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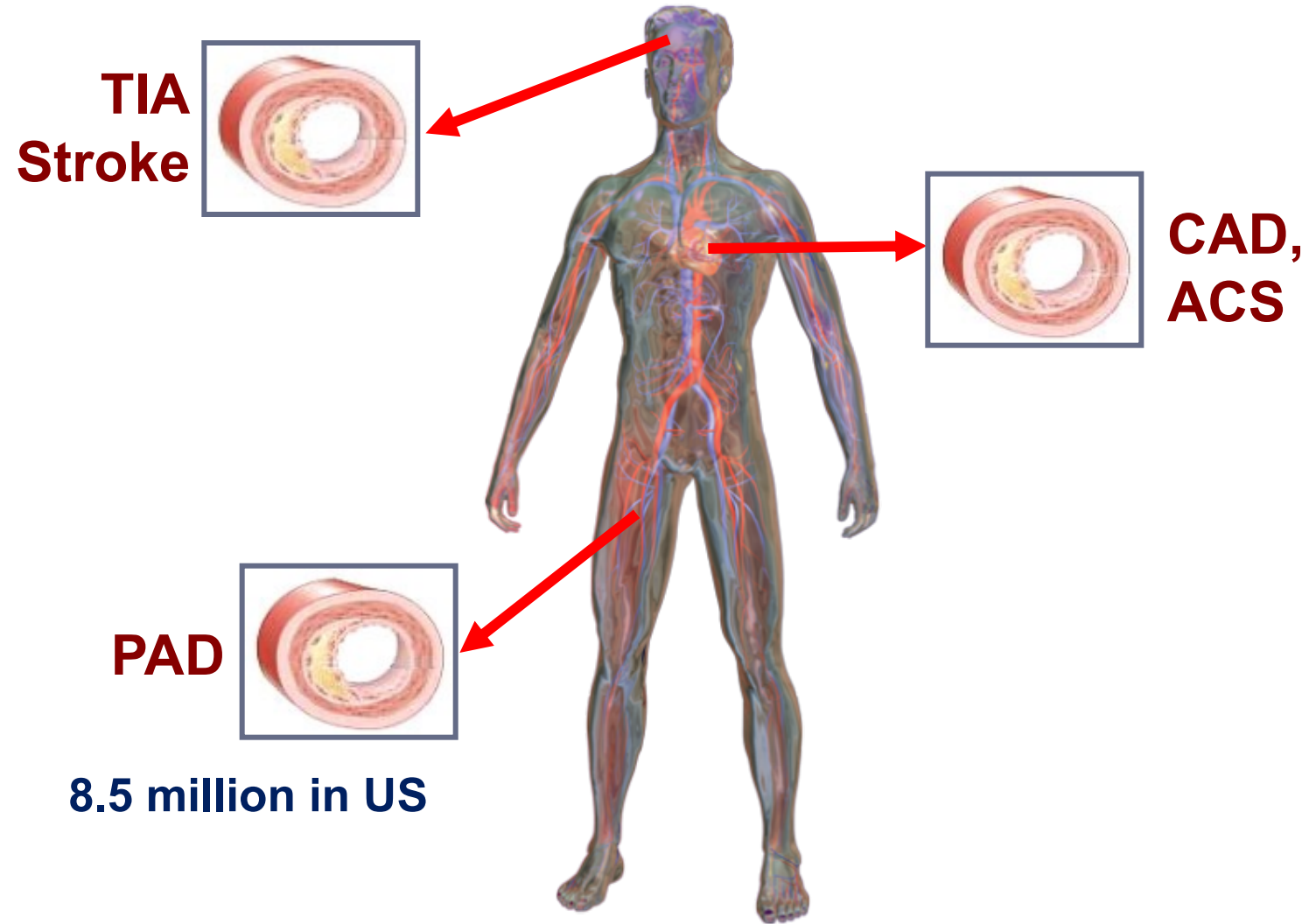
# **Epidemiology in Peripheral Artery Disease**

**Presented by CPC Clinical Research**

# Peripheral Artery Disease

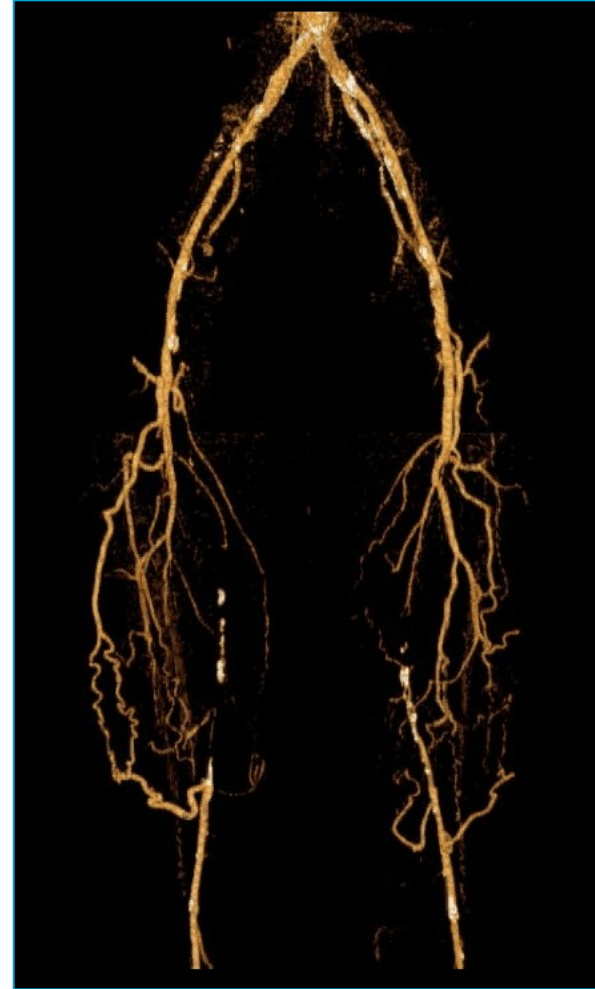
- **Underlying cause is atherosclerosis**
- **Survey data of US adults >50 years show**
  - **65% are familiar with coronary disease and stroke**
  - **25% are familiar with PAD**
  - **Lower economic levels associated with lack of awareness**

# Atherosclerosis is a Systemic Disease



# Peripheral Artery Disease (PAD)

- **The presence of a stenosis or occlusion in the aorta or arteries of the limbs**
- **Usually caused by atherosclerosis**
- **Associated with an increased risk of death, myocardial infarction, and stroke**
- **May impair walking or cause critical limb ischemia**



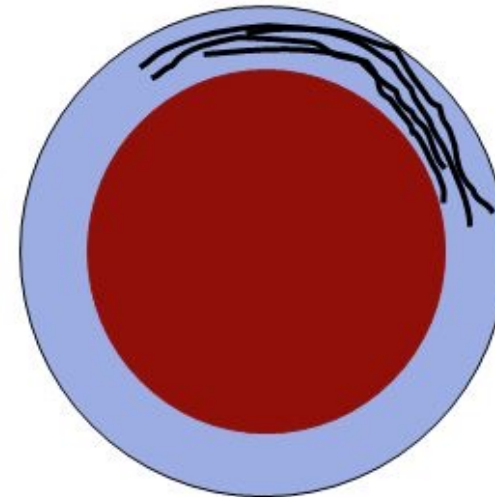
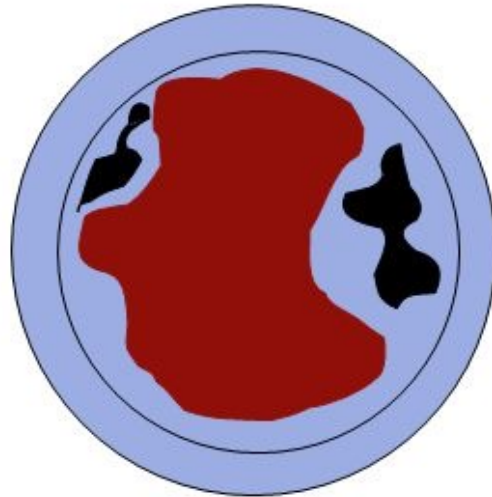
# Heterogeneity in Biology

**Hyperlipidemia, Smoking,  
Hypertension, Inflammation,  
Stress, Diabetes**

**Renal Dysfunction, Diabetes**  
(Calcium & Phosphate Regulation,  
Osteogenesis, Local Cellular  
Dysfunction)

**Intimal/subintimal Disease**

**Medial Calcification**



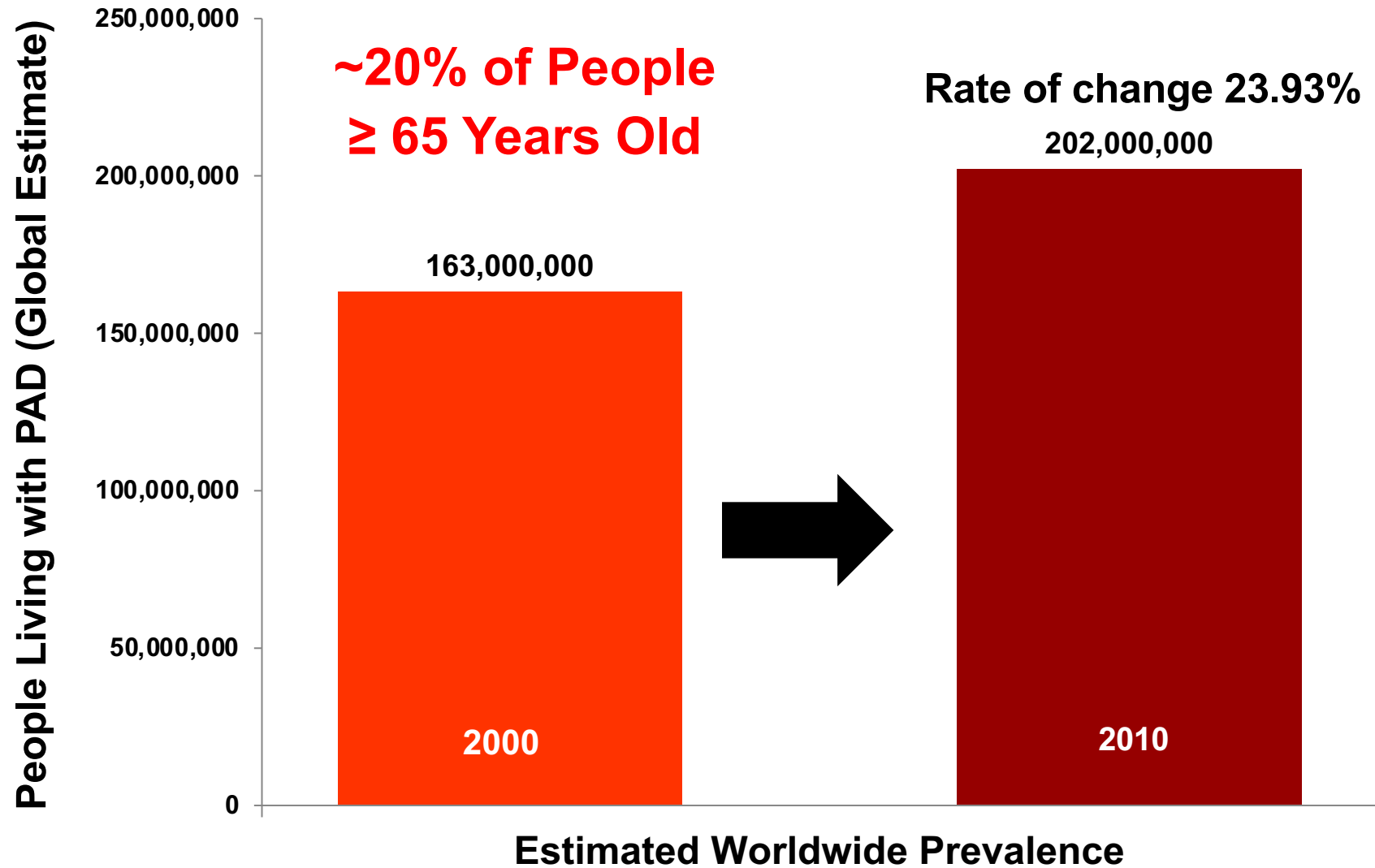
**Low ABI**  
 $\leq 0.9$

**High ABI**  
 $\geq 1.3$

# Peripheral Artery Disease

- **Globally 200 million people have PAD**
- **PAD is increasing worldwide**
  - **High rates of smoking in certain regions of world**
  - **Rising incidence of type 2 diabetes**
  - **Advancing age of population**

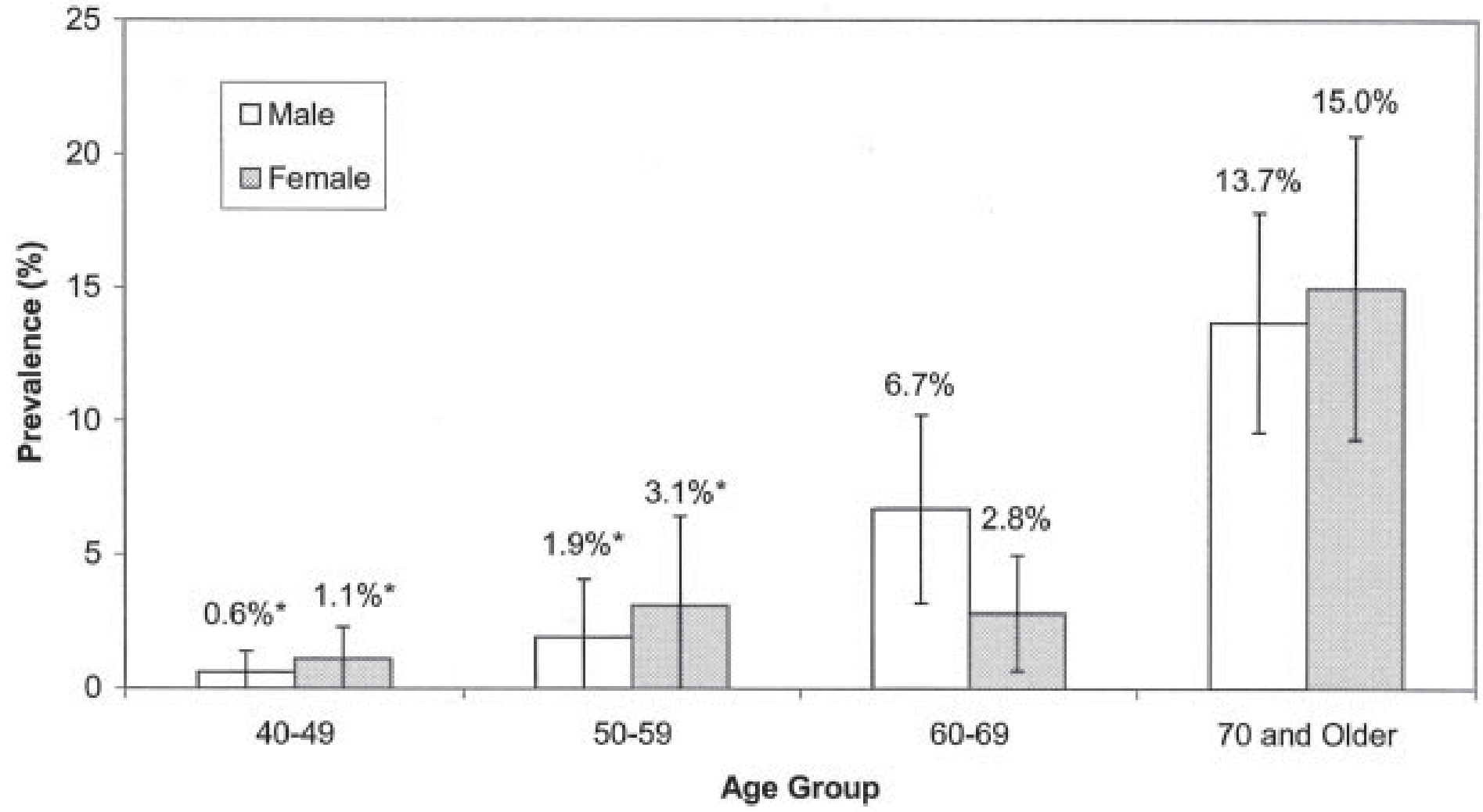
# Increasing Prevalence of Peripheral Artery Disease



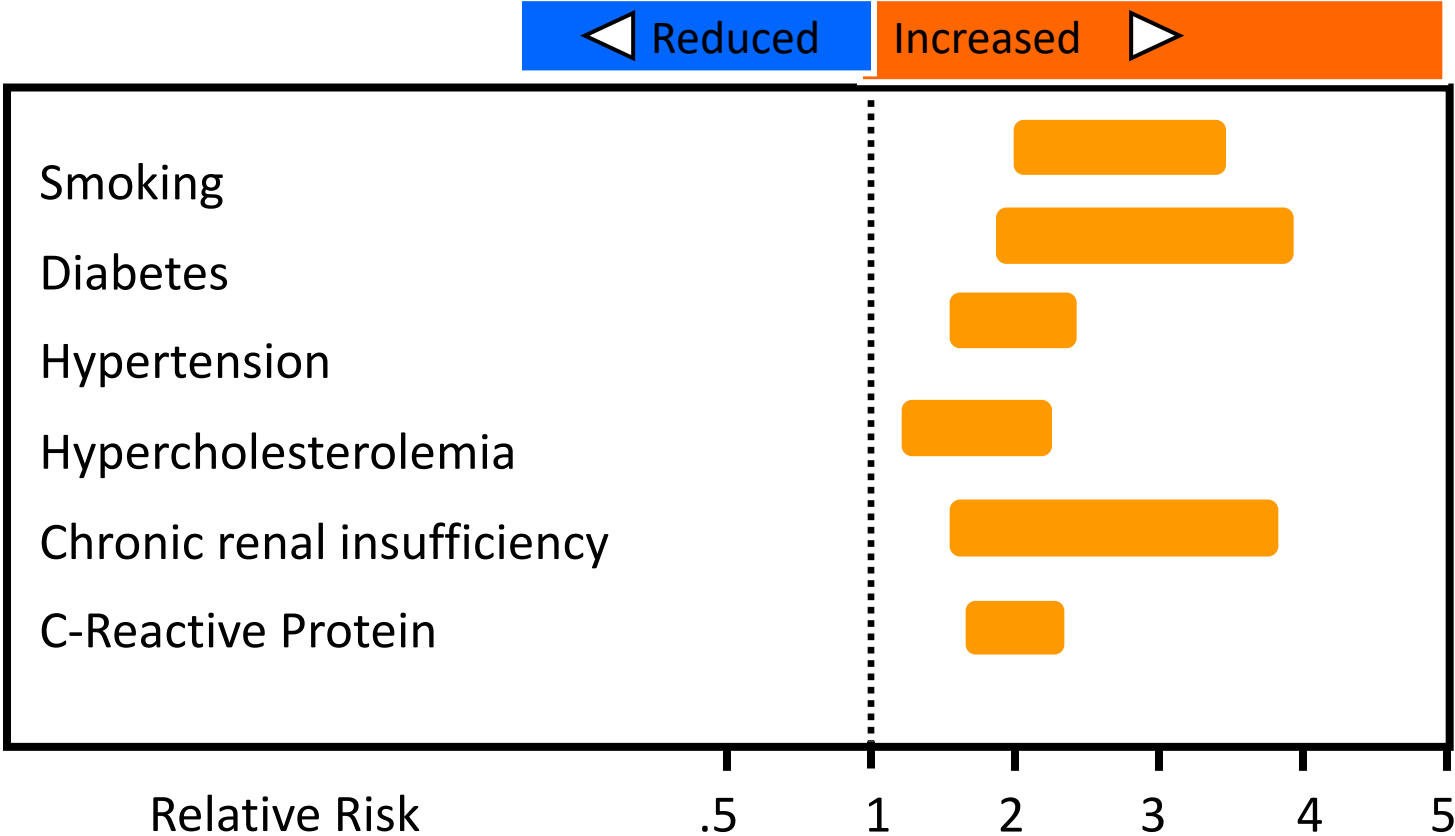
# Peripheral Artery Disease

- PAD is associated with many of same risk factors as cardiovascular disease
- Data from National Health and Nutrition Examination Survey (n=2174)
- Over age 40 years prevalence was 4.3%
- Increased with age





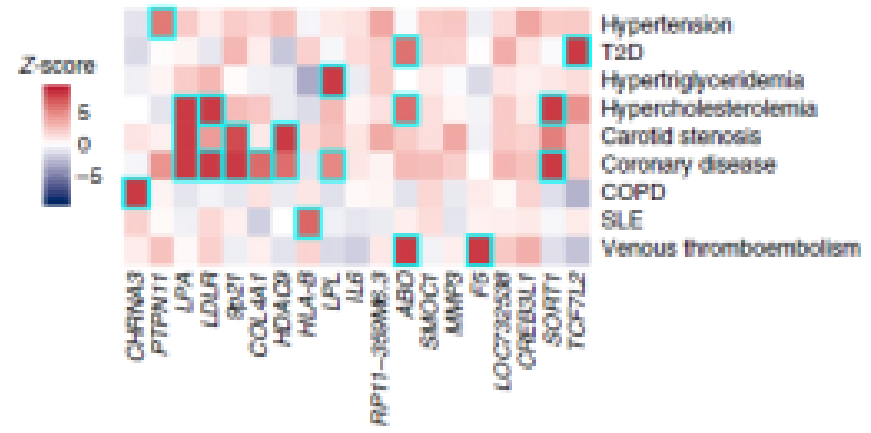
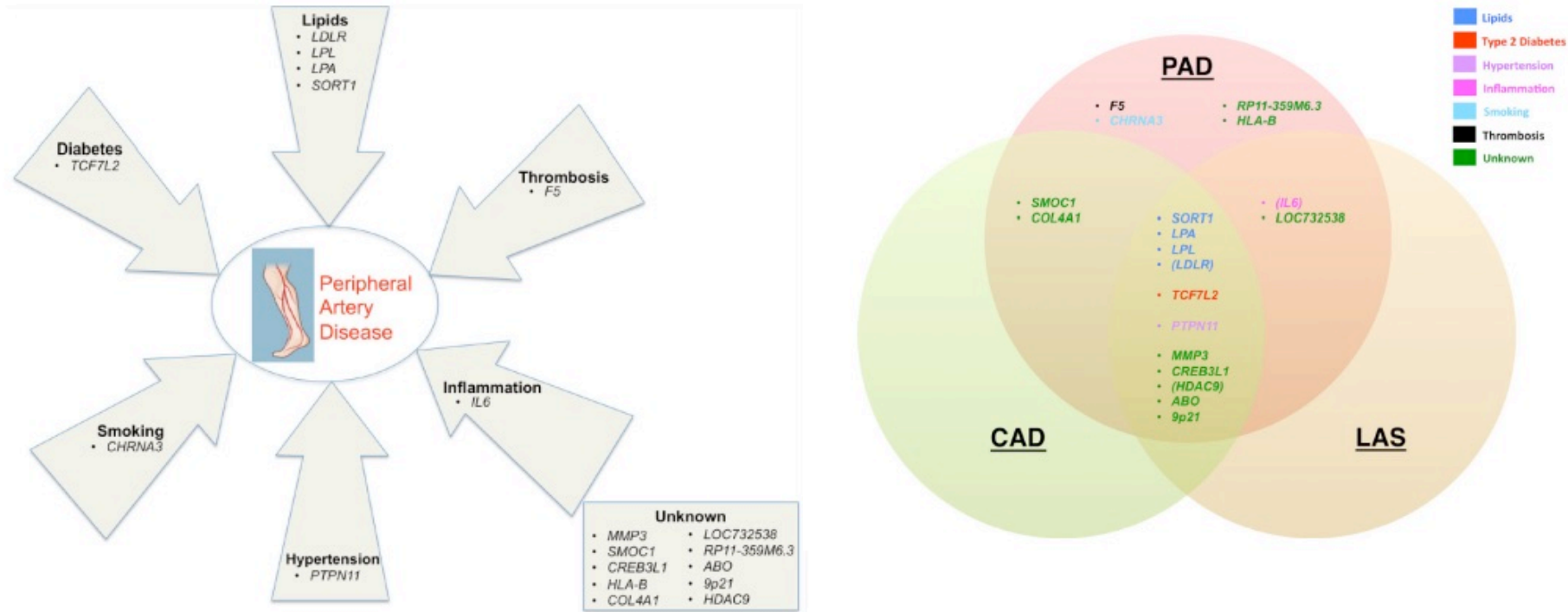
# Risk Factors for PAD



# Peripheral Artery Disease

- **Genetics also thought to contribute to PAD**
- **Genome wide association study in the million veteran program**
- **Replicated from UK biobank**
- **19 PAD loci identified**
  - **11 associated with coronary, cerebral, and peripheral vascular disease**
  - **4 specific to PAD**

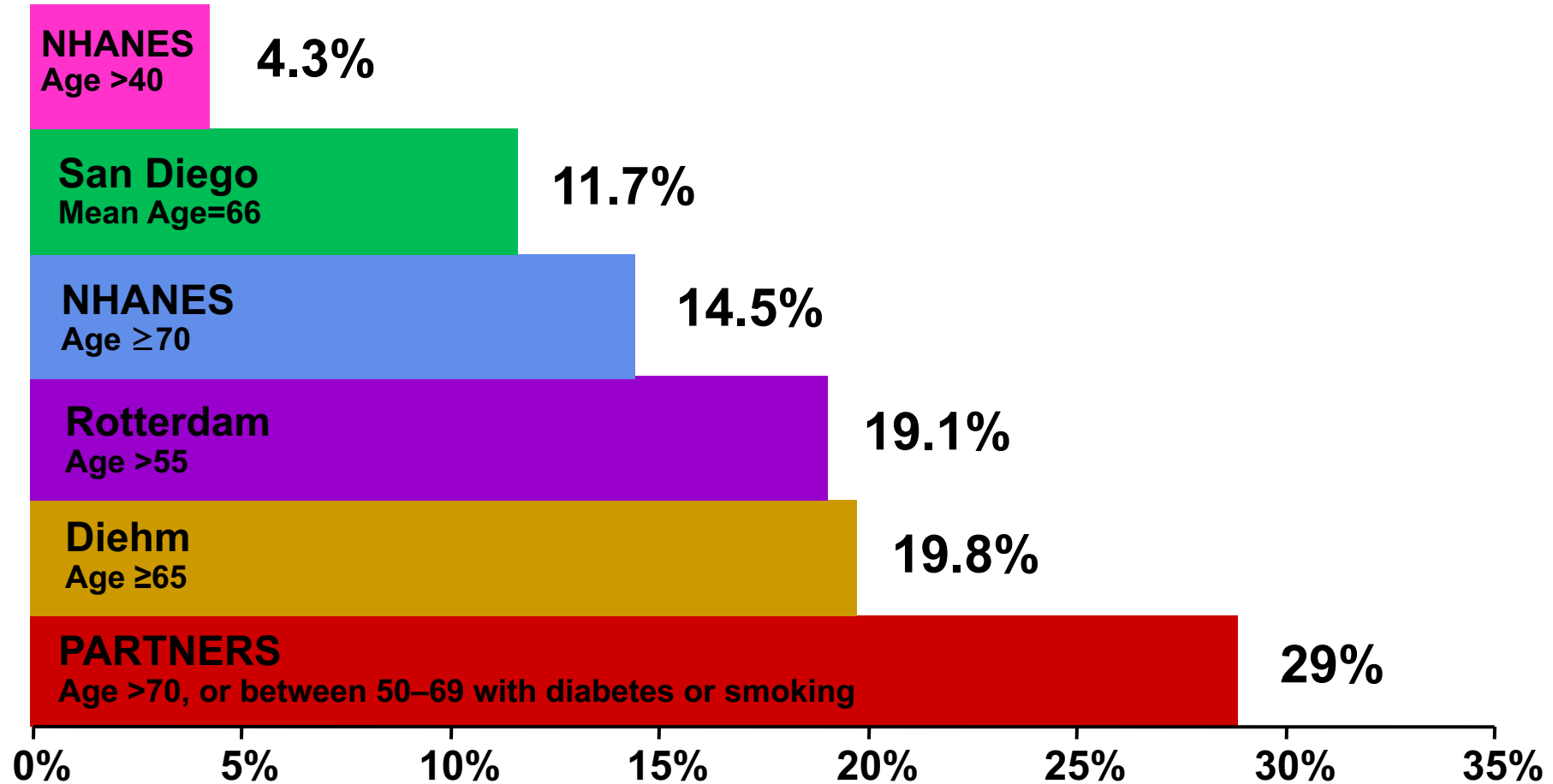
# Genetic Drivers of Risk in Peripheral Artery Disease



# Peripheral Artery Disease

- The prevalence of PAD varies depending on the population selected
- Various studies from different cohorts and countries range from 4-30%
- Age is obviously a major risk factor but not modifiable

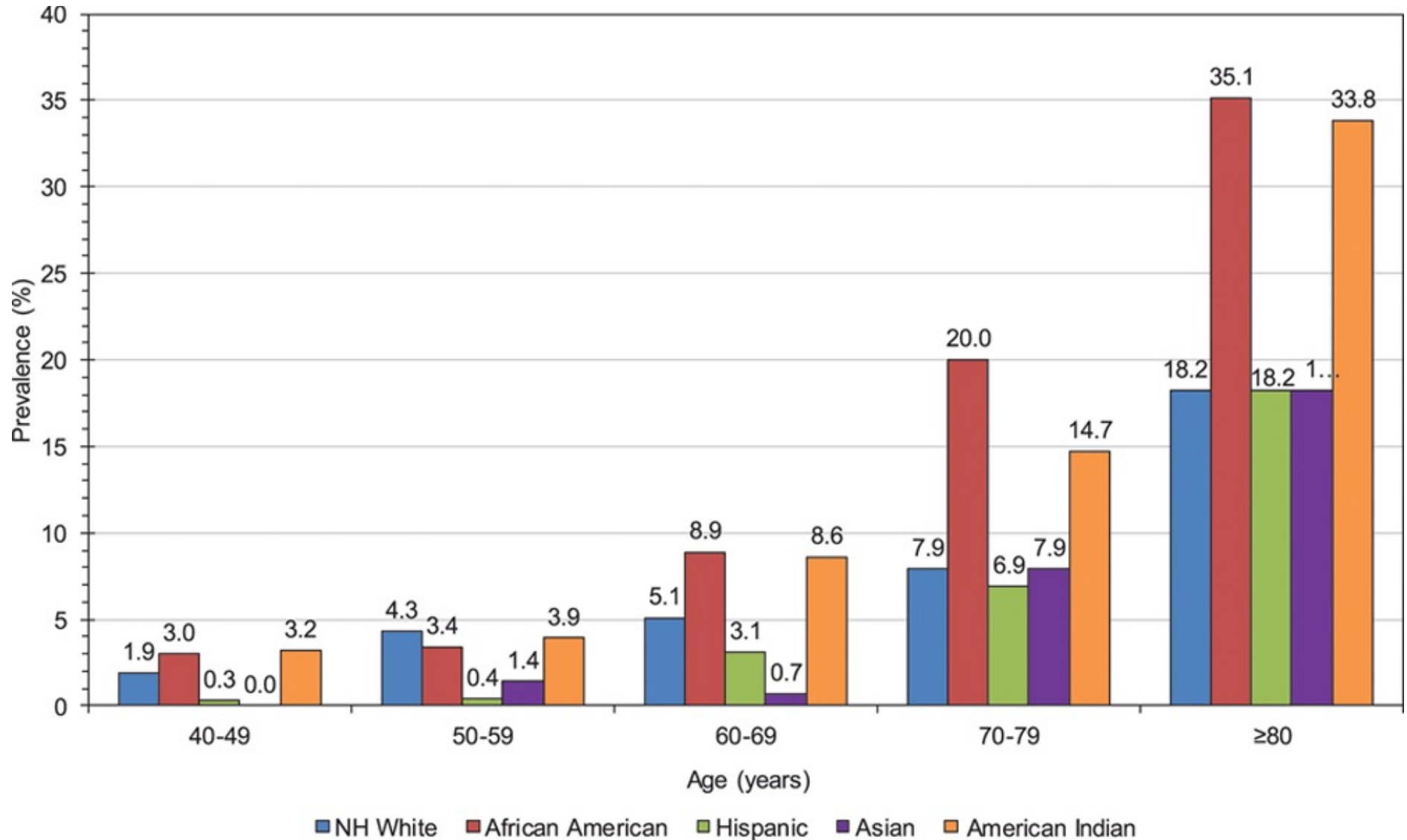
# Documented Prevalence of PAD



# Peripheral Artery Disease

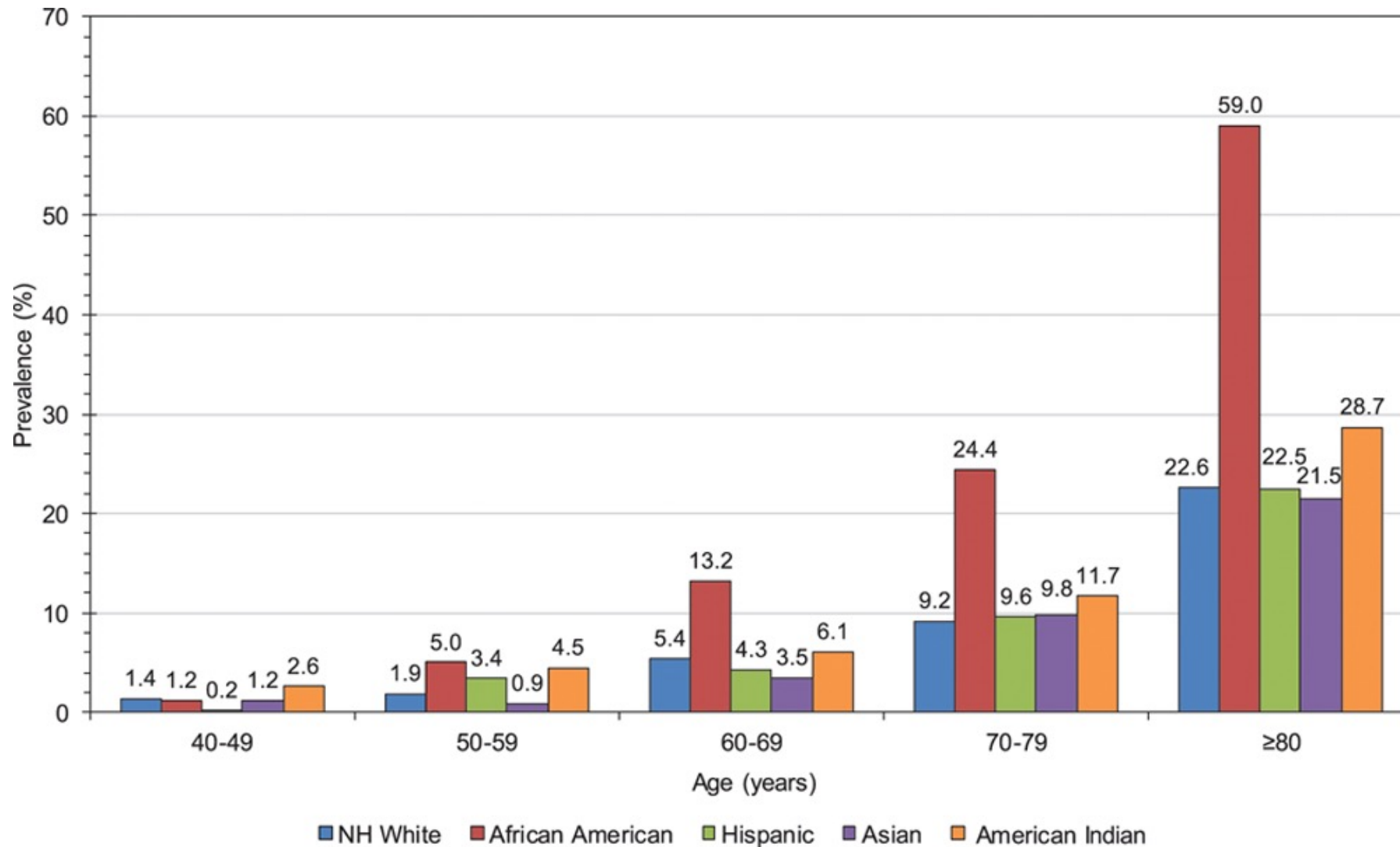
- **PAD prevalence also changes based on ethnicity in US**
- **Particularly true in African Americans and American Indians**

# Estimates of prevalence of PAD in females by age and ethnicity





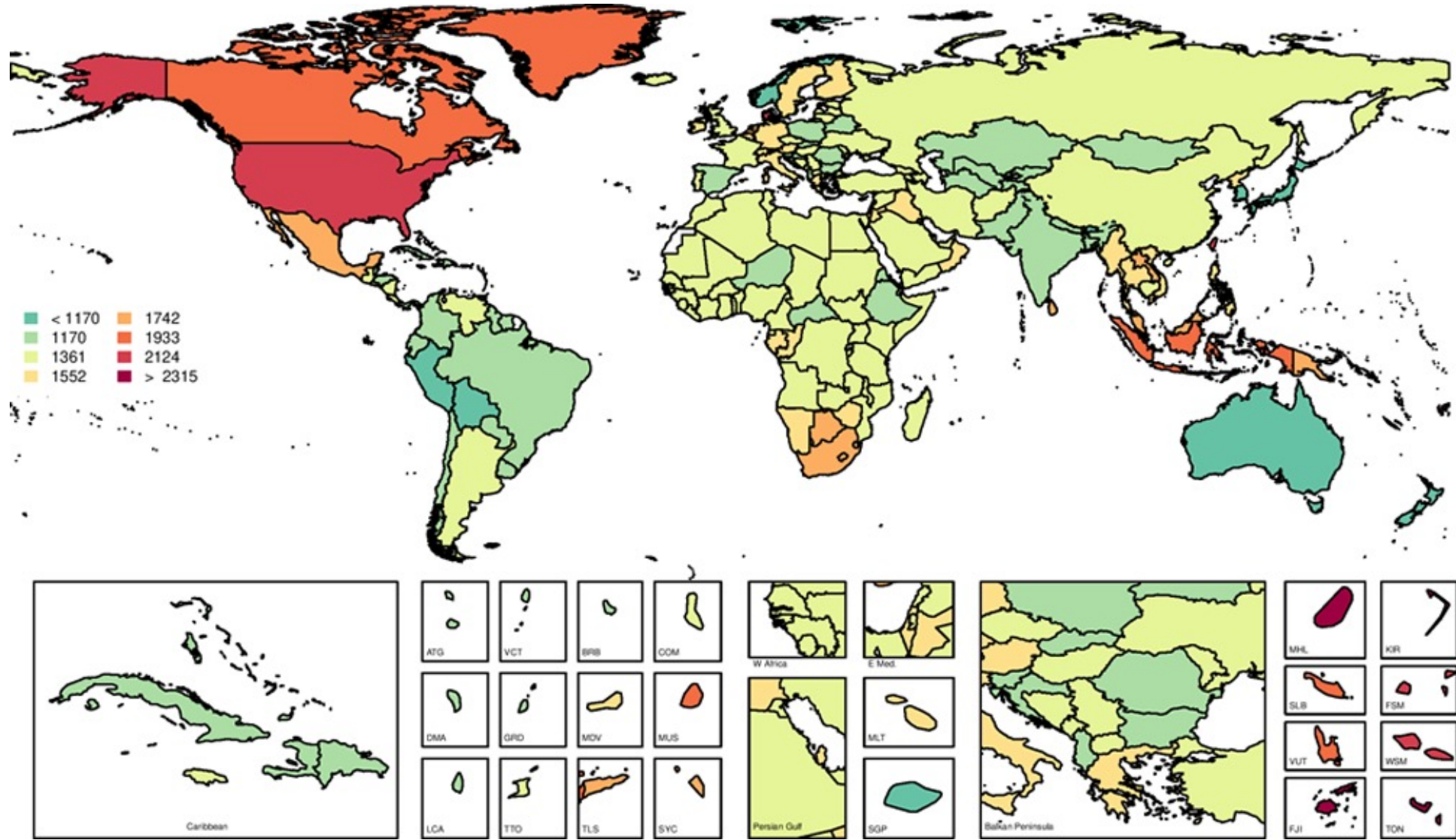
# Estimates of prevalence of PAD in males by age and ethnicity



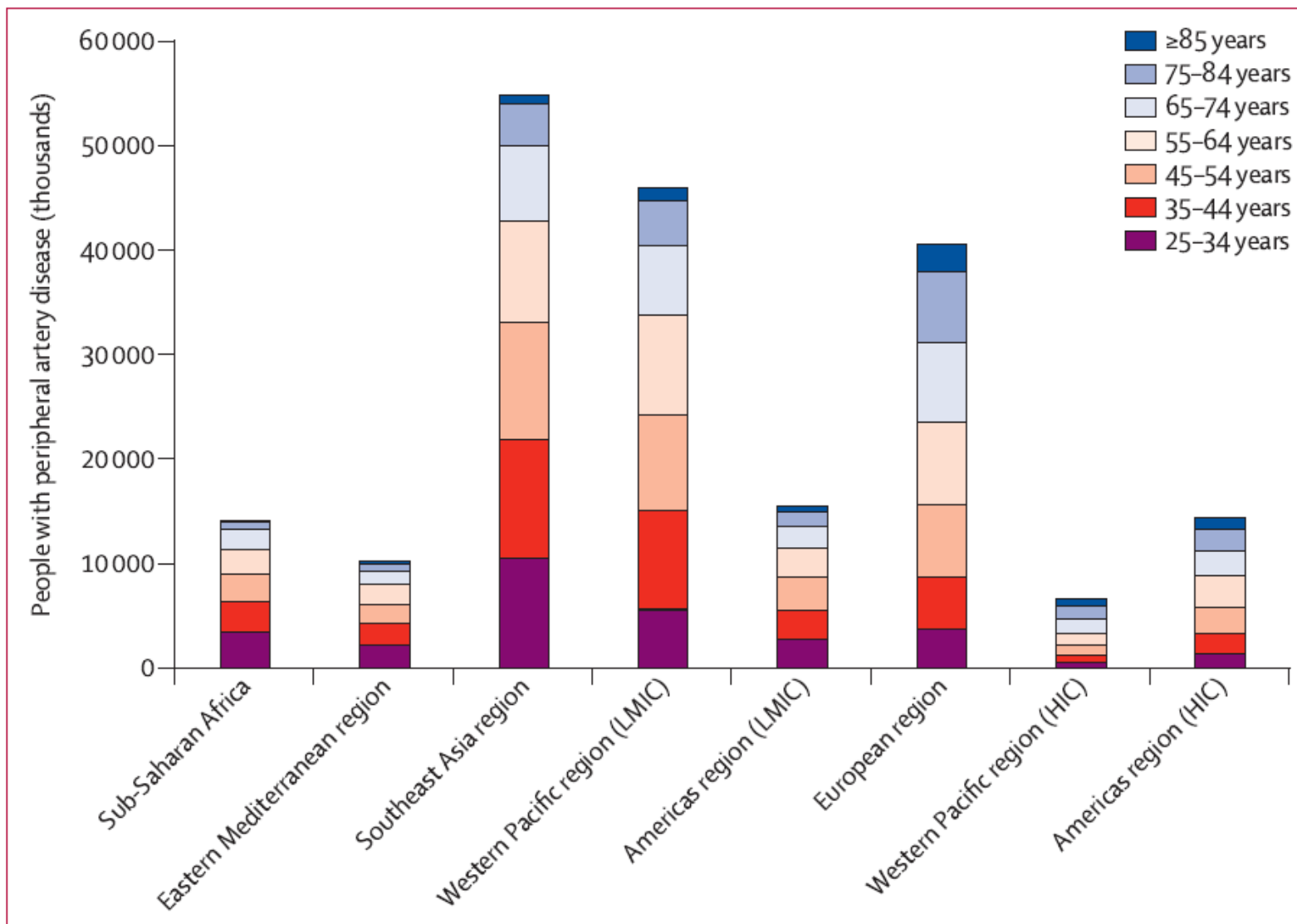
# Peripheral Artery Disease

- **PAD is also more prevalent in regions of the world with higher incomes and GDP**
- **Very different than some other diseases**
- **Related to differential prevalence of major risk factors**
- **There is evidence that the burden is shifting some to lower income countries**

# Age-standardized prevalence of PAD per 100,00 both sexes, 2017

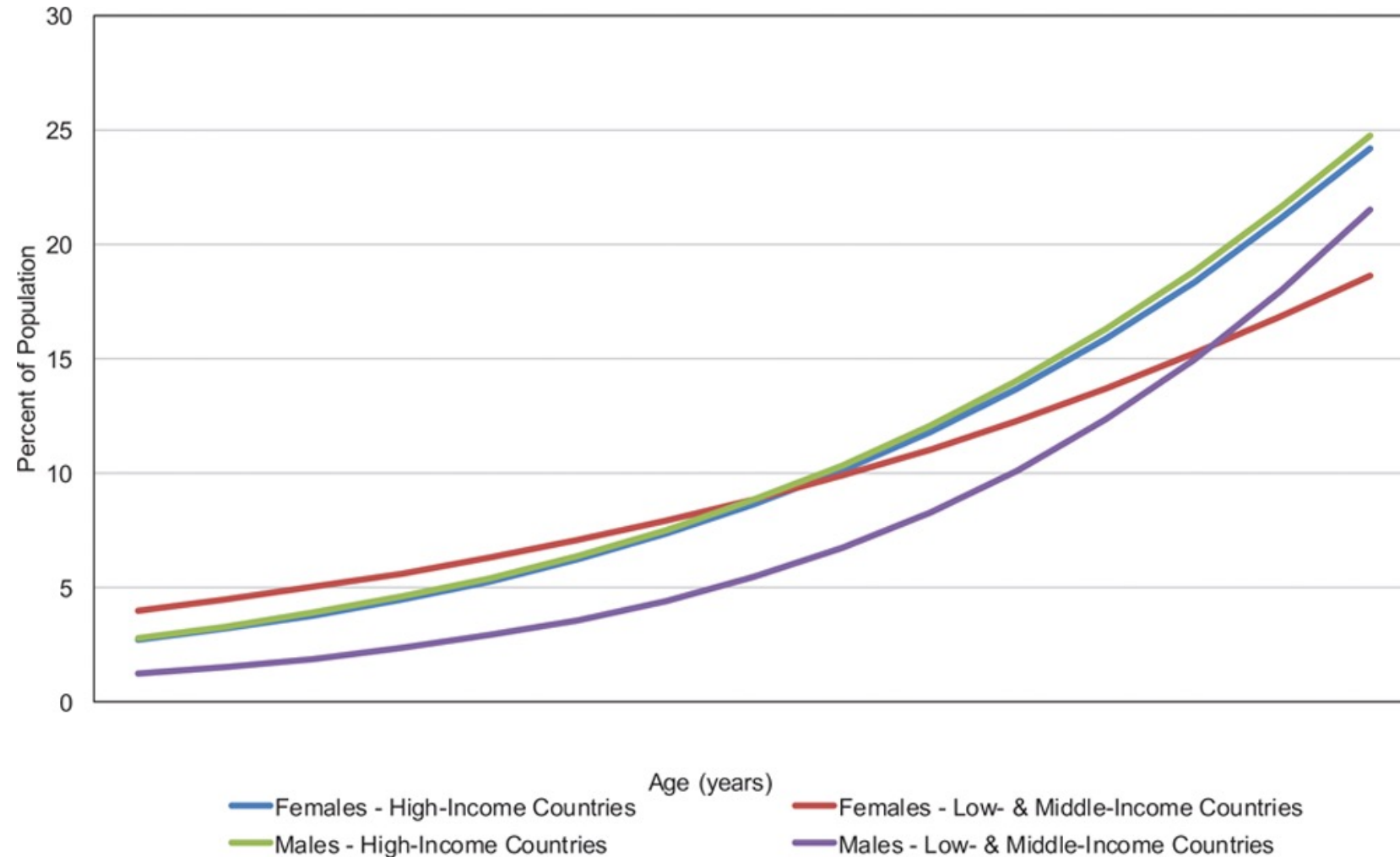


# Estimate of the number of cases, and contributing age groups, in eight WHO regions in the year 2010



Fowkes RG et al. *Lancet* 2013;382:1329-40

# Global prevalence of PAD by age in males in females in high-income countries and low-income or middle-income countries 1995-2009



Fowkes FG et al. *Lancet* 2013;382:1329-40.

# Peripheral Artery Disease

- **PAD prevalence increases with the age of the population examined as well as enrichment with PAD risk factors such as diabetes**
- **PAD is markedly more prevalent in certain racial groups**
  - African Americans
  - American Indians
- **PAD prevalence is on the rise globally**
  - Aging of population
  - Increase in risk factors – especially diabetes