Top Ten Things to Know
Cardiovascular Consequences of Childhood Secondhand Tobacco Smoke Exposure: Prevailing Evidence, Burden, and Racial and Socioeconomic Disparities

1. According to nationally representative data from 2011-2012, about 41% of children aged 3-11 and 34% of 12-19 year olds had detectable serum cotinine levels which is a marker for exposure to secondhand smoke. While secondhand smoke exposure (SHSE) is less prevalent than the late 1980s and early 1990s, approximately 24 million non-smoking children and adolescents in the US are currently exposed to secondhand smoke. In the U.S., SHSE is highest in African American youth.

2. While the pulmonary consequences of SHSE are apparent during childhood, the enduring cardiovascular consequences of SHSE may not be apparent until later in life.

3. The purpose of this statement is to review and summarize the available evidence on the cardiovascular health consequences SHSE during childhood.

4. While the prevalence of pediatric SHSE has declined recently in the U.S., it remains high globally. Parental smoking is a major source of SHSE and SHSE is inversely linked to socio-economic status.

5. SHSE is associated with heart rate variability, endothelial dysfunction, arterial stiffness, and a clustering of cardiometabolic risk factors (obesity, dyslipidemia, insulin resistance).

6. The economic impacts of SHSE are numerous and include higher medical expenses, higher rates of behavioral and cognitive adversities, and increased school absenteeism.

7. Several components of secondhand smoke have been associated with cardiovascular effects in human and animal studies including nicotine (hemodynamic alterations), acrolein (oxidation and inflammation), lead (hypertension), and particulate matter (arrhythmias and inflammation). The effects of SHSE are dependent on both length of time and intensity of exposure.

8. Interventions such as smoking cessation programs, smoking bans in both the home and public, and increased taxes on tobacco products can decrease childhood SHSE.

9. Several lines of evidence – including epidemiological, observational, and experimental studies – demonstrate the harmful, long-term cardiovascular consequences of exposure to secondhand smoke during childhood.

10. Healthcare providers, families, and community members have the opportunity to increase awareness of the prevalence of secondhand smoke exposure and its harmful effects on vulnerable pediatric populations and facilitate interventions to reduce exposure.