

Original Article

Clinical pharmacist understanding of the 2013 American College of Cardiology/American Heart Association cholesterol guideline

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BACKGROUND: Clinical pharmacists are frequently involved in the management of dyslipidemia, yet clinical pharmacists' knowledge, awareness, and the level of agreement with the 2013 American College of Cardiology (ACC)/American Heart Association (AHA) cholesterol guideline are unknown.

OBJECTIVE: The objective of the study was to examine clinical pharmacists' knowledge, awareness, and the level of agreement with the 2013 ACC/AHA cholesterol guideline.

METHODS: We administered a validated questionnaire via an online survey that was electronically mailed to clinical pharmacists. We compared responses between those in practice for ≤ 10 and those in practice for > 10 years, and according to practice specialty.

RESULTS: The response rate was 11% (314 of 2845). Most respondents were from the Midwestern and Southeastern US, in practice for ≤ 10 years, and practiced in family practice/primary care. Nearly all (92%) respondents had read the guideline and 72% were able to identify the 4 statin benefit groups. Notable knowledge gaps included recalling the 4 outcomes of the 10-year atherosclerotic cardiovascular disease (ASCVD) risk estimator (41.4%), understanding differences between the Framingham Risk Score and the ASCVD risk estimator (33.7%), and monitoring lipids after initiating a statin (41.1%). More knowledge gaps were identified in those practicing for > 10 years and who specialized in internal medicine. The use of the ASCVD risk estimator was high; yet nearly half (44.2%) were concerned whether the ASCVD risk estimator would overestimate 10-year ASCVD risk.

CONCLUSION: Although most clinical pharmacists had read the 2013 ACC/AHA cholesterol guideline, several knowledge gaps were identified, especially among those with more experience and those practicing in internal medicine. Targeted education efforts are needed to address these gaps.
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Introduction

In 2013, the American College of Cardiology (ACC) and American Heart Association (AHA) released a new guideline on the management of blood cholesterol to reduce atherosclerotic cardiovascular disease (ASCVD).¹ There were several notable differences between this guideline compared to the previous Adult Treatment Panel (ATP) III guideline.² Traditional goals of therapy for low-density lipoprotein cholesterol (LDL-C) were exchanged for a risk-based approach and the use of moderate- and high-intensity statins at fixed doses. In addition, no recommendations were made for or against the use of specific LDL-C or non-high-density lipoprotein cholesterol goals. Furthermore, a new 10-year ASCVD risk estimator was recommended in place of the Framingham Risk Score.³

It is well recognized that evidence-based practice guidelines are slowly adopted in clinical practice.⁴⁻⁶ In fact, a report from the Institute of Medicine found that it takes approximately 17 years for medical knowledge to be incorporated into clinical practice.⁷ A recent study by Pokharel et al⁶ evaluated the adoption of the 2013 ACC/AHA cholesterol guideline using preguideline and postguideline registry data from cardiology practices across the United States and demonstrated that early adoption of the 2013 ACC/AHA cholesterol guideline was modest at best, as utilization of moderate- and high-intensity statins was relatively unchanged from before publication of the cholesterol guideline. The authors suggested that likely explanations for these findings included disagreement and controversy over the 2013 ACC/AHA cholesterol guideline and lack of understanding of the cholesterol guideline.

There is a clear need to identify gaps in knowledge and understand if there is a low level of awareness of the 2013 ACC/AHA cholesterol guideline among health care professionals. While several studies have evaluated attitudes and knowledge gaps among physicians, there is little to no evidence regarding the attitudes and knowledge gaps among nonphysicians.^{5,8,9} This is important given the emphasis on using a team-based care approach to care.¹⁰

Clinical pharmacists have increasingly become involved in the provision of direct patient care, especially in the management of cardiovascular risk factors.^{10,11} Furthermore, significant evidence has demonstrated the effectiveness of pharmacist-physician collaborative care models in improving achievement of treatment goals for chronic conditions, such as dyslipidemia.¹²⁻¹⁵ Based on this evidence and emphasis on team-based cardiovascular care, the ACC endorsed advanced practice providers, including pharmacists, as integral members of the cardiovascular team.¹⁰ Given the expanding role of clinical pharmacists in managing patients with dyslipidemia, it seems prudent to evaluate attitudes and potential knowledge gaps among clinical pharmacists.

The goal of this study was to examine clinical pharmacists' knowledge, awareness, and the level of agreement with the 2013 ACC/AHA cholesterol guideline and the ASCVD risk estimator using a questionnaire survey.

Methods

We used a validated questionnaire previously developed by Virani et al^{8,16,17} to identify barriers in the implementation of the 2013 ACC/AHA cholesterol guideline and appropriate use of the ASCVD risk estimator in the 3 domains of provider knowledge, attitude, and behavior. These 3 domains were based on a conceptual model described by Cabana et al.⁹ Importantly, the questionnaire focused on class I recommendations given these are recognized as generally appropriate for most patients. Knowledge gaps included provider's lack of familiarity with the guideline, which constitutes low-, moderate-, and high-intensity statin therapy, lack of familiarity with the 4 statin benefit groups (clinical ASCVD, LDL-C \geq 190 mg/dL, those with diabetes aged 40–75 years, those with 10-year ASCVD risk \geq 7.5%), a lack of awareness regarding the outcomes calculated by the 10-year ASCVD risk estimator, the differences between the ASCVD risk estimator and the Framingham Risk Score, and a provider's lack of awareness that LDL-C \geq 190 mg/dL could identify patients with phenotypic familial hypercholesterolemia (FH).

Gaps in attitude included a lack of agreement with the guideline, pharmacist's belief that the use of the ASCVD risk estimator will either underestimate or overestimate the true 10-year ASCVD risk in their patients, and lack of outcome expectancy (pharmacist's belief that following the guideline will not improve cardiovascular outcomes in his or her patients). Organizational and practice barriers evaluated by the original survey were revised to include demographic questions regarding practice or training specialty, practice area, number of years in practice, and board certification. The reasons for provider's inability to follow the 2013 ACC/AHA cholesterol guideline were also evaluated.

The original questionnaire developed by Virani et al⁸ was pilot tested with 11 providers, including a mix of internists, cardiologists, and an endocrinologist and refined based on responses. Following this, a psychometrician conducted a one-on-one session with an internist, in which questions were individually discussed to evaluate whether any question or responses were ambiguous or did not capture its intended purpose. For purposes of our study, the same questionnaire was reviewed by investigators D.L.D. and J.B., and by 2 clinical pharmacists not involved with the study. Each deemed the original questionnaire to be appropriate for clinical pharmacists without recommending changes with the exception of the information related to practice setting and specialty, and board certification (Supplemental Fig. 1).

SurveyMonkey was used to administer the web-based questionnaire, which was emailed to 2845 licensed clinical pharmacists who were unique members of the American College of Clinical Pharmacy (ACCP) and belonging to one of the following practice and research networks: Ambulatory Care, Cardiology, or Adult Internal Medicine. Only one response was allowed per respondent to minimize the

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