San Joaquin County

Fetal-Infant Mortality Review

Case Review Team Findings & Recommendations

July 2022

San Joaquin County Public Health Services
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What is the Fetal Infant Mortality Review (FIMR) Program?

FIMR is an evidence-based model for a community-oriented process that reviews the circumstances surrounding local fetal and infant deaths to improve the health and safety of the community and prevent future deaths. There are 162 FIMR programs in the United States across 27 states, and 15 FIMR programs in the state of California. The San Joaquin County (SJC) FIMR program is implemented by SJC Public Health Services (PHS), Maternal Child Adolescent Health (MCAH) Program. The FIMR program was funded by Federal Title V funds allocated to local Public Health jurisdictions by the California Department of Public Health (CDPH), Maternal Child Adolescent Health Branch.

Ensuring that all babies survive and thrive is an issue too multidimensional for responsibility to rest in any one place. FIMR teams are diverse, multidisciplinary, and multiagency groups of professionals who come together to examine local, de-identified, individual cases of fetal and infant deaths. Reviews lead to identification of factors contributing to local fetal and infant mortality and reveal insights that data and statistics alone cannot provide. Based on the case reviews, the team makes recommendations for local actions that could improve systems of care, services, and resources for the perinatal population. Additionally, families are contacted for interviews so that their voices and perspectives are heard. Including family voices in making recommendations for change is an integral part of the FIMR model. When case reviews rely only on medical records, then only the institutional side is heard, the side with all the power. This report is a summary of these local contributing factors, recommendations, and family voices. National FIMR website for more info: www.ncfrp.org/fimr

The SJC FIMR Team Members

The SJC FIMR Team consisted of 24 local professionals including: managers and directors of maternity units and neonatal intensive care units of multiple local hospitals, maternal-fetal medicine (MFM) specialists, obstetricians (OB) and family medicine physicians, midwives, clinical educators, hospital social workers, nurses and health educators from managed care Medi-Cal plans, mental health clinicians, and various professionals and leaders working in child abuse prevention, public education system, childbirth education, WIC (Women, Infants, and Children Special Supplemental Nutrition Program), Child Death Review Team, and multiple Public Health professionals from different PHS programs and leadership roles. FIMR team members were also racially diverse; 24% of members were African American. The team members represented the following agencies:

- San Joaquin General Hospital
- Dignity Health St. Joseph's Medical Center
- Kaiser Permanente
- Community Medical Centers
- Health Plan of San Joaquin
- Child Protective Services
- Child Abuse Prevention Council
- County Office of Education
- The People's Empowerment Center
- Children's Services Coordinating Commission and Child Death Review Team
- SJC Public Health Services (WIC, California Children's Services, and MCAH)
- Other

Key Terms

Fetal Death – Pregnancy loss after 20 weeks gestation, born without any signs of life (no breathing, no heartbeat). Often referred to as a stillbirth or intrauterine fetal demise. Families are issued a certificate of fetal death. Some states in the United States (US) may not issue fetal death certificates unless the pregnancy was over 24 weeks gestation.

Neonatal Infant Death – Infants of any gestation, born with any signs of life, that died within the first 28 days of life. Families are issued a live birth certificate and a standard death certificate.

Postnatal Infant Death – Live-born infants, of any gestation, that died between 29 days through 1 year of age. Families are issued a live birth certificate and a standard death certificate.

The term **infant death** includes both neonatal and postnatal deaths, but technically not fetal deaths.

Fetal and Infant Mortality in San Joaquin County (SJC)

Between 2016-2020 in SJC, there were 349 fetal deaths (over 20 weeks gestation per California's definition) and 263 infant deaths, for a total of 612 fetal-infant deaths.[1] During this 5 year period there were 49,275 live births to SJC residents.[1] Fetal mortality rates are typically calculated to only include fetal deaths over 24 weeks gestation for consistent methodology across the U.S (i.e. 240 fetal deaths versus 349). This methodology equates to a fetal mortality rate **4.9 fetal deaths per 1000** live births + fetal deaths in SJC, compared to the average California rate of 3.2.[2] If we calculate the fetal mortality rate for all fetal deaths above 20 weeks gestation, the SJC rate is **7.0 fetal deaths per 1000** live births + fetal deaths, compared to the average California rate of 4.8[2]. The SJC infant mortality rate is **5.3 infant deaths per 1000** live births, compared to the California average of 4.1.[3] There are approximately 9000-10,000 births to SJC residents each year. About one third of those births occur at hospitals outside of SJC each year, e.g. Alameda, Sacramento, Stanislaus, San Francisco, and other counties. Data on the next page includes births and deaths for SJC residents regardless of which county the fetus/infant was born in or died in. The 26 cases reviewed all occurred at local SJC hospitals. If we could lower the SJC fetal and infant mortality rates to match the California rates, about 30 fetal-infant deaths in SJC could be prevented **each year.**

Fetal and infant deaths are sentinel events that measure the health of a community and illustrate system and resource issues. While many deaths are unavoidable, when communities have high rates of fetal and infant mortality, this indicates possible concerns about access to quality healthcare and social services, and economic, environmental, public health, safety, and education issues, and social determinants of health that contribute to poor birth outcomes. Community assets and liabilities, along with the conditions in which people are born, live, learn, work, play and age, are not evenly distributed throughout the community, contributing to disparities in birth outcomes and other health outcomes. For example, birthing people living in zip codes 95210 and 95206 are much more likely to experience a fetal or infant death compared to those living in other areas of SJC. Black/African American infants in SJC are 2.5 times more likely to die compared to White infants; this disparity rate is parallel to the California and U.S. disparity rates. The SJC FIMR team is committed to conducting case reviews and making recommendations through a racial equity, health equity, and trauma-informed lens as a foundational element of the program.

Profile of Cases Reviewed Compared to all SJC Deaths and Births

This report includes case review findings from deaths that occurred in SJC hospitals between May 2019-May 2022 and were reviewed between January 2021- June 2022. Comparison data on the next page includes deaths and births for SJC residents between 2016-2020. Cases were chosen for review by cause of death, type of death, and by race in order to provide a sample that is representative of all SJC fetal and infant deaths. Postnatal deaths over 28 days old and all Sudden Unexpected Infant Deaths are reviewed by the SJC Child Death Review Team and therefore, were **not** reviewed by the FIMR team to avoid duplication of case review efforts.

Data source: State of California, California Department of Public Health, VRBIS California Comprehensive Birth File, 2016-2020. VRBIS California Comprehensive Death File, 2016-2020.California Fetal Death Statistical Master File, 2016-2020. Prepared by San Joaquin County Public Health Services Epidemiology, July 2022.

TYPE OF DEATH	**26 Cases Reviewed 2019-2022**	**All SJC Fetal & Infant Deaths 2016-2020**	**All SJC Births 2016-2020**
Fetal	65% (17)	57% (349)	-
Neonatal (0 – 28 days)	35% (9)	30% (185)	-
Postnatal (29- 364 days)	-	13% (78)	-
TYPE OF DEATH BY GESTATION	**Cases Reviewed**	**All SJC Fetal & Infant Deaths**	**All SJC Births**
Infant Deaths	N = 9	N = 263	N = 49,275
Term (>37 weeks)	11% (1)	25% (67)	82% (40297)
Preterm (24-27 weeks)	56% (5)	39% (102)	18% (8846)
Pre-Viable (<24 weeks)	33% (3)	29% (75)	<1% (99)
Unknown	0%	7% (19)	<1% (33)
Fetal Deaths	N = 17	N = 349	-
Term (>37 weeks)	12% (2)	14% (50)	-
Preterm (24-37 weeks)	76% (13)	54% (190)	-
Pre-viable (<24 weeks)	18% (3)	30% (104)	-
Unknown	0%	1% (5)	-
MATERNAL RACE** See data notes	**Cases Reviewed**	**All SJC Fetal & Infant Deaths**	**All SJC Births**
White	12% (3)	15% (91)	21% (10486)
Black / African American	8% (2)	13% (79)	6% (3198)
Hispanic	50% (13)	46% (281)	49% (23941)
Asian	23% (6)	15% (92)	15% (7534)
Native American, Native Hawaiian, Pacific Islander, “Other” and “Unknown”	0%	8% (48)	5% (2505)
Multiple Race	12% (3)	3% (21)	3% (1611)

INSURANCE	**Cases Reviewed**	**All SJC Fetal & Infant Deaths**	**All SJC Births** 2020
Medi-Cal Insurance	81% (21)	54% (333) Fetal Deaths: 50% (176) Infant Deaths: **64%** (157)	53% (25974)
AGE	**Cases Reviewed**	**All SJC Fetal & Infant Deaths**	**All SJC Births**
<20	12% (3)	5% (32)	5% (2433)
20-35	65% (17)	72% (441)	81% (40141)
>35	23% (6)	19% (116)	14% (6700)
Unknown	0%	4% (23)	<1% (1)
EDUCATION	**Cases Reviewed**	**All SJC Fetal/ Infant Deaths**	**All SJC Births**
Less than High School Education	23% (6)	17% (104)	14% (7000)
High School Diploma / GED	42% (11)	32% (199)	32% (15899)
Some College Education	12% (3)	21% (127)	22% (10598)
College Degree or Higher	8% (2)	18% (108)	25% (12350)
Unknown Education Level	12% (3)	12% (74)	7% (3428)
PRE-PREGNANCY BODY MASS INDEX (BMI)	**Cases Reviewed**	**All SJC Fetal & Infant Deaths**	**All SJC Births**
BMI <25	15% (4)	25% (155)	36% (17869)
Overweight or Obese (BMI ≥25)	85% (22)	58% (353)	59% (29237)
Overweight (BMI 25 - 29.9)	23% (6)	24% (146)	28% (13960)
Obese Class I (BMI 30 - 34.9)	27% (7)	17% (107)	17% (8514)
Obese Class II / III (BMI ≥35)	35% (9)	16% (100)	14% (6763)
Unknown BMI	-	17% (104)	4% (2169)

ZIP CODE* All other zip codes are not shown below because they showed proportionate birth rates and fetal-infant death rates , without notable disparities	Cases Reviewed	% All SJC Fetal & Infant Deaths	% All SJC Births
Red = death rate is higher than birth rate		**Green = death rate is lower than birth rate**	
95210	**Suppressed for Confidentiality**	**8.8%** (54)	6.5% (3192)
95206	-	**12.6%** (77)	10.8% (5333)
95205	-	**8.3%** (51)	7.1% (3509)
95203	-	**3.9%** (24)	2.7% (1340)
95207	-	**8.5%** (52)	7.6% (3734)
95215	-	**4.6%** (28)	3.5% (1706)
95212	-	**2.6%** (16)	3.6% (1763)
Manteca (95336 + 95337)	-	**9.3%** (57)	10.9% (5349)
Lathrop (95330)	-	**2.1%** (13)	3.2% (1551)
Lodi (95240 + 95242)	-	**6.4%** (39)	10.1% (5000)
Mountain House (95391)	-	**0.6%** (5)	2.4% (1164)
Resident of "Priority Neighborhood" Resident of any of the 14 census tracts identified in the 2022 CHNA as having the most disparities in health outcomes and the lowest Healthy Places Index scores.	23% (6)	9.5% (25) **Infant deaths** only - census tract data was not available on fetal deaths	8.5% (4169)

Data Notes

*All other SJC zip codes were not listed above because they showed birth rates and fetal-infant death rates that were proportionate (less than a 1% difference) without notable disparity. E.g. a zip code with 3% of births also has a proportionate 3% of deaths. However, full analysis for statistical significance and confidence intervals was not performed. Census tracts are defined based on 2010 U.S. Census data. ** Maternal Race is self-identified race on death certificates. Race for fetal deaths, infant deaths, and all births was based on maternal race (not infant race). Asian cases reviewed represented a very diverse range of Asian cultures. 3 "multi-race" cases reviewed identified as Black and at least one other race.

Inclusion and exclusion criteria for all data: For fetal deaths: birthing people who were residents of SJC were included, regardless of the county where the fetal death/delivery occurred. For infant deaths: all birthing people who were residents of SJC were included, regardless of the county where the birth or the death occurred. If an infant was born outside of SJC, but then became a resident of SJC and died within SJC, they were also included, however, their out-of-county birth certificate may not necessarily be included in the total number of births, and their death certificate may not be linked to their birth certificate for some data points. Therefore, 19 death certificates could not be linked to a birth certificate. For live births, all birthing people who were residents of SJC were included.

Contributing Factors

Important Note: The purpose of FIMR is never to assign blame or negligence of any healthcare provider. The FIMR team is instructed to identify factors that may have played a role in contributing to the death, and to make recommendations to improve overall birth outcomes in the county. It is important to recognize that among cases reviewed, most providers and hospitals provided great care, and most pregnant people made healthy choices. Many fetal and infant deaths cannot be prevented or even explained. However, the following trends and patterns

show areas where healthcare systems and pregnant people can focus on to improve their outcomes. These trends were identified by the FIMR team in group discussions about the cases reviewed.

Contributing Factors Occurring in At Least 9 of 26 (35%) Cases Reviewed

Healthcare System Factors

Established ACOG/SMFM* standards of care were not followed (*American College of Obstetricians and Gynecologists and Society for Maternal-Fetal Medicine)	58% (15)
Missed opportunity to refer for needed services or specialist	42% (11)
Missed opportunity to refer to a social worker	38% (10)
Delay in providing timely care	38% (10)

Maternal Health Factors

Had a pre-pregnancy overweight or obese BMI $\geq$ 25kg/m^2	85% (22)
Did not follow provider's care recommendations or had missed appointments	50% (13)
Had inadequate prenatal care, late entry to prenatal care, or no prenatal care No prenatal care at all	46% (12) 12% (3)
Had high blood pressure (>140/90) or had pre-eclampsia	38% (10)
Had a diagnosed mental health condition	38% (10)
Had a pre-existing medical condition prior to pregnancy (not including obesity nor mental health)	38% (10)
Had Class II or III Obesity with BMI $\geq$ 35kg/m^2	35% (9)
Had a documented history of trauma or adverse childhood experiences	35% (9)
Cases with any substantiated Child Protective Services abuse or neglect history Pregnant mother/father /family with any substantiated reports of abuse or neglect **as a caregiver:** Pregnant mother/person was a victim of substantiated abuse or neglect **as a minor:** Father of the baby was a victim of substantiated abuse or neglect **as a minor:**	31% (8) 23% (6) 15% (4) 12% (3)

Contributing Factors Occurring in At Least 4 of 26 (15%) Cases Reviewed

Healthcare System Factors

Missed opportunity to refer for mental health treatment	27% (7)
Bias in care (including race, culture, weight, substance use), as identified in medical records by the FIMR team	23% (6)
Covid-19 pandemic likely contributed to poor outcome (e.g. inability to access care, receive timely care, or caused severe illness)	23% (6)
Could have had a better outcome if the birth occurred at a hospital with a higher level of care available, but patient was unstable for transfer	19% (5)
Missed opportunity to refer to Maternal-Fetal Medicine specialist when warranted	15% (4)
Missed opportunity to refer to substance use treatment or resources	15% (4)
Lack of culturally sensitive care or lack of interpreter provided	15% (4)

Maternal Heath Factors

Diabetes in pregnancy (Gestational or Type I or Type II)	31% (8)
Did not feel fetal movement for over 24 hours prior to coming to hospital	41% (7 of 17 fetal deaths)
Tobacco use during pregnancy	27% (7)
Any substance use during pregnancy Marijuana: Methamphetamines: Alcohol: Opiates: Cocaine:	23% (7) 19% (5) 15% (4) 8% (2) 4% (1) 4%(1)
Maternal ICU admission for any reason in pregnancy, delivery, or postpartum	19% (5)
Positive for Covid-19 at any point in the pregnancy	19% (5)
Any sexually transmitted disease during pregnancy	19% (5)
Experienced a hypertensive crisis (blood pressure > 180/120)	15% (4)
Congenital birth defects	15% (4)
Documented history of domestic violence	15% (4)

Placental Infarct	15% (4)

Of note, 2 of 26 cases reviewed included maternal deaths. Chorioamnionitis was noted in 12 of 26 cases, however, this inflammatory condition may develop after a fetal death has occurred; therefore conclusions or assumptions cannot be drawn about its relationship to fetal or infant deaths.

Bereavement Support

Mother agreed to receive additional bereavement or mental health resources from a public health nurse when contacted between 4 - 9 months after the loss:	47% (9 of 19*)
Mother participated in a FIMR Interview	37% (7 of 19*)
Mother did not receive adequate bereavement support from hospital or OB	19% (5 of 26)
Partner/father did not receive adequate bereavement support from hospital or OB	12% (3 of 26)

*7 cases reviewed were not contacted to attempt a FIMR interview due to interview guidelines and circumstances of the case

Family Voices – The FIMR Interview

As part of the FIMR model, voices from bereaved parents must be heard by the community about their perspective on the loss. Public health nurses, trained in perinatal bereavement support, attempted to contact 19 families for interviews. Many could not be reached by phone and some declined to participate. 7 mothers participated in a complete interview, the full details of which were shared with the FIMR team during the case reviews. Consent was obtained to share their anonymous answers. The interview questions asked them to discuss their pregnancy and birth, what happened, and how the death was explained to them. They were asked specific social and emotional questions about their life prior to and during the pregnancy, about the father of the baby, and about feelings of being treated unfairly during the pregnancy. Lastly, they were asked "Thinking back on the entire experience, what would make things better for you?" and "what do you think needs to be done to help other families who experience the death of a baby?" The following are the voices of local mothers who experienced a fetal or infant death:

"I felt rushed and pressured to hold my baby girl, take pictures, and make funeral arrangements all within the first hour after birth. I wish I was given more time to process my loss"

"I was treated differently because of my race and because I was not married. The doctor kept asking me where the father was"

"I wish the doctor asked more about my emotional well-being"

"They should have adjusted my medication to better control my blood pressure. More research should be done on different blood pressure medications for pregnant women"

"When I called the OB with questions, it often took them 3 - 4 days to return my call. I wish there was a faster response time for questions"

"I am interested in therapy but I don't know who to call"

"My job was so stressful. I experienced discrimination at work based on my pregnancy and was passed up for a promotion. They were unsympathetic about my high risk pregnancy and didn't want to accommodate me"

"The clinic did not listen to me when I said I was concerned"

"I was supposed to see a (MFM) specialist, but their clinic would not accommodate my need to bring my child. I asked if my child could sit in the lobby, wear a mask, and read a book, because I had no one to watch them. But they would not allow it due to covid-19 policies. So I was unable to go to the appointment. Maybe if I had gone to the appointment perhaps my baby would be alive"

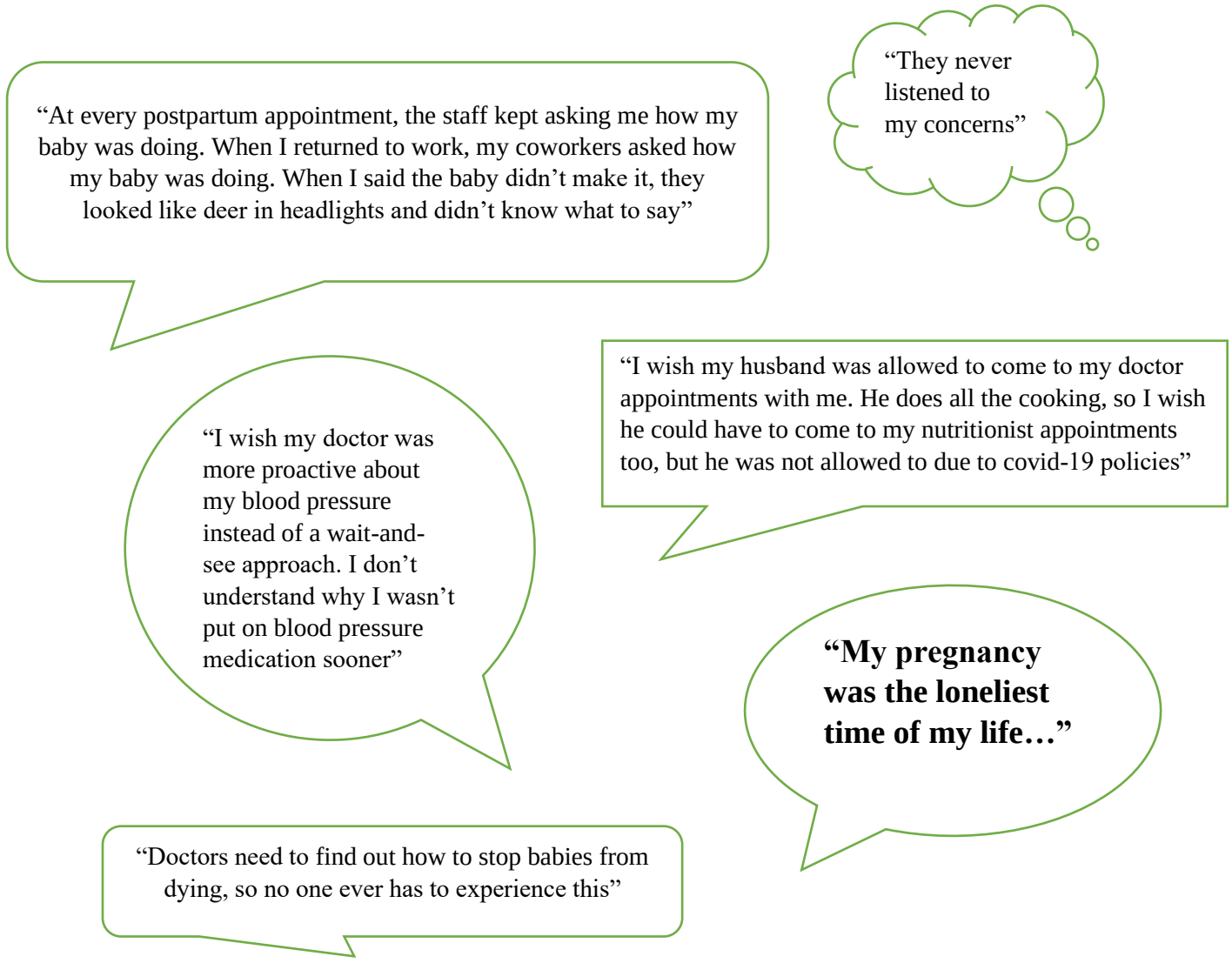
"I did not like seeing a different doctor every time at the clinic"

"When (this problem) was seen on my ultrasound, I kept asking the doctor why this condition happens, over and over at each appointment I had. I wish I got more than one sentence from the doctor about why this happened. Every question I asked they answered with 'I don't know'. I got no information whatsoever"

"We just need better doctors that care, pay attention, and just truly care"

"After my baby died, the doctor was a lot more compassionate than they were during the pregnancy"

"I was often physically and mentally exhausted. I was stressed due to the pandemic and my other child was struggling with virtual learning. We were stressed with finances and my husband worked long hours. We did not have friends and family in the area for support"



Recommendations for Community Action

The following are the FIMR Team's recommendations for community action to improve pregnancy and birth outcomes in SJC. They are listed in order of priority for greatest impact, as voted upon by the team.

1. **Share Detailed FIMR Findings with Healthcare Providers**
   - Order of priority:
     1. L&D and NICU units
     2. Prenatal Care OB providers
     3. ER providers
     4. Family medicine/adult providers
   - Detailed recommendations for suggested improvements in medical care are on pages 14-16

   Why? In 15 out of 26 cases reviewed (58%), healthcare providers did not follow established ACOG/SMFM standards of care relating to pregnancy or delivery. In 3 additional cases, neonatal intensive care providers did not follow NRP standards of care relating to neonatal resusitation. Combined, this is 18 out of 26 cases (69%) where deviation from standards of care was identified.

2. **Patient Empowerment and Self Advocacy**
    - Patient education, social media, etc. on self-advocacy
    - Pregnancy support programs should emphasize empowerment
    - Increase referrals to programs and services that promote empowerment
    - Increase doula services

    Why? Cases reviewed indicate many patients were not empowered to advocate for their concerns. In interviews with bereaved mothers, 4 out of 7 stated they felt their concerns were not listened to.

3. **Implicit Bias and Cultural Competency Training**
    - Provide implicit bias training and cultural competency training to all professionals working with pregnant people

    Why? Bias from healthcare providers continues to be a major issue, including bias related to race, substance use, and obesity. Bias, stigma, and cultural incompetence possibly contributed to decreased quality of care in at least 6 out of 26 cases reviewed (23%).

4. **Integrate social workers or case managers into prenatal care**
    - Assist OB providers in setting up a social work / case manager / home visiting referral system for patient support and resources
    - Utilize Registered Nurses (RNs) or train other existing staff to effectively connect patients to resources
    - Advocate for system policy change for billing/reimbursement for social work and case management services for pregnant people integrated in prenatal care
    - Encourage OB providers to become CPSP providers
    - Ideally, social workers and case managers should be culturally competent, trauma-informed, equity-informed, and bias-informed
    - Case managers can be RN's, social workers, or other trained staff - someone should be responsible for connecting patients to resources.

    Why? Current systems of medical care do not grant physicians adequate time, resources, or training to truly address social determinants of health and behavioral health concerns. Of the 26 cases reviewed, 10 had a mental health condition (38%), 7 were missed opportunities to refer for mental health treatment (27%), 6 had a substance use disorder (23%), 4 were missed opportunities to refer to substance use treatment (15%), and 5 had inadequate bereavement support provided after the death (19%). Physicians cannot be expected to be able to address all these issues alone. Social workers or case managers integrated into prenatal / postpartum care may help improve birth outcomes and bereavement support.

5. **Increase Preconception Health and Prenatal Care Promotion Campaigns**
    - Education materials, social media, community presentations, etc. on:
        - Mental health
        - Substance use
        - Chronic high blood pressure
        - Diabetes
        - Obesity
        - Stress reduction
        - STD's
        - Importance of prenatal care
        - Kick counts
        - Warning signs to seek urgent medical attention
        - Treatment for substance use during pregnancy
        - Obesity, hypertension, kidney disease, STD treatment in pregnancy
        - Use of 211 for resources, supportive programs/case managers in pregnancy
        - Childcare options for medical appointments
        - Driving Safety

Why? Maternal pre-existing health conditions significantly contribute to poor birth outcomes. Of the 26 cases reviewed, 38% had a pre-existing health condition, 38% had a mental health condition, and 35% had a pre-pregnancy BMI above 35 (class II or III obesity). 50% of cases did not follow their providers care recommendations, and 48% had inadequate prenatal care appointments. 41% of fetal deaths were to women who did not come to the hospital for over 24 hours of not feeling any fetal movement.

The recommendations above were voted to have the greatest impact and highest priority. However, the following recommendations were also deemed important to consider:

6. Create resource lists for OB providers
    - Menu of options for pregnancy support programs
    - Mental health
    - Substance use
    - Nutritionists
    - Local MFM's
    - Stress reduction activities
    - Social support opportunities
    - Childcare options for medical appointments

7. Improving systems of care, creating new support resources for pregnancy, and improving referral networks to existing resources
    - Mental health services, including mental health services during incarceration
    - Substance use
    - High blood pressure, diabetes, obesity
    - Prenatal care access
    - STD treatment
    - ACE's screening during prenatal care
    - Social support programs that decrease social isolation
    - Stress reduction opportunities in the community
    - Support programs for fathers
    - Bereavement support for both mothers and fathers
    - Improve referral networks

8. Education systems addressing health education in schools
    - Increase graduation rates (education level is associated with health outcomes)
    - Increase youth education on: healthy lifestyle, weight, mental health, sex education, sober driving, and substance use including marijuana
    - Establish parent support groups for social support
    - Programs for people with intellectual and developmental disabilities need to include sex education, including consent and pregnancy information

9. Increased bereavement support for mothers and for fathers
    - All agencies interacting with birthing or parenting families can improve bereavement support
    - Increases awareness of available resources

Detailed Recommendations for Healthcare Providers

Labor and Delivery and Neonatal Intensive Care Units

- Review ACOG/SMFM Standards of Care: 58% of providers in cases reviewed did not follow standards of care, including standards for preeclampsia evaluation, blood pressure medication management, timing of delivery based on risk factors, preterm labor protocols, STD treatment, fetal monitoring, maternal ICU care, and NRP guidelines.
- Faster "decision to incision" time for emergency C-sections.
- Quality improvement projects to decrease delay in care, e.g. delay in evaluation/triage, delay in treatment, delayed decision to incision, etc. 38% of cases found a delay in timely care.
- Consider having an in-house OB 24/7, neonatologist in-house 24/7 and present at high-risk deliveries.
- Possible preterm labor should be directed to a hospital with a NICU. Transferring the pregnant patient is preferred to transferring a very premature baby.
- Transport team: if infant in transport is accidently extubated, pull over the ambulance to re-intubate.
- Consider creating an Obstetric Emergency Room (OBED).
- Be non-judgmental of all patients, communicate by expressing genuine concern for mom and baby, say you are there to support them instead of shaming them for unhealthy choices or noncompliance.
- Patients leaving against medical advice should be evaluated for mental capacity to make that decision.
- Improve communication and collaboration between all service providers, including improving documentation notes.
- Increase staff training on techniques that facilitate vaginal delivery of malpositioned babies.
- Consider use of a "Fetal Pillow" device for babies impacted in the birth canal.
- Bereavement care in the hospital should be more compassionate, culturally sensitive, and not be rushed. Every fetal and infant death should be seen by a social worker. Financial bereavement resources should be culturally equitable (e.g. financial assistance is currently available for cremation but not for burial).
- Fathers experiencing grief may exhibit anger and yelling, and should be treated compassionately, e.g. a social work consult. Although security may be warranted and staff safety is very important, recognize they are hurting and grieving the loss of their child. Also consider the impact of racial bias in how staff approach "angry" people of color).
- Refer patients to WIC – even after fetal and infant deaths. Mothers are eligible for 6 months of WIC services following a pregnancy or infant loss.
- Supportive services and protocols for staff who work on traumatic events, including first responders, law enforcement, and all medical staff to debrief about the traumatic incident in order to reduce PTSD in professionals.

Prenatal Care OB Providers

- Review of ACOG/SMFM Standards of Care: OB providers in cases reviewed did not follow standards of care related to blood pressure management, aspirin prophylaxis, timing of delivery based on risk factors, cerclage placement and progesterone use, non-reactive NST followup, not referring to MFM, and STD treatment and followup.
- Refer early to an MFM for high-risk pregnancies. 4 of 26 patients (15%) were not appropriately referred to an MFM when warranted or not referred early enough.
- Never withhold non-narcotic medication refills due to patient not attending appointments, especially blood pressure medication.
- Improve delays in providing timely care, e.g. appointment availability, communicating significant lab results or ultrasound findings to patients, and initiating treatment for those concerns. High risk patients may need services expedited. Refugees with recent immigration may need services expedited. 10 of 26 cases (38%) found a delay in timely care as a contributing factor.
- Improve delays in nutritionist referrals, do not ask patients to find nutritionists on their own.
- Begin medication (for high blood pressure, diabetes, psychiatric meds) sooner, improve explanation of purpose and benefits of medication to reduce non-compliance. Implement more frequent follow up on these conditions. Use motivational interviewing techniques for unhealthy behaviors.
- If OB clinic is not a CPSP site, OB provider should refer out for substance use and mental health or at minimum a social worker or other connector. Some providers took no action. 11 out of 26 cases or 42% had a missed opportunity to refer to either mental health or substance use treatment. Prenatal providers should actively promote and support substance use treatment.
- Refer to social workers more often, especially culturally affirming social workers. Integrate social workers into prenatal care.
- Increase support and education from providers for treatment of mental health during/after pregnancy, especially after a loss. Increase encouragement of psychiatric medications during pregnancy.
- Promote kick counts and urgent nature of coming in for decreased fetal movement. 27% (7 of 26) of patients did not feel fetal movement for over 24 hours prior to coming to the hospital.
- Anyone with congenital anomalies should be referred to genetic counseling to discuss testing options and risks for future pregnancies.
- Improve syphilis treatment; e.g. testing at preconception appointments, following up on titers, testing for neurosyphilis when neuro symptoms are present, avoid delay in treatment.
- Implement ACE's screening in prenatal care. Childhood trauma is a risk for high risk behaviors.
- Ask about and honor cultural considerations early in prenatal care, e.g. language, female provider preference, etc. Ensure patients with English as a second language have thorough understanding of their medical conditions and treatment.
- Improve transition of prenatal care when patient moves to another area. Assist with securing a new provider and appointment.
- Call clients who no show for prompt rescheduling, call several times for high risk patients.
- Do not threaten to discharge patients from your clinic for lack of compliance with prenatal care appointments or care recommendations.
- Improve communication and collaboration between service providers, including documentation.

- Listen carefully to patient concerns. If they are requesting something that is not warranted, explain why. Address patient's point of concern, meet them where they are at. Provide support and encouragement to participate in services and prenatal care. Be non-judgmental of all patients, communicate by expressing genuine concern for them and baby, say you are there to support them, instead of shaming them.
- Fetal heart tones should be assessed at each prenatal appointment.
- Ask about the well-being of other children and partner. Assist with referrals as needed. Pregnant people often place the well-being of their family's needs above their own needs.
- Consider and address all of the patient's risk factors together, not separately.

Emergency Room Providers

- Review of ACOG/SMFM Standards of Care: ER providers did not follow standards of care related to preeclampsia and preterm labor workup and treatment in the ER setting.
- Quality improvement projects to decrease delay in care. Cases reviewed noted delayed response to patient's critical lab results, delayed consult with OB, delayed admission to OB floor from ER.
- All patients above 20 weeks gestation with pertinent concerns should be seen by an OB provider. Consider creating an Obstetric Emergency Room (OBED).
- Consider standard STD screens and toxicology screens on all pregnant patients who have not yet had any prenatal care yet.
- ER staff should try to schedule patient's clinic appointment for them, not just tell them to follow-up, and in general try to do more warm handoffs to OB/PCP providers if possible.
- Order toxicology screen for high blood pressure in the ER, especially for patients with no prenatal care. Methamphetamine use causes high blood pressure. Improve substance use referrals.
- ER providers and ICU providers should become more familiar with HELLP syndrome symptoms, e.g. through continuing medical education or practice drills.
- Improve communication and collaboration between service providers, including documentation.
- Supportive services and protocols for staff who work on traumatic events, including first responders, law enforcement, and all medical staff to debrief about the traumatic incident in order to reduce PTSD in professionals.

Family Medicine/Adult providers

- STD testing for all people planning pregnancy, and per testing guidelines for anyone sexually active.
- Avoid prescribing medications that are not compatible with pregnancy to women of reproductive age. Many alternatives are available. When prescribing medication that is unsafe in pregnancy, include reliable birth control education and prescription. Always discuss pre-emptive plans of what to do if they become pregnant and need to urgently change their medication.
- Address mental health, substance use, STD's, chronic hypertension, obesity, stress reduction, and discuss their impact on pregnancy outcomes. Improve referral systems for these conditions.
- Implement ACE's screening in all primary care. Childhood trauma is a risk for high risk behaviors.

Conclusion

Fetal and infant deaths continue to be a frequent tragedy in our community. SJC has higher fetal and infant mortality rates than the average California rates. We hope this report is helpful in understanding some of the contributing factors surrounding local fetal and infant deaths, and a menu of possible recommendations to consider implementing at your agency. The responsibility to address this issue rests with all sectors of the community. We also hope this report highlights the need for expanded funding in order to implement the recommendations made by the FIMR team, and to expand the capacity of the FIMR program.

To contact the Maternal Child Adolescent Program of San Joaquin County Public Health Services regarding collaboration on efforts to improve maternal-child health, regarding this report, or regarding any other matter, please call 209-486-3004 or email us at mcah-info@sjcphs.org

Thank You

SJC Public Health Services would like to sincerely thank the FIMR team members for their time in attending the FIMR meetings and their contributions to the findings of this report. Thank you also to the bereaved mothers who bravely shared their stories with us. Thank you to PHS epidemiologist, Tony Su, for preparing the data on fetal and infant deaths and births in SJC. The FIMR program was made possible by Federal Title V funding allocated to SJC by the California Department of Public Health (CDPH), Maternal Child Adolescent Health Branch. Thank you to CDPH for funding this important effort.

Confidentiality Considerations

California Civil Code 100325 grants legal authority to local Public Health departments to examine medical records for the purpose of investigating fetal and infant deaths. A letter of Public Health authority signed by the Public Health Officer was used to obtain medical records. Only one case abstractor had access to patient medical records in order to summarize and present de-identified case information to the FIMR case review team; no patient names, birthdays, addresses, nor city of residency were ever shared in case reviews. The location of medical care or other services rendered, including delivery hospitals or healthcare provider names, were never shared with the team to maximize case confidentiality and to avoid bias regarding local medical facilities or providers. Names were cross referenced with Child Protective Services, Child Death Review, and the Suspected Child Abuse and Neglect coordinator, without linking names to specific case summaries. All FIMR members signed a confidentiality agreement to protect any information discussed at the meetings. Team members were instructed not to identify their facility/agency if they recognized the case details as a patient of theirs. Due to Covid-19, FIMR interviews were only offered via telephone. Parents who participated in FIMR interviews provided explicit verbal consent via telephone to conduct the interview and to share their anonymous feedback with the community.

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