

A Sample Needs Assessment

Background:

Cardiovascular disease (CVD) remains the leading cause of death both in the United States and around the world. In 2010, CVD accounted for almost one-third of all deaths in the United States (US)¹. In 2019, it accounted for ¼ of deaths worldwide². The prevalence of CVD is expected to rise by 10% between 2010 and 2030¹, and much of this is related to an increase in CVD risk factors.

Risk factors for the development of CVD have been identified that relate to all patients in general as well as specific patient groups such as women and patients with a diagnosis of type 2 diabetes. Examples of such risk factors include hypertension, hyperlipidemia, physical inactivity, and obesity. The results of not identifying CVD risk factors are significant - 20-40% of heart attacks occur in undiagnosed CVD³. Data from Australia shows that 11.2% of patients aged 45-74 years were considered to be at high risk for CVD at the time of their first significant event².

Patient counseling on risk factor modification and prescription of medications to reduce CVD risk can have a significant impact on morbidity and mortality. For example, a 10% increase in hypertension treatment could prevent 14,000 deaths yearly³. A 10% increase in treating elevated LDL cholesterol could prevent 8,000 deaths annually³. Other large-scale randomized trials show that lipid and blood pressure-lowering medications reduce the risk of CVD events and all-cause mortality by around 25%².

Specific patient populations require identification and education on additional risk factors to reduce their CVD risk. For example, women have female-specific risk factors that increase their risk of CVD, including early menarche and menopause, a history of polycystic ovarian syndrome, and a history of gestational diabetes⁴. However, these sex-specific risk factors are often not understood and addressed in the clinician-patient interaction. This is especially concerning because CVD mortality is increasing in women all over the world⁵.

A second subset of patients requiring attention are patients with type 2 diabetes mellitus (DM). Patients with type 2 DM are twice as likely to have CVD, and these patients suffer from higher rates of mortality as a result of CVD⁶. Specifically, in patients with diabetes mellitus, increased use of evidence-based medication treatments up to 100% over three years could be expected to reduce 4,546 incidences of heart attacks, strokes, or cardiovascular death in eligible but currently untreated patients⁶. Risk factor modification for diabetes mellitus itself is also helpful as this will lead to lower rates of CVD. Multiple strategies exist to do this. For example, one study showed that changes in dietary behavior, increased physical activity, and a 5% weight loss among individuals at high risk of CVD were associated with a 58% reduction in the incidence of diabetes¹.

Therefore, the identification, modification, and treatment of CVD risk factors must be done both accurately and efficiently. In addition, sex and disease-specific risk factors need to be addressed to reduce the incidence and complications of CVD in these populations. When implemented, practice interventions targeting these specific issues can reduce CVD by up to 80% through risk factor identification, modification, and treatment³.

Audience:

This educational activity is specifically for physicians, physician assistants, nurse practitioners, and nurses in the fields of primary care, internal medicine, and cardiology. However, any provider who cares for patients at potential risk for CVD would benefit from this information.

Gap Statement 1:

Missed opportunities exist in identifying, recognizing, and modifying risk factors for cardiovascular disease (CVD).

Clinicians often fail to identify CVD risk factors when present. Studies show that there is a 20% failure to diagnose hypertension and a 30% failure to diagnose hyperlipidemia in the United States³. These are two significant risk factors for CVD. Additionally, research from Australia shows that less than 50% of eligible patients have relevant risk factor data recorded in their primary care assessments².

In addition, deficiencies exist in clinical practice in patient counseling on risk factor modification and in prescribing risk-reducing medication therapies. Provider surveys have shown that clinicians lack an understanding of how to counsel patients in new and different ways, such as with technology, telemonitoring, shared decision-making, and decision aids to improve communication³.

A recent research study found that 43-67% of patients were nonadherent to statins after one year³, related to many factors, including a lack of patient counseling on the importance of taking this medication to reduce CVD risk. In addition, almost half of US adults are diagnosed with hypertension, and only half of these adults have appropriate blood pressure measurements for a person at risk for CVD³. This is due to many factors, such as ineffective prescribing patterns of blood pressure-reducing medications in this patient population.

Educational Need:

Clinicians need to be able to identify CVD risk factors and describe appropriate risk modification strategies for each risk factor. They should then be able to outline and then prescribe first-line therapies and recommended medications for treating these risk factors.

Gap Statement 2:

Healthcare providers disproportionately fail to identify CVD risk factors and provide appropriate modification of these risk factors in women versus men.

First, it is essential to note that many CVD risk factors lead to a greater incidence of disease in women versus men. One systemic review, which included 64 cohort studies, found that the diagnosis of diabetes in women conferred a 40% greater risk of CVD compared to a diagnosis of diabetes in men⁷. Also, women are subject to higher levels of socioeconomic deprivation, which leads to a more significant burden of CVD⁵. Therefore, it is vitally important to identify and treat CVD risk factors in the female population.

Missed opportunities exist specifically in the identification of CVD risk factors in women. A nationwide survey of PCPs and cardiologists found that only 22% of PCPs and 42% of cardiologists reported being extremely well-prepared to assess CVD risk in women⁴. Another survey conducted by the American Heart Association Survey demonstrated a declining awareness of heart disease as a leading cause of death in women, primarily in younger women and women from underrepresented racial and ethnic groups⁷.

In addition, multiple studies show that women receive suboptimal risk factor modification counseling and treatment for CVD. One study found that women were less likely to use evidence-based therapies for diabetes vs. men⁶. It was unclear if this was due to provider prescribing behaviors, patient adherence (which could be affected by provider counseling on risk factor modification), a combination of the two, or something else entirely.

A lack of knowledge of sex-specific medical care plays a large role in the failure of identification and modification of CVD risk factors in women. One physician survey found that nearly 70% of postgraduate trainees reported receiving no or minimal education on sex-based medical concepts during their training⁴.

Educational Need:

Identifying female-specific CVD risk factors is essential to the complete assessment of CVD risk in women, and strategies need to be implemented to provide appropriate risk factor modification in this specific patient population.

Gap Statement 3:

The importance of diabetes as a significant risk factor for CVD is underestimated, and gaps exist in prescribing appropriate medications to treat this disease process.

Patients with type 2 diabetes mellitus (DM) are twice as likely to have CVD, and these patients suffer from higher rates of morbidity and mortality as a result of this disease.

Appropriate risk modification and treatment strategies for type 2 diabetes mellitus can significantly lower one's risk for CVD. A meta-analysis of multiple randomized double-blinded control trials demonstrated a CVD risk reduction of 25% for type 2 diabetic patients who received moderate-intensity statin therapy⁵. In addition, two meta-analyses targeting low blood pressure in patients with diabetes found that a blood pressure of 133/76 provided significant benefit compared to with that of 140/81 for major cardiovascular events⁶.

As it relates to patients with type 2 diabetes mellitus (DM), a study done by Anthem looking at pharmacy and medical claims data for patients with established atherosclerotic CVD and type 2 DM showed a paucity of use of proven first-line therapies, including high-intensity statins (24.7% us), angiotensin-converting enzyme inhibitors (53.1%), and sodium-glucose cotransporter-2 inhibitors/glucagon-like peptide-1 receptor agonists (9.9%). Only 2.7% of the population were covered by prescriptions for all three evidence-based therapies, and 37.4% of the patients in the study were on zero of the first-line therapies. Barriers to using first-line therapies that were found in this study included clinician familiarity, variations in society guidelines, fragmented care pathways, clinician inertia, and perceived interdisciplinary boundaries⁶.

Educational Need:

Recognition of the significance of diabetes mellitus as a risk factor for CVD is imperative, and clinicians should be able to define and prescribe the first-line medications recommended to treat this disease process to reduce the risk of CVD.

Learning Objectives:

By the end of this educational session, clinicians will be able to:

- Determine the presence of CVD risk factors in their patients.
- Present appropriate risk modification strategies for each CVD risk factor, including medication therapies.
- Identify sex-specific CVD risk factors during CVD risk assessments for each of their female patients.
- Provide appropriate risk factor modification to their female patients, keeping sex-based medical concepts in mind.
- Recognize type 2 diabetes mellitus as a significant risk factor for CVD.
- Design an appropriate medication treatment plan for diabetic patients at high risk for CVD.

Anticipated Outcomes:

Once the educational activity is complete, we would expect to see the following outcomes:

- Knowledge improvements in the identification, modification, and treatment of CVD risk factors for all patients as well as specific patient populations such as women and patients with type 2 diabetes. This will be determined through multiple-choice case-based questions taken before and after the educational activity.
- Retention of educational knowledge determined by a 6-week follow-up survey.
- Counseling and implementation of CVD risk factor modification strategies for patients presenting to a provider with these risk factors. This will be determined through a review of patient medical records.
- Changes in prescribing patterns resulting in an increase in prescriptions of first-line medications recommended for the treatment of CVD risk factors in all patient populations.

Gap Table:

Clinician Knowledge and Practice Gaps	Education Need	Activity Learning Objectives	Anticipated Outcomes
Missed opportunities exist in identifying, recognizing, and modifying risk factors for cardiovascular disease (CVD).	Clinicians need to be able to identify CVD risk factors and describe appropriate risk modification strategies for each risk factor. They should then be able to outline and then prescribe first-line therapies and recommended medications for treating these risk factors.	-Determine the presence of CVD risk factors -Present appropriate risk modification strategies for each CVD risk factor, including medication therapies.	-Improvements in the knowledge of identification, modification, and treatment of CVD risk factors. - Counseling of CVD risk factor modifications in the clinician-patient relationship. - Creation of CVD risk factor modification strategy plans. -Increase in prescriptions for recommended first-line therapies to treat CVD risk factors

Healthcare providers disproportionately fail to identify CVD risk factors and provide appropriate modification of these risk factors in women versus men.	Identifying female-specific CVD risk factors is essential to the complete assessment of CVD risk in women, and strategies need to be implemented to provide appropriate risk factor modification in this specific patient population.	-Identify sex-specific CVD risk factors during CVD risk assessments for each of their female patients. -Provide appropriate risk factor modification to their female patients, keeping sex-based medical concepts in mind.	-Improvements in the knowledge of identification, modification, and treatment of female-specific CVD risk factors. -Formulation of sex-based CVD risk factor modification strategy plans.
The importance of diabetes as a significant risk factor for CVD is underestimated, and gaps exist in the prescribing of appropriate medications to treat this disease process.	Recognition of the significance of diabetes mellitus as a risk factor for CVD is imperative, and clinicians should be able to define and prescribe the first-line medications recommended to treat this disease process to reduce the risk of CVD.	-Recognize type 2 diabetes mellitus as a significant risk factor for CVD. -Design an appropriate medication treatment plan for diabetic patients at high risk for CVD.	-Development of appropriate medication treatment plans with first-line therapies recommended for diabetic patients at high risk for CVD.

References:

1. Edward P. Havranek, MD, FAHA, Chair, Mahasin S. Mujahid, PhD, MS, Co-Chair, Donald A. Barr, MD, PhD, Irene V. Blair, PhD, Meryl S. Cohen, MD, FAHA, Salvador Cruz-Flores, MD, FAHA, George Davey-Smith, MA(Oxon), MD, BChir(Cantab), MSc(Lond), Cheryl R. Dennison-Himmelfarb, RN, PhD, FAHA, Michael S. Lauer, MD, FAHA, Debra W. Lockwood, Milagros Rosal, PhD, and Clyde W. Yancy, MD, FAHA. Social Determinants of Risks and Outcomes for Cardiovascular Disease: A Scientific Statement from the American Heart Association. Circulation. 3 Aug 2015;132(9):873–898. <https://doi.org/10.1161/CIR.0000000000000228>

2. Ellie Paige, Natalie Raffoul, Emma Lonsdale, Emily Banks. Cardiovascular disease risk screening in Australia: Evidence and Data Gaps. The Medical Journal of Australia. 11 January 2023; 218(3):103-105. <https://doi.org/10.5694/mja2.51821>.

3. Mark McClellan, MD, PhD, Nancy Brown, BS, Robert M. Califf, MD, MACC, John J. Warner, MD, FAHA. Call to Action: Urgent Challenges in Cardiovascular Disease: A Presidential Advisory From the American Heart Association. Circulation. 24 January 2019;139(9):e44-e54. <https://doi.org/10.1161/CIR.0000000000000652>.

4. Isakadze N, Mehta PK, Law K, Dolan M, Lundberg GP. Addressing the Gap in Physician Preparedness To Assess Cardiovascular Risk in Women: a Comprehensive Approach to Cardiovascular Risk Assessment in Women. Curr Treat Options Cardiovasc Med. 2019 Jul 29;21(9):47. doi: 10.1007/s11936-019-0753-0.

5. Birgit Vogel, Monica Acevedo, Yolande Appelman, Noel Bairey Merz, Alaide Chieffo, Gemma A Figtree, Mayra Guerrero, Vijay Kunadian, Carolyn S P Lam, Angela H E M Maas, Anastasia S Mihailidou, Agnieszka Olszanecka, Jeanne E Poole, Clara Saldarriaga, Jacqueline Saw, Liesl Zühlke, Roxana Mehran. The Lancet women and Cardiovascular Disease Commission: Reducing the global burden by 2030. The Lancet. 2021;397(10292):2385-2438. Accessed January 23, 2024. <https://www.dropbox.com/s/174by9jjmbvk0mf/Women%20and%20CVD%20Lancet%20Commission.pdf?dl=0>

6. Adam J. Nelson MBBS, PhD , Maddalena Ardissino BSc, MBBS , Kevin Haynes PharmD, MSCE , Sonali Shambhu MPH , Zubin J. Eapen MD, MHS , Darren K. McGuire MD , Anthony Carnicelli MD , Renato D. Lopes MD, MHS, PhD , Jennifer B. Green MD , Emily C. O'Brien PhD , Neha J. Pagidipati MD, MPH , and Christopher B. Granger MD. Gaps in Evidence-Based Therapy Use in Insured Patients in the United States With Type 2 Diabetes Mellitus and Atherosclerotic Cardiovascular Disease. Journal of the American Heart Association. 12 January 2021;10(2): e016835. <https://doi.org/10.1161/JAHA.120.016835>.

7. Nathan D. Wong, Matthew J. Budoff, Keith Ferdinand, Ian M. Graham, Erin D. Michos, Tina Reddy, Michael D. Shapiro, Peter P. Toth. Atherosclerotic cardiovascular disease risk assessment: An American Society for Preventive Cardiology clinical practice statement. American Journal of Preventive Cardiology. June 2022;10:100335. <https://doi.org/10.1016/j.ajpc.2022.100335>.

8. Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, Himmelfarb CD, Khera A, Lloyd-Jones D, McEvoy JW, Michos ED, Miedema MD, Muñoz D, Smith SC Jr, Virani SS, Williams KA Sr, Yeboah J, Ziaeian B. 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Circulation. 2019 Sep 10;140(11):e596-e646. doi: 10.1161/CIR.0000000000000678.

