

# Long-term Healthcare Utilization by Medicaid Enrolled Children with Neonatal Abstinence Syndrome



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## Background

- Children exposed to opioids during pregnancy can develop neonatal abstinence syndrome (NAS) after birth.
- NAS incidence has increased dramatically in recent years and has been associated with high cost of care during the initial birth hospitalization.<sup>1-4</sup>
- Long-term healthcare needs for children with NAS, however, have not been well studied.

## Methods

- Medicaid MAX claims from TX and NY were used to generate a birth cohort of >2.5 million children.
- Children with NAS were identified using the ICD-9 diagnosis code 779.5 and 1:5 propensity score matched with children without NAS.
- Matching was performed within each state using demographic (sex, birth year, income, race) and demographic and clinical covariates (prematurity and congenital anomalies).
- Outcomes included healthcare utilization during the first two years of life:
  - Total inpatient hospital days
  - ED visits
  - Outpatient office visits
  - Filled prescriptions
- Poisson and negative binomial regression were used to calculate Healthcare Utilization Ratios (HUR).
- An a priori  $p < 0.05$  was used as the threshold of significance.
- A Holm-Bonferroni adjustment was used for primary analyses. Several sensitivity analyses were also performed.

## Results

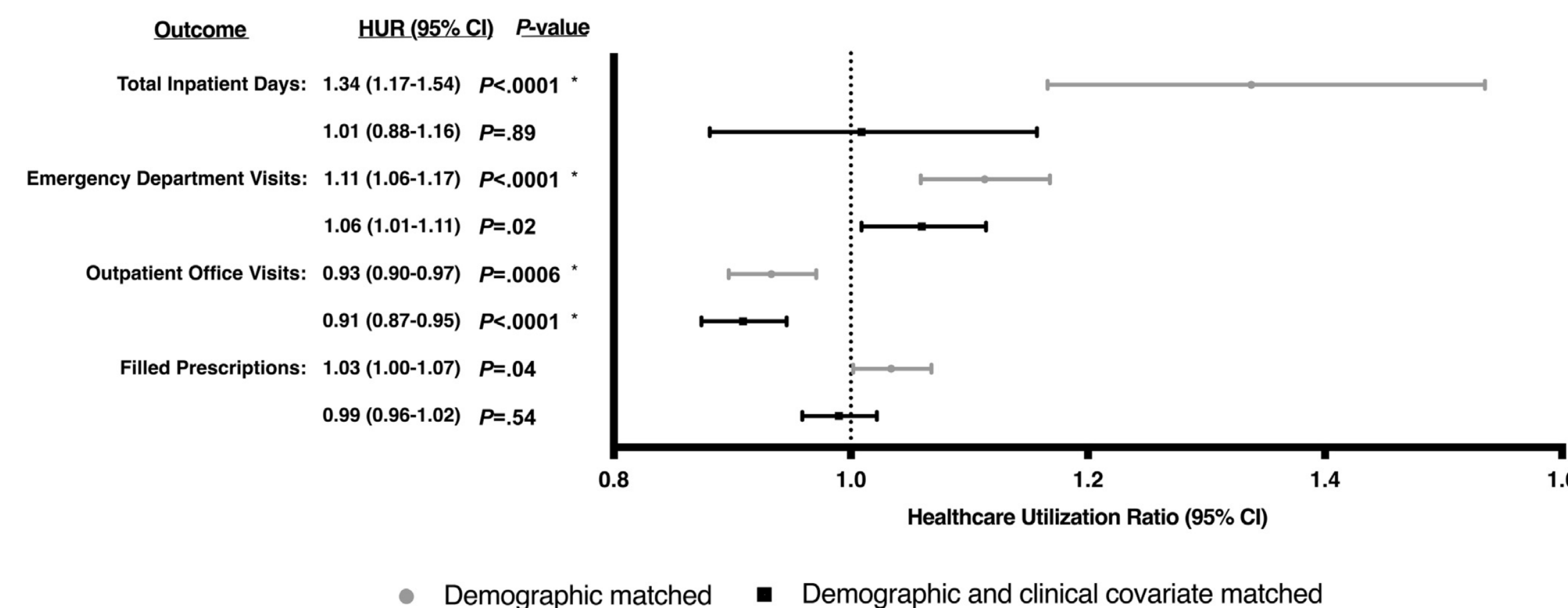


Fig 1. HURs of Children with NAS Compared to Children without NAS

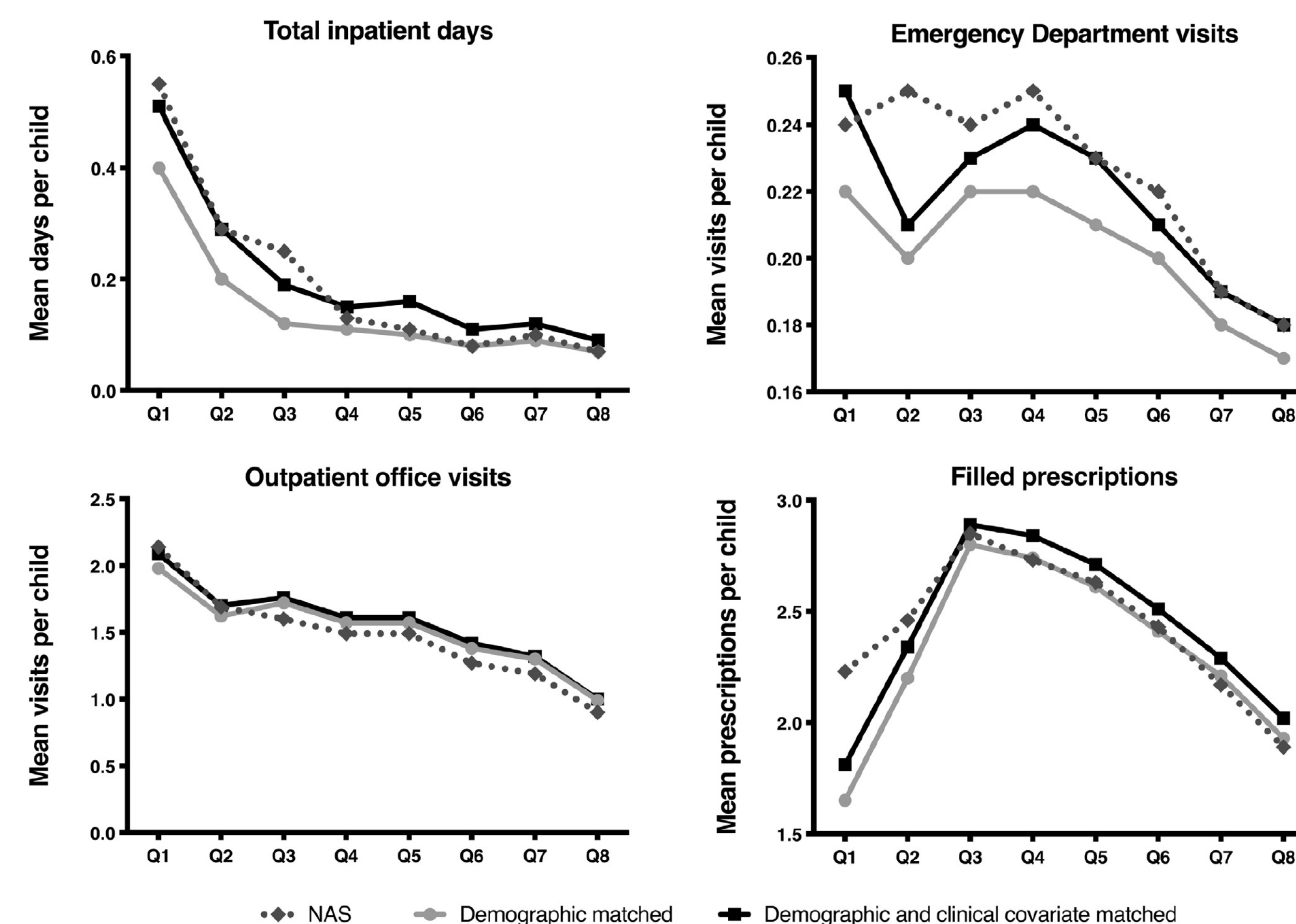


Fig 2. Healthcare Utilization of Children with NAS Compared to Children without NAS Stratified by Quarter

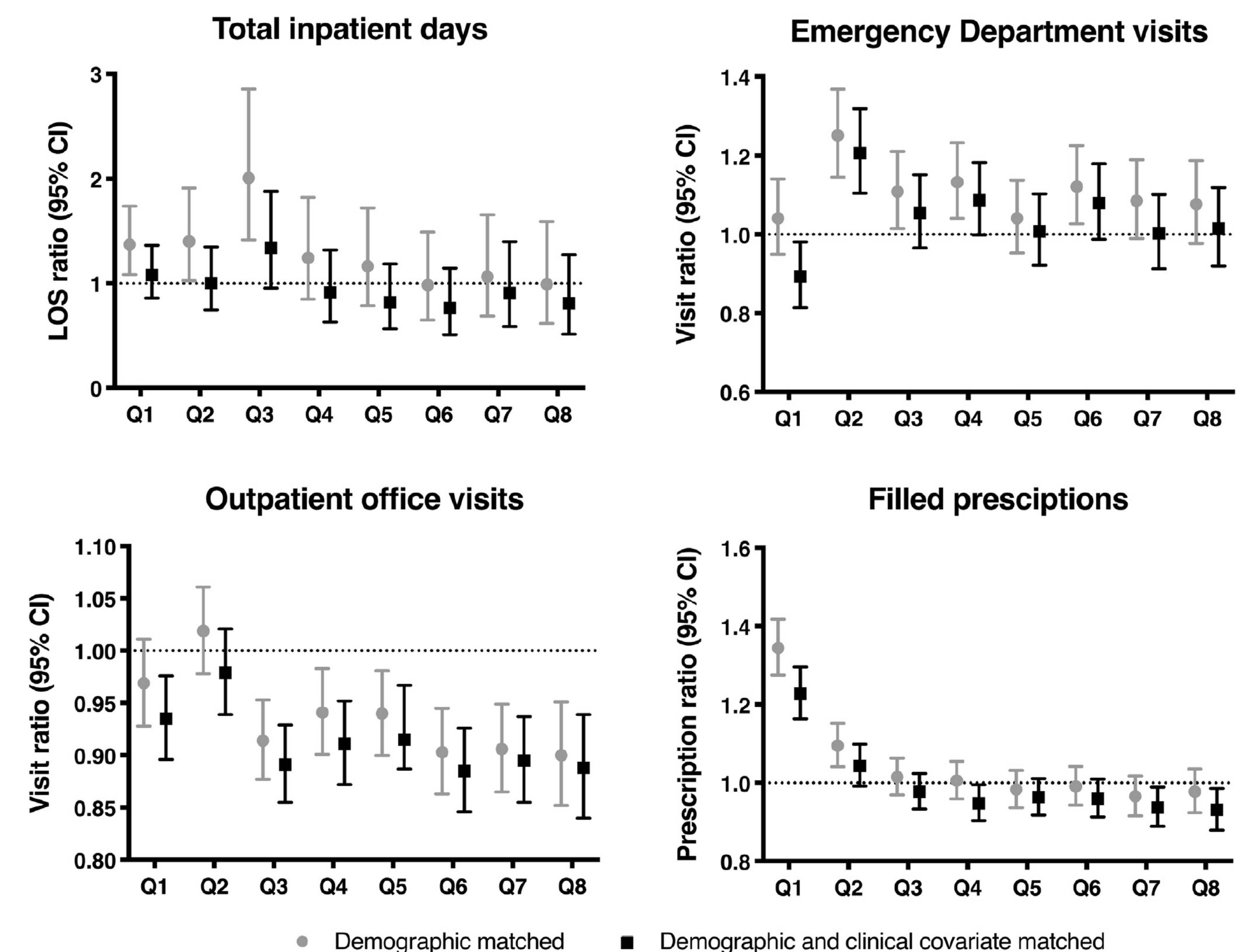


Fig 3. HURs of Children with NAS Compared to Children without NAS Stratified by Quarter

- In the first 2 years of life, children with NAS ( $n = 3799$ ) had increased healthcare utilization with more inpatient days and emergency department visits than demographically similar children without NAS.
- This increased utilization however did not persist after matching on clinical covariates and performing multiple comparisons adjustment (inpatient days [HUR, 1.01; 95% CI, 0.88-1.16;  $P = .89$ ], total emergency department visits [HUR, 1.06; 95% CI, 1.01-1.11;  $P = .02$ ]).
- Children with NAS conversely had 9% fewer outpatient office visits (HUR, 0.91; 95% CI, 0.87-0.95;  $P < .0001$ ).

## Discussion

- A diagnosis of NAS does not appear to be an independent predictor of increased healthcare utilization in the first 2 years of life.
- These findings, which differ from some other published studies, may suggest that the increased healthcare utilization observed in children with NAS is due to higher incidences of perinatal complications and congenital anomalies in children with prenatal drug exposures.

## References

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