Circulation

PERSPECTIVE

Know Diabetes by Heart

A Partnership to Improve Cardiovascular Outcomes in Type 2 Diabetes Mellitus

Eduardo J. Sanchez, MD, MPH
William T. Cefalu, MD

Type 2 diabetes mellitus (T2DM), cardiovascular disease (CVD) and its risk factors (eg, hypertension and hypercholesterolemia), heart failure, and stroke and stroke-related conditions have become ever more manageable given research advances that have resulted in new medications and better treatment options.[1,2] Nonetheless, a gap exists between what has been achieved and what more could be accomplished to improve cardiometabolic health and to reduce the incidence of myocardial infarctions, heart failure, and strokes and cardiovascular and stroke mortality among individuals with T2DM.

Mortality rates resulting from T2DM, CVD, and stroke have been decreasing over the past 2 to 3 decades.[2] Admittedly, the rates of decrease seem to have plateaued, and CVD, stroke, and diabetes mellitus continue to be among the top 10 causes of death in the United States. CVD mortality remains the leading cause of death; stroke is in the fifth position; and diabetes mellitus is the seventh leading cause of death in the United States.[3] Furthermore, the risk of CVD mortality is higher among individuals with diabetes mellitus compared with those who do not have diabetes mellitus.[1] However, we also know that despite research advances, residual risk remains between those with diabetes mellitus and those without the disease.

There is little doubt that improved treatment approaches, use of the most up-to-date treatment guidelines, and new medications have contributed to the current US health status landscape related to CVD, stroke, and diabetes mellitus mortality; nevertheless, although some population trends have contributed in a positive way, other trends may challenge cardiometabolic health gains. The reduction in smoking among Americans over the past 5 decades has contributed to the reduction in CVD mortality and has paralleled and complemented improvement in treatment of CVD, stroke, and diabetes mellitus.[1,2] On the other hand, in addition to the aging of the population, overweight and obesity rates have been increasing in the United States over the past 2 to 3 decades[1,2] and may be factors in the plateauing of mortality rates resulting from CVD and stroke, portending a possible surge in the incidence and prevalence of T2DM and a reversal of mortality trends in the United States. Clearly, when we see increases in obesity rates in regions of the country, we see increasing rates of diabetes mellitus.

The convergence of epidemiological trends, new scientific insights, and emerging cardioprotective glucose-lowering medications set the stage for Know Diabetes by Heart, the joint initiative of the American Diabetes Association (ADA) and the American Heart Association (AHA) to optimize the cardiometabolic health of individuals with T2DM.[1,4] As a true collaboration, Know Diabetes by Heart leverages the resources, expertise, and unique strengths of both organizations. The collaboration expects to deliver more than AHA or ADA could expect to do on its own to achieve the common objective of saving lives by reducing CVD mortality in

Key Words: cardiovascular risk factors ■ diabetes mellitus

https://www.ahajournals.org/journal/circ

individuals with T2DM and lengthening lives by closing the gap in CVD risk factor modification in individuals with T2DM. We feel the "whole" of this collaboration is far greater than "the sum of its parts."

The initiative will do its work along 4 parallel tracks of effort. The first track will focus on the general population (in particular, individuals with prediabetes and diabetes mellitus) to heighten awareness and to increase the public's understanding of the relationship among CVD and stroke and diabetes mellitus. Although the general population seems to understand that diabetes mellitus can lead to blindness and amputations, there is less appreciation that the biggest risks to life and quality of life for individuals with T2DM are related to CVD risk factors and disability and deaths caused by myocardial infarctions, heart failure, and stroke. To reiterate, this will entail general health education messages delivered multimodally.

The second track aims to increase patient awareness and expectations about the relationship among CVD, stroke, and T2DM. Like the general public, patients with T2DM are not aware that CVD and stroke risk may adversely affect the quality and length of their lives more than retinopathy or neuropathy. The genesis of this perception is not fully understood, but one possibility is that patients may not be hearing from their doctors about the importance of managing cardiovascular risk factors to optimize cardiovascular health and to prevent disease and death. Patient education tools will be adapted or created to increase patient understanding and engagement.

The third track aims to address physician and health team awareness and practice. Initially, this track is targeting primary care practices. We define primary care providers as physicians, nurse practitioners, physician assistants, certified diabetes educators, and other allied health stakeholders. We truly believe that success in the effort will be the result of increased expertise and skill of primary care providers to manage CVD risk factors and CVD in diabetes mellitus. Secondarily, there is room for improving CVD risk management in individuals with T2DM. Controlling blood glucose, blood pressure, and lipids substantially reduces the risk of major cardiac events in individuals with diabetes mellitus compared with controlling 2 of 3 and, more so, compared with controlling only 1 of 3.[1] New cardioprotective glucose-lowering medications will enhance treatment options for individuals with T2DM who are also at higher risk for CVD or stroke.[1,4] Traditional and newer methods of professional education will be used to increase knowledge, change practice, and improve outcomes.

The fourth track aims to address health system processes and practices. It takes more than patient and clinical care team knowledge to maximally improve lifestyle management, diabetes mellitus care, and cardiovascular risk modification. Clinical care practices guided by treatment guidelines and algorithms, use of registries, and monitoring and tracking of performance can improve clinical care and outcomes.[1,4] The fourth track will start with the addition of science-based diabetes mellitus measures[1] to AHA's Get With The Guidelines hospital-based quality improvement programs for stroke management and heart failure management. That will be followed by making modifications to ADA's Diabetes Inside program to guide clinical care teams in primary care settings on quality improvement processes and approaches to implement and deliver guideline-informed care.

Perhaps the most innovative, precedent-setting aspect of the Know Diabetes by Heart initiative is that, besides ADA and AHA adding to their ongoing collaboration, the initiative is cosponsored and cofunded by 4 industry partners that typically compete with one another. Know Diabetes by Heart aspires to be sponsored and funded moving forward by members of the pharmaceutical sector, to start, and additionally by health plans, health systems, and all stakeholder sectors in the cardiometabolic health ecosystem, to follow.

When lifestyle management, diabetes mellitus care, and CVD risk management are optimally delivered to individuals with T2DM, outcomes, defined by longer, healthier lives, improve. The challenge is to increase the number and percentage of individuals receiving optimal care by increasing the number and percentage of clinical care teams delivering optimized care to an informed, engaged patient population. AHA and ADA believe that Know Diabetes by Heart is comprehensive in scope and uses a breadth of channels for communication, dissemination, and implementation, leveraging the best of each organization to achieve better cardiovascular health and longer, healthier lives for individuals with T2DM. Again, we truly believe the whole of this collaboration will be much greater than the sum of its parts. If so, it will be the individuals with diabetes mellitus who are the real winners.

ARTICLE INFORMATION

Correspondence

Eduardo Sanchez, MD, MPH, American Heart Association, 7272 Greenville Ave, Dallas, TX 75231. Email eduardo.sanchez@heart.org

Affiliations

American Heart Association, Dallas, TX (E.J.S.). American Diabetes Association, Arlington, VA (W.T.C.).

Disclosures

Dr Sanchez is employed by the AHA as chief medical officer for prevention and, in that role, complies with all AHA conflict of interest policies. AHA does receive support from foundations and industry; specifically, at this time AHA receives support from Boehringer Ingelheim/Lilly and NovoNordisk as Founding Sponsors and from Sanofi and AstraZeneca as National Sponsors and supporters of the ADA-AHA collaboration Know Diabetes by Heart. Dr Cefalu is employed by the ADA as chief scientific, medical & mission officer and, in that role, complies with all ADA conflict of interest policies. ADA does receive support from

foundations and industry; specifically, at this time ADA receives support from Boehringer Ingelheim/Lilly and NovoNordisk as Founding Sponsors and from Sanofi and AstraZeneca as National Sponsors and supporters of the ADA-AHA collaboration Know Diabetes by Heart.

REFERENCES

1. American Diabetes Association. Standards of medical care in diabetes-2019. *Diabetes Care*. 2019;42:S1–S194.
2. Benjamin EJ, Muntner P, Alonso A, Bittencourt MS, Callaway CW, Carson AP, Chamberlain AM, Chang AR, Cheng S, Das SR, Delling FN, Djousse L, Elkind MSV, Ferguson JF, Fornage M, Jordan LC, Khan SS, Kissela BM, Knutson KL, Kwan TW, Lackland DT, Lewis TT, Lichtman JH, Longenecker CT, Loop MS, Lutsey PL, Martin SS, Matsushita K, Moran AE, Mussolino ME, O'Flaherty M, Pandey A, Perak AM, Rosamond WD, Roth GA, Sampson UKA, Satou GM, Schroeder EB, Shah SH, Spartano NL, Stokes A, Tirschwell DL, Tsao CW, Turakhia MP, VanWagner LB, Wilkins JT, Wong SS, Virani SS. Heart disease and stroke statistics–2019 update: a report from the American Heart Association. *Circulation*. 2019;139:e56–e528.
3. Xu J, Murphy SL, Kochanek KD, Bastian B, Arias E. Deaths: final data for 2016. *Natl Vital Stat Rep*. 2018;67:1–76.
4. 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 [published online ahead of print March 17, 2019]. *J Am Coll Cardiol*. doi: 10.1016/j.jacc.2019.03.009