**Objectives:** To evaluate potential gains that can be achieved when using external data to model the DRS in a variety of practical settings.

**Methods:** We simulated various degrees of additivity and linearity while varying the sample size. We fit the DRS model within three populations: the full cohort, untreated individuals, and an external population of untreated individuals. Each model included only main effects for the covariates to reflect practical settings where there is some misspecification in the DRS model. We compared the percent bias and standard error of the effect estimates after stratifying on the estimated DRSs.

**Results:** Results were similar when DRS models were correctly specified and sample sizes were large. When the study size was small (N = 500), fitting the DRS model within an outside population resulted in slightly lower percent bias compared to fitting the DRS within the study cohort of untreated individuals (difference in percent bias ranging from 0% to 3%). When the DRS models were misspecified, fitting the DRS within external data resulted in a slight improvement in percent bias compared to fitting the DRS within the full study cohort (difference in percent bias ranging from 0% to 2%).

**Conclusions:** Benefits from using external data to model the DRS were modest in the scenarios evaluated. Advantages of using external data may be more pronounced in settings specific to newly introduced treatment therapies. Future research will include evaluating the relative performance of these estimation strategies when comparing newly introduced oral anti-coagulant medications to warfarin in reducing ischemic stroke within the Medicare data.

### 349. Increasing Trend of Type 1 Diabetes in Dutch Children and Adolescents (1998-2010)

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**Background:** There is no recent data on the epidemiology of type 1 diabetes (T1D) in Dutch children and adolescents. To assess the incidence and prevalence of T1D in children, which is reasonably rare, a large population has to be monitored.

**Objectives:** To assess trends in the incidence and prevalence of T1D in Dutch children and adolescents aged 0-19 years.

**Methods:** A population-based cohort study was conducted in the Dutch PHARMO-RLS that comprises community pharmacy dispensing records linked to hospital admissions (1998-2010). Insulin prescriptions were used as a proxy to identify cases of T1D. All children and adolescents aged 0-19 years with at least two insulin prescriptions were identified and the numbers of incident and prevalent cases of T1D (numerators) were calculated in each year. The incidence and prevalence of T1D were calculated overall and for different sexes and age categories (age bands: 0-4, 5-9, 10-14, 15-19, and 0-14 years) using the data from the Dutch Central Bureau of Statistics as denominator.

**Results:** In 2010, the incidence and prevalence of T1D was 31.6/100,000 person-years and 195.2/100,000 children, respectively. From 1998 to 2010, the overall incidence and prevalence of T1D in Dutch children increased by 62.9% and 87.9%, respectively. A similar increasing pattern was observed for boys and girls. The largest increase in the incidence and prevalence of T1D was perceived for 15-19 years adolescents (140% and 93%, respectively). A sensitivity analysis restricted to children 0-14 years showed a plateau and even a gradual decrease in the incidence of T1D, mainly driven by a decreasing trend in the 0-4 year old children. Overall, there was an increase in the mean age at the onset of T1D (from 10.9 in 1999 to 13.1 years in 2010).

**Conclusions:** Our study is the most recent population-based study to investigate the incidence and prevalence of T1D in Dutch children and adolescents. Both incidence and prevalence of T1D nearly doubled from 1998 to 2010. The increase in the number of new cases and older age at the onset of the disease warrants further research to identify environmental triggering factors of T1D.

### 350. Cancer Incidence among Infants in the United States, 2000-2010

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