

# Is the prevalence of abdominal wall defects in the Hudson Valley Region of New York a public health concern?

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# Background

## Abdominal wall defects

- **Nationwide epidemiologic studies demonstrate an increasing prevalence of abdominal wall defects with gastroschisis indicated as the major contributor to this increase<sup>1-6</sup>**
- **Gastroschisis prevalence:0.6-1.6 / 10,000 live births<sup>1</sup>**
- **Omphalocele prevalence:1.6-2.5 / 10,000 live births<sup>1</sup>**

1. Goldkrand et al. J Matern Fet Med 2004;15
2. McDonnell et al. Ir Med J 2002;95(8)
3. Suita et al. J Pediatr Surg 2002;35(1)
4. Chabra et al. E-PAS2006;59:3870.9
5. Salihu HM. Birth Defects Res A Clin Mol Teratol. 2003;67:630-36
6. Salihu HM. Birth Defects Res A Clin Mol Teratol. 2004;70(9):586-91

# Regional differences in abdominal wall defects

- Prevalence rates also vary between regions and countries:
  - Europe:  
Gastroschisis: 0.94/ 10,000 live births
  - Georgia, USA:  
Gastroschisis: 3/ 10,000 live births  
Omphalocele: 2.8/10,000 live births

# Risk factors for abdominal wall defects?

- Vascular insult
- Maternal age
- Maternal substance abuse
- Geographic location: urban vs. rural
- Associated chromosomal abnormalities (more common with omphalocele)
- **Racial and ethnic disparities have been suggested but evidence is inconclusive**

1. Salihu HM. Birth Defects Res A Clin Mol Teratol. 2003;67:630-36
2. Salihu HM. Birth Defects Res A Clin Mol Teratol. 2004;70(9):586-91

# Objective

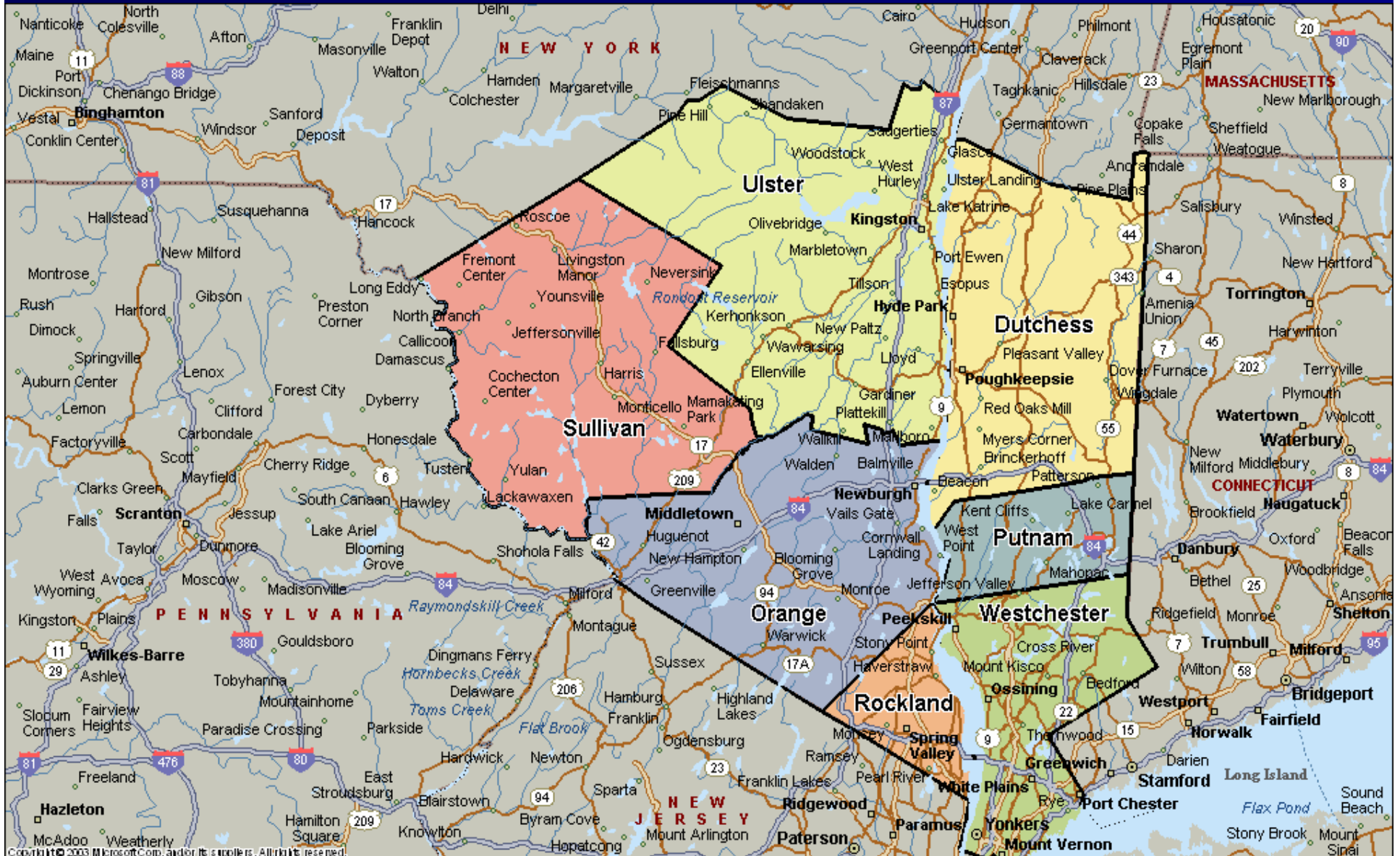
- To determine the prevalence abdominal wall defects in the Hudson Valley Region of New York by race and ethnicity

# Methods I

- **Hudson Valley Region (HVR) in New York State from 1992-2001**
- **New York State Department of Health Congenital Malformations Registry (CMR) & Vital Statistics**
  - **Data specific to county by race and ethnicity**
  - **Racial data based on matching CMR case report to mother's birth certificate**
    - **Categories:**
      - **Non-Hispanic White**
      - **Non-Hispanic Black**
      - **Hispanic**
      - **Other: American Indian, Asian or Pacific Islander, Unknown**
  - **Live-birth children diagnosed up to 2 years of age**



# Hudson Valley Region, NY



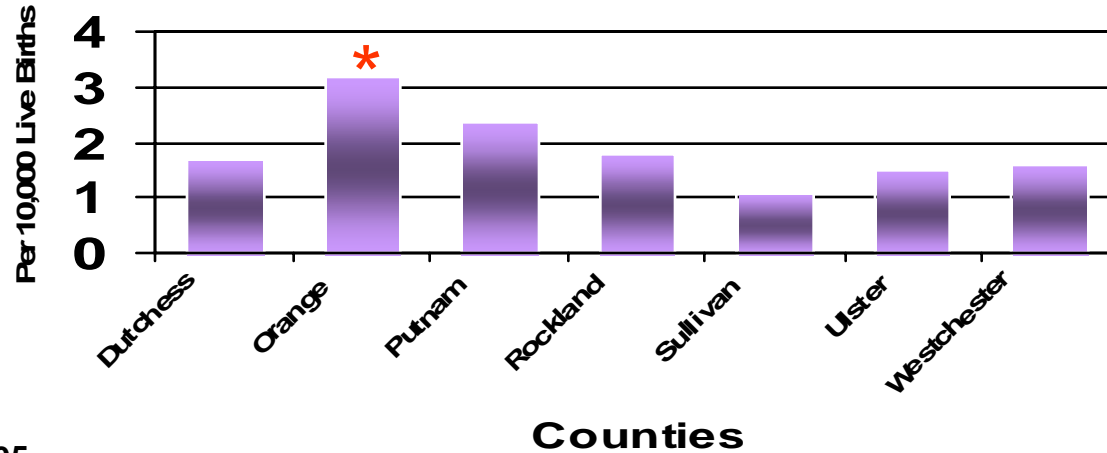
# Methods II

- British Pediatric Association (BPA) coding system, a modified form of the ICD-9 coding system used to group AWDs into categories
- Prevalence calculated using number of AWDs per race-specific live births
- Poisson regression, adjusting for population size, used for analysis of relative risks



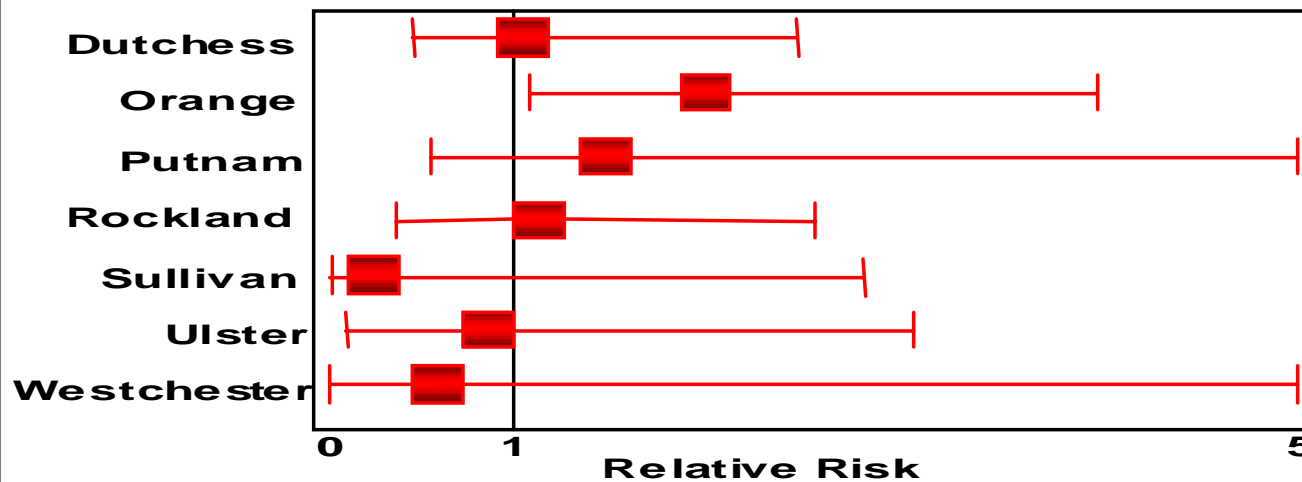
# All Abdominal Wall Defects

Abdominal Wall Defects by County  
1992-2001

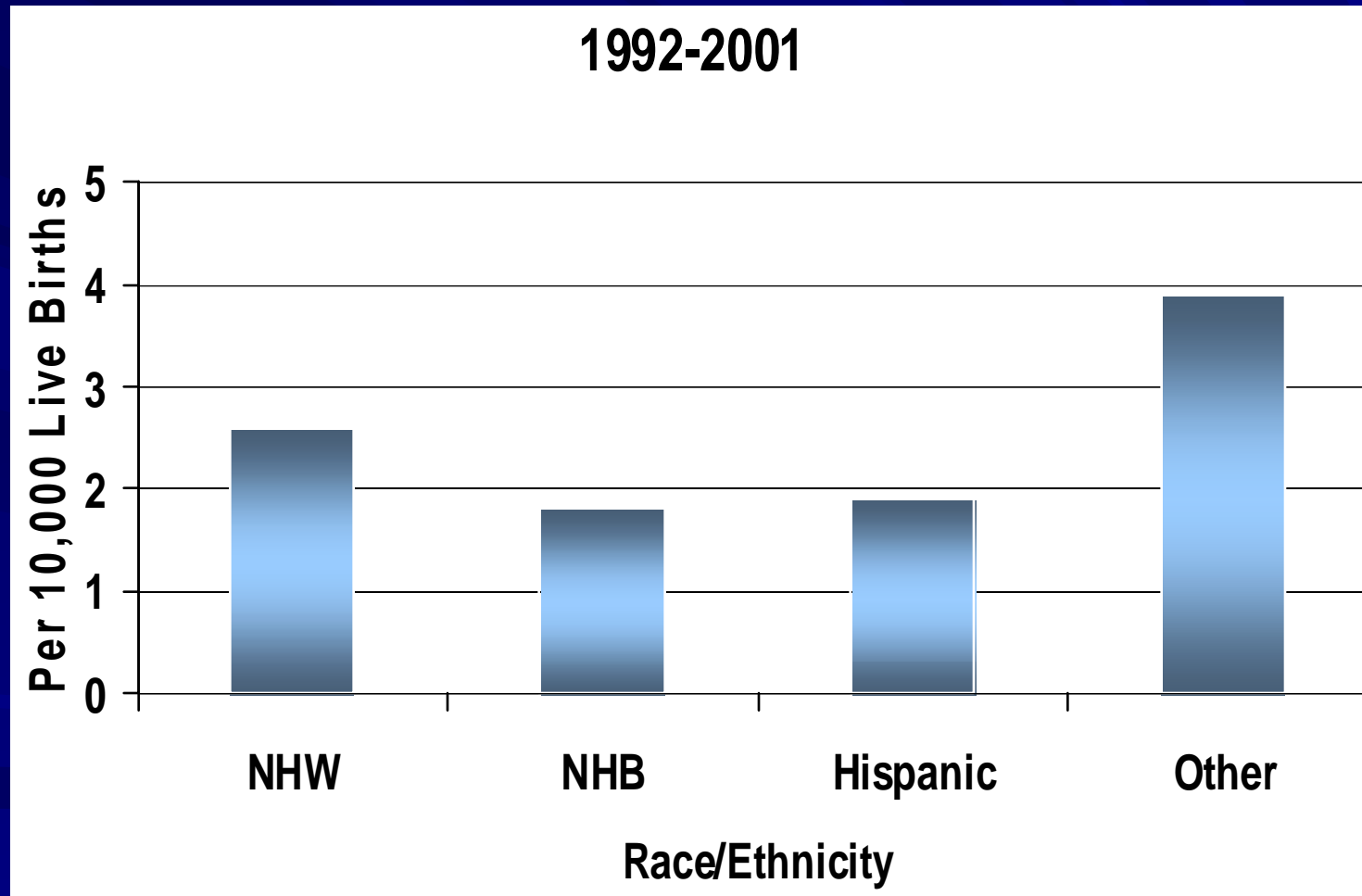


\*p < 0.05

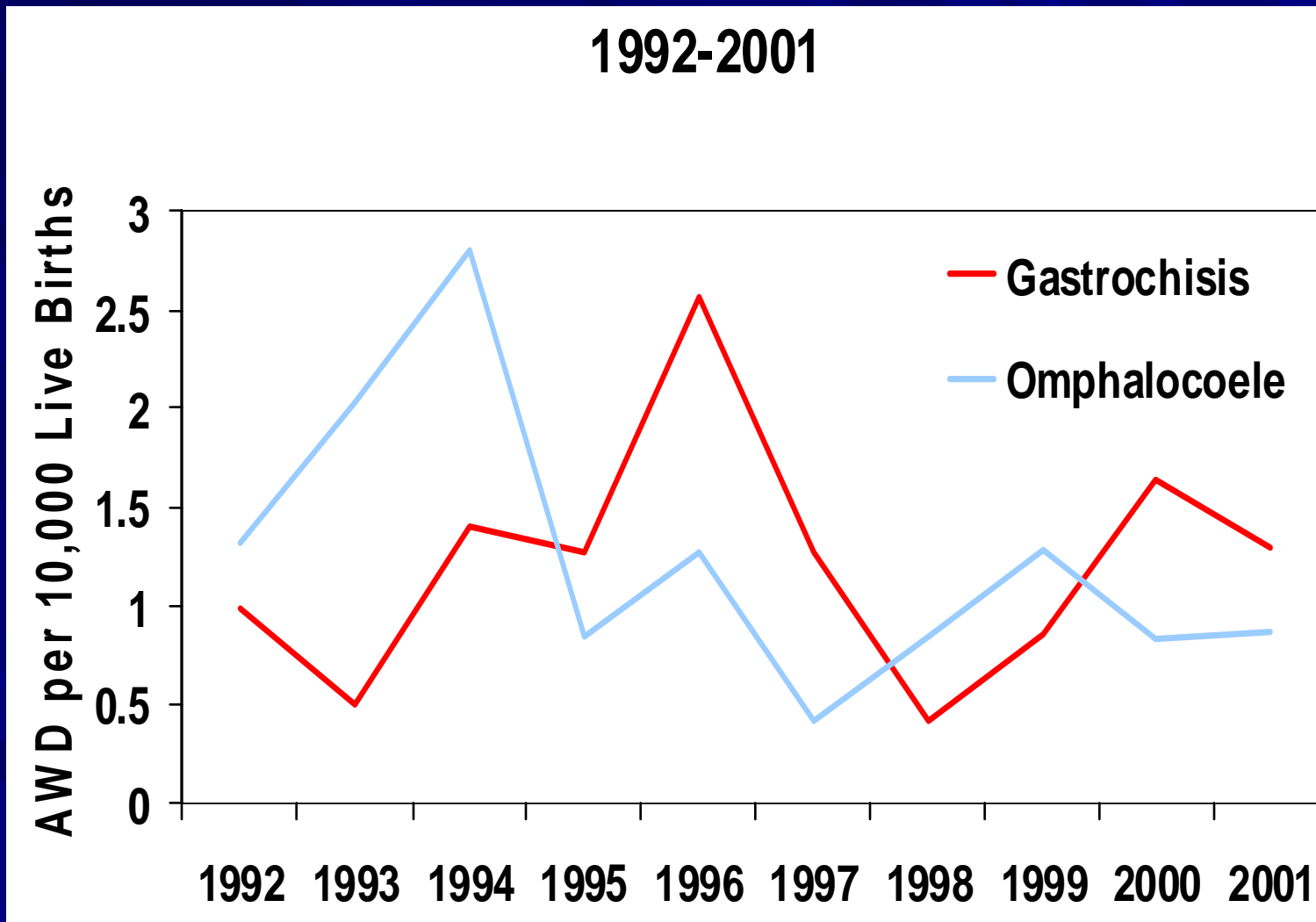
Abdominal Wall Defects 1992-2001



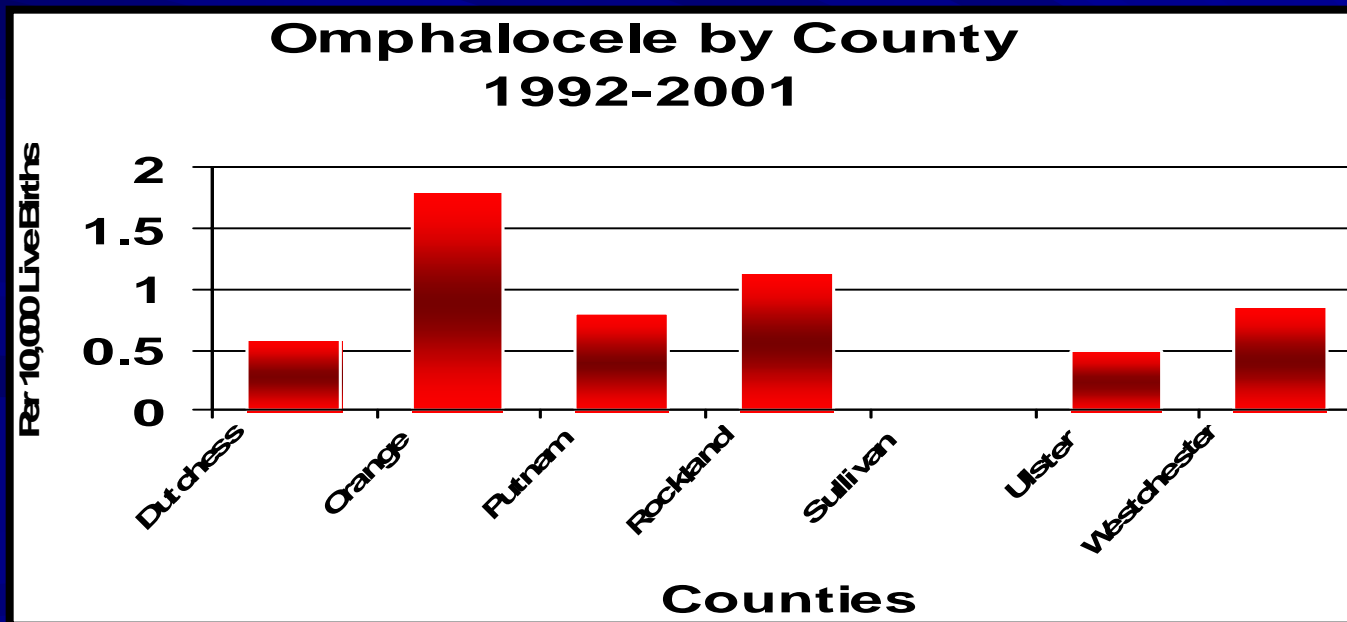
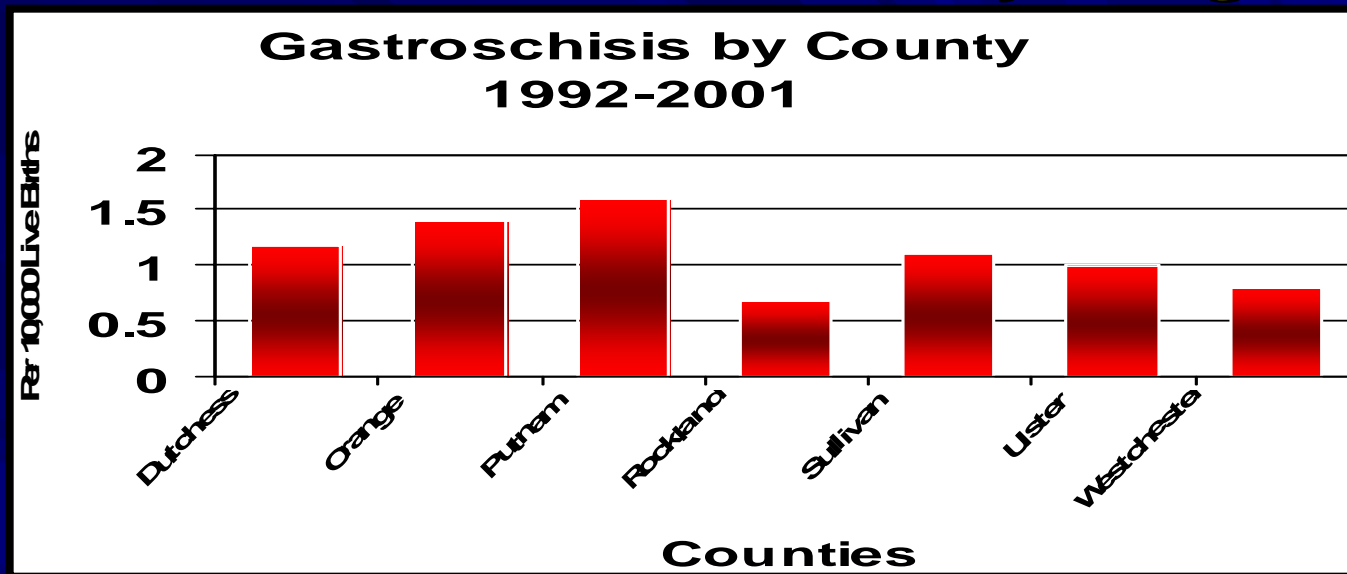
# Abdominal Wall Defects by Race/Ethnicity



# Abdominal Wall Defects Temporal Trends



# Abdominal Wall Defects by Region



# Limitations

- Outcomes studied are rare occurrences, therefore it may be difficult to detect significant differences
- Aggregate data did not control for potential confounders (e.g.: gender, birth weight, gestational age, maternal age, race, drug use, years education, parity, household income, prenatal care, insurance)
- Chance variations in AWD prevalence between time periods could be due to small populations within the counties, particularly in regards to minority races

# Conclusions

- **Regional differences in abdominal wall defects prevalence exist in the Hudson Valley Region of New York State**
- **Cases were more prevalent for Orange County compared to the other counties**
- **Temporal trends of abdominal wall defects are inconsistent with reports from other populations**
- **These differences among counties have implications for public health surveillance and prenatal monitoring**

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