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The Impact of Race or Ethnicity in Crohn's Disease

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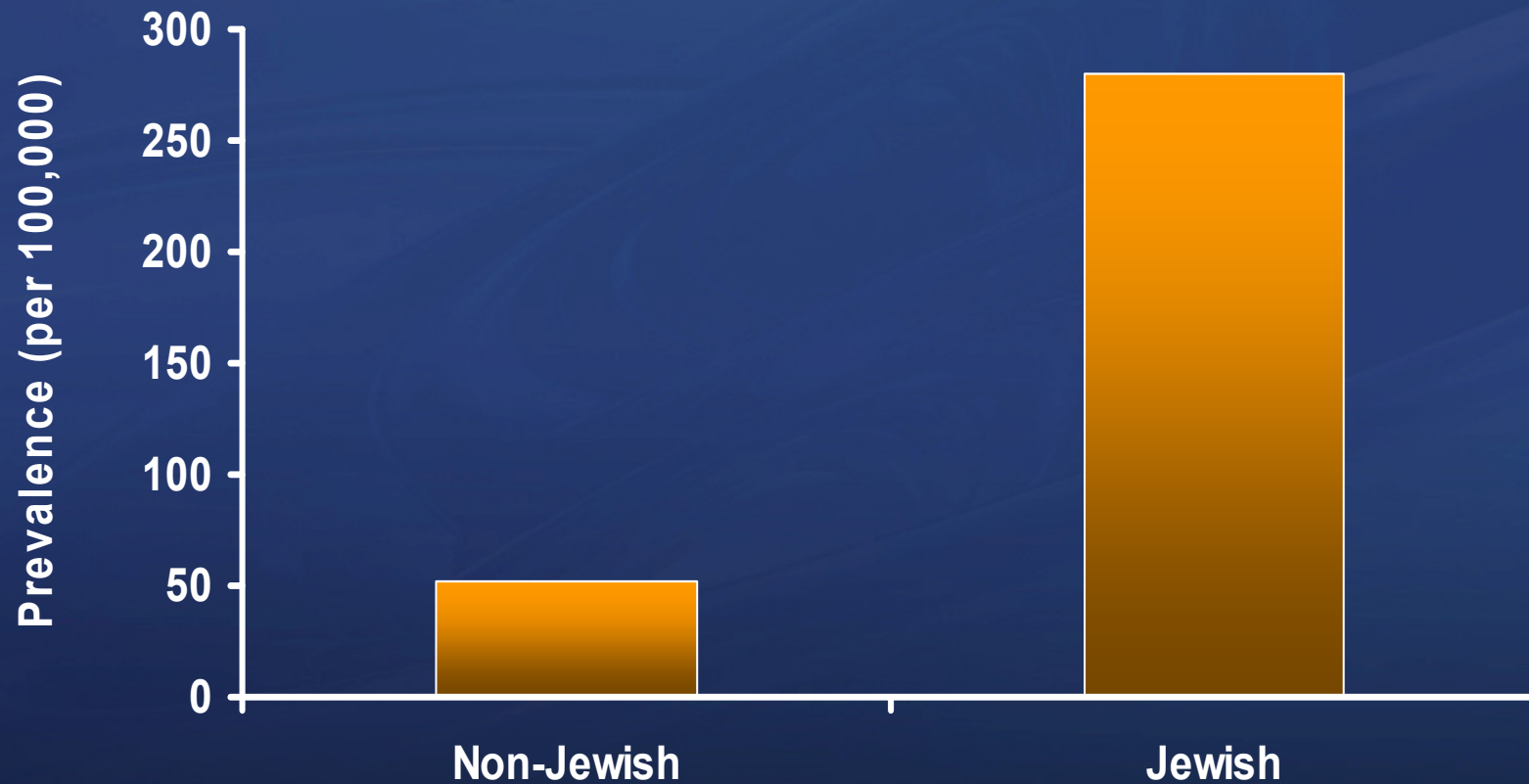
Mayo Clinic

Rochester, Minnesota, USA

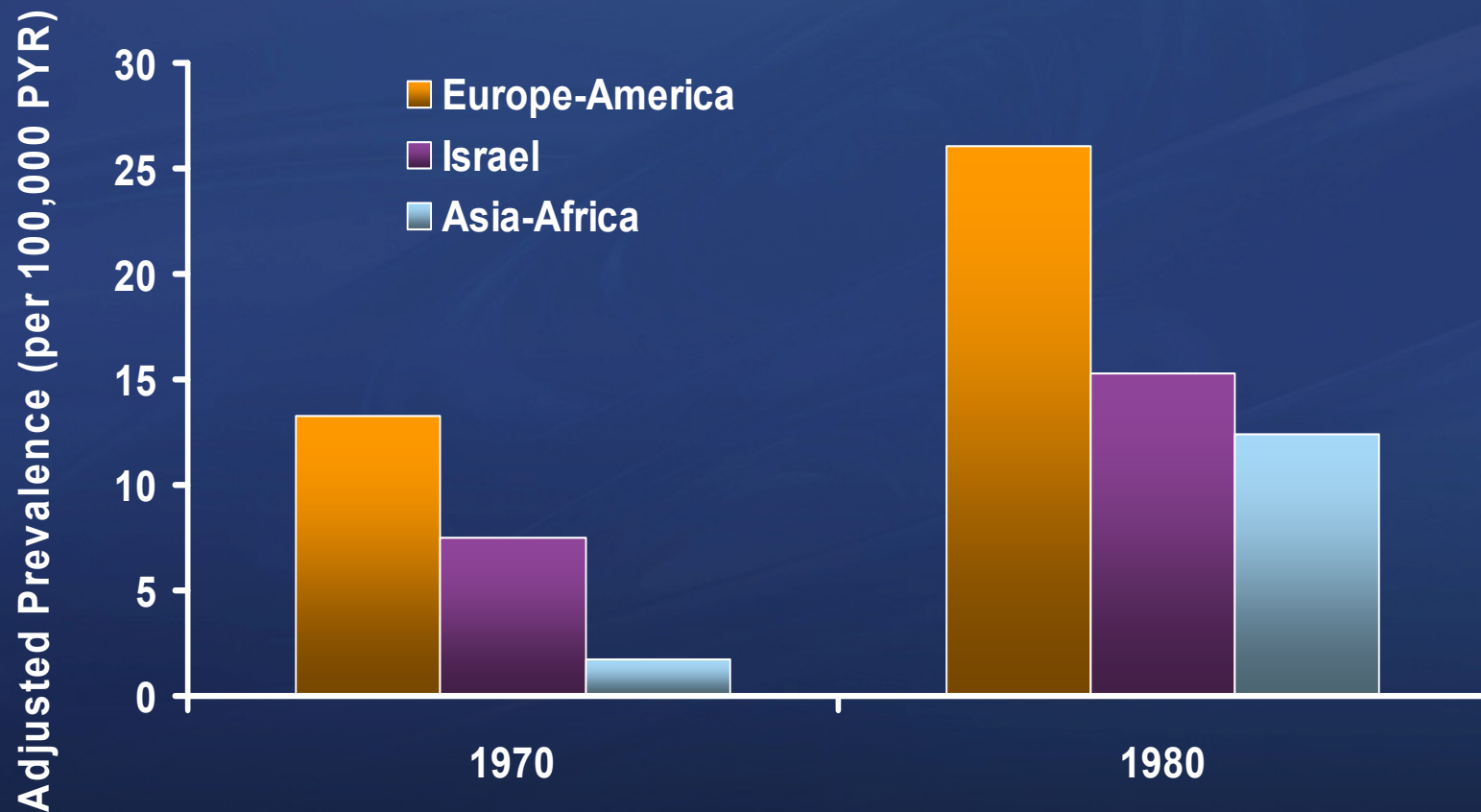
Race & Ethnicity in IBD – Historical View

- Caucasians, especially northern European ancestry
 - Scandinavia
 - Northern Europe
 - British Isles
 - United States and Canada
- Increased risk in Jews
- Uncommon in African Americans and other racial minorities in U.S.

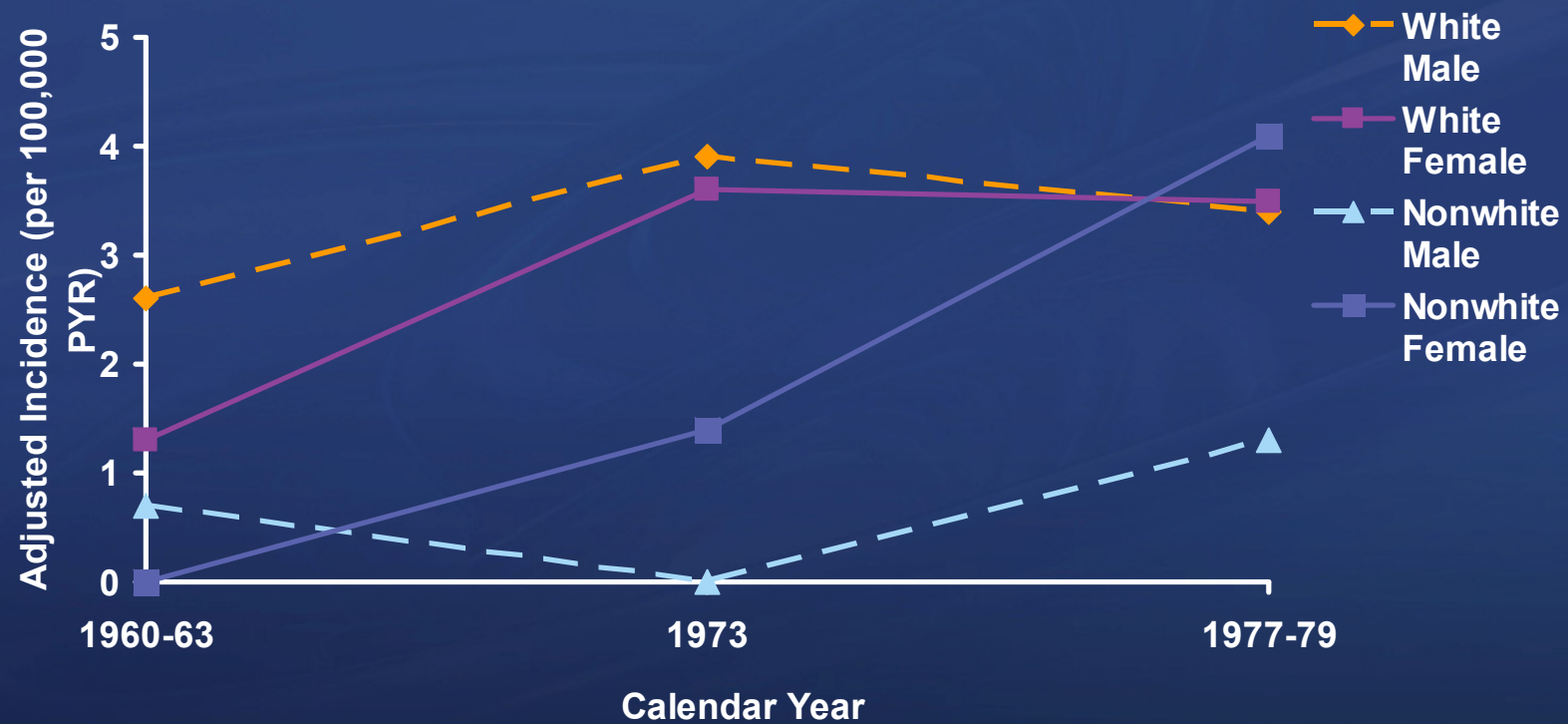
Risk of Crohn's Disease Among Jews: Population-Based Estimate in Wales



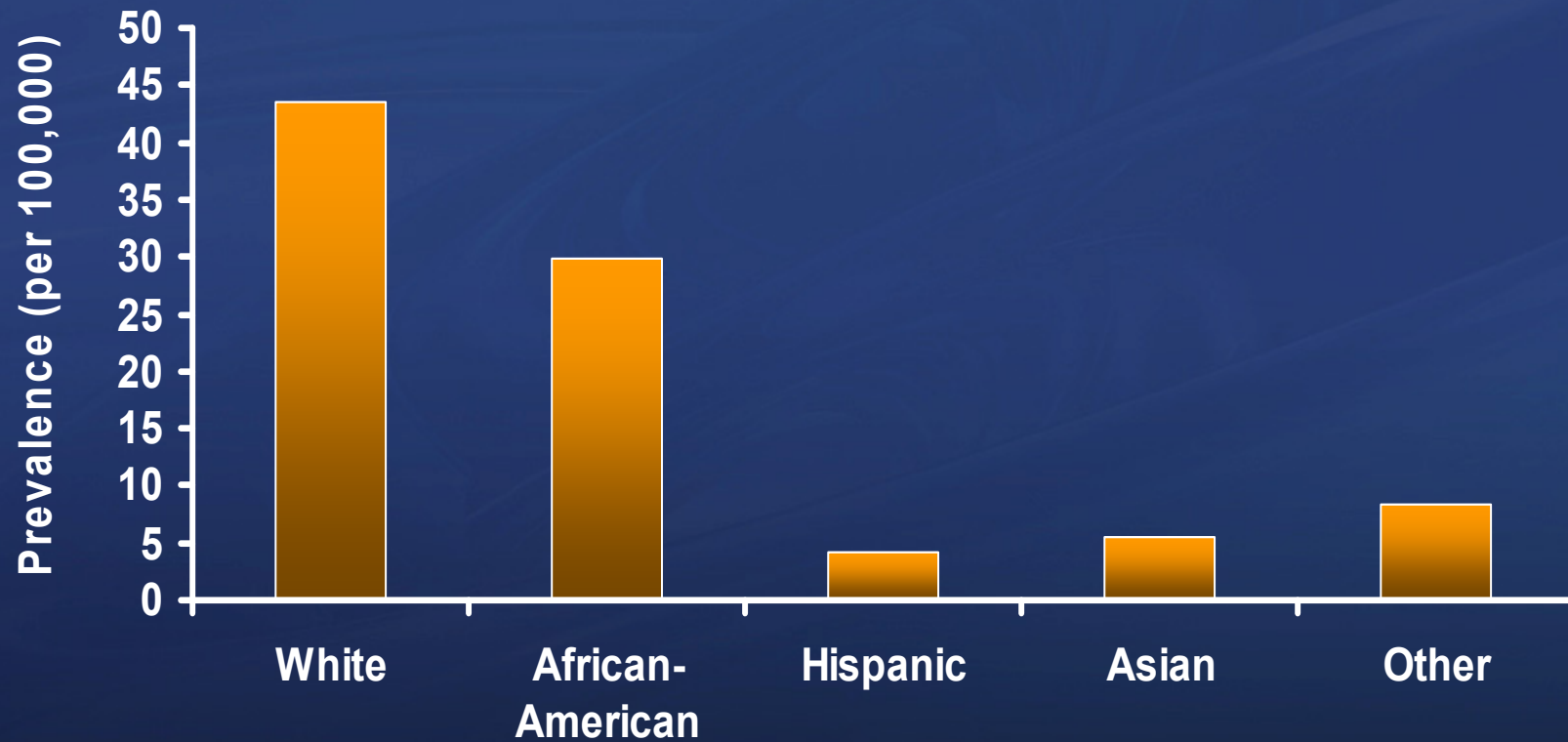
Trends in Prevalence of Crohn's Disease in Tel Aviv 1970-80



Trends in Incidence of Crohn's Disease By Race: Baltimore



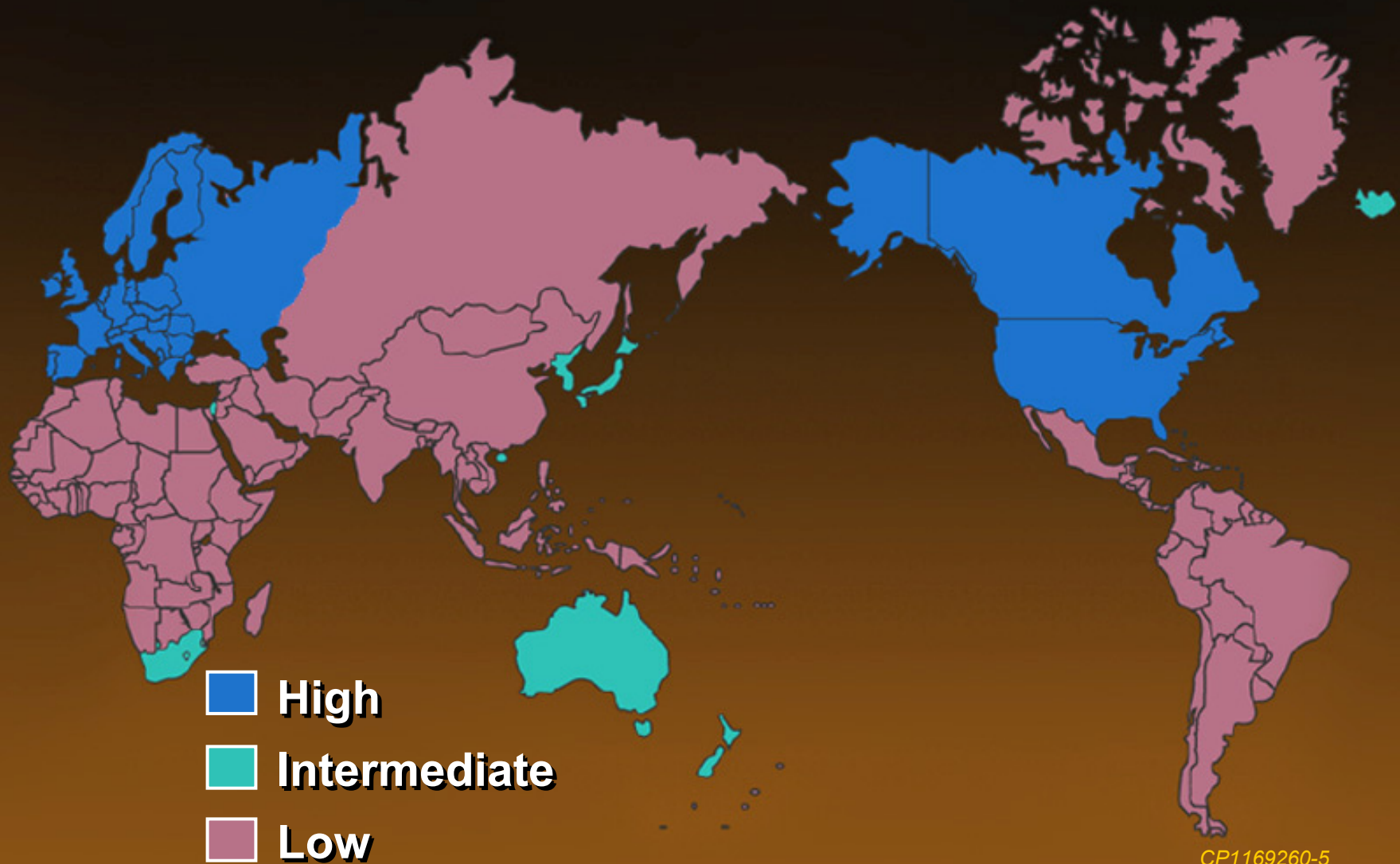
Racial/Ethnic Variation in Crohn's Prevalence: Southern California 1984-88



Shifting Paradigms?

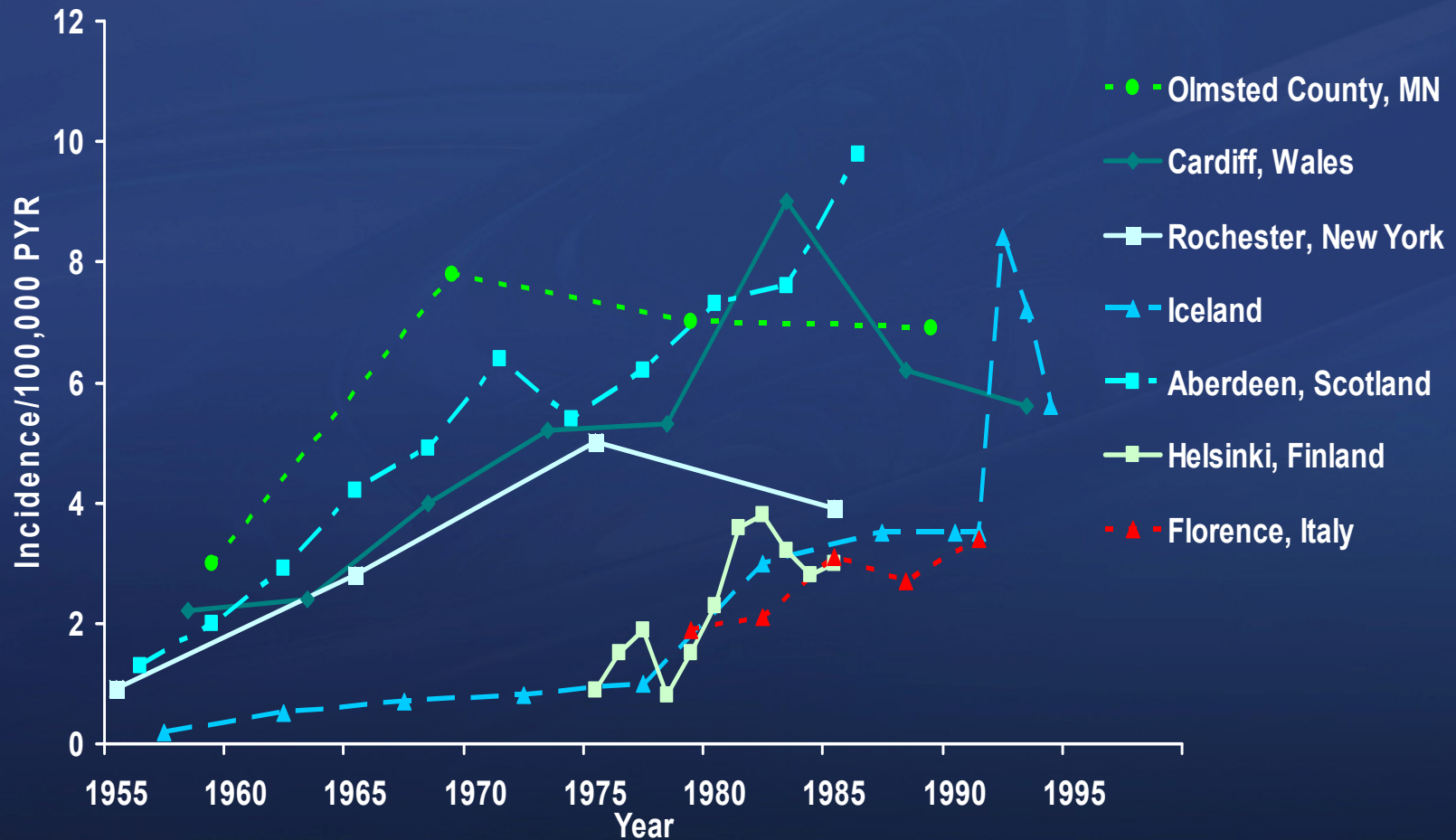
- More common in African-Americans
- More common in those of Hispanic ancestry
- More common in Asians
 - Native Asians (East, South)
 - South Asian migrants

Geographical Prevalence of IBD



CP1169260-5

Temporal Trends in Incidence of Crohn's Disease in Europe and North America, 1955-95



IBD Among African-American Children in Georgia, USA

- Study of pediatric IBD patients evaluated at Emory 1986-95
- Incidence of Crohn's rose from 7 to 12 per 100,000 over the study period
- Incidence of UC remained stable at 5 – 7 over the study period
- Rates were broadly similar to those of whites

Racial/Ethnic Minorities with IBD - Texas

- Mexican-Americans more likely to get UC than Crohn's
 - More proximal disease extent
 - Fewer extraintestinal manifestations
 - High prevalence of pANCA (100%)
- African-Americans more likely to have Crohn's
 - More colonic or perianal, less ileal
 - More arthritis and uveitis

Racial/Ethnic Minorities with Crohn's – Six Centers

- African Americans (n = 127)
 - Upper gut Crohn's: OR, 2.8 (1.4-5.5)*
 - Colonic disease: OR, 1.9 (1.1-3.4)
 - Perianal disease: OR, 1.7 (1.03-2.8)
 - More extraintestinal
- Hispanics (n = 169)
 - Perianal disease: OR 2.9 (1.8-4.6)*
 - Erythema nodosum: OR 3.3 (1.7-6.4)

* controls = 830 non-Hispanic whites

Does Race Influence Behavior or Severity of Crohn's?

- Comparison between 55 African Americans and 155 whites with Crohn's at Univ of Maryland
- African Americans more likely to have colonic and/or perianal disease
- No differences in perforating behavior, need for surgery, and prevalence of EIMs

Ethnic Variation of IBD in Canada

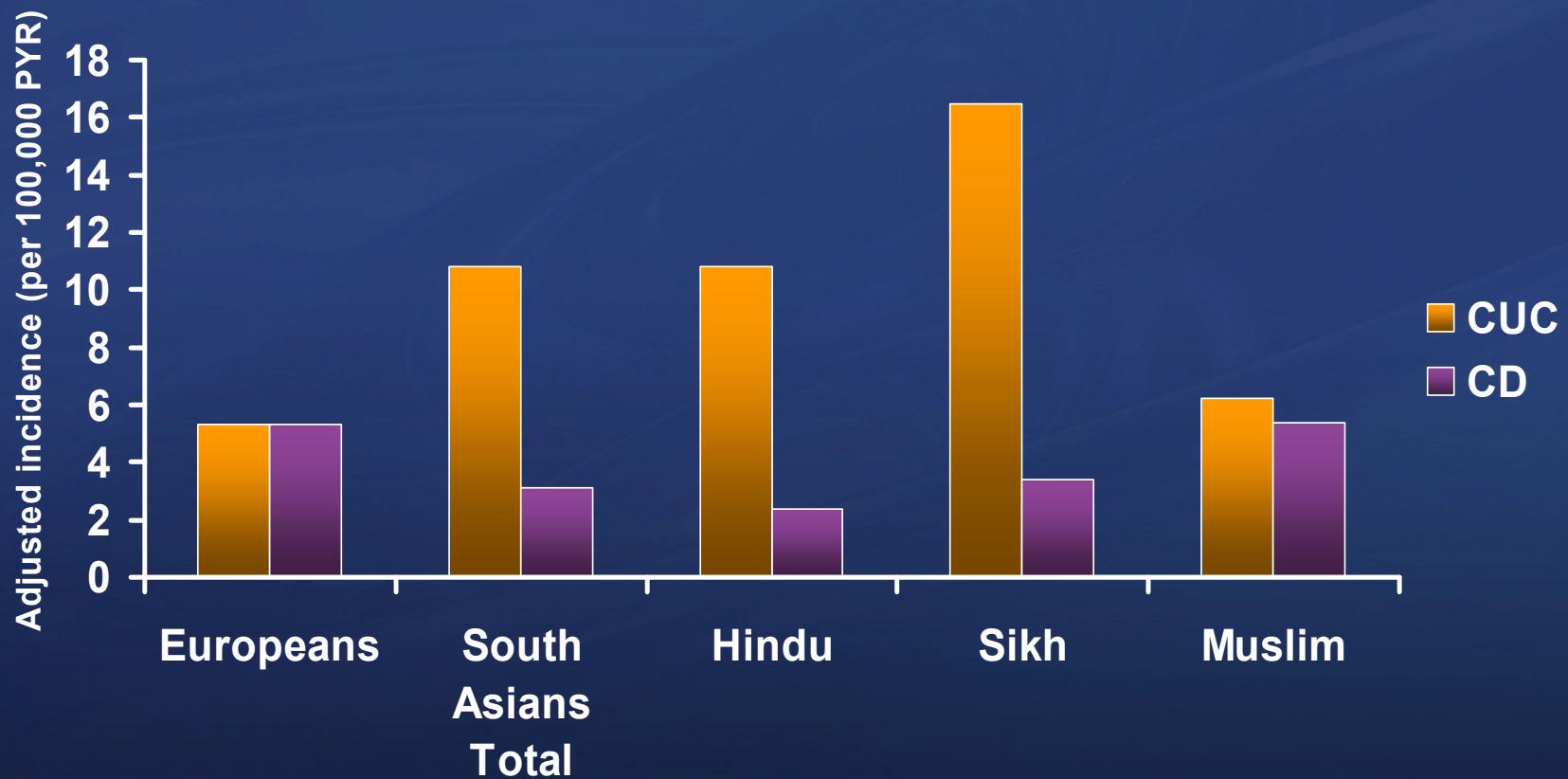
- Highest IBD incidence rates in suburban Winnipeg, lowest rates in northern province and urban core (more First Peoples*)
- Incidence and prevalence of Crohn's is lowest in British Columbia, which has the highest prevalence of visible minorities

* Aboriginal Canadians (aka Native Americans)

Ulcerative Colitis in Punjab, India

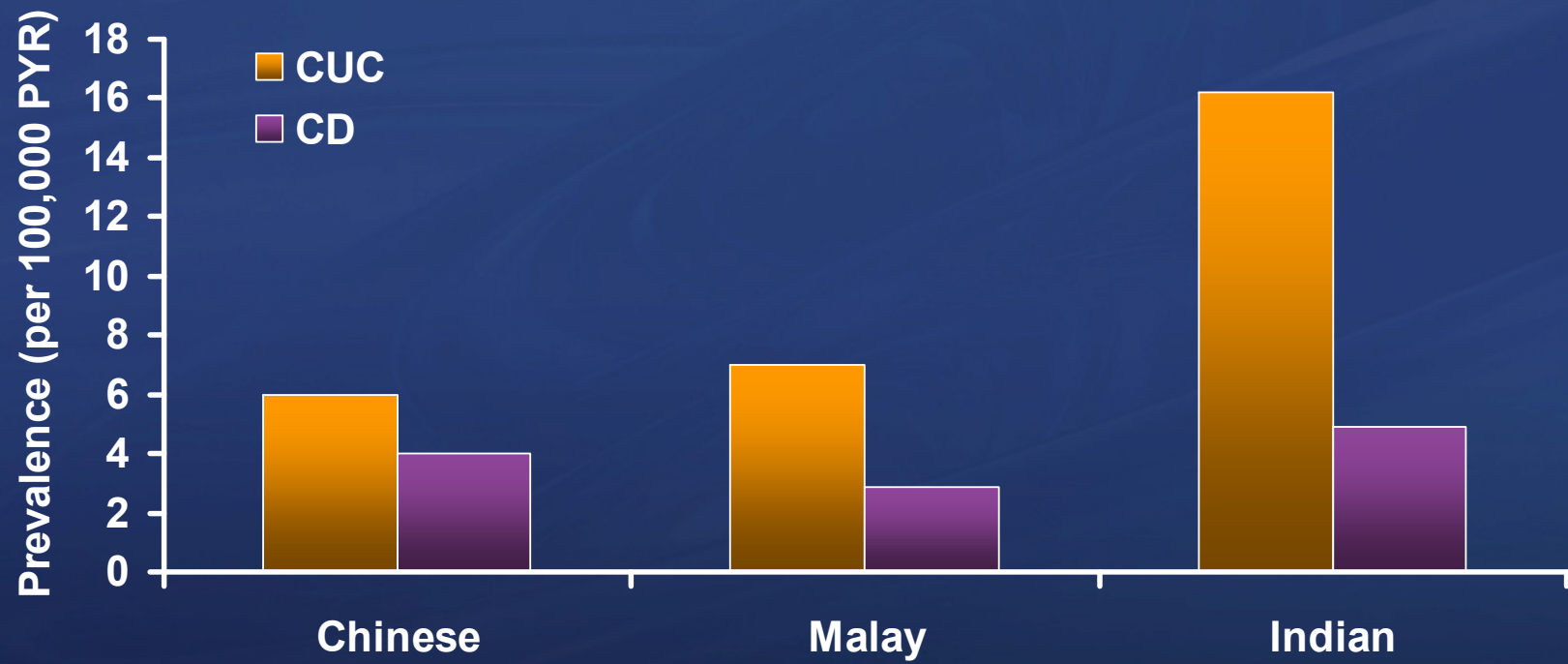
- Province of northern India
 - 20 million people in 1991
 - 2/3 Sikh, 1/3 Hindu
- Survey of randomly selected districts by multidisciplinary team for diarrhea or rectal bleeding
 - If yes, stool studies and sigmoidoscopy
- Same areas re-surveyed the following year
- Prevalence 44.3, incidence 6.0

Incidence of IBD Among South Asians and Native Britons in Leicestershire, 1981-89

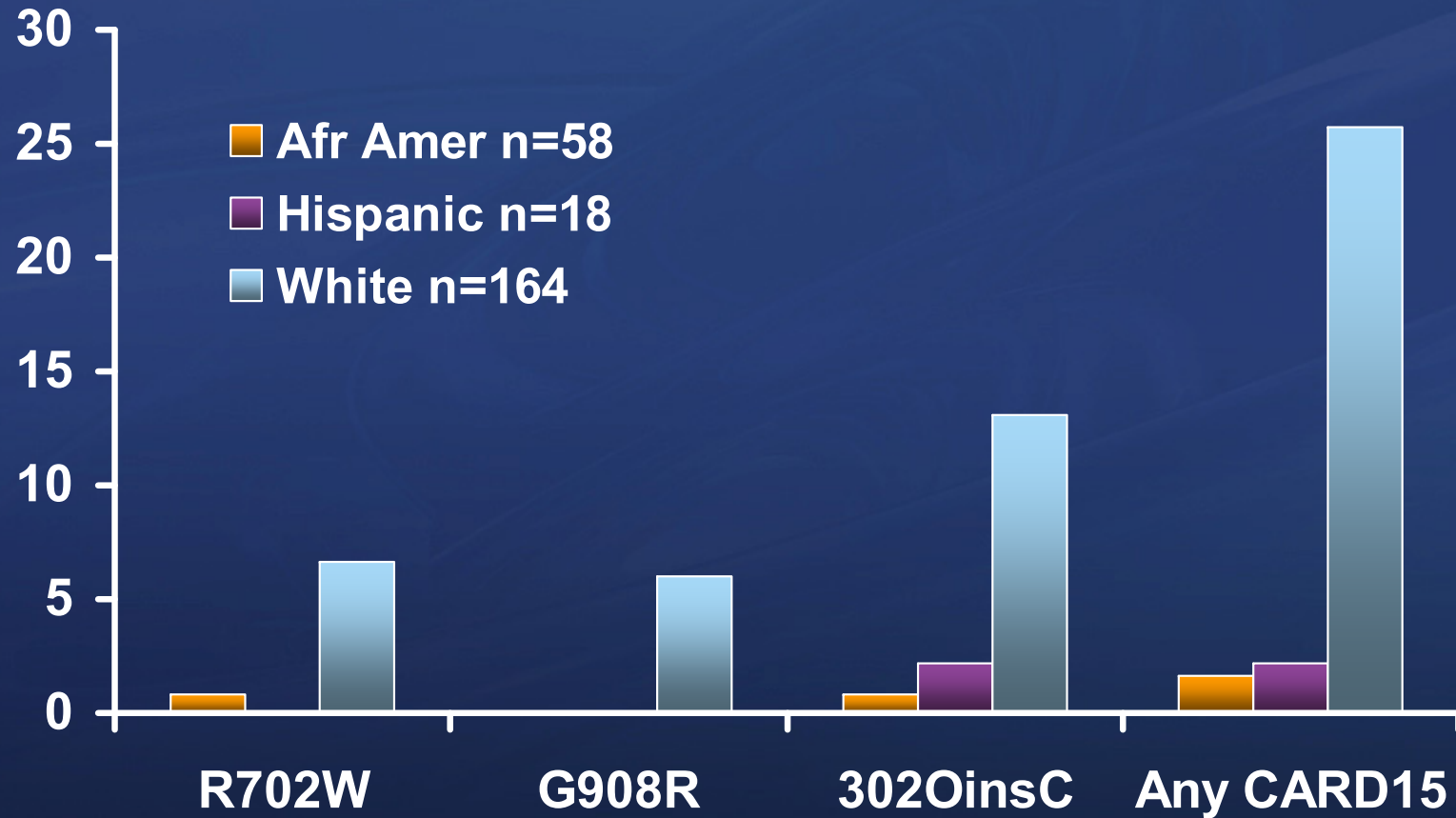


Probert et al, Gut 1992;33:687
Jayanthi et al, QJMed 1992;82:125

Period Prevalence of IBD in Singapore, 1985-96



Prevalence of CARD15 Mutations Among Pediatric Crohn's



Are Ethnic Variations Independent of Genetic Variations? Risk Factors Among 232 Manitobans with Crohn's Disease

Factor	OR (95% CI)
CARD15 hetero	3.7
CARD15 comp het/homo	40.0
Jewish ethnicity	18.5
Family history Crohn's	6.2
Current smoking	3.0

Multivariate analysis

Genetics Can't Explain It All

- Prevalence of NOD2/CARD15 mutations varies widely in populations
 - Low in Scandinavia, Finland, Australia, Celtic regions
 - High in Belgium, Canada
 - Doesn't correlate tightly with Crohn's incidence rates
- Don't forget the twin studies!!!
 - 20-50% concordance in identical twins

Kavanaugh J. World J Gastroenterol 2006;12:3673-7.

Amott ID et al. Genes Immun 2004;5:417-25.

Conclusions

- Incidence and prevalence of IBD still rising in many areas
- Jews have increased risk relative to non-Jewish Caucasians
- Prevalence of IBD in African-Americans is at least 2/3 that of Caucasian population, perhaps higher
- Higher prevalence of colonic and perianal Crohn's among African Americans, but no clear difference in behavior or need for surgery

Conclusions

- Prevalence among Hispanics rising, but difficult to quantify
- Crohn's is now being reported in 'new' areas such as East Asia, South Asia, and among migrants from South Asia
- Not clear if genetics can completely explain ethnic/racial differences in Crohn's incidence and phenotype