



13 April 2021

Dr. Joshua Joseph,
Ohio State Wexner Medical Center,
American Heart Association
Senate Bill 42 – Proponent Testimony
Ohio House Health Committee

Chairman Lipps, Vice Chair Holmes, Ranking Member Russo, and members of the Ohio House Health Committee, thank you for the opportunity to testify in support of SB 42.

My first experiences with diabetes and cardiovascular disease were during my childhood here in Ohio. My paternal grandmother, who taught me many early life lessons and whom I loved dearly, struggled with diabetes for many years. I watched her give herself injections and was inquisitive about this disease called diabetes. I still remember vividly the first time she went to the hospital clutching her chest because she was having a heart attack. Thankfully, she recovered fully. I also remember the day she had chest pain, went to the hospital and never came home. She passed away that day from cardiovascular disease after many years of battling diabetes. These early life-changing events led me to a career in medicine and fueled my passion to research diabetes and cardiovascular disease.

Currently, I am an Assistant Professor of Medicine in the Division of Endocrinology, Diabetes and Metabolism at The Ohio State University Wexner Medical Center, a member of the American Diabetes Association, and a Fellow of the American Heart Association, where I serve on many national committees. I am a proud alumnus of Morehouse College (B.S. in Biology, '03) and Boston University School of Medicine (M.D., '09), during which time I spent two years at the National Institutes of Health training in Diabetes and Cardiovascular Disease research in the Medical Research Scholars Program. I completed my internal residency at Yale University School of Medicine and was the Christopher D. Saudek M.D. Fellow in Diabetes Research at Johns Hopkins University School of Medicine, prior to coming back to Ohio to serve patients and communities suffering from diabetes and cardiovascular disease through my clinical care, research, and advocacy.

Unfortunately, many people not familiar with cardiovascular disease or diabetes are unaware of the strong connection between cardiovascular disease (CVD) and diabetes. Senate Bill 42, which designates the second week of November as "Ohio Diabetes Awareness-Heart Connection Week," will certainly raise awareness of the diabetes epidemic in this state and the unfortunate connection between diabetes and cardiovascular disease.

Below, I have outlined some staggering statistics regarding the connection between these two conditions --

- At least 68 percent of people age 65 or older with diabetes die from some form of heart disease; and 16% die of stroke.
- Adults with diabetes are two-to-four times more likely to die from heart disease than adults without diabetes.



- The American Heart Association considers diabetes to be one of the seven major controllable risk factors for cardiovascular disease.
- Approximately 1,334,918 people in Ohio, or 13.5% of the adult population, have diabetes.
 - Of these, an estimated 286,000 have diabetes but don't know it.

You may be asking "why are people with diabetes at increased risk for CVD?"

Diabetes is treatable, but even when glucose levels are under control it greatly increases the risk of heart disease and stroke. That's because people with diabetes, particularly type 2 diabetes, may have the following conditions that contribute to their risk for developing cardiovascular disease.

- **High blood pressure (hypertension)**
High blood pressure has long been recognized as a major risk factor for cardiovascular disease. Studies report a positive association between hypertension and insulin resistance. When patients have both hypertension and diabetes, which is a common combination, their risk for cardiovascular disease doubles.
- **Abnormal cholesterol and high triglycerides**
Patients with diabetes often have unhealthy cholesterol levels including high LDL ("bad") cholesterol, low HDL ("good") cholesterol, and high triglycerides. This triad of poor lipid counts often occurs in patients with premature coronary heart disease. It is also characteristic of a lipid disorder associated with insulin resistance called atherogenic dyslipidemia, or diabetic dyslipidemia in those patients with diabetes. Learn more about cholesterol abnormalities as they relate to diabetes.
- **Obesity**
Obesity is a major risk factor for cardiovascular disease and has been strongly associated with insulin resistance. Weight loss can improve cardiovascular risk, decrease insulin concentration and increase insulin sensitivity. Obesity and insulin resistance also have been associated with other risk factors, including high blood pressure.
- **Lack of physical activity**
Physical inactivity is another modifiable major risk factor for insulin resistance and cardiovascular disease. Exercising and losing weight can prevent or delay the onset of type 2 diabetes, reduce blood pressure and help reduce the risk for heart attack and stroke. It's likely that any type of moderate and/or vigorous intensity, aerobic physical activity—whether sports, household work, gardening or work-related physical activity—is similarly beneficial.
- **Poorly controlled blood sugars (too high) or out of normal range**
Diabetes can cause blood sugar to rise to dangerous levels. Medications may be needed to manage blood sugar.



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- **Smoking**
Smoking puts individuals, whether or not they have diabetes, at higher risk for heart disease and stroke.

Individuals with insulin resistance or diabetes in combination with one or more of these risk factors are at even greater risk of heart disease or stroke. However, by managing their risk factors, patients with diabetes may avoid or delay the development of heart and blood vessel disease.

The American Heart Association would respectfully ask this committee to support Senate Bill 42; it is through legislation like this one and why the American Heart Association and the American Diabetes Association have partnered to create the "Know Diabetes by Heart Initiative." This initiative provides individuals with a monthly newsletter where they can find more information on our best science-backed tips, relate to others through personal stories, find recipes and meal planning solutions, and other resources for how to live with type 2. I've devoted my personal time to the "Know Diabetes by Heart" initiative, both locally and nationally. I truly believe that understanding the link between diabetes and heart disease results actionable steps from patients to prevent this complication and allow individuals with diabetes to live longer, healthier lives.

Thank you for your time and consideration.

Sincerely,

A handwritten signature in blue ink that reads "Joshua J. Joseph, M.D.".

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