# 2006 STANISLAUS COUNTY INFANT MORTALITY STUDY FINDINGS: A HANDOUT SUMMARIZING WHAT WAS DONE AND FOUND


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**What is infant mortality (IM)?**

- Measure of the health of a society or community
- Infant mortality rate definition: number of deaths of infants less than 1 year of age per 1,000 live births

**What are the top 5 leading causes of IM[1]?**

- Congenital malformations
- Disorders relating to short gestation (<37 weeks) and low birth weight (<2500 grams)
- Sudden Infant Death Syndrome (SIDS)
- Maternal complications of pregnancy
- Accidents (unintentional injuries)

**What are national trends regarding infant mortality?**

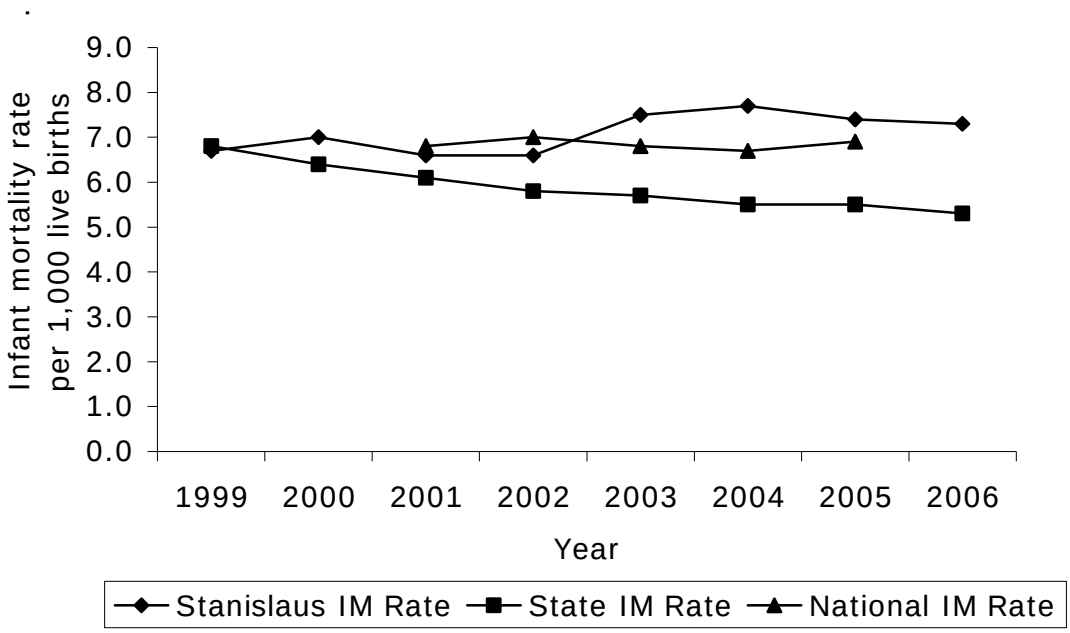
- The infant mortality rate has either decreased or remained steady from 1958-2004, with the exception of a spike in 2002[1]
- Infant mortality rates for Hispanics (5.6) was not statistically different than non-Hispanic Whites (5.7) [2]
- Congenital malformations, low birthweight, and SIDS account for 45% of all infant deaths nationally[2]
- Infants born between 34-36 weeks of gestation had infant mortality rates 3 times higher than those born between 37-41 weeks[1]
- Fetal mortality rate is the number of fetal deaths (at 20 weeks or greater gestation) per 1,000 live birth plus fetal deaths. Fetal deaths, or stillbirths, show no signs of life at or after birth. From 1990-2000, the National fetal mortality rate decreased by 12%[4]
- The infant mortality rate for multiple births (30.5) was more than 5 times higher than the rate of singleton births (5.9) [2]

**How does our county fare compared to the State and Nation?**

Stanislaus County's Health Status Profile for 2007 (based on Birth/Death Certificate Data from 2004) states:

- Out of 58 Counties in California, Stanislaus ranks (58$^{th}$ being the worst):
    - 47$^{th}$ worst for overall Infant Mortality
    - 43$^{rd}$ worst for White infant Deaths
    - 56$^{th}$ worst for Hispanic infant deaths
    - 40$^{th}$ worst for Black infant deaths
- The graph below shows that the IM rate is decreasing in California while the rate is increasing in the county. The County IM rate is also higher than the National IM rate. The national objective according to Healthy People 2010 for Infant Mortality is 4.5 deaths per 1,000 live births.

**Infant Mortality Rates for Stanislaus, California & the Nation (1999-2006)***




*Source: California Department of Public Health, Center for Health Statistics. Birth and Death Statistical Master Files, 2003-2005, and Birth Cohort-Perinatal Outcome Files, 2002-2004

**How do we compare to the State and Nation on infant mortality by race?**

- Stanislaus County's infant mortality rate is higher for Hispanics and Whites than the State and National rate as shown below.

**2007 County, State & National Rate***

| | County Rate | State Rate | National Rate |
|---|---|---|---|
| Overall | 6.8 | 5.4 | 6.8 |
| White | 6.5 | 4.6 | 5.7 |
| Hispanic | 7.1 | 5.2 | 5.6 |

* Based on 2001-2003 Birth/Death Certificate Data

**How do we compare to the State and Nation on the leading causes of infant mortality?**

**Causes of Infant Mortality - Nation, California, Stanislaus**

| | National | California | Stanislaus |
|---|---|---|---|
| Congenital Malformations | 20.1% | 23.9% | 22.6% |
| Immaturity | 16.6% | 15.7% | 18.9% |
| SIDS | 8.0% | 5.9% | 3.8% |
| Maternal Complications | 6.1% | 9.2% | 5.8% |

*CA and County based on 2001-2003 Birth/Death Certificate Data; Nation[1]

- Stanislaus County has a slightly higher percentage of deaths from congenital malformations than the Nation but less than the state.
- Stanislaus County has a higher percentage of infant deaths caused by immaturity than the state and the nation.

- Stanislaus County has a smaller percentage of infant deaths caused by SIDS and Maternal Complications than the state and the nation.

**How do we rank in terms of infant mortality and other related indicators to our immediate geographical county neighbors?**
The ratings below compare our county to the 57 other counties of California with 1 being the best and 58 being the worst. A higher rating indicates that the county is doing poorer than other counties.

**Health Status Ranking of Stanislaus and Immediate Geographical Neighbors, 2006**

| Heath Status Indicator | Stanislaus | San Joaquin | Merced | Tuolumne | Santa Clara |
|---|---|---|---|---|---|
| Infant Deaths | | | | | |
| All Races | 53 | 52 | 43 | 6* | 14 |
| Asian/Other | 23* | 32* | 48* | 12* | 24 |
| Black | 34* | 56* | 36* | 17* | 31* |
| Hispanic | 48 | 47 | 46* | 39* | 29 |
| White | 56 | 46 | 34* | 8* | 10 |
| Low Birthweight | 38 | 46 | 37 | 3 | 36 |
| Late or No PNC | 21 | 52 | 58 | 7 | 17 |
| Adequate/Adeq. plus PNC | 47 | 55 | 58 | 22 | 24 |
| Births to Mothers age 15-19 | 46 | 49 | 50 | 15 | 19 |
| Breastfeeding Initiation | 48 | 49 | 43 | 24 | 26 |
| Poverty (<18 years) | 36 | 38 | 54 | 24 | 7 |

*Sample size too small for statistical significance

In summary, our county ranks high, implying poorer prenatal and infant outcomes than other counties. However regarding late or no prenatal care, our county ranks 21 out of the 58 counties which does not correspond with our worst ratings for infant deaths and adequate prenatal care. This implies that women in our county are entering prenatal care during the first trimester and getting prenatal care but may not continue their prenatal care.

**What did we do? What are the different components of the study?**
To better understand our county's infant mortality problem and factors associated with the high infant mortality rate, the Stanislaus County Children and Families Commission funded a study to examine this issue in 2005. Before prevention programs can be planned to reduce the infant mortality rate, the nature of the problem must be understood. This year's study is the continuation of last year's study with the added element of chart abstraction on a control group of healthy births so that comparisons could be made between those experiencing a fetal/infant death and those with healthy birth outcomes.

The study team used a comprehensive approach including a variety of different research methods. These research methods were both retrospective (looking into the past, i.e. analysis on the birth/death cohort data and chart abstraction) and prospective (looking forward, i.e. interviews). The findings from all sources were combined to better understand the infant mortality problem in our county. Below

you will find the different research methods that this study utilized in 2006. Each of these research activities and its accompanying findings are later explained in detail.

- Preliminary analysis of current birth/death cohort data
- Chart abstraction of Fetal/Infant deaths from 2006
- Chart abstraction of healthy births from 2006
- Fetal Infant Mortality Review (FIMR) Interviews

For last year's findings please refer to the handout, "Stanislaus County Infant Mortality Study Findings: A Handout Summarizing What was Done and Found."

**Summary of Study Methods 2005-2006***

| | 2005** | 2006 |
|---|---|---|
| Retrospective | Chart Abstraction: fetal/infant deaths only | Chart Abstraction: fetal/infant deaths **and controls** |
| | Analysis of current birth death cohort data | Analysis of current birth death data |
| Prospective | Fetal/Infant Mortality Review Interviews | Fetal/Infant Mortality Review Interviews |
| | Focus Groups | |
| | Trend Analysis Report | |

*Change from 2005-2006 is reflected in bold.

**Findings from these research activities are presented in last year's handout

## Preliminary Analysis of Birth/Death Cohort Data

### What is preliminary analysis of birth/death cohort data?

- Birth death cohort data from 2003 was analyzed. This data is comprised of information from birth/death certificates that is sent to and compiled by the state. This data include all live births (babies who did not die within a year of birth) and fetal and infant deaths that occurred during the calendar year, as well as infants born during that calendar year and subsequently died within 12 months. The time frame for which the current year's data becomes available is 2-3 years after the current year. Therefore, at the time this analysis was done, the most recent data available was 2003.

### What are the major findings from the preliminary analysis of birth/death cohort data?

- Routine medical practice recommends that pregnant women seek prenatal care during their first trimester and continue thereafter.
- 80% of fetal deaths, 83.5% of live births, and 71.9% of infant deaths are initiating prenatal care during the first trimester. Those mothers experiencing a fetal or infant death are more likely to give birth prematurely and their babies are of low birth weight.
    - Adequate prenatal care is calculated using the Kessner Index, which recommends a specific number of prenatal care visits based on gestational age. This measure assesses quantity, not quality, of visits. Prenatal care is considered adequate when care begins in the first trimester and the total number of visits equal or exceed what would be expected for the infant's gestational age at birth. Three quarter of

mothers who have had a fetal or infant death had adequate prenatal care, compared to 83% of mothers who had a live birth.
    - Premature births occur before 37 weeks of gestation. Eighty six percent of fetal deaths and 67.3% of infant deaths are premature. Only 12% of live births are premature. Seventy-two percent of fetal and 57.1% of infant deaths occur before 32 weeks of gestation. Only two percent of live births occur before 32 weeks of gestation.
    - Low birth weight babies are less than 2500 grams. Almost all of fetal deaths (91.2%) and close to three quarters (73.6 %) of infant deaths are low birth weight, while only 5.1% of live births are low birth weight.

**What are the limitations of using Birth/Death Certificate data?**

There are limitations to using the above data source. The limitations include:

- Limited information available (no information on mother's living conditions and sparse to no information on mother's medical history and prenatal care)
- Accuracy of data is questionable (reason for death or when mother began prenatal care and how many prenatal visits she made may be inaccurately coded)

**Chart Abstraction of Fetal/Infant Deaths From 2006**

**Who did we do chart abstraction on and how did the team get the study population?**

- The team requested 2006 medical records for fetal/infant deaths from hospitals in Stanislaus County. Prenatal records were not always in the chart.
- The team ensured the completeness of 2006 fetal/infant deaths by reviewing obituaries and death certificates from Vital Records for 2006.
- To be included in the 2006 chart abstraction, mothers had to meet the following criteria:
    - At least 22 weeks gestation
    - Resided in our county for most of pregnancy
    - Fetus or infant weight over 500 grams

**What information was examined during the chart abstraction?**

- Charts were reviewed for information on demographics, maternal medical history, prenatal care, complications during delivery, birth information, self reported use of drugs and alcohol, and laboratory toxicology drug tests. Findings were grouped according to whether they were a fetal death or infant death. Infant deaths were further separated into those infants surviving > 24 hours and those surviving < 24 hours. Please refer to the numbers below when reviewing the findings. The sample size for the above categories are as follows:
    - Overall study sample size = 75 cases
    - Fetal sample size = 27 cases
    - Infants Deaths surviving < 24 hours sample size = 20
    - Infants Deaths surviving > 24 hours sample size = 28
- To be able to compare the findings of women experiencing a fetal/infant death to those having health births, the hospital records were abstracted for

a control group of women having healthy births. Similar information to that which was collected from the study group was abstracted from the control group. The team requested a chart of a healthy birth for each fetal/infant death. For example if a particular hospital had five fetal/infant deaths in a particular month they were asked to randomly send us the medical records of five healthy births for the same month.

- Control Population = 75 cases

**What did the chart abstraction population look like?**

- The study sample consisted of women in our county who had experienced a fetal or infant death in 2006.
  - 62.7% (47) of overall study sample were women age 20-34 years of age
  - 30% (6) of infant deaths surviving < 24 hours were born to women < 20 years of age
  - The racial/ethnic breakdown for the sample are (only major ethnic groups are shown):
    - Hispanic
      - Fetal Deaths: 63% (17)
      - Infant Deaths < 24 hours: 50% (10)
      - Infant Deaths > 24 hours Hispanic: 53.6% (15)
      - Control Group Hispanic: 62.7% (47)
    - Black
      - Fetal Deaths: 3.7% (1)
      - Infant Deaths < 24 hours: 5% (1)
      - Infant Deaths > 24 hours: 3.6% (1)
      - Control Group: 0
    - White
      - Fetal Deaths: 29.6% (8)
      - Infant Deaths < 24 hours: 30% (6)
      - Infant Deaths > 24 hours: 32.1% (9)
      - Control Group: 32% (24)
  - Zip code
    - Fetal deaths were focused in West Modesto (22.2% (6)
    - Infant deaths and control group are more spread out in our county although 25% (7) infant deaths who survived > 24 hours were from 95350.
  - Marital status
    - Infant deaths were more likely to be single women
    - Married
      - 66.7% (50) of the control population
      - 44% (12) of fetal deaths
      - 25% (5) of infant deaths < 24 hours
      - 32% (9) of infant deaths > 24 hours
    - Single
      - 55% (11) of infant deaths < 24 hours
      - 46% (13) of infant deaths > 24 hours
      - 33.3% (9) of fetal deaths
      - 26.7% (20) of controls

- Health insurance
  - Medi-Cal and Medi-Cal Managed Care were separately recorded.
  - Over 60% of overall study sample are on Medi-Cal and Medi-Cal Managed Care. Similar percentages of the control sample are also on Medi-Cal or Medi-Cal Managed Care.
- Maternal education
  - This variable was missing for over 50% of the study sample and control population and thereby deemed not reliable.
- Stated housing problems
  - Only a few cases stated having housing problems such as being homeless.
- Employment
  - Less than a third of the study and control populations were employed

**What are the Chart Abstraction Findings?**

- **Prenatal Care**
  - Over 42% (32) of overall study sample versus 64% (48) of the control group initiated prenatal care during 1st trimester.
  - Fetal deaths are more likely to initiate prenatal care during the 1st trimester than infant deaths in our study.
    - Initiated prenatal care in the 1st trimester
      - 35% (7) of infant surviving < 24 hours
      - 42.9% (9) of infants surviving > 24 hours
      - 48% (13) of fetal deaths
      - 64% (48) of controls
  - More infant deaths than fetal deaths in our study receive no prenatal care.
    - Did not receive prenatal care
      - 3.7% (1) of fetal deaths
      - 15% (3) of infant surviving < 24 hours
      - 7.1% (2) of infants surviving > 24 hours
      - 4% (3) of controls
- **Adequacy of Prenatal Care** (measured using the Kessner Criteria)

  A large percentage of women in our study population are not receiving adequate prenatal care. However, only half of the women in the control group are receiving adequate prenatal care.
    - Had adequate prenatal care
      - 25.9% (7) of fetal deaths
      - 40% (8) of infant surviving < 24 hours
      - 28.6% (8) of infants surviving > 24 hours
      - 50.7% (38) of the controls
    - Had inadequate prenatal care
      - 74.1% (20) of fetal deaths
      - 50% (10) of infant surviving < 24 hours
      - 60.7% (17) of infants surviving > 24 hours
      - 40% (30) of the controls

- **Patterns of Prenatal Care**
  - Pattern of prenatal care visits was examined for all groups to attempt to capture data on why women were not getting adequate prenatal care. Patterns include: regular prenatal care, regular prenatal care after late entry into prenatal care, regular visits with long period of time between visits (more than 6 weeks).
  - The majority of both study and control groups show regular prenatal care.
    - 29.3% (22) of study subjects versus 40% (30) of controls had regular prenatal care
  - Both study subjects and controls show erratic patterns of prenatal care
    - 6.7% (5) of study subjects had sporadic visits versus 8% (6) of controls
    - 6.7% (5) of study subjects went once and never came back versus none of the controls
    - 8% (6) of both study subjects and controls had regular visits with a big period of missed appointments between visits
  - Besides regular visits, the second largest group shows regular visits after late entry
    - 30.7% (23) of study subjects while 17.3% (13) of controls had regular visits after late entry
- **Obesity**

  Being overweight or obese is linked to: Maternal hypertension, preeclampsia, gestational diabetes, C-section, stillbirth, and birth defects. Body fat is often measured by Body Mass Index (BMI), which is based on pre-pregnancy height and weight. BMI categories indicate obesity and are as follows:
  - Normal weight: BMI = 18.5-24.9
  - Overweight: BMI = 25-29.9
  - Obese: BMI > 30

  A women's pre-pregnancy BMI categorization will help indicate how much weight should be gained during pregnancy.
  - Normal: 25-35 lbs.
  - Overweight: 15-25 lbs.
  - Obese: 15 lbs

  Unlike last year, obesity was not as prevalent in the study population and a higher percentage of the controls were obese or overweight.
  - Overweight
    - 25.9% (7) of fetal deaths
    - 20% (4) of infants surviving < 24 hours
    - 28.6% (8) of infants surviving > 24 hours
    - 28% (21) of controls
  - Obese
    - 22.2% (6) of fetal deaths
    - 20% (4) of infants surviving < 24 hours
    - 14.3% (4) of infants surviving > 24 hours
    - 20% (15) of controls
  - Normal weight
    - 37% (10) of fetal deaths
    - 30% (6) of infants surviving < 24 hours

        - 42.9% (12) of infants surviving > 24 hours
        - 37.3% (28) of controls
- **Premature Labor: Gestational Age**
  Babies born ≥37 weeks gestational age are considered full term. Babies born before 37 weeks are premature. The majority of infants surviving < 24 hours are very premature. Infants surviving > 24 hours are often full term. Additionally, almost all of the controls were full term.
    - Full term
        - 25.9% (7) of Fetal Deaths
        - 57.1% (16) of infants surviving > 24 hours
        - 10% (2) of infants surviving < 24 hours
        - 92% (69) of the controls
    - 20-24 weeks gestation.
        - 11.1% (3) fetal deaths
        - 55% (11) infant deaths surviving < 24 hours
        - 7.1% (2) infant deaths > 24 hours
        - 0 controls
- **Premature Labor: Birthweight**
  Closely connected to gestational age is birth weight. If a baby is born before term they are often of low birth weight. The earlier the baby is born the more likely it will be of lower birth weight. If an infant is born and weighs less than 2500 grams it is considered low birthweight. Infants surviving > 24 hours and controls are mostly not low birthweight. Infants surviving < 24 hours were mostly very low birthweight and extremely low birthweight while fetal deaths were mostly low and extremely low birthweight.
    - Greater than 2500 grams
        - 22.2% (6) of fetal deaths
        - 60.7% (17) of infants surviving > 24 hours
        - 10% (2) of infants surviving < 24 hours
        - 97% (73) of the controls
    - Very low birthweight
        - 75% (15) of infant surviving less < 24 hours
        - 44.4% (12) of fetal deaths
        - 21.4% (6) of infant death surviving > 24 hours
        - 0 % of the controls
    - Less than 499 grams.
        - 30% (6) of infants surviving < 24 hours
        - 0% of fetal deaths
        - 0% of infants surviving > 24 hours
        - 0% of the controls
- **Placental Infections**
  Definition of placental infection: any inflammation of fetal membranes as documented in pathology report, which can result in premature labor. Treatment includes antibiotics and delivery.
    - Placental infection was reported in
        - 59.3% (16) of fetal deaths
        - 70% (14) of infants surviving < 24 hours
        - 32.1% (9) of infants surviving > 24 hours
        - 4% (3) of controls

- Group B Strep (GBS) is a type of bacterial infection that is carried by a pregnant women and can be transmitted to the unborn child during labor. It is recommended that all pregnant women be screened for this at or after 37 weeks gestation. Treatment involves administering antibiotics to GBS positive women during delivery.
- GBS Positive status was reported in
  - 22.2% (6) of fetal deaths
  - 5% (1) of infants surviving < 24 hours
  - 14.3% (4) of infants surviving > 24 hours
  - 9.3% (7) of controls

- **Alcohol and Drug Use**

  This topic was explored in greater detail this year. Self-report of drug, alcohol, and tobacco use in the past prior to pregnancy (history) and during the current pregnancy were recorded. Additionally, maternal laboratory toxicology testing both during prenatal care and at delivery was noted. There was more screening this year than last year with more positive results this year than last year.
  - 42.7% (33) of study subjects were tested versus 13.4% (10) of the controls
  - 27% (9) of study subjects tested were positive while 20% (2) of controls tested were positive.
    - For those testing positive the type of drug used was (might have used combination of drugs)
      - Methamphetamine/amphetamine 73% (8)
      - Marijuana 45% (5)
  - 18.7% (14) of study subject infants and 13.3% (10) of control infants were tested
    - Of those infants screened, 7 (50%) of study subjects and 10% (1) of the controls were positive
  - Examining self reported history of drug use and self reported drug use during pregnancy reported at delivery, study subjects were more likely to report using drugs in the past or during pregnancy than controls.
  - 17.3 % (13) of study subjects versus 8% (6) controls reported a history of drug use at delivery
  - 14.7% (11) of study subjects versus 2.7% (2) of controls reported using drugs during pregnancy at delivery
  - Low alcohol and tobacco usage in study subjects and controls
    - 13.3% (10) of study subjects and 10.6% (8) of the controls had occasional or more than occasional history of alcohol use
    - 1.37% (1) of study subjects versus 4.1% (3) of the controls had occasional or more than occasional alcohol use during pregnancy
    - 17.4 (13) of study subjects and 8% (6) of controls had occasional or more than occasional history of tobacco use
    - 14.7% (11) of study subjects versus 6.7% (5) of the controls had occasional or more than occasional tobacco use during pregnancy

- **Probable Precipitating Factor Leading to Eventual Demise of Fetus/Infant:**
  The study looked at factors which might be associated with the infant mortality rate. Oftentimes, the cause(s) of death was listed on the autopsy or coroner's report or birth certificate although it was not always insightful. To obtain more detailed information on factors leading to the death the team came up with a variable, "Probably Precipitating Factors Leading to Eventual Demise of Fetus/Infant" the definition of which is: the one event that triggered the progression of events that resulted, ultimately, in the death of the baby. This probable precipitating factor is not necessarily the cause of death (COD). For example: the pathologist lists an infant's COD as "extreme prematurity". The probable precipitating factor however could be maternal methamphetamine abuse, preterm labor, incompetent cervix or auto accident. The precipitating factor would be the point at which education, services, and research would be directed as interventions to prevent future events. The following factors were found to be present in each of the types of deaths.
    - Fetal Deaths
        - Intrauterine fetal demise unknown etiology 29.6% (8)
        - For over half of the fetal deaths, the length of demise was greater than a day. Fifty seven percent of these fetal deaths were Hispanic.
    - Infant Deaths < 24 hours
        - Preterm Labor 45% (9)
    - Infant Deaths > 24 hours
        - Infection in Child 28.6% (8). These were children who were born without complications, discharged home healthy, and became ill with infections that were not maternal related. Infections include: interstitial pneumonitis, bronchopneumonia or pneumonia and probable meningoccemia. The team then examined if these deaths occurred during the winter months when babies are more prone to infection.
            - 62.5% (5) died in February 2006
            - 12.5% (1) died in January 2006

**What are the limitations to these methods/findings?**

- A major limitation was weaknesses in using medical records. Issues included: illegibility, inconsistencies and missing data.
- The hospitals drew the controls in different ways based on convenience for the hospital.
- When abstracting detailed information about the due date and prenatal visits during each trimester, the gestational age corresponding to the dates of specific prenatal visits were not always accurate. For example if the medical record stated that a client entered at 11 weeks even though according to the due date calculated she entered at 14 weeks, the value 11 weeks was recorded.

## Fetal Infant Mortality Review (FIMR) Interviews

**What did we do?**

- The study team interviewed women experiencing fetal (24 weeks gestation and greater) or infant deaths on an ongoing basis. Referrals came mostly from Vital Records and hospitals. All eligible women were invited to participate in this voluntary interview.
- Since the beginning of the study the team has interviewed 38 women and the response to the interviews has been positive. The following is one interviewer's notes of what the mother said regarding the interview.

  "Mom says this interview was a good thing. It allowed her to vent her feelings, and also made her feel that someone cares that her baby died, and that perhaps the information from the interview might help someone else."

**What kind of information is obtained during these interviews?**

Interviews allow more detailed information about the women who have experienced a fetal/infant death to be collected which cannot be obtained through chart abstraction. Information includes: prenatal care, nutrition, weight gain, health habits, delivery of baby, other babies, information on mother and father, living situation, life changes and social support. To increase the numbers used in the summary data for the interviews, all interviews ever completed since the inception of the study were used in the analysis for a total of 38 interviews.

**What did the interview population look like?**

- Overall sample
  - There were 211 women who were considered for interviews
  - 18% (38) completed interviews
  - 45% (95) refused
  - 7.1% (15) Lost to Follow Up
  - 5.7% (12) Out of county
  - 14.2% (30) Did not qualify for numerous reasons
  - 10% (21) Assigned/ still pending
- Race
  - 18.4.3% (7) White
  - 71.1% (27) Hispanic
  - 5.3% (2) Other
- Education Level
  - 36.8% (14) < 12$^{th}$ Grade
  - 28.9% (11) 12$^{th}$ Grade
  - 34.2% (13) Post high school
- Employment
  - 55.3% (21) Employed
- Insurance
  - 39.5% (15) Medi-Cal
  - 23.7% (9) Private Provider
  - 10.5% (4) Managed Care Organization
- Entry into PNC
  - 76.3% (29) Got PNC as early as they wanted
  - 18.4% (7) did not PNC as early as they wanted

    - Reasons for why it was difficult to receive as may PNC visits as desired
        - 10.5% (4) could not get an appointment earlier in their pregnancy
- Forms of Transportation to PNC
    - 78.9% (30) Car
    - 10.5% (4) Bus
- Alcohol & Drug Use
    - There was very little alcohol and drug use
        - 7.9% (3) drank < 1 drink/wk during last 3 months of pregnancy
        - 5.3% (2) smoked during the last 3 months of pregnancy
        - 5.3% (2) used marijuana and uppers during pregnancy
    - Alcohol:
        - 84.2% (32) were asked by the provider about alcohol use
        - 55.3% (21) reported that the provider discussed dangers of alcohol use
        - 34.2% (13) reported that the provider did not discuss dangers of alcohol use
        - 5.3% (2) reported that they did not remember
    - Tobacco use
        - 86.8% (33) were asked by provider about tobacco use
        - 57.9% (22) reported that the provider discussed smoking dangers
        - 34.2% (13) reported that the provider did not discuss smoking dangers
- Life Changes (i.e., moving, losing job, financial troubles, physical abuse)
    - 18.4% (7) had no life changes
    - 52.6% (20) had between 1-3 life changes
    - 26.3% (10) had between 4-6 life changes
- Quality of/satisfaction with PNC
    - Amount of time had to wait
        - Satisfied: 81.6%(31)
        - Dissatisfied: 15.8% (6)
    - Amount of time provider spent with client
        - Satisfied: 78.9% (30)
        - Dissatisfied: 18.4% (7)
    - Advice received on how take care of oneself
        - Satisfied: 76.3% (29)
        - Dissatisfied: 18.4% (7)
    - Hours that office or clinic was open
        - Satisfied: 94.7% (36)
        - Dissatisfied: 2.6% (1)
    - Understanding/respect staff showed client
        - Satisfied: 89.5% (34)
        - Dissatisfied: 2.6% (1)

**Qualitative Observations**

Below please find some qualitative observations that the nurse interviewers made regarding the interviews they completed.

- Nearly all of the mothers who consented to be interviewed did so hoping that the information that they shared might help another family in a similar situation. One father offered to have "any medical tests, any blood tests done if it will help just one other person not to have to go through this."
- Many of the mothers were grateful to be given the chance to "tell their story" to someone who listened without bias or constraint; they frequently spontaneously offered to share photos, keepsakes from the hospital and even their child's cremated remains with the interviewers.
- Several mothers were not fully aware of what support groups were available after the death of their baby and were grateful to receive information about these groups--especially H.A.N.D.
- Most of the families expressed gratefulness and satisfaction with the support and care they received by hospital staff at the time of the infant's death. However, several expressed that they would have appreciated, and could have used, more communication with the doctors, both at the time of the death to explain cause, answer questions, and give emotional support and later availability to talk and have questions answered. This was especially important when the primary physician was not at the delivery - families really want to see and hear from their "own" doctor after the event and expressed sadness and anger when that the primary physician does not reach out to them immediately.
- Autopsy: There were some who did not consent to autopsy but would have, had it been more fully explained. One of the mothers said: "She didn't have an autopsy. I regret that now." Father added that he was just angry and did not want them to cut her again. "But now I know that an autopsy could answer many of the questions we have now." He said that it would have helped if someone in authority would have more fully explained about an autopsy and reasons why it would be good.
- Many mothers used the interview as an opportunity to discuss their concerns about subsequent pregnancies both in terms of discussing the problems their deceased child had that might affect the next child as well as their options healthcare-wise. Some moms seem to view the FIMR interview as the final step they needed for closure of the infant's demise before becoming pregnant again.
- One of the verbal mothers who recalled many negative experiences regarding the medical support available to her after she was discharged home with a special needs infant made an interesting suggestion. She felt that the on-call physicians that she spoke with did not fully comprehend the nature of her child's condition and consequently "misdirected" her or did not treat her situation with the seriousness that it deserved. She said, "If there had been just one person that I knew I could call at any time who KNEW my baby's condition I feel like things might have turned out differently". She went on to suggest that this community would benefit from having a local pediatrician who specializes in high-risk infants.

**Interview Summary**

The interview sample did not have problems accessing prenatal care and were mostly satisfied with the PNC care they received. Additionally, they had low alcohol

and drug use. Over half the interview sample experienced between 1-3 life changes during their pregnancy.

**What are the limitations to this method/findings?**
Since interviews are done on a voluntary basis the women who agree to interview might be very different from those that do not agree to be interviewed. It is likely that they had less medical problems and challenges accessing PNC and therefore the data obtained from these interviews may be biased.

The team encountered obstacles in contacting these women. The team did not having a correct address or phone number with which to contact them.

**Is there a difference in the women who refused to be interviewed and those that refused to be interviewed?**
The majority of women who agree to be interviewed were Hispanic. For those who refused to be interviewed race/ethnicity as well as other information was missing.

**Racial Breakdown of Interview Subjects**

| | Black | Caucasian | Hispanic | Other | Missing |
|---|---|---|---|---|---|
| Interviewed (38) | 0 | 10 (26.3%) | 25 (65.8%) | 3 (7.9%%) | 0 |
| Refused (95) | 3 (3.2%) | 13 (14%) | 22 (23%) | 3 (3.2%) | 54 (57%) |

**For the women who agreed to interview, how much outreach was necessary?**
A detailed process was used to contact women to invite them to participate in the study and be interviewed. This process involved sending out a letter 5 weeks after the demise and following up with phone calls and home visits. What methods of outreach were most effective?
Of those who agreed to be interviewed:

- 29% (11) called us to be interviewed
- 37% (14) agreed to interview when we called them
- 26% (10) agreed to interview after an unscheduled home visit
- 5% (2) agreed to be interviewed after a letter and scheduled home visits

Of those who refused to be interview, the ways the team knew they did not want to be interviewed were as follows:

- 23% (22) refused on the phone
- 2% (2) refused in person
- 4% (4) were not home
- 46% (44) were lost to follow up.

**Types of Contact Made to Eligible Women**

| | Letter | Phone Call | Home Visit with no contact | Home visit with contact |
|---|---|---|---|---|
| Interviewed (n=38) | 92% (35) | 8% (3) | 5% (2) | 13% (5) |
| Refused (n=95) | 67% (64) | 31% (29) | 32% (30) | 5% (5) |

The table and percentages above shows that the majority of those who agree to be interviewed did so after very little contact. They either contacted us on the phone or we contacted them. For the majority of these women only one means of contact

was made (a shown by the table below). For those women who refused the interview though, it can be seen that almost half were lost to follow up and that 32% of home visits were made with no contact. Additionally, as shown by the table below, 47% of those that refused the interviewed were contacted with by at least two means.

**Total Number of Contacts Made to Eligible Women**

| | 1 | 2 | 3 |
|---|---|---|---|
| Interviewed | 79% (30) | 16% (6) | 3% (1) |
| Refused | 18% (17) | 47% (45) | 7% (7) |

## Conclusions, Recommendations & Concerns

### What are the overall conclusions?

The following factors were found to be associated with fetal and infant mortality in our county.

- Prematurity
  - Babies in our county are being born too early at a low gestational age and birth weight.
- Prenatal care access issues
  - Women experience late entry into PNC and are not receiving adequate PNC. Inadequate PNC is often due to either late entry or because they are not maintaining regular PNC during their pregnancy.
- Possible gap in prenatal knowledge (signs and symptoms of preterm labor, loss of fetal movement)
  - Women experiencing a fetal death often had long periods (over a day) of loss of fetal movement. Adequate education regarding fetal movement could address this issue.
  - Women that know the signs and symptoms of preterm labor can seek appropriate medical intervention in a timely manner and possibly prevent a preterm delivery.
- Vulnerable populations
  - Two groups of women are more susceptible to certain kinds of death
    - Infant deaths < 24 hours - Single women
    - Fetal deaths - Hispanic women
- Drug use during pregnancy
  - In those women that had a laboratory toxicology screening done a high percentage were positive for illicit drug use. There are possibly many more pregnant women using drugs because few are tested and drugs of abuse typically have a short half-life and are not detected after a few days. If all women were tested on a routine basis during their entire pregnancy more positive tests will result.

### What are some of our recommendations?

- County-wide universal substance use and STD screening throughout pregnancy
  - STD screening is recommended even though the study found minimal prevalence of STD's in our study sample. Discussions with physicians have highlighted the relationship between chlamydia and our high preterm deliver rate.

- Educating providers to elicit drug information during PNC encounter

**What are some of our concerns?**

- Capacity issues with substance use treatment
  - As an increased number of women are screened and tested for drug use and abuse the capacity of drug treatment providers will soon be exceeded. This is a dilemma when advocating for increased drug screening and testing.
- Pregnant women who are substance using and not accessing PNC
  - There is a subset of women who use drugs during pregnancy who do not access PNC or services who are unknown to PNC providers. Finding and engaging these women into services is of paramount importance.

End Notes


1. National Vital Statistics Reports: Final Death Data, 2004, Vol. 55, No. 19, August 21, 2007 (Accessed September 12, 2007) http://www.cdc.gov/nchs/data/nvsr/nvsr55/nvsr55_19.pdf
2. National Center for Health Statistics: Infant Mortality Statistics from the 2004 Period Linked Birth/Infant Death Data Set. NVSR Volume 55, Number 14. xx pp. (PHS) 2007-1120 http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimbirths04/prelimbirths04health.htm
3. National Vital Statistics Reports U.S. Life Expectancy Hits New High of Nearly 78 Years: Deaths: Preliminary Data for 2005 (Accessed September 12, 2007) http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimdeaths05/prelimdeaths05.htm
4. W Barfield, et al., Racial/Ethnic Trends in Fetal Mortality—United States, 1990-2000. *JAMA.* 2004; 292:559-561 MMWR. 2004; 53:529-532

## STUDY DEFINITIONS

| | |
|---|---|
| ABRUPTION; ABRUPTIO PLACENTAE; PLACENTAL ABRUPTION | An emergency condition in which the placenta separates from the wall of the uterus before delivery. If this happens, the fetus can be deprived of oxygen and nutrients and the mother can experience life-threatening bleeding. |
| AMNIOTIC FLUID | Clear-colored liquid that cushions and protects the fetus and provides it with fluids. The fetus breathes the fluid into his lungs and swallows it, promoting normal growth and development of the lungs and gastrointestinal system. Amniotic fluid also allows the fetus to move around, which aids in normal development of muscle and bone. |
| ASPHYXIA | A lack of oxygen that is usually caused by interruption of breathing |
| AUGMENTATION OF LABOR | Use of medications and/or physical means to enhance labor in a woman already laboring on her own. |
| BODY MASS INDEX (BMI) | Method used to define and classify obesity. BMI is calculated as weight in kilograms divided by height in meters squared ($kg/m^2$). For this study, the BMI was calculated from the pre-pregnant weight. |
| CERCLAGE | Purse-string like suture (stitch) made surgically to reinforce a weak cervix. Removed for delivery. Used to treat incompetent cervix. |
| CERVIX | Base of the uterus that leads to the vagina. The cervix dilates (opens) during labor to allow for delivery of the infant. |
| COMFORT CARE | Type of care given to infants who have conditions incompatible with life; care is limited to holding and comforting the baby from the time of birth until death. No resuscitation or medical intervention is performed. Physician and parental consents have been obtained. Definition developed for the purpose of this study only. |
| CONGENITAL | Condition that is recognized at birth or that is believed to have been present since birth, including conditions which are inherited or caused by an environmental factor. |
| EXTREMELY LOW BIRTH WEIGHT; ELBW | Birth weight less than 1000 grams. |
| FETUS | The developing baby in the uterus. After live birth, the fetus is called an infant. |

| | |
|---|---|
| FETAL DEATH; STILLBIRTH | The absence of any signs of life in the fetus at or after birth. |
| GENETIC CONDITION | A condition caused by a genetic mutation that is either inherited or arises spontaneously |
| GESTATION | Age of the fetus during pregnancy; measured in days and weeks. |
| HYPERTENSION | Elevated blood pressure appearing either before pregnancy (chronic hypertension) or during pregnancy (pregnancy induced hypertension - PIH). Women with hypertension are at risk for increased maternal mortality and preterm labor. Infants are at risk for fetal growth restriction and have a 3-4-fold increase in mortality. |
| IATROGENIC DISORDER | Adverse physical or mental condition in a patient created by the treatment of a physician or surgeon. Implies that condition could have been avoided. |
| INCOMPETENT CERVIX | Recurrent painless opening of the cervix before the fetus is full-term (greater than 37 weeks gestation). This can lead to preterm birth and increased fetal and infant mortality. |
| INDUCTION FOR CAUSE | Any pregnancy that is delivered before term specifically because of fetal death or because the fetus is found to have complications incompatible with life. Definition developed for the purpose of this study only. |
| INDUCTION FOR LABOR | Use of pharmaceutical and/or physical means to begin labor in a woman who is currently showing no signs of labor. |
| INFANT DEATH | Death of an infant up to 12 months of age after a live birth. |
| INFANT MORTALITY RATE | Number of infant (up to 12 months of age) deaths per 1000 live births. |
| INTERVENTION | Resuscitative and/or medical care provided to an infant in the delivery room, NICU and/or nursery. Definition developed for the purpose of this study only. |
| INTRAUTERINE GROWTH RESTRICTION; IGR, FETAL GROWTH RESTRICTION | Low-birth weight infants who are also small for their gestational age. |

| | |
|---|---|
| KESSNER INDEX | Measurement of adequacy of prenatal care (PNC). Considers birth certificate data including length of gestation, timing of first prenatal visit, and number of prenatal visits. Does not measure the quality of care or take into account the relative risk of the mother. |
| LENGTH OF DEMISE | The amount of time that a baby is dead in the uterus before the baby is delivered; time measured in hours or days |
| LIVE BIRTH | Infant who at or after delivery breathes spontaneously or shows any other signs of life. |
| LOW BIRTH WEIGHT; LBW | Birth weight less than 2500 grams. |
| MORBIDITY AND MORTALITY | Morbidity refers to an undesirable outcome or condition; mortality refers to death. Definition developed for the purpose of this study only. |
| OBESITY | BMI of 30 $kg/m^2$ or greater. By the end of 2000, 27% of Americans were obese. Currently, there is a marked prevalence of obesity in indigent individuals. Marked obesity is unequivocally hazardous to the pregnant woman and her fetus. |
| OLDER MATERNAL AGE; ELDERLY GRAVIDA | Pregnant woman older than 35 years of age. |
| OLIGOHYDRAMNIOS | Too little amniotic fluid. This condition affects about 8 percent of pregnancies. The effect of oligohydramnios on the baby depends on the cause, the stage of pregnancy in which the problem occurs, and how little fluid there is but can be associated with birth defects and an increase in preterm birth and stillbirth. |
| OVERWEIGHT | BMI of 25-29.9 $kg/m^2$. By the end of 2000, 34% of Americans were overweight. |
| PERINATAL PERIOD | The period after birth of an infant weighting 500 gm or more and ending at 28 completed days after birth. |
| PLACENTA | An unborn fetus' lifeline. It forms connections with the mother's blood supply, from which it transfers oxygen and nutrients to the fetus. It also connects with the fetal blood supply, from which it removes wastes and transfers them to the mother's blood (her kidneys then dispose of the waste). |
| PLACENTAL HEMORRHAGE | Massive bleeding from the placenta; can be due to many conditions, most commonly to abruption or previa. |

| | |
|---|---|
| PLACENTAL INFARCTION | An area of tissue death in the placenta as a result of an obstruction in circulation from a thrombus. |
| PLACENTAL INFECTION | Infection of the placenta and placental membranes caused by a wide variety of microorganisms. Frequently cited as a possible explanation for many unexplained cases of ruptured membranes and/or preterm labor. Often impossible to verify which occurred first. For the purpose of this study, any inflammation of the fetal membranes as reported on the placental pathology report including amnionitis, chorioamnionitis, funisitis, vasculitis or villitis was considered evidence of placental infection. |
| POLYHYDRAMNIOS | Too much amniotic fluid. Occurs in about 2 percent of pregnant women. The most common cause of polyhydramnios is a birth defect in the fetus of the central nervous system, gastrointestinal tract or bladder and kidneys. Polyhydramnios may increase the risk of preterm rupture of the membranes, preterm birth, umbilical cord accidents, placental abruption, poor growth of the fetus and stillbirth. Women with polyhydramnios are more likely to have a cesarean delivery and to have severe bleeding after delivery. |
| POST-TERM NEONATE | Infant born anytime after completion of the 42$^{nd}$ week, beginning with day 295. |
| POSTTERM PREGNANCY | Pregnancy that lasts for 42 weeks or more. Studies have shown that postterm pregnancies are complicated by increased infant mortality. |
| PRETERM BIRTH; PREMATURITY | Pregnancy delivered before 37 completed weeks. In 2001, preterm birth was implicated in approximately 2/3's of infant deaths within the first year of life. |
| PRE-TERM NEONATE | Infant born before 37 completed weeks (the 259$^{th}$ day) |
| SAB, SPONTANEOUS ABORTION | Spontaneous loss of a nonviable fetus before 20 weeks of pregnancy, may also be called a miscarriage. |
| TAB, THERAPEUTIC ABORTION | The elective ending of a pregnancy before 20$^{th}$ week of pregnancy. |
| TERM NEONATE | Infant born anytime after 37 completed weeks of gestation and up until 42 completed weeks of gestation (260-294 days). |
| THROMBOSIS, CORD THROMBI | The formation or presence of a blood clot within the umbilical cord. Thrombi is plural of thrombus. |

| | |
|---|---|
| UMBILICAL CORD | Cord that connects the fetus with the placenta and contains two umbilical arteries and the umbilical vein. It delivers the nutrients and oxygen the fetus needs for normal growth and development and removes waste products. |
| UMBILICAL CORD ABNORMALITIES | A number of abnormalities can affect the umbilical cord. Sometimes the cord is too long, too short, connects improperly to the placenta or becomes knotted or compressed. Cord abnormalities can lead to problems during pregnancy or during labor and delivery increasing morbidity and mortality of the fetus/infant. |
| UTERINE ANOMALIES | Different, peculiar or abnormal findings in the uterus |
| UTERUS | Organ that contains the developing fetus and placenta. |
| VERY LOW BIRTH WEIGHT; VLBW | Birth weight is less than 1500 grams. |

All definitions adapted and derived from the following sources and were developed for the purpose of the study.

Williams Obstetrics 24th Edition. Cunningham, F. Gary, Leveno, Kenneth J., Bloom, Steven L., Hauth, John C., Gilstrap III, Larry C., & Wenstrom, Katharine D. (2005) *Williams Obstetrics 22nd Edition.* New York: McGraw-Hill Companies, Inc.

MARCH OF DIMES website: http://www.marchofdimes.com/ retrieved on September 20, 2006.

MedicineNet.com: http://www.medicinenet.com/ retrieved on September 25, 2007.

Medline: http://www.nlm.nih.gov/medlineplus/aboutmedlineplus.html

## *Summary of 2006 Fetal / Infant Deaths for Stanislaus County*

| Characteristics | Overall | | Fetal Deaths | | Infant Deaths < 24 hours | | Infant Deaths > 24 hours | | Controls | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | N | % | N | % | N | % | N | % | N |
| **Total Records:** | | **75** | | **27** | | **20** | | **28** | | **75** |
| ***Demographics*** | | | | | | | | | | |
| **Maternal Age Group** | | | | | | | | | | |
| <18 Years of Age | 6.7 | 5 | 11.1 | 3 | 10 | 2 | 0 | 0 | 5.3 | 4 |
| 18-19 Years of Age | 17.3 | 13 | 14.8 | 4 | 20 | 4 | 17.9 | 5 | 9.3 | 7 |
| 20-34 Years of Age | 62.7 | 47 | 66.7 | 18 | 50 | 10 | 67.9 | 19 | 76 | 57 |
| >35 Years of Age | 10.7 | 8 | 7.4 | 2 | 15 | 3 | 10.7 | 3 | 6.7 | 5 |
| Unknown Age | 2.7 | 2 | 0 | 0 | 5 | 1 | 3.6 | 1 | 2.7 | 2 |
| | | | | | | | | | | |
| **Maternal Race** | | | | | | | | | | |
| White | 30.7 | 23 | 29.6 | 8 | 30 | 6 | 32.1 | 9 | 32 | 24 |
| Black | 4 | 3 | 3.7 | 1 | 5 | 1 | 3.6 | 1 | 0 | 0 |
| Hispanic | 56 | 42 | 63 | 17 | 50 | 10 | 53.6 | 15 | 62.7 | 47 |
| Asian | 2.7 | 2 | 3.7 | 1 | 0 | 0 | 3.6 | 1 | 2.7 | 2 |
| Other | 2.7 | 2 | 0 | 0 | 10 | 2 | 0 | 0 | 1.3 | 1 |
| Not Found in Record | 4 | 3 | 0 | 0 | 5 | 1 | 7.1 | 2 | 1.3 | 1 |
| | | | | | | | | | | |
| **Marital Status** | | | | | | | | | | |
| Married | 34.7 | 26 | 44.4 | 12 | 25 | 5 | 32.1 | 9 | 66.7 | 50 |
| Single | 44 | 33 | 33.3 | 9 | 55 | 11 | 46.4 | 13 | 26.7 | 20 |
| Living in Stable Relationship | 13.3 | 10 | 14.8 | 4 | 0 | 0 | 21.4 | 6 | 4 | 3 |
| Separated | 5.3 | 4 | 3.7 | 1 | 15 | 3 | 0 | 0 | 0 | 0 |
| Not Found in Record | 1.3 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 1.3 | 1 |
| | | | | | | | | | | |
| **Maternal Education** | | | | | | | | | | |
| < 12 Years of Education | 17.3 | 13 | 22.2 | 6 | 15 | 3 | 14.3 | 4 | 14.7 | 11 |
| 12th Grade, GED | 20 | 15 | 14.8 | 4 | 35 | 7 | 14.3 | 4 | 16 | 12 |
| > 13 Years of Education | 6.6 | 5 | 7.4 | 2 | 0 | 0 | 10.7 | 3 | 10.7 | 8 |
| Unknown Education | 56 | 42 | 55.6 | 15 | 50 | 10 | 60.7 | 17 | 57.3 | 43 |
| None | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.3 | 1 |
| | | | | | | | | | | |
| **Zip Code*** | | | | | | | | | | |
| 95350 | 12 | 9 | 7.4 | 2 | 0 | 0 | 25 | 7 | 6.7 | 5 |
| 95351 | 17.3 | 13 | 22.2 | 6 | 10 | 2 | 17.9 | 5 | 17.3 | 13 |
| 95354 | 8 | 6 | 11.1 | 3 | 10 | 2 | 3.6 | 1 | 10.7 | 8 |
| 95355 | 6.7 | 5 | 14.8 | 4 | 5 | 1 | 0 | 0 | 6.7 | 5 |
| 95356 | 1.3 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 4 | 3 |
| 95358 | 9.3 | 7 | 3.7 | 1 | 10 | 2 | 14.3 | 4 | 16 | 12 |
| 95380 | 4 | 3 | 0 | 0 | 10 | 2 | 3.6 | 1 | 4 | 3 |
| 95382 | 6.7 | 5 | 3.7 | 1 | 10 | 2 | 7.1 | 2 | 8 | 6 |
| 95307 | 10.7 | 8 | 7.4 | 2 | 15 | 3 | 10.7 | 3 | 10.7 | 8 |
| | | | | | | | | | | |
| **Employed** | | | | | | | | | | |
| Yes | 29.3 | 22 | 29.6 | 8 | 30 | 6 | 28.6 | 8 | 25.3 | 19 |
| No | 58.7 | 44 | 59.3 | 16 | 55 | 11 | 60.7 | 17 | 70.7 | 53 |
| Not Found in Record | 12 | 9 | 11.1 | 3 | 15 | 3 | 10.7 | 3 | 4 | 3 |
| | | | | | | | | | | |
| **Payment Source for Prenatal Care (PNC):** | | | | | | | | | | |
| No Insurance | 4 | 3 | 3.7 | 1 | 0 | 0 | 7.2 | 2 | 1.3 | 1 |
| Medi-Cal | 41.3 | 31 | 33.3 | 9 | 70 | 14 | 28.6 | 8 | 48 | 36 |
| Medi-Cal Managed Care | 24 | 18 | 29.6 | 8 | 5 | 1 | 32.1 | 9 | 17.3 | 13 |
| Private | 2.7 | 2 | 0 | 0 | 0 | 0 | 7.1 | 2 | 12 | 9 |
| HMO/Prepaid Health Plan | 21.3 | 16 | 33.3 | 9 | 5 | 1 | 21.4 | 6 | 17.3 | 13 |
| Self Pay | 5.3 | 4 | 0 | 0 | 15 | 3 | 3.6 | 1 | 2.7 | 2 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.3 | 1 |
| Not Found in Record | 1.3 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 |

| Characteristics | Overall | | Fetal Deaths | | Infant Deaths < 24 hours | | Infant Deaths > 24 hours | | Controls | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | N | % | N | % | N | % | N | % | N |
| **Total Records:** | | **75** | | **27** | | **20** | | **28** | | **75** |
| ***Prenatal Care*** | | | | | | | | | | |
| **PNC Initiation:** | | | | | | | | | | |
| No PNC | 8 | 6 | 3.7 | 1 | 15 | 3 | 7.1 | 2 | 4 | 3 |
| 1st Trimester | 42.7 | 32 | 48.1 | 13 | 35 | 7 | 42.9 | 12 | 64 | 48 |
| 2nd Trimester | 36 | 27 | 40.7 | 11 | 35 | 7 | 32.1 | 9 | 24 | 18 |
| 3rd Trimester | 5.3 | 4 | 3.7 | 1 | 5 | 1 | 7.1 | 2 | 4 | 3 |
| Unknown | 8 | 6 | 3.7 | 1 | 10 | 2 | 10.7 | 3 | 4 | 3 |
| | | | | | | | | | | |
| **Adequate PNC** | | | | | | | | | | |
| Yes | 30.7 | 23 | 25.9 | 7 | 40 | 8 | 28.6 | 8 | 50.7 | 38 |
| No | 62.7 | 47 | 74.1 | 20 | 50 | 10 | 60.7 | 17 | 40 | 30 |
| Not Found in Record | 6.7 | 5 | 0 | 0 | 10 | 2 | 10.7 | 3 | 9.3 | 7 |
| | | | | | | | | | | |
| **PNC Pattern** | | | | | | | | | | |
| Regular Visits | 29.3 | 22 | 29.6 | 8 | 30 | 6 | 28.6 | 8 | 40 | 30 |
| Regular Visits After Late Entry | 30.7 | 23 | 33.3 | 9 | 30 | 6 | 28.6 | 8 | 17.3 | 13 |
| Sporadic Visits | 6.7 | 5 | 7.4 | 2 | 5 | 1 | 7.1 | 2 | 8 | 6 |
| Regular Visits with Missed Appointment (big period between visits) | 4 | 3 | 3.7 | 1 | 0 | 0 | 7.1 | 2 | 4 | 3 |
| Regular Visits with Missed Appts after Late Entry | 4 | 3 | 3.7 | 1 | 0 | 0 | 7.1 | 2 | 4 | 3 |
| Regular Visits After Transfer of Care | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | 10.7 | 8 |
| Missing Records Towards End of Pregnancy | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | 8 | 6 |
| Missing Records Towards End of Preg after Late Entry | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.7 | 2 |
| Went Once Never Came Back | 6.7 | 5 | 7.4 | 2 | 10 | 2 | 3.6 | 1 | 0 | 0 |
| Not Found in Record | 6.7 | 5 | | | 10 | 2 | 10.7 | 3 | 0 | 0 |
| | | | | | | | | | | |
| ***Gestational Age*** | | | | | | | | | | |
| **Gestation Age (weeks)** | | | | | | | | | | |
| 20-24 | 21.3 | 16 | 11.1 | 3 | 55 | 11 | 7.1 | 2 | 0 | 0 |
| 25-28 | 8 | 6 | 14.8 | 4 | 5 | 1 | 3.6 | 1 | 0 | 0 |
| 29-32 | 14.7 | 11 | 22.2 | 6 | 10 | 2 | 10.7 | 3 | 0 | 0 |
| 33-36 | 18.7 | 14 | 25.9 | 7 | 15 | 3 | 14.3 | 4 | 5.3 | 4 |
| >37 | 33.3 | 25 | 25.9 | 7 | 10 | 2 | 57.1 | 16 | 92 | 69 |
| Missing | 4 | 3 | 0 | 0 | 5 | 1 | 7.1 | 2 | 2.7 | 2 |
| **Birth weight (grams)** | | | | | | | | | | |
| Extremely Low <499 | 8 | 6 | 0 | 0 | 30 | 6 | 0 | 0 | 0 | 0 |
| Extremely Low 500-999 | 26.7 | 20 | 33.3 | 9 | 40 | 8 | 10.7 | 3 | 0 | 0 |
| Very Low 1000-1499 | 9.3 | 7 | 11.1 | 3 | 5 | 1 | 10.7 | 3 | 0 | 0 |
| Low 1500-2499 | 20 | 15 | 33.3 | 9 | 10 | 2 | 14.3 | 4 | 1.3 | 1 |
| Normal >=2500 | 33.3 | 25 | 22.2 | 6 | 10 | 2 | 60.7 | 17 | 97.3 | 73 |
| Not Found in Record | 2.7 | 2 | 0 | 0 | 5 | 1 | 3.6 | 1 | 1.3 | 1 |
| | | | | | | | | | | |
| ***Psychosocial Findings*** | | | | | | | | | | |
| **Stated Housing Problems** | | | | | | | | | | |
| Yes | 2.7 | 2 | 7.4 | 2 | 0 | 0 | 0 | 0 | 1.3 | 1 |
| No | 86.7 | 65 | 74.1 | 20 | 95 | 19 | 92.9 | 26 | 94.7 | 71 |
| Not Found in Record | 10.7 | 8 | 18.5 | 5 | 5 | 1 | 7.1 | 2 | 4 | 3 |
| | | | | | | | | | | |
| **Mental Health Reported Findings** | | | | | | | | | | |
| Yes | 14.7 | 11 | 11.1 | 3 | 20 | 4 | 14.3 | 4 | 10.7 | 8 |
| No | 65.3 | 49 | 74.1 | 20 | 60 | 12 | 60.7 | 17 | 80 | 60 |
| Not Found in Record | 20 | 15 | 14.8 | 4 | 20 | 4 | 25 | 7 | 9.3 | 7 |

| Characteristics | Overall | | Fetal Deaths | | Infant Deaths < 24 hours | | Infant Deaths > 24 hours | | Controls | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | N | % | N | % | N | % | N | % | N |
| **Total Records:** | | **75** | | **27** | | **20** | | **28** | | **75** |
| ***Alcohol, Drugs, Tobacco*** | | | | | | | | | | |
| **Self Reported History of Drug Use Reported During Delivery** | | | | | | | | | | |
| No or Denied | 53.3 | 40 | 48.1 | 13 | 55 | 11 | 57.1 | 16 | 80 | 60 |
| Yes | 17.3 | 13 | 22.2 | 6 | 15 | 3 | 14.3 | 4 | 8 | 6 |
| Not Found in Record | 29.3 | 22 | 29.6 | 8 | 30 | 6 | 28.5 | 8 | 12 | 9 |
| | | | | | | | | | | |
| **Self Reported Drug Use During Pregnancy Reported at Delivery** | | | | | | | | | | |
| No or Denied | 56 | 42 | 59.3 | 16 | 60 | 12 | 50 | 14 | 85.3 | 64 |
| Yes | 14.7 | 11 | 11.1 | 3 | 10 | 2 | 21.4 | 6 | 2.7 | 2 |
| Not Found in Record | 29.3 | 22 | 29.6 | 8 | 30 | 6 | 28.6 | 8 | 12 | 9 |
| | | | | | | | | | | |
| **Maternal Laboratory Toxicology Test During PNC** | | | | | | | | | | |
| Screen Done w/Negative Results | 4 | 3 | 3.7 | 1 | 5 | 1 | 3.6 | 1 | 4 | 3 |
| Screen not Done | 50.7 | 38 | 63 | 17 | 45 | 9 | 42.9 | 12 | 10.7 | 8 |
| Screen Positive | 1.3 | 1 | 0 | 0 | 0 | 0 | 3.6 | 1 | 1.3 | 1 |
| Not Found in Chart | 44 | 33 | 33.3 | 9 | 50 | 10 | 50 | 14 | 84 | 63 |
| | | | | | | | | | | |
| **Maternal Laboratory Toxicology Test at Delivery** | | | | | | | | | | |
| Screen Done w/Negative Results | 32 | 24 | 44.4 | 12 | 25 | 5 | 25 | 7 | 10.7 | 8 |
| Screen Not Done | 34.7 | 26 | 25.9 | 7 | 35 | 7 | 42.9 | 12 | 46.7 | 35 |
| Screen Positive** | 12 | 9 | 18.5 | 5 | 10 | 2 | 7.1 | 2 | 2.7 | 2 |
| Not Found in Record | 16 | 12 | 11.1 | 3 | 25 | 5 | 14.2 | 4 | 40 | 30 |
| Labor Related | 6.7 | 5 | 3.7 | 1 | 5 | 1 | 10.7 | 3 | 0 | 0 |
| | | | | | | | | | | |
| **Type of Drug** | | | | | | | | | | |
| Marijuana/Cannabinoid | 5.4 | 4 | 11.1 | 3 | 5 | 1 | 0 | 0 | 0 | 0 |
| Methamphetamine/ Amphetamine | 8 | 6 | 7.4 | 2 | 10 | 2 | 7.1 | 2 | 2.6 | 2 |
| Opiate | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Morphine | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Drugs Related to Labor | 6.7 | 5 | 3.7 | 1 | 5 | 1 | 10.7 | 3 | 0 | 0 |
| **Infant Laboratory Toxicology Test** | | | | | | | | | | |
| Screen Done | 18.7 | 14 | 7.4 | 2 | 10 | 2 | 35.7 | 10 | 13.3 | 10 |
| Screen Positive | 9.3 | 7 | 7.4 | 2 | 10 | 2 | 10.7 | 3 | 1.3 | 1 |
| | | | | | | | | | | |
| **Self Reported History of Alcohol Use** | | | | | | | | | | |
| Yes Occasional | 12 | 9 | 7.4 | 2 | 15 | 3 | 14.3 | 4 | 9.3 | 7 |
| Yes > Occasional | 1.3 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 1.3 | 1 |
| No | 69.3 | 52 | 70.4 | 19 | 60 | 12 | 75 | 21 | 84 | 63 |
| Not Found in Record | 17.3 | 13 | 22.2 | 6 | 20 | 4 | 10.7 | 3 | 5.3 | 4 |
| | | | | | | | | | | |
| **Self Reported Alcohol Use During Pregnancy** | | | | | | | | | | |
| Yes Occasional | 1.3 | 1 | 0 | 0 | 0 | 0 | 3.6 | 1 | 4.1 | 3 |
| Quit | 8 | 6 | 3.7 | 1 | 10 | 2 | 10.7 | 3 | 2.7 | 2 |
| No | 81.3 | 61 | 88.9 | 24 | 80 | 16 | 75 | 21 | 89.3 | 67 |
| Not Found in Record | 9.3 | 7 | 7.4 | 2 | 10 | 2 | 10.7 | 3 | 4 | 3 |
| | | | | | | | | | | |
| **Self Reported Tobacco Use During Pregnancy** | | | | | | | | | | |
| Yes Occasional | 2.7 | 2 | 3.7 | 1 | 5 | 1 | 0 | 0 | 4 | 3 |
| Yes > Occasional | 12 | 9 | 7.4 | 2 | 10 | 2 | 17.9 | 5 | 2.7 | 2 |
| No | 72 | 54 | 77.8 | 21 | 65 | 13 | 71.4 | 20 | 89.3 | 67 |
| Quit | 4 | 3 | 3.7 | 1 | 5 | 1 | 3.6 | 1 | 1.3 | 1 |
| Not Found in Record | 9.3 | 7 | 7.4 | 2 | 15 | 3 | 7.1 | 2 | 2.7 | 2 |
| | | | | | | | | | | |
| **Self Reported History of Tobacco Use** | | | | | | | | | | |
| Yes Occasional | 6.7 | 5 | 7.4 | 2 | 0 | 0 | 10.7 | 3 | 2.7 | 2 |
| Yes > Occasional | 10.7 | 8 | 7.4 | 2 | 15 | 3 | 10.7 | 3 | 5.3 | 4 |
| No | 64 | 48 | 66.7 | 18 | 55 | 11 | 67.9 | 19 | 86.7 | 65 |
| Not Found in Record | 18.7 | 14 | 18.5 | 5 | 30 | 6 | 10.7 | 3 | 5.3 | 4 |

| Characteristics | Overall | | Fetal Deaths | | Infant Deaths < 24 hours | | Infant Deaths > 24 hours | | Controls | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | N | % | N | % | N | % | N | % | N |
| **Total Records:** | | **75** | | **27** | | **20** | | **28** | | **75** |
| ***Pertinent Prenatal Information*** | | | | | | | | | | |
| **Gravis** | | | | | | | | | | |
| 1 | 30.7 | 23 | 37 | 10 | 30 | 6 | 25 | 7 | 32 | 24 |
| 2 | 18.7 | 14 | 18.5 | 5 | 20 | 4 | 17.9 | 5 | 25.3 | 19 |
| 3 | 22.7 | 17 | 25.9 | 7 | 15 | 3 | 25 | 7 | 18.7 | 14 |
| >4 | 24 | 18 | 18.5 | 5 | 30 | 6 | 25 | 7 | 24.2 | 18 |
| Not Found in Record | 4 | 3 | 0 | 0 | 5 | 1 | 7.1 | 2 | 0 | 0 |
| | | | | | | | | | | |
| **Pregnancy History** | | | | | | | | | | |
| SAB ≥1 | 20 | 15 | 25.9 | 7 | 15 | 3 | 17.9 | 5 | 20 | 15 |
| TAB ≥ 1 | 12 | 9 | 14.8 | 4 | 15 | 3 | 7.2 | 2 | 13.3 | 10 |
| Preterm Fetal Loss ≥1 | 5.4 | 4 | 3.7 | 1 | 5 | 1 | 7.2 | 2 | 2.6 | 2 |
| Preterm Infant Loss ≥1 | 2.7 | 2 | 0 | 0 | 10 | 2 | 0 | 0 | 0 | 0 |
| Term Fetal Loss | 1.3 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | |
| **Body Mass Index** | | | | | | | | | | |
| Overweight: 25<BMI<29.9 | 25.3 | 19 | 25.9 | 7 | 20 | 4 | 28.6 | 8 | 28 | 21 |
| Obese: BMI>30 | 18.7 | 14 | 22.2 | 6 | 20 | 4 | 14.3 | 4 | 20 | 15 |
| Normal: BMI 18.5-24.9 | 37.3 | 28 | 37 | 10 | 30 | 6 | 42.9 | 12 | 37.3 | 28 |
| Underweight: BMI < 18.5 | 1.3 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 5.3 | 4 |
| Not Found in Record | 17.3 | 13 | 14.8 | 4 | 25 | 5 | 14.3 | 4 | 9.3 | 7 |
| **History Of Dental Concerns** | | | | | | | | | | |
| Yes | 8 | 6 | 11.1 | 3 | 0 | 0 | 10.7 | 3 | 2.7 | 2 |
| No | 44 | 33 | 51.9 | 14 | 40 | 8 | 39.3 | 11 | 56 | 42 |
| Not Found in Record | 48 | 36 | 37 | 10 | 60 | 12 | 50 | 14 | 41.3 | 31 |
| | | | | | | | | | | |
| **History Of Prior Preterm Labor** | | | | | | | | | | |
| Yes | 16 | 12 | 11.1 | 3 | 15 | 3 | 21.4 | 6 | 1.3 | 1 |
| No/ Not applicable | 72 | 54 | 88.9 | 24 | 70 | 14 | 57.1 | 16 | 92 | 69 |
| Not Found in Record | 12 | 9 | 0 | 0 | 15 | 3 | 21.4 | 6 | 6.7 | 5 |
| | | | | | | | | | | |
| **Gestational Diabetes During Pregnancy** | | | | | | | | | | |
| Yes | 6.7 | 5 | 7.4 | 2 | 0 | 0 | 10.7 | 3 | 9.3 | 7 |
| | | | | | | | | | | |
| **Pregnancy Induced Hypertension During Pregnancy** | | | | | | | | | | |
| Yes | 5.3 | 4 | 3.7 | 1 | 5 | 1 | 7.1 | 2 | 6.7 | 5 |
| | | | | | | | | | | |
| ***Infection*** | | | | | | | | | | |
| **Sexually Transmitted Infections (STI) During Pregnancy** | | | | | | | | | | |
| Yes | 13.3 | 10 | 22.2 | 6 | 5 | 1 | 10.7 | 3 | 9.3 | 7 |
| Unknown | 16 | 12 | 7.4 | 2 | 20 | 4 | 21.4 | 6 | 5.3 | 4 |
| No | 70.7 | 53 | 70.4 | 19 | 75 | 15 | 67.9 | 19 | 85.3 | 64 |
| | | | | | | | | | | |
| **History Of STI's** | | | | | | | | | | |
| Yes | 12 | 9 | 7.4 | 2 | 15 | 3 | 14.3 | 4 | 10.7 | 8 |
| Unknown | 40 | 30 | 37 | 10 | 50 | 10 | 35.7 | 10 | 16 | 12 |
| No | 48 | 36 | 55.6 | 15 | 35 | 7 | 50 | 14 | 73.3 | 55 |
| | | | | | | | | | | |
| **Urinary Tract Infection During Pregnancy** | | | | | | | | | | |
| Yes | 14.7 | 11 | 11.1 | 3 | 15 | 3 | 17.9 | 5 | 18.7 | 14 |
| Unknown | 25.3 | 19 | 14.8 | 4 | 25 | 5 | 35.7 | 10 | 26.7 | 20 |
| No | 60 | 45 | 74.1 | 20 | 60 | 12 | 46.4 | 13 | 54.7 | 41 |
| | | | | | | | | | | |
| **Infection (Not STI or Placental)** | | | | | | | | | | |
| Bacterial Vaginosis | 4 | 3 | 0 | 0 | 0 | 0 | 10.7 | 3 | 1.3 | 1 |
| Other Viral | 5.3 | 4 | 7.4 | 2 | 5 | 1 | 3.6 | 1 | 4 | 3 |
| Other Bacterial | 6.7 | 5 | 11.1 | 3 | 5 | 1 | 3.6 | 1 | 1.3 | 1 |
| Other | 2.7 | 2 | 0 | 0 | 5 | 1 | 3.6 | 1 | 1.3 | 1 |
| | | | | | | | | | | |

| Characteristics | Overall | | Fetal Deaths | | Infant Deaths < 24 hours | | Infant Deaths > 24 hours | | Controls | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | N | % | N | % | N | % | N | % | N |
| **Total Records:** | | **75** | | **27** | | **20** | | **28** | | **75** |
| **Group B Strep +** | | | | | | | | | | |
| Yes | 14.7 | 11 | 22.2 | 6 | 5 | 1 | 14.3 | 4 | 9.3 | 7 |
| No | 28 | 21 | 18.5 | 5 | 30 | 6 | 35.7 | 10 | 65.3 | 49 |
| Not Found in Record | 57.3 | 43 | 59.3 | 16 | 65 | 13 | 50 | 14 | 25.3 | 19 |
| **Placental Pathology** | | | | | | | | | | |
| Yes Done | 78.7 | 59 | 92.6 | 25 | 100 | 20 | 50 | 14 | 21.3 | 16 |
| Not Done | 10.7 | 8 | 0 | 0 | 0 | 0 | 28.6 | 8 | | |
| Not Found in Record | 10.7 | 8 | 7.4 | 2 | 0 | 0 | 21.4 | 6 | 5.4 | 4 |
| | | | | | | | | | | |
| **Placental Infection** | | | | | | | | | | |
| No | 24 | 18 | 25.9 | 7 | 30 | 6 | 17.9 | 5 | 17.3 | 13 |
| Yes | 52 | 39 | 59.3 | 16 | 70 | 14 | 32.1 | 9 | 4 | 3 |
| Missing | 2.7 | 2 | 7.4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | |
| **Placental Infection/Types** | | | | | | | | | | |
| Chorioamnionitis | 26.7 | 20 | 33.3 | 9 | 35 | 7 | 14.3 | 4 | 0 | 0 |
| Chorionitis | 14.7 | 11 | 11.1 | 3 | 25 | 5 | 10.7 | 3 | 0 | 0 |
| Funisitis | 13.3 | 10 | 18.5 | 5 | 20 | 4 | 3.6 | 1 | 0 | 0 |
| Amnionitis | 1.3 | 1 | 0 | 0 | 0 | 0 | 3.6 | 1 | 0 | 0 |
| Other | 13.2 | 10 | 14.8 | 4 | 20 | 4 | 7.1 | 2 | 0 | 0 |
| | | | | | | | | | | |
| ***Delivery*** | | | | | | | | | | |
| **Type Of Delivery** | | | | | | | | | | |
| Vaginal | 62.6 | 47 | 85.2 | 23 | 60 | 12 | 42.9 | 12 | 69.3 | 52 |
| C-Section | 36 | 27 | 14.8 | 4 | 35 | 7 | 57.1 | 16 | 29.3 | 22 |
| Not Found in Record | 1.3 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 1.3 | 1 |
| | | | | | | | | | | |
| **Labor Induction** | | | | | | | | | | |
| Induction for Cause | 24 | 18 | 66.7 | 18 | 0 | 0 | 0 | 0 | 1.3 | 1 |
| Induction for Labor | 6.7 | 5 | 3.7 | 1 | 10 | 2 | 7.1 | 2 | 22.7 | 17 |
| | | | | | | | | | | |
| **Reason for Induction (Induction for Cause)** | | | | | | | | | | |
| Loss of Fetal Movement | 13.3 | 10 | 37 | 10 | NA | NA | NA | NA | NA | NA |
| Loss of Fetal Heart Tones | 10.7 | 8 | 29.6 | 8 | NA | NA | NA | NA | NA | NA |
| Lethal Congenital Anomaly | 1.3 | 1 | 3.7 | 1 | NA | NA | NA | NA | NA | NA |
| | | | | | | | | | | |
| **Infant Care at Delivery** | | | | | | | | | | |
| Comfort Care | 18.7 | 14 | NA | NA | 45 | 9* | 17.9 | 5 | NA | NA |
| Intervention | 28 | 21 | NA | NA | 45 | 9 | 42.9 | 12 | NA | NA |
| Not Applicable | 36 | 27 | 100 | 27 | 0 | 0 | 0 | 0 | NA | NA |
| Not Found in Record | 17.3 | 13 | 0 | 0 | 10 | 2 | 39.3 | 11 | NA | NA |
| | | | | | | | | | | |
| **Length Of Demise For Fetal Death** | | | | | | | | | | |
| < 1 Day | 4 | 3 | 11.1 | 3 | NA | NA | NA | NA | NA | NA |
| > 1 Day | 18.7 | 14 | 51.9 | 14 | NA | NA | NA | NA | NA | NA |
| Unknown | 13.3 | 10 | 37 | 10 | NA | NA | NA | NA | NA | NA |
| | | | | | | | | | | |
| ***Factors of Interest in Fetal/Infant Demise*** | | | | | | | | | | |
| **Maternal Factors** | | | | | | | | | | |
| Diabetes | 9.3 | 7 | 7.4 | 2 | 5 | 1 | 14.3 | 4 | NA | NA |
| Hypertensive Disease During Pregnancy | 6.7 | 5 | 3.7 | 1 | 5 | 1 | 10.7 | 3 | NA | NA |
| Drug Misuse | 18.7 | 14 | 18.5 | 5 | 15 | 3 | 21.4 | 6 | NA | NA |
| Infection | 29.3 | 22 | 40.7 | 11 | 25 | 5 | 21.4 | 6 | NA | NA |
| Preterm Labor | 33.3 | 25 | 22.2 | 6 | 60 | 12 | 25 | 7 | NA | NA |
| | | | | | | | | | | |
| **Cord Factors** | | | | | | | | | | |
| Constricting Loop/Knot/ Constriction | 6.7 | 5 | 14.8 | 4 | 5 | 1 | 0 | 0 | NA | NA |
| Other (Thrombi and Velamentous Insertion) | 2.7 | 2 | 7.4 | 2 | 0 | 0 | 0 | 0 | NA | NA |
| | | | | | | | | | | |

| Characteristics | Overall | | Fetal Deaths | | Infant Deaths < 24 hours | | Infant Deaths > 24 hours | | Controls | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | N | % | N | % | N | % | N | % | N |
| **Total Records:** | | **75** | | **27** | | **20** | | **28** | | **75** |
| **Placental Factors** | | | | | | | | | | |
| Abruption | 8 | 6 | 11.1 | 3 | 0 | 0 | 10.7 | 3 | NA | NA |
| Thrombosis | 9.3 | 7 | 25.9 | 7 | 0 | 0 | 0 | 0 | NA | NA |
| Other | 13.3 | 10 | 22.2 | 6 | 10 | 2 | 7.1 | 2 | NA | NA |
| | | | | | | | | | | |
| **Uterus Factors** | | | | | | | | | | |
| Incompetent Cervix | 2.7 | 2 | 0 | 0 | 10 | 2 | 0 | 0 | NA | NA |
| Uterine Anomalies | 2.7 | 2 | 3.7 | 1 | 0 | 0 | 3.6 | 1 | NA | NA |
| Other | 2.7 | 2 | 3.7 | 1 | 5 | 1 | 0 | 0 | NA | NA |
| **Fetus/Infant Factors** | | | | | | | | | | |
| Lethal Congenital | 16 | 12 | 3.7 | 1 | 25 | 5 | 21.4 | 6 | NA | NA |
| Genetic Anomaly | 5.3 | 4 | 3.7 | 1 | 5 | 1 | 7.1 | 2 | NA | NA |
| Infection | 18.7 | 14 | 3.7 | 1 | 0 | 0 | 46.4 | 13 | NA | NA |
| Fetal Growth Restriction | 8 | 6 | 7.4 | 2 | 10 | 2 | 7.1 | 2 | NA | NA |
| Interuterine Fetal Demise (IUFD) Unclear Etiology | 32 | 24 | 88.9 | 24 | 0 | 0 | 0 | 0 | NA | NA |
| Prematurity | 44 | 33 | 25.9 | 7 | 80 | 16 | 35.7 | 10 | NA | NA |
| | | | | | | | | | | |
| **Amniotic Fluid Factors** | | | | | | | | | | |
| Oligo | 10.7 | 8 | 7.4 | 2 | 25 | 5 | 3.6 | 1 | NA | NA |
| Poly | 2.7 | 2 | 0 | 0 | 5 | 1 | 3.6 | 1 | NA | NA |
| Other | 4 | 3 | 7.4 | 2 | 5 | 1 | 0 | 0 | NA | NA |
| | | | | | | | | | | |
| **Intrapartum Factors** | | | | | | | | | | |
| Asphyxia | 2.7 | 2 | 7.4 | 2 | 0 | 0 | 0 | 0 | NA | NA |
| Birth Trauma | 4 | 3 | 3.7 | 1 | 5 | 1 | 3.6 | 1 | NA | NA |
| | | | | | | | | | | |
| **Trauma Factors** | | | | | | | | | | |
| External | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | NA | NA |
| Iatragenic | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | NA | NA |
| | | | | | | | | | | |
| **Probable Precipitating Factor For Death** | | | | | | | | | | |
| Preterm Labor | 17.3 | 13 | 7.4 | 2 | 45 | 9 | 7.1 | 2 | NA | NA |
| Infection in Child | 13.3 | 10 | 0 | 0 | 0 | 0 | 35.7 | 10 | NA | NA |
| IUFD Unknown Etiology | 10.7 | 8 | 29.6 | 8 | 0 | 0 | 0 | 0 | NA | NA |
| Preeclampsia | 2.7 | 2 | 3.7 | 1 | 0 | 0 | 3.6 | 1 | NA | NA |
| Cord Knot/Constriction | 6.7 | 5 | 14.8 | 4 | 5 | 1 | 0 | 0 | NA | NA |
| Cord Thrombi | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | NA | NA |
| Incompetent Cervix | 2.7 | 2 | 0 | 0 | 10 | 2 | 0 | 0 | NA | NA |
| Congenital | 8 | 6 | 3.7 | 1 | 5 | 1 | 14.3 | 4 | NA | NA |
| Genetic Anomaly | 2.7 | 2 | 0 | 0 | 5 | 1 | 3.6 | 1 | NA | NA |
| Drug Use | 8 | 6 | 11.1 | 3 | 10 | 2 | 3.6 | 1 | NA | NA |
| Placental Hemorrhage & Infarction | 2.7 | 2 | 7.4 | 2 | NA | NA | NA | NA | NA | NA |
| Fetal Infection | 1.3 | 1 | 3.7 | 1 | NA | NA | NA | NA | NA | NA |
| Maternal Infection | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Oligohydramnios | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | NA | NA |
| Sudden Infant Death Syndrome (SIDS) | 5.3 | 4 | 0 | 0 | NA | NA | 14.3 | 4 | NA | NA |
| Maternal Medical Problem | 4 | 3 | 0 | 0 | 10 | 2 | 3.6 | 1 | NA | NA |
| Birth Trauma | 1.3 | 1 | 3.7 | 1 | 0 | 0 | 0 | 0 | NA | NA |
| Unknown Etiology | 1.3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Infant Medical Condition | 4 | 3 | NA | NA | 5 | 1 | 7.1 | 2 | NA | NA |
| Accident/Homicide | 2.7 | 2 | 0 | 0 | 5 | 1 | 3.6 | 1 | NA | NA |

* Only the zip codes with the highest frequencies were included
** Results are only for women who were tested