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Case-based educational intervention to assess change in providers' knowledge and attitudes towards the 2013 American College of Cardiology/American Heart Association Cholesterol Management Guideline

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ABSTRACT

Objective: Prior studies have shown provider-level knowledge gaps regarding the 2013 American College of Cardiology/American Heart Association guideline on the treatment of cholesterol and concerns about 10-year atherosclerotic cardiovascular disease (ASCVD) risk estimation. The effect of an educational intervention to mitigate knowledge gaps is unknown.
Methods: We developed a questionnaire and administered it to providers before (pre-training) and after (post-training) a case-based educational intervention across 6 sites in Texas. The intervention highlighted the key recommendations of the 2013 guideline and the differences from the prior guideline mainly using clinical-vignettes. Several practice pertinent items were also discussed.
Results: Most participants were providers-in-training (78%) in internal medicine (68%). Compared to pre-training, the post-training metrics were: 43% vs. 82% for providers' ability to identify 4 statin benefit groups; 47% vs. 97% for their awareness of the ASCVD risk threshold of $\geq 7.5\%$ to initiate discussion about risks/benefits of statin therapy; 9% vs. 40% for awareness of differences between the Framingham and the ASCVD risk estimator; 26% vs. 78% for awareness of the definition of statin intensity; 35% vs. 62% for using a repeat lipid panel to document treatment response and adherence; and 46% vs. 81% for confidence in using the ASCVD risk estimator, respectively.
Conclusions: A case-based educational intervention was associated with significant increase in providers' knowledge towards the 2013 cholesterol guideline, which could be related to the engaging nature of our

intervention, using practice pertinent information and clinical vignettes. Such interventions could be useful in effective dissemination of the cholesterol guideline.

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1. Introduction

The 2013 American College of Cardiology/American Heart Association (ACC/AHA) guideline on the treatment of blood cholesterol published in November 2013 made some fundamental changes in the approach to treating blood cholesterol [1]. Some of the changes compared with the prior guideline [2] included the use of a new 10 year atherosclerotic cardiovascular disease (ASCVD) risk estimator, and a shift in focus from a "treat to low-density lipoprotein cholesterol (LDL-C) target" to a "treat to risk" based approach with moderate-high intensity statin therapy. The 2013 ACC/AHA guideline continued to emphasize the recommendations for lipid testing after initiation of statin therapy to monitor response and adherence as in the prior guideline (national cholesterol education program – adult treatment panel III [ATP-III] report). In addition, the 2013 guideline identified 4 specific patient groups who benefit from statin therapy based on randomized clinical trials.

The 2013 guideline was controversial [3–6], because of these fundamental deviations in its recommendations compared to the prevailing guideline [2] and contemporary practice. There was a concern that using the 2013 guideline significantly more individuals would be eligible for statin therapy, mostly older adults in the primary prevention group [4]. Statin therapy in real world practice has been suboptimal [7–9], with one of the important reasons related to gaps in providers' knowledge and attitudes towards the 2013 cholesterol guideline [10,11]. A recent study found several provider-level gaps in their knowledge of key elements of the 2013 ACC/AHA cholesterol guideline [11]. Therefore, the purpose of the current study was to assess whether a case-based educational intervention, using a conceptual framework [12], primarily targeting provider-level gaps, could increase providers' knowledge towards the 2013 ACC/AHA guideline on the treatment of blood cholesterol.

2. Materials and methods

2.1. Questionnaire development

Domains pertinent to knowledge and attitude towards the 2013 ACC/AHA cholesterol management guideline were captured in the questionnaire using the Cabana's conceptual model [12] as used in prior studies related to cholesterol management [11,13,14]. Knowledge gaps assessed include providers' familiarity with the 2013 guideline; 10 year ASCVD risk estimator and its difference from the Framingham coronary heart disease (CHD) risk estimator as recommended by the prior ATP-III guideline document; intensity of statin therapy; 4 groups that could benefit from statin therapy (patients with clinical ASCVD; patients with diabetes aged 40–75 years and without clinical ASCVD; patients aged 40–75 years without clinical ASCVD or diabetes and with 10-year ASCVD risk ≥7.5%; and patients with possible familial hypercholesterolemia [FH, i.e., with LDL-C ≥190 mg/dL]). Gaps in attitude included assessment of providers' agreement with the guideline and 10-year ASCVD risk estimator and the providers' belief that he/she can perform guideline-recommended care. We also assessed whether a provider believed in repeating a lipid panel in a patient with

myocardial infarction (MI) after recently starting statin therapy; and whether he/she used LDL-C as a treatment target. Most questions were presented in a multiple choice format, with some questions presented on a likert scale. Details about the questionnaire have been described separately. (*Data in Brief* reference).

2.2. Questionnaire administration and educational intervention

The questionnaire was refined with the help of a psychometrician and pre-tested in 11 providers [11]. The final questionnaire included 23 items and demographic variables. Approximately 1 year after initial publication of the 2013 guideline, we administered a paper-based questionnaire to internal and family medicine, cardiology and endocrinology providers (n = 150) attending educational conferences at 6 Texas sites between 9/2014-4/2015. The questionnaire included a cover sheet explaining the purpose of the study, informing participants that no identifying information would be collected and that participation was voluntary. There was no remuneration for study participation. Ten to 15 min after handing out the survey, providers were instructed to return their completed surveys (pre-training). A provider who initially refused to fill out the survey or did not return the survey was considered a non-responder.

The educational intervention was based on formal didactics and 7 clinical vignettes to describe the key points of the 2013 guideline and outline its differences from the prior guideline. The ACC has presentation slides for educational purposes on their websites, and the educational material in our didactic sessions and clinical vignettes were borrowed from this website. Attention was given to the evidence behind the new guideline document, the evidence for the shift away from treat-to-target approach, the 4 statin benefit groups, the definition for statin intensity as discussed in the 2013 guideline, and recommendations for lipid testing after starting statin therapy to document adherence and response to statin therapy. We also discussed the process of how the new ASCVD risk estimator estimated risk and the key differences between the ASCVD risk estimator and the Framingham CHD risk estimator as recommended by the ATP-III guideline. Specifically, the 2013 ASCVD risk estimator is race-specific (for Caucasians and African Americans) and assesses 10-year risk of cardiovascular disease (including both fatal and non-fatal MI plus fatal and non-fatal ischemic stroke) as opposed to the Framingham CHD risk estimator (which only provides risk for fatal and non-fatal MI). We also discussed several controversies associated with the new guidelines, such as lack of robust evidence related to some of the recommendations when compared with other recommendations of the new guideline; controversies about the new ASCVD risk estimator; concern for overtreatment with statin therapy in the primary prevention cohort; and controversy associated with a move away from the LDL-C goal based treatment approach. We then used hypothetical patient cases to illustrate several key points pertinent to the objectives of the current study including the 4 statin benefit groups, identification and treatment of a potential FH patient, discussion of risks and benefits of statin therapy and the importance of assessing patient adherence in lipid management. To make the didactics engaging and interactive, we also discussed several other practice pertinent items related to statin therapy, including the