnea by a scale in the vital signs (Table 2).

DISCUSSION

In this survey of 178 most hospitalists from a diverse group of 9 US hospitals, we found that most indicate that severity of dyspnea has a profound influence on their clinical practice (including their decision whether to intensify treatments such as diuretics or bronchodilators, to pursue additional diagnostic testing, add opioids or other nonpharmacological treatments) and ultimately their decision regarding the timing of hospital discharge. More importantly, whereas less than half reported experience with standardized assessment of dyspnea severity, most stated that such data would be very useful in their practice.

Despite being a highly prevalent symptom in diverse patient populations, several studies have shown that documentation of dyspnea is sporadic and evaluation of dyspnea quality of care is not routinely performed.^{13–15} Statements from a number of professional societies, including the ACCP, the American Thoracic Society and the Canadian Respiratory Society, recommend that dyspnea management should rely on patient reporting, and that dyspnea severity should be recorded.^{1,4,7} Assessment is an essential step to guide interventions; however, simply asking about the presence or absence of dyspnea is insufficient.

Several rating scales have been validated and might be implementable in the acute care setting, including the Numerical Rating Scale and the Visual Assessment Scale.^{16–20} Our survey shows that standardized documentation of dyspnea severity in clinical practice is uncommon. However, most hospitalists in our study believed that assessment of dyspnea, using a standardized scale, would positively impact their management of patients with cardiopulmonary disease.

There are a number of potential benefits of routine assessment of dyspnea in hospitalized patients. Implementation of a standardized approach to dyspnea measurement would result in more uniform assessment and documentation practices, and in turn greater awareness among members of the patient-care team. Though not sufficient to improve care, measurement is necessary because physicians do not always recognize the severity of patients' dyspnea or may not recognize its presence. A retrospective study that assessed the prevalence of symptoms in 410 ambulatory patients showed that one-quarter of patients had dyspnea, but only half of them told their doctor about it.²¹ Two other studies of patients with cancer diagnoses found that 30%–70% of patients had dyspnea, but the symptom was recognized in only half of them; even when recognized, dyspnea severity was

TABLE 2. Attitude Regarding the Importance of Dyspnea in Clinical Care and Responses to Subsequent Questions

Description	Do Not Agree, n (%)	Somewhat Agree, n (%)	Strongly Agree, n (%)	P Value*
Which description best characterizes your approach to assessing dyspnea severity?	37 (20.9)	43 (24.3)	97 (54.8)	0.55†
I don't regularly ask about dyspnea severity	0 (0)	0 (0)	3 (3.1)	
I ask the patient whether or not they are having shortness of breath	11 (29.7)	14 (32.6)	25 (25.8)	
I ask the patient to rate the severity of shortness of breath using a numeric scale	2 (5.4)	1 (2.3)	1 (1.0)	
I ask the patient to rate the severity of shortness of breath using a categorical scale (e.g., somewhat shortness of breath, no shortness of breath, improved or worsened compared with a prior date)	24 (64.9)	28 (65.1)	68 (70.1)	
Patients would like me to ask them about their dyspnea.				<0.0001
Somewhat agree	9 (24.3)	21 (48.8)	32 (32.7)	
Strongly agree	11 (29.7)	13 (30.2)	60 (61.2)	
Patients are able to rate their own dyspnea intensity on a scale of 0-10.				0.43†
Somewhat agree	12 (32.4)	16 (37.2)	42 (43.3)	
Strongly agree	2 (5.4)	0 (0)	2 (2.1)	
Having a standardized assessment of dyspnea severity would be helpful to me in management of patients with cardiopulmonary diseases.				0.026
Somewhat agree	17 (46.0)	25 (58.1)	57 (58.2)	
Strongly agree	7 (18.9)	6 (14.0)	28 (28.6)	
Serial measurements of dyspnea would be useful for assessing response to therapy.				0.04†
Somewhat agree	14 (37.8)	28 (65.1)	48 (49.5)	
Strongly agree	16 (43.2)	12 (27.9)	43 (44.3)	
Dyspnea assessment by a scale should be part of the vital signs for patients with cardiopulmonary diseases.				0.04†
Somewhat agree	13 (35.1)	17 (39.5)	51 (52.0)	
Strongly agree	4 (10.8)	5 (11.6)	19 (19.4)	
Using an enhanced dyspnea scale that includes information about the following 4 features 1) Current dyspnea severity, 2) Worst dyspnea ever, 3) Improvement of dyspnea since admission, 4) Acceptability of current level of dyspnea, would be more helpful for my management than a single question focused on dyspnea severity.				0.03
Somewhat agree	14 (40.0)	24 (55.8)	44 (44.9)	
Strongly agree	9 (25.7)	9 (20.9)	40 (40.8)	
The patients' experience of dyspnea should be used to guide treatment decisions independent of objective measures such as respiratory rate and oxygen saturation.				0.10
Somewhat agree	20 (54.0)	21 (48.8)	51 (52.0)	
Strongly agree	5 (13.5)	6 (14.0)	27 (27.6)	
Judicious use of oral and/or parenteral opioids can provide relief of dyspnea.				0.21
Somewhat agree	20 (54.0)	23 (54.8)	50 (51.6)	
Strongly agree	10 (27.0)	6 (14.3)	30 (30.9)	
Limited use of opioids for relief of dyspnea in patients with advanced cardiopulmonary disorders is often due to concerns of respiratory depression.				0.71
Somewhat agree	17 (46.0)	23 (54.8)	43 (43.9)	
Strongly agree	15 (40.5)	14 (33.3)	45 (45.9)	

*Chi-square test

†Fisher's exact test

frequently underrated by physicians.^{21,22} Importantly, underestimation appears to correlate with underutilization of symptomatic management of dyspnea.⁸

Although the results of our survey are encouraging, they highlight a number of potential barriers and misconceptions among hospitalists. For example, although dyspnea can be characterized only by the person experiencing it, only 42% of our survey respondents believed that patients are able to rate their dyspnea intensity on a scale. Some of these responses may be influenced by the fact that dyspnea scales are not currently available to patients under their care. Another explanation is that similar to the case for pain, some hospitalists may believe that patients will exaggerate dyspnea severity. Almost one-third of the respondents stated that objective meas-

ures, such as respiratory rate or oxygen saturation, are more important than a patient's experience of dyspnea in guiding the treatment, and that dyspnea is a subjective symptom and not a vital sign itself. Hospitalists who appreciated the importance of dyspnea in clinical practice were more likely to support the implementation of a standardized dyspnea scale for dyspnea assessment.

Although the potential benefits of including routine measurement of dyspnea in standard hospital practice may seem obvious, evidence that implementing routine assessment improves patient care or outcomes is lacking. Even if hospitalists see the value of dyspnea assessment, asking nurses to collect and document additional information would represent a substantial change in hospital workflow. Finally, without specific

protocols to guide care, it is unclear whether physicians will be able to use new information about dyspnea severity effectively. Future studies need to evaluate the impact of implementing routine dyspnea assessment on the management of patients with cardiopulmonary diseases including the use of evidence-based interventions and reducing the use of less valuable care.

Most hospitalists agreed with the basic principles of dyspnea treatment in patients with advanced cardiopulmonary disease after the primary disease had been stabilized. Effective measures are available, and several guidelines endorse opioids in dyspnea management.^{1,4,7} However, many clinicians are uncomfortable with this approach for dyspnea, and opioids remain underused. In our study, almost 90% of physicians recognized that concerns about respiratory depression limits opioids use as a treatment. A qualitative study that explored the physicians' perspective toward opioids showed that most physicians were reluctant to prescribe opioids for refractory dyspnea, describing a lack of related knowledge and experience, and fears related to the potential adverse effects. The findings of our study also outline the need to better educate residents and hospitalists on the assessment and management of dyspnea, including prescribing opioids for refractory dyspnea.²³

Study Strengths and Limitations

This study has several strengths. To our knowledge, it is the first to explore hospitalists' perspectives on incorporating dyspnea assessment in their clinical practice. Hospitalists are the attending physicians for a large majority of inpatients and would be the main users of a dyspnea severity scale. Our questionnaire survey included a large number of hospitalists, from 9 geographically and structurally diverse hospitals, which increased the generalizability of the findings to other hospitals around the country.

The study also has several limitations that need be kept in mind in interpreting the study results. First, desirability bias may have exaggerated some of the positive views expressed by hospitalists toward implementation of routine assessment of dyspnea. Second, because this was a survey, the estimates of dyspnea assessment and documentation practices of both physicians and nurses were based on the respondents' perception and not an objective review of medical records, and the results may be different from actual practice. Third, this was not a population-based random sample of hospitalists, and it may not be entirely representative; however, those surveyed were from a diverse set of sites with different geographical location, size, academic affiliation, and practice environment, and their time in practice varied widely. Last, we do not have information on nonrespondents, and there is a possibility of nonresponse bias, although the high response rate lessens the risk.

CONCLUSIONS

The results of this survey suggest that most hospitalists believe that routine assessment of dyspnea severity would enhance their clinical decision making and improve patient care. Standardized assessment of dyspnea might result in better awareness of this symptom among providers, reduce undertreatment and mistreatment, and ultimately result in better outcomes for patients. However, implementation of the routine assessment of dyspnea would change current clinical practices and may have a significant effect on existing nursing and physician workflows. Additional research is needed to determine the feasibility and impact on outcomes of routine dyspnea assessment.

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