



Michigan Fetal Infant Mortality Review (FIMR) Report



A focus on present factors, contributing factors, and local case review team recommendations

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FIMR OVERVIEW

What is FIMR?

Fetal and Infant Mortality Review (FIMR) is an action-oriented community process that assesses, monitors, and works to improve service and delivery systems to reduce infant mortality and improve community resources for women, infants, and families. Research shows FIMR is an effective perinatal systems intervention. Michigan FIMR began in 1991 with two communities receiving grants from National FIMR. There are now 13 local communities that make up the Michigan FIMR Network.

FIMR Process

FIMR uses a two-tiered system that engages a multi-disciplinary case review team and a community action team. The case review team reviews the case summaries from de-identified infant and fetal deaths and makes recommendations for system change. The community action team, which is composed of community leaders, acts to implement the recommendations.

Alignment

FIMR aligns with and informs the Mother Infant Health & Equity Improvement Plan (MIHEIP), which has a vision of zero preventable deaths and zero health disparities. For more information about the MIHEIP, please visit: Michigan.gov/MIHEIP.

“Research shows FIMR is an effective perinatal systems intervention.”

For More Information

Visit: Michigan.gov/FIMR.

For more maternal and infant health data visit: Michigan.gov/MCHEPI.

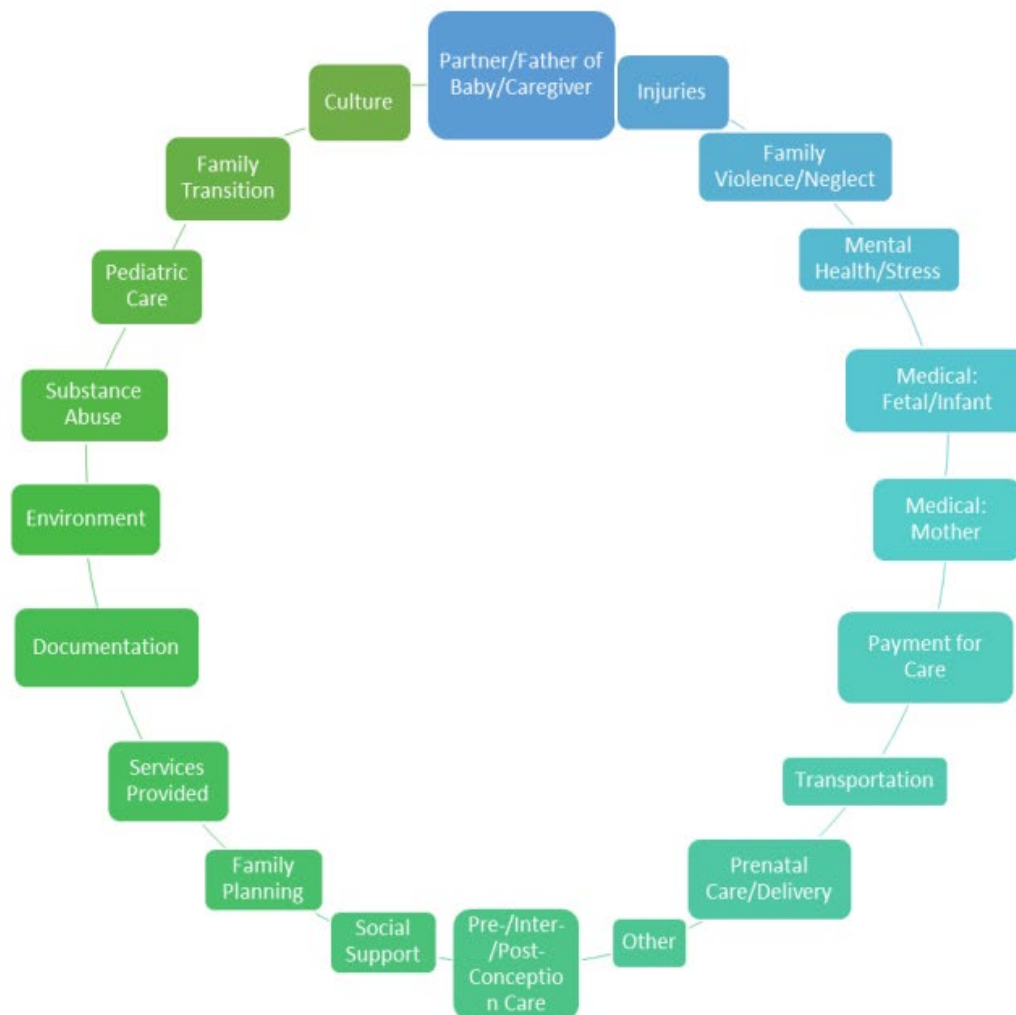
FIMR PRESENT & CONTRIBUTING FACTORS

As part of the local FIMR review process, the case review teams determine factors that are present or contributing to the case. This data is uploaded to the National Center for Fatality Review and Preventions (NCFRP) database, the National Fatality Review Case Reporting System (NFR-CRS) and can be used to provide context to supplement fetal and infant death data.

Present Factor: Is this factor present in the case?

Contributing Factor: Did this factor contribute to the death?

The FIMR teams look at specific variables within 20 overarching themes:



METHODS

Data Methods

- Data in versions 5.0 and 5.1 of the NFR-CRS were used for these analyses. The data include case reviews from 13 Michigan FIMR teams. There were 530 cases in the NFR-CRS marked as complete. Of these cases, 14 were excluded because there was no medical cause of death, injury cause of death, or sleep relatedness indicated. Additionally, 41 non-sleep-related cases were excluded because the case was an unknown injury or medical cause, undetermined injury or medical cause or missing data. The remaining 475 cases were grouped within the six death categories, found below. SAS Version 9.4 and Access was used for the analysis.

Death categories: Cases grouped into six categories:

1. Low Birth Weight and Prematurity (185 cases): death classified as a medical cause. Low birth weight or prematurity identified as the medical cause of death.
2. Congenital Anomaly (51 cases): death classified as a medical cause. Congenital anomaly identified as the medical cause of death.
3. Respiratory, Cardiovascular, and Neurological (20 cases): death classified as a medical cause. Asthma/respiratory, cardiovascular, neurological/seizure disorder or pneumonia identified as the cause of death and death is not sleep-related.
4. Other medical (60 cases): death classified as a medical cause. Malnutrition/dehydration, other infection, other perinatal condition, other medical condition or unknown identified as the cause of death.
5. Sleep-related infant deaths (131 cases): circumstance variable identified death as related to the sleep or sleep environment.
6. Other injury (28 cases): death classified as an injury cause. Death not related to sleep or the sleep environment.

Present and contributing factors:

- The top 10 present factors and the top 10 contributing factors for each cause of death grouping are included in this report. A factor is labeled as present if the review team determines it was present in the case. A factor is labeled as contributing if the review team determines it contributed to the death. If a factor is found in a case, it is identified as either present or contributing, not both. Only factors that appear in two or more cases are included in this report. For a full list of present and contributing factors, please see [Appendix A](#).
- The data dictionary for the case reporting system can be found at: [NFR-CRS - The National Center for Fatality Review and Prevention \(ncfrp.org\)](https://www.nccfrp.org/nfr-crs).

Recommendations Methods:

- Local FIMR teams entered recommendations into the NFR-CRS. The qualitative analysis software, Nvivo, was used to identify themes and create word clouds. Recommendations presented in this report have not been modified and reflect how Michigan FIMR teams entered the information into the NFR-CRS.

LOW BIRTH WEIGHT & PREMATURITY DEATHS

A Focus on Present and Contributing Factors

Data from 185 FIMR low birth weight and prematurity deaths reviewed by local FIMR teams were used for the analysis.

Present Factor: Is this factor present in the case?			Contributing Factor: Did this factor contribute to the death?		
Present Factor	Percent (%)	Theme	Contributing Factor	Percent (%)	Theme
Medicaid	66.5	Payment for care	Prematurity	64.3	Medical: fetal/infant
Employment	48.7	Mental health/stress	Extremely low birthweight (<750 grams)	49.2	Medical: fetal/infant
Mother's weight (underweight, overweight, or obese)	46.5	Medical: mother	Non-viable fetus	30.3	Medical: fetal/infant
Over the counter/prescription medications	45.4	Substance use	Preterm labor	30.3	Medical: mother
Single parent	45.4	Social support	Chorioamnionitis	22.2	Medical: mother
Partner, father of baby, or caregiver employment	37.8	Partner/father of baby/caregiver	Respiratory Distress Syndrome (RDS)	22.2	Medical: fetal/infant
No birth control	37.3	Family planning	Preterm premature rupture of membranes (PPROM)	22.2	Medical: mother
Preterm labor	36.2	Medical: mother	Infection/sepsis	12.4	Medical: fetal/infant
Lack of home visiting for eligible mothers	33.0	Services provided	Cervical insufficiency	10.3	Medical: mother
Prematurity	27.6	Medical: mother	Placental abruption	8.1	Medical: mother

LOW BIRTH WEIGHT & PREMATURITY DEATHS

Recommendations

Recommendation Theme	Sample Recommendations Submitted by Local Michigan FIMR Teams
Access to Care & Care Coordination	<p>“Providers should have standardized protocol for prenatal care to address preterm labor, possible complications, and when to contact the doctor or go to the ER.”</p> <p>“Require and promote cultural sensitivity training making it a mandatory in-service training for all health care providers to raise awareness of providing top-notch care, prenatal care to all women, especially African American women.”</p>
Preconception & Inter-conception Care	<p>“Preconception or intraconception care to improve mother's overall health at the time of pregnancy.”</p>
Family Planning & Reproductive Health	<p>“Provide a family planning consultation regarding birth spacing and quality of health for mother and infant.”</p>
Substance Use	<p>“To increase community and professional education/messaging on pregnancy and marijuana use.”</p> <p>“More funding for quit smoking campaigns for pregnant women.”</p>
Grief & Bereavement	<p>“Hospitals should institute standardized grief protocol that includes counseling, community-based resources, and referrals. MDHHS funeral financial assistance.”</p> <p>“Culturally competent/sensitive bereavement counseling should be pursued; instituted.”</p>
Services	<p>“Encourage eligible families to engage in home visiting services.”</p> <p>“Improve availability of mental health services”</p>

access address advocate awareness **bereavement** chorioamnionitis
chronic complications consult depression documented

education factors families **grief** hypertension

illness improve intervention **management** mandatory marijuana

planning **prevention** protocol provider **referral**

resources **services** skills smoking

spacing standardized strategies support testing training
trauma treatment violence

CONGENITAL ANOMALY DEATHS

A Focus on Present and Contributing Factors

Data from 51 FIMR congenital anomaly deaths reviewed by local FIMR teams were used for the analysis.

Present Factor: Is this factor present in the case?			Contributing Factor: Did this factor contribute to the death?		
Present Factor	Percent (%)	Theme	Contributing Factor	Percent (%)	Theme
Mother's weight (underweight, overweight, or obese)	58.8	Medical: mother	Congenital anomaly	78.4	Medical: fetal/infant
Over the counter /prescription medications	54.9	Substance use	Respiratory Distress Syndrome (RDS)	17.7	Medical: fetal/infant
Medicaid	52.9	Payment for care	Prematurity	9.8	Medical: fetal/infant
Employment	49.0	Mental health/stress	Infection/sepsis	9.8	Medical: fetal/infant
Prematurity	47.1	Medical: fetal/infant	Low birth weight (< 2,500 grams)	7.8	Medical: fetal/infant
Single parent	41.2	Social support	Intrauterine Growth Restriction (IGR)	7.8	Medical: fetal/infant
Partner, father of baby, or caregiver Employment	41.2	Partner/father of baby/caregiver	Non-viable fetus	5.9	Medical: fetal/infant
Private insurance	39.2	Payment for care	Preterm labor	3.9	Medical: mother
Oligo-/Polyhydramnios	37.3	Medical: Mother	Very low birth weight (<1,500 grams)	3.9	Medical: fetal/infant
Multiple stresses	35.3	Mental health/stress			

CONGENITAL ANOMALY DEATHS

Recommendations

Recommendation Theme	Sample Recommendations Submitted by Local Michigan FIMR Teams
Services	<p>“Long-term anticipatory grief counseling should be implemented and provided to mothers and fathers (caregivers) of infants with diagnosed or “suspected” life-limiting conditions.”</p> <p>“All mothers receive the same standard of care, as it pertains to the infant's care, such as hospice, palliative care, and home visiting, regardless of the client's race or health insurance.”</p>
Referrals	“Genetic specialist/counselor involvement and/or referral based on genetic abnormalities within the family or the infant.”
Family Planning & Reproductive Health	“Clear explanations of what family planning is and common misconceptions.”
Preconception Care	<p>“Encourage providers to encourage the use of PNV to women of childbearing years.”</p> <p>“Preconception care and family planning given mothers’ medical conditions (e.g., chronic conditions like hypertension, lupus).”</p>
Screening	“To provide wrap around services to include Behavioral Health Counseling to include life skills, parenting skills for father and mother, how to take care of children and offer depression screening to parents.”

abnormalities accessing anomalies **assessment** **bereavement**

care caregivers' community **conditions** **congenital**

consultation **counseling** depression documentation

genetic grief hospice improve intervention offer preconception

prevention prognosis provide receive **referral** referrals

resources risk **services** skills specialist standard strategies

support testing treatment value

RESPIRATORY, CARDIOVASCULAR & NEUROLOGICAL INFANT DEATHS

A Focus on Present and Contributing Factors

Data from 20 FIMR cases that included asthma, respiratory, pneumonia, cardiovascular, and/or neurological deaths reviewed by local FIMR teams were used for the analysis.

Present Factor: Is this factor present in the case?			Contributing Factor: Did this factor contribute to the death?		
Present Factor	Percent (%)	Theme	Contributing Factor	Percent (%)	Theme
Medicaid	80.0	Payment for care	Congenital anomaly	30.0	Medical: fetal/infant
Lack of home visiting for eligible mothers	55.0	Services provided	Respiratory Distress Syndrome (RDS)	30.0	Medical: fetal/infant
Employment	40.0	Mental health/stress	Prematurity	15.0	Medical: fetal/infant
CPS referrals	40.0	Family violence/neglect	Infection/sepsis	15.0	Medical: fetal/infant
Tobacco use: history but not current	40.0	Substance use	Oligo-/Polyhydramnios	15.0	Medical: mother
Mother's weight (underweight, overweight, or obese)	35.0	Medical: mother	Unsafe sleep location	10.0	Environment
Maternal infection other than Group B step, urinary tract infection, or sexually transmitted infection	35.0	Medical: mother	Birth injury	10.0	Medical: fetal/infant
Respiratory Distress Syndrome (RDS)	35.0	Medical: fetal/infant	Developmental delay	10.0	Medical: fetal/infant
Over the counter/prescription medications	35.0	Substance use	Lack of adult supervision	10.0	Environment
Late entry to prenatal care	35.0	Prenatal care/delivery	*Data Note: Some cases had unsafe sleep listed as a contributing factor even through the case was not listed as a sleep-related death.		

RESPIRATORY, CARDIOVASCULAR & NEUROLOGICAL INFANT DEATHS

Recommendations

Recommendation Theme	Sample Recommendations Submitted by Local Michigan FIMR Teams
Services	<p>“Standardization of care coordination between major medical center and primary care providers.”</p> <p>“Earlier referral for infant with respiratory difficulty, problems feeding and sleeping and developmental delay.”</p> <p>“Public Health Nurse referral and follow up with regular assessment of whether the children are getting medical care.”</p> <p>“Improve availability of counseling for families who have a chronically ill infant/child.”</p> <p>“Better mental health screening for pregnant women.”</p>
Records	<p>“For mothers with infant loss with anomalies or several complications, medical records are noted that mom should follow-up with genetic counseling/study preconception in the future and have more rigorous prenatal care.”</p>

access alcohol anomalies assessment assist attention automatic

autopsy availability bereavement **care** chronic communication

complications concerns condition coordination counseling depression difficulty discharge

documentation earlier education facilitate families feeding **mandatory**

prenatal records **referral**

OTHER MEDICAL DEATHS

A Focus on Present and Contributing Factors

Data from 60 FIMR medical deaths reviewed by local FIMR teams were used for this analysis.

Present Factor: Is this factor present in the case?			Contributing Factor: Did this factor contribute to the death?		
Present Factor	Percent (%)	Theme	Contributing Factor	Percent (%)	Theme
Over the counter/ prescription medications	65.0	Substance use	Prematurity	50.0	Medical: fetal/infant
Medicaid	65.0	Payment for care	Intrauterine Growth Restriction (IGR)	35.0	Medical: fetal/infant
Mother's weight (underweight, overweight, or obese)	48.3	Medical: mother	Congenital anomaly	28.3	Medical: fetal/infant
Single parent	46.7	Social support	Infection/sepsis	28.3	Medical: fetal/infant
Employment	46.7	Mental health/stress	Extremely low birth weight (<750 grams)	21.7	Medical: fetal/infant
Partner/father of baby/caregiver employment	43.3	Partner/father of baby/caregiver	Chorioamnionitis	15.0	Medical: mother
Private insurance	40.0	Payment for care	Placental abruption	13.3	Medical: mother
Lack of home visiting for eligible mothers	36.7	Services provided	Preterm labor	13.3	Medical: mother
No birth control	35.0	Family planning	Preterm premature rupture of membranes (PPROM)	11.7	Medical: mother
Previous spontaneous abortions or miscarriages	28.3	Medical: mother	Non-viable fetus	11.7	Medical: fetal/infant
Multiple stresses	28.3	Mental health/stress	Very low birth weight (<1,500 grams)	11.7	Medical: fetal/infant

OTHER MEDICAL DEATHS

Recommendations

Recommendation Theme	Sample Recommendations Submitted by Local Michigan FIMR Teams
Care	<p>“Greater involvement of home visiting services, CHWs or doulas.”</p> <p>“Additional counseling with the mother providing reassurance about the treatment plan.”</p> <p>“Improving access to services, bereavement referral, improved provider to provider and provider to patient communication.”</p> <p>“The team also recommended providers carefully and appropriately addressing or relaying information about non-viable infants.”</p>
Referrals	<p>“Mothers with high-risk pregnancies should be immediately referred to high-risk clinic by provider.”</p> <p>“When a mother tests positive for drug test, patient should be referred to a substance abuse treatment center.”</p> <p>“Referrals and stringent follow-up, including CPS and MIHP, upon pediatrician noting threatening condition, e.g., failure to thrive.”</p>
Substance Use	<p>“Need more specific evaluation for marijuana use.”</p>
Grief & Bereavement	<p>“The team recommended a focus group should be available for grieving mothers.”</p>
Family Planning	<p>“Promote core public health functions, i.e., safe sex, condom use, abstinence, reproductive health, birth control options and availability.”</p>

appropriate **bereavement care** conditions

congenital **counseling** education enrollment

establish genetic **grief** guidelines management mental messaging

nutritional prenatal **prevention provide** referrals

services spacing standard **strategies stress**

support **system**

SLEEP-RELATED INFANT DEATHS

A Focus on Present and Contributing Factors

Data from 131 FIMR sleep-related infant deaths reviewed by local FIMR teams were used for this analysis.

Present Factor: Is this factor present in the case?			Contributing Factor: Did this factor contribute to the death?		
Present Factor	Percent (%)	Theme	Contributing Factor	Percent (%)	Theme
Medicaid	80.9	Payment for care	Unsafe sleep location	67.2	Environment
Single parent	59.5	Social support	Suffocation/strangulation	58.0	Injuries
CPS referrals	57.3	Family violence/neglect	Not back sleep position	42.8	Environment
Partner, father of baby, or caregiver employment	55.0	Partner/father of baby/caregiver	Objects in sleep environment	22.1	Environment
Over the counter drug/prescription medications	54.2	Substance use	Lack of adult supervision	11.5	Environment
Employment	51.2	Mental health/stress	Infant overheating	3.1	Environment
Little/no breastfeeding	47.3	Environment	Employment	3.1	Mental health/stress
Multiple stresses	47.3	Mental health/stress	Current alcohol use	2.3	Substance use
Lack of home visiting for eligible mothers	46.6	Services provided	Improper/no care seat use	2.3	Environment
Mother's weight (underweight, overweight, or obese)	45.8	Medical: mother	Current child neglect - this infant	2.3	Family violence/neglect

SLEEP-RELATED INFANT DEATHS

Recommendations

Recommendation Theme	Sample Recommendations Submitted Local Michigan FIMR Teams
Education & Awareness	<p>“Safe Sleep Messaging should consistently emphasize educating other caregivers of the infant about the importance of every sleep time to make sure infant is in (1) a safe location and (2) a safe position-emphasizing to start practicing Safe Sleep habits from day one and to teach/share this information with everyone that is planned to or will be taking care of the baby.”</p> <p>“Include infant safe sleep education at all well child baby visits.”</p> <p>“Share information on social media about ‘infant lounger’ products and include FDA and AAP notices about dangers.”</p>
Risk Reduction Strategies	<p>“Educate health care staff on teaching risk reduction strategies for those parents who are committed to sleeping with their infants.”</p> <p>“Address co-sleeping and ways to do harm reduction around this topic as parents who co-sleep could do so in a safer way.”</p>
Support	<p>“Offer more social support with community health workers, home visitors, doulas, infant mental health, etc., during pregnancy and after birth.”</p> <p>“Enroll pregnant women into a Home Visiting Programs a mandatory requirement through their Medicaid Insurance (especially MIHPs) where Safe Sleep practices are discussed at each visit with mothers and infant sleeping environments are visualized, observed, documented following her home visits, and stressed as the safest way to sleep babies.”</p>

address around bereavement caregivers **community** counseling crib discharge discuss

education environment **family**

follow given history **information** management mandatory plan practices prenatal

prevention **provide** provider providers records **reduction** **referral** regarding

resources **risk** **safety** **services** social strategies support
system training

OTHER INJURY DEATHS

A Focus on Present and Contributing Factors

Data for 28 FIMR injury deaths, excluding sleep-related deaths, reviewed by local FIMR teams were used for this analysis.

Present Factor: Is this factor present in the case?			Contributing Factor: Did this factor contribute to the death?		
Present Factor	Percent (%)	Theme	Contributing Factor	Percent (%)	Theme
Medicaid	78.6	Payment for care	Current child abuse - this infant	35.7	Family violence/neglect
CPS referrals	60.7	Family violence/neglect	Abusive head trauma	32.1	Injuries
Mother's weight (underweight, overweight, or obese)	57.1	Medical: mother	General trauma	14.3	Injuries
Multiple stresses	57.1	Mental health/stress	Current child neglect - this infant	14.3	Family violence/neglect
Employment	57.1	Mental health/stress	Placental abruption	14.3	Medical: mother
Police reports	53.6	Family violence/neglect	Lack of adult supervision	10.7	Environment
Single parent	50.0	Social support	Illicit drug use	7.1	Substance use
Partner, father of baby, or caregiver employment	50.0	Partner/father of baby/caregiver	Very low birth weight (<1,500 grams)	7.1	Medical: fetal/infant
Over the counter/prescription medications	42.9	Substance use	Prematurity	7.1	Medical: fetal/infant
Unsafe sleep environment*	39.3	Unsafe sleep	Unsafe sleep environment*	7.1	Environment
*Data note: Some cases had unsafe sleep listed as present or contributing factor even though the case was not listed as a sleep-related death.			Suffocation/strangulation	7.1	Injuries
			Lack of childcare	7.1	Services provided
			Lack of partner/father of baby support	7.1	Social support

OTHER INJURY DEATHS

Recommendations

Recommendation Theme	Sample Recommendations Submitted by Local Michigan FIMR Teams
Care Coordination	“Creating a pipeline via a helpline with public health, health care, social services and first responders collaboration”
Education	“Education to family about how to soothe a crying baby prior to hospital discharge after delivery.”
Policy & Procedure	“Protocols for ER staff regarding monitoring pregnant women and evaluating for problems.”
Childcare	“Ensure high quality, affordable child care for all. Ensure system of child care is accessible, known, trusted - known to other systems serving these families (health care, public health, criminal justice, social service, mental health, etc.).”
Grief & Bereavement	“Grief and Counseling services provided upon loss of infant, especially when mother is still taking care of other children.”
Father of Baby	“Recommendation for State MIHP’s billable services for fathers. Team believes fathers need MIHP services as well as mothers.”

ability **abuse** accessible accident address advise **affordable** assessment

care childcare classes counseling **domestic**

education engage ensure establish **fathers** grief
information mandatory medical need opportunities provide psychiatric

quality referrals reporting **resources** safety **services** shown
signs support sure **system** time **violence** worker

APPENDIX A: FIMR ISSUES SUMMARY FORM

02. FIMR ISSUES SUMMARY (Ps/Cs)		P = Present / C = Contributing
1. Pre-/Inter-/Post-conception Care	3. Family Planning	8. Environment
Y N U Preconception care	P C Intended pregnancy	P C Unsafe neighborhood
Y N U Postpartum visit kept	P C Unintended pregnancy	P C Substandard housing
Y N U Pregnancy planning/BC education	P C Unwanted pregnancy	P C Overcrowding
<input type="checkbox"/> Before <input type="checkbox"/> During <input type="checkbox"/> After	P C No birth control	P C Second-hand smoke
Y N U Dental/oral care	P C Failed contraceptive	P C Little/no breastfeeding
<input type="checkbox"/> Before <input type="checkbox"/> During <input type="checkbox"/> After	P C Lack of knowledge: methods	P C Improper formula prep/feeding
Y N U Chronic disease control education	P C Lack of resources	P C Improper/no car seat use
<input type="checkbox"/> Before <input type="checkbox"/> During <input type="checkbox"/> After	P C Other, specify:	P C Unsafe sleep location
Y N U Weight mgmt/dietitian	4. Substance Use	P C Objects in sleep environment
<input type="checkbox"/> Before <input type="checkbox"/> During <input type="checkbox"/> After	P C Positive drug test	P C Infant overheating
Y N U Bereavement referral	P C No drug test	P C Not back sleep position
2. Medical: Mother	P C Tobacco use: hx, not current	P C Apnea monitor, misuse
P C Early teen (17 and under) pregnancy	P C Tobacco use: current	P C Lack of adult supervision
P C Late teen (18 & 19) pregnancy	P C Alcohol use: hx, not current	P C Other, specify:
P C Pregnancy >35 yrs	P C Alcohol use: current	9. Injuries
P C Cord problem	P C Illicit drug use:hx, not current	P C Suffocation/strangulation
P C Placental abruption	P C Illicit drugs: current: type: _____	P C Abusive head trauma
P C Placenta Previa	P C Use of un-pres meds: type: _____	P C General trauma
P C Chorioamnionitis	P C OTC/Rx meds: type: _____	P C Other, specify:
P C Pre-existing diabetes	P C Other, specify:	10. Social Support
P C Gestational diabetes	5. Prenatal Care/Delivery	P C Lack of family support
P C Cervical insufficiency	P C Standard of care not met	P C Lack of neighbors/ community support
P C Previous abnormal PAP	P C Inadequate assessment	P C Lack of partner/FOB support
P C Infection: BV	P C No prenatal care	P C Single parent
P C Infection: Group B Strep	P C Late entry to prenatal care	P C Living alone
P C Infection: Urinary tract infection	P C Lack of progesterone therapy	P C <12th grade education
P C STI - _____	P C Lack of referrals	P C Special education
P C Other source of infection: _____	P C Missed appointments	P C Physical/cognitive disability
P C Multiple gestation #	P C Multiple providers/sites	P C Other, specify:
P C Mother's weight BMI:	P C Lack of dental assessment	11. Partner/Father of Baby/Caregiver
P C Insufficient/excess weight gain	P C Lack of dental care	P C Employment <input type="radio"/> Yes <input type="radio"/> No
P C Poor nutrition	P C Inappropriate use of ER	P C Hx of mental illness
P C Pre-existing hypertension	P C Other, specify:	P C Substance or tobacco use/abuse: hx specify:
P C Preeclampsia	6. Medical: Fetal/Infant	P C Substance or tobacco use/abuse: current specify:
P C Eclampsia	P C Non-viable fetus	P C Other, specify:
P C Preterm labor	P C LBW (<2500 grams)	12. Family Transition
P C Pregnancy <18 m apart	P C VLBW (<1500 grams)	P C Frequent/recent moves
P C PROM	P C ELBW (<750 grams)	P C Living in shelter/homeless
P C PPROM	P C Intrauterine Growth Restriction	P C Concern re: citizenship
P C Prolonged Rupture of Membrane	P C Congenital anomaly	P C Divorce/separation
P C Pre-existing dental/oral issues	P C Prematurity	P C Multiple partners
P C Oligo-/Polyhydramnios	P C Infection/sepsis	P C Mom: prison/parole/probation
P C Previous SABs or miscarriages#	P C Failure to thrive	P C FOB: prison/parole/probation
P C Previous Therapeutic ab # /Vol ab #	P C Birth injury	P C Major illness/death in family
P C Previous fetal loss #	P C Feeding problem	P C Other, specify:
P C Previous infant loss # _____	P C Respiratory Distress Syndrome	13. Mental Health/Stress
P C Previous LBW delivery	P C Developmental delay	P C Hx of mental illness (mom)
P C Previous preterm delivery	P C Inappropriate level of care	P C Depression/anxiety/mental illness during pregnancy
P C VBAC this pregnancy	P C Positive drug test	P C Depression/anxiety/mental illness in postpartum period
P C Previous C-Section: #	P C Other, specify:	P C Multiple stresses
P C C-Section this pregnancy	7. Pediatric Care	P C Social chaos
P C Previous ectopic pregnancy	P C Standard of care not met	P C Employment <input type="radio"/> Yes <input type="radio"/> No
P C First pregnancy <18 yrs old	P C Inadequate assessment	P C Concern about enough money
P C >4 Live births	P C No pediatric care	
P C Assist reprod tech:	P C Lack of referrals	
P C Other, specify:	P C Missed aptmnt/immunizations	
	P C Multiple providers/sites	
	P C Inappropriate use of ER	
	P C Other, specify:	

APPENDIX A (continued)

13. Mental Health/Stress (continued)

- P C Work/employment problems
- P C Child(ren) with special needs
- P C Problems with family/relatives
- P C Lack of grief support
- P C Other, specify:

14. Family Violence/Neglect

- P C History of abuse (mom), specify:
- P C Current abuse (mom), specify:
- P C History of abuse (FOB), specify:
- P C Current abuse (FOB), specify:
- P C Hx child abuse: this infant
- P C Hx child abuse: other child
- P C Current child abuse: this infant
- P C Current child abuse: other child
- P C Hx child neglect: this infant
- P C Hx child neglect: other child
- P C Current child neglect: this infant
- P C Current child neglect: other child
- P C CPS referrals
- P C Police reports
- P C Other, specify:

15. Culture

- P C Language barriers
- P C Beliefs re: pregnancy/health
- P C Other, specify:

16. Payment for Care

- P C Private
- P C Medicare
- P C Medicaid
- P C Self-pay/medically indigent
- P C Other, specify:

17. Services Provided

- P C Inadequate information
- P C Lack of WIC (eligible)
- P C Mother/child not eligible
- P C Lack of Home Visiting (eligible)
- P C Poor provider to provider communication
- P C Poor provider to patient communication
- P C Client dissatisfaction
- P C Dissatisfaction – support services
- P C Lack of child care
- P C Other, specify:

18. Transportation

- P C No public transportation
- P C Inadequate/unreliable
- P C Other, specify:

19. Documentation

- P C Inconsistent/unclear information
- P C Missing data
- P C No death scene investigation
- P C No doll re-enactment
- P C Other, specify:

20. Other

- P C Other, specify:

APPENDIX B: LIST OF ACRONYMS AND ABBREVIATIONS

AAP	American Academy of Pediatrics
CHW	Community Health Worker
CPS	Children's Protective Services
ER	Emergency Room
FDA	Food & Drug Administration
IGR	Intrauterine Growth Restriction
MDHHS	Michigan Department of Health and Human Services
MIHEIP	Mother Infant Health & Equity Improvement Plan
MIHP	Mother Infant Health Program
NCFRP	National Center for Fatality Review and Prevention
NFR-CRS	National Fatality Review Case Reporting System
PPROM	Preterm Premature Rupture of Membranes
PNV	Prenatal Vitamins
RDS	Respiratory Distress Syndrome