

**BIRTH DEFECTS AND OTHER
ADVERSE PREGNANCY OUTCOMES
IN ILLINOIS
1995-1999**

**A REPORT ON COUNTY-SPECIFIC
INCIDENCE**

Illinois Department of Public Health
Division of Epidemiologic Studies

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INTRODUCTION

Adverse pregnancy outcomes are recorded by the Illinois Department of Public Health (IDPH) for infants with congenital anomalies (birth defects) and other serious neonatal conditions (listed in Table 1). Each year in Illinois, IDPH's Adverse Pregnancy Outcomes Reporting System (APORS) obtains information on thousands of such births throughout the state. Information about congenital anomalies and other adverse pregnancy outcomes identified in newborn infants was first collected statewide by APORS in 1989. Table 1 shows the number of cases and observed rates of the different neonatal conditions that make up the APORS case definition for 1995-1999. Because multiple adverse outcomes may coexist, it is possible for an infant to be counted in more than one of the categories in Table 1.

Table 1. Frequency of Infants Meeting APORS Case Criteria, 1995-1999

Infants	5-Year Total	Annual Average	Rate ¹	% APORS Cases
Total APORS Cases	82,164	16,432.8	898.9	100.0
Intensive Care >24 hours (meets no other APORS criteria)	33,614	6,722.8	367.7	40.9
Birth Defects	20,864	4,172.8	228.3	25.4
Very Low Birth Weight	16,673	3,334.6	182.4	20.3
Positive for Controlled Substances	9,405	1,881.0	102.9	11.4
Congenital Infections	7,290	1,458.0	79.8	8.9
Fetal Deaths	5,723	1,144.6	N/A	7.0
Died During Newborn Hospitalization	3,416	683.2	37.4	4.2
Intrauterine Growth Retardation	2,290	458.0	25.1	2.8
Retinopathy of Prematurity	1,971	394.2	21.6	2.4
Endocrine, Metabolic or Immune Disorder	224	44.8	2.5	0.3
Fetal Alcohol Syndrome	205	41.0	2.2	0.2
Blood Disorder	136	27.2	1.5	0.2
Other Conditions ²	178	35.6	1.9	0.2

¹ Rate per 10,000 live births

² Neurofibromatosis, chorioetinitis, strabismus, endocardial fibroelastosis, occlusion of cerebral arteries, cerebral lipidoses.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

Information about adverse pregnancy outcomes is collected for two major reasons. First, infants with a congenital anomaly or other problem often need special services to help assure that they reach their full potential. Therefore, these babies are referred to their local health departments for follow-up services. Second, the data are collected for surveillance purposes. These may include describing disease patterns, tracking trends, conducting cluster investigations, and developing education and intervention strategies.

APORS is the most complete source of data on adverse pregnancy outcomes that exists in Illinois. All Illinois hospitals are mandated to report infants born to Illinois women. (Perinatal centers in St. Louis, MO., voluntarily participate.) APORS is a passive surveillance system since reports are sent to IDPH rather than APORS staff going to hospitals to identify children with adverse outcomes. Such passive systems, though economical and relatively easy to operate, are likely to underestimate adverse outcome rates. The Pew Environmental Health Commission gave APORS a rating of B because of this lack of active surveillance activities.

Birth certificates (maintained by the Department's Division of Vital Records) are an additional data source, allowing APORS to identify infants with very low birth weights or with certain birth defects, otherwise unreported by the hospitals. The Division of Vital Records also provides information about fetal deaths from the death certificates.

This report is restricted to birth defects identified in newborn infants or fetal deaths. (It differs from some other Division of Epidemiologic Studies reports that have included information obtained through an active surveillance project undertaken in 1998.) Information about children whose only APORS case criteria was a stay of more than 24 hours in the intensive care unit is not explored in this report. These children generally go home healthy and, once home, do not need special services. The incidence of infants prenatally exposed to controlled substances has been fully discussed in an earlier report (Fornoff *et al.*, 2001) available from the Division of Epidemiologic Studies and so is not described again here.

This report includes two sections. The first describes the county-specific incidence rates of seven groups of major birth defects. In addition, a listing of the International Classification of Diseases – Ninth Revision Clinical Modification (ICD-9-CM) codes corresponding to each included birth defect is provided, together with a brief description of each defect. The second section provides similar information about other adverse pregnancy outcomes, including most of those listed in Table 1.

METHODS

Calculation and Interpretation of Rates and Confidence Intervals

Annual incidence rates (per 10,000 live births) for selected adverse pregnancy outcomes identified during the newborn hospital stay or associated with a fetal death were calculated as

$$10,000 \times \frac{\text{number of infants with selected congenital anomaly}}{\text{number of live births}}$$

Similar rates were calculated for selected adverse outcomes identified up to 1 year of age. The numbers of live births were obtained from the IDPH master birth files, provided by the Department's Center for Health Statistics.

Occurrence of a specific adverse outcome is assumed to be a rare event, therefore following a Poisson distribution. Exact confidence intervals were calculated for each rate (Armitage and Berry, 1987, page 134). Where there is a large number of birth defect cases, the confidence interval is narrow, indicating that the rate is stable. Where there are few birth defect cases, the confidence interval becomes very wide, indicating that the rate is not very stable and a small change in the number of infants born with the specific birth defect could result in a large change in the rate.

To compare two rates, it is important to look not just at their value, but also their confidence intervals. As a conservative approximation, if two confidence intervals overlap, then there is no evidence that the two rates are really different. If two confidence intervals do not overlap, then the rates are said to be statistically different. In this report, we use 95 percent confidence intervals; where the confidence intervals do not overlap the rates are statistically different at the 5 percent level ($p < 0.05$).

Multiple Comparisons

Since this report examines a large number of adverse outcomes, the corresponding statistical tests are subject to the "multiple comparison problem." For a given birth defect, the observed rate is an estimate of the true birth defect rate in the population. When two rates from different times or groups are compared, statisticians will assert that the observed rates are evidence of the groups having differing birth defect rates, if the observed rates are so different that the chance of them coming from the same underlying population is less than 5 percent. The 5 percent type I error rate, however, suggests that when 100 comparisons are made on average, five will provide statistical evidence that there are two true differing rates, when, in fact, there is no difference between the two groups. Therefore, as more comparisons are made, more may be statistically significant, just by chance. In this report, no explicit corrections of the multiple comparison problem were made; instead, when discussing trends, exact probabilities are reported. The smaller the reported probability, the more likely that the difference is not simply the result of chance.

Creating Map Illustrations

The maps in this report were created using MapInfo® (version 6.5, MapInfo Corporation). The categories were determined by the program using natural break-points in the data. The maps are used to create a visual representation of birth defect incidence rates and do not have any statistical significance associated with them.

SECTION I

BIRTH DEFECTS

Birth defects were the leading cause of infant mortality in the United States in 1998, making up more than 20 percent of infant deaths. Birth defects also contribute substantially to childhood morbidity and long-term disability. More than 4,500 different birth defects have been identified.

There are three major categories of known causes:

- chromosomal disorders (either hereditary or arising during conception)
- exposure to an environmental chemical (for example, medications, alcohol, cigarettes, solvents); and
- mother's illness during pregnancy, exposing her baby to viral or bacterial infection.

The stage of fetal development at the time of exposure to one of the latter two causes is critical. Fetal development is particularly vulnerable to disruption in the first trimester of pregnancy. Despite our increasing understanding of factors that give rise to birth defects, the causes of about 60 percent of all birth defects remain unknown. The same congenital anomaly may have completely different causes in different individuals.

Because a baby may be born with more than one birth defect, he/she may be counted in more than one birth defect group. A baby may even have more than one birth defect from the same birth defect group. So, the data in this report cannot be used to determine the number of children with a particular group of birth defects. The only exception is the group of central nervous system defects – these defects are mutually exclusive and so the number of birth defects corresponds to the number of babies.

More than 20,000 major birth defects, identified in Illinois newborns between 1995 and 1999, were reported to APORS – a rate of 228.3 per 10,000 live births. In Illinois, heart and circulatory system defects are the most commonly identified; 30.5 percent of all reported birth defects are heart or circulatory defects.

The life expectancy and quality of life for individuals with many birth defects has improved over the last 40 years. This is a result of —

- Pioneering surgery that corrects certain birth defects before a baby is born
- Neonatal intensive care units that provide specialized care and use advanced technology to treat babies; and
- New tests and treatments that improve the welfare of babies.

CENTRAL NERVOUS SYSTEM DEFECTS

Central nervous system (CNS) defects involve the brain, spinal cord and associated tissues. These include neural tube defects (anencephaly, spina bifida and encephalocele), microcephalus and hydrocephalus. A description of each defect follows, together with Table 2, which gives the five-year incidence rates for each defect for the whole state.

Anencephaly is a defect that occurs when the head end of the neural tube fails to close, resulting in the absence of a major portion of the brain, skull and scalp. It includes craniorachischisis in which there is incomplete closure of both the skull and the spinal column. This condition is incompatible with life.

Spina bifida is a defect in which part of the spinal cord is exposed because of a bony defect in the vertebral column. It may be associated with hydrocephalus. The degree of disability depends on the extent and location of the malformation.

Encephalocele is a defect affecting the skull resulting in the protrusion of the meninges and portions of the brain through a bony midline defect in the skull. Infants with this condition are likely to die or to be severely retarded.

Microcephalus is an abnormally small head due to failure of brain growth during pregnancy resulting in retardation and developmental delays.

Hydrocephalus is an abnormal buildup of cerebrospinal fluid in the ventricles of the brain. The fluid is often under increased pressure and can compress and damage the brain. The prognosis depends on the cause of the hydrocephaly; children may be retarded or develop normally after surgery to treat the defect.

Table 2. Total Number and Incidence Rates of Major Central Nervous System Defects in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate per 10,000 live births	95% Confidence Interval	
				Lower	Upper
Anencephalus	740.0-740.1	170	1.9	1.6	2.2
Spina bifida ¹	741.00-741.93	254	2.8	2.4	3.1
Encephalocele	742.0	64	0.7	0.5	0.9
Microcephalus	742.1	263	2.9	2.5	3.2
Hydrocephalus ²	742.3	515	5.6	5.2	6.1

¹ Includes only spina bifida without anencephaly. ² Includes only hydrocephaly without spina bifida.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

These observed rates may be substantially lower than the true rates because APORS does not collect birth defect information from miscarriages or elective abortions. Because CNS defects are very severe, many affected babies will miscarry early in pregnancy. Additionally, since the defects are detectable in pregnancy either by alpha-fetoprotein testing or ultrasound screening, women may elect to abort a baby with a CNS defect.

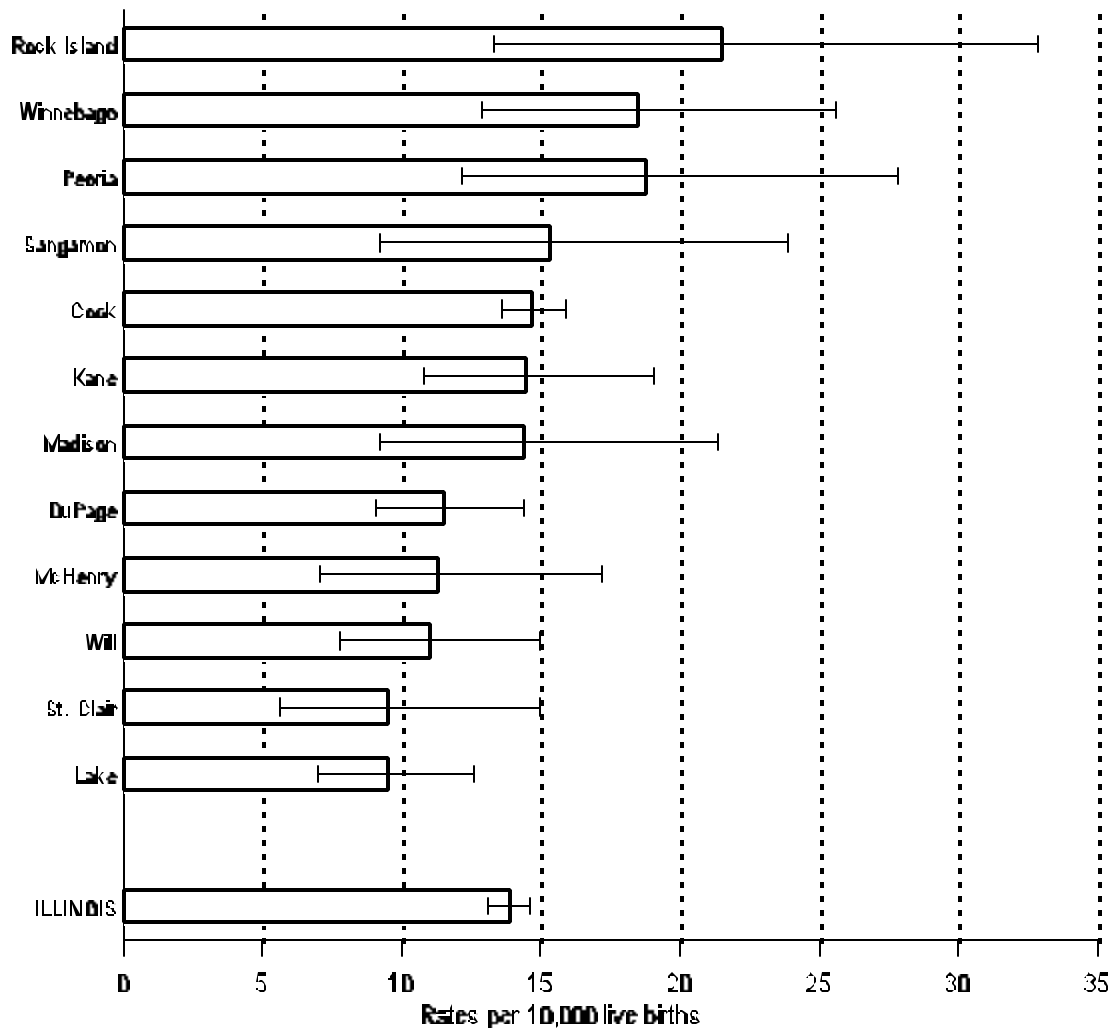
Table 3. Total Number and Incidence Rates of Major Central Nervous System Defects in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	1,266	13.9	13.1	14.6	Lee	3	15.3	3.2	44.7
Adams	5	12.0	3.9	27.9	Livingston	6	26.1	9.6	56.8
Alexander	1	14.8	0.4	82.4	Logan	2	11.9	1.4	43.1
Bond	1	10.2	0.3	57.0	Macon	14	18.2	10.0	30.6
Boone	3	10.8	2.2	31.7	Macoupin	0	0.0	0.0	13.7
Brown	0	0.0	0.0	135.6	Madison	24	14.4	9.2	21.4
Bureau	1	4.9	0.1	27.4	Marion	5	18.5	6.0	43.1
Calhoun	0	0.0	0.0	155.0	Marshall	2	28.0	3.4	101.2
Carroll	0	0.0	0.0	41.5	Mason	1	10.7	0.3	59.5
Cass	1	11.4	0.3	63.3	Massac	0	0.0	0.0	41.8
Champaign	15	13.8	7.7	22.7	McDonough	3	20.4	4.2	59.8
Christian	1	4.8	0.1	26.6	McHenry	22	11.3	7.1	17.2
Clark	0	0.0	0.0	38.5	McLean	13	13.5	7.2	23.0
Clay	1	11.6	0.3	64.8	Menard	1	14.4	0.4	80.2
Clinton	7	35.0	14.1	72.1	Mercer	1	10.9	0.3	61.0
Coles	4	13.6	3.7	34.7	Monroe	0	0.0	0.0	23.6
Cook	637	14.7	13.6	15.9	Montgomery	1	5.8	0.1	32.4
Crawford	4	36.3	9.9	92.9	Morgan	2	9.8	1.2	35.5
Cumberland	1	14.7	0.4	81.9	Moultrie	1	11.0	0.3	61.1
DeKalb	8	15.2	6.6	30.0	Ogle	5	16.7	5.4	38.9
DeWitt	1	10.1	0.3	56.4	Peoria	25	18.8	12.2	27.8
Douglas	3	20.9	4.3	61.1	Perry	1	8.5	0.2	47.5
DuPage	78	11.5	9.1	14.4	Piatt	0	0.0	0.0	39.5
Edgar	2	17.9	2.2	64.7	Pike	2	20.5	2.5	73.9
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	5	21.2	6.9	49.4	Pulaski	0	0.0	0.0	73.8
Fayette	2	15.4	1.9	55.5	Putnam	0	0.0	0.0	107.5
Ford	1	11.2	0.3	62.5	Randolph	0	0.0	0.0	19.6
Franklin	4	17.5	4.8	44.9	Richland	1	9.6	0.2	53.7
Fulton	5	24.3	7.9	56.8	Rock Island	21	21.5	13.3	32.9
Gallatin	0	0.0	0.0	114.6	Saline	4	26.2	7.1	67.0
Greene	3	32.9	6.8	96.1	Sangamon	19	15.3	9.2	23.9
Grundy	3	12.5	2.6	36.7	Schuyler	1	23.8	0.6	132.7
Hamilton	0	0.0	0.0	83.6	Scott	0	0.0	0.0	114.6
Hancock	1	9.4	0.2	52.3	Shelby	1	7.6	0.2	42.4
Hardin	0	0.0	0.0	150.6	St. Clair	18	9.5	5.6	15.0
Henderson	1	24.5	0.6	136.6	Stark	1	25.6	0.6	142.5
Henry	4	13.9	3.8	35.6	Stephenson	4	13.0	3.5	33.3
Iroquois	1	5.7	0.1	31.5	Tazewell	14	17.8	9.7	29.8
Jackson	6	17.6	6.5	38.4	Union	3	28.9	6.0	84.4
Jasper	1	16.8	0.4	93.3	Vermilion	8	13.9	6.0	27.3
Jefferson	1	4.3	0.1	24.0	Wabash	0	0.0	0.0	56.2
Jersey	2	16.5	2.0	59.6	Warren	3	27.5	5.7	80.5
JoDaviess	0	0.0	0.0	30.7	Washington	1	12.5	0.3	69.5
Johnson	2	34.6	4.2	125.0	Wayne	1	10.5	0.3	58.5
Kane	51	14.5	10.8	19.1	White	1	12.2	0.3	67.8
Kankakee	7	9.3	3.7	19.2	Whiteside	5	12.8	4.2	29.9
Kendall	7	19.1	7.7	39.3	Will	39	11.0	7.8	15.0
Knox	3	9.4	1.9	27.6	Williamson	3	8.6	1.8	25.2
Lake	49	9.5	7.0	12.6	Winnebago	36	18.5	12.9	25.6
LaSalle	9	13.2	6.0	25.0	Woodford	5	24.0	7.8	55.9
Lawrence	1	11.9	0.3	66.3	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

Figure 1. Incidence Rates¹ and 95% Confidence Intervals for Central Nervous System Defects in Newborn Infants By Selected Counties of Residence,² 1995-1999



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

CARDIOVASCULAR SYSTEM DEFECTS

Cardiovascular system defects involve the heart and circulatory systems. They are the most common group of birth defects, with a rate of 92.3 cases per 10,000 live births in Illinois. A description of each major defect follows, together with Table 4, which gives the five-year incidence rates for each defect for the whole state.

Common truncus is the failure of the fetal truncus arteriosus to divide into the aorta and pulmonary artery. It can be corrected surgically.

Transposition of great arteries is a defect in which the position of the aorta and the pulmonary artery is transposed. Immediate surgical correction is needed.

Tetralogy of Fallot is a defect consisting of four abnormalities that results in poorly oxygenated blood being pumped to the body. It can be corrected surgically.

Ventricular septal defect is a hole in the wall between the lower chambers of the heart. The openings may resolve without treatment or require surgical treatment.

Atrial septal defect is a hole in the wall between the upper chambers of the heart. The openings may resolve without treatment or require surgical treatment.

Endocardial cushion defect is a spectrum of septal defects arising from imperfect fusion of the endocardial cushions in the fetal heart. These defects are repaired surgically.

Pulmonary valve atresia and stenosis is an obstruction or narrowing of the pulmonary heart valve. Mild forms are relatively well tolerated and require no intervention. More severe forms are surgically corrected.

Tricuspid atresia is the absence or pathological narrowing of the valve between the right atrium and ventricle. Severe cases are corrected surgically.

Ebstein anomaly is a deformation or displacement of the tricuspid valve with the septal and posterior leaflets being attached to the wall of the right ventricle. Only disabling cases are corrected surgically

Aortic valve stenosis is a narrowing or obstruction of the aortic heart valve. This condition can be repaired surgically in some cases

Hypoplastic left heart syndrome is a form of congenital heart disease in which the entire left half of the heart is underdeveloped. This condition can be surgically repaired in a series of three procedures over a period of one year. Transplantation is also a treatment. This condition is usually fatal in the first month of life if not treated.

Patent ductus arteriosus is a condition when the channel between the pulmonary artery and the aorta fails to close at birth. The vast majority close spontaneously and cause no problems. Medical or surgical correction may be done if necessary.

Coarctation of the aorta is a defect in which the aorta is narrowed somewhere along its length. Surgical correction is recommended even for mild defects.

Pulmonary artery anomalies are defects in the formation of the pulmonary artery – often obstruction or narrowing of the artery. Treatment will depend on the specific defect.

Surgical procedures seek to repair defects as much as possible and to restore circulation to as normal as possible. Some can be repaired even before birth; others may require multiple

surgical procedures after birth. Smaller defects may be repaired in a cardiac catheterization laboratory instead of an operating room. These procedures can save the lives of critically ill neonates and may eliminate or delay more invasive procedures.

Table 4. Total Number and Incidence Rates of Major Cardiovascular System Defects in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Common truncus	745.0	36	0.4	0.3	0.5
Transposition of great arteries	745.1x	182	2.0	1.7	2.3
Tetralogy of Fallot	745.2	185	2.0	1.7	2.3
Ventricular septal defect	745.4	1,567	17.1	16.3	18.0
Atrial septal defect	745.5	1,430	15.6	14.8	16.5
Endocardial cushion defect	745.6x	170	1.9	1.6	2.2
Pulmonary valve atresia and stenosis	746.01, 746.02	199	2.2	1.9	2.5
Tricuspid valve atresia and stenosis	746.0	42	0.5	0.3	0.6
Ebstein anomaly	746.2	31	0.3	0.2	0.5
Aortic valve stenosis	746.3	53	0.6	0.4	0.8
Hypoplastic left heart syndrome	746.7	108	1.2	1.0	1.4
Patent ductus arteriosus	747.0	3,430	37.5	36.3	38.8
Coarctation of aorta	747.10	157	1.7	1.5	2.0
Pulmonary artery anomalies	747.3	851	9.3	8.7	10.0

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

A number of factors impact the reported incidence rate of congenital cardiovascular defects in newborn infants:

- In the past, many premature infants would have died with undiagnosed heart defects. More survive nowadays as a result of improved care.
- Improved diagnostic techniques allow minor heart defects that are asymptomatic or that would resolve without treatment to be identified.
- Some serious heart defects are asymptomatic at birth, with symptoms first developing days or weeks later. An infant who had been discharged before the onset of symptoms would not be included in the APORS database.
- In this report, all patent ductus arteriosus defects are included even if they are typical of a premature birth and later resolve without treatment. Other birth defect registries may count these defects differently, factoring in birth weight or gestational age.

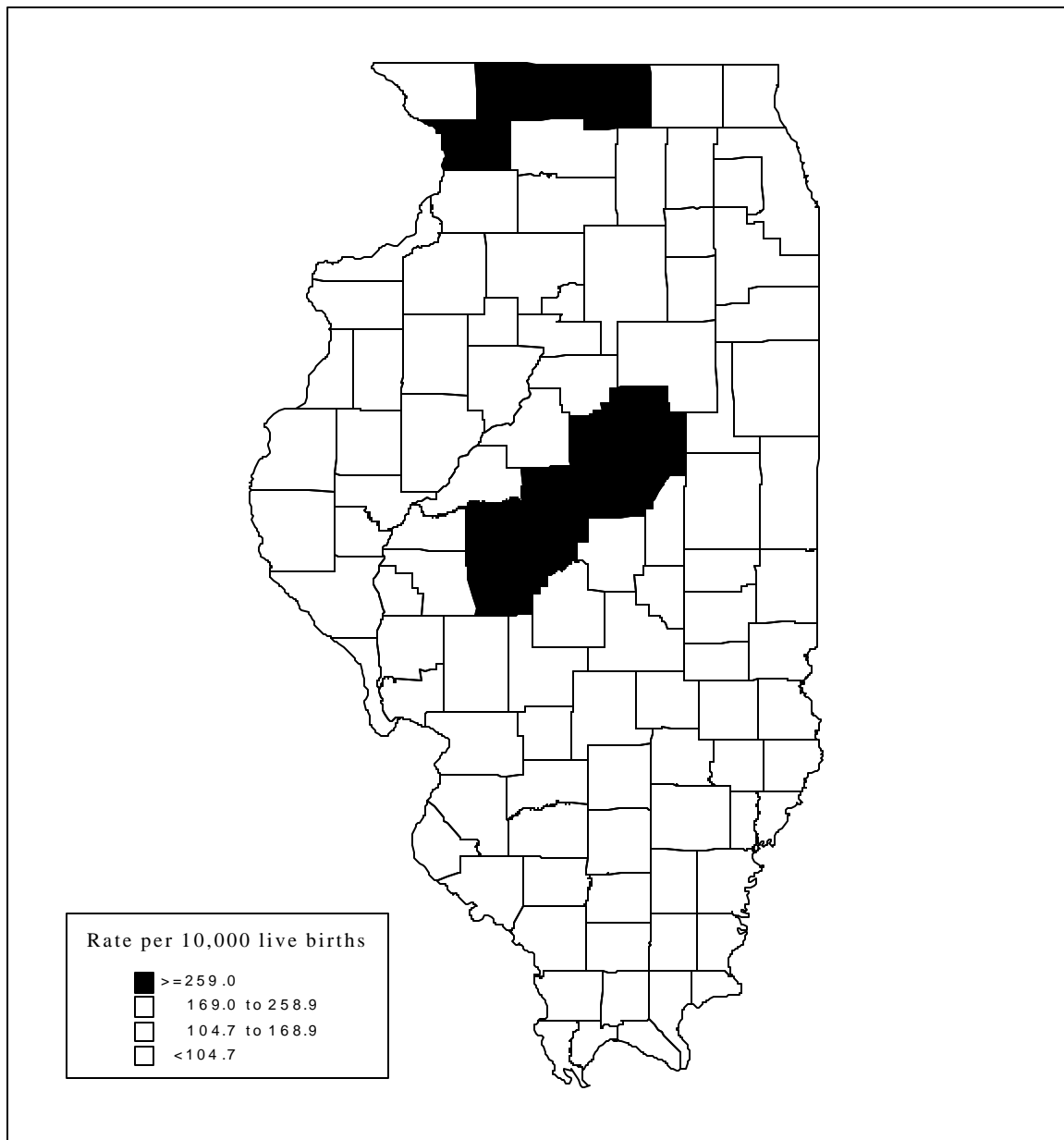
Table 5. Total Number and Incidence Rates of Major Cardiovascular System Defects in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	8,441	92.3	90.4	94.3	Lee	39	198.8	141.3	271.7
Adams	53	126.9	95.1	166.0	Livingston	26	113.0	73.8	165.6
Alexander	12	177.5	91.7	310.1	Logan	45	268.5	195.8	359.3
Bond	8	81.8	35.3	161.2	Macon	178	231.7	198.9	268.3
Boone	77	278.4	219.7	347.9	Macoupin	57	211.3	160.0	273.7
Brown	7	257.4	103.5	530.2	Madison	180	108.0	92.8	125.0
Bureau	22	108.1	67.7	163.6	Marion	31	114.4	77.7	162.4
Calhoun	5	210.1	68.2	490.3	Marshall	8	112.0	48.4	220.8
Carroll	26	292.5	191.0	428.5	Mason	19	203.0	122.2	317.0
Cass	21	238.6	147.7	364.8	Massac	2	22.7	2.7	81.8
Champaign	88	80.9	64.8	99.6	McDonough	7	47.7	19.2	98.3
Christian	38	181.5	128.4	249.1	McHenry	221	114.0	99.4	130.0
Clark	0	0.0	0.0	38.5	McLean	256	265.1	233.7	299.7
Clay	5	58.1	18.9	135.7	Menard	18	259.0	153.5	409.3
Clinton	17	85.0	49.5	136.1	Mercer	8	87.5	37.8	172.5
Coles	39	132.1	93.9	180.6	Monroe	13	83.1	44.3	142.1
Cook	2,481	57.2	55.0	59.5	Montgomery	31	180.3	122.5	256.0
Crawford	4	36.3	9.9	92.9	Morgan	41	201.3	144.4	273.1
Cumberland	5	73.5	23.9	171.6	Moultrie	20	219.3	134.0	338.7
DeKalb	83	158.0	125.9	195.9	Ogle	67	223.3	173.0	283.5
DeWitt	28	283.4	188.3	409.6	Peoria	267	200.8	177.4	226.4
Douglas	6	41.8	15.3	90.9	Perry	6	51.1	18.8	111.2
DuPage	535	79.0	72.4	86.0	Piatt	10	107.2	51.4	197.1
Edgar	8	71.6	30.9	141.1	Pike	21	214.9	133.1	328.6
Edwards	4	113.3	30.9	290.1	Pope	0	0.0	0.0	189.2
Effingham	34	144.1	99.8	201.3	Pulaski	3	60.0	12.4	175.3
Fayette	22	169.0	105.9	255.8	Putnam	5	145.8	47.3	340.2
Ford	11	123.3	61.6	220.7	Randolph	10	53.1	25.5	97.6
Franklin	17	74.5	43.4	119.3	Richland	9	86.8	39.7	164.8
Fulton	26	126.5	82.6	185.4	Rock Island	209	214.1	186.1	245.2
Gallatin	1	31.1	0.8	173.0	Saline	5	32.7	10.6	76.4
Greene	19	208.3	125.4	325.3	Sangamon	396	318.6	288.0	351.6
Grundy	19	79.5	47.8	124.1	Schuyler	4	95.2	25.9	243.8
Hamilton	4	90.7	24.7	232.2	Scott	10	310.6	148.9	571.1
Hancock	5	46.9	15.2	109.5	Shelby	22	167.3	104.8	253.3
Hardin	0	0.0	0.0	150.6	St. Clair	199	104.7	90.6	120.3
Henderson	4	98.0	26.7	251.0	Stark	10	255.8	122.6	470.3
Henry	42	145.9	105.2	197.3	Stephenson	85	276.1	220.5	341.4
Iroquois	8	45.3	19.5	89.2	Tazewell	150	190.3	161.1	223.3
Jackson	23	67.5	42.8	101.4	Union	4	38.5	10.5	98.6
Jasper	8	134.0	57.9	264.0	Vermilion	71	123.0	96.1	155.2
Jefferson	14	60.3	33.0	101.2	Wabash	4	61.0	16.6	156.1
Jersey	14	115.5	63.2	193.8	Warren	9	82.6	37.8	156.9
JoDaviess	7	58.3	23.5	120.2	Washington	5	62.3	20.2	145.5
Johnson	5	86.5	28.1	201.9	Wayne	6	63.0	23.1	137.0
Kane	317	90.4	80.7	100.9	White	1	12.2	0.3	67.8
Kankakee	71	94.3	73.7	118.9	Whiteside	58	148.9	113.0	192.4
Kendall	17	46.3	27.0	74.1	Will	292	82.2	73.1	92.2
Knox	29	91.3	61.1	131.1	Williamson	31	89.0	60.4	126.3
Lake	268	52.1	46.0	58.7	Winnebago	613	314.7	290.3	340.7
LaSalle	64	93.6	72.1	119.6	Woodford	33	158.1	108.8	222.1
Lawrence	4	47.6	13.0	121.8	Unknown (Ill.)	1	454.5	11.5	2532.6

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

Figure 2. Map of Incidence Rates¹ for Newborn Infants with Major Cardiovascular System Defects, By Selected Counties of Residence², 1995-1999



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

RESPIRATORY SYSTEM DEFECTS

Birth defects involving the respiratory system (mainly the lungs, trachea and nose) are life-threatening but less common than those involving other major organs. The major defect is lung agenesis or hypoplasia (failure to develop or under-development of one or both lungs). The prognosis depends on whether the defect affects one or both lungs and the degree of underdevelopment. Choanal atresia is included in this section under some grouping schemes, but is included under alimentary tract defects for APORS reports. Table 6 includes the ICD-9-CM code for this condition.

Table 6. Total Number and Incidence Rates of Major Respiratory System Defects in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Lung agenesis/hypoplasia	748.5	278	3.0	2.7	3.4

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System , November 2001

A figure is not included because only Cook County had more than 16 newborn cases.

Table 7. Total Number and Incidence Rates of Major Respiratory System Defects in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	278	3.0	2.7	3.4	Lee	3	15.3	3.2	44.7
Adams	2	4.8	0.6	17.3	Livingston	1	4.3	0.1	24.2
Alexander	1	14.8	0.4	82.4	Logan	3	17.9	3.7	52.3
Bond	0	0.0	0.0	37.7	Macon	4	5.2	1.4	13.3
Boone	2	7.2	0.9	26.1	Macoupin	4	14.8	4.0	38.0
Brown	0	0.0	0.0	135.6	Madison	6	3.6	1.3	7.8
Bureau	0	0.0	0.0	18.1	Marion	3	11.1	2.3	32.4
Calhoun	0	0.0	0.0	155.0	Marshall	0	0.0	0.0	51.7
Carroll	1	11.2	0.3	62.7	Mason	0	0.0	0.0	39.4
Cass	0	0.0	0.0	41.9	Massac	0	0.0	0.0	41.8
Champaign	4	3.7	1.0	9.4	McDonough	1	6.8	0.2	38.0
Christian	2	9.6	1.2	34.5	McHenry	5	2.6	0.8	6.0
Clark	0	0.0	0.0	38.5	McLean	3	3.1	0.6	9.1
Clay	0	0.0	0.0	42.9	Menard	0	0.0	0.0	53.1
Clinton	0	0.0	0.0	18.4	Mercer	0	0.0	0.0	40.4
Coles	0	0.0	0.0	12.5	Monroe	0	0.0	0.0	23.6
Cook	93	2.1	1.7	2.6	Montgomery	1	5.8	0.1	32.4
Crawford	0	0.0	0.0	33.5	Morgan	0	0.0	0.0	18.1
Cumberland	0	0.0	0.0	54.2	Moultrie	0	0.0	0.0	40.4
DeKalb	5	9.5	3.1	22.2	Ogle	2	6.7	0.8	24.1
DeWitt	2	20.2	2.5	73.1	Peoria	12	9.0	4.7	15.8
Douglas	0	0.0	0.0	25.7	Perry	0	0.0	0.0	31.4
DuPage	13	1.9	1.0	3.3	Piatt	0	0.0	0.0	39.5
Edgar	0	0.0	0.0	33.0	Pike	0	0.0	0.0	37.8
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	2	8.5	1.0	30.6	Pulaski	0	0.0	0.0	73.8
Fayette	1	7.7	0.2	42.8	Putnam	0	0.0	0.0	107.5
Ford	0	0.0	0.0	41.4	Randolph	0	0.0	0.0	19.6
Franklin	4	17.5	4.8	44.9	Richland	1	9.6	0.2	53.7
Fulton	2	9.7	1.2	35.2	Rock Island	2	2.0	0.2	7.4
Gallatin	0	0.0	0.0	114.6	Saline	2	13.1	1.6	47.3
Greene	0	0.0	0.0	40.4	Sangamon	13	10.5	5.6	17.9
Grundy	0	0.0	0.0	15.4	Schuyler	0	0.0	0.0	87.8
Hamilton	0	0.0	0.0	83.6	Scott	0	0.0	0.0	114.6
Hancock	0	0.0	0.0	34.6	Shelby	0	0.0	0.0	28.1
Hardin	0	0.0	0.0	150.6	St. Clair	5	2.6	0.9	6.1
Henderson	0	0.0	0.0	90.4	Stark	3	76.7	15.8	224.2
Henry	2	6.9	0.8	25.1	Stephenson	2	6.5	0.8	23.5
Iroquois	0	0.0	0.0	20.9	Tazewell	8	10.1	4.4	20.0
Jackson	2	5.9	0.7	21.2	Union	1	9.6	0.2	53.6
Jasper	0	0.0	0.0	61.8	Vermilion	3	5.2	1.1	15.2
Jefferson	1	4.3	0.1	24.0	Wabash	0	0.0	0.0	56.2
Jersey	0	0.0	0.0	30.4	Warren	0	0.0	0.0	33.9
JoDaviess	0	0.0	0.0	30.7	Washington	1	12.5	0.3	69.5
Johnson	1	17.3	0.4	96.4	Wayne	1	10.5	0.3	58.5
Kane	11	3.1	1.6	5.6	White	0	0.0	0.0	44.9
Kankakee	1	1.3	0.0	7.4	Whiteside	1	2.6	0.1	14.3
Kendall	0	0.0	0.0	10.0	Will	7	2.0	0.8	4.1
Knox	1	3.1	0.1	17.5	Williamson	2	5.7	0.7	20.7
Lake	10	1.9	0.9	3.6	Winnebago	10	5.1	2.5	9.4
LaSalle	5	7.3	2.4	17.1	Woodford	0	0.0	0.0	17.7
Lawrence	0	0.0	0.0	43.9	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

ALIMENTARY TRACT DEFECTS

Alimentary tract defects are made up of orofacial defects (cleft palate and lip, choanal atresia) and gastro-intestinal defects (esophageal atresia, rectal and intestinal atresia and stenosis, and pyloric stenosis). Most of these defects can be repaired surgically. A description of each defect follows, together with Table 8, which gives the five-year incidence rates for each defect for the whole state.

Cleft palate is a split in the roof of the mouth (the palate) due to a failure of the palatal shelves to fuse fully during embryonic development.

Cleft lip is the presence of one or two splits in the upper lip resulting from failure of the normal process of fusion of the lip during embryonic development.

Choanal atresia is the narrowing or blockage of the nasal airway by membranous or bony tissue. Bilateral choanal atresia is a surgical emergency.

Esophageal atresia is a narrowing or obstruction of the esophagus and is usually a surgical emergency. It is often associated with *tracheoesophageal fistula* – a hole between the lower esophagus and the trachea.

Rectal, anal and large intestinal atresia or stenosis is the absence, abnormal localization or blockage of the rectum, anus or large intestine. It may be corrected surgically or bypassed.

Pyloric stenosis is a narrowing of the outlet between the stomach and small intestine.

Hirschsprung disease is the absence of the nerves in the wall of the bowel. This condition is repaired by removing the affected portion of the intestine.

Biliary atresia is a congenital absence or closure of the major bile ducts that drain bile from the liver.

Table 8. Total Number and Incidence Rates of Major Alimentary Tract Defects in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Cleft palate without cleft lip	749.0x	310	3.4	3.0	3.8
Cleft lip	749.10-749.25	523	5.7	5.2	6.2
Choanal atresia	748.0	81	0.9	0.7	1.1
Esophageal atresia/Tracheoesophageal fistula	750.3	220	2.4	2.1	2.7
Rectal, anal, large intestinal atresia/stenosis	751.2	262	2.9	2.5	3.2
Pyloric stenosis	750.5	53	0.6	0.4	0.8
Hirschsprung disease	751.3	128	1.4	1.2	1.7
Biliary atresia	751.61	17	0.2	0.1	0.3

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

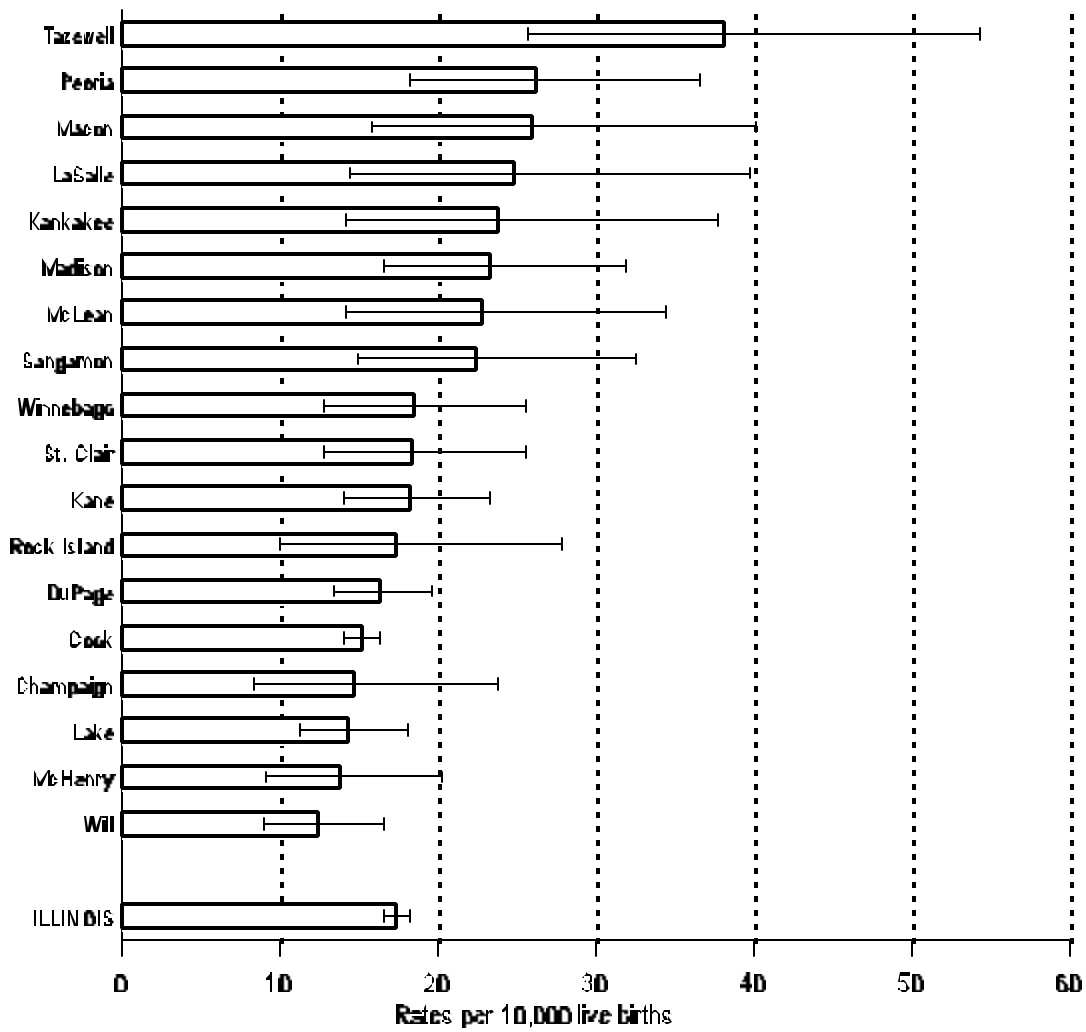
Table 9. Total Number and Incidence Rates of Major Alimentary Tract Defects in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	1,594	17.4	16.6	18.3	Lee	7	35.7	14.3	73.5
Adams	13	31.1	16.6	53.2	Livingston	4	17.4	4.7	44.5
Alexander	1	14.8	0.4	82.4	Logan	5	29.8	9.7	69.6
Bond	1	10.2	0.3	57.0	Macon	20	26.0	15.9	40.2
Boone	9	32.5	14.9	61.8	Macoupin	6	22.2	8.2	48.4
Brown	0	0.0	0.0	135.6	Madison	39	23.4	16.6	32.0
Bureau	9	44.2	20.2	83.9	Marion	5	18.5	6.0	43.1
Calhoun	0	0.0	0.0	155.0	Marshall	3	42.0	8.7	122.8
Carroll	1	11.2	0.3	62.7	Mason	1	10.7	0.3	59.5
Cass	4	45.5	12.4	116.4	Massac	0	0.0	0.0	41.8
Champaign	16	14.7	8.4	23.9	McDonough	0	0.0	0.0	25.1
Christian	4	19.1	5.2	48.9	McHenry	27	13.9	9.2	20.3
Clark	0	0.0	0.0	38.5	McLean	22	22.8	14.3	34.5
Clay	5	58.1	18.9	135.7	Menard	1	14.4	0.4	80.2
Clinton	10	50.0	24.0	92.0	Mercer	5	54.7	17.8	127.7
Coles	7	23.7	9.5	48.9	Monroe	0	0.0	0.0	23.6
Cook	660	15.2	14.1	16.4	Montgomery	0	0.0	0.0	21.5
Crawford	1	9.1	0.2	50.6	Morgan	9	44.2	20.2	83.9
Cumberland	4	58.8	16.0	150.6	Moultrie	4	43.9	12.0	112.3
DeKalb	10	19.0	9.1	35.0	Ogle	4	13.3	3.6	34.1
DeWitt	1	10.1	0.3	56.4	Peoria	35	26.3	18.3	36.6
Douglas	2	13.9	1.7	50.3	Perry	4	34.1	9.3	87.2
DuPage	111	16.4	13.5	19.7	Piatt	2	21.4	2.6	77.4
Edgar	4	35.8	9.8	91.7	Pike	1	10.2	0.3	57.0
Edwards	1	28.3	0.7	157.8	Pope	0	0.0	0.0	189.2
Effingham	9	38.1	17.4	72.4	Pulaski	0	0.0	0.0	73.8
Fayette	5	38.4	12.5	89.6	Putnam	0	0.0	0.0	107.5
Ford	2	22.4	2.7	81.0	Randolph	5	26.5	8.6	61.9
Franklin	5	21.9	7.1	51.1	Richland	2	19.3	2.3	69.7
Fulton	6	29.2	10.7	63.5	Rock Island	17	17.4	10.1	27.9
Gallatin	0	0.0	0.0	114.6	Saline	3	19.6	4.0	57.4
Greene	6	65.8	24.1	143.2	Sangamon	28	22.5	15.0	32.6
Grundy	4	16.7	4.6	42.8	Schuyler	1	23.8	0.6	132.7
Hamilton	1	22.7	0.6	126.3	Scott	0	0.0	0.0	114.6
Hancock	2	18.8	2.3	67.8	Shelby	2	15.2	1.8	54.9
Hardin	1	40.8	1.0	227.4	St. Clair	35	18.4	12.8	25.6
Henderson	0	0.0	0.0	90.4	Stark	2	51.2	6.2	184.8
Henry	7	24.3	9.8	50.1	Stephenson	10	32.5	15.6	59.7
Iroquois	5	28.3	9.2	66.0	Tazewell	30	38.1	25.7	54.3
Jackson	8	23.5	10.1	46.3	Union	1	9.6	0.2	53.6
Jasper	2	33.5	4.1	121.0	Vermilion	14	24.3	13.3	40.7
Jefferson	11	47.4	23.7	84.8	Wabash	0	0.0	0.0	56.2
Jersey	1	8.3	0.2	46.0	Warren	5	45.9	14.9	107.1
JoDaviess	0	0.0	0.0	30.7	Washington	2	24.9	3.0	90.1
Johnson	1	17.3	0.4	96.4	Wayne	1	10.5	0.3	58.5
Kane	64	18.3	14.1	23.3	White	0	0.0	0.0	44.9
Kankakee	18	23.9	14.2	37.8	Whiteside	6	15.4	5.7	33.5
Kendall	5	13.6	4.4	31.8	Will	44	12.4	9.0	16.6
Knox	7	22.0	8.9	45.4	Williamson	5	14.3	4.7	33.5
Lake	74	14.4	11.3	18.1	Winnebago	36	18.5	12.9	25.6
LaSalle	17	24.9	14.5	39.8	Woodford	2	9.6	1.2	34.6
Lawrence	4	47.6	13.0	121.8	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

**Figure 3. Incidence Rates¹ and 95% Confidence Intervals
for Major Alimentary Tract Defects in Newborn Infants
By Selected Counties of Residence,² 1995-1999**



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

GENTOURINARY TRACT DEFECTS

These defects affect the male and female reproductive organs and urinary tracts. Some are relatively minor, fairly common defects that may be readily repaired by surgery. Others are more serious and potentially life-threatening malformations. A description of each defect follows, together with Table 10, which gives the five-year incidence rates for each defect for the whole state.

Renal agenesis/hypoplasia is the absence or maldevelopment of the kidneys; it may be bilateral or unilateral. Newborns with bilateral renal agenesis often die of respiratory failure within a few hours of birth. Unilateral renal agenesis is often not detected during the perinatal period.

Bladder exstrophy occurs when the bladder is turned inside out like a rubber glove. Part of the abdominal wall and bladder wall are missing. This condition is usually repaired surgically.

Obstructive genitourinary defect is the obstruction of the ureter, renal pelvis, urethra or bladder neck. Severity of the defect depends largely upon the level of the obstruction. Urine accumulates behind the obstruction and damages the organs. It is corrected surgically, either prenatally or after birth.

Hypospadias is a relatively common abnormality that appears as an abnormal penile opening on the under side of the penis rather than at the end. The condition may be surgically corrected if needed for cosmetic, urologic or reproductive reasons.

Epispadias is a rare congenital defect in which the urethra opens on the top surface of the penis. Surgical correction is aimed at correcting incontinence and permitting sexual functioning.

Table 10. Total Number and Incidence Rates of Major Genitourinary System Defects in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Renal agenesis/hypoplasia	753.0	155	1.7	1.4	2.0
Bladder exstrophy	753.5	34	0.4	0.3	0.5
Obstructive genitourinary defect	753.2, 753.6	738	8.1	7.5	8.7
Hypospadias and epispadias	752.61, 752.62	275	3.0	2.7	3.4

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

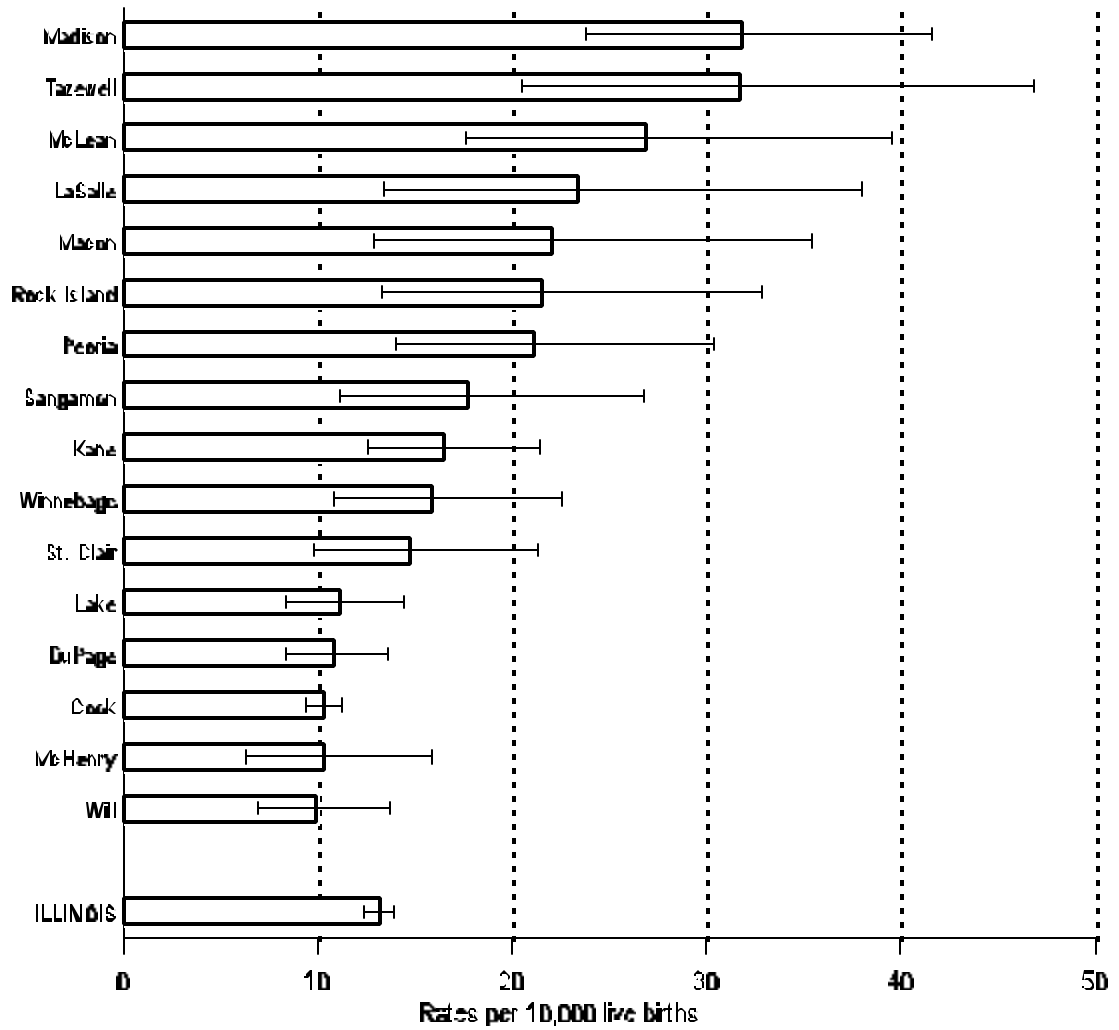
Table 11. Total Number and Incidence Rates of Major Genitourinary System Defects in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	1,202	13.2	12.4	13.9	Lee	4	20.4	5.6	52.2
Adams	5	12.0	3.9	27.9	Livingston	5	21.7	7.1	50.7
Alexander	2	29.6	3.6	106.9	Logan	4	23.9	6.5	61.1
Bond	3	30.7	6.3	89.6	Macon	17	22.1	12.9	35.4
Boone	7	25.3	10.2	52.1	Macoupin	5	18.5	6.0	43.2
Brown	1	36.8	0.9	204.8	Madison	53	31.8	23.8	41.6
Bureau	4	19.6	5.4	50.3	Marion	5	18.5	6.0	43.1
Calhoun	1	42.0	1.1	234.1	Marshall	0	0.0	0.0	51.7
Carroll	2	22.5	2.7	81.3	Mason	1	10.7	0.3	59.5
Cass	1	11.4	0.3	63.3	Massac	0	0.0	0.0	41.8
Champaign	13	11.9	6.4	20.4	McDonough	2	13.6	1.7	49.2
Christian	5	23.9	7.8	55.7	McHenry	20	10.3	6.3	15.9
Clark	0	0.0	0.0	38.5	McLean	26	26.9	17.6	39.5
Clay	1	11.6	0.3	64.8	Menard	2	28.8	3.5	104.0
Clinton	5	25.0	8.1	58.3	Mercer	1	10.9	0.3	61.0
Coles	10	33.9	16.2	62.3	Monroe	1	6.4	0.2	35.6
Cook	447	10.3	9.4	11.3	Montgomery	4	23.3	6.3	59.6
Crawford	2	18.1	2.2	65.6	Morgan	2	9.8	1.2	35.5
Cumberland	0	0.0	0.0	54.2	Moultrie	2	21.9	2.7	79.2
DeKalb	10	19.0	9.1	35.0	Ogle	4	13.3	3.6	34.1
DeWitt	1	10.1	0.3	56.4	Peoria	28	21.1	14.0	30.4
Douglas	0	0.0	0.0	25.7	Perry	3	25.6	5.3	74.7
DuPage	73	10.8	8.4	13.6	Piatt	1	10.7	0.3	59.7
Edgar	0	0.0	0.0	33.0	Pike	2	20.5	2.5	73.9
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	8	33.9	14.6	66.8	Pulaski	2	40.0	4.8	144.5
Fayette	5	38.4	12.5	89.6	Putnam	1	29.2	0.7	162.4
Ford	2	22.4	2.7	81.0	Randolph	4	21.2	5.8	54.4
Franklin	5	21.9	7.1	51.1	Richland	0	0.0	0.0	35.6
Fulton	4	19.5	5.3	49.8	Rock Island	21	21.5	13.3	32.9
Gallatin	0	0.0	0.0	114.6	Saline	3	19.6	4.0	57.4
Greene	1	11.0	0.3	61.1	Sangamon	22	17.7	11.1	26.8
Grundy	3	12.5	2.6	36.7	Schuyler	1	23.8	0.6	132.7
Hamilton	0	0.0	0.0	83.6	Scott	0	0.0	0.0	114.6
Hancock	0	0.0	0.0	34.6	Shelby	0	0.0	0.0	28.1
Hardin	1	40.8	1.0	227.4	St. Clair	28	14.7	9.8	21.3
Henderson	1	24.5	0.6	136.6	Stark	0	0.0	0.0	94.3
Henry	8	27.8	12.0	54.8	Stephenson	5	16.2	5.3	37.9
Iroquois	5	28.3	9.2	66.0	Tazewell	25	31.7	20.5	46.8
Jackson	3	8.8	1.8	25.7	Union	0	0.0	0.0	35.5
Jasper	3	50.3	10.4	146.9	Vermilion	9	15.6	7.1	29.6
Jefferson	4	17.2	4.7	44.1	Wabash	0	0.0	0.0	56.2
Jersey	5	41.3	13.4	96.3	Warren	2	18.4	2.2	66.3
JoDaviess	1	8.3	0.2	46.4	Washington	0	0.0	0.0	46.0
Johnson	2	34.6	4.2	125.0	Wayne	1	10.5	0.3	58.5
Kane	58	16.5	12.6	21.4	White	0	0.0	0.0	44.9
Kankakee	4	5.3	1.4	13.6	Whiteside	4	10.3	2.8	26.3
Kendall	6	16.3	6.0	35.5	Will	35	9.9	6.9	13.7
Knox	14	44.1	24.1	73.9	Williamson	5	14.3	4.7	33.5
Lake	57	11.1	8.4	14.4	Winnebago	31	15.9	10.8	22.6
LaSalle	16	23.4	13.4	38.0	Woodford	1	4.8	0.1	26.7
Lawrence	1	11.9	0.3	66.3	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

Figure 4. Incidence Rates¹ and 95% Confidence Intervals for Major Genitourinary Tract Defects in Newborn Infants By Selected Counties of Residence,² 1995-1999



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

MUSCULOSKELETAL DEFECTS

These malformations make up a diverse group of defects that includes club foot and congenital dislocation of the hip – relatively common disorders – and several more rare and serious conditions. A description of each defect follows, together with Table 12, which gives the five-year incidence rates for each defect for the whole state.

Reduction deformities may affect upper or lower limbs. They may result in a shortening or absence of one or both limbs.

Gastroschisis is a herniation of the abdominal contents through a defect in the abdominal wall.

Omphalocele occurs when part of the intestine protrudes through a physical opening in the abdominal wall into the base of the umbilical cord.

Club foot is a congenital structural foot deformity that may involve the lower leg, ankle and foot joints, ligaments and tendons.

Table 12. Total Number and Incidence Rates of Major Musculoskeletal Defects in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Reduction deformity, upper limbs	755.2x	124	1.4	1.1	1.6
Reduction deformity, lower limbs	755.3x	67	0.7	0.6	0.9
Gastroschisis/omphalocele	756.79	67	0.7	0.6	0.9
Congenital hip dislocation	754.30, 754.31, 754.35	106	1.1	0.9	1.4
Club foot	754.5x, 754.6x, 754.70, 754.71	957	10.0	9.4	10.7
Diaphragmatic hernia	756.6	233	2.5	2.2	2.9

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, January 2002

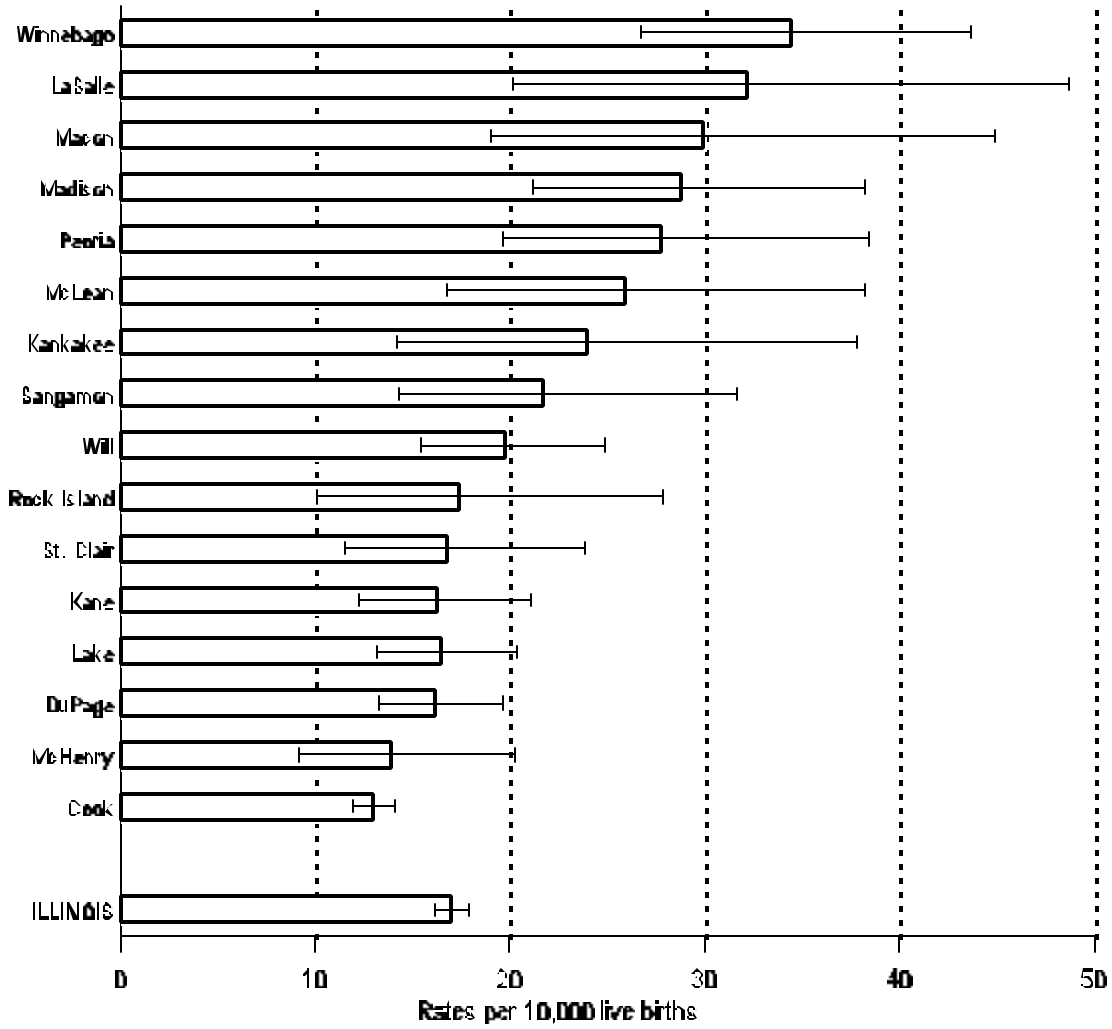
Table 13. Total Number and Incidence Rates of Major Musculoskeletal Defects in Newborn Infants, By County of Residence, 1995-1999

County	Cases	95% CI ²		County	Cases	95% CI ²	
		Rate ¹	Upper			Rate ¹	Upper
ILLINOIS	1,554	17.0	17.9	Lee	6	30.6	66.6
Adams	13	31.1	53.2	Livingston	13	56.5	96.6
Alexander	1	14.8	82.4	Logan	10	59.7	109.7
Bond	4	40.9	104.7	Macon	23	29.9	44.9
Boone	8	28.9	57.0	Macoupin	7	25.9	53.5
Brown	0	0.0	135.6	Madison	48	28.8	38.2
Bureau	5	24.6	57.3	Marion	14	51.7	86.7
Calhoun	0	0.0	155.0	Marshall	5	70.0	163.4
Carroll	2	22.5	81.3	Mason	4	42.7	109.4
Cass	1	11.4	63.3	Massac	0	0.0	41.8
Champaign	7	6.4	13.3	McDonough	4	27.3	69.8
Christian	3	14.3	41.9	McHenry	27	13.9	20.3
Clark	0	0.0	38.5	McLean	25	25.9	38.2
Clay	2	23.3	84.0	Menard	4	57.6	147.4
Clinton	2	10.0	36.1	Mercer	4	43.8	112.1
Coles	12	40.7	71.0	Monroe	0	0.0	23.6
Cook	563	13.0	14.1	Montgomery	0	0.0	21.5
Crawford	1	9.1	50.6	Morgan	7	34.4	70.8
Cumberland	1	14.7	81.9	Moultrie	2	21.9	79.2
DeKalb	2	3.8	13.8	Ogle	9	30.0	56.9
DeWitt	4	40.5	103.7	Peoria	37	27.8	38.4
Douglas	1	7.0	38.8	Perry	1	8.5	47.5
DuPage	110	16.2	19.6	Piatt	1	10.7	59.7
Edgar	3	26.9	78.5	Pike	4	40.9	104.8
Edwards	0	0.0	104.5	Pope	0	0.0	189.2
Effingham	7	29.7	61.1	Pulaski	0	0.0	73.8
Fayette	3	23.0	67.3	Putnam	1	29.2	162.4
Ford	2	22.4	81.0	Randolph	4	21.2	54.4
Franklin	1	4.4	24.4	Richland	0	0.0	35.6
Fulton	7	34.1	70.2	Rock Island	17	17.4	27.9
Gallatin	0	0.0	114.6	Saline	4	26.2	67.0
Greene	3	32.9	96.1	Sangamon	27	21.7	31.6
Grundy	4	16.7	42.8	Schuyler	3	71.4	208.7
Hamilton	1	22.7	126.3	Scott	1	31.1	173.0
Hancock	0	0.0	34.6	Shelby	4	30.4	77.9
Hardin	0	0.0	150.6	St. Clair	32	16.8	23.8
Henderson	1	24.5	136.6	Stark	1	25.6	142.5
Henry	6	20.8	45.4	Stephenson	6	19.5	42.4
Iroquois	6	34.0	73.9	Tazewell	11	14.0	25.0
Jackson	4	11.7	30.1	Union	0	0.0	35.5
Jasper	0	0.0	61.8	Vermilion	12	20.8	36.3
Jefferson	7	30.2	62.1	Wabash	0	0.0	56.2
Jersey	6	49.5	107.8	Warren	5	45.9	107.1
JoDaviess	2	16.7	60.2	Washington	1	12.5	69.5
Johnson	2	34.6	125.0	Wayne	2	21.0	75.8
Kane	57	16.3	21.1	White	3	36.5	106.7
Kankakee	18	23.9	37.8	Whiteside	7	18.0	37.0
Kendall	6	16.3	35.5	Will	70	19.7	24.9
Knox	10	31.5	57.9	Williamson	8	23.0	45.2
Lake	85	16.5	20.4	Winnebago	67	34.4	43.7
LaSalle	22	32.2	48.7	Woodford	6	28.7	62.6
Lawrence	2	23.8	85.9	Unknown (Ill.)	0	0.0	1,676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, January 2002

Figure 5. Incidence Rates¹ and 95% Confidence Intervals for Major Musculoskeletal Defects in Newborn Infants By Selected Counties of Residence,² 1995-1999



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, January 2002

CHROMOSOMAL DEFECTS

Chromosomal anomalies are disorders that usually arise from abnormal numbers of chromosomes or from breaks or deletions in specific fragments of the chromosomes. The defects collected by APORS are the most important abnormalities in this group. Each is associated with a characteristic pattern of defects that arises as a consequence of the underlying chromosomal abnormality. Congenital heart defects (especially septal defects) are very common among these infants and are a major cause of death. A description of each defect collected by APORS follows, together with Table 14, which gives the five-year incidence rates for each defect for the whole state.

Patau syndrome is associated with the presence of a third number 13 chromosome.

Newborns have numerous internal and external abnormalities, including profound retardation. Most die in the first few days of life because of respiratory difficulties, heart defects and sometimes severe defects involving other organ systems.

Down syndrome is associated with the presence of a third number 21 chromosome. It results in mental retardation, distinctive malformations of the head and face, and other abnormalities. The severity of these problems varies greatly among affected individuals.

Edward syndrome is associated with the presence of a third number 18 chromosome. It causes major physical abnormalities and severe mental retardation. Few children afflicted with this disease survive beyond a year because of abnormalities of the lungs and diaphragm, and heart defects and blood vessel malformations.

Table 14. Total Number and Incidence Rates of Major Chromosomal Defects in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Patau syndrome (trisomy 13)	758.1	88	1.0	0.8	1.2
Down syndrome (trisomy 21)	758.0	877	9.6	9.0	10.3
Edward syndrome (trisomy 18)	758.2	163	1.8	1.5	2.1

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

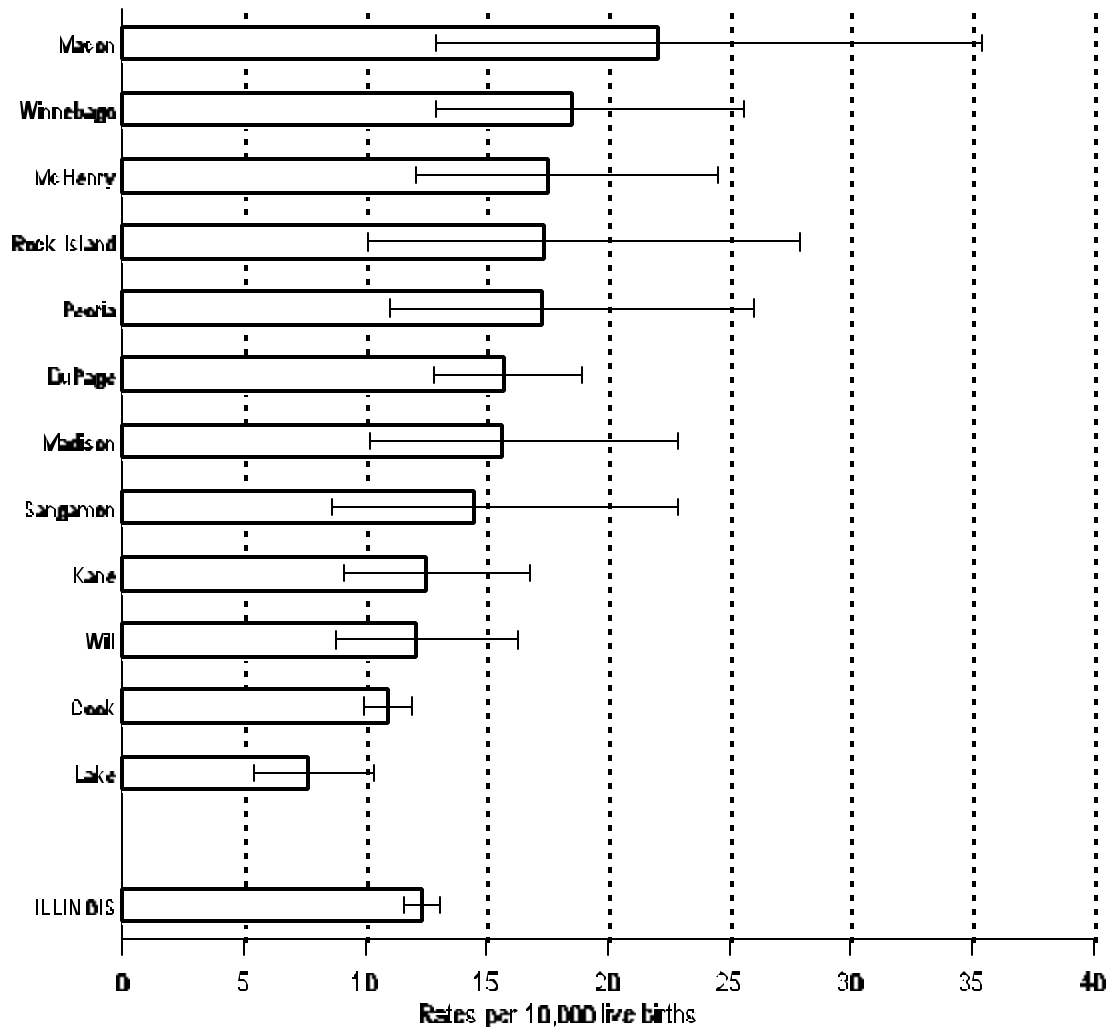
Table 15. Total Number and Incidence Rates of Major Chromosomal Defects in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	1,128	12.3	11.6	13.1	Lee	5	25.5	8.3	59.5
Adams	6	14.4	5.3	31.3	Livingston	4	17.4	4.7	44.5
Alexander	1	14.8	0.4	82.4	Logan	2	11.9	1.4	43.1
Bond	0	0.0	0.0	37.7	Macon	17	22.1	12.9	35.4
Boone	5	18.1	5.9	42.2	Macoupin	3	11.1	2.3	32.5
Brown	0	0.0	0.0	135.6	Madison	26	15.6	10.2	22.9
Bureau	5	24.6	8.0	57.3	Marion	4	14.8	4.0	37.8
Calhoun	0	0.0	0.0	155.0	Marshall	0	0.0	0.0	51.7
Carroll	4	45.0	12.3	115.2	Mason	3	32.1	6.6	93.7
Cass	0	0.0	0.0	41.9	Massac	1	11.3	0.3	63.1
Champaign	11	10.1	5.0	18.1	McDonough	3	20.4	4.2	59.8
Christian	3	14.3	3.0	41.9	McHenry	34	17.5	12.1	24.5
Clark	0	0.0	0.0	38.5	McLean	15	15.5	8.7	25.6
Clay	1	11.6	0.3	64.8	Menard	0	0.0	0.0	53.1
Clinton	2	10.0	1.2	36.1	Mercer	2	21.9	2.6	79.0
Coles	1	3.4	0.1	18.9	Monroe	3	19.2	4.0	56.1
Cook	472	10.9	9.9	11.9	Montgomery	1	5.8	0.1	32.4
Crawford	3	27.2	5.6	79.6	Morgan	4	19.6	5.4	50.3
Cumberland	1	14.7	0.4	81.9	Moultrie	3	32.9	6.8	96.1
DeKalb	9	17.1	7.8	32.5	Ogle	3	10.0	2.1	29.2
DeWitt	2	20.2	2.5	73.1	Peoria	23	17.3	11.0	26.0
Douglas	3	20.9	4.3	61.1	Perry	2	17.0	2.1	61.5
DuPage	106	15.7	12.8	18.9	Piatt	1	10.7	0.3	59.7
Edgar	2	17.9	2.2	64.7	Pike	2	20.5	2.5	73.9
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	3	12.7	2.6	37.1	Pulaski	0	0.0	0.0	73.8
Fayette	2	15.4	1.9	55.5	Putnam	0	0.0	0.0	107.5
Ford	1	11.2	0.3	62.5	Randolph	4	21.2	5.8	54.4
Franklin	3	13.1	2.7	38.4	Richland	0	0.0	0.0	35.6
Fulton	2	9.7	1.2	35.2	Rock Island	17	17.4	10.1	27.9
Gallatin	0	0.0	0.0	114.6	Saline	0	0.0	0.0	24.1
Greene	3	32.9	6.8	96.1	Sangamon	18	14.5	8.6	22.9
Grundy	3	12.5	2.6	36.7	Schuyler	0	0.0	0.0	87.8
Hamilton	0	0.0	0.0	83.6	Scott	0	0.0	0.0	114.6
Hancock	1	9.4	0.2	52.3	Shelby	3	22.8	4.7	66.7
Hardin	0	0.0	0.0	150.6	St. Clair	12	6.3	3.3	11.0
Henderson	0	0.0	0.0	90.4	Stark	1	25.6	0.6	142.5
Henry	8	27.8	12.0	54.8	Stephenson	5	16.2	5.3	37.9
Iroquois	3	17.0	3.5	49.6	Tazewell	12	15.2	7.9	26.6
Jackson	8	23.5	10.1	46.3	Union	1	9.6	0.2	53.6
Jasper	2	33.5	4.1	121.0	Vermilion	9	15.6	7.1	29.6
Jefferson	2	8.6	1.0	31.1	Wabash	0	0.0	0.0	56.2
Jersey	2	16.5	2.0	59.6	Warren	1	9.2	0.2	51.2
JoDaviess	1	8.3	0.2	46.4	Washington	1	12.5	0.3	69.5
Johnson	0	0.0	0.0	63.8	Wayne	0	0.0	0.0	38.7
Kane	44	12.5	9.1	16.8	White	0	0.0	0.0	44.9
Kankakee	10	13.3	6.4	24.4	Whiteside	8	20.5	8.9	40.5
Kendall	6	16.3	6.0	35.5	Will	43	12.1	8.8	16.3
Knox	3	9.4	1.9	27.6	Williamson	5	14.3	4.7	33.5
Lake	39	7.6	5.4	10.4	Winnebago	36	18.5	12.9	25.6
LaSalle	2	2.9	0.4	10.6	Woodford	3	14.4	3.0	42.0
Lawrence	3	35.7	7.4	104.2	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

**Figure 6. Incidence Rates¹ and 95% Confidence Intervals
for Major Chromosomal Defects in Newborn Infants
By Selected Counties of Residence,² 1995-1999**



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

SECTION II

OTHER ADVERSE PREGNANCY OUTCOMES

VERY LOW BIRTH WEIGHT

Children born weighing 1,500 grams (about 3 pounds 5 ounces) or less are considered to have very low birth weights. Medical advances have had particular success in increasing the survival of low birth weight infants. In particular, introduction of surfactants, given to help the baby's lungs expand, and steroid treatment given to the mother for 48 hours beforehand can be crucial in improving post-natal lung function.

In 2000, the proportion of infants born in the United States with very low birth weights was 1.4 percent. This rate reflects a slight increase from the 1970s when the rate was 1.2 percent (Martin *et al.* 2001). Among very low birth weight infants, 252.8 per 1,000 births died in their first year (National Center for Health Statistics, 1999).

Infants who survive have more chronic conditions, more limitations in daily activities and poorer overall health than newborns with normal birth weights in their first few years of life. Also, very low birth weight has been associated with poorer receptive language skills (Singer *et al.*, 2001) and with poor behavioral and educational outcomes (Saigal, 2000).

The maternal risk factors for having a baby with very low birth weight include being less than 17 year of age or greater than 34 years of age. African-American women and those who have not had a previous child are more likely to have low birth weight babies. Women who smoke or are of lower socioeconomic status are also more likely to have low birth weight babies. Appropriate prenatal care, especially in the first trimester, is believed to result in improved neonatal birth weight (Kiely JL *et al.*, 1994).

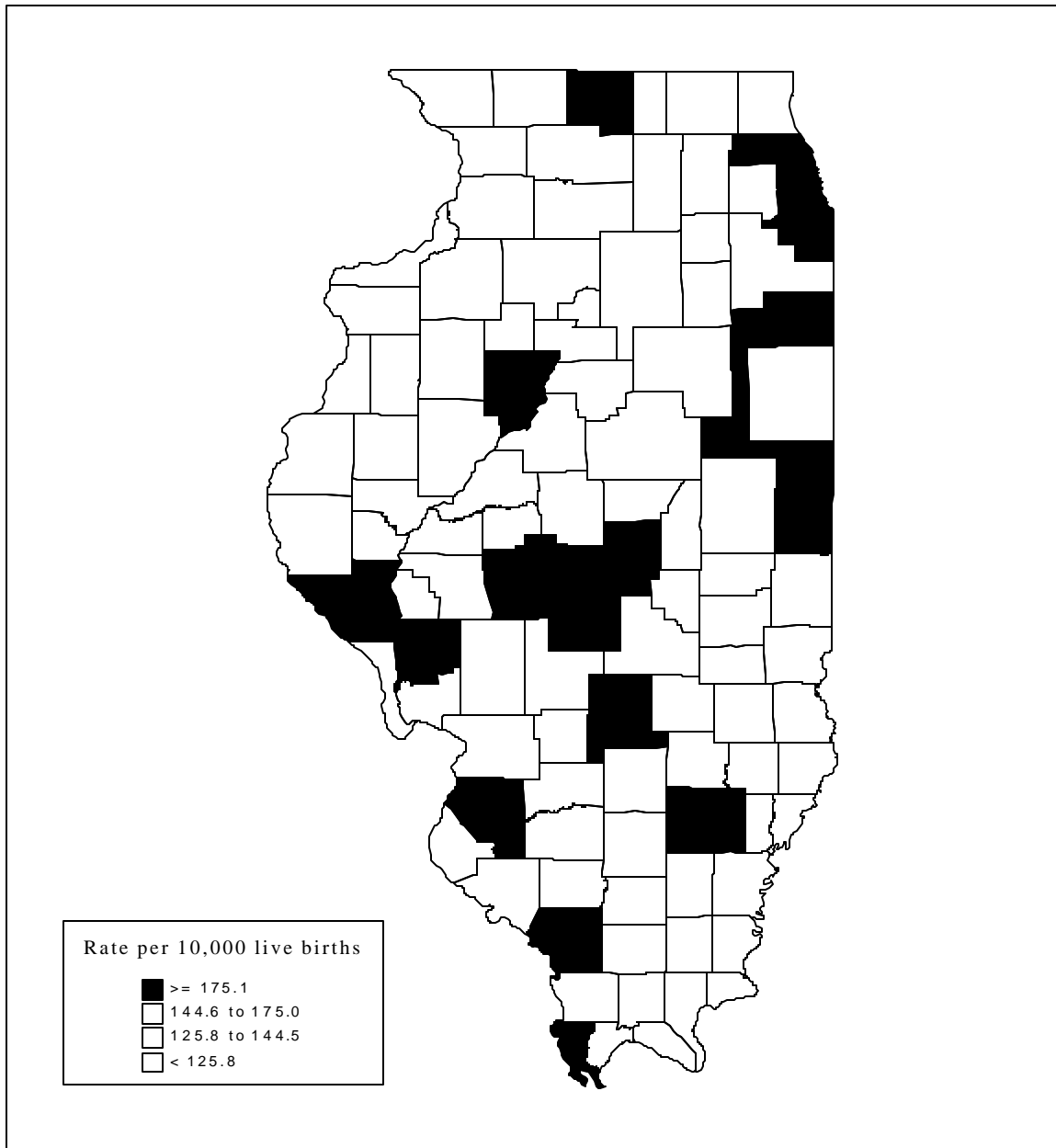
Table 16. Total Number and Incidence Rates of Infants with Very Low Birth Weights (# 1,500 g), By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	15,387	168.3	165.7	171.0	Lee	23	117.2	74.3	175.9
Adams	50	119.8	88.9	157.9	Livingston	37	160.8	113.2	221.6
Alexander	20	295.9	180.7	456.9	Logan	23	137.2	87.0	205.9
Bond	5	51.1	16.6	119.3	Macon	143	186.1	156.8	219.2
Boone	28	101.2	67.3	146.3	Macoupin	28	103.8	69.0	150.0
Brown	5	183.8	59.7	429.0	Madison	229	137.4	120.2	156.4
Bureau	17	83.5	48.6	133.7	Marion	32	118.1	80.8	166.7
Calhoun	2	84.0	10.2	303.6	Marshall	10	140.1	67.2	257.6
Carroll	14	157.5	86.1	264.2	Mason	13	138.9	74.0	237.5
Cass	15	170.5	95.4	281.1	Massac	3	34.0	7.0	99.3
Champaign	162	148.8	126.8	173.6	McDonough	10	68.2	32.7	125.4
Christian	37	176.7	124.4	243.6	McHenry	232	119.6	104.7	136.1
Clark	2	20.9	2.5	75.4	McLean	137	141.9	119.1	167.7
Clay	4	46.5	12.7	119.1	Menard	7	100.7	40.5	207.5
Clinton	28	140.0	93.0	202.3	Mercer	3	32.8	6.8	95.9
Coles	45	152.4	111.2	204.0	Monroe	20	127.9	78.1	197.5
Cook	8,602	198.3	144.1	202.5	Montgomery	23	133.8	84.8	200.8
Crawford	13	118.0	62.8	201.7	Morgan	29	142.4	95.3	204.5
Cumberland	10	147.1	70.5	270.4	Moultrie	13	142.5	75.9	243.8
DeKalb	77	146.6	115.7	183.2	Ogle	35	116.6	81.2	162.2
DeWitt	12	121.5	62.8	212.2	Peoria	273	205.3	181.7	231.2
Douglas	20	139.3	85.1	215.1	Perry	11	93.7	46.8	167.6
DuPage	899	132.7	124.2	141.7	Piatt	12	128.6	66.5	224.7
Edgar	8	71.6	30.9	141.1	Pike	22	225.2	141.1	340.9
Edwards	3	85.0	17.5	248.4	Pope	1	51.3	1.3	285.7
Effingham	35	148.3	103.3	206.3	Pulaski	14	280.0	153.1	469.8
Fayette	25	192.0	124.3	283.4	Putnam	2	58.3	7.1	210.6
Ford	17	190.6	111.0	305.1	Randolph	20	106.2	64.8	164.0
Franklin	39	170.9	121.5	233.6	Richland	14	135.0	73.8	226.5
Fulton	30	146.0	98.5	208.4	Rock Island	143	146.5	123.5	172.6
Gallatin	2	62.1	7.5	224.4	Saline	16	104.7	59.9	170.0
Greene	16	175.4	100.3	284.9	Sangamon	242	194.7	170.9	220.8
Grundy	31	129.7	88.1	184.0	Schuyler	7	166.7	67.0	343.4
Hamilton	7	158.7	63.8	327.0	Scott	5	155.3	50.4	362.4
Hancock	14	131.3	71.8	220.4	Shelby	15	114.1	63.8	188.1
Hardin	1	40.8	1.0	227.4	St. Clair	374	196.7	177.3	217.7
Henderson	4	98.0	26.7	251.0	Stark	6	153.5	56.3	334.0
Henry	37	128.6	90.5	177.2	Stephenson	51	165.6	123.3	217.8
Iroquois	17	96.2	56.0	154.0	Tazewell	114	144.6	119.3	173.7
Jackson	60	176.2	134.5	226.8	Union	10	96.2	46.2	177.0
Jasper	8	134.0	57.9	264.0	Vermilion	103	178.5	145.7	216.5
Jefferson	30	129.3	87.2	184.5	Wabash	5	76.2	24.7	177.9
Jersey	16	132.0	75.5	214.4	Warren	18	165.3	98.0	261.2
JoDaviess	8	66.7	28.8	131.4	Washington	7	87.3	35.1	179.8
Johnson	15	259.5	145.2	428.0	Wayne	17	178.4	103.9	285.6
Kane	441	125.8	114.3	138.1	White	10	121.7	58.3	223.7
Kankakee	138	183.3	154.0	216.5	Whiteside	37	95.0	66.9	130.9
Kendall	33	89.8	61.8	126.1	Will	467	131.5	119.9	144.0
Knox	42	132.2	95.2	178.6	Williamson	35	100.4	70.0	139.7
Lake	679	132.0	122.2	142.3	Winnebago	341	175.1	157.0	194.7
LaSalle	89	130.2	104.6	160.2	Woodford	21	100.6	62.3	153.8
Lawrence	9	107.0	48.9	203.1	Unknown (Ill.)	3	1363.6	281.2	3985.1

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

Figure 7. Map of Incidence Rates¹ for Infants with Very Low Birth Weights (# 1,500 g), By Selected Counties of Residence,² 1995-1999



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

SERIOUS CONGENITAL INFECTIONS

Congenital infections may be either viral or bacterial; infants may have been exposed *in utero* (by transfer across the placental barrier) or during delivery.

Listeriosis is caused by an infection with the bacterium *Listeria monocytogenes*; half of all infected newborns will die from the illness. Babies infected during the pregnancy are usually born prematurely, have a blood infection (sepsis) and may have a serious, whole body infection called granulomatosis infantisepticum. When a baby is infected during childbirth, symptoms usually appear about two weeks after birth; these babies typically have meningitis.

Group B streptococcus (GBS) is a bacterium that may cause urinary tract or placental infections in the mother leading to preterm labor and birth. Newborns who become ill with GBS infection may require care in the newborn intensive care unit depending on the severity of the infection and whether the infection causes serious problems such as meningitis or pneumonia.

Chlamydia bacterial infection can lead to dangerous complications during pregnancy and birth. If a pregnant woman is untreated, her baby has a 50 percent chance of developing conjunctivitis (threatening eyesight) and a 20 percent chance of developing pneumonia. Chlamydia can also lead to premature birth or low birth weight.

Congenital syphilis is usually contracted in utero by transplacental passage of bacteria – *Treponema pallidum* – from an infected mother, but infection may occur from contact with an infectious lesion during delivery. In women with untreated early syphilis, 40 percent of pregnancies result in spontaneous abortion, stillbirths, premature delivery or perinatal deaths; intrauterine growth retardation may also occur. Enlargement of the liver and spleen are present in nearly all infants with congenital syphilis. Other common symptoms are jaundice, rhinitis and skin lesions.

Gonorrhea is caused by the gonococcus bacterium. Gonorrhea can be passed from an infected woman to her newborn infant during delivery. Most states require that the eyes of newborns be treated with silver nitrate or other medication immediately after birth to prevent gonococcal infection of the eyes, which can lead to blindness.

Rubella, or German measles, is caused by the rubella virus. If a woman contracts this virus during pregnancy, the baby may miscarry or be born with birth defects including deformed limbs, blindness, deafness, abnormally small brain or mental retardation.

Cytomegalovirus (CMV) is a member of the herpes group of viruses. Congenital CMV can cause abnormal development of the unborn child's central nervous system when the mother catches the virus for the first time during pregnancy. This can result in mental retardation, cerebral palsy, visual impairment, epilepsy and hearing loss.

Herpes in a newborn is usually a result of exposure to the herpes simplex virus II (HSV-2) during vaginal delivery. The infection rate is about 50 percent in primary infection and about 5 percent in a recurrent infection. The most common clinical symptom is the presence of cutaneous vesicles. In 20 percent of cases, there is major systemic involvement, central nervous system involvement, or both. Less than 10 percent of babies with neurologic disease develop normally. The overall mortality rate among infants with untreated infection is 65 percent.

Congenital tetanus is caused when an infant is exposed to the bacterium *Clostridium tetani* during delivery. The bacteria produce a neurotoxin that selectively blocks inhibitory nerve transmission from the spinal cord to the muscles, allowing the muscles to go into severe spasm. Without treatment, two out of three newborns with tetanus will die.

Sepsis may be a result of any of several infections. It is reportable if the infection is confirmed and is invasive. Once the organism has invaded the bloodstream, the infection may lead to pneumonia, septicemia, arthritis, endocarditis or meningitis.

Hepatitis B virus (HBV) can be passed to a baby during delivery. A baby may be asymptomatic, but as he/she grows up, liver damage may be present. About 25 percent of babies who develop lifelong HBV infections die of liver disease or liver cancer. A vaccine has been used since 1982 to prevent hepatitis B.

Table 17. Total Number and Incidence Rates of Serious Congenital Infections in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Listeriosis	027.0, 771.2	155	1.7	1.4	2.0
Group B streptococcus	041.02	834	9.1	8.5	9.8
Chlamydial infections	079.88, 079.98	14	0.2	0.1	0.3
Syphilis	090.0 - 090.9	1,272	13.9	13.2	14.7
Gonococcal infections	098.0 - 098.89	6	0.1	0.0	0.1
Rubella	771.0	1	0.0	0.0	0.1
Cytomegalovirus	771.1	90	1.0	0.8	1.2
Herpes	771.2	153	1.7	1.4	2.0
Tetanus neonatorum	771.3	0	0.0	0.0	0.0
Confirmed septicemia (sepsis)	771.8	4,817	52.7	51.2	54.2
Hepatitis B	774.4	91	1.0	0.8	1.2
Prenatal exposure to hepatitis B	V01.7B	10	0.1	0.1	0.2

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

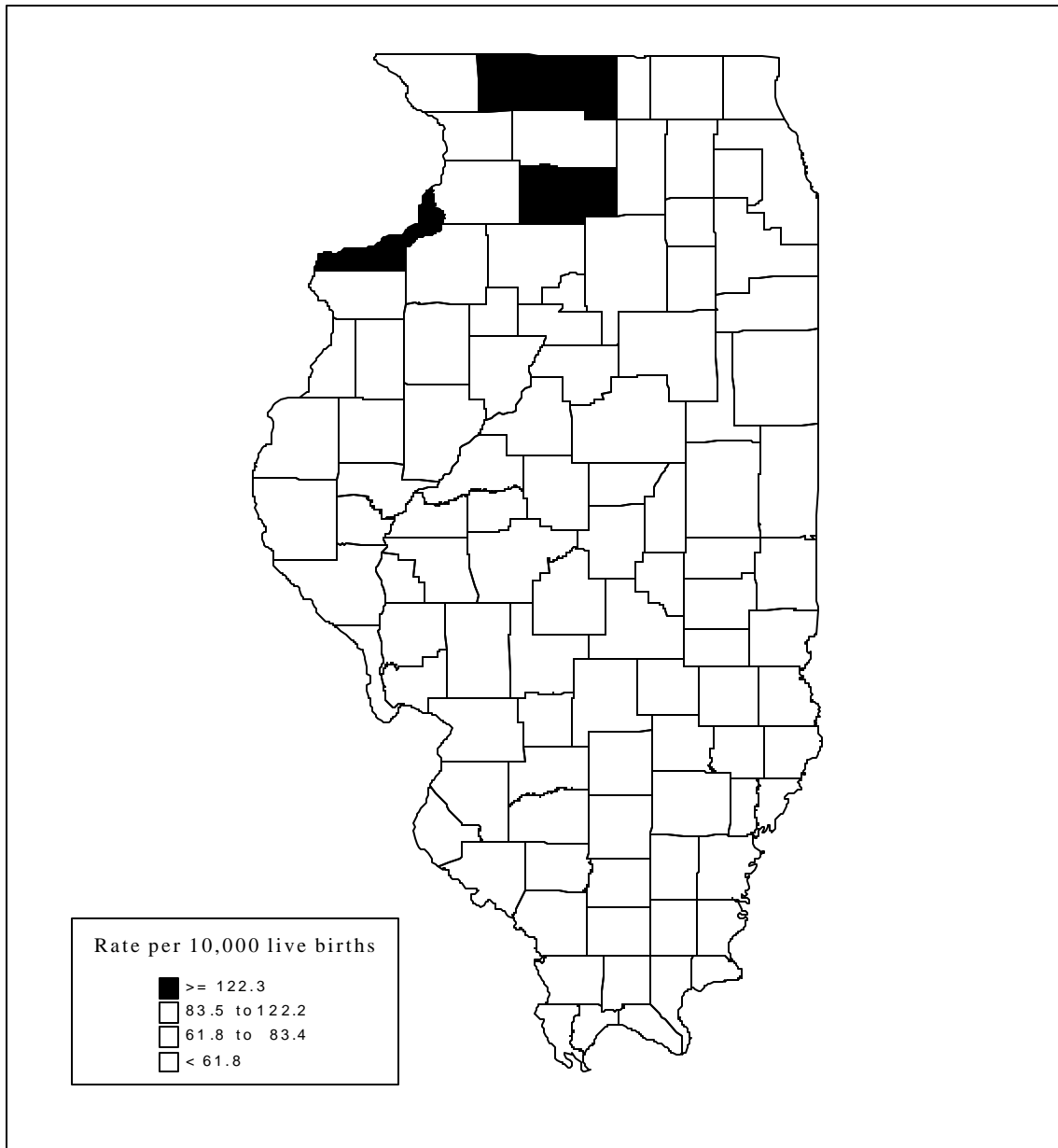
Table 18. Total Number and Incidence Rates of Serious Congenital Infections in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	7,290	79.8	77.9	81.6	Lee	24	122.3	78.4	182.0
Adams	21	50.3	31.1	76.9	Livingston	13	56.5	30.1	96.6
Alexander	7	103.6	41.6	213.4	Logan	15	89.5	50.1	147.6
Bond	6	61.3	22.5	133.5	Macon	27	35.1	23.2	51.1
Boone	28	101.2	67.3	146.3	Macoupin	5	18.5	6.0	43.2
Brown	1	36.8	0.9	204.8	Madison	103	61.8	50.4	74.9
Bureau	17	83.5	48.6	133.7	Marion	18	66.4	39.4	105.0
Calhoun	0	0.0	0.0	155.0	Marshall	2	28.0	3.4	101.2
Carroll	12	135.0	69.7	235.8	Mason	9	96.2	44.0	182.5
Cass	8	90.9	39.2	179.1	Massac	6	68.0	24.9	147.9
Champaign	92	84.5	68.1	103.7	McDonough	3	20.4	4.2	59.8
Christian	12	57.3	29.6	100.1	McHenry	111	57.2	47.1	68.9
Clark	1	10.4	0.3	58.2	McLean	61	63.2	48.3	81.2
Clay	3	34.9	7.2	101.9	Menard	5	71.9	23.4	167.9
Clinton	12	60.0	31.0	104.8	Mercer	8	87.5	37.8	172.5
Coles	11	37.3	18.6	66.7	Monroe	11	70.3	35.1	125.8
Cook	4,139	95.4	92.5	98.3	Montgomery	7	40.7	16.4	83.9
Crawford	1	9.1	0.2	50.6	Morgan	4	19.6	5.4	50.3
Cumberland	3	44.1	9.1	128.9	Moultrie	6	65.8	24.1	143.2
DeKalb	49	93.3	69.0	123.3	Ogle	27	90.0	59.3	130.9
DeWitt	7	70.9	28.5	146.0	Peoria	91	68.4	55.1	84.0
Douglas	5	34.8	11.3	81.3	Perry	6	51.1	18.8	111.2
DuPage	385	56.8	51.3	62.8	Piatt	2	21.4	2.6	77.4
Edgar	8	71.6	30.9	141.1	Pike	2	20.5	2.5	73.9
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	20	84.7	51.8	130.9	Pulaski	2	40.0	4.8	144.5
Fayette	4	30.7	8.4	78.7	Putnam	0	0.0	0.0	107.5
Ford	7	78.5	31.6	161.7	Randolph	8	42.5	18.3	83.7
Franklin	13	57.0	30.3	97.4	Richland	3	28.9	6.0	84.5
Fulton	14	68.1	37.2	114.3	Rock Island	142	145.5	122.5	171.5
Gallatin	0	0.0	0.0	114.6	Saline	3	19.6	4.0	57.4
Greene	5	54.8	17.8	127.9	Sangamon	85	68.4	54.6	84.6
Grundy	9	37.6	17.2	71.5	Schuyler	1	23.8	0.6	132.7
Hamilton	1	22.7	0.6	126.3	Scott	1	31.1	0.8	173.0
Hancock	5	46.9	15.2	109.5	Shelby	8	60.8	26.3	119.9
Hardin	1	40.8	1.0	227.4	St. Clair	198	104.2	90.1	119.7
Henderson	0	0.0	0.0	90.4	Stark	4	102.3	27.9	261.9
Henry	19	66.0	39.7	103.1	Stephenson	39	126.7	90.1	173.2
Iroquois	10	56.6	27.1	104.1	Tazewell	38	48.2	34.1	66.2
Jackson	23	67.5	42.8	101.4	Union	7	67.4	27.1	138.8
Jasper	3	50.3	10.4	146.9	Vermilion	52	90.1	67.3	118.2
Jefferson	14	60.3	33.0	101.2	Wabash	5	76.2	24.7	177.9
Jersey	4	33.0	9.0	84.5	Warren	5	45.9	14.9	107.1
JoDaviess	4	33.3	9.1	85.3	Washington	5	62.3	20.2	145.5
Johnson	5	86.5	28.1	201.9	Wayne	3	31.5	6.5	92.0
Kane	269	76.7	67.8	86.4	White	2	24.3	2.9	87.9
Kankakee	53	70.4	52.7	92.1	Whiteside	29	74.4	49.9	106.9
Kendall	19	51.7	31.1	80.8	Will	178	50.1	43.0	58.1
Knox	22	69.2	43.4	104.8	Williamson	16	45.9	26.2	74.6
Lake	184	35.8	30.8	41.3	Winnebago	293	150.4	133.7	168.7
LaSalle	52	76.1	56.8	99.8	Woodford	6	28.7	10.6	62.6
Lawrence	3	35.7	7.4	104.2	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

**Figure 8. Map of Incidence Rates¹
for Serious Congenital Infections in Newborn Infants
By Selected Counties of Residence,² 1995-1999**



¹ Rates per 10,000 live births

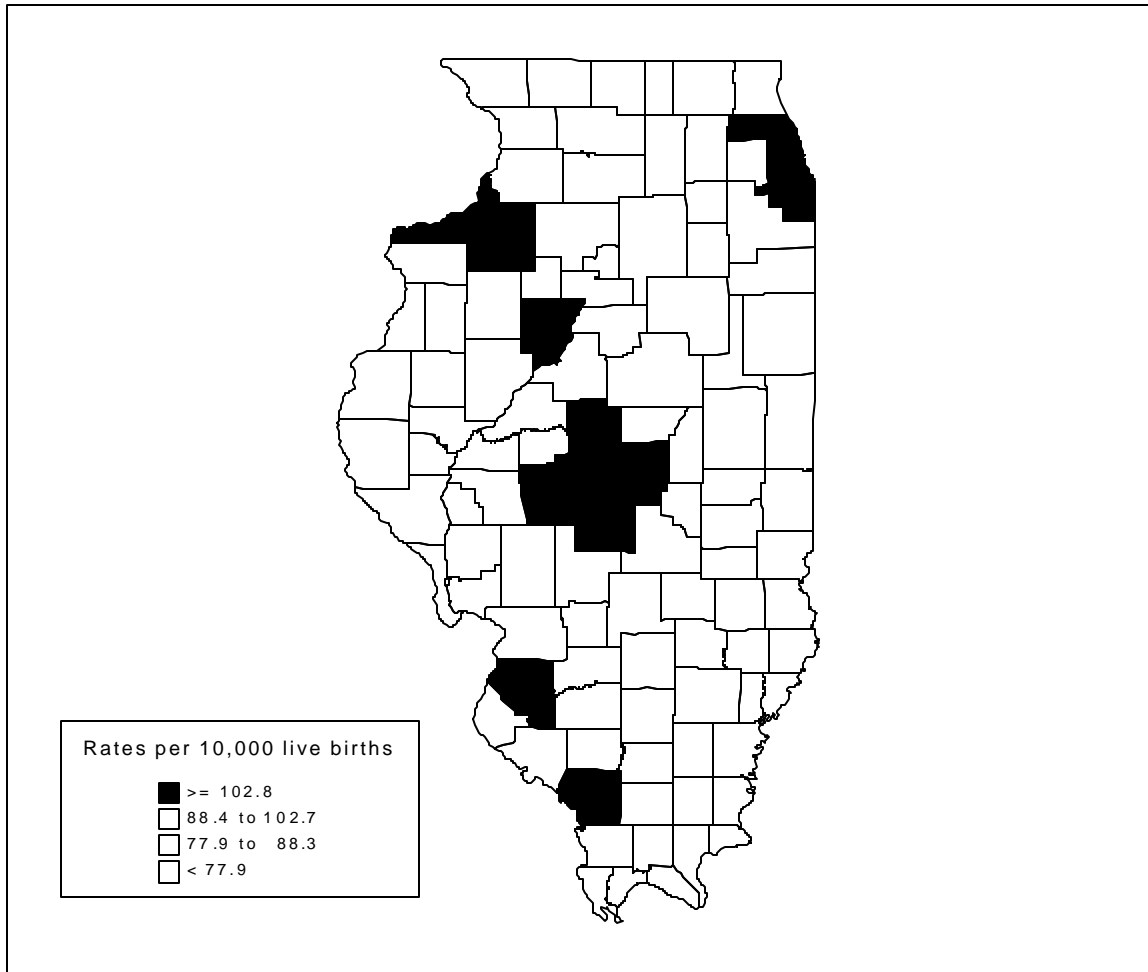
² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

PERINATAL DEATHS

Perinatal deaths refer to a combination of fetal deaths of at least 20 weeks gestation and neonatal deaths (under 28 days old). Because of the passive nature of APORS data collection, only neonatal deaths that occur while the baby is still in hospital for the newborn stay are reported to IDPH. The data are further incomplete because elective abortions are not included. Neonatal deaths are reported by hospitals; APORS obtains information about fetal deaths from IDPH's Division of Vital Records.

**Figure 9. Map of Incidence Rates¹ for Perinatal Deaths
By Selected Counties of Residence,² 1995-1999**



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

**Table 19. Total Number and Incidence Rates of Perinatal Deaths
By County of Residence, 1995-1999**

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	9,139	100.0	97.9	102.1	Lee	15	76.5	42.8	126.1
Adams	37	88.6	62.4	122.2	Livingston	18	78.2	46.4	123.6
Alexander	15	221.9	124.2	366.0	Logan	20	119.3	72.9	184.3
Bond	5	51.1	16.6	119.3	Macon	84	109.3	87.2	135.3
Boone	21	75.9	47.0	116.1	Macoupin	20	74.1	45.3	114.5
Brown	2	73.5	8.9	265.6	Madison	136	81.6	68.4	96.5
Bureau	7	34.4	13.8	70.8	Marion	22	81.2	50.9	122.9
Calhoun	1	42.0	1.1	234.1	Marshall	7	98.0	39.4	202.0
Carroll	9	101.2	46.3	192.2	Mason	10	106.8	51.2	196.5
Cass	8	90.9	39.2	179.1	Massac	5	56.6	18.4	132.1
Champaign	87	79.9	64.0	98.6	McDonough	13	88.6	47.2	151.5
Christian	22	105.1	65.8	159.1	McHenry	145	74.8	63.1	88.0
Clark	2	20.9	2.5	75.4	McLean	81	83.9	66.6	104.3
Clay	4	46.5	12.7	119.1	Menard	7	100.7	40.5	207.5
Clinton	17	85.0	49.5	136.1	Mercer	7	76.6	30.8	157.8
Coles	22	74.5	46.7	112.8	Monroe	14	89.5	48.9	150.2
Cook	4,977	114.7	111.5	117.9	Montgomery	16	93.1	53.2	151.2
Crawford	8	72.6	31.3	143.0	Morgan	16	78.5	44.9	127.6
Cumberland	6	88.2	32.4	192.1	Moultrie	6	65.8	24.1	143.2
DeKalb	48	91.4	67.4	121.2	Ogle	22	73.3	45.9	111.0
DeWitt	6	60.7	22.3	132.2	Peoria	148	111.3	94.1	130.8
Douglas	10	69.6	33.4	128.1	Perry	10	85.2	40.8	156.6
DuPage	560	82.7	76.0	89.8	Piatt	5	53.6	17.4	125.1
Edgar	3	26.9	5.5	78.5	Pike	9	92.1	42.1	174.9
Edwards	1	28.3	0.7	157.8	Pope	1	51.3	1.3	285.7
Effingham	23	97.5	61.8	146.2	Pulaski	4	80.0	21.8	204.8
Fayette	12	92.2	47.6	161.0	Putnam	6	174.9	64.2	380.7
Ford	9	100.9	46.1	191.5	Randolph	15	79.6	44.6	131.3
Franklin	22	96.4	60.4	146.0	Richland	12	115.7	59.8	202.1
Fulton	16	77.9	44.5	126.4	Rock Island	101	103.5	84.3	125.7
Gallatin	0	0.0	0.0	114.6	Saline	14	91.6	50.1	153.7
Greene	12	131.6	68.0	229.8	Sangamon	133	107.0	89.6	126.8
Grundy	22	92.0	57.7	139.3	Schuyler	10	238.1	114.2	437.9
Hamilton	1	22.7	0.6	126.3	Scott	6	186.3	68.4	405.6
Hancock	8	75.0	32.4	147.9	Shelby	11	83.7	41.8	149.7
Hardin	1	40.8	1.0	227.4	St. Clair	219	115.2	100.4	131.5
Henderson	0	0.0	0.0	90.4	Stark	4	102.3	27.9	261.9
Henry	30	104.2	70.3	148.8	Stephenson	20	65.0	39.7	100.3
Iroquois	12	67.9	35.1	118.6	Tazewell	79	100.2	79.3	124.9
Jackson	35	102.8	71.6	143.0	Union	8	77.0	33.2	151.7
Jasper	4	67.0	18.3	171.6	Vermilion	55	95.3	71.8	124.1
Jefferson	21	90.5	56.0	138.3	Wabash	2	30.5	3.7	110.1
Jersey	14	115.5	63.2	193.8	Warren	8	73.5	31.7	144.7
JoDaviess	3	25.0	5.2	73.1	Washington	4	49.9	13.6	127.7
Johnson	12	207.6	107.3	362.7	Wayne	10	104.9	50.3	193.0
Kane	310	88.4	78.8	98.8	White	3	36.5	7.5	106.7
Kankakee	75	99.6	78.4	124.9	Whiteside	25	64.2	41.5	94.7
Kendall	20	54.4	33.3	84.1	Will	300	84.5	75.2	94.6
Knox	26	81.8	53.4	119.9	Williamson	29	83.2	55.7	119.5
Lake	404	78.5	71.1	86.6	Winnebago	165	84.7	72.3	98.7
LaSalle	64	93.6	72.1	119.6	Woodford	14	67.1	36.7	112.6
Lawrence	8	95.1	41.1	187.4	Unknown (Ill.)	3	1363.6	281.2	3985.1

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

ENDOCRINE, METABOLIC OR IMMUNE DISORDERS

Neonatal hypothyroidism is characterized by the absence of the baby's thyroid gland at birth.

If untreated, hypothyroidism leads to severe defects including mental retardation, poor vision, muscle weakness and severe lethargy. If diagnosed and treated soon after birth, growth and mental development can proceed relatively normally.

Adrenogenital syndrome is a group of disorders that lead to an overproduction of androgens.

Female newborns have ambiguous genitalia; male newborns have no obvious abnormality, but appear to enter puberty as early as 2 to 3 years of age. Some forms are more severe – in the salt-losing form, newborns develop symptoms (vomiting, dehydration, electrolyte changes and cardiac arrhythmias) soon after birth. Untreated, this condition can lead to death within 14 days.

Inborn errors of metabolism include hundreds of genetic disorders affecting metabolism.

These errors interfere with the synthesis of proteins, carbohydrates, fats and enzymes. Absence or excesses of normal or abnormal metabolites can lead to disease and death. Many inborn errors of metabolism are untreatable; others require restrictions or extremely high dosages of certain nutrients.

Cystic fibrosis (CF) is a genetic disease that causes the body to produce an abnormally thick, sticky mucus, due to the faulty transport of sodium and chloride within cells lining organs such as the lungs and pancreas. The thick mucus also obstructs the pancreas, preventing enzymes from reaching the intestines to help digest food, leading to malnutrition and growth stunting.

Immune deficiency diseases occur when one or more parts of the immune system are missing.

There are more than 70 recognized forms of congenital immune deficiencies (HIV infections do not fit in this category). Many children with immune deficiencies have restricted environments to avoid contagious situations. If a child is diagnosed at birth or soon after with a severe combined immune deficiency, he or she can receive a bone marrow transplant with hopes of reconstituting the missing immune system.

Table 20. Total Number and Incidence Rates of Endocrine, Metabolic or Immune Disorders in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Hypothyroidism	243	54	0.6	0.4	0.8
Adrenogenital syndrome	255.2	20	0.2	0.1	0.3
Inborn errors of metabolism	270.0 - 273.9	117	1.3	1.1	1.5
Cystic fibrosis	277.00, 277.01	33	0.4	0.2	0.5
Immune deficiency disease	279.2	0	0.0	0.0	0.0

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

There is no figure illustrating the data since only Cook County had more than 16 cases.

Table 21. Total Number and Incidence Rates of Endocrine, Metabolic or Immune Disorders In Newborn Infants, By County of Residence, 1995-1999

County	Cases	95% CI ¹			County	Cases	95% CI ¹		
		Rate ¹	Lower	Upper			Rate ¹	Lower	Upper
ILLINOIS	224	2.5	2.1	2.8	Lee	1	5.1	0.1	28.4
Adams	0	0.0	0.0	8.8	Livingston	0	0.0	0.0	16.0
Alexander	0	0.0	0.0	54.6	Logan	2	11.9	1.4	43.1
Bond	0	0.0	0.0	37.7	Macon	2	2.6	0.3	9.4
Boone	1	3.6	0.1	20.1	Macoupin	4	14.8	4.0	38.0
Brown	0	0.0	0.0	135.6	Madison	8	4.8	2.1	9.5
Bureau	0	0.0	0.0	18.1	Marion	0	0.0	0.0	13.6
Calhoun	0	0.0	0.0	155.0	Marshall	1	14.0	0.4	78.0
Carroll	1	11.2	0.3	62.7	Mason	1	10.7	0.3	59.5
Cass	0	0.0	0.0	41.9	Massac	1	11.3	0.3	63.1
Champaign	5	4.6	1.5	10.7	McDonough	2	13.6	1.7	49.2
Christian	0	0.0	0.0	17.6	McHenry	9	4.6	2.1	8.8
Clark	0	0.0	0.0	38.5	McLean	1	1.0	0.0	5.8
Clay	1	11.6	0.3	64.8	Menard	0	0.0	0.0	53.1
Clinton	1	5.0	0.1	27.9	Mercer	0	0.0	0.0	40.4
Coles	0	0.0	0.0	12.5	Monroe	1	6.4	0.2	35.6
Cook	82	1.9	1.5	2.3	Montgomery	0	0.0	0.0	21.5
Crawford	0	0.0	0.0	33.5	Morgan	1	4.9	0.1	27.4
Cumberland	0	0.0	0.0	54.2	Moultrie	1	11.0	0.3	61.1
DeKalb	2	3.8	0.5	13.8	Ogle	1	3.3	0.1	18.6
DeWitt	1	10.1	0.3	56.4	Peoria	3	2.3	0.5	6.6
Douglas	1	7.0	0.2	38.8	Perry	0	0.0	0.0	31.4
DuPage	12	1.8	0.9	3.1	Piatt	0	0.0	0.0	39.5
Edgar	0	0.0	0.0	33.0	Pike	0	0.0	0.0	37.8
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	1	4.2	0.1	23.6	Pulaski	0	0.0	0.0	73.8
Fayette	0	0.0	0.0	28.3	Putnam	0	0.0	0.0	107.5
Ford	0	0.0	0.0	41.4	Randolph	1	5.3	0.1	29.6
Franklin	2	8.8	1.1	31.7	Richland	0	0.0	0.0	35.6
Fulton	2	9.7	1.2	35.2	Rock Island	1	1.0	0.0	5.7
Gallatin	0	0.0	0.0	114.6	Saline	0	0.0	0.0	24.1
Greene	2	21.9	2.7	79.2	Sangamon	0	0.0	0.0	3.0
Grundy	2	8.4	1.0	30.2	Schuyler	1	23.8	0.6	132.7
Hamilton	0	0.0	0.0	83.6	Scott	0	0.0	0.0	114.6
Hancock	0	0.0	0.0	34.6	Shelby	0	0.0	0.0	28.1
Hardin	0	0.0	0.0	150.6	St. Clair	13	6.8	3.6	11.7
Henderson	0	0.0	0.0	90.4	Stark	1	25.6	0.6	142.5
Henry	0	0.0	0.0	12.8	Stephenson	0	0.0	0.0	12.0
Iroquois	0	0.0	0.0	20.9	Tazewell	2	2.5	0.3	9.2
Jackson	2	5.9	0.7	21.2	Union	0	0.0	0.0	35.5
Jasper	0	0.0	0.0	61.8	Vermilion	4	6.9	1.9	17.7
Jefferson	2	8.6	1.0	31.1	Wabash	0	0.0	0.0	56.2
Jersey	0	0.0	0.0	30.4	Warren	0	0.0	0.0	33.9
JoDaviess	0	0.0	0.0	30.7	Washington	1	12.5	0.3	69.5
Johnson	0	0.0	0.0	63.8	Wayne	0	0.0	0.0	38.7
Kane	11	3.1	1.6	5.6	White	0	0.0	0.0	44.9
Kankakee	0	0.0	0.0	4.9	Whiteside	1	2.6	0.1	14.3
Kendall	0	0.0	0.0	10.0	Will	7	2.0	0.8	4.1
Knox	2	6.3	0.8	22.7	Williamson	0	0.0	0.0	10.6
Lake	7	1.4	0.5	2.8	Winnebago	8	4.1	1.8	8.1
LaSalle	2	2.9	0.4	10.6	Woodford	2	9.6	1.2	34.6
Lawrence	1	11.9	0.3	66.3	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

BLOOD DISORDERS

Leukemia is cancer of the blood cells. When it develops, the body produces large numbers of abnormal (usually white) blood cells. Acute lymphocytic leukemia and acute myeloid leukemia are most commonly seen in children. Children with leukemia may have anemia; swollen lymph nodes, liver or spleen; and bone or joint pain. In acute leukemia, the abnormal cells may collect in the central nervous system leading to headaches, confusion, loss of muscle control and seizures. Leukemia also can affect the eyes, skin, testicles, digestive tract, kidneys, lungs or other parts of the body.

Hereditary hemolytic anemia is a condition characterized by an inadequate number of circulating red blood cells (anemia), caused by premature destruction of red blood cells. There are several types of hereditary hemolytic anemia including sickle cell anemia, hemoglobin SC disease, sickle thalassemia and spherocytosis. Symptoms include fatigue, shortness of breath, rapid heart rate and jaundice.

Constitutional aplastic anemia is a hereditary, often fatal bone marrow failure disease that occurs when the bone marrow is hypoplastic. Bone marrow transplantation replaces the defective bone marrow of a patient with healthy cells from a normal donor and can cure the disease in about 80 percent of cases where a sibling with identical tissue type is the donor. Growth factors are also being used in treatment.

Coagulation defects are a group of inheritable blood disorders (haemophilias) characterized by a defect in one or more of the factors that make up the blood clotting system. Each condition may be severe, moderate or mild. In haemophilia, easy bruising and internal bleeding are characteristic. In the severe forms, repeated bleeding into joints is a problem and can lead to long-term joint damage. Treatment comprises the intravenous injection of the missing clotting factor.

**Table 22. Total Number and Incidence Rates of Blood Disorders
in Newborn Infants, Illinois, 1995-1999**

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Leukemia	204.00 - 208.91	0	0.0	0.0	0.0
Hereditary hemolytic anemia	282.x	84	0.9	0.7	1.1
Constitutional aplastic anemia	284.x	8	0.1	0.0	0.2
Coagulation defects	286.x	52	0.6	0.4	0.7

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

There is no figure illustrating the data since only Cook County had more than 16 cases.

**Table 23. Total Number and Incidence Rates of Blood Disorders
in Newborn Infants, By County of Residence, 1995-1999**

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	144	1.6	1.3	1.9	Lee	0	0.0	0.0	18.8
Adams	0	0.0	0.0	8.8	Livingston	0	0.0	0.0	16.0
Alexander	0	0.0	0.0	54.6	Logan	0	0.0	0.0	22.0
Bond	0	0.0	0.0	37.7	Macon	1	1.3	0.0	7.3
Boone	0	0.0	0.0	13.3	Macoupin	0	0.0	0.0	13.7
Brown	0	0.0	0.0	135.6	Madison	3	1.8	0.4	5.3
Bureau	1	4.9	0.1	27.4	Marion	0	0.0	0.0	13.6
Calhoun	0	0.0	0.0	155.0	Marshall	0	0.0	0.0	51.7
Carroll	0	0.0	0.0	41.5	Mason	0	0.0	0.0	39.4
Cass	0	0.0	0.0	41.9	Massac	0	0.0	0.0	41.8
Champaign	1	0.9	0.0	5.1	McDonough	0	0.0	0.0	25.1
Christian	1	4.8	0.1	26.6	McHenry	1	0.5	0.0	2.9
Clark	0	0.0	0.0	38.5	McLean	4	4.1	1.1	10.6
Clay	1	11.6	0.3	64.8	Menard	0	0.0	0.0	53.1
Clinton	1	5.0	0.1	27.9	Mercer	1	10.9	0.3	61.0
Coles	0	0.0	0.0	12.5	Monroe	0	0.0	0.0	23.6
Cook	77	1.8	1.4	2.2	Montgomery	0	0.0	0.0	21.5
Crawford	0	0.0	0.0	33.5	Morgan	1	4.9	0.1	27.4
Cumberland	0	0.0	0.0	54.2	Moultrie	0	0.0	0.0	40.4
DeKalb	1	1.9	0.0	10.6	Ogle	1	3.3	0.1	18.6
DeWitt	0	0.0	0.0	37.3	Peoria	5	3.8	1.2	8.8
Douglas	0	0.0	0.0	25.7	Perry	0	0.0	0.0	31.4
DuPage	4	0.6	0.2	1.5	Piatt	0	0.0	0.0	39.5
Edgar	0	0.0	0.0	33.0	Pike	0	0.0	0.0	37.8
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	0	0.0	0.0	15.6	Pulaski	0	0.0	0.0	73.8
Fayette	0	0.0	0.0	28.3	Putnam	0	0.0	0.0	107.5
Ford	0	0.0	0.0	41.4	Randolph	0	0.0	0.0	19.6
Franklin	0	0.0	0.0	16.2	Richland	0	0.0	0.0	35.6
Fulton	0	0.0	0.0	18.0	Rock Island	5	5.1	1.7	12.0
Gallatin	0	0.0	0.0	114.6	Saline	0	0.0	0.0	24.1
Greene	0	0.0	0.0	40.4	Sangamon	9	7.2	3.3	13.7
Grundy	1	4.2	0.1	23.3	Schuyler	0	0.0	0.0	87.8
Hamilton	0	0.0	0.0	83.6	Scott	0	0.0	0.0	114.6
Hancock	1	9.4	0.2	52.3	Shelby	0	0.0	0.0	28.1
Hardin	0	0.0	0.0	150.6	St. Clair	2	1.1	0.1	3.8
Henderson	0	0.0	0.0	90.4	Stark	0	0.0	0.0	94.3
Henry	0	0.0	0.0	12.8	Stephenson	1	3.2	0.1	18.1
Iroquois	0	0.0	0.0	20.9	Tazewell	1	1.3	0.0	7.1
Jackson	0	0.0	0.0	10.8	Union	0	0.0	0.0	35.5
Jasper	0	0.0	0.0	61.8	Vermilion	3	5.2	1.1	15.2
Jefferson	2	8.6	1.0	31.1	Wabash	0	0.0	0.0	56.2
Jersey	0	0.0	0.0	30.4	Warren	1	9.2	0.2	51.2
JoDaviess	0	0.0	0.0	30.7	Washington	0	0.0	0.0	46.0
Johnson	0	0.0	0.0	63.8	Wayne	0	0.0	0.0	38.7
Kane	0	0.0	0.0	1.1	White	0	0.0	0.0	44.9
Kankakee	0	0.0	0.0	4.9	Whiteside	0	0.0	0.0	9.5
Kendall	0	0.0	0.0	10.0	Will	5	1.4	0.5	3.3
Knox	0	0.0	0.0	11.6	Williamson	1	2.9	0.1	16.0
Lake	3	0.6	0.1	1.7	Winnebago	4	2.1	0.6	5.3
LaSalle	1	1.5	0.0	8.2	Woodford	0	0.0	0.0	17.7
Lawrence	0	0.0	0.0	43.9	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

FETAL ALCOHOL SYNDROME

Alcohol use or abuse by a pregnant woman subjects her to the same range of risks that alcohol has in the general population. However, it poses extreme and unique risks to the fetus and is associated with fetal alcohol syndrome (FAS). FAS is the leading known cause of mental retardation. Alcohol ingested by a pregnant woman easily passes across the placental barrier to the fetus. Because of this, drinking alcohol can adversely affect the development of the baby. Multiple birth defects associated with "classical" fetal alcohol syndrome more commonly are associated with heavy alcohol use or alcoholism. Fetal alcohol syndrome consists of the following abnormalities: intrauterine growth retardation, delayed development with decreased mental functioning (mild to severe), facial abnormalities (including microcephaly), heart defect and limb abnormalities of joints, hands, feet, fingers, and toes. Table 24 gives the five-year incidence rates for FAS for the whole state.

Table 24. Total Number and Incidence Rates of Newborn Infants with Fetal Alcohol Syndrome, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Fetal alcohol syndrome	760.71	205	2.2	1.9	2.6

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

There is no figure illustrating the data since only Cook County had more than 16 cases.

Table 25. Total Number and Incidence Rates of Newborn Infants with Fetal Alcohol Syndrome, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	205	2.2	1.9	2.6	Lee	0	0.0	0.0	18.8
Adams	0	0.0	0.0	8.8	Livingston	0	0.0	0.0	16.0
Alexander	0	0.0	0.0	54.6	Logan	0	0.0	0.0	22.0
Bond	0	0.0	0.0	37.7	Macon	1	1.3	0.0	7.3
Boone	0	0.0	0.0	13.3	Macoupin	0	0.0	0.0	13.7
Brown	0	0.0	0.0	135.6	Madison	3	1.8	0.4	5.3
Bureau	0	0.0	0.0	18.1	Marion	0	0.0	0.0	13.6
Calhoun	0	0.0	0.0	155.0	Marshall	0	0.0	0.0	51.7
Carroll	0	0.0	0.0	41.5	Mason	0	0.0	0.0	39.4
Cass	0	0.0	0.0	41.9	Massac	0	0.0	0.0	41.8
Champaign	8	7.4	3.2	14.5	McDonough	0	0.0	0.0	25.1
Christian	3	14.3	3.0	41.9	McHenry	1	0.5	0.0	2.9
Clark	0	0.0	0.0	38.5	McLean	1	1.0	0.0	5.8
Clay	0	0.0	0.0	42.9	Menard	0	0.0	0.0	53.1
Clinton	0	0.0	0.0	18.4	Mercer	0	0.0	0.0	40.4
Coles	1	3.4	0.1	18.9	Monroe	0	0.0	0.0	23.6
Cook	142	3.3	2.8	3.9	Montgomery	0	0.0	0.0	21.5
Crawford	1	9.1	0.2	50.6	Morgan	1	4.9	0.1	27.4
Cumberland	0	0.0	0.0	54.2	Moultrie	0	0.0	0.0	40.4
DeKalb	0	0.0	0.0	7.0	Ogle	0	0.0	0.0	12.3
DeWitt	0	0.0	0.0	37.3	Peoria	0	0.0	0.0	2.8
Douglas	0	0.0	0.0	25.7	Perry	0	0.0	0.0	31.4
DuPage	1	0.1	0.0	0.8	Piatt	1	10.7	0.3	59.7
Edgar	0	0.0	0.0	33.0	Pike	0	0.0	0.0	37.8
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	0	0.0	0.0	15.6	Pulaski	0	0.0	0.0	73.8
Fayette	0	0.0	0.0	28.3	Putnam	0	0.0	0.0	107.5
Ford	1	11.2	0.3	62.5	Randolph	0	0.0	0.0	19.6
Franklin	0	0.0	0.0	16.2	Richland	0	0.0	0.0	35.6
Fulton	0	0.0	0.0	18.0	Rock Island	5	5.1	1.7	12.0
Gallatin	1	31.1	0.8	173.0	Saline	0	0.0	0.0	24.1
Greene	0	0.0	0.0	40.4	Sangamon	8	6.4	2.8	12.7
Grundy	0	0.0	0.0	15.4	Schuyler	0	0.0	0.0	87.8
Hamilton	0	0.0	0.0	83.6	Scott	0	0.0	0.0	114.6
Hancock	0	0.0	0.0	34.6	Shelby	0	0.0	0.0	28.1
Hardin	0	0.0	0.0	150.6	St. Clair	6	3.2	1.2	6.9
Henderson	0	0.0	0.0	90.4	Stark	0	0.0	0.0	94.3
Henry	0	0.0	0.0	12.8	Stephenson	0	0.0	0.0	12.0
Iroquois	0	0.0	0.0	20.9	Tazewell	1	1.3	0.0	7.1
Jackson	0	0.0	0.0	10.8	Union	0	0.0	0.0	35.5
Jasper	0	0.0	0.0	61.8	Vermilion	1	1.7	0.0	9.7
Jefferson	2	8.6	1.0	31.1	Wabash	0	0.0	0.0	56.2
Jersey	0	0.0	0.0	30.4	Warren	0	0.0	0.0	33.9
JoDaviess	0	0.0	0.0	30.7	Washington	1	12.5	0.3	69.5
Johnson	0	0.0	0.0	63.8	Wayne	0	0.0	0.0	38.7
Kane	0	0.0	0.0	1.1	White	0	0.0	0.0	44.9
Kankakee	1	1.3	0.0	7.4	Whiteside	0	0.0	0.0	9.5
Kendall	0	0.0	0.0	10.0	Will	6	1.7	0.6	3.7
Knox	0	0.0	0.0	11.6	Williamson	0	0.0	0.0	10.6
Lake	3	0.6	0.1	1.7	Winnebago	5	2.6	0.8	6.0
LaSalle	0	0.0	0.0	5.4	Woodford	0	0.0	0.0	17.7
Lawrence	0	0.0	0.0	43.9	Unknown (Ill.)	0	0.0	0.0	1676.8

¹ Per 10,000 births ² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

OTHER ADVERSE PREGNANCY OUTCOMES

Neurofibromatosis (NF) is a genetic disease in which patients develop multiple soft tumors under the skin and throughout the nervous system. NF occurs in about one of every 4,000 births and may cause very high rates of speech impairment, learning disabilities and attention deficit disorder in children or loss of hearing, weakness of facial muscles, headache, poor balance and uncoordinated walking. Cataracts frequently develop at an unusually early age. The chance of brain tumors developing is unusually high.

Retinopathy of prematurity (ROP) is an eye disease that occurs in some premature babies. The last 12 weeks of a full-term delivery are particularly active for the growth of the fetal eye. In premature infants, the normal growth of the retinal vessels stops and abnormal new vessels begin to grow; the infant may become blind. Most infants with mild ROP usually develop normal central vision. However, some may have late complications, including strabismus, amblyopia, myopia, glaucoma and late onset retinal detachment.

Chorioretinitis is an inflammation of the uveal tract, which lines the inside of the eye behind the cornea. It almost always affects the retina, usually following an active microbial invasion of the tissues. Toxoplasmosis and cytomegalovirus are the most common causes. Onset is insidious: vision gradually becomes blurred, pain is minimal, mild photophobia is present and the pupil is often constricted and/or irregular in shape. The disease can last months to years, sometimes with remissions and exacerbations, and may cause permanent damage with marked visual loss.

Strabismus is a condition in which the eyes do not point in the same direction. Esotropia (crossed eyes) is the most common type of strabismus in infants. Sometimes the eye turn is always in the same eye; however sometimes the turn alternates from one eye to the other. An eye doctor needs to determine whether the eye turn is true or pseudostrabismus. A baby's eyes should be straight and parallel by three or four months of age. Strabismus can be caused by a defect in muscles or the part of the brain that controls eye movement. It is especially common in children who have disorders that affect the brain.

Endocardial fibroelastosis (EFE) is a rare heart disorder that affects infants and children. It is characterized by a thickening within the muscular lining of the heart chambers due to an increase in the amount of supporting connective tissue and elastic fibers. The symptoms of EFE are related to the overgrowth of fibrous tissues causing abnormal enlargement of the heart (cardiac hypertrophy), especially the left ventricle. Impaired heart and lung function eventually lead to congestive heart failure.

Intrauterine growth retardation (IUGR) occurs when the unborn baby is at or below the 10th weight percentile for his or her gestational age. There are many IUGR risk factors involving the mother and the baby. A mother is at risk for having an infant with IUGR if she has poor weight gain and nutrition during pregnancy, uses substances (like tobacco, narcotics, alcohol) that can cause abnormal development, or if she has preeclampsia or chronic kidney disease. Additionally, an unborn baby may suffer from IUGR if it is exposed to an infection, or has a birth defect, or placenta or umbilical cord defects. Babies who suffer from IUGR are at an increased risk for death, hypoglycemia, hypothermia and abnormal development of the nervous system.

Cerebral lipidoses are inherited genetic defects that result in a deficiency in different enzymes involved with fat storage. The absence of the enzyme prevents the lysosome in the cells of the body from performing its natural recycling function, and various materials are inappropriately stored in the cell. This leads to a variety of progressive mental and physical deterioration over time. Some patients survive into adulthood, but others with more severe symptoms or conditions die in their teens or earlier.

Table 26. Total Number and Incidence Rates of Other Adverse Pregnancy Outcomes in Newborn Infants, Illinois, 1995-1999

Defect	ICD-9-CM Codes	Cases	Rate ¹	95% CI ²	
				Lower	Upper
Neurofibromatosis	237.70 - 237.72	4	0.0	0.0	0.1
Retinopathy of prematurity	362.21	1,971	21.6	20.6	22.5
Chorioretinitis	363.20 - 363.22	4	0.0	0.0	0.1
Strabismus	378.00 - 378.9	22	0.2	0.2	0.4
Endocardial fibroelastosis	425.3	82	0.9	0.7	1.1
Occlusion of cerebral arteries	434.00 - 434.91	59	0.6	0.5	0.8
Intrauterine growth retardation	764.90 - 764.99	2,290	25.1	24.0	26.1
Cerebral lipidoses	330.1	0	0.0	0.0	0.0

¹ rate per 10,000 live births

² 95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

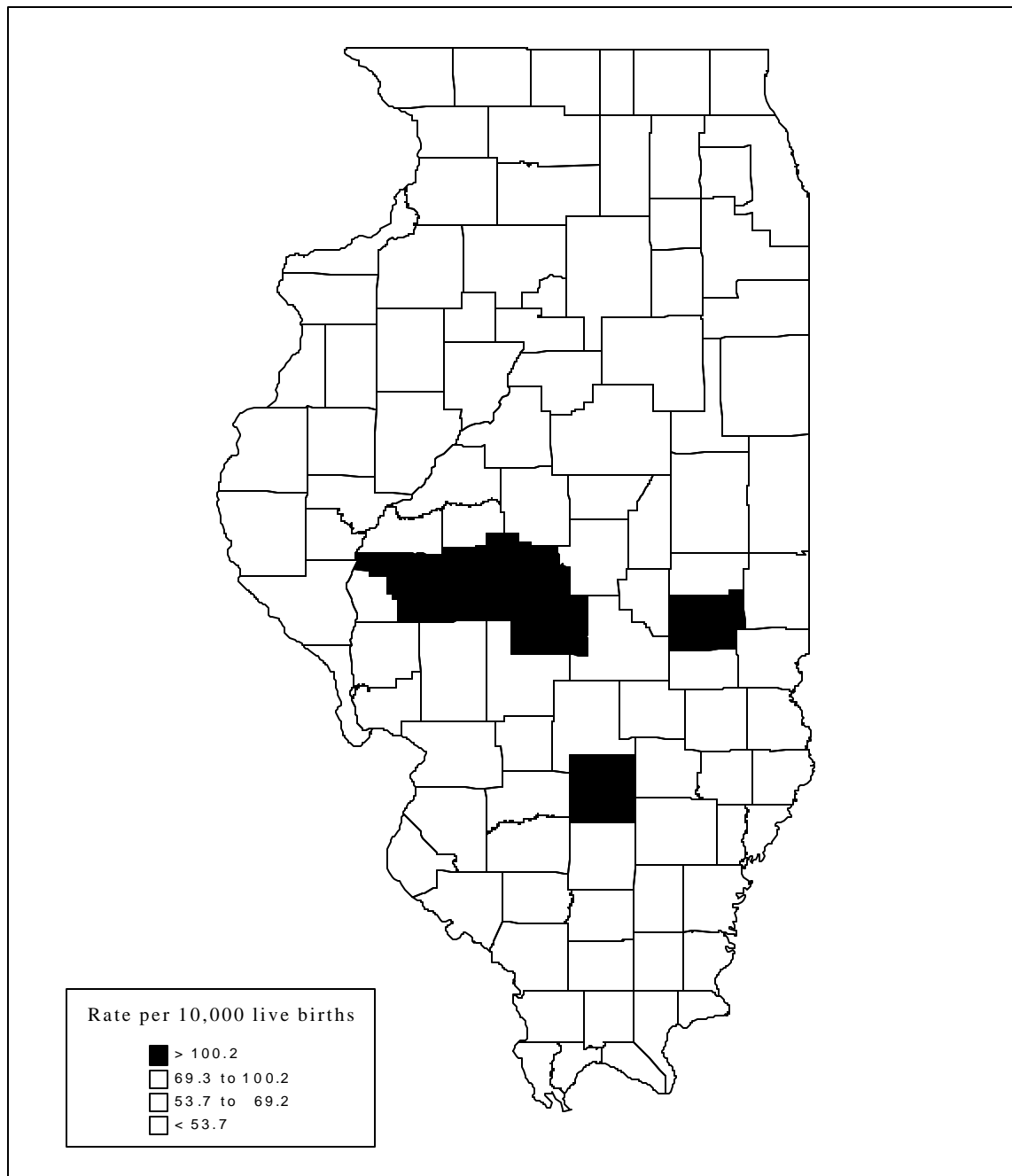
Table 27. Total Number and Incidence Rates of Other Adverse Pregnancy Outcomes in Newborn Infants, By County of Residence, 1995-1999

County	Cases	Rate ¹	95% CI ²		County	Cases	Rate ¹	95% CI ²	
			Lower	Upper				Lower	Upper
ILLINOIS	144	1.6	1.3	1.9	Lee	13	66.3	35.3	113.3
Adams	36	86.2	60.4	119.4	Livingston	16	69.5	39.7	112.9
Alexander	7	103.6	41.6	213.4	Logan	10	59.7	28.6	109.7
Bond	0	0.0	0.0	37.7	Macon	49	63.8	47.2	84.3
Boone	10	36.2	17.3	66.5	Macoupin	21	77.8	48.2	119.0
Brown	2	73.5	8.9	265.6	Madison	116	69.6	57.5	83.5
Bureau	9	44.2	20.2	83.9	Marion	50	184.5	136.9	243.2
Calhoun	2	84.0	10.2	303.6	Marshall	4	56.0	15.3	143.4
Carroll	3	33.7	7.0	98.6	Mason	11	117.5	58.7	210.3
Cass	7	79.5	32.0	163.9	Massac	0	0.0	0.0	41.8
Champaign	90	82.7	66.5	101.6	McDonough	0	0.0	0.0	25.1
Christian	21	100.3	62.1	153.3	McHenry	60	30.9	23.6	39.8
Clark	1	10.4	0.3	58.2	McLean	44	45.6	33.1	61.2
Clay	4	46.5	12.7	119.1	Menard	4	57.6	15.7	147.4
Clinton	19	95.0	57.2	148.4	Mercer	3	32.8	6.8	95.9
Coles	30	101.6	68.6	145.1	Monroe	1	6.4	0.2	35.6
Cook	1935	44.6	44.6	46.6	Montgomery	11	64.0	31.9	114.5
Crawford	1	9.1	0.2	50.6	Morgan	24	117.8	75.5	175.3
Cumberland	4	58.8	16.0	150.6	Moultrie	8	87.7	37.9	172.8
DeKalb	35	66.6	46.4	92.7	Ogle	17	56.6	33.0	90.7
DeWitt	6	60.7	22.3	132.2	Peoria	111	83.5	68.7	100.5
Douglas	14	97.5	53.3	163.6	Perry	6	51.1	18.8	111.2
DuPage	285	42.1	37.3	47.3	Piatt	3	32.2	6.6	94.0
Edgar	3	26.9	5.5	78.5	Pike	12	122.8	63.5	214.6
Edwards	0	0.0	0.0	104.5	Pope	0	0.0	0.0	189.2
Effingham	17	72.0	42.0	115.3	Pulaski	4	80.0	21.8	204.8
Fayette	14	107.5	58.8	180.4	Putnam	0	0.0	0.0	107.5
Ford	12	134.5	69.5	235.0	Randolph	9	47.8	21.8	90.7
Franklin	10	43.8	21.0	80.6	Richland	6	57.9	21.2	125.9
Fulton	10	48.7	23.3	89.5	Rock Island	48	49.2	36.3	65.2
Gallatin	1	31.1	0.8	173.0	Saline	8	52.4	22.6	103.2
Greene	1	11.0	0.3	61.1	Sangamon	132	106.2	88.9	125.9
Grundy	9	37.6	17.2	71.5	Schuyler	1	23.8	0.6	132.7
Hamilton	4	90.7	24.7	232.2	Scott	0	0.0	0.0	114.6
Hancock	8	75.0	32.4	147.9	Shelby	4	30.4	8.3	77.9
Hardin	2	81.6	9.9	294.9	St. Clair	145	76.3	64.4	89.7
Henderson	3	73.5	15.2	214.9	Stark	1	25.6	0.6	142.5
Henry	14	48.6	26.6	81.6	Stephenson	26	84.4	55.2	123.7
Iroquois	6	34.0	12.5	73.9	Tazewell	50	63.4	47.1	83.6
Jackson	12	35.2	18.2	61.6	Union	4	38.5	10.5	98.6
Jasper	2	33.5	4.1	121.0	Vermilion	31	53.7	36.5	76.2
Jefferson	10	43.1	20.7	79.2	Wabash	3	45.7	9.4	133.6
Jersey	10	82.5	39.6	151.7	Warren	4	36.7	10.0	94.0
JoDaviess	3	25.0	5.2	73.1	Washington	2	24.9	3.0	90.1
Johnson	1	17.3	0.4	96.4	Wayne	10	104.9	50.3	193.0
Kane	140	39.9	33.6	47.1	White	4	48.7	13.3	124.6
Kankakee	45	59.8	43.6	80.0	Whiteside	22	56.5	35.4	85.5
Kendall	16	43.5	24.9	70.7	Will	153	43.1	36.5	50.5
Knox	9	28.3	12.9	53.8	Williamson	14	40.2	22.0	67.4
Lake	111	21.6	17.7	26.0	Winnebago	135	69.3	58.1	82.0
LaSalle	25	36.6	23.7	54.0	Woodford	3	14.4	3.0	42.0
Lawrence	0	0.0	0.0	43.9	Unknown (Ill.)	0	0.0	0.0	1676.8

¹Per 10,000 births ²95% confidence interval for rate

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

Figure 10. Map of Incidence Rates¹ for Newborn Infants with Other Adverse Pregnancy Outcomes, By Selected Counties of Residence,² 1995-1999



¹ Rates per 10,000 live births

² Only counties with 16 or more cases are presented.

Source: Illinois Department of Public Health, Adverse Pregnancy Outcomes Reporting System, November 2001

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