

EDITORIAL COMMENT

Supporting Clinical Decision-Making in Emergency Departments With Patient-Reported Outcome Measures*



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Optimal dyspnea management varies substantially due to causative and underlying conditions, such as cardiovascular or pulmonary disease. Accurate risk stratification is thus critical for informing clinical treatment practices for patients with acute dyspnea who present in the emergency department (ED). Risk prediction can support rapid triage of those requiring immediate attention and aid clinician decisions regarding patient admission, discharge, and re-evaluation scheduling.

Clinical measures for predicting mortality risk have been a pivotal focus of previous research. In the current issue of *JACC: Advances*, Belkin et al¹ report the prognostic value of the Duke Activity Status Index (DASI) for patients with acute dyspnea presenting to the ED. Originally developed by Hlatky et al² using peak oxygen uptake as an indicator of cardiovascular fitness and aerobic endurance, this 12-item questionnaire was designed to measure patient-reported exercise capacity. On the DASI, patients report their current or recent ability to conduct daily activities ranging from “eating, dressing, bathing, or using the toilet” to “participating in strenuous sports like swimming, singles tennis, football, basketball or skiing,” and results indicated a strong correlation of DASI scores with patient functional status.² The recent work by Belkin and colleagues demonstrates that the DASI yields high prognostic accuracy for 90- and

720-day all-cause mortality, suggesting its strong potential as a tool for clinical risk stratification.

One strength of Belkin’s study is the integration of the DASI as a standardized method of data collection within clinical care. To date, informal measures of functional capabilities have often been collected by clinicians through nonstandardized questioning during patient encounters. Unstandardized methods of data collection, however, are prone to variations in clinicians’ questions and potential differential patient interpretation. As a low-cost, low-resource, and noninvasive measure of exercise capacity, the DASI may provide a simple, standardized, and time-efficient method of directly obtaining these data within the ED. Following the promising prognostic results reported by Belkin et al¹, future opportunities may now be envisioned to expand this work to support patient-reported outcome (PRO) measure completion and to improve prognostic prediction in the ED setting.

VISIONS FOR THE FUTURE: CONSIDERATIONS TO STRENGTHEN AND FACILITATE DASI USE IN EDs

Improving completion rates and reducing missingness among patient-reported DASI scores in the ED is an important consideration for future studies. Indeed, within Belkin’s study, approximately one-half of individuals at baseline were missing a DASI score, potentially compromising the value of the findings and limiting interpretability within clinical settings. One reason for missingness may be the additional time and resource burden required to complete the DASI in the ED or soon after discharge, particularly for patients with more severe disease. Another cause, as the authors discussed, could be the prognostic nature of completing the DASI itself. It is

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possible that individuals who completed the DASIS were healthier or more capable of completing the questionnaire than others.³ Future studies therefore may wish to consider what unique factors are influencing the completion of DASIS scores, and confirm results with with stronger response rates on the DASIS.

Several recommendations have been provided to enhance completion rates of PRO measures in clinical care, although application of these recommendations within ED settings is unclear. Clinician and administrative engagement are associated with better response rates,⁴ and standardized staff procedures may maximize DASIS completion. Alternatively, for research efforts, an onsite study coordinator and targeted staff training can also improve completion.⁵ Future studies could also evaluate the impact of offering multiple modes of DASIS administration, including paper and digital formats. This practice increases the likelihood of completion by ensuring options for patient mode preferences. Belkin et al¹ found a poor reception of the sexual relations item on the DASIS by some patients. As demonstrated by Riedel et al⁶ a shortened version of the DASIS may facilitate completion rates by reducing time to completion and omitting potentially difficult aspects of the questionnaire. Importantly, optimizing DASIS administration methods to reduce missingness in the ED will require input from both patients and ED clinicians, due to their firsthand experience with facilitators and barriers with questionnaires in the ED setting.

Failure to address issues of missingness could widen health care inequities among patients in underserved groups. Individuals with low literacy levels or cognitive impairment, for example, may find responding to the DASIS a difficult and overwhelming task in the ED, thus preventing accurate risk assessment and care.⁷ There are, however, alternative options for individuals who are unable or unwilling to complete the DASIS in the ED. Proxy responses for physical function measures may be acceptable from individuals who are familiar with the patient, such as a significant other, a cohabiting family member, or in some cases a health care provider. Due to the observable nature of physical function, level of agreement between self- and proxy-reported measures is generally higher than other health related quality of life measures.⁸ Proxy measures should, however, be used only where the patient ability to complete a survey is compromised. As there is some risk of proxy underreporting of physical function; guidelines for appropriate and valid proxy-reported questionnaires would be beneficial in supporting the use of PRO measures in the ED.⁹

The Belkin et al¹ study was conducted in Switzerland. Although the DASIS has been translated from its original U.S. English version to other languages, few studies have explored cultural adaptations of the DASIS. As an example, specific items on the DASIS refer to patient capacity for participation in football, basketball, and bowling. These sports, however, may not be popular across all cultures, potentially making it more difficult for patients to respond to items. Unfortunately, many published translations and cultural adaptations of the DASIS lack qualitative identification of the reason for alternative interpretations across cultures.¹⁰ To optimize the validity of the DASIS in EDs across cultures, future studies may wish to conduct critical qualitative steps to ensure content validity.

Results from the Belkin et al¹ study support the application of the DASIS as a prognostic and screening tool for establishing patient triage when presenting with acute dyspnea in the ED. Another opportunity to build on this work is to identify DASIS score cut points using logistic regression and receiver operating characteristic curves to facilitate interpretation of scores quickly in the ED. It will also be important to next assess the impact of the DASIS for the management of dyspnea and to determine whether it indeed supports faster triage and improves outcomes. Interestingly, in 2012, Eurlings et al¹¹ developed a multi-marker strategy for short-term risk assessment in patients with dyspnea in the ED, suggesting the potential for combining the DASIS with clinical biomarkers to develop a superior predictor of mortality.

In conclusion, Belkin et al¹ offer a unique alternative to clinical-only predictors of mortality in individuals presenting with acute dyspnea in the ED. The DASIS is a simple, low-resource, noninvasive strategy which supports clinical decision-making in ED settings. Future research should focus on opportunities to improve completion rates, ensure content validity across cultures, and examine implementation strategies to balance intense needs associated with the ED.

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