

# FETAL INFANT Mortality Review

## TARRANT COUNTY

*Study findings and recommendations  
from the Tarrant County FIMR  
Case Review Team*

**DECEMBER 2009**



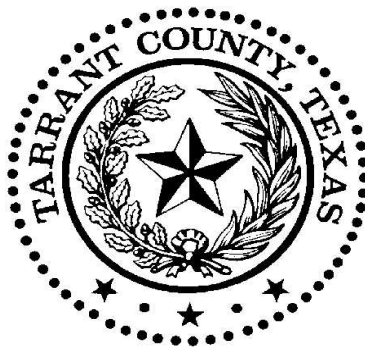
**Tarrant County  
Public Health**

*Safeguarding our  
community's health*



# **Fetal Infant Mortality Review Tarrant County, 2009**

*Study findings and recommendations  
from the Tarrant County FIMR  
Case Review Team*



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*“The death of a baby is like a stone cast into the stillness of a quiet pool; the concentric ripples of despair sweep out in all directions, affecting many, many people.”*

*- John DeFraín, Ph.D.*



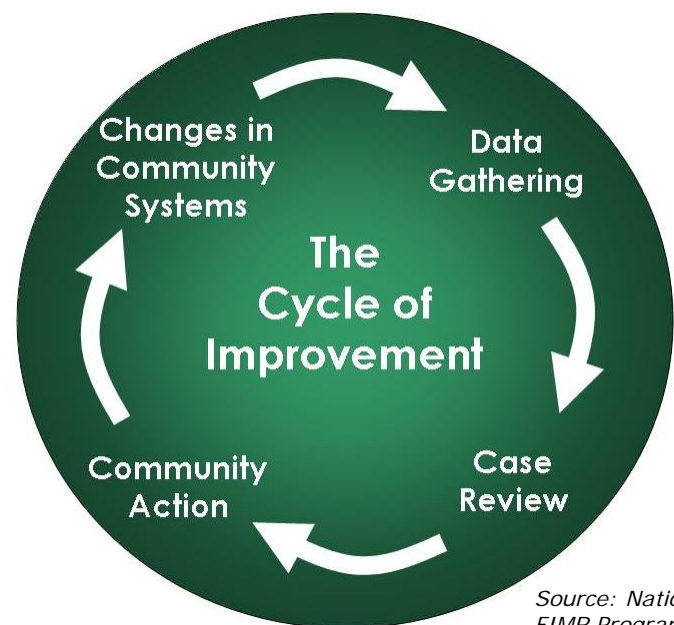
## I. INTRODUCTION

The infant mortality rate in Tarrant County has been increasing since 2000 and is currently at 7.6 deaths per 1,000 live births, which is higher than state and national rates, and much higher than the national Healthy People 2010 goal of 4.5 per 1,000.

In Tarrant County, just as across the United States, babies born to African American mothers are two to three times more likely than Whites and Hispanics to die within the first year of life. In 2006 (the most recent year for which data are available), African Americans had the highest infant mortality rate in Tarrant County (15.3 per 1,000 live births), while Whites had the second highest rate (6.7 per 1,000 live births), and Hispanics the third (5.9 per 1,000 live births). The rate among African American women represents an increase of 21 percent, from 12.6 to 15.3 per 1,000, between 2001 and 2006.

Tarrant County's Fetal Infant Mortality Review (TCFIMR) program was designed in 2007 to enhance the health and well-being of women, infants, and families (Figure 1). Studying recent fetal and infant deaths in our community enables us to identify trends and explore ways to reduce fetal and infant mortality. TCFIMR is modeled after the national FIMR, and consists of two community based groups; the Case Review Team (CRT) and a Community Action Team (CAT). The CRT and CAT are each composed of multidisciplinary team members. The CRT team includes a mix of professionals and representatives of various agencies that provide services or community resources for families in Tarrant County, and examines individual confidential and anonymous cases by reviewing information collected from a variety of sources. These sources include physician and hospital records, parent interviews and other relevant documents. The infant deaths to be reviewed by the CRT were selected using a systematic random sampling method. This report presents the results of detailed analyses of the selected de-identified infant deaths.

Figure 1. FIMR process model



Source: National FIMR Program

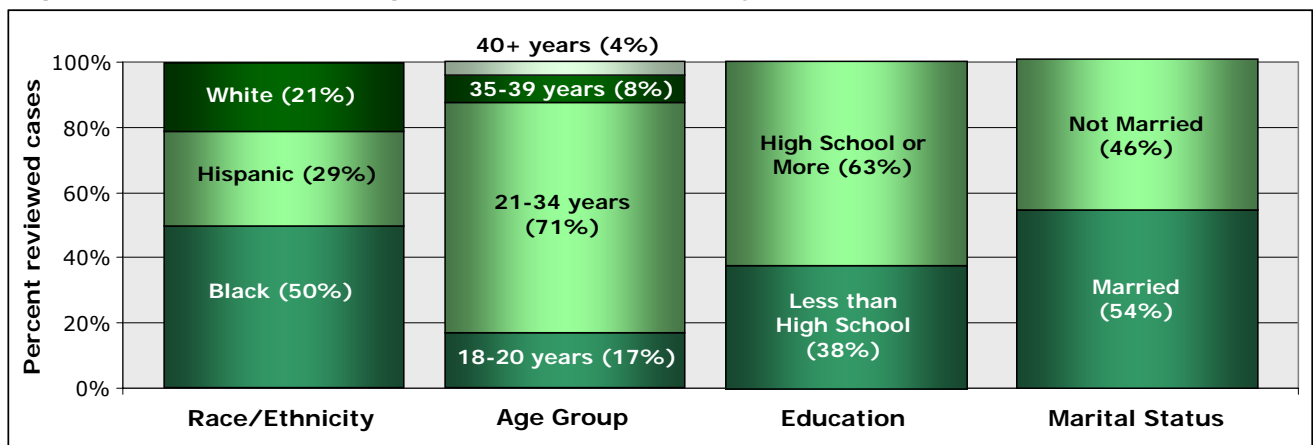


## II. KEY FINDINGS

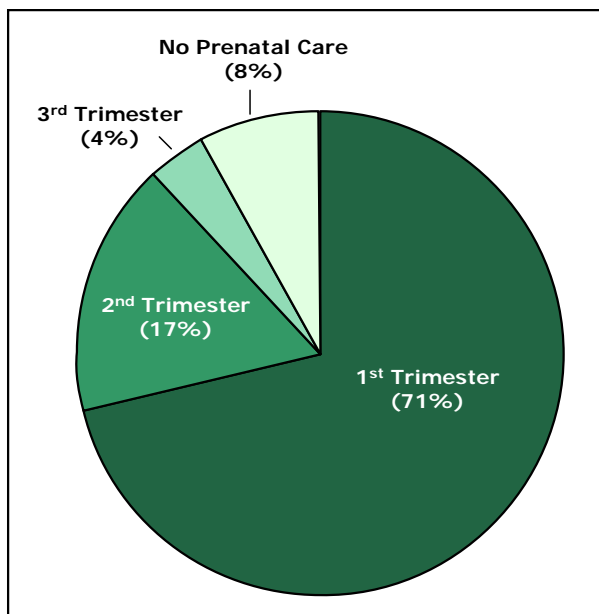
### MATERNAL CHARACTERISTICS

The TCFIMR case review team assessed 24 infant deaths born to 22 different Tarrant County residents during the 2008 calendar year. Fifty percent of the cases were African-American mothers, while 29 percent were Hispanic, and 21 percent of the mothers were Caucasian (Figure 2). The majority (71%) of FIMR cases had a maternal age of 21 to 34 years, followed by 18 to 20 year olds (17%), those aged 35-39 (8%), and finally mothers aged 40 years and older (4%) (Figure 2). None of the mothers were aged 17 years or younger and the mean maternal age for all reviewed cases was 27.3 years. Thirty-eight percent of cases had mothers with less than a high school education (Figure 2) and 46 percent of mothers were not married (Figure 2).

**Figure 2. Maternal demographics, Tarrant County FIMR cases, 2008**



Data source: Tarrant County Public Health



Data source: Tarrant County Public Health

**Figure 3. Trimester prenatal care began, Tarrant County FIMR cases, 2008**

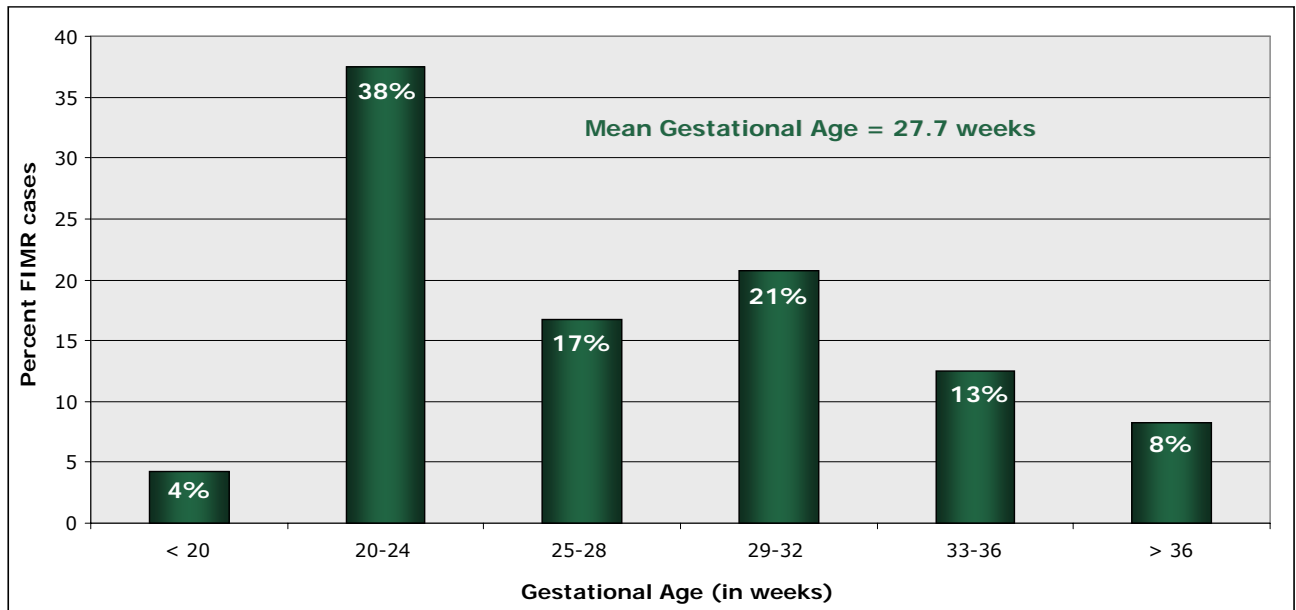
For 71 percent of the reviewed cases, prenatal care began during the first trimester while eight percent reported receiving no prenatal care during the course of their pregnancy (Figure 3). The number of previous pregnancies among mothers ranged from none to five, with an average of 1.8 previous pregnancies overall.



## BIRTH/INFANT CHARACTERISTICS

Seventy-one percent of all TCFIMR cases reviewed were male. The majority of cases had a gestational age of 32 weeks or less, with the highest percentage in the 20-24 weeks age group (38%) (Figure 4). The mean gestational age was 27.7 weeks.

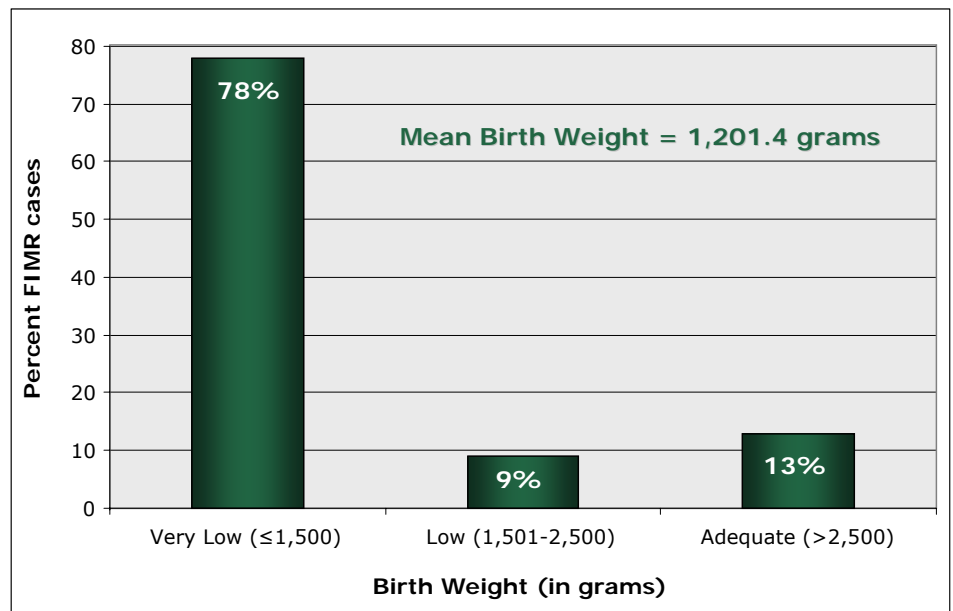
**Figure 4. Gestational age, Tarrant County FIMR cases, 2008**



Data source: Tarrant County Public Health

Over 75 percent of TCFIMR cases were classified as very low birth weight (less than 1,500 grams), while 13 percent were considered adequate weight at birth (more than 2,500 grams) (Figure 5). The average birth weight among all cases was 1,201.4 grams.

**Figure 5. Birth weight, Tarrant County FIMR cases, 2008**



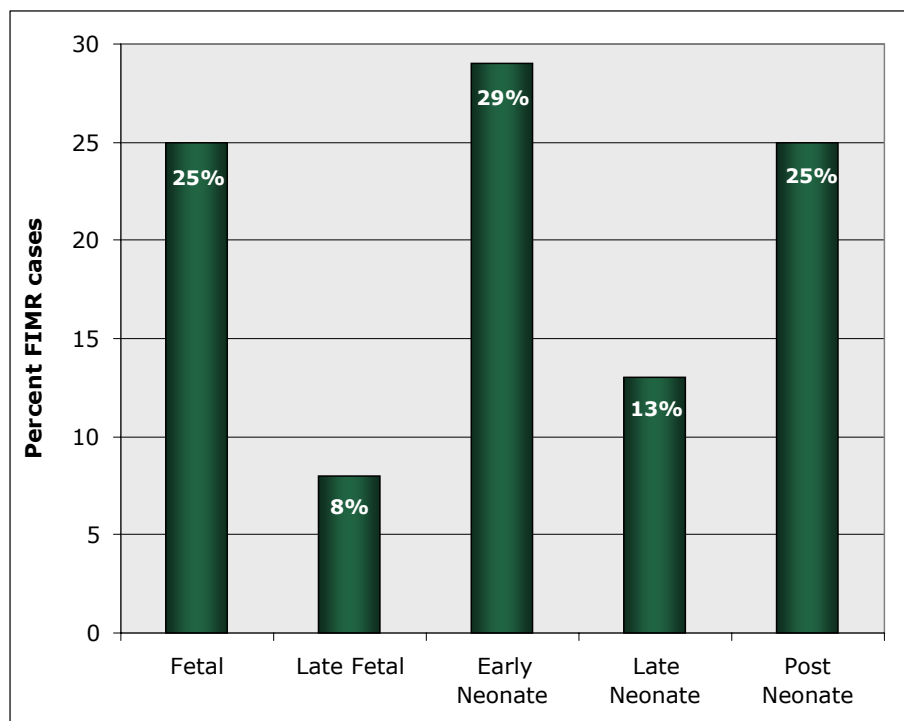
Data source: Tarrant County Public Health





Age at death was classified into five categories: fetal, late fetal, early neonate, late neonate, and post neonate. The largest percentage of FIMR cases (29%) fell into the early neonate category (Figure 6).

**Figure 6. Age at death, Tarrant County FIMR cases, 2008**



Data source: Tarrant County Public Health

**Fetal:** 20-28 weeks gestation; born with no signs of life

**Late Fetal:** More than 28 weeks gestation; born with no signs of life

**Early Neonate:** Born alive; died within less than seven days

**Late Neonate:** Born alive; died within 7 to 27 days

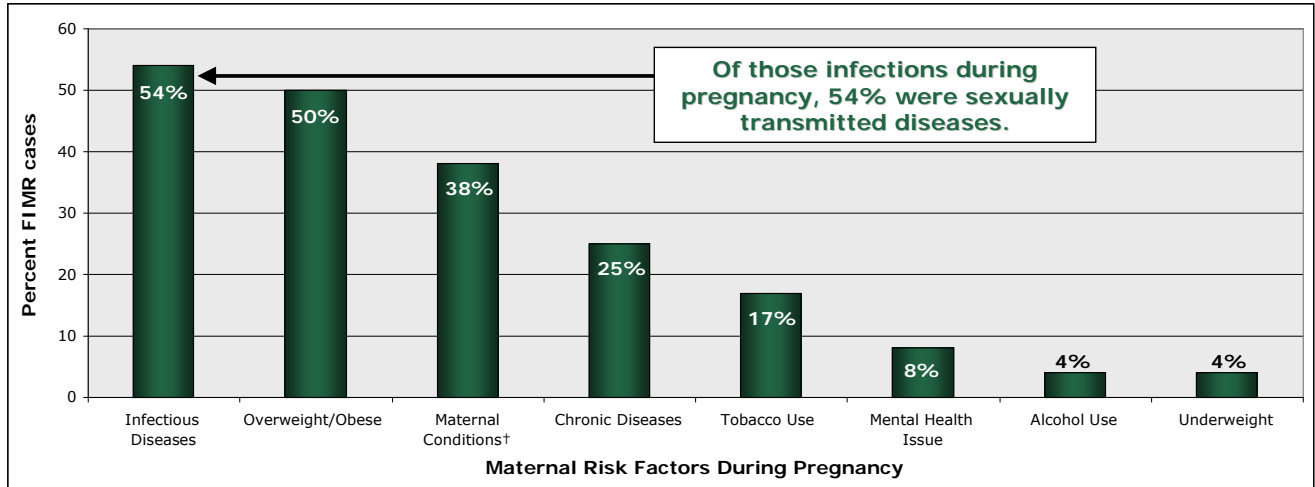
**Post Neonate:** Born alive; died within 28 days to one year

## MATERNAL RISK FACTORS

The most prevalent maternal risk factor identified was infection during pregnancy (Figure 7), specifically sexually transmitted diseases, which occurred in 54 percent of mothers reporting infections. Maternal overweight/obesity during pregnancy was reported in 50 percent of TCFIMR cases (Body Mass Index [BMI] of 25.0 and greater) while four percent of cases had a mother who was underweight (BMI less than 18.5). Various maternal conditions were reported in 38 percent of TCFIMR mothers. These conditions included anemia, gestational diabetes, fibroids, heart murmurs, hypothyroidism, incompetent cervix, multiple abdominal surgeries, polycystic ovaries, and Sick Cell Trait. Twenty-five percent of mothers had chronic conditions such as hypertension and diabetes. Maternal tobacco use was reported in 17 percent of the cases, mental health issues were identified in eight percent of FIMR mothers, and maternal alcohol use was reported in four percent of cases.



**Figure 7. Maternal risk factors during pregnancy, Tarrant County FIMR cases, 2008**



<sup>†</sup>Maternal conditions include anemia, gestational diabetes, fibroids, heart murmurs, hypothyroidism, incompetent cervix, multiple abdominal surgeries, polycystic ovaries, and Sickle Cell Trait.

Data source: Tarrant County Public Health

## INFANT RISK FACTORS AND CAUSE OF DEATH

Two main risk factors among infants were identified by the TCFIMR case review team; infections and congenital anomalies. Infections were reported among one quarter of the infants and congenital anomalies were associated with 13 percent of the cases. Of those infants with infections, 67 percent had mothers who had infections during pregnancy.

Prematurity and its complications were identified as the underlying cause of death in 38 percent of the TCFIMR cases, the most frequent cause of death among reviewed cases (Table 1). Other causes of death reported were congenital anomalies, necrotizing enterocolitis (NEC), placenta abruptio, and sudden infant death syndrome (SIDS). These causes each accounted for eight percent of the total cases. Chromosomal anomalies and pertussis were each identified among four percent of cases. Thirteen percent of cases were classified as “Other”

**Table 1. Cause of death, Tarrant County FIMR cases, 2008**

Cause of Death	Number	Percentage
Prematurity	9	38
Congenital anomaly	2	8
Necrotizing enterocolitis (NEC)	2	8
Placenta abruptio	2	8
SIDS	2	8
Chromosomal anomaly	1	4
Pertussis	1	4
Other <sup>†</sup>	3	13
Unknown	2	8

<sup>†</sup> Other causes of death include cardiac arrest, renal failure, respiratory arrest, and intrauterine fetal demise

Data Source: Tarrant County Public Health

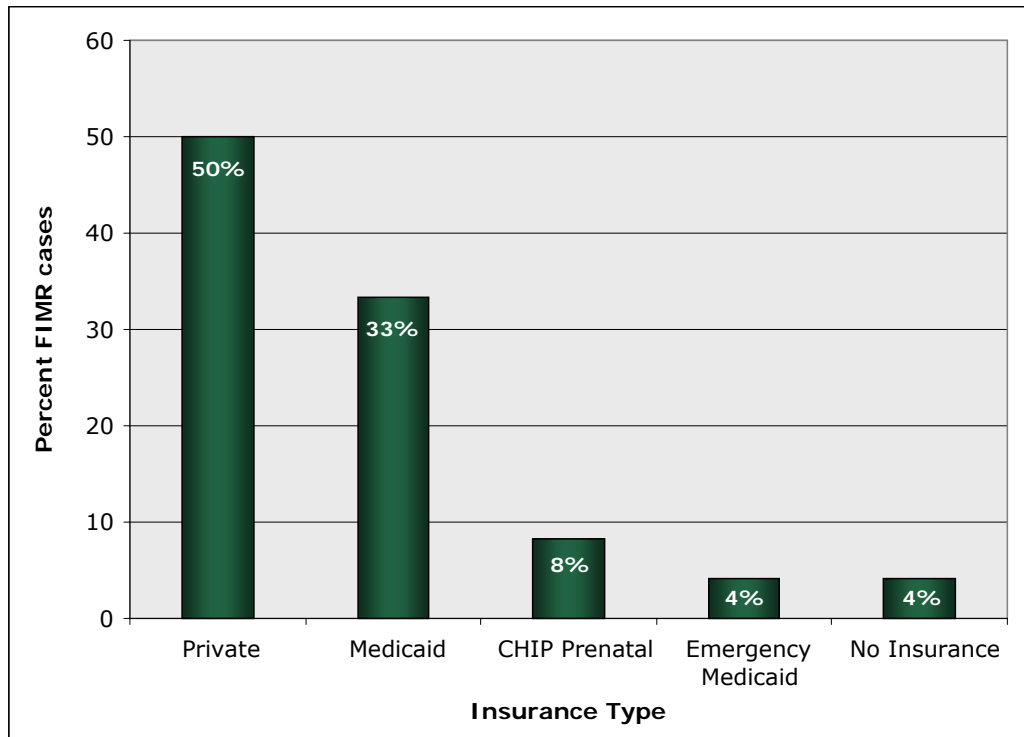
cause of death, which included cardiac arrest, renal failure, respiratory arrest, and intrauterine fetal demise. Eight percent of the cases did not have cause of death information available for the CRT to review.



## INSURANCE AND HEALTH CARE

Half of the TCFIMR cases reviewed were determined to have private insurance coverage while a third reported coverage under Medicaid (Figure 8). The Children's Health Insurance Program (CHIP) prenatal coverage was utilized by eight percent of the reviewed cases, and four percent of cases received health care assistance through Emergency Medicaid. Of the total cases reviewed, four percent had no health insurance provisions.

**Figure 8. Insurance type, Tarrant County FIMR cases, 2008**

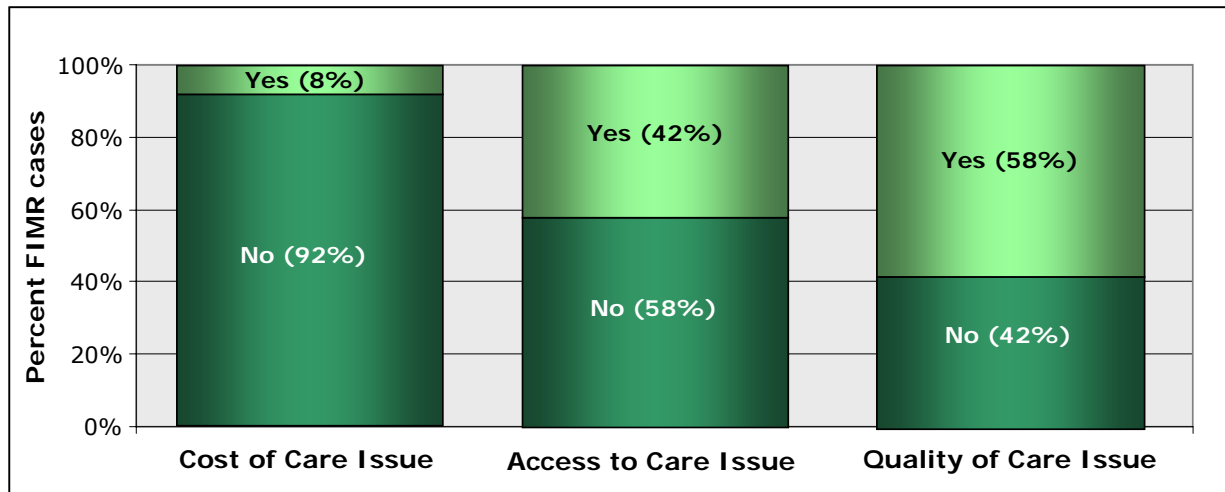


Data source: Tarrant County Public Health

Cost of care, access to care, and quality of care were all areas of consideration during the case review process. The TCFIMR review team identified issues associated with cost of care in eight percent of the reviewed cases (Figure 9). Medicaid and Emergency Medicaid were the primary health insurance types utilized among those cases with cost of care associated concerns. Forty-two percent of cases were found to have problems with access to care. No cases with private health insurance coverage reported troubles with access to care. Quality of care issues were seen among the majority of reviewed cases (58%) across all insurance types except the one case utilizing Emergency Medicaid.



**Figure 9. Cost of care, access to care, and quality of care issues identified among Tarrant County FIMR cases, 2008**



Data source: Tarrant County Public Health

## II. RECOMMENDATIONS FOR COMMUNITY ACTION TEAM

Based on the 24 infant deaths reviewed by the Tarrant County FIMR case review team, *sexually transmitted diseases (STDs) were identified as an intervention focus area for the community action team.* When looking at infant death trends, maternal infectious diseases stood out among the risk factors reviewed. Fifty-four percent of the TCFIMR case mothers had infectious diseases (13 out of 24), and of those infections 54 percent were STDs (7 out of 13). More cases did indicate an issue with quality of care (58%), however there were various quality of care parameters and no predominate trend emerged among them.

The case review team recommendation is supported by Perinatal Periods of Risk analysis which shows the burden of excess fetal-infant deaths in Tarrant County fall into the maternal health/prematurity prevention area.<sup>1</sup> Pregnant women with STDs are at higher risk for preterm labor and preterm membrane rupture<sup>2</sup>, the top two leading medical risks linked to infant deaths in Tarrant County.<sup>3</sup> This recommendation is also supported by trends seen in STD case management at TCPH. Data from TCPH Adult Health Services show the number of pregnant women diagnosed with STDs in Tarrant County increased 189 percent from 2004 to 2008.<sup>4</sup>

<sup>1</sup>Tarrant County Public Health, *Report of Perinatal Periods of Risk in Tarrant County*. Tarrant County Public Health, 2006. Available at [http://www.tarrantcounty.com/ehealth/lib/ehealth/PPOR\\_report\\_2006.pdf](http://www.tarrantcounty.com/ehealth/lib/ehealth/PPOR_report_2006.pdf)

<sup>2</sup>Centers for Disease Control and Prevention, *STDs and Pregnancy – CDC Fact Sheet*. Available at <http://www.cdc.gov/STD/STDFact-STDs&Pregnancy.htm#affect>

<sup>3</sup>Tarrant County Public Health, *Infant Mortality Report, Tarrant County, 2002-2004*, Tarrant County Public Health, 2008. Available at <http://www.tarrantcounty.com/ehealth/lib/ehealth/2002-2004TCInfantMortalityReport.pdf>

<sup>4</sup>Tarrant County Public Health, *Sexually Transmitted Diseases in Tarrant County, 2001-2008*. Tarrant County Public Health, 2009. Available at [http://www.tarrantcounty.com/ehealth/lib/ehealth/TC\\_STD\\_Poster\\_01-08.pdf](http://www.tarrantcounty.com/ehealth/lib/ehealth/TC_STD_Poster_01-08.pdf)



## APPENDIX

### Tarrant County Fetal Infant Mortality Review Case Review Team Members

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