Birth Defects in Kettleman City

One in every 33 babies is born with a birth defect, including structural defects, metabolic disorders, and some types of developmental disabilities. For this reason, California passed a law in 1982 to monitor birth defects. The California Birth Defects Monitoring Program (CBDMP) sends well-trained staff to hospitals to review medical records of all children born with a suspected birth defect. Information collected is included in the Registry. CBDMP uses these data to monitor trends and to help plan prevention strategies targeting known causes of birth defects, including tobacco smoking, alcohol consumption, diabetes, and vitamin deficiencies.

Background

In July 2009, the Kings County Health Officer responded to community concerns about a possible increase in birth defects in Kettleman City. To evaluate these concerns, the CBDMP was asked to review its Registry data to assess if there has been an increase in the expected number of birth defects, including cleft lip and palate.

Study Design

This study looks at birth defects in four areas: Kettleman City, Avenal (another city within close proximity to Kettleman City), Kings County, and the five southern Central Valley counties (Kings, Fresno, Kern, Madera and Tulare). These areas have been monitored by CBDMP since 1987. Data collection is complete for births occurring from 1987-2006 and is still in progress for births occurring from 2007-2008. The types of birth defects reviewed included Trisomy 13, Trisomy 18, Down syndrome, cleft lip, cleft palate, heart defects, neural tube defects, and specific urinary, intestinal, abdominal wall, and limb reduction defects.

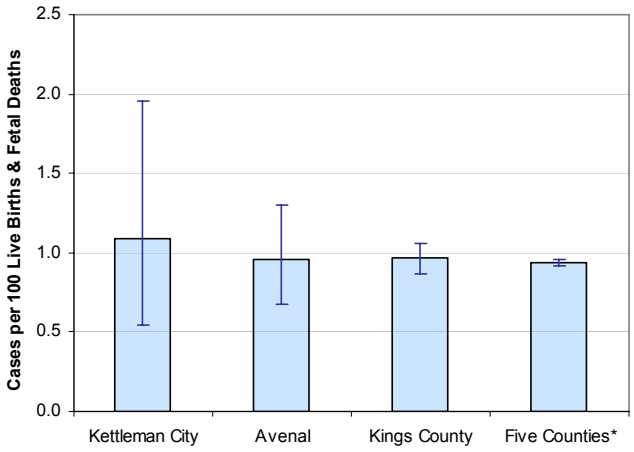
Summary

- There were no patterns among cases to suggest that there was a common underlying cause for the birth defects in Kettleman City.
- The overall birth defects rate in Kettleman City for the time period monitored (1987 - 2008) was not higher than expected.
- In 2008, four cases were identified in Kettleman City – one more than would be expected based on the historic pattern.
- In small populations, a grouping of birth defects can happen together by chance from time to time.
- Continued monitoring of births in Kettleman City will provide further information.

CBDMP reviewed Registry data for births occurring in the four areas. CBDMP followed a protocol developed to respond to community concerns (see the *Evaluating Small Areas* box on page 4). The data from Kettleman City and Avenal were compared to the greater county data as well as to data from all five southern Central Valley counties. CBDMP evaluated the rates of the specific conditions listed above. The rate is defined as the number of births and fetal deaths with defects divided by the total number of births and fetal deaths in an area during the same time period. CBDMP reviewed detailed medical case information to see if there were patterns suggesting a common underlying cause.

BIRTH DEFECTS GRAPH, 1987 – 2008

THE NUMBER OF LIVE BIRTHS & FETAL DEATHS WITH DEFECTS PER 100 LIVE BIRTHS & FETAL DEATHS (WITH 95% CONFIDENCE INTERVAL)



Note: The average number of births with birth defects will fluctuate more in areas with small numbers of births. Therefore, the lines on the graph represent the confidence interval, which is the most likely range within which the true average number of births with birth defects lies.

* Excludes 2008 births

BIRTH DEFECTS RATES

The overall rate of birth defects in Kettleman City throughout the period monitored (1987 - 2008) was not significantly higher than the rate in the other areas examined (see Birth Defects Graph and Table on pages 2 and 3). Because the population in Kettleman City is quite small, year-by-year rates may fluctuate and raise concerns where none may be warranted. The addition of a single birth with a birth defect will make the rate for that year appear much higher than usual.

- ***Could an increase in birth defects be a cluster?***

A cluster is more than the expected number of cases of a birth defect in a specific area and period of time than would be expected based on comparison with past rates. Birth defects, like other health outcomes, often occur in clusters. However, most clusters happen by chance and are due to normal fluctuation of birth defects rates over time. In areas with small populations, the rate of birth defects tends to fluctuate more than in areas with larger populations, since small changes in the number of cases can create large changes in the rates.

- ***Was the overall birth defects rate higher than expected?***

Even though annual fluctuations are often seen in areas of small population size, the overall rate in Kettleman City, Avenal, Kings County, and the five southern Central Valley counties fell within the same range for the 22 year period (see Birth Defects Graph and Table on pages 2 and 3). Due

to the small number of births in Kettleman City, year-by-year rates of birth defects cannot be accurately evaluated. Annual changes may reflect normal patterns. CBDMP will continue to monitor birth defects in Kettleman City and Kings County to determine if further investigations are warranted.

- *Were specific conditions elevated?*

The rates of the specific types of birth defects reviewed (Trisomy 13, Trisomy 18, Down syndrome, cleft lip, cleft palate, heart defects, neural tube defects, and specific urinary, intestinal, abdominal wall, and limb reduction defects), either evaluated as part of a syndrome or seen alone, were not higher than expected. A syndrome is a condition with a collection of abnormalities often seen together. When an abnormality occurs as part of a syndrome, this may indicate a different underlying reason for that birth defect. There were no patterns among cases to suggest there was a common underlying cause for birth defects in Kettleman City.

- *How can you tell if the birth defects are related to an environmental condition?*

This question cannot be answered simply by reviewing rates or cases. Finding environmental causes of birth defects requires well-controlled studies of specific exposures. One of the hallmarks of a teratogen – an environmental cause of birth defects – is that it will produce a distinctive, characteristic pattern of malformations. CBDMP reviewed the cases of birth defects in Kettleman City and Avenal, including a detailed review of the cleft lip and palate cases from 1987 through 2008, to see if there were similarities suggesting a single underlying cause. However, the types of birth defects and syndromes in Kettleman City do not appear unusual or show any obvious connection.

BIRTH DEFECTS TABLE
1987 – 2008

THE NUMBER OF LIVE BIRTHS & FETAL DEATHS WITH DEFECTS
PER 100 LIVE BIRTHS & FETAL DEATHS
(WITH 95% CONFIDENCE INTERVAL)

Kettleman City	1.09	(0.55 – 1.96)
Avenal	0.95	(0.68 – 1.3)
Kings County	0.96	(0.87 – 1.06)
*Five-County Region	0.94	(0.92 – 0.96)

Note: The rate (or percentage) of births with birth defects will fluctuate more in areas with small numbers of births. Therefore, the confidence interval is used as the most likely range within which the true rate (or percentage) of birth defects lies.

* Excludes 2008 births

ADDITIONAL REVIEWS

The California Department of Public Health (CDPH) also reviewed cancer cases and asthma hospitalizations in Kettleman City and found no elevated risk or unusual patterns. CDPH reviewed drinking water testing data for the Kettleman City public water system and found naturally occurring arsenic levels to be elevated similar to findings in many well water sources in the county, region and across the state (the system treats water to remove

benzene contamination possibly due to historic oil drilling in the area).

Causes of Birth Defects

Although the causes of many birth defects are unknown, families should be aware of associated risk factors. Some of the major known causes of birth defects include smoking, alcohol consumption, infections, vitamin deficiencies, use of certain medications, and poorly controlled diabetes during pregnancy. To learn more about birth defects, please visit our website at www.cdph.ca.gov/programs/CBDMP

Preconception & Prenatal Care

All women who could become pregnant should consult with a health care provider regarding preconception health care, especially if there are concerns about birth defects. By taking action on specific health issues and/or risk factors before pregnancy, future problems for the mother and the baby might be prevented. Getting early and regular prenatal care also promotes a healthy pregnancy. Please see the following guidelines for steps to reduce the risk of birth defects: http://www.cdph.ca.gov/programs/CBDMP/Documents/MO-CBDMP-ReducingtheRisk.pdf

Evaluating Small Areas

The California Birth Defects Monitoring Program does not routinely analyze data from small areas such as zip codes. However, CBDMP has developed a protocol to respond to specific community concerns about the environment.

The protocol looks for hallmarks seen when an environmental agent might be the cause of birth defects in the first year of life. These might include a dramatic increase in a specific condition, a characteristic pattern of defects, and an exposure in common.

The protocol can uncover major birth defects problems, but generally cannot determine if environmental conditions are causing birth defects. For this, sizeable studies with accurate exposure information are needed.

Steps for assessing birth defects in small areas include:

- Identifying data from the Registry that have been collected from the hospitals in the area of concern.
- Comparing the area's overall birth defects rate to county and regional rates.
- Examining rates of specific birth defects which are common and likely to be diagnosed in the first year of life.
- Examining rates of other specific conditions if past scientific studies suggest possible links to the environmental exposure of concern.
- Reviewing cases to look for similarities or recurring patterns of defects.

If a problem is identified in the small area evaluation, a cluster investigation might be recommended. Cluster investigation steps include receiving protocol approval from the California Committee for the Protection of Human Subjects, conducting interviews, and evaluating epidemiologic data.

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Birth Defects in Kettleman City and Surrounding Areas 2009-2011 Update

INTRODUCTION

This document is an update to the February 2010 California Department of Public Health report, "Birth Defects in Kettleman City", which included data for births occurring in 1987-2008. The current report includes completed data for births occurring in 2009 and preliminary data for births occurring in 2010 and 2011. In addition to Kettleman City, nearby and surrounding areas were included as references for comparison.

BACKGROUND

Realizing the impact of birth defects on families and their communities, in 1982 the California legislature established the California Birth Defects Monitoring Program (CBDMP) within what is now the California Department of Public Health (CDPH) *(California Health and Safety Code Section 103825).*

In response to community concerns about a possible increase in birth defects in Kettleman City, a small community (population 1,439 in 2010) in Kings County, CDPH released the report "Birth Defects in Kettleman City" in February 2010. (www.cdph.ca.gov/programs/CBDMP/Documents/MO-CBDMP-KettlemanCityReport.pdf) The report covered birth defect cases where the mother's residence at the time of the birth was in Kettleman City, Avenal, Kings County and five Central Valley counties (Kings, Fresno, Kern, Madera and Tulare) for birth years 1987 through 2008.

SUMMARY

- The rates of birth defects in Kettleman City in 2010 and 2011 appear to be returning to the rates seen prior to 2008.
- CDPH has reviewed the Birth Defects Registry data collected from Kettleman City and has not found a common cause for the birth defects.
- CDPH will continue to monitor birth defects in Kettleman City and Kings County.

*see Glossary

CDPH analyzed birth defects data in its Birth Defects *Registry**, including a detailed review of the cleft lip and palate cases, which were of particular concern in the community, to see if there were similarities suggesting a single underlying cause. CDPH found that the types of birth defects and *syndromes** in Kettleman City did not appear different from birth defects usually seen by CDPH and similar monitoring programs elsewhere.

The California Environmental Protection Agency (Cal/EPA) and CDPH conducted additional investigations and released a report of their findings in December 2010. (www.calepa.ca.gov/EnvJustice/Documents/2010/KCDocs/ReportFinal/FinalReport.pdf) The report included information from interviews with six mothers of children with birth defects, as well as analyses of the air, water and soil in Kettleman City for possible environmental contaminants. The investigations did not find a specific cause or environmental exposure that would explain why the birth defects occurred. The residence criteria used to determine inclusion in the maternal interview component of the investigations were not the same as the residence criteria used for the Birth Defects Registry. Specifically, mothers of children with birth defects who had not resided in Kettleman City at the time of the baby's birth, but who might have lived there during their pregnancy and wanted to be included in the study were eligible to be interviewed.

For the CDPH Birth Defects Registry, the maternal address as reported on the California live birth or *fetal death** certificates is used to determine residence. Therefore, not all cases included in the interview component of the investigations are included as Kettleman City cases in the CDPH report, but appear in the Birth Defects Registry as residents of another community in California. The "Determining Residence for Inclusion in the Birth Defects Registry" section of this report further describes the Registry's processes for determining residence.

Birth Defects Registry Data Collection Methods

CDPH collects data through a child's first year of life because most *structural birth defects** are recognized within that time period. Data collection staff identify possible cases of birth defects by reviewing logs and discharge reports at hospitals and genetic offices in the counties monitored. The medical records of all children born with suspected birth defects are then reviewed for inclusion in the Birth Defects Registry. Examples of conditions not included in the Birth Defects Registry are *metabolic disorders**, autism, low birth weight and certain types of inherited diseases (such as muscular dystrophy), and some types of mental retardation and cerebral palsy.

Medical records usually are not reviewed until six months after the child is released from the hospital in order to allow time for all records to be completed and available in the chart. The number of birth defect cases for any given year is not final until data collection is complete for the birth year and the data are linked to the California live birth and fetal death certificates.

*see Glossary

Data Collection Limitations

CDPH reviews the medical records of all live births and pregnancy losses from inpatient hospitals with obstetric or pediatric services, genetic offices and specialized laboratories in the counties monitored. CDPH currently monitors 10 California counties including Kings County. In addition, limited data collection occurs in counties where children may be referred for specialty care outside of the counties monitored by CDPH. Births occurring at military facilities are excluded from the Birth Defects Registry.

Determining Residence for Inclusion in the Birth Defects Registry

When reviewing the data included in this report, it is important to understand how CDPH determines the residence of the cases. Address information included in the Birth Defects Registry is the mother's residence as reported on the California live birth or fetal death certificates. For births occurring in 2009-2011, the mother's address recorded in the medical record birth admission or her reported address closest to the time of birth is used to determine residence for the birth. These three years have not yet been linked to California live birth and fetal death certificates. The Birth Defects Registry data for 2009 will be linked to the live birth and fetal death certificates by July 2012. Linkage for births occurring in 2010 and 2011 will be performed when data collection is final.

Birth Defects In Kettleman City

For this update report, CDPH staff analyzed information collected on infants born with birth defects from 2009-2011 in Kettleman City, Avenal, and five Central Valley counties (Fresno, Kern, Kings, Madera, and Tulare). These areas are nearby or surrounding Kettleman City and were chosen for comparison purposes. All of them have been monitored by CDPH since 1987. The types of birth defects reviewed included *chromosomal defects**, cleft lip, cleft palate, heart defects, neural tube defects, and specific eye, ear, urinary, intestinal, abdominal wall, and limb reduction defects.

Five cases of children with structural birth defects were identified in Kettleman City over the three-year period from 2009-2011. The data for births in 2010 and 2011 are preliminary. Data collection for births occurring in 2010 and 2011 will be ongoing until approximately June 2012 and June 2013, respectively.

To protect the identities and confidentiality of the children and families included in the Birth Defects Registry, we usually look at rates. The rate is defined as the number of births and fetal deaths with defects divided by the total number of births and fetal deaths in an area during the same time period. For this report the rates of birth defects are calculated for every 100 infants born. In small communities, such as Kettleman City, the numbers of cases are often less than 20. Rates based on fewer than 20 events can vary considerably based on small changes in the number of cases from year to year.[1]

Rates typically vary over time. To get a more thorough understanding of the rates of birth defects in Kettleman City, Kings County and five Central Valley counties, CDPH staff reviewed Birth Defects Registry data for births occurring in 1987-2011. During time

*see Glossary

periods 1992-1999 and 2002-2005, the two-year prevalence rates in Kettleman City were lower than the other areas. During the time periods 1987-1991, 2000-2001, and 2006-2011, the two-year prevalence rates in Kettleman City were higher than the other areas (see **Table 1**).

Table 1. Two-Year Rates of Birth Defects for Live Births and Fetal Deaths (per 100 Births)

Year/Area	Kettleman City	Avenal	Kings County	5 Valley Counties*
1987	2.22	2.44	0.89	0.89
1988-1989	2.00	0.36	1.00	1.02
1990-1991	1.68	0.56	0.85	0.92
1992-1993	0	0.29	0.80	0.90
1994-1995	0	1.36	0.89	0.98
1996-1997	0	0.53	0.96	0.87
1998-1999	0	1.53	0.98	0.95
2000-2001	1.19	1.07	0.91	0.90
2002-2003	0	1.07	1.19	0.86
2004-2005	0	0.50	1.01	1.02
2006-2007	1.39	0.86	1.01	1.02
2008-2009**	8.51	2.31	1.53	1.05
2010-2011***	1.79	1.10	0.71	0.54

* 5 Valley Counties are Kings, Fresno, Kern, Madera, and Tulare
** 2009: Data collection is complete but not yet linked to California live birth and fetal death certificates
*** 2010 & 2011: Data collection is ongoing

Looking at the pattern of rates in Kettleman City over time, the rates in 2010 and 2011 appear to be returning to the lower rates seen in Kettleman City in the years prior to 2008-2009. CDPH will continue to monitor birth defects in Kettleman City and other areas to determine if further investigations are warranted.

CDPH reviewed the types and combinations of birth defects seen in Kettleman City and they were not different from those typically found by birth defects surveillance programs. Some children had multiple abnormalities while others had a single birth defect. All of the birth defects represent different underlying conditions, although a few share some features, such as facial clefts, which are common in syndromic birth defects, for example *Trisomy** 13. (A syndrome is a set of birth defects or features that tend to occur together and which reflect the presence of a particular genetic condition).

Nationally, about one in every 33 babies is born with a birth defect,[2] including structural defects, chemical disorders, and some types of mental retardation and cerebral palsy. Birth defects cause 1 in 5 infant deaths every year. Apparent *clusters** of birth defects

*see Glossary

may occur by chance. Because birth defects occur more frequently than is commonly realized, normal patterns of occurrence may seem excessive. More information about specific birth defects can be found at www.cdph.ca.gov/programs/cbdmp, www.cdc.gov/ncbddd, and www.marchofdimes.com.

SUMMARY

There was an increase in the rate of birth defects in Kettleman City in 2008 and 2009. The rates in 2010 and 2011 appear to be returning to the lower rates seen in Kettleman City prior to 2008. CDPH program staff have thoroughly reviewed the data collected in Kettleman City and have not found any patterns among cases to suggest that there was a common underlying cause for the birth defects. CDPH will continue to monitor birth defects in Kettleman City and Kings County.

*see Glossary

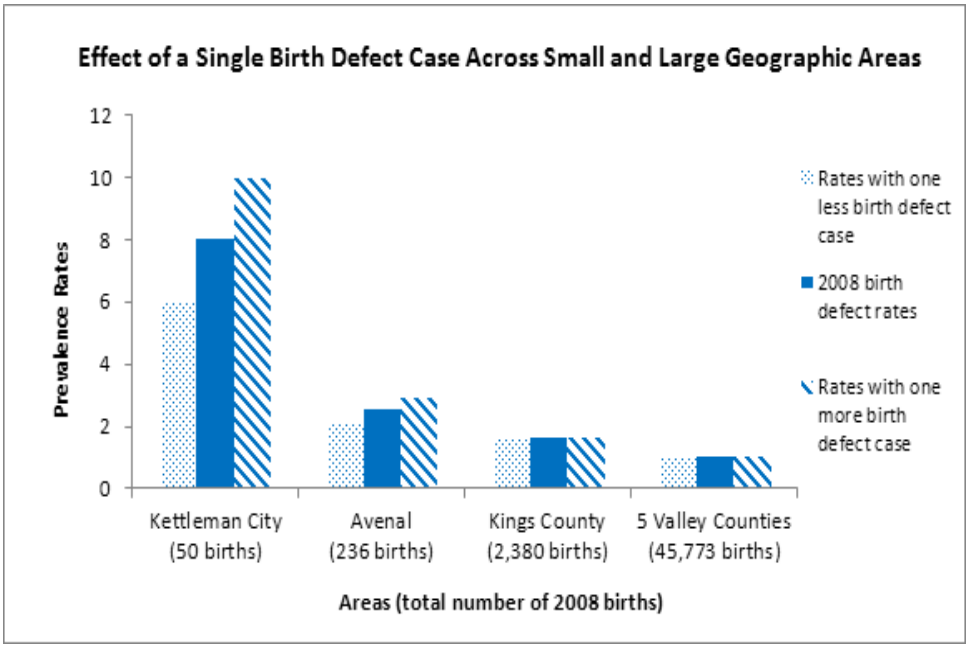
TECHNICAL NOTES

SMALL POPULATION

In any population, a grouping of birth defects can happen by chance. Each birth defect is an important and significant experience for the family, and often for the whole community. Because Kettleman City is a small community (population 1,439 in 2010), year-by-year rates may fluctuate greatly. The addition of a single birth with a birth defect will make the rate for that year appear much higher than usual. Or, if one less child is born with a birth defect in a particular year, the rate may appear much lower than usual.

An example of how rates can vary widely when they are based on small populations is depicted in **Figure 1**. The rates for 2008 (solid bar) are based on actual data. The striped bar and dotted bar show what happens to the rate with the addition or subtraction of one birth defect from the actual numbers. When comparing the three bars for Kettleman City, it appears there is a large increase or decrease in the number of birth defects cases, but in fact this is not true. However, when the population size is bigger, for example in Kings County and five Central Valley counties combined, rates are much less variable; the addition of a single birth defect case does not make a noticeable difference. Some agencies consider rates based on fewer than 20 events to be statistically unreliable and should be interpreted with caution. Such rates might not truly reflect what is happening because of the small numbers of cases involved.[1] When rates are based on only a few cases, it is almost impossible to distinguish random fluctuation from the true changes in the underlying risk of birth defects.

Figure 1



*see Glossary

COMMON BIRTH DEFECTS IN THE U.S., RISK FACTORS, AND PREVENTION

The causes of many birth defects are unknown. They may not be caused by anything the parents did or didn't do. Babies with birth defects can be born anywhere and into any family.

Current scientific knowledge about the causes of birth defects suggests the risk of having a birth defect may be increased due to a number of conditions, especially if they occur together. All of the following may contribute to the risk of birth defects: mother's health before and during pregnancy; mother's, father's and baby's genes; and environmental exposures. Some birth defects even have risks associated with the mother's age during pregnancy. Gastroschisis, a condition in which the intestines are outside the body, is more likely to affect babies born to young mothers in their late teens and early twenties. By contrast, the risk for having a baby with chromosome problems (such as the trisomies) increases with maternal age, especially after age 34. For example, the approximate risk for having a baby with Down syndrome is 1 out of 1000 at 28 years of age, and 1 out of 65 at age 42. Many pregnancies with chromosome problems are also lost as miscarriages.

Orofacial clefts, such as cleft lip and palate, happen when the lips, mouth, and/or roof of the mouth do not form properly. They are some of the most common birth defects, occurring in about 1 out of every 700 births. Orofacial clefts may be part of a group of features that regularly occur together and appear to have a related cause (syndromic) or occur alone (isolated). There are over 250 known syndromes which include clefting. Syndromic clefts are commonly associated with certain chromosomal abnormalities, such as Trisomy 13. Approximately 15% of all babies with syndromic oral clefts die before one year of age, usually because of the associated birth defects. Smoking has been shown to increase the risk of oral cleft defects.[3]

Neural tube defects (NTDs) are some of the most common birth defects and occur when the brain or spine does not develop properly early in pregnancy. One type of NTD (anencephaly) is always fatal. There are risk factors which can increase the chance of having a baby with an NTD, and for unknown reasons they are seen more often in women living in Mexico, or Mexican-born women in the U.S.[4] Obesity increases the risk of having a baby with a neural tube defect.[5] Studies have shown that taking folic acid during the childbearing years can reduce the incidence of NTDs by up to 70%.

Heart defects are the most common birth defect. They are not always recognized at birth and some holes in the heart may heal with time. However, others require specialist medical care and surgical repair. They account for more than half of all hospital costs for birth defects in the U.S. -- about $1.4 billion in 2004. This is also the birth defects category with the highest death rate.[6] Every year, scientists identify more gene changes associated with heart defects. Some types of heart defects are seen less often when women take folic acid before and during pregnancy.[7]

*see Glossary

GLOSSARY

Birth Defects Registry	The database used to store data about live births and pregnancy losses affected by birth defects in California.
Chromosome defects	Chromosomes are packages containing the genes, located in every cell of the body. Normally, humans have 46 chromosomes – half come from the mother and half from the father. Extra or missing chromosomes – or even parts of chromosomes – generally result in multiple birth defects and mental retardation.
Cluster	More than the expected number of cases in a population group for a defined geographic area and for a specific time period.
Fetal death (CDPH definition)	Pregnancy loss with birth defects occurring at any gestational age.
Fetal death (vital statistics definition)	Pregnancy loss occurring at or after 20 weeks gestation.
Metabolic disorders	A disease or disorder that disrupts normal metabolism, which is the process of converting food to energy on the cellular level. Usually the affected person cannot create, use or dispose of specific substances in the body properly – leading to a variety of physical problems.
Prevalence Rates	The number of cases with a particular reportable birth defect divided by the total number of live births and fetal deaths for the specific year of interest. The number is then multiplied by 100 to determine the rate per 100 births.
Structural birth defects	Problems in prenatal development affecting the body structure whether external (for example, cleft lip or missing limbs) or internal (such as heart defects, kidney defects). Also called malformations.
Syndrome	A set of birth defects or features that tend to occur together and which reflect the presence of a particular genetic condition.
Trisomy	Normal human cells have 46 (23 pairs of) chromosomes; a trisomy occurs when an individual has 3 copies of a chromosome instead of the usual pair, often resulting in structural birth defects and mental retardation. The most common trisomy has an extra 21 chromosome (Trisomy 21 or Down syndrome); Trisomy 13 (Patau syndrome) and Trisomy 18 (Edwards syndrome) are also relatively common.

*see Glossary

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*see Glossary

QUESTIONS & ANSWERS

Has the number of birth defects decreased or increased in Kettleman City since 2009?

In the two most recent years (2010 and 2011), the birth defects rate for Kettleman City has been lower than in 2008 and 2009. Although we are still collecting data for births in 2010 and 2011, we have seen the rates of birth defects in Kettleman City returning to the lower levels or rates seen before 2008. A rate compares the number of children born with birth defects to the total number of children born in the same area.

How many birth defects cases has CDPH collected since 2009 for Kettleman City?

Five cases of children with structural birth defects were identified in Kettleman City over the three-year period from 2009-2011. The data for births in 2010 and 2011 are preliminary. Data collection for births occurring in 2010 and 2011 will be ongoing until approximately June 2012 and June 2013, respectively.

How is information being collected about birth defects in Kettleman City?

We review the medical records of all live births and pregnancy losses from hospitals, clinics, genetics offices, and certain laboratories in the counties we monitor. We collect information through the first year of a baby's life because some birth defects are not recognized until months after the baby is born. However, the Birth Defects Registry does not include all conditions. Examples include autism, low birth weight, some types of mental retardation and cerebral palsy, and certain types of inherited diseases (e.g., muscular dystrophy). It is important to note that information about Kettleman City in the Birth Defects Registry only includes cases of babies whose mothers had a home address in Kettleman City at the time of birth.

Is the number of birth defects in Kettleman City higher than in other areas of the county?

The rate of birth defects in Kettleman City has varied over time. Sometimes we find increases and decreases in birth defects for no apparent reason. During time periods 1992-1999 and 2002-2005 the two-year prevalence rates were lower than the other areas. During time periods 1987-1991, 2000-2001, and 2006-2011, the rates of birth defects in Kettleman City were higher than the other areas. The rates in the two most recent years (2010 and 2011) appear to be returning to the lower rates seen in Kettleman City prior to 2008-2009.

What caused the increase of birth defects in Kettleman City in 2008 and 2009?

The extensive investigation of the birth defects that the California Department of Public Health (CDPH) and the California Environmental Protection Agency conducted in 2010 did not find a specific explanation or cause for the increase in birth defects. We will continue monitoring birth defects in Kettleman City and Kings County.

*see Glossary

CDPH agreed to help Kettleman City get a new source of drinking water. When is that going to happen?

CDPH has been working with the local water district (the Kettleman City Community Services District, or KCCSD) and Kings County to find a solution to ensure drinking water meets all standards. The initial planning work has been completed. The next step will involve studies to make the final selection of the most cost-effective treatment process that minimizes future Operation and Maintenance (O&M) costs. At the same time, the county will be working with KCCSD to identify long term support for operation expenses. When these issues have been addressed, CDPH will be working with KCCSD on a construction funding agreement. A critical issue for the construction funding is affordability, or what it will cost the community to operate the treatment system once it is built.

Where can I get more information or ask questions about birth defects in Kettleman City or in other areas of Kings County?

To learn more about birth defects, please visit the Birth Defects Registry website at www.cdph.ca.gov/programs/CBDMP. Questions related to birth defects in Kettleman City or Kings County can be directed to mchinet@cdph.ca.gov (include CBDMP or birth defects in the subject line), or contact Tivo Rojas-Cheatham at (510) 620-3673. You can find a copy of these reports at the Kettleman City post office, elementary school, community center, and the branch library.

*see Glossary