

# Use of Administrative Health Care Data for Sexually Transmitted Disease Surveillance

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## BACKGROUND

Surveillance for sexually transmitted diseases (STDs) in the United States relies primarily on case reports from clinicians and laboratories and sentinel surveillance; however, nationwide reporting is not required for viral STDs and clinical sequelae of STDs, and sentinel surveillance can be resource intensive.

We evaluated the potential usefulness of three sources of administrative health care data for STD surveillance.

## METHODS

The Healthcare Cost and Utilization Project **Kids' Inpatient Database (KID)** data are available every 3 years and have been used to estimate national and regional incidence of neonatal herpes simplex virus infection in 2006.

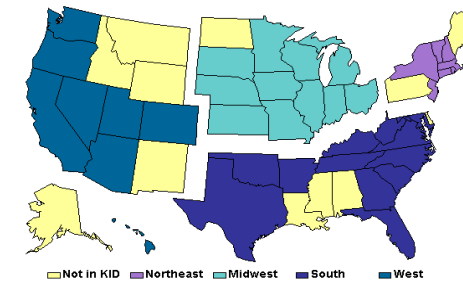
The MarketScan **Commercial Claims and Encounters (CAAE)** data, containing records from employee-sponsored private health insurance plans, were used to examine trends in anogenital wart prevalence by gender and age group from 2003 to 2010.

The national **Medicaid Analytic Extract (MAX)** data are being used to estimate annual incidence of congenital syphilis from 2003 to 2007.

## RESULTS

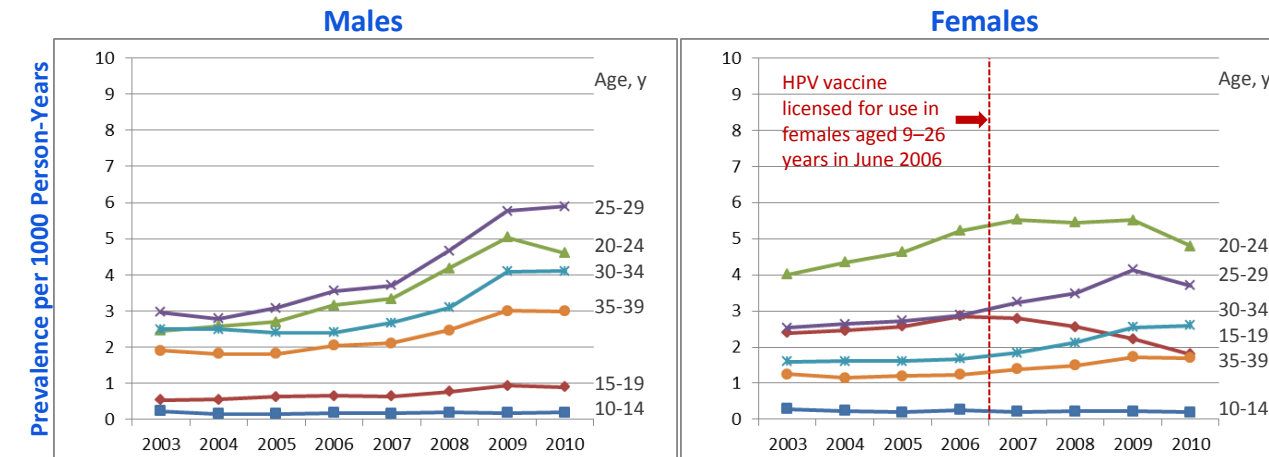
### KID: Neonatal Herpes Incidence, 2006

Region	Case Count	Hospital Births	Incidence Rate per 100,000 (95% Confidence Limits)
US	395	4,106,488	9.6 (8.1, 11.2)
Northeast	56	682,092	8.2 (4.3, 12.0)
Midwest	113	876,567	12.9 (8.3, 17.5)
South	138	1,555,160	8.9 (6.3, 11.4)
West	88	992,668	8.8 (6.0, 11.7)



Flagg EW, Weinstock H. Pediatrics 2011.

### CAAE: Annual Anogenital Wart Prevalence by Gender among Private Insurance Enrollees, 2003–2010



- A quadrivalent HPV vaccine that targets HPV 6, 11, 16 & 18 was licensed in the United States for use in females aged 9–26 years in June 2006; HPV 6 & 11 cause approximately 90% of anogenital warts
- 54% of girls aged 13–17 years had received at least 1 dose of HPV vaccine in 2012
- These data indicate reductions in anogenital warts among females aged 15–24 years, the age group most likely to be affected by introduction of HPV vaccine, despite relatively low vaccine uptake

Flagg EW, Schwartz R, Weinstock H. Am J Pub Health 2013.

### MAX: Annual Incidence of Congenital Syphilis among Medicaid Enrollees, 2003–2007\*

#### Step 1—Creation of Cohort of Children Continuously Enrolled from Birth through Age 24 Months\*\* (preliminary results)

#### Number and Percentage of Continuously Enrolled Children, by Year of Birth and Gender

	2003		2004		2005		2006		2007		Total	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Males	493,711	(19)	497,115	(19)	508,290	(20)	527,455	(20)	550,799	(21)	2,577,370	(100)
Female	471,171	(19)	475,228	(19)	485,621	(20)	502,659	(20)	525,369	(21)	2,460,048	(100)
Total	964,882	(19)	972,343	(19)	993,911	(20)	1,030,114	(20)	1,076,168	(21)	5,037,418	(100)

\*Restricted to children born through 2007 to allow follow-up for continuous enrollment through 2009  
\*\*Includes continuously enrolled children who died before age 24 months

- Ratio of male to female births (1.048) similar to birth ratio for US 2002 population (1.046) and stable over time
- Outpatient and inpatient claims records available for cohort of over 5 million continuous enrollees (birth through 24 months) across 7 year period (2003–2009)
- Temporality of diagnoses (syphilis or congenital syphilis) and procedures (initial and follow-up syphilis tests, selected diagnostic and treatment procedures) will be used to develop congenital syphilis case definition for incidence estimation

Flagg EW, Weinstock H. Unpublished data.

## STRENGTHS:

- Availability of diagnosis and procedure codes for large numbers of records:
  - KID** – 3.4 million birth and hospitalization discharge records for children/adolescents through age 20 in 2009 (most recent data)
  - CAAE** – 1.1 billion inpatient and outpatient claims records for employees and their dependents in 2012 (most recent data)
  - MAX** – 2.3 billion inpatient and outpatient claims records for child and adult beneficiaries in 2009 (most recent national data).
- Standardized data values and formats
- Relatively low cost, compared to national reporting and sentinel surveillance

## STRENGTHS (continued):

- KID data are weighted to be nationally representative; MAX data represent the entire population of Medicaid enrollees

## LIMITATIONS:

- Laboratory results and inpatient medications are unavailable, although the CCAE and MAX contain outpatient prescription claims
- Access is not timely; currently, KID and MAX are available through 2009 and CCAE through 2012
- Race/ethnicity information is available in only KID and MAX, and this information is incomplete—in 2009, 15% of race/ethnicity values were missing in KID and 28% in MAX

## CONCLUSIONS

Administrative health care data provide new opportunities for STD surveillance among large numbers of health care consumers, despite limitations.

These data may be particularly useful for non-reportable STDs and STD clinical sequelae, but delayed availability may limit their utility for public health response.

## CONTACT INFORMATION

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