Top Ten Things to Know
Atherosclerotic Cardiovascular Disease in South Asians in the United States: Epidemiology, Risk Factors, and Treatments

1. South Asians (from Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, Sri Lanka) comprise one-quarter of the world’s population and are one of the fastest growing ethnic groups in the United States (US). South Asians have higher mortality rates from ASCVD compared to other Asian groups and non-Hispanic whites, in contrast to the finding that Asian Americans (Asian Indian, Chinese, Filipino, Japanese, Korean and Vietnamese) aggregated as a group is at lower risk of ASCVD, largely due to the lower risk observed in East Asian populations.

2. The South Asian population is not only diverse with regards to regional and religious practices, but also with many discrete spoken and written languages. Although native South Asians share genetic and cultural risk factors with South Asians abroad, South Asians in the US can differ in socioeconomic status, education, healthcare behaviors, attitudes and health insurance, which in turn can affect their risk, treatment and outcomes of ASCVD.

3. The goal of this AHA statement is to review the scientific literature relevant to the South Asian population living in the United States regarding demographics and risk factors, health behaviors, interventions including physical activity, diet, medications, and community strategies.

4. Ethnicity is known to account in part for inter-individual variability in the pharmacodynamics and pharmacokinetics of medications including cardiometabolic drugs. These differences translate into variability in efficacy and side effect profiles between ethnic subgroups. While clinical factors such as diet, concomitant medications and age are partially related to this variability, a significant proportion can be related to the underlying genetic differences between ethnic subgroups in drug metabolism pathways.

5. Genetic variants in pharmacokinetic pathways are some of the most common pharmacogenetic effects and many show differences across ethnic subgroups, including South Asians. Genetic polymorphisms in key proteins can reside in one of four key pathways related to drug effects: pharmacodynamic (affecting interaction between the drug and its target), those related to the disease process (i.e. not directly affecting drug, but affecting the underlying disease process, which then modifies the drug effect), and off-target pathways (i.e. idiosyncratic responses).

6. In an effort to describe the collective experience and provide structure and guidance for cardiology practitioners and health care providers serving the South Asian population in the US, this Scientific Statement focuses on how ASCVD risk factors affect the South Asian population in order to make recommendations for clinical strategies to reduce disease and directions for future research to reduce ASCVD in this population.

7. There is a great need for dedicated pharmacogenetics studies in South Asians. With the known clear differences in allele frequencies of drug metabolizing enzymes and other key proteins affecting drug response, efforts to provide a more personalized approach to choosing the right medication and right dose for South Asian populations will require more careful collection of ethnicity information including differentiating between South and East Asians, and evaluating whether underlying genetic allele frequency differences translate into clinically relevant and actionable differences.
8. From a population perspective, it is imperative that the health needs of US South Asians are critically examined in order to: 1) ensure culturally-appropriate medical and health services; 2) address a variety of serious health conditions they face; 3) create informed policy decisions; and 4) improve current and future clinical research in this race/ethnic minority group.

9. Future studies should focus on increasing representation of South Asians in clinical trials, and elucidating genetic and pharmacogenetic differences specific to South Asians, to enhance precision medicine efforts.

10. Community strategies in limited settings have been successful to date, and may be adopted in a more widespread manner to lower disease risks among South Asians. At the individual level, concerted effort should be made with regards to the health care providers and non-physician providers (nurse practitioners and physician assistants) that frequently deliver primary care to patients. Clinicians must demonstrate ‘cultural competency’, not only when it comes to understanding the increased risk of ASCVD in South Asian patients, but more importantly when making recommendations on diet and lifestyle modification.