BACKGROUND

- Both wild-type (WT) and vaccine strain (VS) varicella zoster virus (VZV) establish latency and can reactivate to cause herpes zoster (HZ).
- Live-attenuated varicella vaccine was recommended for children in 1995 but implementation took time.
- Vaccine uptake among preschool children reached about 70% by 2000 and 2006, respectively.
- Vaccine rates in the population declined about 80% and 90% by 2000 and 2006, respectively.

STUDY OBJECTIVE

- We assessed HZ incidence in birth cohorts born before and after introduction of varicella vaccine in 1995 to better understand its epidemiology as a function of age and sex, including the impacts of varicella vaccination.

METHODS

- Data Source: Truven Health’s MarketScan® Databases, healthcare claims database from 1993-2013.
- Include data from public and private employers, health insurance plans, and Medicare.
- Annual enrollment ranged from an average of 4 million during 1993-2002 to >50 million in 2013.
- Study Population: Enrollees ≥44 years of age.
- Study Definitions:
  - HZ: Medical claims for first outpatient services with ICD-9 codes for HZ (055.x) in primary or secondary positions.
- Data Analysis:
  - Born 1981-9 (no varicella vaccination, high WT-VZV circulation).
  - Born 1990-2001 (transitional period, with vaccination increasing and WT-VZV circulation decreasing).
  - Born 2002-13 (high vaccine uptake, low WT-VZV circulation).
- Calculated unadjusted incidence by birth cohorts, sex and age.

RESULTS

- HZ incidence among children and young adults as a function of age (Figure 1):
  - HZ incidence among children and young adults as a function of calendar year:
    - General changes in HZ incidence by calendar year are addressed in poster 1552.
    - In adults, age-specific HZ incidence was consistently higher in females than males (Figure 2A).
    - In children, the age-specific divergence by sex disappeared in recent years (Figure 2B).

CONCLUSIONS

- Among persons born before the varicella vaccine era, the incidence of HZ increased with age.
- This increase cannot be explained by age-related increases in the portion of persons at risk of HZ due to new acquisition of latent WT-VZV (ie VZV seroprevalence): the magnitude of the HZ increase is too great.
- Age-specific increases in HZ incidence are well-documented and have been attributed to immune senescence. Can this biology - or terminology - apply to young adults and teens?
- Most children born since 2002 are vaccinated and few have been exposed to WT-VZV: HZ incidence appears to be lower in this birth cohort, and stable with age. Might factors leading to age-specific increases in HZ incidence only pertain to WT-VZV, and not VS-VZV?
- We have previously reported that females are at greater HZ risk than males, even in premenarchal girls for whom differential health seeking is unlikely (Leung et al.). This difference appears to have disappeared in recent years. Might factors have disappeared to a sex-disparity in HZ incidence pertain to WT-VZV, and not VS-VZV?

REFERENCES