

REDUCING CARDIOVASCULAR RISK

STAKEHOLDER MEETING PROCEEDINGS REPORT

TABLE OF CONTENTS

Executive Summary.....	3
Meeting Background and Goals	3
Background: Hypertriglyceridemia and Treatment.....	4
Health Care Professional Triglyceride Survey Review and Consensus Development.....	4
• Diagnosing and Treating Hypertriglyceridemia.....	5
• Barriers to Treatment.....	5
• Knowledge Regarding Hypertriglyceridemia	6
• Treatments for Hypertriglyceridemia	6
• Patient Interactions with Health Care Providers	7
Patient Triglyceride Survey Review and Consensus Development.....	7
• Patient Perspectives on Medication Use	7
Reviewing REDUCE-IT Results.....	8
Action Plan Discussion	9
References	10
Appendix A: Agenda.....	11
Appendix B: Participant Biographies.....	12
Appendix C: Presentation	17
Appendix D: Health Care Professional Survey Results.....	29
Appendix E: Patient Survey Results.....	39

Executive Summary

On November 15, 2018, the American Pharmacists Association (APhA) convened a multidisciplinary stakeholder conference to explore recent data related to triglycerides. Stakeholders had the opportunity to review data from recent surveys of patients and health care providers that assessed perceptions and experiences regarding the treatment of hypertriglyceridemia. They also had the opportunity to hear a presentation by one of the authors of the recently-released REDUCE-IT trial, which found that icosapent ethyl significantly reduced the risk of ischemic events, including cardiovascular death, compared with placebo.

Health care providers who responded to the survey were mostly nurses/nurse practitioners and pharmacists; fewer physicians participated. Respondents were inconsistent regarding the triglyceride level at which they initiated treatment for patients with hypertriglyceridemia. Stakeholders felt that this finding revealed confusion based on a lack of harmonized treatment guidelines and a need for further education.

Poor adherence to treatment was reported as a key barrier for patients who are prescribed therapy. Stakeholders observed that poor adherence is common in patients who receive chronic preventive therapy and that interventions that address behavior change are needed. They discussed some interventions that have been shown to improve adherence in these patient populations and shared that education provided by a pharmacist combined with point-of-care testing demonstrating improvements in laboratory values has been proven to be an effective intervention. They observed that face-to-face interactions appear to be particularly effective when compared with impersonal interventions such as shelf-talkers.

A substantial proportion of health care provider survey respondents indicated that they recommended fish oil dietary supplements; particularly for patients whose triglyceride levels are not very high. Stakeholders observed a need for more education for both providers and patients regarding the distinctions between fish oil dietary supplements and prescription omega-3 fatty acid products. Finally, a need was identified for resources that health care providers can use to support shared decision-making and patient education interventions.

Patient survey results suggested a moderate level of knowledge and awareness regarding triglycerides; however, participants overserved that these respondents self-selected to participate and may not be representative of the national population. Patients reported that side effects, total number of medications taken, and costs were important considerations when

considering whether to take a medication to treat hypertriglyceridemia.

Survey results from both health care providers and patients suggested a need for additional educational interventions. Stakeholders observed that many educational resources already exist and that successful interventions would need to consider how to make resources accessible at the point-of-care and to ensure that the resources would be effective for supporting patient-centered care and shared decision making. Opportunities to leverage existing health information technology systems to make such information available were discussed, but stakeholders observed that several barriers (e.g., need for interoperable systems) will need to be addressed in order for this communication channel to operate effectively.

Stakeholder observations regarding the REDUCE-IT trial indicated a perception that the availability of data that demonstrate a significant reduction in risk for cardiovascular outcomes may stimulate more interest in treatment of hypertriglyceridemia. They suggested that a treatment that significantly reduces residual risk in patients receiving statins represents an important advance. However, they observed that it often requires many years to incorporate research-based findings in clinical practice and that educational interventions would be necessary to support change and overcome clinical inertia. They also indicated that updated harmonized treatment guidelines would be helpful.

Stakeholders concluded with several recommendations for activities to support awareness of the importance of triglycerides and educational interventions for patients and health care providers to promote treatment interventions aligned with research-based best practices.

Meeting Background and Goals

On November 15, 2018, the American Pharmacists Association (APhA) convened a multidisciplinary stakeholder conference to explore recent data related to triglycerides.

The intended outcomes of the conference were to:

Inform attendees about results from a recent health care professional survey on triglycerides and develop consensus on action steps for creating and curating content and messaging on current outcomes and risk associated with elevated triglyceride levels even with controlled/normal serum cholesterol.

Inform attendees about results from a recent patient survey on triglycerides and develop consensus on action steps for creating and curating content and

messaging on current outcomes and risk associated with elevated triglyceride levels even with controlled/normal serum cholesterol.

Inform attendees about results of late-breaking randomized controlled trial outcomes and risk associated with elevated triglyceride levels even with controlled/normal serum cholesterol along with consensus development about implications for health care professionals and patients.

Identify specific advocacy efforts, information, messaging, resources, stakeholder collaborations, and tools that can support risk reduction and improved population health for patients with elevated triglyceride levels.

Stakeholder participants included representatives from a variety of national health care professional organizations and patient advocacy organizations. A complete list of stakeholders who participated in the meeting and their biographical sketches are included in Appendix B.

Background: Hypertriglyceridemia and Its Treatment

Triglycerides are a type of fat that allows the transfer of fat and blood glucose from the liver. When triglyceride levels are elevated, the risk for the development of atherosclerosis increases. Additionally, observational studies have shown that elevated triglyceride levels are associated with increased risk of cardiovascular disease (CVD) and all-cause mortality. However, the relationship between high triglycerides and CVD is not as strong as the relationship between low-density lipoprotein cholesterol (LDL-C) and CVD, and LDL-C is a primary treatment target for the prevention of CVD.

Statins are the mainstay of treatment for lowering LDL-C and these agents significantly decrease CVD risk and mortality in high-risk patients. However, patients using statins are still at substantial risk for CVD, and elevated triglycerides can serve as a predictor for this residual risk.

Rates of elevated triglycerides are high in the U.S. population, affecting almost one-quarter of men and almost one-third of women older than 60 years of age. Adult blood levels of triglycerides are classified by the American Heart Association (AHA) as follows:

AHA Triglyceride Classifications for Adults	
Classification	Lab Value
Desirable	<150 mg/dL
Borderline high	150–199 mg/dL
High	200–499 mg/dL
Very high	≥500 mg/dL

Additionally, AHA states that optimal triglyceride levels are <100 mg/dL and the risk for CVD begins to rise as concentrations increase above that level.

In patients whose triglycerides remain elevated despite LDL-C management, additional interventions may be implemented. In all patients with elevated triglycerides, addressing secondary causes through intensive lifestyle interventions is central to treatment. For patients in whom lifestyle modifications are insufficient, omega-3 fatty acids and fibrates may be used as first-line therapies. Other options include niacin and high-dose statin therapy.

Prescription omega-3 fatty acids—Epanova (omega-3-carboxylic acids), Lovaza (omega-3-acid ethyl esters), and Vascepa (icosapent ethyl)—are approved for the treatment of hypertriglyceridemia (≥500 mg/dL) as an adjunct to diet. As prescription products, they undergo the same strict U.S. Food and Drug Administration (FDA) regulation processes as other prescription medications. “Fish oils” also contain omega-3 fatty acids and are available as dietary supplements. Although the FDA does regulate some aspects of dietary supplements, the manufacturers of these products are not required to demonstrate that they are safe or effective. There is substantial variability in content and purity among formulations of fish oil dietary supplements, and they do not necessarily contain the same active components as prescription omega-3 products.

Health Care Professional Triglyceride Survey Review and Consensus Development

Stakeholders reviewed data from a survey of multidisciplinary health care professionals fielded from September 29 through October 31, 2018 (Appendix D). A total of 1,548 health care professionals responded to the survey. Stakeholders noted that the sample size is large enough to represent health care professionals in the United States.

The majority of respondents were nurses or nurse practitioners (52%), followed by pharmacists (22%), and physicians (9%). Stakeholders noted that it may be helpful to conduct additional research to better understand the experiences of physicians. They also observed that the care model for patients with elevated triglycerides may include primary care and several types of specialists and other professionals as a component of coordinated care teams. Additional analysis of results based on professional groupings could provide additional insights.

Among pharmacists, the largest percentages of respondents worked in chain pharmacies (15%), ambulatory care clinics (13%), and independent pharmacies

(11%). Among other providers, 50% worked in primary care settings and 25% worked in specialty clinics. The stakeholders noted that primary care providers are typically involved in diagnosing dyslipidemia and starting patients on statins. Forty-three percent of respondents reported being a part of a health care system; stakeholders noted that many providers work in private clinic settings owned by health systems, so this finding does not necessarily indicate that respondents work in hospital-based settings.

The stakeholders also noted that individuals employed in health systems often have electronic health record (EHR) systems that allow patient data to be shared among members of patient care teams. Although there are currently limitations to the use of EHR systems, stakeholders felt that leadership could encourage updates to EHRs to better support the use of data to improve patient care and careful incentive alignment that provides reimbursement for improved patient outcomes would help drive changes. Stakeholders noted that there might be fewer abandoned prescriptions if there are more discussions around cost. They also stated that having formulary information at the point-of-care and embedded within EHR systems would be helpful.

About two-thirds of respondents reported seeing up to 30 patients with dyslipidemia per week. However, 5% saw more than 100 patients per week. Stakeholders observed that providers who see more than 100 patients per week likely work in busy specialty practices.

Diagnosing and Treating Hypertriglyceridemia

Survey respondents were queried regarding the risk factors they evaluate when diagnosing hypertriglyceridemia. As might be expected, diet and weight were the most common. Stakeholders observed that there could be interpretation issues for some of the answer options. For example, some of the answer options were risk factors; yet, some lab values (e.g., TRG levels) could be used for diagnosis. Thus, respondents may have interpreted the answer options in several ways when responding to the survey.

Respondents were also asked to rank several factors in terms of cardiovascular risk. High-density lipoprotein cholesterol (HDL) was ranked lower than LDL, and stakeholders noted that HDL has not been as closely monitored by the health care community in recent years.

When asked at what level they begin treatment for hypertriglyceridemia, 34% of respondents said they start treatment at ≥ 500 mg/dL. Stakeholders noted this

finding suggests that health care professionals are not familiar or comfortable with triglyceride medications, or that they are not comfortable prescribing early and are more likely to start treatment with lifestyle modifications. On the other hand, guidelines are not consistent regarding when hypertriglyceridemia treatment should start. Stakeholders felt that the consensus in the medical community is to start treatment at 500 mg/dL for prevention of pancreatitis but noted that 500 mg/dL is an arbitrary threshold because risk is linear across the population.

Barriers to Treatment

Survey respondents were asked about their current challenges in treating patients with hypertriglyceridemia. Patient adherence was reported as a challenge most frequently—by 73% of respondents. Stakeholders were not surprised by this finding and reported that adherence is generally a widespread issue in the treatment of chronic silent diseases. This may be due to both the lack of an immediately apparent result as well as the costs of preventive medications. Some observed that rates of prescription abandonment (failure to pick up a prescription filled by a pharmacy) in the United States are highest at the beginning of the calendar year and hypothesized that this is because many patients must meet a deductible each year before their insurance begins to pay for prescriptions. Therefore, adherence rates are lower at the beginning of the year due to higher out-of-pocket costs for patients.

Stakeholders did note that some interventions can improve adherence. For example, the APhA Foundation's Project IMPACT: Hyperlipidemia incorporated patient education provided by a pharmacist and point-of-care testing, resulting in dramatically increased adherence rates.¹ Stakeholders felt that the point-of-care testing was an important component of the intervention, because it provided immediate feedback to patients regarding the effectiveness of their efforts and helped to reinforce positive behaviors.

"Lack of education" was also cited as a common barrier to the treatment of hypertriglyceridemia. Stakeholders noted that the question about barriers may have been unclear, and respondents may have interpreted the answer option in different ways. For example, they may have viewed either patient or provider need for education as a barrier. However, stakeholders acknowledged that there are educational needs for both patients and providers regarding triglycerides, and education combined with behavioral interventions would be helpful for improving behavior.

The stakeholders discussed the need to trigger an intrinsic motivation for change to influence patient behaviors, including adherence. They also observed

that medication costs and side effects are barriers to adherence that can be difficult to overcome.

Knowledge Regarding Hypertriglyceridemia

The overwhelming majority of survey respondents said that they are somewhat or very knowledgeable regarding the diagnosis and treatment of hypertriglyceridemia, however only 20% said they are very knowledgeable. Stakeholders expressed surprise at this result because they expected that a high number of specialists (including cardiovascular nurses) among the survey respondents would result in more respondents considering themselves to be very knowledgeable. Stakeholders observed that there can be gaps between behavior and reported knowledge because people don't know what they don't know.

On the other hand, 92% of respondents reported they would be very or somewhat interested in expanding their knowledge of hypertriglyceridemia, leading stakeholders to note that people think they know more about various disease states than they actually do. It may also indicate that they are aware of the expanding body of research and available treatment options.

Stakeholders noted that these data indicate there is substantial opportunity to develop educational activities that will affect provider understanding and practice. They also stated that there is almost always a lag of several years (often more than a decade) between the time that guidelines are published and when they are widely implemented in practice. Therefore, it is not entirely realistic to expect the majority of providers to be following recently released guidelines, and widespread educational interventions are needed to influence practice. The lack of harmonization among guidelines for triglycerides results in additional confusion for the delivery of care.

Treatments for Hypertriglyceridemia

Survey respondents indicated higher levels of being very familiar with several of the therapies used in the treatment of hypertriglyceridemia than they did for hypertriglyceridemia in general. For example, 62% were very familiar with statins, and 32% were somewhat familiar with statins (total familiarity of 94%). Stakeholders observed that it may be easier for people to rate their knowledge on specific items than it is to rate knowledge of an entire category.

When asked about treatment recommendations, the majority of respondents recommended prescription treatment to patients with high (64%) or very high (65%) triglyceride levels. Dietary supplement fish oil products are recommended more often for patients

with lower triglyceride levels, but these products also were commonly used among patients with higher levels. Stakeholders assumed that this finding may be because providers are more likely to recommend lifestyle interventions including dietary supplements to patients with lower triglyceride levels. However, stakeholders observed that endocrinologists have a specialist society statement recommending against the use of fish oil.

Stakeholders suggested that findings regarding fish oil recommendations could be partially related to issues surrounding reimbursement. For example, some payers' formularies (e.g., the VA national formulary recommendations) require proof that a nonprescription product is not effective before providing coverage for a prescription product. Therefore, patients have to fail fish oil treatment before receiving prescription treatment.

Most survey respondents were aware that dietary supplement fish oil is not approved by the FDA for the treatment of hypertriglyceridemia, but 30% were unsure whether the products went through an approval process.

Stakeholders noted that there are approximately 19 million people in the United States who use fish oil, and many of these individuals self-prescribe based on information from popular media outlets. They identified these patients as an important opportunity for education. They also noted that data show there are more than 65,000 community pharmacies in the United States and there are 301 million visits through the front doors of pharmacies every week. Therefore, pharmacies represent a major point of access for distribution and it will be helpful to identify strategies to leverage pharmacies' collective strengths to communicate messages.

As observed by the stakeholders, shelf-talkers that are designed to help patients make decisions without having to interact with a pharmacist do not change behavior nearly as effectively as interactions with a pharmacist. Communication from a pharmacist can drive substantial differences in appropriate product selection.

Stakeholders observed that providers who work in acute care may not be focused on issues surrounding dietary supplements and it will be important to identify strategies to educate these providers so that consistent messaging is provided by all members of the patient care team.

Patient Interactions with Health Care Providers

Most survey respondents (60%) reported that, in general, patients are not too knowledgeable about hypertriglyceridemia. Stakeholders felt that this is an accurate assessment of the patient knowledge base, and they suggested that this result could be a projection of providers' lack of knowledge.

The most common question that clinicians reported receiving was "What can I do to lower my triglycerides without medications?" (76% of respondents). Only 43% reported that they frequently received the question "Is it important for me to lower my triglycerides?" Because stakeholders felt most patients lack an understanding of the importance of triglycerides, they thought this might also be a primary question that patients have, and were surprised that it was not reported more frequently.

Most survey respondents (71%) reported that they do not use resources to help facilitate conversations with patients about hypertriglyceridemia, but many reported interest in using a variety of different tools. Stakeholders observed that the use of resources is lower than would be expected based on reported interest. Stakeholders noted that there are many currently available materials, but acknowledged that the available tools exist within a crowded environment and more education would be needed to help providers know what tools are available. They also indicated that there are many tools designed to support the health care provider or patient, but there may be a need to develop tools that facilitate conversations at the point-of-care for shared decision making.

Patient Triglyceride Survey Review and Consensus Development

The patient survey was completed by 154 respondents (Appendix E). Stakeholders noted that this survey had fewer respondents than the health care professional survey. They also noted that the survey was open to anyone who chose to complete it, which made it difficult to determine whether the results are representative of the patient population with hypertriglyceridemia or the national population as a whole.

Among the patient respondents, 35% reported being told by a health care provider that they have higher than normal triglycerides. Patients reported a high level of knowledge about hypertension (90%), heart disease (85%), and elevated cholesterol (82%), but fewer reported being knowledgeable about elevated triglycerides (60%). Stakeholders stated they were not surprised by this finding.

On the other hand, 93% of patients reported that they felt it is important to manage triglyceride levels. Stakeholders interpreted this to mean that patients are aware triglycerides are important but do not have a good understanding of why. The stakeholders stated that this may indicate some general public health messaging is reaching patients, but more work is needed. They also acknowledged that respondents self-selected to participate in the patient survey, and therefore may have been more aware of the importance of triglycerides than the general population.

Patient Perspectives on Medication Use

Almost all patients (92%) were currently taking at least one medication, and 19% were taking 10 or more medications. Stakeholders did not find this information to be surprising. Survey respondents reported high levels of adherence; 82% said they never missed a dose. Stakeholders noted that these data do not align with what is known about patient behavior and suggested that patients may respond to surveys the way they view themselves. Additionally, the stakeholders observed that sometimes patients think they are taking the medication as prescribed even when they are not.

Key considerations for taking a medication for hypertriglyceridemia were possible side effects (81%) and costs (68%), followed by the number of medications currently being taken (29%). Most patients (64%) reported that they expected to pay less than \$15 per month for medication to treat elevated triglycerides. Stakeholders noted that it was difficult to determine whether this was realistic given the variability in insurance coverage.

When asked what types of medicines they believe work to lower triglycerides, 64% reported prescription medications, while 35% reported dietary supplement fish oil. However, fewer patients reported that they would be likely to use prescription or dietary supplement products.

When asked how frequently they see health care providers, pharmacists were seen more frequently, with 59% of respondents reporting they see a pharmacist at least once a month. Patients see other health providers less frequently. For example, 42% reported seeing a physician once every 3 months, 25% said they see their physician once every 6 months, and 16% said once a year.

Patients were most likely to have had conversations about triglycerides with their physician and to think that physicians were the appropriate providers with whom to have these conversations. Only 8% reported discussing their triglyceride levels with a pharmacist. Stakeholders noted that the survey data indicate that,

in general, other health care providers are not having these conversations due to a lack of access to laboratory data. For example, community pharmacists may not be able to readily view their patients' laboratory data in EHR systems.

Most patients (64%) did not receive any resources about triglycerides from their health care providers, and 67% were not educated about differences between dietary supplements and prescription products. Stakeholders noted that patient education information could potentially be generated by EHR systems. Some integrated health care systems have progressive solutions that allow such information to be generated as part of printed summaries of patient visits. However, complexities associated with these systems (e.g., the need to compare disease state information with ICD-10 codes and SNOMED codes) may make widespread implementation of this approach difficult in the near term. Stakeholders noted that handing printed information to a patient at the conclusion of a visit is not as effective for education as using a tool that facilitates conversation during the visit.

Most patients reported they would be interested in receiving more information about triglycerides. Stakeholders discussed opportunities to disseminate information more effectively and focused on the use of web-based and mobile platforms. They discussed strategies to help engage patients and support effective patient self-management. Proposed strategies included involving the patient (and possibly caregiver) in the development of the problem list, simplifying the problem list to focus on three issues to avoid overwhelming the patient, and asking the patient what is most important to him or her to facilitate shared decision making for goal setting.

Reviewing REDUCE-IT Results

The results of the recently completed Reduction of Cardiovascular Events with Icosapent Ethyl–Intervention Trial (REDUCE-IT) were presented at the meeting by Michael Miller, one of the study authors.²

REDUCE-IT found that icosapent ethyl reduced the risk of ischemic events, including cardiovascular death in patients with established CVD or with diabetes and other risk factors, who had been receiving statin therapy and who had a fasting triglyceride level of 135–499 mg/dL and an LDL-C level of 41–100 mg/dL. A total of 8,179 patients were enrolled and followed for a median of 4.9 years.

A primary end-point event occurred in 17.2% of the patients in the icosapent ethyl group compared with 22.0% of the patients in the placebo group ($P<0.001$); the corresponding rates of the key secondary end point were 11.2% and 14.8% ($P<0.001$). The rates of

additional ischemic end points, as assessed according to a prespecified hierarchical schema, were significantly lower in the icosapent ethyl group than in the placebo group, including the rate of cardiovascular death ($P=0.03$). A larger percentage of patients in the icosapent ethyl group than in the placebo group were hospitalized for atrial fibrillation or flutter (3.1% vs. 2.1%, $P=0.004$). Serious bleeding events occurred in 2.7% of the patients in the icosapent ethyl group and in 2.1% in the placebo group ($P=0.06$).

Stakeholders made several observations about the findings. Of note, approximately one-third of adults in the United States have a triglyceride level above 150 mg/dL. Additionally, 16% to 20% of U.S. adults have levels in the low 200s and are at increased risk for heart disease. Thus, there is a very large potential treatment population.

Furthermore, stakeholders observed that triglycerides were originally considered to be biomarkers, but more recent research shows that triglycerides are causal for contributing to atherosclerosis. They observed that there are many detrimental factors associated with high triglyceride levels, including increased expression of proinflammatory signaling pathways. High triglycerides are also associated with the development of diabetes. Therefore, there remains substantial residual risk for patients with high triglycerides even when their LDL-C is well controlled with statin therapy, ezetimibe, and/or proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors. Thus, new approaches that lower triglycerides can help attenuate the residual risk.

Research has found that low-dose dietary supplement omega-3 is ineffective for lowering CVD risk. However, the Japan EPA Lipid Intervention Study, known as JELIS, found that significant fish consumption (i.e., dietary omega-3 fatty acids) significantly reduced risk for both primary and secondary prevention cohorts. Therefore, there was some reason to believe that a high-risk population could show benefit.³

Stakeholders focused on the magnitude of risk reduction in REDUCE-IT: icosapent ethyl resulted in a 25% relative risk reduction and an absolute risk reduction of 5%, as well as impressive significant reductions in secondary end points. These numbers are favorable compared with those provided by ezetimibe and PCSK9 inhibitors, which are more incremental.

Some adverse events were more common in patients receiving icosapent ethyl, including diarrhea, edema, constipation, atrial fibrillation, and anemia. There was a trend toward increased bleeding, however it was not statistically significant.

Some stakeholders stated they believed that treatment of patients with triglyceride levels greater than 175

mg/dL could start with lifestyle interventions, but that once triglycerides reached 200 mg/dL, prescription therapy should be initiated. They postulated that one reason this was not current practice is that prior to the publication of REDUCE-IT, there was no evidence demonstrating the effect of treatment on cardiovascular outcomes.

Action Plan Discussion

Stakeholders concluded that the survey data revealed assumptions and misconceptions by both providers and patients, and that there is a need for additional educational initiatives. They observed that clinical inertia contributes to difficulty in changing treatment patterns, and divergent recommendations from available treatment guidelines for hypertriglyceridemia contribute to confusion. The development of harmonized consensus recommendations would be helpful. Additionally, more emphasis on the distinctions between prescription products and dietary supplements was recommended.

Responses to survey questions revealed a difference between knowledge and practice. The results suggest a need for behavior change and that innovative interventions are needed that will facilitate behavior change for both providers and patients. Messages that were suggested for educational campaigns included a focus on the connection between triglyceride levels and potential outcomes. Stakeholders noted that interventions should be patient-centered, and it is important to focus on the patient experience so that interventions will be more likely to influence behavior. Stakeholders recognized that some populations may receive their information through nontraditional sources (e.g., churches, senior centers) and multifaceted communication campaigns will be needed to reach disparate populations.

Stakeholders focused on the importance of shared decision making to improve patient engagement and communication with providers. However, not all providers are comfortable leading those types of conversations. They recommended the development of resources and tools that will help facilitate such conversations with patients during appointments as well as informational resources for providers and patients.

Selection bias in the surveys was noted by stakeholders, who advised that the surveys should be inter-

preted with caution. They observed that there was a high percentage of specialists in the provider survey, and primary care providers may have lower levels of awareness. Additionally, results from the patient survey suggested that many had already received education about triglycerides and messaging for general campaigns should acknowledge that the broader population of patients may have lower levels of awareness.

Stakeholders remarked that the multidisciplinary nature of the forum discussion was very helpful and suggested involving individuals from public health entities in future discussions. The Centers for Disease Control and Prevention, Centers for Medicare and Medicaid Services, National Institutes of Health, and state public health organizations were all suggested as options for broadening discussions into the public health arena and have a more widespread impact across the population. They also suggested developing a curriculum to train community health workers to interact with patients about their cholesterol and triglycerides.

Stakeholders brainstormed strategies for communicating with patients. Suggested language to describe triglycerides and treatment included, "If you have high triglycerides then you have too much fat in your blood, which promotes uptake of fat in heart arteries. High blood fat levels also promote inflammation and clotting. There is a new therapy that can reduce your risk of heart attack and stroke that results from having a high blood fat level. This new therapy lowers your blood fat levels."

Additional comments from stakeholders focused on the importance of incorporating a feedback loop based on laboratory values into ongoing patient management so that patients can see the effect of their efforts. They also noted that some patients report feeling better during treatment, and anecdotally report improved mood and less arthritis pain. These types of effects may influence patient behavior. Continuous quality improvement initiatives may help identify additional helpful strategies.

Ultimately, stakeholders concluded that optimal strategies would be to create harmonized messaging and to leverage existing tools as well as create new ones. The development of tools should focus on three categories: (1) health care professional education; (2) patient education; and (3) tools for health care professionals to use during interactions with patients.

References

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3. Yokohama M, Origasa H, Matsuzaki M, et al. Effects of eicosapentaenoic acid on major coronary events in hypercholesterolaemic patients (JELIS): a randomized open-label, blinded endpoint analysis. *Lancet.* 2007;369:1090–8.

Appendix A. Agenda

- 8:00am to 8:30am Breakfast at APhA Headquarters
- 8:30am to 9:00am Welcome and Introductions
- 9:00am to 10:30am Health Care Professional Triglycerides Survey Review/Consensus Development
Intended Outcome: Inform attendees about results of the recent health care professional survey on triglycerides and develop consensus on action steps for creating and curating content and messaging on current outcomes and risk associated with elevated triglyceride levels even with controlled/normal serum cholesterol.
- 10:30am to 11:00am Break
- 11:00am to 12:30pm Consumer Triglycerides Survey Review/Consensus Development
Intended Outcome: Inform attendees about results of the recent consumer survey on triglycerides and develop consensus on action steps for creating and curating content and messaging on current outcomes and risk associated with elevated triglyceride levels even with controlled/normal serum cholesterol.
- 12:30 to 1:30pm Lunch/Networking
- 1:30pm to 2:15pm Review of REDUCE-IT: Late Breaking Cardiovascular Outcomes Trial
Michael Miller, MD, FACC, FAHA
Professor of Medicine
Director, Center for Preventive Cardiology
University of Maryland School of Medicine
Intended Outcome: Inform attendees about results of REDUCE-IT, latest cardiovascular outcomes trial to study at risk population with controlled/normal serum cholesterol - implications for health care professionals and consumers.
- 2:15pm to 3:15pm Review/Development of Action Steps for Improving Health
Intended Outcome: Identify specific advocacy efforts, information, messaging, resources, stakeholder collaborations, and tools that can support cardiovascular risk reduction and improved population health for patients.
- 3:15pm to 3:30pm Meeting Wrap-Up/Final Comments

Appendix B. Participant Biographies

Benjamin Bluml, RPh **Senior Vice President, Research and Innovation** **American Pharmacists Association Foundation**

Ben Bluml is the Senior Vice President for Research and Innovation at the American Pharmacists Association Foundation. He received his Bachelor of Science in Pharmacy from the University of Missouri at Kansas City in 1984 and has provided direction for practice-based research initiatives since February 1996 within the APhA Enterprise. Bluml has been the principal architect for the clinical and technology models in the Foundation's patient care programs. He works with pharmacists, physicians, payers, research organizations, and technology companies across the United States to design and implement innovative collaborative practice programs and health care service delivery systems.

Along with his 21 years at the APhA Foundation and 12 years of pharmacy practice experience, Bluml is the author of several health care software applications published in the 1980s and 90s designed to improve health care. He has also authored numerous professional journal publications related to his work on collaborative practice, health information technology, inter-disciplinary patient care, and quality improvement. Bluml holds an adjunct faculty appointment at the University of Missouri Kansas City (UMKC) School of Pharmacy, and has been actively involved in national and international efforts that establish and promote pharmacoinformatics standards to improve medication use and health information exchange.

The UMKC School of Pharmacy Alumni Association recognized him for outstanding service to the profession in 1991. He received the DuPont Pharma Innovative Practitioner Award from the Missouri Pharmacy Association in 1994. American Druggist named him one of the Nation's 50 Most Influential Pharmacists in 1998, and the University of Missouri Kansas City recognized him with an alumni achievement award in 2010. Most recently, Bluml was named the Missouri recipient of the 2011 Bowl of Hygeia Award.

Beth Battaglino, RN **Chief Executive Officer** **Healthywomen**

Beth Battaglino, RN, brings a unique combination of sharp business expertise and, as a practicing registered nurse, medical knowledge to her role as CEO of HealthyWomen, a nonprofit she has relaunched and rebranded. The organization provides women with in-depth, objective, medically approved information on a broad range of women's health issues and

is the leading consumer health information source for women.

Beth has worked in the health care industry for over 20 years, helping to define and drive public education programs on a broad range of women's health issues. These programs have run the gamut from heart health, reproductive, to programs and campaigns that focus on aging well. Her business skills and expertise in management and marketing has expanded HealthyWomen outreach to millions of women across the country through updated technology, wider and more creative program distribution and instilling new public education and awareness efforts.

Beth is responsible for setting and overall management of HealthyWomen's strategic direction building alliances with corporations, health care professionals and consumer groups. She also serves as the organization's chief spokesperson, regularly speaking at corporate, non-profit, community and media events. In addition to her degrees in business, and public administration, Beth is a practicing nurse in maternal fetal medicine.

Ray Bullman **Executive Vice President** **National Council on Patient Information and Education**

Mr. Bullman joined the National Council on Patient Information and Education (NCPIE) in 1985 and has served as Executive Vice President since January 1995. NCPIE is a non-profit coalition of diverse organizations working together to promote the wise use of medicines through trusted communication for better health.

Over the past two decades, under Mr. Bullman's guidance, NCPIE has released a series of comprehensive priority recommendations for action to improve medication adherence. The most recent, *Accelerating Progress in Prescription Medicine Adherence: The Adherence Action Agenda (2013)*, addresses adherence improvement among consumers suffering from multiple chronic conditions (MCCs).

Under Mr. Bullman's guidance, in collaboration with the FDA and the American Pharmacists Association, (APhA), NCPIE launched Be MedWise, a national, research-based educational campaign to promote a better understanding that over-the-counter (OTC) drug products are serious medicines and must be taken with care. In 2015, NCPIE conducted comprehensive consumer and healthcare provider survey research to inform development of a new action plan, *Empowering Americans to Take Greater Responsibility*

ty for their Health: A Roadmap for Building a National Selfcare Movement in the U.S.

NCPIE has convened multiple stakeholders' forums on OTC safe use, including, Taking OTC Literacy beyond the Classroom, (2014), and Advancing our Understanding of the Safe Use of Acetaminophen (2015). NCPIE has developed a series of public education web-based modules promoting safe use of acetaminophen-containing products targeting older adults, parents of teens and young adults of college age.

Prior to joining NCPIE, Mr. Bullman, served as a Program Development Specialist with the National High Blood Pressure Education Program, National Heart, Lung and Blood Institute, NIH. Mr. Bullman helped stimulate technology and innovation transfer on high blood pressure awareness, treatment and control from the national program to key stakeholder organizations in Southeastern and Mid-western states.

Mr. Bullman received a bachelor's degree from the University of Maryland, College Park, MD, and a Masters in Non-Profit Association Management (M.A.M.) from George Washington University, Washington, D.C.

John M. Clymer
Executive Director
National Forum for Heart Disease and Stroke Prevention

John Clymer is executive director of the National Forum for Heart Disease & Stroke Prevention, an independent, nonprofit catalyst for public-private-nonprofit collaboration. Additionally, he is a Fellow of the Institute for Health Policy and Leadership at Loma Linda University and adjunct assistant professor at the LLU School of Public Health, guest lecturer at Johns Hopkins Bloomberg School of Public Health, and member of the U.S. Community Preventive Services Task Force.

During his tenure as president of Partnership for Prevention from 2001-2008, the organization won passage of landmark Medicare policy changes; established the National Commission on Prevention Priorities; was recognized by Harvard Business Review for a "Breakthrough Idea"; and quadrupled its income.

Clymer is the TEDMED Thought Leader for Making Prevention Popular and Profitable. He has served as a subject matter expert at the World Economic Forum's Annual Meeting in Davos. He has conducted numerous Congressional briefings, appeared on NBC Nightly News, Fox News, CNBC, public radio, and in print media such as The New York Times, and authored book chapters, articles and commentaries on prevention.

Michael Hargrett
Director, Strategic Engagement, Clinical Pathways and Solution Sets
The American College of Cardiology

Michael Hargrett is the Director, Strategic Engagement, and leads the ACC's efforts to collaborate with healthcare stakeholders to integrate ACC clinical pathways and other policy guidance in external systems. He actively engages industry partners, payers, and other stakeholders dedicated to improving outcomes by providing actionable solutions to clinicians and patients to be more engaged in their care decisions.

Prior to joining ACC, Michael was a Senior Publisher with Lippincott Williams & Wilkins. He was responsible for product and relationship development in the Sports Medicine/Exercise Science specialty. He had a particular focus on research related to exercise being used a prescriptive tool for improved health outcomes. Michael held previous management positions and other stakeholders dedicated to improving outcomes by providing actionable solutions to clinicians and patients to be more engaged in their care decisions.

Prior to joining ACC, Michael was a Senior Publisher with Lippincott Williams & Wilkins. He was responsible for product and relationship development in the Sports Medicine/Exercise Science specialty. He had a particular focus on research related to exercise being used a prescriptive tool for improved health outcomes. Michael held previous management positions at Scott Paper Company and Johns Hopkins University Press. He was an Executive Officer in the Maryland Army National Guard with Infantry as his military specialty. He was also a board member on the American College of Sports Medicine Foundation.

Michael earned his Bachelor of Science degree in Accounting from the School of Business and Industry at Florida A&M University in Tallahassee, FL.

Dennis R. Harris, PhD
Associate Director, Content Strategy and Outcomes
Endocrine Society

Dennis Harris joined the Endocrine Society in 2013 after completing a graduate program in biochemistry and a science policy fellowship at the National Academies. Other past experiences include postdoctoral fellowships at the National Institute of Medical Research in Paris and the Radiation Oncology department at Johns Hopkins in Baltimore. He now leads education and content initiatives across the Society, which includes projects on Hormone Health Network, the public-facing arm of the organization. Dennis

has played a central role in developing the Society's content and digital strategies as a program manager and subject matter expert. Most recently, Dennis led faculty writing groups in developing perspectives on diabetes technology, which includes professional and patient outreach and education. His interests and expertise include scientific and medical communication for professionals and the public, medical education in endocrinology, and designing content to deliver greater impact.

Thomas Kalista, PharmD
Director, Practice and Professional Affairs Initiatives
American Pharmacists Association

Prior to joining the American Pharmacists Association, Dr. Kalista held the position of Clinical Assistant Professor at the Western New England University College of Pharmacy & Health Sciences in Springfield, MA. Dr. Kalista's clinical practice responsibilities included focusing on patients with chronic respiratory conditions (asthma, COPD), and type 2 diabetes in a primary care physician practice setting. He also has past experience in community pharmacy, ambulatory care, and home health care settings. Dr. Kalista received his Doctorate in Pharmacy from the University of Rhode Island College of Pharmacy and went on to complete his PGY1 Community Pharmacy Residency with the URI College of Pharmacy and Rite Aid Pharmacy.

Sue Koob, MPA
Chief Executive Officer
Preventive Cardiovascular Nurses Association

Sue Koob, MPA, has been the Chief Executive Officer of the Preventive Cardiovascular Nurses Association (PCNA) for over 18 years. She is responsible for the overall management of PCNA and with the aid of her staff and volunteers the strategic direction as well. She has a passion for promoting prevention and enjoys working with her board of directors and staff to increase visibility for the important role nurses play in the prevention of cardiovascular disease.

She received her Master of Public Affairs from Indiana University and her Bachelor of Science Degree in Biology from Kansas University. She was the 2015 recipient of the National Forum on Heart Disease and Stroke Prevention's *Heart Healthy and Stroke Free Award*. PCNA is headquartered in Madison, WI.

Michele Lentz
Chief Strategic Alliance Officer
American Association of Clinical Endocrinologists

Currently serving as the Chief Strategic Alliance Officer for AACE, Michele has spent the last 20 years of her professional career immersed in all facets of cardiovascular disease services and education, in order

to help advance quality patient care, access and outcomes. Prior to joining AACE, her experience most recently includes leading the patient and professional cardiovascular advocacy activities for Bristol-Myers Squibb, and in collaboration with Pfizer. She has held long-term roles with major patient advocacy organizations, and served as a national consultant to hospitals seeking to build and expand their cardiovascular services offerings.

Before engaging in the cardiovascular advocacy space, Michele served in several academic institution senior administrative roles both at the University of Maryland Department of Surgery and the Johns Hopkins University Department of Gynecology and Obstetrics. She received her BA in Hospital Planning and Management from the University of Maryland, and her MAS in Healthcare Business Management from Johns Hopkins University.

Rhonda E. Monroe, MBA
Chair-elect
Womenheart

Rhonda Monroe is a former economist and financial analyst turned health advocate. She overcame 5 coronary artery dissections, 3 heart attacks, two strokes, congestive heart failure, a defibrillator implant, a hematoma evacuation, a failed quadruple bypass surgery, failed stents and congestive heart failure with an ejection fraction of 21 percent.

Rhonda is a Mayo Clinic trained Heart Champion and Legislative Advocate with the organization. She appeared on the Today Show, has been in three editions of TIME magazine for her innovative community education program, Look Good, Feel Good: A Heart and Hair Affair and was featured in a national Bayer aspirin commercial. In 2012, Governor Tomblin awarded Rhonda the West Virginia Governor's Volunteer Service Award for her efforts to eradicate heart disease and improve community health. She also served as a board member of WVU University Health-care for more than five years. Rhonda has been featured in many publications including US News & World Report, WebMD, and on CNNHealth.com as their empowered patient.

Rhonda earned a Bachelor of Science degree in both economics and business & finance from Mount Saint Mary's University and a Master's in Business Administration from the University of the District of Columbia with honors.

Jane Nelson Worel, RN, MS, APN-BC
Director of Clinical Education
Preventive Cardiovascular Nurses Association

Jane Nelson Worel is an Adult Nurse Practitioner and currently serves as the Clinical Education Director

for the Preventive Cardiovascular Nurses Association (PCNA). Jane was a longtime member of the PCNA Board of Directors and is a past President of the organization. Prior to joining PCNA, Jane's work experience included advanced practice nursing roles in cardiac rehabilitation, preventive cardiology, internal medicine and women's health. She is a graduate of the University of Wisconsin, Madison with both MS and BS degrees in Nursing and an MS in Clinical Exercise Physiology. She has been recognized as a Fellow of the American Heart Association and has served as the co-editor of the Progress in Prevention column of the Journal of Cardiovascular Nursing.

Anna Norton, MS
Chief Executive Officer
Diabetessisters

Anna has been living with type 1 diabetes since August 1993. As CEO of DiabetesSisters, she is dedicated to improving the lives of women living with diabetes through peer support and education, via online and in-person programming. With nearly half a million annual visitors to www.diabetessisters.org, Anna organizes an array of services including personal blogs, expert articles, and a webinar series. In-person, she oversees a national peer support program for women living with all kinds of diabetes, a Leadership Institute to train patient advocates, a Conference series, and a Minority Initiative Program designed to educate underserved populations on diabetes and culture. She has been invited to serve on various patient-focused panels and speak on behalf of women living with diabetes at the American Diabetes Association Scientific Sessions, the American Association of Diabetes Educators Annual Meetings, and the International Diabetes Federation Congress in Abu Dhabi. She has been featured in an assortment of health-related magazines and books, including *Balancing Pregnancy with Pre-Existing Diabetes*, *A Woman's Guide to Diabetes: A Path to Wellness*, and *Diabetic Living (Fall 2018)*. Anna graduated with a Bachelor of Science from the University of Florida and Master of Science in Education at Florida International University. Prior to joining DiabetesSisters in 2012, she worked for large university systems and metropolitan health care systems, with in various areas of major gift fundraising, annual gifts, event planning and community relations. She currently resides in the Chicago-area with her family.

James A. Owen, PharmD, BCPS
Vice President, Practice & Science Affairs
American Pharmacists Association

Dr. Owen manages APhA's practice and science affairs activities including medication therapy management projects and services, directs activities

and projects including directing the APhA practice and science member academies and directing and coordinating activities and initiatives related to the association's practice and professional affairs functions. Among the key initiatives he oversees includes projects related to advancing patient care service delivery, supporting payment for patient care services, expanding payment for services, expanding the scope of practice and authority, promoting practice innovation and creating the need infrastructure for continued advancement of pharmacy practice. A major focus of his work is on efforts on innovative technology platforms focused on advancing continuous professional development in the United States and on the APhA Community-based Pharmacy Residency Program Initiative.

Before joining the staff of APhA in 2007, Dr. Owen worked in community-based practice for a regional chain where he served in multiple roles including as a staff pharmacist, pharmacy manager, residency program director/preceptor and ultimately directing clinical services and professional development for pharmacy staff of a regional chain organization. For the last decade, he has worked as a part-time in-patient, staff pharmacist at a federal clinical research hospital in the Washington D.C. area.

Dr. Owen graduated from the Philadelphia College of Pharmacy and Science with a Bachelor of Science in Pharmacy in Pennsylvania in 1990, completed his Doctor of Pharmacy degree from the Massachusetts College of Pharmacy & Health Sciences in 2007 and is currently pursuing his MBA from Saint Joseph's University in Pennsylvania with anticipated completion date of May 2020. Dr. Owen is a Board Certified Pharmacotherapy Specialist by the Board of Pharmacy Specialties, an independent, autonomous division of the American Pharmacists Association.

Amina Resheidat
Associate Director, Business Development and Programs
National Lipid Association

Amina joined the NLA team in October 2013 and has served as the Associate Director of Business Development and Programs since February 2016. Amina leads the organization's developmental and fundraising initiatives as well as conceptualizes and, in partnership with the NLA's accreditation department and Board of Directors, executes programs that expand the capabilities of the NLA and achieve desired educational outcomes that aim to close practice and knowledge gaps among all healthcare providers in the lipidology and cardiovascular risk reduction space.

Alan Richardson
Executive Vice President of Strategic Patient Solutions
Patient Advocate Foundation

Alan Richardson joined Patient Advocate Foundation in 2004 and currently serves as the Executive Vice President of Strategic Patient Solutions. He is responsible for working with internal/external stakeholders on case management-based solutions for patients experiencing access and affordability challenges. These include general case management services, Med-CareLine-PAF's disease-specific case management programming and Financial Aid Funds. He is also the community lead for oncology, virology and cardiology. Alan represents PAF as a speaker, panelist and attendee at conferences and events. He is a graduate of Virginia Commonwealth University with a degree in Mass Communications. He has over two decades of development experience in the health care field, both in the free clinic and community health center look-alike settings. Prior to working in development, Alan was a graphic designer.

Tricha Schivas, MBE
Senior Manager, Partner Relations and Development
WomenHeart

Tricha Shivas has over worked for over 15 years in the non-profit healthcare sector with a focus on patient-advocacy and chronic illness. Tricha received her bachelors in American Studies from Albright College and her Masters of Bioethics from University of Pennsylvania. In her role as WomenHeart's Development Sr. Manager of Partner Relations and Development, Tricha works on strategic partnerships, grant development, and corporate relations.

Throughout her career, Tricha has spoken at national conferences for bioethics, nursing, and healthcare policy. Tricha has served on a hospital's Institutional Review Board, a hospital's Ethics Committees, and has been a volunteer with a community-based hospice. Tricha's goal is to increase awareness among women about the risks of heart disease and to ensure the women have access to the best education, treatment, care, and support services.

SPEAKER

Michael Miller, MD, FACC, FAHA
Professor of Medicine
Director, Center for Preventive Cardiology
University of Maryland School of Medicine

In addition to Dr. Miller's positions on the University of Maryland School of Medicine faculty, he is the Director of the Center for Preventive Cardiology for the University of Maryland Medical System and Staff Physician at the Veterans Affairs Medical Center in Baltimore.

Dr. Miller's major research interests are disorders of lipid and lipoprotein metabolism; molecular studies of HDL cholesterol, triglycerides, and the postprandial response to dietary fat; nontraditional coronary risk factors; and clinical trials to reduce atherosclerosis.

Dr. Miller is a Fellow of the American College of Cardiology and the American Heart Association Council on Arteriosclerosis. He is Past President of the American Society of Preventive Cardiology, and his research has been supported by the National Institutes of Health, the American Heart Association, and the Veterans Affairs Administration. He has been listed in "15 Top Cardiologists" (*Baltimore Magazine*), "Most Influential Physicians" (*USA Today*), "Super Doctors" (*Washington Post*), and "America's Top Doctors" (*U.S. News and World Report* in partnership with Castle Connolly Medical Ltd).

MEETING RECORDER

Rajan Vaidya, PharmD
Executive Resident
American Pharmacists Association Foundation

Rajan Vaidya recently received his PharmD from the Keck Graduate Institute School of Pharmacy. As a student pharmacist, he served in leadership roles within the California Pharmacists Association (CPhA) and Indian Pharmacists Association (IPA), where he worked to engage the pharmacy profession in healthcare advocacy and policy development. Rajan's professional interests include pharmacy advocacy, healthcare policy development, strategic fundraising, leadership development, and mentoring student pharmacists. He currently serves as the American Pharmacists Association Foundation Executive Resident in Association Management and Leadership in Washington, D.C.

Appendix C. Presentation

**Welcome to the
Reducing Cardiovascular
Risk Stakeholder Meeting**

Perspectives from patients and health care providers:
Identifying the gaps about elevated triglycerides and
patient engagement

Washington, DC · November 15, 2018
APhA Headquarters · Board Room



1

Reducing Cardiovascular Risk Stakeholder Meeting
Perspectives from patients and health care providers: Identifying
the gaps about elevated triglycerides and patient engagement

Welcome / Introductions

8:30 AM – 9:00 am

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2

The One-Minute Introduction Challenge

- >Your name
- >Current position/title, organizational affiliation, how long you've been there
- >Profession/discipline that you were formally educated and trained in
- >Where you went to Kindergarten

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3

American Pharmacists Association
improving medication use. Advancing patient care.

**We promote consumer access and coverage
for pharmacists' quality patient care services.**



**Improve health by inspiring philanthropy, research, and
innovation that advances pharmacists' patient care services.**

4



APhA
AMERICAN PHARMACISTS ASSOCIATION
improving medication use. Advancing patient care.

- APhA is the largest and oldest U.S. pharmacy organization
- Founded in 1852
- Highly diverse 64,000+ members, including pharmacists from a broad range of practice settings (e.g., community, health system, managed care), student pharmacists, scientists, and pharmacy technicians
- Collaborator, convener
- All U.S. pharmacy organizations and all sectors of the profession represented in the APhA House of Delegates



5

**Broad Initiatives Supporting
Practice Transformation**



American Pharmacists Association
improving medication use. Advancing patient care.

- Information (Periodicals, Publications, On-line, etc.)
- HIT Connectivity
- Practice Research
- Training, Education, and Certification
- Advocacy for Recognition and Coverage
- Quality Measures



6

APHA FOUNDATION Improve health by inspiring philanthropy, research and innovation that advances pharmacists' patient care services

Innovative Practice Models & Demonstrated Outcomes

- ✓ Adherence
- ✓ Alzheimer's
- ✓ Diabetes
- ✓ Depression
- ✓ Hyperlipidemia
- ✓ Hypertension
- ✓ Osteoporosis

Our Research and Innovation Axioms

Do the right things well.
Structure. Process. Outcomes.
Align the Incentives,
Improve the Outcomes,
Control the Costs.

Idea → Convene → Model Development → Pilot → Model Refinement → Scaled Demonstration → National Implementation → Bringing America's Communities Together

... "Incubating Care Innovation"

"The best way to predict the future is to invent it." – Alan Kay

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7

APHA FOUNDATION

Advancing Service Delivery through Pharmacy Practice

Health Promotion

- Health Risk Assessment
- Immunizations
- Prevention
- Wellness Programs

Health Management

- Asthma
- Cardiovascular Disease (Dyslipidemia, Hypertension)
- Coagulation Disorders
- Congestive Heart Failure
- Depression
- Diabetes
- Osteoporosis

Selection Criteria:

- High prevalence
- High risk
- High cost
- Problem prone

...all with MTM

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8

PCNA
PREVENTIVE CARDIOVASCULAR NURSES ASSOCIATION

Welcome!!

PCNA is the leading nursing organization dedicated to preventing cardiovascular disease through assessing risk, facilitating lifestyle changes and guiding individuals to achieve treatment goals.

The mission of PCNA is to develop and promote nurses as leaders in the prevention of cardiovascular disease.

APHA

9

PCNA
PREVENTIVE CARDIOVASCULAR NURSES ASSOCIATION

We have members who work in:

- Cardiology
- Preventive Cardiology
- Cardiac Rehab
- Heart Failure
- Family Practice
- Primary Care
- Internal Medicine
- Public Health
- Women's Health
- Universities
- And more!

Members are Nurses, Advance Practice Providers, Nurse Practitioners, Clinical Nurse Specialist, Researchers, Educators and More!

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10

PCNA
PREVENTIVE CARDIOVASCULAR NURSES ASSOCIATION

PCNA Chapters Across the County!

Board and Chapter Leaders

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11

PCNA
PREVENTIVE CARDIOVASCULAR NURSES ASSOCIATION

Member Benefits

- Print and Digital Patient education materials
- The Journal of Cardiovascular Nursing
- On Demand Professional Education
- Live Professional Education Events – National and Regional
- An active community of nurses, both online and through our chapter programs.

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12

Available at PCNA.net!

Patient Education & Clinical Tools

APhA

13

Reducing Cardiovascular Risk Stakeholder Meeting
Perspectives from patients and health care providers: Identifying the gaps about elevated triglycerides and patient engagement

Health Care Professional Triglycerides Survey Review/Consensus Development

9:00 AM – 10:30 AM

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14

Health Care Professional Survey Stats

- Field Dates: September 29 – October 31, 2018
- n=1,548
- Participating organizations:
 - American Association of Clinical Endocrinologists (AACE)
 - American College of Cardiology (ACC)
 - American Diabetes Association (ADA)
 - American Heart Association (AHA)
 - American Pharmacists Association (APhA)
 - Endocrine Society
 - Foundation of the National Lipid Association (NLA)
 - Preventive Cardiovascular Nurses Association (PCNA)

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15

Demographics

YEARS IN PRACTICE

- 21% 0-5 years
- 12% 6-10 years
- 21% 11-20 years
- 20% 21-30 years
- 26% > 30 years

PROFESSION

- 9% Physician
- 1% Physician Assistant
- 52% Nurse/Nurse Practitioner
- 22% Pharmacist
- 16% Other
 - Clinical Exercise Physiologist
 - Dietician/nutritionist
 - Diabetes/health educator
 - Pharmacy Technician

GEOGRAPHIC REGION

- 16% Northeast
- 33% Midwest
- 30% South
- 19% West
- 2% Puerto Rico/Outside US

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16

Demographics

- **Physician / physician assistant / nurse/nurse practitioner primary practice setting**
 - 43% Healthcare System
 - 14% Academic Medical Center
 - 19% Group Practice
 - 11% Individual Practice
 - 13% Other
 - Public health / community health center
 - Nursing home
 - Cardiac rehab facility

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17

Demographics

- **Physician / physician assistant / nurse/nurse practitioner practice setting type**
 - 25% Primary care
 - 50% Specialty clinic
 - 25% Other

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18

Demographics

Pharmacist primary practice setting

- 15% Chain pharmacy (4+ units)
- 13% Ambulatory care clinic
- 11% Independent pharmacy (1-3 units)
- 10% Hospital/institutional (inpatient) pharmacy
- 6% Academia
- 6% Clinic (outpatient) pharmacy
- 6% Supermarket pharmacy
- 5% Currently not working
- 4% Managed care pharmacy
- 4% Federal/Military/Department of Defense pharmacy
- 3% Consultant pharmacy
- 3% Physician office-based practice
- 2% Mass-merchant pharmacy
- 2% Long-term care pharmacy
- 2% Pharmaceutical industry
- 2% Specialty pharmacy
- 1% Mail-service pharmacy
- 1% Association/Regulatory
- 1% Residency/Fellowship/Postgraduate training
- 5% Other
 - Federal prison
 - Home care
 - Hospice
 - Law practice



19

Condition/Risk

In a typical week, how many patients do you see with all types of dyslipidemia?

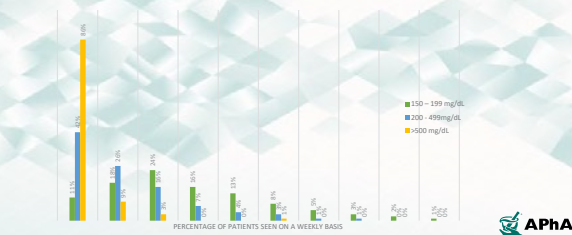
- 26% 1-10
- 23% 11-20
- 17% 21-30
- 9% 31-40
- 7% 41-50
- 5% 51-60
- 3% 61-70
- 1% 71-80
- 1% 81-90
- 2% 91-100
- 5% More than 100



20

Condition/Risk

Percentage of patients with elevated or high triglyceride levels



21

Condition/Risk

Which of the following are risk factors you evaluate when diagnosing hypertriglyceridemia?

- 86% Diet
- 84% Weight/BMI
- 79% Medical history (CVD, diabetes, thyroid disorder, pancreatitis)
- 78% Total LDL and HDL cholesterol levels
- 78% Family history (CVD, diabetes, thyroid disorder, pancreatitis)
- 75% Alcohol use
- 74% Laboratory values
- 73% Physical activity level
- 63% Smoking status/history
- 59% Medication history (steroids, etc.)
- 47% Waist circumference
- 41% Physical symptoms/signs
- 7% I do not screen for hypertriglyceridemia
- 3% Other
 - A1C and glucose



22

Condition/Risk

MEAN ranking the following conditions in terms of cardiovascular risk (1=highest risk, 8=lowest risk)

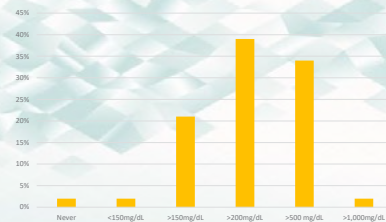
- 1.68 Acute coronary syndrome
- 2.56 Any comorbidities: diabetes, kidney disease, obesity with high triglycerides and controlled LDL cholesterol
- 3.86 High LDL cholesterol (≥ 100 mg/dL)
- 5.61 Low HDL cholesterol (≤ 40 mg/dL)
- 5.96 Elevated triglycerides (≥ 150 mg/dL)
- 5.06 High triglycerides (≥ 200 mg/dL)
- 4.00 Very high triglycerides (≥ 500 mg/dL)
- 7.26 Optimal LDL cholesterol with hypertriglyceridemia



23

Treatment

At which of the following triglyceride levels do you begin medication for treatment?



24

Treatment

• Which of the following are the current challenges in treating patients with hypertriglyceridemia?

- 73% Patient adherence
- 51% Medication cost
- 44% Lack of education / understanding
- 41% Polypharmacy
- 38% Side effects
- 32% Prior authorization / insurance denials
- 30% Lack of understanding of guideline supporting evidence
- 27% Lack of cardiovascular outcomes trials
- 24% Inconsistent therapeutic benchmarks
- 21% Lack of treatment options
- 3% Other
 - Drug interactions
 - Lifestyle and dietary changes



25

Treatment

• How would you rate your knowledge regarding the diagnosis of hypertriglyceridemia?

- 20% Very knowledgeable
- 63% Somewhat knowledgeable
- 15% Not too knowledgeable
- 2% Not at all knowledgeable

• How would you rate your knowledge regarding the treatment of hypertriglyceridemia?

- 19% Very knowledgeable
- 64% Somewhat knowledgeable
- 15% Not too knowledgeable
- 2% Not at all knowledgeable

• How interested are you in expanding your knowledge of hypertriglyceridemia?

- 54% Very interested
- 38% Somewhat interested
- 7% Not too interested
- 1% Not at all interested



26

Treatment

• Please rate your level of familiarity with each of the following therapies for hypertriglyceridemia.

	n=	Very Familiar	Some-what Familiar	Not Too Familiar	Not At All Familiar	TOTAL FAMILIAR	TOTAL NOT FAMILIAR
Fibrates	939	34%	45%	13%	8%	79%	21%
Niacin	935	36%	47%	13%	5%	83%	18%
Fish oil dietary supplement	937	46%	45%	7%	2%	91%	9%
Prescription Omega 3	935	41%	43%	12%	4%	84%	16%
Statins	935	62%	32%	4%	2%	94%	6%
Other (Diet/lifestyle management, glycemic control, insulin, Heparin, OTC Omega-3, OTC red yeast rice, Pcsk9 inhibitors, Repatha, Vascepa, Livalo, Volanesorsen, Pioglitazone, Plant stanols, Praluent)	142	33%	22%	11%	35%	55%	46%



27

Treatment

• To which patients do you recommend a prescription treatment for hypertriglyceridemia?

- 6% To all patients
- 11% To patients without comorbidities
- 18% To patients with triglyceride levels between 150 and 199
- 64% To patients with triglyceride levels between 200 and 499
- 65% To patients with triglycerides over 500

• To which patients do you recommend a fish oil dietary supplement for hypertriglyceridemia?

- 25% To all patients
- 17% To patients without comorbidities
- 41% To patients with triglyceride levels between 150 and 199
- 42% To patients with triglyceride levels between 200 and 499
- 32% To patients with triglycerides over 500



28

Treatment

• Are over the counter fish oil dietary supplements approved by the FDA to treat hypertriglyceridemia?

- 12% Yes
- 58% No
- 30% I don't know

• How satisfied are you with the medication options for treating hypertriglyceridemia?

- 6% Very satisfied
- 57% Somewhat satisfied
- 32% Not too satisfied
- 5% Not at all satisfied



29

Treatment

• MEAN ranking the following therapies in the order that you most prefer for treating hypertriglyceridemia when LDL-C is controlled, and when there is no ASCVD present. (1=most preferred, 6=least preferred)

- 2.59 Fish oil dietary supplement
- 2.74 Prescription Omega 3
- 3.06 Niacin
- 3.31 Fibrates
- 5.61 Statins
- 3.69 Other
 - Diet (alcohol avoidance, low carbohydrate)
 - Exercise
 - Ezetimibe
 - Gemfibrozil
 - OTC OMEGA 3
 - Pioglitazone
 - Plasmapheresis for severe hypertriglyceridemia
 - Vascepa
 - Zetia



30

Ideal Patient/HCP Interactions

- **How would you rate your patients' knowledge regarding hypertriglyceridemia?**
 - 1% Very knowledgeable
 - 18% Somewhat knowledgeable
 - 60% Not too knowledgeable
 - 21% Not at all knowledgeable
- **How would you rate your patients' knowledge regarding the treatments for hypertriglyceridemia?**
 - 1% Very knowledgeable
 - 17% Somewhat knowledgeable
 - 56% Not too knowledgeable
 - 26% Not at all knowledgeable
- **How would you rate your patients' knowledge regarding the difference between dietary supplements and prescription products and their intended uses?**
 - 1% Very knowledgeable
 - 22% Somewhat knowledgeable
 - 55% Not too knowledgeable
 - 22% Not at all knowledgeable



31

Ideal Patient/HCP Interactions

- **Which of the following lifestyle changes do you recommend for your patients with hypertriglyceridemia?**
 - 95% Increase activity
 - 94% Heart healthy diet
 - 92% Lose weight
 - 88% Decrease (or stop) alcohol consumption
 - 87% Quit smoking
 - 9% Other (specify)
 - Low carbohydrate diet
 - Relaxation / stress reduction exercises
 - Increase fiber intake
 - Increase intake of omega-3 fatty acids
 - Increase leafy green consumption



32

Ideal Patient/HCP Interactions

- **Which of the following questions do you most frequently receive from patients regarding hypertriglyceridemia?**
 - 76% What can I do to lower my triglycerides without medications?
 - 71% What dietary changes should I make to lower my triglycerides?
 - 53% How much do the treatment options cost?
 - 47% What over-the-counter medications can I take to lower my triglycerides?
 - 43% Is it important for me to lower my triglycerides?
 - 43% How will this medication interact with the other medications that I am currently taking?
 - 19% How will this medication interact with alcohol?
 - 14% How will this medication interact with food?
 - 4% Other
 - How long do I have to take the medication?
 - Is there any natural product to lower triglycerides?
 - What are the medication side effects?
 - What are triglycerides and what role does it play in cardiovascular risk?



33

Ideal Patient/HCP Interactions

- **Are you currently using resources to help facilitate conversations with patients regarding hypertriglyceridemia?**
 - 29% Yes
 - Academy of Dietetics
 - Academy of Nutrition
 - ACC guidelines
 - American Heart Associations
 - Dieticians
 - Krames
 - Lexicomp
 - Mayo Clinic
 - Medical journals
 - National Lipid Association
 - PCNA
 - Webmed
 - 71% No



34

Ideal Patient/HCP Interactions

- **What additional resources would you like to have to help facilitate conversations with patients regarding hypertriglyceridemia?**
 - 62% Decision tree to assist with prescribing the appropriate medication to treat
 - 70% Tool that outlines risks and benefits of products used to treat
 - 78% Tool that describes hypertriglyceridemia and outlines risks of not treating
 - 54% Cost information including comparisons
 - 4% Other
 - Dietary information/recommendations
 - Education materials in other languages (Spanish & Vietnamese)
 - Formulary information
 - Telepharmacy tools
 - Tools to assist lifestyle changes



35

Ideal Patient/HCP Interactions

- **How would you like to receive resources to use with patients?**
 - 71% Web
 - 23% Mobile
 - 6% Print



36

Reducing Cardiovascular Risk Stakeholder Meeting

Perspectives from patients and health care providers: Identifying the gaps about elevated triglycerides and patient engagement

Break

10:30 AM – 11:00 AM

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37

Reducing Cardiovascular Risk Stakeholder Meeting

Perspectives from patients and health care providers: Identifying the gaps about elevated triglycerides and patient engagement

Consumer Triglycerides Survey Review/Consensus Development

11:00 AM – 12:30 PM

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38

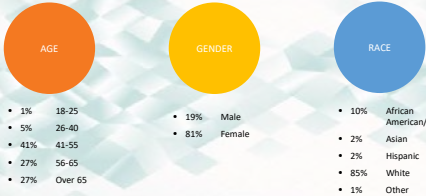
Patient Survey Stats

- Field Dates: September 29 – October 31, 2018
- n=154
- Participating organizations:
 - American Diabetes Association (ADA)
 - American Heart Association (AHA)
 - National Council on Patient Information and Education (NCPIE)
 - Patient Advocate Foundation (PAF)
 - Foundation of the National Lipid Association




39

Demographics

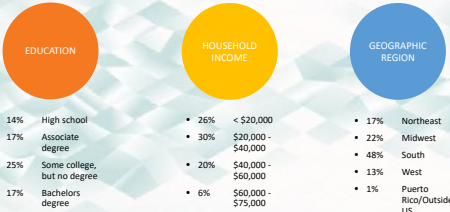


AGE	GENDER	RACE
1% 18-25	19% Male	10% African American/Black
5% 26-40	81% Female	2% Asian
41% 41-55		2% Hispanic
27% 56-65		85% White
27% Over 65		1% Other




40

Demographics



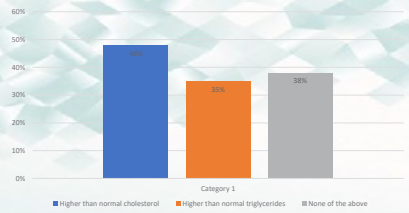
EDUCATION	HOUSEHOLD INCOME	GEOGRAPHIC REGION
14% High school	26% <\$20,000	17% Northeast
17% Associate degree	30% \$20,000 - \$40,000	22% Midwest
25% Some college, but no degree	20% \$40,000 - \$60,000	48% South
17% Bachelors degree	6% \$60,000 - \$75,000	13% West
4% Post-bachelors	4% \$75,000 - \$100,000	1% Puerto Rico/Outside US
20% Graduate degree	14% >\$100,000	




41

Condition/Risk

- Of the 162 of the survey respondents, the following percentage reported being told by a health care professional that they have the following conditions:



Condition	Percentage
Higher than normal cholesterol	48%
Higher than normal triglycerides	33%
None of the above	38%



42

Condition/Risk

■ Patient reported knowledge of the following medical conditions:

	n=	Very Know-ledge-able	Some-what Know-ledge-able	Not Too Know-ledge-able	Not At All Know-ledge-able	TOTAL KNOW-LEDGE-ABLE	TOTAL NOT KNOW-LEDGE-ABLE
Higher than normal cholesterol	152	20%	62%	13%	5%	82%	18%
Higher than normal triglycerides	151	18%	42%	26%	15%	60%	41%
High blood pressure	152	39%	51%	7%	3%	90%	10%
Heart disease	154	28%	57%	12%	3%	85%	15%
Diabetes	153	35%	44%	15%	5%	79%	20%
Thyroid disorder	153	21%	36%	27%	16%	57%	43%



43

Condition/Risk

• Patient reported knowledge of lipid levels:

	n=	Very Know-ledge-able	Some-what Know-ledge-able	Not Too Know-ledge-able	Not At All Know-ledge-able	TOTAL KNOW-LEDGE-ABLE	TOTAL NOT KNOW-LEDGE-ABLE
HDL, Good cholesterol	153	18%	57%	20%	6%	75%	26%
LDL, Bad cholesterol	153	19%	59%	16%	6%	78%	22%
TG, Triglycerides	151	17%	48%	22%	14%	65%	36%
TC, Total cholesterol	152	20%	50%	20%	11%	70%	31%



44

Condition/Risk

• Patient reported importance of the following in managing lipid levels:

	n=	Very important	Some-what important	Not Too important	Not At All important	TOTAL IMPORTANT	TOTAL NOT IMPORTANT
HDL, Good cholesterol	154	75%	19%	3%	3%	94%	6%
LDL, Bad cholesterol	155	75%	17%	5%	3%	92%	8%
TG, Triglycerides	153	69%	24%	4%	3%	93%	7%
TC, Total cholesterol	153	64%	25%	8%	3%	89%	11%



45

Condition/Risk

• Which of the following can put you at risk for a higher than normal triglyceride levels?

- 85% Being overweight
- 71% Family history
- 71% Eating food high in carbohydrates
- 71% Being physically inactive
- 63% Eating food high in sugar
- 63% Having diabetes
- 54% Age
- 50% Consuming excess alcohol
- 44% Smoking cigarettes
- 41% Being on certain medications
- 40% Having a thyroid disorder
- 22% Being on birth control or taking other hormone medications
- 13% I don't know



46

Condition/Risk

• Do you agree or disagree that having higher than normal triglycerides puts you at risk for having a heart attack or stroke?

- 68% Strongly agree
- 29% Somewhat agree
- 2% Somewhat disagree
- 1% Strongly disagree



47

Treatment

• Which of the following lifestyle behaviors do you currently practice?

- 50% Heart healthy diet
- 55% Weight control
- 51% Regular physical activity (3-5 times a week for 30 minutes or more)
- 58% Moderation of alcohol consumption (one or fewer drinks per day)
- 75% No smoking
- 7% None of the above



48

Treatment

• Which of the following lifestyle changes do you think can lower triglyceride levels?

- 95% Follow a heart healthy diet
- 87% Weight loss
- 88% Increase physical activity (3-5 times a week for 30 minutes or more)
- 64% Decrease alcohol consumption (to one or fewer drinks per day)
- 62% Stop smoking
- 1% None of the above

• Which of the following lifestyle changes would you be willing to make to improve your health?

- 80% Follow a heart healthy diet
- 75% Weight loss
- 81% Regular activity (3-5 times a week for 30 minutes or more)
- 53% Moderation of alcohol consumption (to one or fewer drinks per day)
- 31% Quit smoking
- 5% None of the above



49

Treatment

• How many medicines do you currently take?

- 8% 0
- 26% 1-3
- 26% 4-5
- 21% 6-9
- 19% 10 or more

• For the medicines you are currently taking, how often do you take them as prescribed by your health care professional?

- 82% All the time
- 14% Miss 1-2 doses per week
- 1% Miss 3-4 doses per week
- 0% Miss 5 or more doses per week
- 4% Not at all



50

Treatment

• Which of the following things would you consider if your health care professional wanted you to take medicine for higher than normal triglycerides?

- 81% Possible side effects of the medicine
- 68% Out of pocket monthly cost of the medicine
- 29% Number of medicines I'm currently taking
- 24% Number of doses of medicine I would be taking per day
- 19% How it would affect what I eat
- 11% Whether I would remember to take the medicine
- 11% None of the above
- 4% How it would affect my alcohol consumption

• What would you expect to pay out of pocket for a medicine every month to treat higher than normal triglycerides?

- 64% \$0-\$15
- 19% \$16-\$25
- 8% \$26-\$50
- 10% \$51 and above



51

Treatment

• How important do you think it is to treat higher than normal triglyceride levels?

- 74% Very important
- 24% Somewhat important
- 3% Not too important
- 0% Not at all important

• Is there a difference between treating higher than normal triglycerides and higher than normal bad cholesterol?

- 46% Yes
- 11% No
- 43% I don't know



52

Treatment

• What types of medicine do you believe work to lower triglycerides?

- 64% Prescription medications
- 35% Dietary supplements (fish oil)
- 16% Vitamin or herbal products
- 6% Over the counter medications
- 30% I don't know

• What kind of medicine would you most likely take to treat higher than normal triglycerides?

- 50% Prescription medications
- 16% Dietary supplements (fish oil)
- 7% Vitamin or herbal products
- 1% Over the counter medications
- 26% I don't know



53

Health Care Provider Interactions

• How often do you see each of the following health care professionals?

• Respondents reported seeing health care providers in-person more often than virtual or phone interactions

	n=	More than once a month	Once a month	Once every 3 months	Once every 6 months	Once a year	Less than once a year
Physician	127	5%	8%	42%	25%	16%	5%
Physician assistant	92	2%	10%	21%	18%	14%	35%
Nurse/Nurse Practitioner	96	4%	8%	23%	19%	18%	28%
Pharmacist	110	22%	37%	15%	5%	5%	15%



54

Health Care Provider Interactions

Which health care professionals do you think should talk to you about your triglyceride levels?

- 96% Physician
- 40% Physician assistant
- 47% Nurse/Nurse Practitioner
- 28% Pharmacist
- 4% Other
 - Nutritionist / Registered Dietitian
 - PCP

Which of the following health care professionals have talked to you about triglyceride levels?

- 96% Physician
- 40% Physician assistant
- 47% Nurse/Nurse Practitioner
- 28% Pharmacist
- 4% Other
 - Nutritionist / Registered Dietitian
 - PCP



55

Health Care Provider Interactions

• Did the health care professional provide you with resources about triglycerides?

- 36% Yes
- 64% No

• What resources did the health care professional provide about triglycerides?

- Printed educational material (handouts, brochures, etc.)
- Prescription medication
- Information on diet changes
- Information on fish oil supplements



56

Health Care Provider Interactions

• What information would you need to change your lifestyle in order to lower your triglycerides?

- Nutrition guide
- Exercise plan
- Information on fish oil supplements
- Information on prescription medications (cost, side effects, clinical trial results)

• What information would you need to take medicine to lower your triglycerides?

- Lab results showing triglyceride levels
- Cost
- Side effects
- Interactions with other medications
- Clinical trial results



57

Health Care Provider Interactions

• Did the health care professional provide you with information about the differences between dietary supplements and prescription products?

- 33% Yes
- 67% No

• How interested are you in receiving more information on triglycerides?

- 63% Interested
- 37% Not interested

• How would you prefer to receive information about triglycerides?

- 64% Web
- 14% Mobile
- 35% Print



58

Reducing Cardiovascular Risk Stakeholder Meeting

Perspectives from patients and health care providers: Identifying the gaps about elevated triglycerides and patient engagement

Lunch/Networking

12:30 PM – 1:30 PM

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59

Reducing Cardiovascular Risk Stakeholder Meeting

Perspectives from patients and health care providers: Identifying the gaps about elevated triglycerides and patient engagement

Review of REDUCE-IT: Late Breaking Cardiovascular Outcomes Trial

1:30 PM – 2:15 PM

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60

Health Care Provider Interactions

Which health care professionals do you think should talk to you about your triglyceride levels?

- 96% Physician
- 40% Physician assistant
- 47% Nurse/Nurse Practitioner
- 28% Pharmacist
- 4% Other
 - Nutritionist / Registered Dietitian
 - PCP

Which of the following health care professionals have talked to you about triglyceride levels?

- 96% Physician
- 40% Physician assistant
- 47% Nurse/Nurse Practitioner
- 28% Pharmacist
- 4% Other
 - Nutritionist / Registered Dietitian
 - PCP



55

Health Care Provider Interactions

• Did the health care professional provide you with resources about triglycerides?

- 36% Yes
- 64% No

• What resources did the health care professional provide about triglycerides?

- Printed educational material (handouts, brochures, etc.)
- Prescription medication
- Information on diet changes
- Information on fish oil supplements



56

Health Care Provider Interactions

• What information would you need to change your lifestyle in order to lower your triglycerides?

- Nutrition guide
- Exercise plan
- Information on fish oil supplements
- Information on prescription medications (cost, side effects, clinical trial results)

• What information would you need to take medicine to lower your triglycerides?

- Lab results showing triglyceride levels
- Cost
- Side effects
- Interactions with other medications
- Clinical trial results



57

Health Care Provider Interactions

• Did the health care professional provide you with information about the differences between dietary supplements and prescription products?

- 33% Yes
- 67% No

• How interested are you in receiving more information on triglycerides?

- 63% Interested
- 37% Not interested

• How would you prefer to receive information about triglycerides?

- 64% Web
- 14% Mobile
- 35% Print



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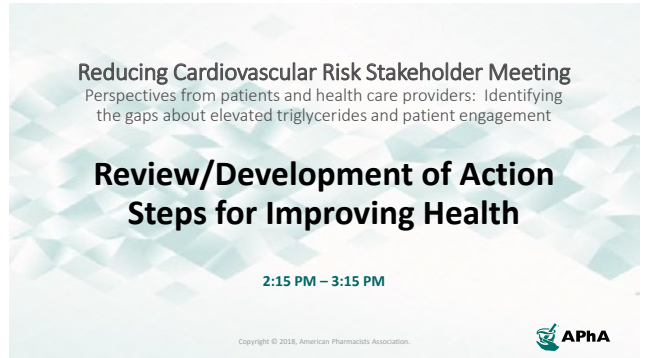
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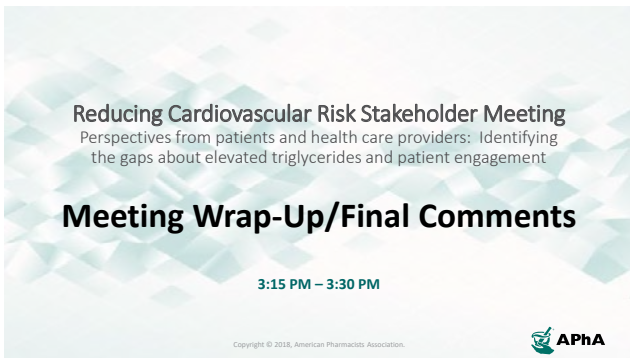
60



61



62



63

Appendix D: Health Care Professional Survey Results

Field Dates: September 29 – October 31, 2018

n=1,548

From which of the following organizations did you receive the survey?

(n=1,548)

1%	American Association of Clinical Endocrinologists (AACE)	(n=21)
1%	American College of Cardiology (ACC)	(n=11)
1%	American Diabetes Association (ADA)	(n=8)
1%	American Heart Association (AHA)	(n=20)
21%	American Pharmacists Association (APhA)	(n=332)
0%	Endocrine Society	(n=5)
8%	Foundation of the National Lipid Association (NLA)	(n=118)
67%	Preventive Cardiovascular Nurses Association (PCNA)	(n=1,033)

Condition/Risk

In a typical week, how many patients do you see with all types of dyslipidemia?

(n=1,288)

26%	1-10
23%	11-20
17%	21-30
9%	31-40
7%	41-50
5%	51-60
3%	61-70
1%	71-80
1%	81-90
2%	91-100
5%	More than 100

What percentage of your patients have elevated triglyceride levels (150 – 199 mg/dL)?

(n=1,082)

11%	1-10%
18%	11-20%
24%	21-30%
16%	31-40%
13%	41-50%
8%	51-60%
5%	61-70%

3%	71-80%
2%	81-90%
1%	91-100%

What percentage of your patients have high triglycerides (200 - 499mg/dL)?

(n=1,065)

42%	1-10%
25%	11-20%
16%	21-30%
7%	31-40%
4%	41-50%
3%	51-60%
1%	61-70%
1%	71-80%
0%	81-90%
0%	91-100%

What percentage of your patients have very high triglyceride levels (>500 mg/dL)?

(n=848)

86%	1-10%
9%	11-20%
3%	21-30%
0%	31-40%
0%	41-50%
1%	51-60%
0%	61-70%
0%	71-80%
0%	81-90%
0%	91-100%

Which of the following are risk factors you evaluate when diagnosing hypertriglyceridemia? (Select all that apply.)

(n=950)

86%	Diet
84%	Weight/BMI
79%	Medical history (CVD, diabetes, thyroid disorder, pancreatitis)
78%	Total, LDL and HDL cholesterol levels
78%	Family history (CVD, diabetes, thyroid disorder, pancreatitis)
75%	Alcohol use
74%	Laboratory values

73%	Physical activity level
63%	Smoking status/history
59%	Medication history (steroids, etc.)
47%	Waist circumference
41%	Physical symptoms/signs
7%	I do not screen for hypertriglyceridemia
3%	Other (specify) _____ (see verbatim responses)

Please rank the following conditions from highest to lowest in terms of the cardiovascular risk. (To rank, drag and drop choices. 1=highest risk, 8=lowest risk.)

(n=961)

MEAN

1.68	Acute coronary syndrome
2.56	Any comorbidities: diabetes, kidney disease, obesity with high triglycerides and controlled LDL cholesterol
3.86	High LDL cholesterol (>100 mg/dL)
5.61	Low HDL cholesterol (<40 mg/dL)
5.96	Elevated triglycerides (>150mg/dL)
5.06	High triglycerides (>200 mg/dL)
4.00	Very high triglycerides (>500mg/dL)
7.26	Optimal LDL cholesterol with hypertriglyceridemia

Treatment

At which of the following triglyceride levels do you begin medication for treatment?

(n=593)

2%	Never
2%	<150mg/dL
21%	>150mg/dL
39%	>200mg/dL
34%	>500 mg/dL
2%	>1,000mg/dL

At which of the following triglyceride levels do you begin treatment in patients with one or more co-morbidities or risk factors?

(n=558)

1%	Never
8%	<150mg/dL
40%	>150mg/dL
33%	>200mg/dL
18%	>500 mg/dL
1%	>1,000mg/dL

Which of the following are the current challenges in treating patients with hypertriglyceridemia? (Select all that apply.)

(n=770)

- 73% Patient adherence
- 51% Medication cost
- 44% Lack of education / understanding
- 41% Polypharmacy
- 38% Side effects
- 32% Prior authorization / insurance denials
- 30% Lack of understanding of guideline supporting evidence
- 27% Lack of cardiovascular outcomes trials
- 24% Inconsistent therapeutic benchmarks
- 21% Lack of treatment options
- 1% None of the above
- 3% Other (specify) _____ (see verbatim responses)

How would you rate your knowledge regarding the diagnosis of hypertriglyceridemia?

(n=779)

- 20% Very knowledgeable
- 63% Somewhat knowledgeable
- 15% Not too knowledgeable
- 2% Not at all knowledgeable

83% TOTAL KNOWLEDGEABLE
17% TOTAL NOT KNOWLEDGEABLE

How would you rate your knowledge regarding the treatment of hypertriglyceridemia?

(n=799)

- 19% Very knowledgeable
- 64% Somewhat knowledgeable
- 15% Not too knowledgeable
- 2% Not at all knowledgeable

83% TOTAL KNOWLEDGEABLE
17% TOTAL NOT KNOWLEDGEABLE

How interested are you in expanding your knowledge of hypertriglyceridemia?

(n=946)

- 54% Very interested
- 38% Somewhat interested
- 7% Not too interested
- 1% Not at all interested

92% TOTAL INTERESTED

8% TOTAL NOT INTERESTED

Please rate your level of familiarity with each of the following therapies for hypertriglyceridemia.							
	n=	Very Fa- miliar	Some-what Familiar	Not Too Familiar	Not At All Familiar	TOTAL FAMILIAR	TOTAL NOT FAMILIAR
Fibrates	939	34%	45%	13%	8%	79%	21%
Niacin	935	36%	47%	13%	5%	83%	18%
Fish oil dietary supplement	937	46%	45%	7%	2%	91%	9%
Prescription Omega 3	935	41%	43%	12%	4%	84%	16%
Statins	935	62%	32%	4%	2%	94%	6%
Other (specify) _____ (see verbatim responses)	142	33%	22%	11%	35%	55%	46%

**To which patients do you recommend a prescription treatment for hypertriglyceridemia?
(Select all that apply.)**

(n=827)

- 6% To all patients
- 11% To patients without comorbidities
- 18% To patients with triglyceride levels between 150 and 199
- 64% To patients with triglyceride levels between 200 and 499
- 65% To patients with triglycerides over 500

**To which patients do you recommend a fish oil dietary supplement for hypertriglyceridemia?
(Select all that apply.)**

(n=798)

- 25% To all patients
- 17% To patients without comorbidities
- 41% To patients with triglyceride levels between 150 and 199
- 42% To patients with triglyceride levels between 200 and 499
- 32% To patients with triglycerides over 500

Are over the counter fish oil dietary supplements approved by the FDA to treat hypertriglyceridemia?

(n=893)

12%	Yes
58%	No
30%	I don't know

How satisfied are you with the medication options for treating hypertriglyceridemia?

(n=859)

6%	Very satisfied
57%	Somewhat satisfied
32%	Not too satisfied
5%	Not at all satisfied

63%	TOTAL SATISFIED
37%	TOTAL NOT SATISFIED

Please rank the following therapies in the order that you most prefer for treating hypertriglyceridemia when LDL-C is controlled, and when there is no ASCVD present. (To rank, drag and drop choices. 1=most preferred, 6=least preferred.)

(n=780)

MEAN

2.74	Prescription Omega 3
5.61	Statins
3.31	Fibrates
3.06	Niacin
2.59	Fish oil dietary supplement
3.69	Other (specify) _____ (see verbatim responses)

Ideal Patient/HCP Interactions

How would you rate your patients' knowledge regarding hypertriglyceridemia?

(n=845)

1%	Very knowledgeable
18%	Somewhat knowledgeable
60%	Not too knowledgeable
21%	Not at all knowledgeable

19%	TOTAL KNOWLEDGEABLE
81%	TOTAL NOT KNOWLEDGEABLE

How would you rate your patients' knowledge regarding the treatments for hypertriglyceridemia?

(n=827)

- 1% Very knowledgeable
- 17% Somewhat knowledgeable
- 56% Not too knowledgeable
- 26% Not at all knowledgeable

18% TOTAL KNOWLEDGEABLE

82% TOTAL NOT KNOWLEDGEABLE

How would you rate your patients' knowledge regarding the difference between dietary supplements and prescription products and their intended uses?

(n=831)

- 1% Very knowledgeable
- 22% Somewhat knowledgeable
- 55% Not too knowledgeable
- 22% Not at all knowledgeable

23% TOTAL KNOWLEDGEABLE

77% TOTAL NOT KNOWLEDGEABLE

Which of the following lifestyle changes do you recommend for your patients with hypertriglyceridemia? (Select all that apply.)

(n=823)

- 95% Increase activity
- 94% Heart healthy diet
- 92% Lose weight
- 88% Decrease (or stop) alcohol consumption
- 87% Quit smoking
- 0% None
- 9% Other (specify) _____ (see verbatim responses)

Which of the following questions do you most frequently receive from patients regarding hypertriglyceridemia? (Select all that apply.)

(n=805)

- 76% What can I do to lower my triglycerides without medications?
- 71% What dietary changes should I make to lower my triglycerides?
- 53% How much do the treatment options cost?
- 47% What over-the-counter medications can I take to lower my triglycerides?
- 43% Is it important for me to lower my triglycerides?
- 43% How will this medication interact with the other medications that I am currently taking?
- 19% How will this medication interact with alcohol?
- 14% How will this medication interact with food?
- 4% Other (specify) _____ (see verbatim responses)

Are you currently using resources to help facilitate conversations with patients regarding hypertriglyceridemia?

(n=815)

- 29% Yes (please specify the resources) _____ (see verbatim responses)
- 71% No

What additional resources would you like to have to help facilitate conversations with patients regarding hypertriglyceridemia? (Select all that apply.)

(n=780)

- 62% Decision tree to assist with prescribing the appropriate medication to treat
- 70% Tool that outlines risks and benefits of products used to treat
- 78% Tool that describes hypertriglyceridemia and outlines risks of not treating
- 54% Cost information including comparisons
- 4% Other (specify) _____ (see verbatim responses)

How would you like to receive resources to use with patients? (Select all that apply.)

(n=797)

- 71% Web
- 23% Mobile
- 60% Print

Demographics

How many years have you been in practice?

(n=811)

21%	0-5 years
12%	6-10 years
21%	11-20 years
20%	21-30 years
26%	More than 30 years

In what region is your primary practice?

(n=806)

16%	Northeast (CT, MA, ME, NH, NJ, NY, PA, RI, VT)
33%	Midwest (IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI)
30%	South (AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV)
19%	West (AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY)
2%	Puerto Rico/Outside US

What is your profession?

(n=822)

9%	Physician
0%	Physician Assistant
52%	Nurse/Nurse Practitioner
22%	Pharmacist
16%	Other (specify) _____ (see verbatim responses)

[IF PHYSICIAN / PHYSICIAN ASSISTANT / NURSE/NURSE PRACTITIONER]

Which of the following best describes your primary practice setting? (Please select only one.)

(n=498)

43%	Healthcare System
14%	Academic Medical Center
19%	Group Practice
11%	Individual Practice
13%	Other (specify) _____ (see verbatim responses)

[IF PHYSICIAN / PHYSICIAN ASSISTANT / NURSE/NURSE PRACTITIONER]

What type of practice are you in?

(n=492)

- 25% Primary care
- 50% Specialty clinic (specify) _____ (see verbatim responses)
- 25% Other (specify) _____ (see verbatim responses)

[IF PHARMACIST]

Which of the following best describes your primary practice setting? (Please select only one.)

(n=181)

- 13% Ambulatory care clinic
- 10% Hospital/Institutional (inpatient) pharmacy
- 6% Supermarket pharmacy
- 6% Clinic (outpatient) pharmacy
- 6% Academia (College or school of pharmacy)
- 5% Currently not working
- 4% Managed care pharmacy
- 4% Federal/Military/Department of Defense pharmacy
- 3% Consultant pharmacy
- 3% Physician office-based practice
- 2% Mass-merchant pharmacy
- 2% Long-term care pharmacy
- 2% Pharmaceutical industry
- 2% Specialty pharmacy
- 1% Mail-service pharmacy
- 1% Association/Regulatory
- 1% Residency/Fellowship/Postgraduate training
- 0% Nuclear pharmacy
- 15% Chain pharmacy (4+ units)
- 11% Independent pharmacy (1–3 units)
- 5% Other (specify) _____ (see verbatim responses)

Do you have prescriptive authority?

(n=813)

- 26% Yes
- 12% Yes, under Collaborative Practice Agreements only
- 63% No

Appendix E. Patient Survey Results

Field Dates: September 29 – October 31, 2018

n=154

From which of the following organizations did you receive the survey?

(n=154)

6%	American Diabetes Association (ADA)	(n=9)
8%	American Heart Association (AHA)	(n=12)
1%	HealthyWomen	(n=1)
4%	National Council on Patient Information and Education (NCPIE)	(N=24)
38%	Patient Advocate Foundation (PAF)	(n=59)
4%	Foundation of the National Lipid Association	(n=6)
40%	Other (specify) _____ (see verbatim responses)	(n=61)

Condition/Risk

Has a health care professional such as a doctor or nurse told you that you have the following conditions? (Select all that apply.)

(n=162)

48%	Higher than normal cholesterol
35%	Higher than normal triglycerides
38%	None of the above

Are you currently the caregiver for a person with the following conditions? (Select all that apply.)

(n=144)

15%	Higher than normal cholesterol
13%	Higher than normal triglycerides
80%	None of the above

Please rate your knowledge of each of the following medical conditions.							
	n=	Very Know-ledge-able	Some-what Know-ledge-able	Not Too Know-ledge-able	Not At All Know-ledge-able	TOTAL KNOW-LEDGE-ABLE	TOTAL NOT KNOW-LEDGE-ABLE
Higher than normal cholesterol	152	20%	62%	13%	5%	82%	18%
Higher than normal triglycerides	151	18%	42%	26%	15%	60%	41%
High blood pressure	152	39%	51%	7%	3%	90%	10%
Heart disease	154	28%	57%	12%	3%	85%	15%
Diabetes	153	35%	44%	15%	5%	79%	20%
Thyroid disorder	153	21%	36%	27%	16%	57%	43%

Please rate your knowledge of each of the following lipid levels.							
	n=	Very Know-ledge-able	Some-what Know-ledge-able	Not Too Know-ledge-able	Not At All Know-ledge-able	TOTAL KNOW-LEDGE-ABLE	TOTAL NOT KNOW-LEDGE-ABLE
HDL, Good cholesterol	153	18%	57%	20%	6%	75%	26%
LDL, Bad cholesterol	153	19%	59%	16%	6%	78%	22%
TG, Triglycerides	151	17%	48%	22%	14%	65%	36%
TC, Total cholesterol	152	20%	50%	20%	11%	70%	31%

Please rate the importance of each of the following in managing lipid levels.							
	n=	Very Im-por-tant	Some-what Impor-tant	Not Too Im-por-tant	Not At All Im-por-tant	TOTAL Im-por-tant	TOTAL NOT IM-POR-TANT
HDL, Good cholesterol	154	75%	19%	3%	3%	94%	6%
LDL, Bad cholesterol	155	75%	17%	5%	3%	92%	8%
TG, Triglycerides	153	69%	24%	4%	3%	93%	7%
TC, Total cholesterol	153	64%	25%	8%	3%	89%	11%

Which of the following can put you at risk for a higher than normal triglyceride level? (Select all that apply.)

(n=147)

- 85% Being overweight
- 71% Family history
- 71% Eating food high in carbohydrates
- 71% Being physically inactive
- 63% Eating food high in sugar
- 61% Having diabetes
- 54% Age
- 50% Consuming excess alcohol
- 44% Smoking cigarettes
- 41% Being on certain medications
- 40% Having a thyroid disorder
- 22% Being on birth control or taking other hormone medications
- 13% I don't know

Do you agree or disagree that having higher than normal triglycerides puts you at risk for having a heart attack or stroke?

(n=148)

- 68% Strongly agree
- 29% Somewhat agree
- 2% Somewhat disagree

1% Strongly disagree

97% TOTAL AGREE

3% TOTAL DISAGREE

Treatment

Which of the following lifestyle behaviors do you currently practice? (Select all that apply.)

(n=144)

50% Heart healthy diet

55% Weight control

51% Regular physical activity (3-5 times a week for 30 minutes or more)

58% Moderation of alcohol consumption (one or fewer drinks per day)

75% No smoking

7% None of the above

Which of the following lifestyle changes do you think can lower triglyceride levels? (Select all that apply.)

(n=143)

95% Follow a heart healthy diet

87% Weight loss

88% Increase physical activity (3-5 times a week for 30 minutes or more)

64% Decrease alcohol consumption (to one or fewer drinks per day)

62% Stop smoking

1% None of the above

Which of the following lifestyle changes would you be willing to make to improve your health? (Select all that apply.)

(n=140)

80% Follow a heart healthy diet

75% Weight loss

81% Regular activity (3-5 times a week for 30 minutes or more)

53% Moderation of alcohol consumption (to one or fewer drinks per day)

31% Quit smoking

5% None of the above

How many medicines do you currently take?

(n=141)

8% 0

26% 1-3

26% 4-5

21% 6-9

19% 10 or more

For the medicines you are currently taking, how often do you take them as prescribed by your health care professional?

(n=136)

82% All the time
14% Miss 1-2 doses per week
1% Miss 3-4 doses per week
0% Miss 5 or more doses per week
4% Not at all

Which of the following things would you consider if your health care professional wanted you to take medicine for higher than normal triglycerides? (Select all that apply.)

(n=140)

81% Possible side effects of the medicine
68% Out of pocket monthly cost of the medicine
29% Number of medicines I'm currently taking
24% Number of doses of medicine I would be taking per day
19% How it would affect what I eat
11% Whether I would remember to take the medicine
11% None of the above
4% How it would affect my alcohol consumption

What would you expect to pay out of pocket for a medicine every month to treat higher than normal triglycerides?

(n=135)

64% \$0-\$15
19% \$16-\$25
8% \$26-\$50
10% \$51 and above

How important do you think it is to treat higher than normal triglyceride levels?

(n=136)

74% Very important
24% Somewhat important
3% Not too important
0% Not at all important

98% TOTAL IMPORTANT

3% TOTAL NOT IMPORTANT

Is there a difference between treating higher than normal triglycerides and higher than normal bad cholesterol?

(n=135)

- 46% Yes
- 11% No
- 43% I don't know

What types of medicine do you believe work to lower triglycerides? (Select all that apply.)

(n=135)

- 64% Prescription medications
- 35% Dietary supplements (fish oil)
- 16% Vitamin or herbal products
- 6% Over the counter medications
- 30% I don't know

What kind of medicine would you most likely take to treat higher than normal triglycerides?

(n=135)

- 50% Prescription medications
- 16% Dietary supplements (fish oil)
- 7% Vitamin or herbal products
- 1% Over the counter medications
- 26% I don't know

HCP/Patient Interactions

Please indicate which health care professionals you see and how you see them. (Select all that apply.)					
	n=	Online	Phone	In Person	None
Physician	126	4%	4%	98%	1%
Physician assistant	86	2%	6%	71%	26%
Nurse/Nurse Practitioner	92	3%	5%	80%	16%
Pharmacist	106	8%	9%	80%	10%

How often do you see each of the following health care professionals?							
	n=	More than once a month	Once a month	Once every 3 months	Once every 6 months	Once a year	Less than once a year
Physician	127	5%	8%	42%	25%	16%	5%
Physician assistant	92	2%	10%	21%	18%	14%	35%
Nurse/Nurse Practitioner	96	4%	8%	23%	19%	18%	28%
Pharmacist	110	22%	37%	15%	5%	5%	15%

Which health care professionals do you think should talk to you about your triglyceride levels? (Select all that apply.)

(n=130)

- 96% Physician
- 40% Physician assistant
- 47% Nurse/Nurse Practitioner
- 28% Pharmacist
- 4% Other (specify) _____ (see verbatim responses)

Which of the following health care professionals have talked to you about triglyceride levels? (Select all that apply.)

(n=98)

- 91% Physician
- 24% Physician assistant
- 31% Nurse/Nurse Practitioner
- 8% Pharmacist
- 3% Other (specify) _____ (see verbatim responses)
- * Not applicable / My health care professionals have not talked to me about triglycerides (excluded from analysis)

[IF NOT "NOT APPLICABLE"]

Did the health care professional provide you with resources about triglycerides?

(n=98)

- 36% Yes
- 64% No

[IF YES]

What resources did the health care professional provide about triglycerides? (see verbatim responses)

What information would you need to change your lifestyle in order to lower your triglycerides? (see verbatim responses)

What information would you need to take medicine to lower your triglycerides? (see verbatim responses)

Did the health care professional provide you with information about the differences between dietary supplements and prescription products?

(n=123)

- 33% Yes
- 67% No

How interested are you in receiving more information on triglycerides?

(n=128)

33%	Very interested
30%	Somewhat interested
22%	Not too interested
15%	Not at all interested

63% TOTAL INTERESTED

37% TOTAL NOT INTERESTED

How would you prefer to receive information about triglycerides? (Select all that apply.)

(n=115)

64%	Web
14%	Mobile
35%	Print

Demographics

What is your age?

(n=128)

1%	18-25
5%	26-40
41%	41-55
27%	56-65
27%	Over 65

What is your main racial background?

(n=125)

10%	African-American/Black
2%	Asian
2%	Hispanic
85%	White
1%	Other (Specify) _____ (no verbatim responses)

Please indicate your gender.

(n=128)

19%	Male
81%	Female
0%	Other
0%	Prefer not to report

What is your education level?

(n=126)

2%	Less than high school
1%	Completed some high school
11%	Completed high school
17%	Associate degree
3%	Job-specific training program(s) after high school
25%	Some college, but no degree
17%	College (such as B.A. or B.S.)
4%	Some graduate school, but no degree
20%	Graduate degree (such as M.B.A., M.S., M.D., or Ph.D.)

What is your annual household income?

(n=113)

26%	Under \$20,000
30%	Between \$20,000 & \$40,000
20%	Between \$40,000 & \$60,000
6%	Between \$60,000 & \$75,000
4%	Between \$75,000 & \$100,000
14%	Over \$100,000

In what region do you live?

(n=126)

17%	Northeast (CT, MA, ME, NH, NJ, NY, PA, RI, VT)
22%	Midwest (IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI)
48%	South (AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV)
13%	West (AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY)
1%	Puerto Rico/Outside US

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