CDRC

Child Death Review Commission

Report for Calendar Years 2014-2015

Delaware CDRC
REVIEW & PREVENTION
OF CHILD DEATHS

STATE OF DELAWARE
Child Death Review Commission
900 King Street, Suite 220
Wilmington, DE 19801-3341

TO: The Honorable Jack A. Markell
Members of the General Assembly

FROM: Garrett H. C. Colmorgen, M.D.
Chairperson, Child Death Review Commission

DATE: November 2, 2016

SUBJECT: Calendar Year 2014 and 2015 Child Death Review Commission Report

I am pleased to present you with the twelfth report of the Delaware Child Death Review Commission (CDRC). The report provides a summary of the work of the Panels and Commission during calendar years 2014 and 2015.

Delaware appears to be making progress in several areas in decreasing the mortality of its children. For example, Delaware's infant mortality is slowly declining due to the work of the many professionals mentioned in this report. However, we must remember that the loss of any child is one death too many. We must also realize that death reviews are only the "tip of the iceberg" which indicates much greater morbidity in the community. The goal of the CDRC has been and will continue to be prevention of future child deaths, and indirectly the amelioration of morbidity. We hereby report prevention initiatives, collaborations with other Delaware agencies, increased data surveillance, and trainings for professionals and community members that reflect our mission. The three key issues that the Commission has identified as in need of prioritization have been highlighted in this report: attention to social determinants of health, teen suicide, and the need to increase the utilization of evidenced based home visiting programs.

As Chair of the Child Death Review Commission, I want to thank you as Governor and the many members of the General Assembly who have continued to support the work of the Commission. Your commitment to reducing infant, child and maternal mortality in the State of Delaware has led to better outcomes for all of our women and children.

Respectfully submitted,

Garrett H.C. Colmorgen, M.D.
Chair
Child Death Review Commission

Executive Summary

The Child Death Review Commission (CDRC or the Commission) was established in 1995 with the mission of safeguarding the health and safety of children in Delaware as set forth in 31 Del. C. § 320-324. The cases reflected in this report were reviewed during calendar years (CY) 2014 and 2015. These reviews were conducted by multidisciplinary Child Death Review (CDR) panels, multidisciplinary Fetal Infant Mortality Review (FIMR) Case Review Teams (CRTs) and a multidisciplinary Maternal Mortality Review (MMR) panel. The recommendations/findings were approved at the quarterly Commission meetings and turned into action oriented initiatives. The work of the dedicated CDR and MMR panels and CRTs can best be reflected in the recommendations and prevention initiative portions of this annual report.

After review of the data contained in this report, the Commission offers the following key recommendations that are consistent issues throughout child fatality, fetal/infant mortality review and maternal mortality review:

I. Social Determinants of Health

Social determinants have a major impact on the health and well being of mothers and children in the State of Delaware. Risk factors identified through these reviews include criminal history, interpersonal violence, substance abuse, mental health, and previous history with the Division of Family Services. To address some of the concerns with high risk families, offer prevention programs, and expand the data analysis, the following recommendations are submitted.

- The CDRC recommends that prevention training and services be offered in such settings as prisons and through home visiting programs, substance abuse treatment programs and other community sites that interact with high risk families.
- The CDRC will implement an internal tracking data tool to better capture data consistently regarding social determinants, criminal history, interpersonal violence history, and adverse experiences that have occurred during the childhood of parents. Details of these risk factors will be used to guide exploratory analyses to determine if certain subgroups of families can be identified as disproportionately high risk and for whom targeted services may be beneficial.
- The CDRC looks forward to the release of data from the Delaware's Adverse Childhood Experiences (ACE) study being conducted by the University of Delaware, Division of Public Health and Children and Families First. These data may serve as a resource for the cases reviewed by CDRC panels to identify significant risk factors in our population for the 2016 annual report.

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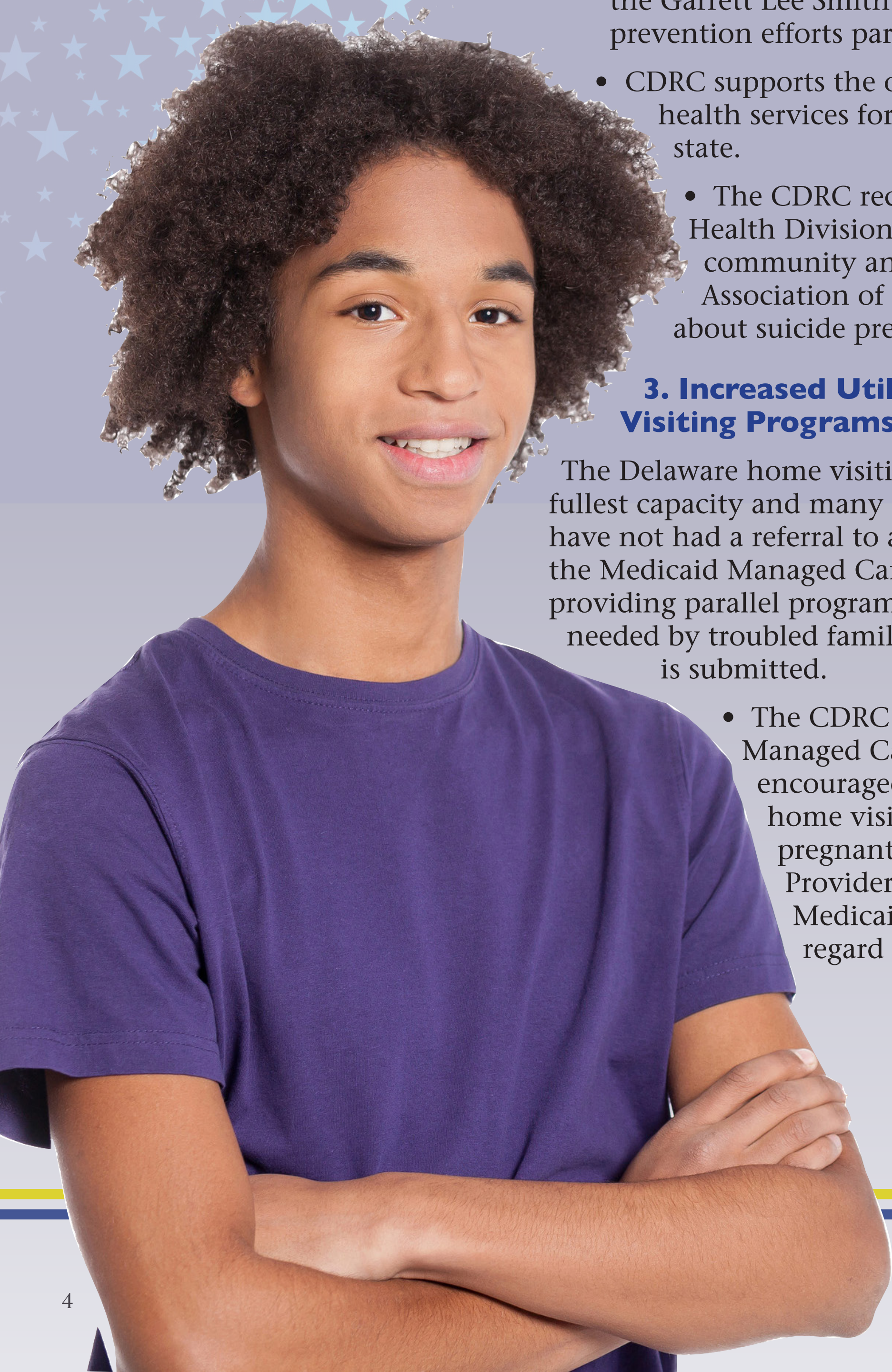
Child Death Review Commission

Executive Summary *(continued from page 3)*

2. Suicide Prevention

The suicide rate in Delaware continues to be higher than the national average. Through the Garrett Lee Smith Grant (overseen by the Department of Services for Children, Youth and their Families (DSCYF), the Prevention and Behavioral Health Division has provided numerous trainings on suicide prevention to the middle schools in Delaware through the Project LIFE initiative. Unfortunately, high schools have not been as willing to participate in this type of prevention program, even after suicide deaths occurred among their students. As a result the following recommendations are submitted.

- The CDRC recommends the Department of Services for Children, Youth and their Families Cabinet Secretary make a presentation including CDRC suicide data to the Department of Education's Superintendant Meeting explaining the importance of utilizing the Garrett Lee Smith Suicide Prevention Grant to expand suicide prevention efforts particularly in the high schools.
- CDRC supports the opportunities for increased access to mental health services for children and their families throughout our state.
- The CDRC recommends that the Prevention and Behavioral Health Division continue to work with the medical community and school psychologists through the Delaware Association of School Psychologists in educating families about suicide prevention.



3. Increased Utilization of Evidence Based Home Visiting Programs

The Delaware home visiting programs are often not utilized to the fullest capacity and many of the cases that have had a poor outcome have not had a referral to a home visiting program. In particular, the Medicaid Managed Care Organizations have been identified as providing parallel programs that do not provide the depth of services needed by troubled families. Therefore the following recommendation is submitted.

- The CDRC recommends that all Medicaid and Medicaid Managed Care Organizations and their providers be encouraged to refer clients to the evidence based home visiting programs as offered in the state to serve pregnant women and families with young children. Providers will require additional training from Medicaid and the Managed Care Organizations with regard to accessing these services.

Executive Summary *(continued from page 4)*

To support the mission of the CDRC the following activities were accomplished in 2014-2015:

- Collaboration with the Children's Trust of Massachusetts and Prevent Child Abuse Delaware to educate approximately 10,000 birth parents each year at all birthing hospitals on the dangers of abusive head trauma through the evidence-based program entitled "All Babies Cry"®. In addition, abusive head trauma prevention trainings were provided to home visiting programs, pregnant teens, incarcerated young males, and substance abuse programs;
- Creation of a Joint Action Plan with the Child Protection Accountability Commission for the 18 prioritized system recommendations stemming from the reviews of child death and near death cases due to abuse and neglect;
- Co-sponsorship and facilitation of the Protecting Delaware's Children Conference;
- Collaboration with the Child Protection Accountability Commission to establish and support the work of the Joint Committee on Substance-Exposed Infants/Medically Fragile Children as a result of the Joint Action Plan and child death and near death reviews involving substance-exposed infants and medically fragile children;
- Management of the Delaware Cribs for Kids® program providing 520 cribs statewide to parents who did not have the means to acquire a safe place for their infant to sleep;
- Implementation of the Cops 'n Cribs program with the New Castle County Police thereby promoting infant safe sleep education to families through consistent messaging by first responders;
- Establishment of the National Safe Sleep Hospital Certification program in Delaware with Delaware being one of the first states to have 100% commitment from all birthing hospitals;
- Awarded the Sudden Death in the Young grant from the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health through a strong collaboration with the Division of Public Health;
- Implementation of the impact matrix participatory exercise at the Fetal Infant Mortality Review meetings as a quality improvement tool to help prioritize change ideas;
- Training of professionals in numerous venues on maternal health factors through the Every Mother Initiative grant from the Association of Maternal and Child Health Programs (AMCHP), including two offerings focusing on maternal addiction and Neonatal Abstinence Syndrome.

Glossary of Terms

AAP: American Academy of Pediatrics

ABC: All Babies Cry

ACE: Adverse Childhood Experiences

ACOG: American Congress of Obstetricians and Gynecologists

Acute Intoxication: A condition that follows the administration of a psychoactive substance and results in disturbances in the level of consciousness, cognition, perception, judgment, affect, or behavior, or other psychophysiological functions and responses.

AHT: Abusive Head Trauma; formerly called Shaken Baby Syndrome

AMCHP: Association of Maternal and Child Health Programs

AWHONN: Association of Women's Health, Obstetric and Neonatal Nurses

BASINET: Baby Abstracting System and Information NETwork

Birth Spacing: The optimal time for a woman to wait between pregnancies.

CAN: Child Abuse and Neglect

CAPTA: Child Abuse Prevention and Treatment Act

CCHS: Christiana Care Health System

CDC: Centers for Disease Control and Prevention

CDRC: Child Death Review Commission (the Commission)

CDR: Child Death Review

CPAC: Child Protection Accountability Commission

CPR: Cardiopulmonary Resuscitation

CPS: Child Protective Services (in Delaware known as DFS)

CRT: FIMR Case Review Team

Delaware Juvenile Justice Advisory Group: Established by Executive order on 7/19/04. More information can be found at http://cjc.delaware.gov/juvjustice/index.shtml

DFS: Division of Family Services

DFS-ME: Division of Forensic Sciences Medical Examiner**DHMIC:** Delaware Healthy Mother and Infant Consortium

Disparity: A lack of equality between people or things.

DPH: Division of Public Health

DSCYF: Department of Services for Children, Youth, and their Families

DTI: Department of Technology and Information

DV: Domestic Violence

EMI: Every Mother Initiative

Failure to thrive: A pronounced lack of growth in a child because of inadequate absorption of nutrients or a serious heart or kidney condition, resulting in below-average height and weight.

Fetal Death: Death before the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

FIMR: Fetal and Infant Mortality Review

Graduated Driver Licensing Law: A method of licensing used for granting individuals the privilege to perform a task that takes skill and may put other individuals at risk of harm if not done properly, notably driving. Graduated driver's licensing generally restricts nighttime, expressway, and unsupervised driving during initial stages, but lifts these restrictions with time and further testing of the individual, eventually concluding with the individual attaining a full driver's license. Districts that have enacted graduated driver's licensing have reported significant drops in fatal accidents.

HIV: Human Immunodeficiency Virus

HMO: Health Maintenance Organization

HWHB: Healthy Women Healthy Babies

ICD: International Classification of Diseases

IPV: Intimate Partner Violence

Joint Commissions: CDRC and CPAC

LARC: Long Acting Reversible Contraception

Maternal Interview: The FIMR maternal interview provides the mother's perspective of her baby's death and allows her to describe her experiences in her own words.

MMR: Maternal Mortality Review

MMRDS: Maternal Mortality Review Database System

MOU: Memorandum of Understanding that describes an agreement among parties.

MFM: Maternal Fetal Medicine

MSD: Medical Society of Delaware

NCFRP: National Center for Fatality Review and Prevention

NFP: Nurse Family Partnership

NICU: Neonatal Intensive Care Unit

NIH: National Institutes of Health

OB: Obstetrician

OCCL: Office of Child Care Licensing

P-value: Is a measure of how much evidence you have against the null hypothesis.

PCAD: Prevent Child Abuse Delaware

PPROM: Preterm Premature Rupture of Membranes

PROM: Premature Rupture of Membranes

RM: Resource Mothers

SIDS: Sudden Infant Death Syndrome

SS: Smart Start

STD: Sexually Transmitted Disease

SUID: Sudden Unexplained Infant Death

VNA: Visiting Nurses Association

WHO: World Health Organization

WIC: Women Infants and Children

Wilmington Consortium: Is a group of over 20 agencies committed to working with neighborhood residents to address health disparities, improve birth outcomes and prevent infant mortality in the City of Wilmington. The Consortium is funded by the Delaware Division of Public Health and works to advance the priorities of the Delaware Healthy Mother and Infant Consortium through Education and Outreach in Wilmington.

Z-test: Compares sample and population means to determine if there is a significant difference

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I. Introduction: The Child Death Review Commission

The Commission was statutorily established in 1995 to safeguard the health and safety of all Delaware children. The Commission provides meaningful system-wide recommendations based on multidisciplinary, in-depth reviews of child deaths and assists in facilitating appropriate action in response to its findings. The scope of the Commission has expanded over the years to encompass more functions in service of the same overarching goal: to improve the systems that serve children and their families in Delaware and alleviate those factors that impact child and maternal mortality.

In 2014 and 2015, the CDRC oversaw four programs that reviewed 241 infant, child, fetal and maternal deaths representing a variety of causes. (Table 1) In addition, 45 near deaths in children due to abuse and neglect were also reviewed. Each of the CDRC programs and their findings are described in more detail in separate sections of this report.

1. **The Child Death Review (CDR) program:** Child death review is the original function of the Commission that was established at its inception in 1995. In 2014 and 2015, two CDR multidisciplinary panels reviewed all deaths occurring in children between one and 18 years of age not caused by abuse or neglect. The CDR panels also reviewed infant deaths (under one year of age) that were potentially related to unsafe sleep, including SIDS (Sudden Infant Death Syndrome) and SUID (Sudden Unexpected Infant Death) cases. In 2015, the CDRC received a grant to expand its review of sudden, unexpected deaths in the young. This resulted in the creation of a new panel, the Sudden Death in the Young (SDY) panel. Overall, the findings from the 94 cases reviewed by the CDR panels and the SDY panel are presented in the Child Death Review, Unsafe Sleep-Related Deaths, and Sudden Death in the Young Grant sections of this report.
2. **The Child Abuse and Neglect (CAN) panel:** This program was statutorily established in 2004 to provide expedited, multidisciplinary reviews of child deaths and near deaths due to abuse and/or neglect. In 2014-2015 the CAN panel reviewed 19 deaths and 45 near deaths occurring in children under 18 years of age. Findings from the CAN panel can be found in the "Abuse/Neglect Child Deaths and Near Deaths" section of this report. In September 2015 the supervision of the CAN panel was transferred to the supervision of the Child Protection Accountability Commission.
3. **The Fetal and Infant Mortality Review (FIMR) program:** FIMR was added to the CDRC mandate in 2006. Based on the National FIMR model, the goal of FIMR is to review fetal deaths occurring after 20 weeks gestation and infant deaths not due to abuse, neglect, and/or unsafe sleep. In 2014-2015, two FIMR Case Review Teams (CRTs) reviewed 119 cases. Findings from these reviews can be found in the FIMR section of this report.
4. **The Maternal Mortality Review (MMR) program:** This program is the most recent expansion of the CDRC mandate, legislatively created in 2011. In 2014-2015, a statewide MMR panel reviewed eight cases of maternal deaths--occurring among women who were pregnant or within one year from the end of their pregnancy--and one case of an associated fetal death. Findings from these reviews can be found in the MMR section of this report.

Table 1: CDRC Cases in 2014-2015			
	Near deaths	**Unsafe sleep deaths**	**Total deaths**
CDR Panels	0	19	91
SDY Panel	0	2	3
CAN Panel	45	4	19
FIMR CRTs	0	0	119
MMR Panel	0	0	9*
Total	**45**	**25**	**241**

**Includes 1 fetal death in addition to 8 maternal deaths*

II. Updates for 2014-2015

In fiscal year (FY) 2015, CDRC was awarded the Centers for Disease Control and Prevention's (CDC) Sudden Death in the Young (SDY) Registry in collaboration with the Division of Public Health (DPH). On January 1, 2015, the SDY project began with the first SDY panel meeting in May 2015. The purpose of the SDY project is to build on existing child death review processes to better understand the causes and risk factors for infants, children and young adults who die suddenly and unexpectedly, and to inform strategies to prevent future deaths. (See the section entitled "Sudden Death in the Young Grant" below.) In order to accommodate the expanded review of SDY cases, the New Castle CDR panel became the SDY panel, meeting for the last time as the CDR panel in February 2015. Their remaining cases were transferred to the Kent/Sussex CDR panel, which was renamed the Delaware CDR panel. All sudden and unexpected deaths will be reviewed by the SDY panel, and the CDR panel will review all other deaths statewide.

In FY 2015, legislation was introduced and passed by the General Assembly transferring the duties and responsibilities of the CAN panel to the Child Protection Accountability Commission (CPAC). This transfer was completed when Governor Markell signed the Bill on September 10, 2015. As part of the legislation, the name of the Commission was changed from the Child Death, Near Death and Stillbirth Commission to the original name of the Child Death Review Commission. The CDRC worked closely with CPAC to ensure a smooth transition in late 2015. The Commission will have ongoing collaboration with CPAC through the Chair's representation on CPAC, the Executive Director's representation on the CAN panel, and continued data entry of child deaths into the National Center for Fatality Review and Prevention (NCFRP) Data Tool. Annually, the CDRC will meet with CPAC to review and identify solutions for issues impacting all child deaths and near deaths that involve child abuse/neglect.

In early 2015, CDRC made the decision to start tracking Division of Family Services (DFS) status at time of death, life course perspective (LCP) factors, and substance-exposed Infants. This decision was made

to provide community partners with more timely data specific to Delaware that may not be available in the national databases used for CDR, FIMR and MMR. At the time of death review, this information is gathered and entered into an internal CDRC tracking data tool, with specific sections for CDR, FIMR and MMR cases. This CDRC tracking data tool is maintained by CDRC staff and is designed to supplement the NCFRP Data Surveillance System (CDR), the National FIMR database, and the Maternal Mortality Review Data System (MMRDS) currently in use. Each of these data systems are important to produce data-rich information after case review and also brief tracking points that can be accessed real-time as necessary to monitor trends.

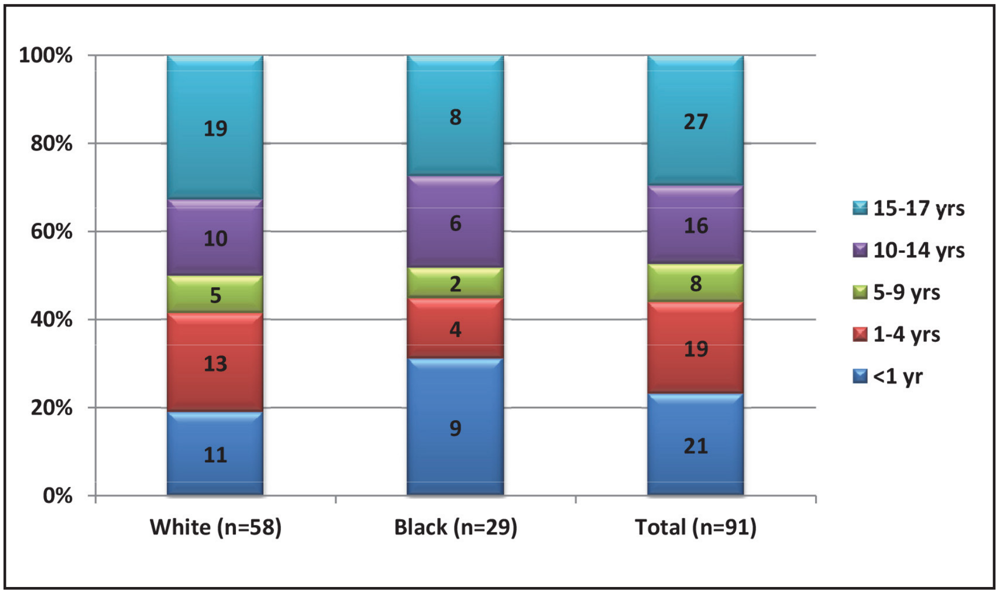
Another important update was the change to the subpoena process for the Commission that improved the timeliness of gathering records from several months to a few weeks.

III. Child Death Review

Summary of Cases Reviewed

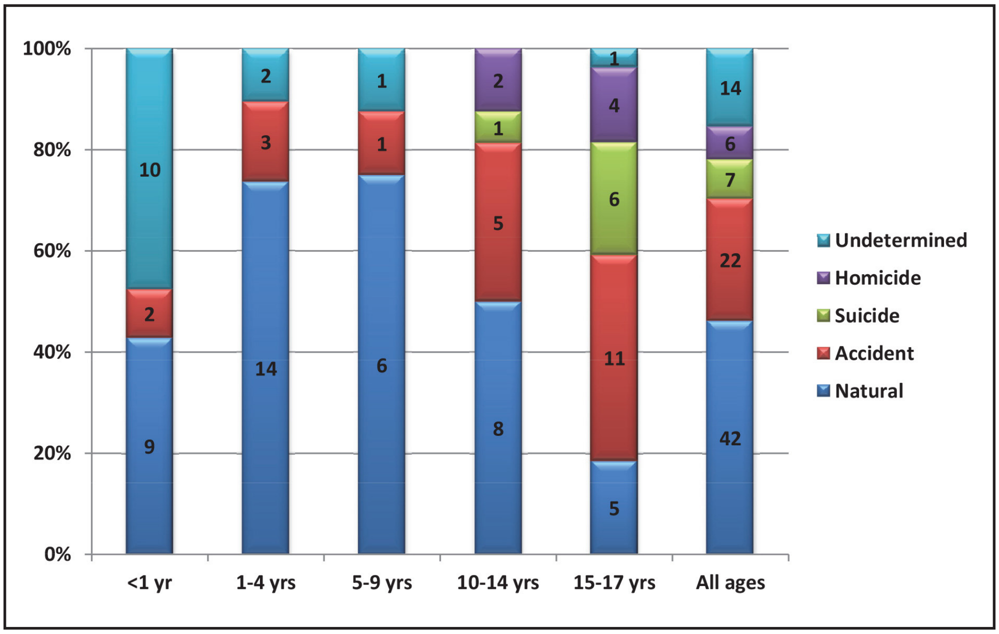
In 2014-2015, 91 child deaths were reviewed by the CDR panels, including 19 deaths related to unsafe sleep. (Table 1) These deaths occurred mostly between the years 2011 and 2015 (range 2006-2015). Figure 1 depicts the race and age of the child death cases. About two-thirds of the cases (64%, 58 out of 91) involved White children, and one-third (32%, 29 cases) involved Black children. There was a higher proportion of Black children with deaths occuring in the first year of life (31%, 9 out of 29 cases). In contrast, among White children, a higher proportion of deaths occuring in the 15-17 year age group were reviewed (33%, 19 out of 58 cases). Overall, 23% of the child death cases reviewed occurred in infants under one year of age, 21% occurred in 1-4 year-olds, 9% occurred in 5-9 year-olds, 18% occurred in 10-14 year-olds, and 30% occurred in 15-17 year-olds.

Figure 1: CDR cases reviewed in 2014-2015 by age and race



Manner of death varied by age group, as shown in Figure 2. In infant cases reviewed by the CDR panels, an undetermined manner of death was most prevalent, accounting for 48% of cases in this age group (10 out of 21 cases), followed by natural causes of death (43%, 9 cases). It is important to note that most infant deaths (n=49) were reviewed by the FIMR CRTs. Only those causes of infant deaths possibly related to unsafe sleep or sudden unexpected death were reviewed by CDR. In 1-14 year-old age groups, natural causes of death represented 65% of all causes (28 out of 43 cases in the three age groups). In 15-17 year-olds, accidental death was the leading category (41%, 11 out of 27 cases), followed by suicides (22%, 6 cases).

Figure 2: Manner of death by age



In the following sections, key findings of the CDR panels are presented by manner of death.

Child Death Review Findings by Cause of Death

Accidental Deaths

Motor Vehicle and Other Transport Deaths

During 2014-2015, the CDR panels reviewed 13 child deaths due to motor vehicle crashes or other transport mostly occurring in the 15-17 year-old age group. (Table 2) Three-fourths of these deaths (77% or 10 cases) involved White children, and only 23% (3 cases) involved Black children. Of the 11 motor vehicle deaths, only one of the children was responsible for causing the motor vehicle crash and that teen was under the influence of alcohol at the time. The remaining ten children were passengers in motor vehicles and the motor vehicle crash was caused by an adult driver. The setting for the motor vehicle crashes occurred in a suburban or rural setting in ten of the 11 cases. In three of the 11 cases, there were more than two teens present in the car. In one case, the teen driver was violating graduating license rules. Studies have found that the presence of teen passengers increases the crash risk of unsupervised teen drivers. This risk increases with the number of teen passengers.[1]

Under the age of 1 – Children must always ride rear facing

Ages 1 through 3 – Keep your children rear facing for as long as possible in either an infant or rear facing convertible seat. They should remain rear facing until the height and weight limit for rear facing use on that seat has been reached. This may result in many children riding rear-facing to age 2 or older.

Ages 4 through 7 – Keep children in a forward facing seat with a harness to the maximum height and weight limit allowed by the seat, Then transition them to a booster seat.

Ages 8 through 12 – Keep children in a booster seat until they either exceed the height/weight requirement for remaining in a booster seat or until they are big enough to fit the criteria for fitting appropriately in a seat belt. The shoulder belt should lie across the shoulder and chest, not cross the neck or face, and the lap belt must lie across the upper thighs not the stomach.

Safety Pedestrian Tips

- **Drivers should watch out for pedestrians, especially in commercial areas.**
- **Drivers should slow down; pedestrians are extremely vulnerable in accidents.**
- **Pedestrians should not try to cross a road if they have been drinking or have drugs in their system. Walking under the influence of alcohol is illegal.**
- **Pedestrians should wear reflective clothing and carry a flashlight at night.**
- **Always cross at a marked intersection or crosswalk.**
- **If no sidewalk is available, pedestrians should walk facing traffic and as far off the edge of the road as possible.**

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[1] Chen L, Baker SP, Braver ER, Li G. Carrying passengers as a risk factor for crashes fatal to 16- and 17-year old drivers. JAMA 2000;283(12):1578–82. http://jama.jamanetwork.com/article.aspx?articleid=192524

Safety measures not used or incorrectly used were a contributing factor in six out of the 11 child motor vehicle deaths reviewed (55%). In four of the crashes, seatbelts were not being worn at the time of the incident. In one case, a car seat was not properly installed thereby contributing to the death. In another case, a booster seat should have been used but was not present in the car. The CDR panels made recommendations based on the review of motor vehicle and transport deaths relating to:

- The importance of seat belt education in driver's education
- The review of Emergency Medical Services (EMS) policies on access to pediatric equipment onboard rescue vehicles

Table 2: Motor Vehicle and Other Transport Death Demographics

Age Group	Driver	Passenger	Pedestrian	Total
1-4 Years	0	1	0	1
5-9 Years	0	1	0	1
10-14 Years	0	3	0	3
15-17 Years	1	5	2	8
Total	1	10	2	13

Poisoning, Overdose, or Acute Intoxication Deaths

CDR panels reviewed six deaths due to poisoning, overdose or acute intoxication, with five deaths involving White children. One child who died as a result of an adverse drug effect (not an overdose) was between the ages of 1-4 years. (Table 3) The other five deaths were due to accidental overdoses in teenagers between 15-17 years. Four cases involved prescription drugs, and open storage of the prescription drug was a risk factor identified in two cases. Upon review of the overdose deaths, CDR panels found that the parents either supplied the prescription or illegal substances to the teen, or allowed the teen access to the substances. As the heroin epidemic continues to plague Delaware's population with deadly consequences for Delaware's children it is important to recognize the importance of parental involvement and education for both children and parents on the risks of overdose and preventive measures for keeping certain kinds of prescription medicines safely in the home.

Table 3: Poisoning, Overdose, or Acute Intoxication Death Demographics

Age Group Reviewed	Prescription	Deaths Drug	Other[2]
1-4 Years	1	1	0
15-17 Years	5	3	4
Total	6	4	4

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[2] Other includes over the counter medicines or illegal drugs.

Drowning Deaths

CDR panels reviewed two deaths due to drowning in a family pool. These children were White males who were not being supervised by an adult at the time. In one case there were no barriers to prevent access to the pool. Proper supervision of children is the best way to prevent a child from drowning.

Fire-related Deaths

The CDR panels reviewed one death due to fire. The one child who died as a result of a fire was between the ages of 10-14. In reviewing this death with the fire marshal present at the review panel, it was apparent that there were building codes violations which also inhibited the fire department's access to the housing structure. The fire was allegedly caused by too many electrical appliances being plugged into one outlet.

Weapons-related Deaths

CDR panels reviewed seven weapons-related deaths of children aged 10-17 years that occurred between 2008 and 2012, including six homicides and one suicide. Six children were fatally shot by handguns; and in only one case was the gun known to have been registered. Among the homicides, five of the six deaths involved Black children and males. (Table 4) Five of the six homicide cases also occurred in New Castle County, with three occurring in the city of Wilmington, and two occurring in the Bear area.

Table 4: Weapon Death Demographics

Age Group	Firearm	Sharp	Total
10-14 Years	1	1	2
15-17 Years	5	0	5
Total	6	1	7
Sex	**Firearm**	**Sharp**	**Total**
Male	5	0	5
Female	1	1	2
Total	6	1	7
Race	**Firearm**	**Sharp**	**Total**
White	0	1	1
Black	6	0	6
Total	6	1	7

Tables 5 and 6 present risk factors identified at the time of the weapons death review. Two firearms were not stored in a locked location. (Table 5) CDRC continues to review suicides and homicides where the children knew where the parent kept keys to locked weapons. Among the six homicide deaths, prevalent factors in the victims' histories include: a history of maltreatment as a victim (n=5), history of mental illness (n=3), criminal history (n=3), time spent in juvenile detention (n=3), and DSCYF placement outside of the home (n=2). (Table 6) In one homicide, a sharp instrument was used to commit the murder of a female teen. One of the homicides occurred during the commission of a crime. Among the perpetrators, a history of substance abuse and child maltreatment as a victim were each identified in two cases. (Table 6)

Table 5: Safety Features and Storage of Firearms Used in Incident

How Firearm Stored[3]	Not Stored	Locked Cabinet	Unknown	Total
Deaths Reviewed	2	1	3	6
Loaded	0	0	1	1
Unloaded without ammunition	1	0	0	1
Unknown	1	1	2	4

Table 6: Homicide Information Tracking Issues

Child History	Total
History of substance abuse	1
History of mental illness	3
Problems in school	2
Active with Youth Rehabilitation Services at time of death	2
Criminal history or delinquency	3
Spent time in juvenile detention	3
DFS Involvement	**Total**
Open DFS case at time of death	0
Child had history of maltreatment as victim	5
Child placed outside of home (DFS custody or relative custody due to abuse/neglect)	2
History of intimate partner violence as victim	1
Person Responsible For Homicide	
Other relative	1
Random street violence	2
Friend or Acquaintance	2
Other	1
Person Responsible For Act	
Drug/alcohol impaired at time of incident	1
History of substance abuse	2
History of child maltreatment as victim	2
History of child maltreatment as perpetrator	1
History of intimate partner violence as victim	1

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[3] Other places for firearm storage include glove compartment, under a mattress, and others.
Footnote: Columns do not add up to totals because the factors are not mutually exclusive.

Suicide Deaths

CDR panels reviewed seven deaths due to suicide: one child was between the ages of 10 and 14 years, and six children were between the ages of 15 and 17 years. Of these seven deaths, one suicide was committed by the use of firearm, one by walking in front of a moving motor vehicle, and five by hanging. Hanging continues to be the most common type of child suicide in Delaware. In the 2013 calendar year, seven of the eight child suicides reviewed were attributed to hanging.[4]

Table 7 presents findings from the suicide deaths. A history of substance abuse was identified in four cases. Five victims had a prior history of receiving mental health services, four were receiving services at the time of their death, and three were prescribed medication for a mental health issue. In six instances, a prior suicide threat was made, and in four cases prior attempts were made. Family discord, arguments with parents, and serious school problems were also prevalent historical factors.

Table 7: Findings in Suicide Deaths (n=7)

Child History	**Total**
History of substance abuse	4
Drug/alcohol impaired at time of incident	1
Was there gay/lesbian/bisexual/questioning?	2
Criminal history or delinquency	2
DFS Involvement	**Total**
Child had history of maltreatment as victim	2
Circumstances	**Total**
Child left a note	3
Child talked about suicide	4
Prior suicide threats were made	6
Prior attempts were made	4
Suicide was completely unexpected	3
Child had received prior mental health services	5
Child was receiving mental health services at time of death	4
Child was on medications for mental illness	3
Issues prevented child from receiving mental health services	2
Child had history of running away	0
Child had history of self mutilation	3
Leading Reasons that may have contributed to Child's Death	**Total**
Rumor mongering	1
Family discord	4
Parents' divorce/separation	1
Argument with parents/caregivers	4
Argument with boyfriend/girlfriend	1
Breakup with boyfriend/girlfriend	2
School failure	2
Move/new school	1
Other serious school problems	5
Drugs/alcohol	1
Sexual orientation issues	2
Other	1

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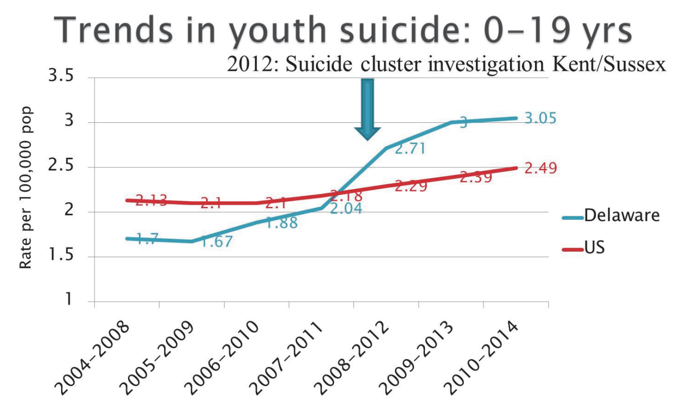
[4] CDRC Calendar Year 2013 Annual Report, Available at: http://courts.delaware.gov/childdeath/reports.aspx

Upon reviewing many of the risk factors listed, it is evident that private and public school systems need to better collaborate and communicate since at-risk children interface with various systems. The Commission identified the following issue based on suicide cases reviewed:

- The importance of providing education in all school districts and private schools on suicidal behaviors, risk factor recognition, and intervention for school staff, parents and children.

CDRC continues to participate in the Suicide Taskforce and is represented on their youth subcommittee.

Issues Brief: Youth Suicides in Delaware



Age-adjusted 5-year average rates based on 2000 population. Downloaded from CDC. WISQARS. Fatal Injury Reports. April 25, 2016.

Delaware has had a recent increase in youth suicides with a rate that is now above the national average. (See figure below.) In 2012 the CDC helped investigate a youth suicide cluster in Kent and Sussex.

At that time, eleven suicides occurred among 11-21 years olds between January and May, 2012. Similar to CDRC findings, the CDC investigation concluded that mental health issues and substance abuse were highly associated with the suicide deaths. In half of the cases, youth had multiple risk factors compounded by a precipitating event leading up to the death.[1]

Risk Factors identified in Suicide Deaths

Beginning in 2010, the CDRC panels began seeing an increase in youth suicide cases for review. While there were no such cases reviewed between 2005 and 2009, from 2010-2015 CDRC panels reviewed 19 suicide deaths in children under 18 years, including five deaths occurring as part of the suicide cluster. Based on these 19 cases reviewed between 2010 and 2015:

- 53% (n=10) had a history of substance abuse
- 26% (n=5) were drug/alcohol impaired at time of incident
- 47% (n=9) had a history of child maltreatment
- 63% (n=12) had received mental health services in past
- 53% (n=10) were receiving mental health services at time of death
- 58% (n=11) had history of family discord
- 37% (n=7) had an argument with parents/caregivers

[1] Fowler K. Epi-Aid Trip Report: adolescent suicides in Kent and Sussex counties, Delaware. Aug 2, 2012.

Sudden Death in the Young (SDY) Grant

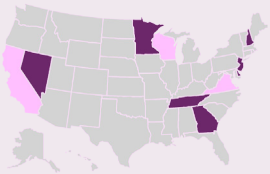
In June 2014, the Delaware Division of Public Health (DPH) in collaboration with the CDRC applied for the SDY registry. Delaware was one of ten states to receive the CDC's SDY grant, which provides support from 2015 to 2018. The SDY Registry is a resource designed to increase understanding of the causes and risk factors for sudden death in the young and is an expansion of the CDC's Sudden Unexpected Infant Death Case Registry. The grant enables the creation of a comprehensive, population-based information source for sudden unexpected death in youths up to age 18 years. The fundamental goals of the SDY registry and case review are:

- **Intervention Strategy A.** Develop and implement a statewide multidisciplinary training for all frontline responders to improve child death scene investigations including doll kits for law enforcement jurisdictions. Trainers are national experts as recommended by the NCFRP and the CDC SDY Registry.
- **Intervention Strategy B.** Improve the child death review process under CDRC to acquire complete, comprehensive data with the increased surveillance under the SDY Registry. As cited in the publication "Classification System for the Sudden Unexpected Infant Death Case Registry and its Application," utilizing a registry similar to the current SUID case registry allows states to identify gaps in investigation and inform SDY reduction strategies.[5]
- **Intervention Strategy C.** Implement a new process in collaboration with the Division of Forensic Sciences-Medical Examiner (DFS-ME) to acquire DNA sampling for selected SDY deaths. This is a CDC recommended process that is part of the SDY Registry and Delaware fully embraces this additional step in case investigation to enhance the accuracy and understanding of cause of death.

Sudden Death in the Young (SDY) Case Registry

SDY Case Registry Grantees, 2014-2018

Delaware, Georgia, Minnesota, New Jersey, New Hampshire, Nevada, Tennesee, and selected jurisdictions in California, Virginia, and Wisconsin



Partners

Centers for Disease Control and Prevention, National Institutes of Health, Michigan Public Health Institute, and the National Center for the Review and Prevention of Child Death

Learn More:

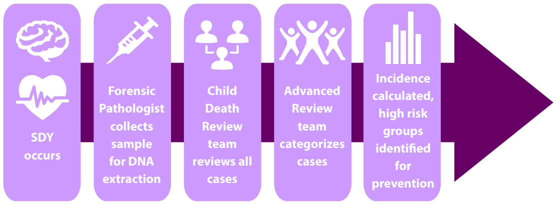
More info on SDY:
http://go.usa.gov/cRECz

Case Reporting System:
https://www.childdeathreview.org/resources/national-cdr-case-reporting-system/

Purpose of the SDY Case Registry

CDC and NIH developed the SDY Case Registry to count the number of cases and understand the causes and risk factors for infants, children and young adults who die suddenly and unexpectedly, and to inform strategies to prevent future deaths.

SDY Case Flow



Phase 1: SDY Case Registry

- Build on existing Child Death Review programs to develop a surveillance system for SDY cases
- Conduct Advanced Review (clinical and forensic) to categorize SDY cases
- Collect and store DNA for future research, banking, and diagnostic testing

Phase 2: Research

- Make the SDY case information and DNA samples available to investigators
- Support studies using SDY case information to evaluate causes of and risk factors for SDY

Not currently a grantee, but interested in SDY?

- Use the National Child Death Review Case Reporting System to monitor SDY cases - all Child Death Review teams have access to the SDY Case Registry variables.
- Encourage forensic pathologists to use the SDY Case Registry Autopsy Guidance/Summary, and save blood and/or tissue samples for future DNA testing by families or medical examiners.

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[5] http://pediatrics.aappublications.org/content/early/2014/06/03/peds.2014-0180

The following agencies/businesses provided CDRC the opportunity to promote the Safe to Sleep message:

- **Association of Women's Health Obstetric and Neonatal Nurses Conference**
- **Baby Fair at Bayhealth**
- **Bridge Program under the Career TEAM**
- **Christiana Care Health System (Wilmington Emergency Room)**
- **Community Baby Shower @ Iglesia de Dios Maranatha, Seaford (LaRed) Delaware Adolescent Program, Inc.**
- **Cribs for Kids training (various locations/partners)**
- **Delaware Adolescent Program Inc.**
- **Delaware Chapter of the American Academy of Pediatrics**
- **Delaware Healthy Mother and Infant Consortium Summit**
- **Delaware Institute for Excellence in Early Childhood through University of Delaware**
- **Delaware SIDS Affiliate parent support group meetings**
- **Division of Public Health**
- **"I love Smyrna Day"- Smyrna School District**
- **Faith Based Event in Dover**
- **Girl Scouts Infant Safe Sleep Training**
- **Head Start Association Conference**
- **Health Ambassador Community baby shower at Bayard Elementary School**
- **Lighthouse Program**
- **New Directions Early Head Start Health Fair (Newark/Wilmington Early Learning Center)**
- **Office of Child Care Licensing-provided expertise for the child care facilities requirements.**
- **Making a Difference Conference**
- **Pregnancy Help Center of Kent County**
- **Safe Kids Conference and other events**
- **Second Chance Resale and Website**
- **United Healthcare Community Plan-Mommy and Baby Community Event**
- **Wilmington Health Consortium**
- **Women & Baby Health Fair, Greenwood United Methodist Church (LaRed)**
- **Women's Walk & Health Fair @ local park in Seaford (LaRed)**

- **Intervention Strategy D.** Implement a community based, prevention action plan based upon the expanded SDY surveillance data. Activities that will be considered are the following health communication and social marketing strategies: health communication campaigns, mass media, small media, interpersonal communication, and comprehensive community wide approaches.[6] In addition, Delaware has a continuum of home visiting services such as Nurse Family Partnership, Healthy Families America, Parents as Teachers, etc. Early childhood home visitation has been proven to reduce infant mortality, and therefore this would be a likely avenue for Delaware to pursue in disseminating prevention messages.[7]

CDRC collaborated with external partners to review all SDY cases in the state occurring after January 1, 2015. SDY grant funding will be utilized to provide training for child death scene investigation for all first responders within the investigatory team[8], DNA sampling by the DFS-ME for certain SDY cases, contractual medical record abstraction, support for the child death panel reviews and a clinical review with the expertise of a pediatric cardiologist, pediatric neurologist (specializing in epilepsy) and a forensic pathologist. In addition, funding during the last two years of the grant will enable prevention initiatives to be developed based on the results of the population-based data.

The data gathered from this registry will be utilized at the state and national levels to improve understanding of the infant/child death scene investigation and autopsies (including bio specimen collection on a subset of cases meeting pre-specified criteria), as well as provide insight as to how to improve these practices. This surveillance data will also be utilized for program planning and evaluation at the state level and will help to improve public health outcomes in the maternal and child population in accordance with Title V performance measures and Healthy People 2020.

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[6] http://www.thecommunityguide.org/about/What-Works-Health-Communication-factsheet.pdf

[7] http://www.thecommunityguide.org/about/What%20Works_Violence%20BROCHURE.pdf

[8] Expected to occur at the April 2017 CPAC Protecting Delaware's Children Conference through the CPAC CAN best practices workgroup.

In this report, only three SDY cases are highlighted in the data as many of the SDY cases were triaged to the CAN panel (unsafe sleeping deaths with significant child welfare histories). Findings that came out of review of the 2015 SDY cases highlighted:

- **The importance of referring infants diagnosed with Neonatal Abstinence Syndrome (NAS) to the Division of Family Services (DFS) for formulation of a safe plan of care**
- **Continuing education for all types of healthcare providers on the American Academy of Pediatrics (AAP) guidelines on infant safe sleep**
- **Improving inter-agency collaboration when completing child death investigations**

Data surveillance has already been enhanced during this first year of the SDY grant and other significant prevention projects have begun. One such project is working with the Nemours pediatric offices to provide safe sleep education. Delaware was acknowledged at the SDY reverse site visit in November 2015 for the Commission's infant safe sleep education efforts.

The Infant Safe Sleeping Program Community Action Team (TISSPCAT)

The Infant Safe Sleeping Practice Committee was created by the CDRC in 2007 after the Commission reviewed a total of 57 infant sleep-related deaths. In 2012, the Committee switched its focus and became an action committee. Therefore, the name was changed from the Infant Safe Sleeping Practice Subcommittee to the Infant Safe Sleeping Practice Community Action Team (TISSPCAT). The new mission is to reduce the number of SIDS (Sudden Infant Death Syndrome) and SUID (Sudden Unexplained Infant Death) deaths in the State of Delaware through educational awareness campaigns around safe sleeping practice. The goals of the action team include: expand the message from "Back to Sleep" to "Safe Sleep Environment" that includes all of the American Academy of Pediatrics taskforce recommendations on safe sleep practices; reinforce the message whenever and wherever possible; to provide a consistent message that makes sense to the lay public; address parental desires to keep the baby safe and comfortable; and emphasize parent self-efficacy and the preventability of infant unsafe sleeping deaths.

Marjorie Hershberger collaborated with the WIC (Women, Infants, and Children supplemental nutritional program) and the Division of Public Health to conduct a pre and post test of participant's assessment of knowledge and behaviors on healthy infant sleep environment. The full report on this research project can be located on the CDRC website.[9]

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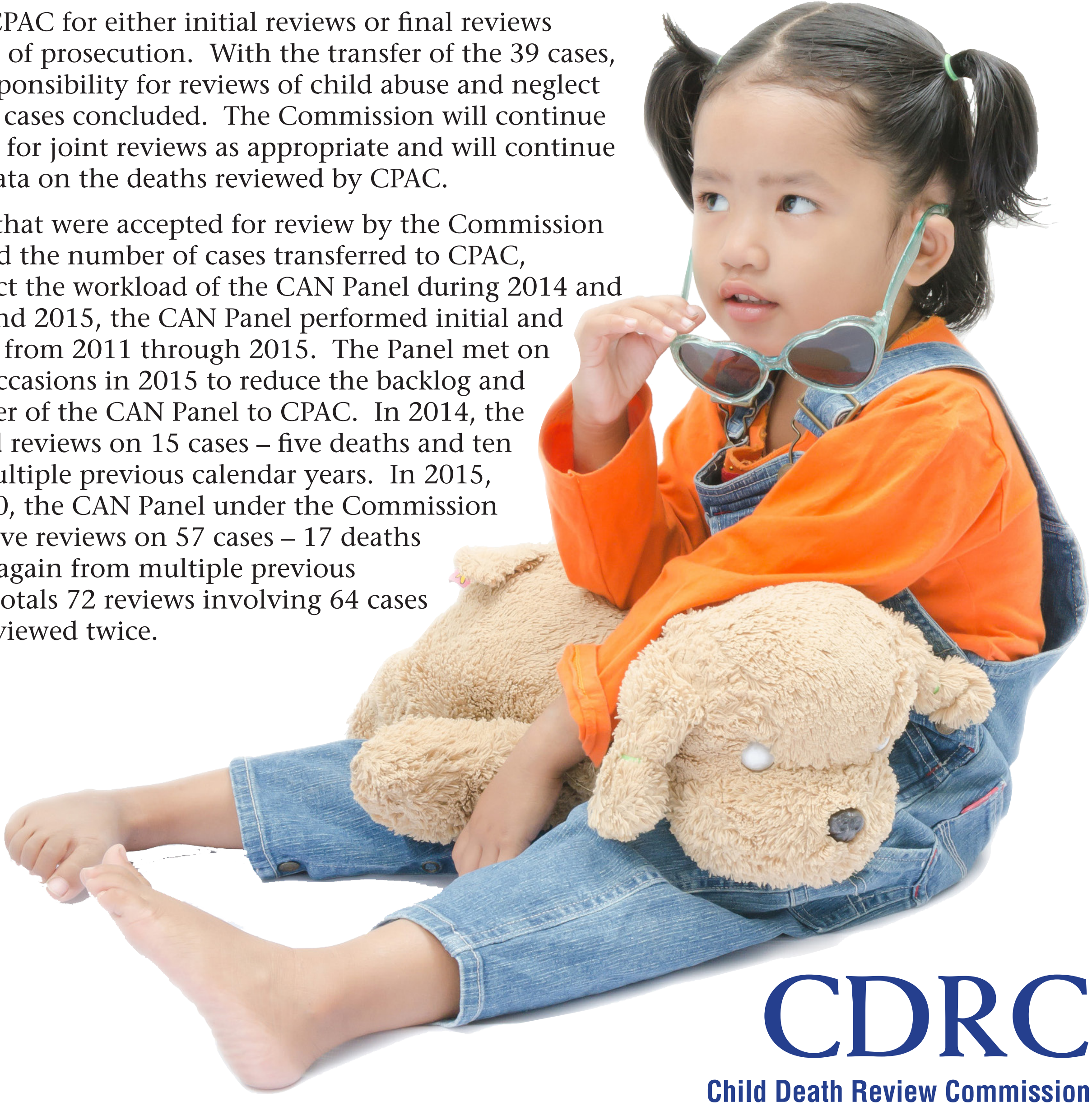
[9] Assessment of knowledge and behaviors on healthy infant sleep environment, http://courts.delaware.gov/childdeath/reports.aspx

IV. Abuse/Neglect Child Deaths and Near Deaths

The multidisciplinary child abuse and neglect (CAN) Panel is charged with the retrospective review of child abuse and neglect deaths and near deaths. The duties of the CAN Panel were transferred to the Child Protection Accountability Commission (CPAC) on September 10, 2015. Specifically, the CAN Panel is responsible for reviewing and investigating the facts and circumstances of each case within six months of the incident. Upon conclusion of prosecution, a final review is conducted to include the criminal outcomes of a case. The CAN Panel formulates findings from its review and those findings are considered by both the Commission and CPAC in determining priorities for system change. The findings and Joint Action Plan are further described below.

In 2014, the Commission accepted 26 cases for review by the CAN Panel. In 2015, 23 cases were accepted for review. An additional ten cases were received in 2015 under the auspices of CPAC. On September 10, 2015, the Commission transferred 17 of the 2014 cases and 22 of the 2015 cases to CPAC for either initial reviews or final reviews following completion of prosecution. With the transfer of the 39 cases, the Commission's responsibility for reviews of child abuse and neglect death and near death cases concluded. The Commission will continue to partner with CPAC for joint reviews as appropriate and will continue to collect aggregate data on the deaths reviewed by CPAC.

The number of cases that were accepted for review by the Commission in 2014 and 2015, and the number of cases transferred to CPAC, however, do not reflect the workload of the CAN Panel during 2014 and 2015. During 2014 and 2015, the CAN Panel performed initial and final reviews on cases from 2011 through 2015. The Panel met on multiple additional occasions in 2015 to reduce the backlog and prepare for the transfer of the CAN Panel to CPAC. In 2014, the CAN Panel performed reviews on 15 cases – five deaths and ten near deaths - from multiple previous calendar years. In 2015, through September 10, the CAN Panel under the Commission conducted retrospective reviews on 57 cases – 17 deaths and 40 near deaths – again from multiple previous calendar years. This totals 72 reviews involving 64 cases as eight cases were reviewed twice.



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The following charts show the demographics, cause of death and child welfare history on the 64 reviewed cases from 2011 through 2015. (Figures 3-6) The charts are not representative exclusively of the children who died or nearly died from child abuse or neglect in 2014 or 2015. Regardless, what is remarkable about the demographics chart is that most of children who died or nearly died from abuse or neglect and whose cases were reviewed in 2014 and 2015 are White and less than one year of age. (Figure 3) The cause of death or near death chart demonstrates that the mechanism of injury continues to be Abusive Head Trauma (AHT). (Figure 4) The child welfare history chart indicates the significant amount of agency involvement in these cases, including 16% of cases active with DFS at the time of injury. (Figure 5) Efforts to target these populations are further described in the All Babies Cry set out on page 26.

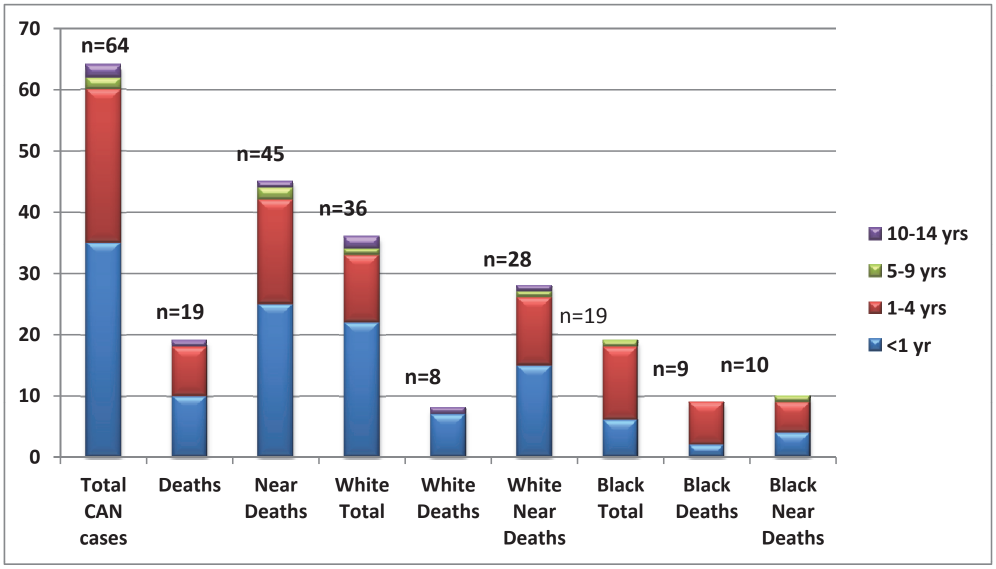
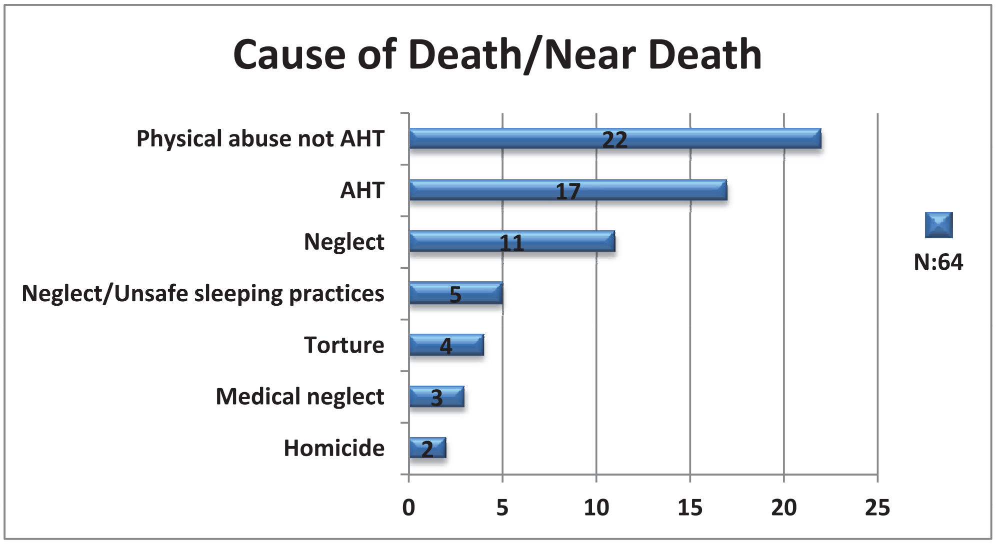


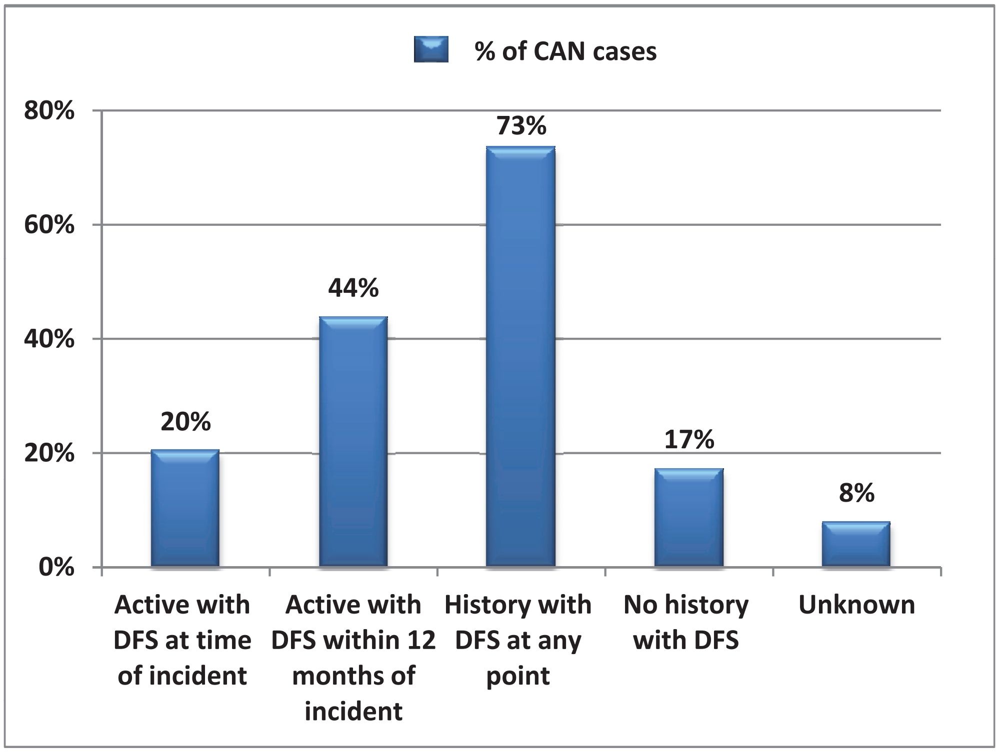
Figure 3: 2014/2015 CAN Panel cases (deaths and near deaths) by race and age group

Figure 4: Cause of death or near death among CAN Panel cases



Although neglect, medical neglect and torture are on the rise as observed at the CAN Panel, the most prevalent causes remain physical abuse and Abusive Head Trauma (AHT).

Figure 5: DFS history in CAN Panel cases



This chart reflects the 64 children reviewed at the CAN Panel: 13 were active with the Division of Family Services (DFS) at the time of the incident, 28 were active with DFS within 12 months of the incident, and 47 had history of some type (as an adult or child) with DFS.[10]

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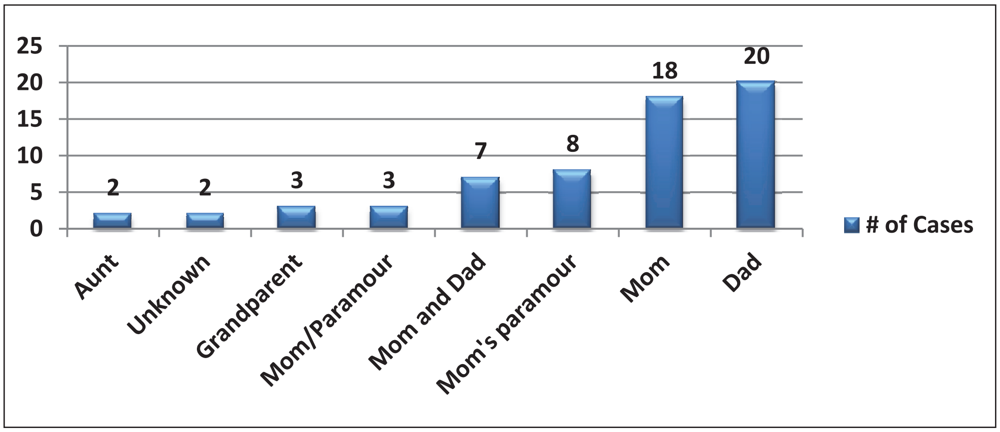
[10] Numbers do not add up to total cases because the factors are not mutually exclusive.

Figure 6: Perpetrator of CAN cases reviewed in 2014/2015



As reflected in the chart above, the most critical person to receive prevention education is the mother and father at birth. Therefore, CDRC continues to provide hospital based education at all birthing hospitals statewide. This program is entitled the All Babies Cry® program.

All Babies Cry®

The CDRC, in collaboration with the Children's Trust of Massachusetts and Prevent Child Abuse Delaware (PCAD) (through a grant from the Federal Community Based Child Abuse Prevention Program/CBCAP) are educating parents with a statewide Abusive Head Trauma (AHT) evidence-based program entitled "All Babies Cry" (ABC)[11] in an effort to prevent this tragedy. Using the "Strengthening Families"[12] model's protective factors, ABC goes beyond traditional AHT prevention and additionally aims to enhance new parents' (particularly fathers') confidence in soothing their infant and themselves when feeling stressed. ABC consists of media targeted to appeal to new parents' appetites for information.

All Babies Cry launched on January 1, 2014. Approximately 10,000 new parents each year receive this much-needed information. Staff at each birthing hospital have been trained to introduce the 11-minute in-hospital version of ABC to new parents and families at maternity bedside. Prior to 2016, staff also provided a parent with a postcard that directs them to view the rest of the media and a 28 page booklet online or on their mobile devices at www.AllBabiesCry.com. The video and booklet have been organized into four chapters to make it easier to fit into new parents' busy schedules. Parents can watch the entire video or chapters at any time on their computer or TV. They can also print out as many copies of the booklet as they would like. This information is helpful to anyone who will be caring for their newborn, and includes a tip sheet for what soothing techniques can work for the specific newborn. All materials are in English and Spanish with closed captioning.

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[11] "All Babies Cry"® was developed by public health communications specialists and educators at Vida Health Communications, Inc., with support and funding from the Massachusetts Department of Public Health and from the Eunice Kennedy Shriver National Institute of Child Health and Human Development.. Vida Communications has transferred ownership of this program to the Children's Trust.

[12] Strengthening Families is a new public health model developed by Center for the Study of Social Policy designed to prevent child abuse and neglect.

During 2015, a pilot study was implemented with Bayhealth Kent General Hospital. This pilot group supplied each new parent the booklet prior to discharge. Follow-up phone calls confirmed through interviews that this booklet was more effective in conjunction with viewing the video. As a result, CDRC changed the requirements for their requested grant and will be providing the booklet to all hospitals and discontinuing the postcard in 2016. A new tracking database for this program will also be implemented in 2016 to monitor effectiveness. Therefore, a full report will be released on the ABC program in the summer of 2016 and will be available on the CDRC website.

Other Abusive Head Trauma Prevention Trainings[13]

- DAPI, Georgetown
- Ferris School
- Healthy Families America
- New Expectations
- Nurse Family Partnership

Brought to you by the CDRC, in partnership with The Children's Trust, and supported by funding from the US Department of Health and Human Services, Administration on Children, Youth, and Families, Community-Based Grants for the Prevention of Child Abuse and Neglect. The grant number is CAN 2012G994551. With generous support from The Matty Eappen Foundation.

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[13] Provided by Marjorie L. Hershberger, MS, RN-BC, PPCNP-BC, CPNP, Specialist on Safe Sleep and SIDS and Abusive Head Trauma Coordinator

Annual Meeting and Retreat with CPAC

Pursuant to statute, the Commission and CPAC are required to meet at least annually to discuss the findings from the CAN Panel reviews. The 2014 meeting occurred in May. At that meeting, the Commissions identified four priority areas: multidisciplinary team ("MDT") response, compliance with policy in DFS investigations, substance-exposed infants and child torture cases. Several solutions were also discussed. To enhance the MDT response, the commissioners suggested refresher training on the Memorandum of Understanding ("MOU") for the MDT agencies and involvement of the Investigation Coordinator in individual cases to help with MOU compliance and dispute resolution. Additional solutions involved implementation of a checklist to track repetitive issues identified during the CAN Panel reviews and assignment of a DFS policy expert on the Panel. Lastly, the commissioners approved the creation of the CPAC Child Abuse and Neglect Best Practices Workgroup and Joint Committee on Child Torture.

In January 2015, the Commissions held a joint meeting and retreat facilitated by Teri Covington and Linda Potter from the National Center for the Review and Prevention of Child Deaths. The purpose of the facilitated retreat was to analyze and prioritize more than 300 CAN Panel findings over the last ten years, and to develop a concrete plan to make lasting system improvements. For this purpose, the commissioners developed a Joint Action Plan outlining strategies to address seven priority areas: use of history, collateral contacts, unresolved caregiver risk and safety plans, legal issues, substance-exposed infants/medically fragile children, the MDT response, and medical standard of care. Since approval and implementation of the Joint Action Plan in May 2015, the Commissions have made significant progress with its priority areas. This progress is highlighted below.

Use of History

The CAN Panel received training on the Division of Family Services' (DFS) Structured Decision Making® System. In addition, DFS implemented a process to flag cases at the Report Line based on history and specific risk factors. As a result, cases transferred to investigation may require a critical framework or higher level of supervision by DFS. DFS is also working to update its Family and Child Tracking System to make it easier for workers to access the chronological history of the case.

Collateral Contacts

DFS is revising its collateral contacts policy and procedure to be responsive to the unique aspects of the family, to be relevant to the allegations, and to inform the decision-making process.

Unresolved Caregiver Risk and Safety Plans

In July 2015, legislation was passed for DFS to compel an uncooperative parent or guardian to complete a drug or alcohol evaluation, mental health evaluation or a developmental screening for their child, and the Department of Justice (DOJ) provided training for DFS supervisors on these statutory changes. Additionally, DFS staff received training from Delaware's Child Abuse Medical Expert on medical examination

findings and lessons learned from cases reviewed by the CAN Panel. Lastly, the DFS representative on the CAN Panel regularly shares the Panel's findings with DFS investigation and treatment supervisors.

Legal Issues

In October 2015, the Attorney General convened a meeting to improve communication between DOJ and DFS, and representatives from the Department of Services for Children, Youth and Their Families, DFS, DOJ and CPAC attended. Several action steps were developed, which ranged from development of policy for when a case worker should contact a Deputy Attorney General to resolving protocols within the DOJ regarding information sharing between divisions within the DOJ. Interdisciplinary training was also discussed to help each agency understand what services can be provided. In addition, CPAC is working with the Court Improvement Program concerning a training program for members of the judiciary.

Substance-Exposed Infants/Medically Fragile Children

The Commissions voted to create a specialized Joint Committee on Substance Exposed Infants and Medically Fragile Children (SEI Committee) to improve outcomes for this population by addressing the following recommendations:

1. **Establish a definition of substance exposed and medically fragile children;**
2. **Draft a statute to mirror the definitions and consider adding language to the neglect statute;**
3. **Recommend universal drug screening for infants in all birthing facilities in the state;**
4. **Review and revise the DFS Hospital High Risk Medical Discharge Protocol to include substance exposed infants;**
5. **Refer substance exposed infants to evidence-based home visiting nursing programs prior to discharge; and,**
6. **Review and incorporate the Neonatal Abstinence Syndrome (NAS) Guidelines for Management developed by the Delaware Healthy Mother and Infant Consortium (DHMIC) Standards of Care Committee.**

On May 29, 2015, the SEI Committee, co-chaired by Dr. Allan De Jong and Jennifer Donahue, Esq., held an initial meeting with representatives from DFS, DOJ, Department of Health and Social Services, Child Development Watch, March of Dimes, Office of the Child Advocate, Court Appointed Special Advocate Program, Family Court, Child Death Review Commission, Alfred I duPont Hospital for Children, Christiana Care Health System, Bayhealth - Kent General and Milford Memorial Hospitals, Beebe Healthcare, St. Francis Healthcare, Children and Families First, Brandywine Counseling and Community Services, Connections Community Support Programs, and nurse consultants. The Committee has held a total of six meetings to address the complex issues surrounding SEI's and their families.

During those meetings, much discussion occurred regarding drug screenings for pregnant women and infants, as well as "plans of safe care." The Committee determined that universal drug screening for all pregnant women upon admission should be the statewide procedure. The Committee also discussed whether in-depth technical assistance should be sought from the National Center for Substance Abuse and Child Welfare to improve the safety, health and well-being of SEI's and the recovery of pregnant and parenting women and their families. Technical assistance would help Delaware incorporate a Five Point Intervention Framework beginning with the pre-pregnancy stage and continuing throughout the SEI's childhood and adolescence. This framework encourages interagency collaboration by developing system linkages to pull each intervention point together. In 2016, the Committee will consider how to best implement the federal law and whether to apply for in-depth technical assistance.

MDT Response

The CPAC Child Abuse and Neglect Best Practices Workgroup is revising the MOU to create best practice protocols for investigating and prosecuting child abuse cases. The revised MOU will feature seven different multidisciplinary response protocols for physical injury, serious physical injury, death, sexual abuse, neglect, juvenile trafficking, and child torture cases. The themes that will be addressed in the MOU include: cross reporting to the MDT, joint responses, forensic interviews, crime scene investigations, medical exams and transportation of victims. The revised MOU will be unveiled in January 2017. In addition, advanced training recommendations for the MDT have been forwarded to the CPAC Training Committee, and many of the topics will be offered at the 2017 Protecting Delaware's Children Conference. The Joint Committee on Child Torture developed a checklist on the common elements of child torture, which is pending approval by CPAC.

Medical Standard of Care

The Commission sent letters to the Board of Medical Licensure and Discipline, the Board of Nursing, and the Medical Society of Delaware inquiring whether revisions to statute were necessary for the education requirement for medical professionals. However, the responses recommended modifying the training curriculum only. The CPAC Training Committee will partner with a physician to update the training for the next re-licensure period.

V. Unsafe Sleep-Related Deaths Reviewed in Delaware 2014-2015

In 2014 and 2015, 25 unsafe sleep-related deaths were reviewed by the CDRC panels. Nineteen cases were reviewed by the CDR panel, four cases by the CAN Panel, and two cases by the SDY panel. The sleep-related deaths occurred between calendar year 2008 (n=1) and 2015 (n=2), with almost half of the deaths occurring in 2013 (n=12). (See Figure 7.) Two-thirds of cases reviewed occurred in New Castle County (n=17, or 68%). (Table 8) All but one death occurred in the first seven months of life (Figure 8). The one older child whose case was reviewed died of medical complications resulting from an unsafe sleeping near death event as an infant. SIDS and asphyxia each accounted for three cases. (Table 9) The majority of cases had other causes of deaths (n=15).

Figure 7: Year of death for sleep-related cases reviewed

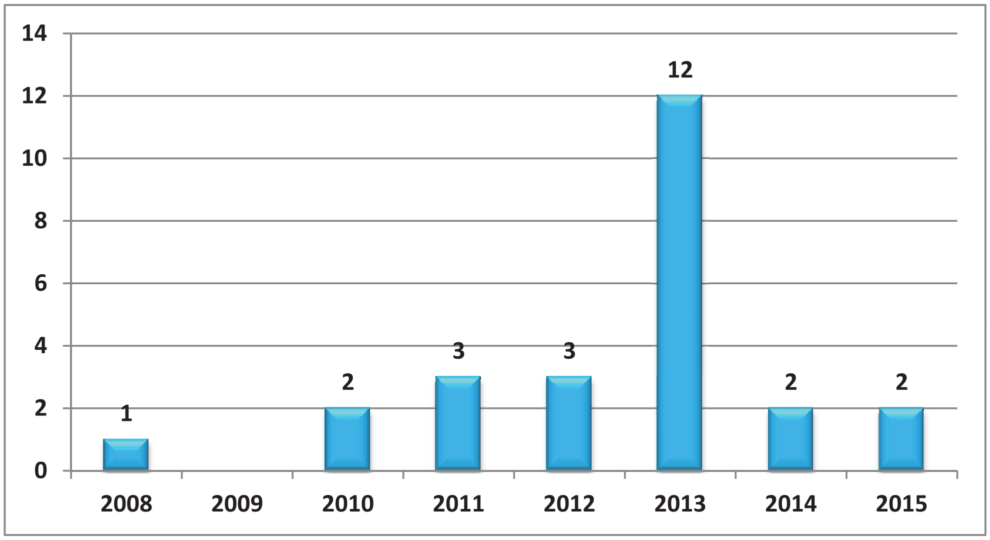

Table 8: County of residence for sleep-related death cases	
County of Residence	**Number of deaths**
New Castle	17
Kent	3
Sussex	5
Total	**25**

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The recommendations include:

- Breastfeeding is recommended and is associated with a reduced risk of SIDS.
- Infants should be immunized. Evidence suggests that immunization reduces the risk of SIDS by 50%.
- Bumper pads should not be used in cribs. There is no evidence that bumper pads prevent injuries, and there is a potential risk of suffocation, strangulation or entrapment.
- Always place your baby on his or her back for every sleep time.
- Always use a firm sleep surface. Car seats and other sitting devices are not recommended for routine sleep.
- The baby should sleep in the same room as the parents, but not in the same bed (room-sharing without bed-sharing).
- Keep soft objects or loose bedding out of the crib. This includes pillows, blankets, and bumper pads.
- Wedges and positioners should not be used.
- Pregnant women should receive regular prenatal care.
- Do not smoke during pregnancy or after birth.
- Offer a pacifier at nap time and bedtime.
- Avoid covering the infant's head or overheating.
- Do not use home monitors or commercial devices marketed to reduce the risk of SIDS.
- Supervised, awake tummy time is recommended daily to facilitate development and minimize the occurrence of positional plagiocephaly (flat heads).

Figure 8: Age of sleep-related death by race

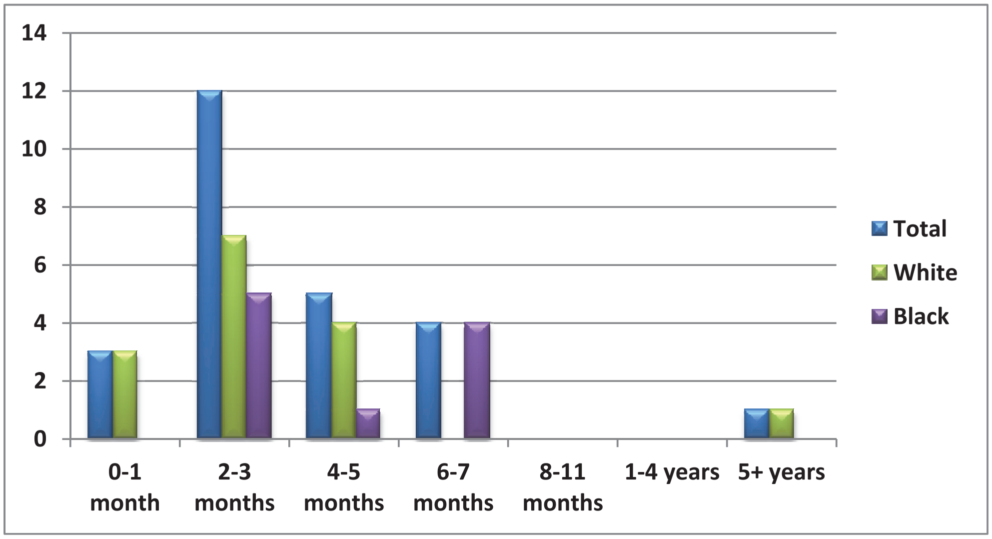


Table 9: Cause of death in sleep-related cases

Cause of death	Number of cases
SIDS	3
Asphyxia	3
Medical condition[1]	1
Undetermined	3
All other causes[2]	15

[1] Medical condition includes unknown medical causes

[2] All other causes includes deaths from other unknown causes and undetermined if injury or medical causes and cases where the cause was left blank

Table 10 reports the findings in the review of the 24 infant unsafe sleep-related deaths. In 83% of cases (n=20), the infant was not sleeping in a separate crib, pack n' play or bassinette. Moreover, in 54% of cases (n=13), the infant was bed-sharing with another individual. This is similar to the percentage of bed-sharing reported in the 2013 CDRC annual report. In 25% of cases (n=6), the infant was not sleeping on his or her back. One infant died while being breastfed due to suffocation, and another infant died from being caught under a crib bumper. This is the first documented case in Delaware of an infant death being associated with a crib bumper, an item which is no longer recommended by the American Academy of Pediatrics (AAP). On October 18, 2011, The American Academy of Pediatrics (AAP) announced their new policy statement, "**SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment.**" As shown in Figure 9, 83% of unsafe sleep-related deaths (n=20) occurred while a parent was watching the infant, usually the mother (n=14).

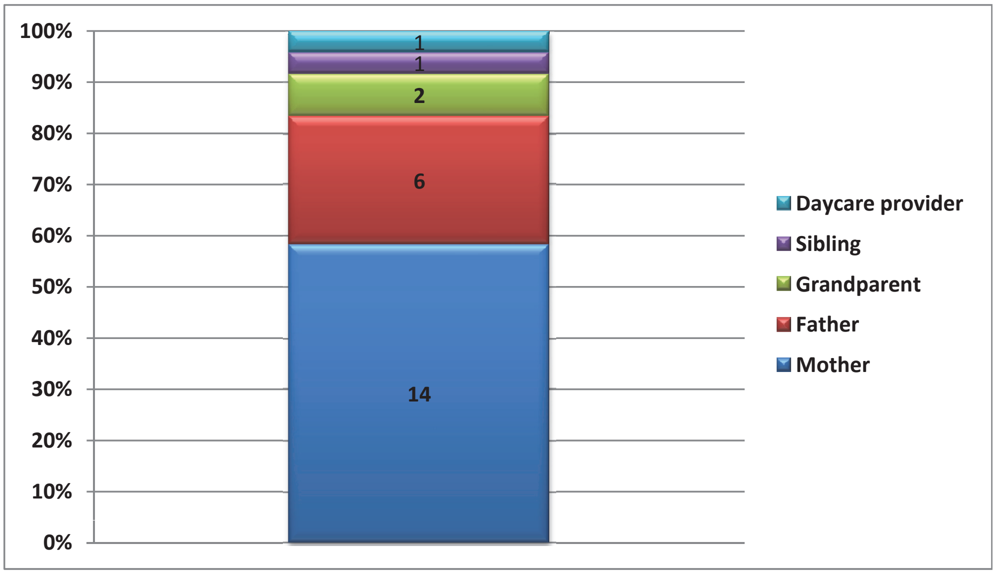
Table 10: Risk factor identified in infant unsafe sleep-related deaths

	Age Group				
Factor[1]	**0-1 Months**	**2-3 Months**	**4-5 Months**	**6-7 Months**	**Sub Total**
Deaths Reviewed	3	12	5	4	24
Not in a crib or bassinette	3	10	3	4	20
Not sleeping on back	0	3	1	2	6
Unsafe bedding or toys[2]	0	0	1	0	1
Sleeping with other people	3	6	2	2	13
Obese adult sleeping with child	1	2	0	1	4
Adult was alcohol impaired	1	0	0	0	1
Adult was drug impaired	1	1	0	0	2
Caregiver/Supervisor fell asleep while bottle feeding	1	1	0	0	2
Caregiver/Supervisor fell asleep while breast feeding	0	0	0	0	0

[1] Columns do not add up to total deaths because the factors are not mutually exclusive.

[2] Unsafe bedding or toys include pillow, comforter, or stuffed toy

Figure 9: Caretaker at time of death in infant unsafe sleep-related cases (n=24)



Two maternal interviews were completed by the FIMR maternal interviewer among the sleep-related death cases. The interviews provided a glimpse into the parents' beliefs or understanding of infant safe sleeping. CDRC will continue to offer a maternal interview and bereavement referrals in these types of cases when there is no pending prosecution. Delaware is only one of a few states that offer a maternal interview for child death review, a feature adapted from the FIMR program.

Tracking Issues in Unsafe Sleep-related Death Cases

CDRC staff tracked issues of interest in all CDR, SDY and CAN cases using the internal tracking database. For unsafe sleep-related deaths, the prevalence of some of these issues is shown below in Table 11. In 36% of cases (n=9), either the mother or the infant tested positive on a drug screen, and four of the infants had been diagnosed with Neonatal Abstinence Syndrome (NAS). Six cases (24%) were referred at some point for home visiting services, and in two of these cases, the mother enrolled in the home visiting program. Three unsafe sleep-related death cases (12%) were active with DFS at the time of the incident, including one of the four sleep-related deaths reviewed by the CAN Panel. Eight cases (32%) had a history of being active with DFS within 12 months of the incident, including three of the four CAN sleep-related death cases. Eighteen cases had a history of DFS contact, including all four of the CAN sleep-related death cases. In nine cases (36%), there was documentation of infant safe sleep education in the medical record. Two families (8%) were recipients of cribs through the Cribs for Kids program.

Table 11: Percent of unsafe sleep-related cases with presence of a tracking issue

Tracking issue	% of sleep-related death cases (n=25)
Mother or infant tested positive on drug screen	36%
Infant diagnosed with NAS	16%
Home visiting referral made	24%
Active with DFS at time of death	12%
Active with DFS within 12 months of death	32%
Family with DFS history	72%
Infant safe sleep education documented	36%
Cribs for Kids recipient	8%

Collaborative Initiatives for Infant Safe Sleeping

Based on the review of the 25 unsafe sleep-related deaths, the CDRC approved recommendations from its panels relating to the following key issues:

- **The importance of training on AAP infant safe sleep guidelines for DFS caseworkers to help reinforce education to families**
- **The importance of training on AAP infant safe sleep guidelines for home visiting professionals**
- **Continuing support for The Infant Safe Sleeping Program Community Action Team (TISSPCAT) and other community outreach programs**

Thirty-six percent of unsafe sleep-related deaths occurred in cases where the family received some safe sleep education. This underscores the importance of repeated and consistent messaging. As shown in Figure 9, the primary target for prevention continues to be the parents. It was for this reason, that the CDRC implemented the Cribs for Kids program in Delaware to provide the necessary public health education to parents.

In June 2009, a partnership was developed between the Delaware Division of Public Health (DPH), Nemours Health and Prevention Services, Christiana Care and the CDRC to implement the first Cribs for Kids[14] program in Delaware. The first crib was distributed in November 2009. This program is one of the biggest accomplishments of TISSPCAT. On December 23, 2011, CDRC assumed more responsibility for this program and became the gatekeeper for all crib distribution. The education is provided to the family by a DPH nurse (if the mother is active with a home visiting program) or other trained staff within the community. Cribs for Kids is an evidence-based program that has had successful outcomes in other states in reducing infant unsafe sleeping deaths and is an excellent example of collaborative partnerships in Delaware on behalf of children.

During CY 2014 and 2015, 520 cribs were delivered statewide through the Delaware Cribs for Kids program. From the inception of the program in the fall of 2009 through December 31, 2015, 1570 cribs have been distributed. Thus far, two infants of a parent or caretaker that received a crib and the mandatory infant safe sleep education have died as a result of unsafe infant sleeping. Both of these cases (reviewed at the CAN Panel) are reflected in this report. The families had extensive DFS history with numerous psychosocial stressors. Both mothers were drug positive at the time of birth. One of the cases was active with DFS at the time of death, and the other case had been closed by DFS within two months of the death.

Cribs for Kids®
Helping every baby sleep safer

A crib is provided to any Delaware mother if she is unable to purchase a crib on her own and meets the following criteria: is due to deliver the baby within six weeks or the infant is younger than twelve months of age; and the family has not previously received a crib from the program. Self-referrals are not accepted and the referring professional must be a social worker, medical professional or other social service representative. The designated line is 302-255-1743.

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[14] Since 1998, through the donation of thousands of cribs, National Cribs for Kids has been making an impact on the rate of babies dying of SIDS and from accidental suffocation. Cribs for Kids is a safe-sleep education program to help reduce the risk of injury and death of infants due to unsafe sleep environments. Currently, Cribs for Kids has 310 partner programs in 43 states throughout the country that provide a Graco Pack 'n Play® crib and educational materials regarding safe sleeping and other important safety tips.

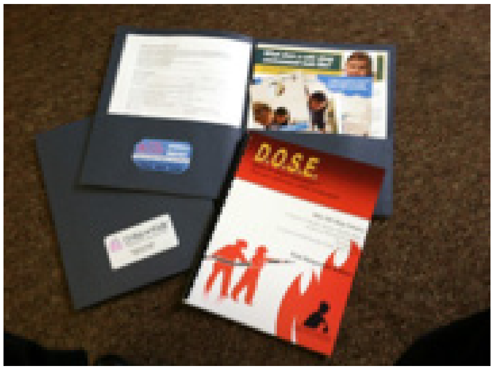
DOSE™ - Direct On Scene Education

The CDRC TISSPCAT and the Delaware Perinatal Cooperative (under the auspices of the DHMIC) in collaboration with the Wilmington Fire Department launched a statewide Infant Safe Sleep initiative entitled DOSE. Funded by the Delaware Medical Education Foundation and the Delaware SIDS Affiliate, the purpose of the DOSE program is to provide first responders with the knowledge and the tools needed to understand SUID (Sudden Unexpected Infant Death), reduce the risk for Sudden Infant Death Syndrome (SIDS), and to prevent accidental sleep related infant deaths by helping families in the communities they serve make the sleep environment safe for infants. First responders have access to homes and residents that healthcare professionals do not. Families view first responders as authority figures they can trust. It is because of this open access and trust that first responders are in the ideal position to educate and facilitate positive behavioral changes.

In October 2013, Lt. James Carroll of the Fort Lauderdale Fire Rescue, one of the program developers, trained over 175 first responders from the City of Wilmington, New Castle County EMS, St. Francis EMS, and Kent and Sussex EMS. In addition, Lt. Carroll provided "train the trainer" courses at the Wilmington Fire Department and the Delaware State Fire School.

Due to staffing issues some of the EMS and fire departments have been unable to track their distribution of the safe sleep kits (materials shown in the picture below), but CDRC continues to support the program through materials and the Cribs for Kids program.

After hearing about the DOSE program, the New Castle County Police Department reached out to CDRC to participate in a similar education program. The Cops and Kids program was modeled after the DOSE program. The Cops 'n Cribs safe sleep kit is provided by law enforcement when responding to a complaint in the community when an infant is present. Lt. Teresa Williams trained all New Castle County Police roll call shifts utilizing the Cops and Kids short eight minute video (available to view on the CDRC website).[15]



Cops 'n Cribs℠
Cribs for Kids® National Public Safety Initiative

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[15] http://courts.delaware.gov/childdeath/programs.aspx

National Safe Sleep Hospital Certification[16]

Marjorie L. Hershberger, MS, RN-BC, PPCNP-BC, CPNP, Specialist on Safe Sleep and SIDS and the chair of the SDY Panel collaborated with Dr. Michael Goodstein (Neonatologist from Pennsylvania) and National Cribs for Kids to bring the Cribs for Kids Hospital Certification program to Delaware. Christiana Care Health System and A.I. DuPont Hospital for Children were the first to attain “gold” status in the state of Delaware. Delaware became the first state to have 100% of all birthing hospitals commit to safe sleep certification status. All hospitals with the exception of one have submitted their application for the Cribs for Kids Hospital Certification and have received either gold or silver status.

Requirements for the Cribs for Kids Hospital Certification program include:

- Develop a safe sleep policy statement incorporating the AAP’s Infant Safe Sleep guidelines.
- Train staff on safe sleep guidelines, the hospital’s safe sleep policy and the importance of modeling safe sleep for parents.
- Educate parents on the importance of safe sleep practices, and model those practices in the hospital setting.
- Replace regular receiving blankets in the nursery and NICU with wearable blankets to model no loose bedding in the crib.
- Affiliate with or become a local Cribs for Kids partner and provide safe sleep alternatives to at-risk parents in your community.
- Provide community and media outreach on safe sleep in your community.
- Evaluate efforts annually through internal audit or Plan, Do, Study, Act (PDSA) cycles.

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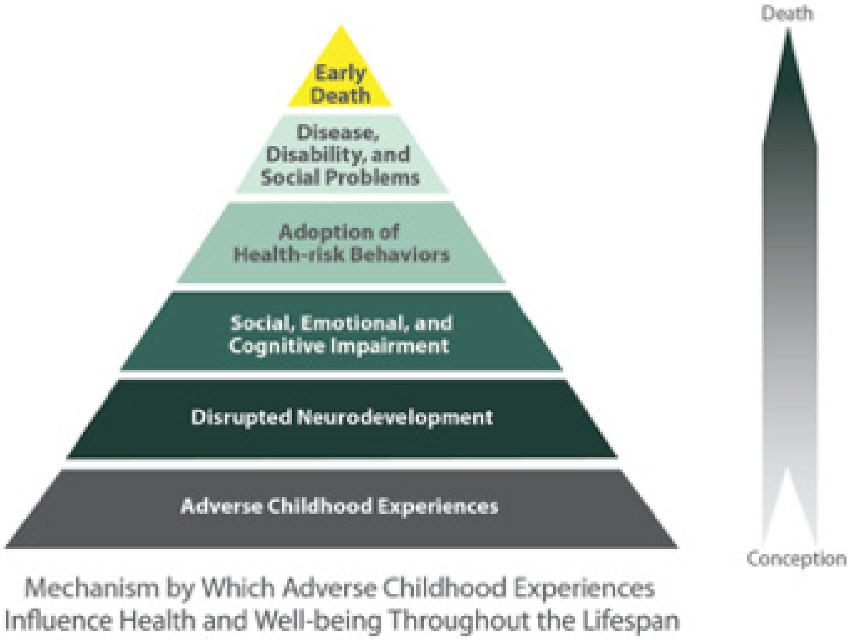
[16] http://www.cribsforkids.org/hospitalinitiative/registration/

VI. Social Determinants of Health[17]

Psychosocial issues and social determinants impact children and families' health. The life course perspective acknowledges these broader issues by looking at health outcomes with a temporal and social perspective to identify risk and protective factors that impact health.[18] Childhood has many critical periods, when social, psychological and biological factors can more profoundly affect an individual's health trajectory. There is much data on the impact of Adverse Childhood Experiences (ACEs) on future violence victimization and perpetration, overall health and life opportunities.[19] As conceptualized in the ACE pyramid (Figure 10), exposure to ACEs has long-reaching impact on health and development and is congruous with the life course perspective.

Figure 10: The Adverse Childhood Experience (ACE) pyramid



Available at: https://www.cdc.gov/violenceprevention/acestudy/about.html

In 2015 CDRC staff created an internal tracking database to help acquire consistent data regarding the life course perspective and adverse events in childhood experienced by a child and immediate family members.[20] The database expands upon the case review process, requiring in some instances new information to be presented and recorded on the following issues:

- Household composition: single, separated, divorced, or married
- Substance abuse: history, suspected or current use by mother or father
- Criminal history: in mother's or father's life
- Mental health issue: in mother's or father's life, this includes a history of postpartum depression
- Intimate partner violence (IPV): history, suspected or current violence in mother's or father's life

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[17] The World Health Organization (WHO) defines the social determinants of health as the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels.; http://ruralhealth.org.au/advocacy/current-focus-areas/social-determinants-health

[18] World Health Organization. The implications for training of embracing a life course approach to health. Geneva 2000.

[19] CDC. Adverse Childhood Experiences (ACEs). https://www.cdc.gov/violenceprevention/acestudy/.

[20] The life course approach, also known as the life course perspective or life course theory, refers to an approach developed in the 1960s for analyzing people's lives within structural, social, and cultural contexts. http://family.jrank.org/pages/1074/Life-Course-Theory.html

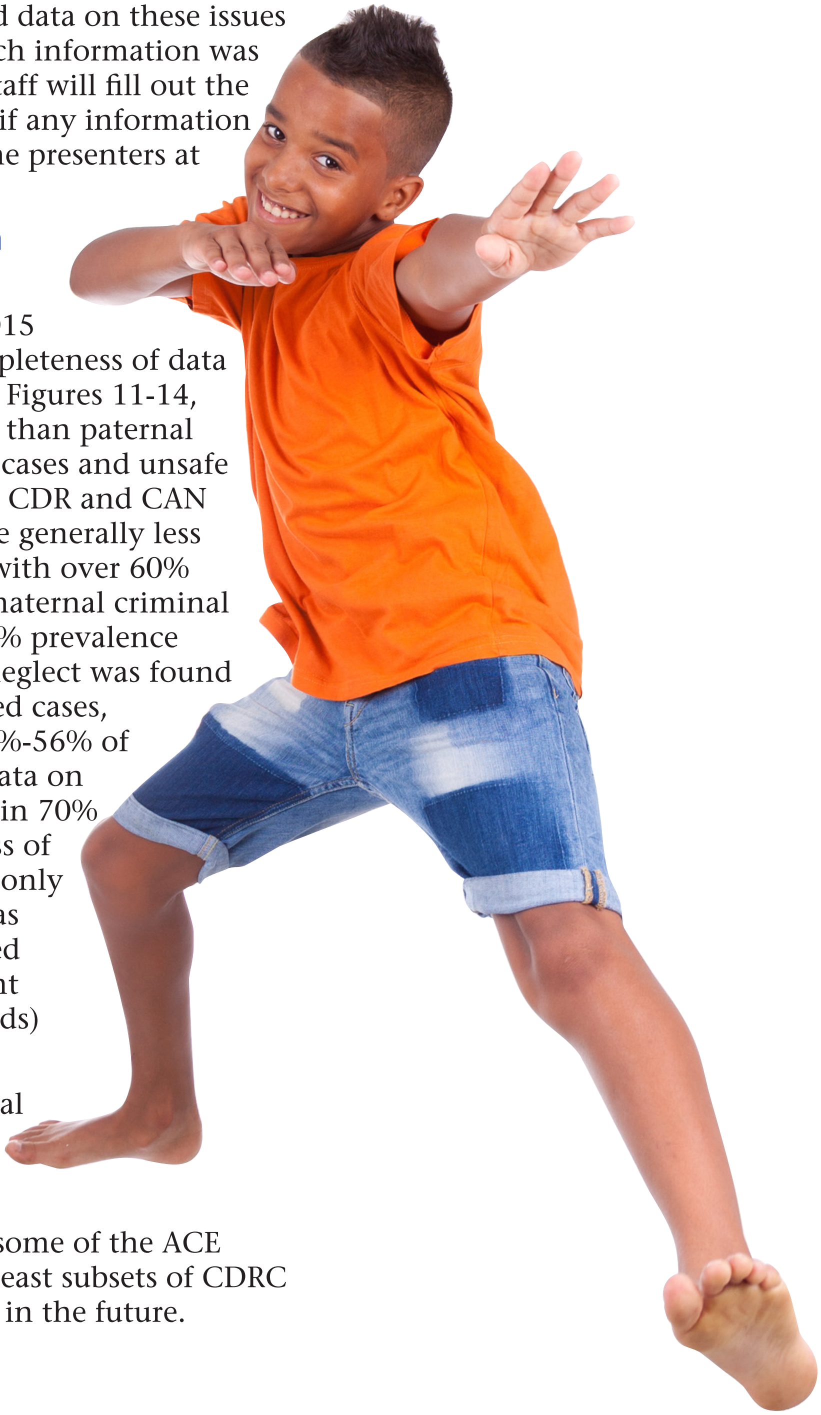
- Abuse: physical, sexual or emotional abuse history in mother's or father's life
- Neglect: physical or emotional neglect history in mother's or father's life

These factors are based on the original ACE study.[21] During the first year of implementation, CDRC staff often entered data on these issues retrospectively, usually after a case review; so much information was missing initially. In 2016 and moving forward, staff will fill out the database prospectively during the case review, so if any information is missing, they can obtain further details from the presenters at the panel.

Prevalence of Psychosocial Issues in parental history

Retrospective review of records from the 2014-2015 CDR, SDY and CAN cases identified varying completeness of data by psychosocial issue. As shown in Table 12 and Figures 11-14, maternal histories were generally more complete than paternal histories, and data was more complete on infant cases and unsafe sleep-related deaths than for the overall group of CDR and CAN cases. Data on mental health issues and IPV were generally less complete than other issues. Among risk factors with over 60% complete data, there was an 81% prevalence of maternal criminal history among unsafe sleep-related cases, and 51% prevalence among infant death cases. History of maternal neglect was found in 54% and 72% of infant and unsafe sleep-related cases, respectively, and history of maternal abuse in 46%-56% of these cases (based on over 60% of cases having data on this issue). Maternal substance abuse was found in 70% of infant death cases (based on 68% completeness of records) (Figures 11-12). Among paternal issues, only criminal history was reasonably complete and was found in 100% of unsafe sleep-related cases (based on 44% of records complete) and in 69% of infant death cases (based on 59% completeness of records) (Figures 13-14).

With prospective completion of the CDRC internal tracking database beginning in 2016, there will likely be better completeness of data moving forward with these cases. However, as shown in the review of 2014-2015 cases, the prevalence of some of the ACE psychosocial risk factors is alarmingly high in at least subsets of CDRC cases and will be important to explore more fully in the future.



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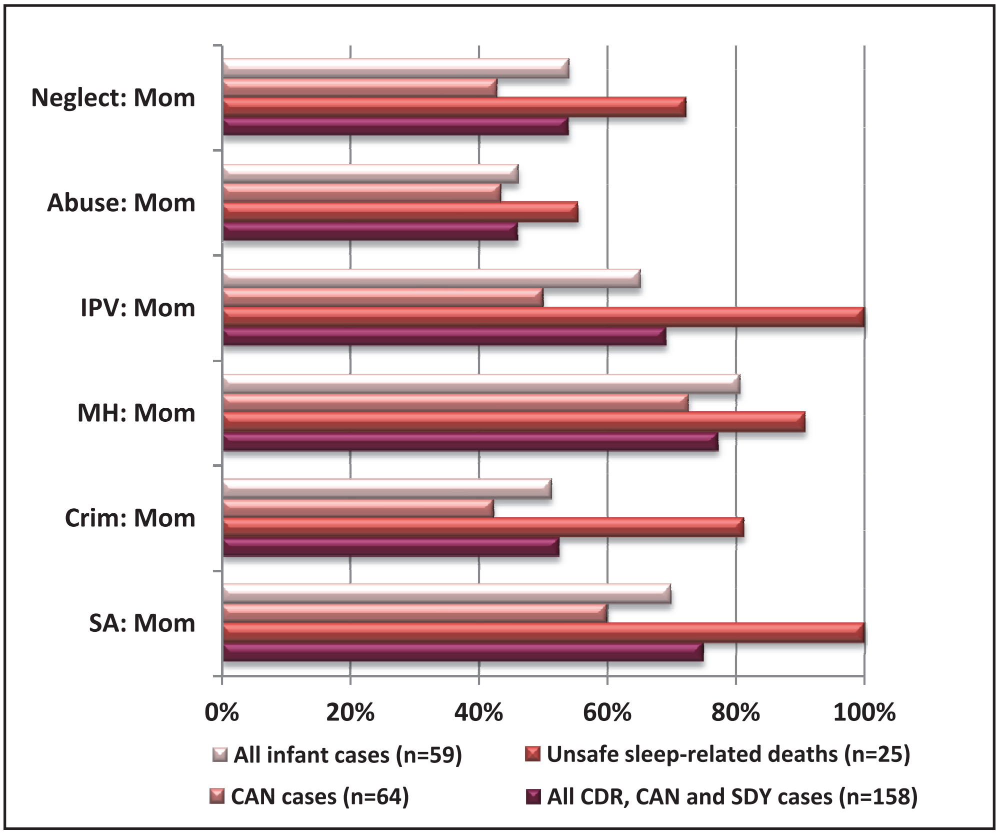
[21] Felitti VJ, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the adverse childhood experiences (ACE) study. Am J Prev Med 1998; 14(4): 245-258.

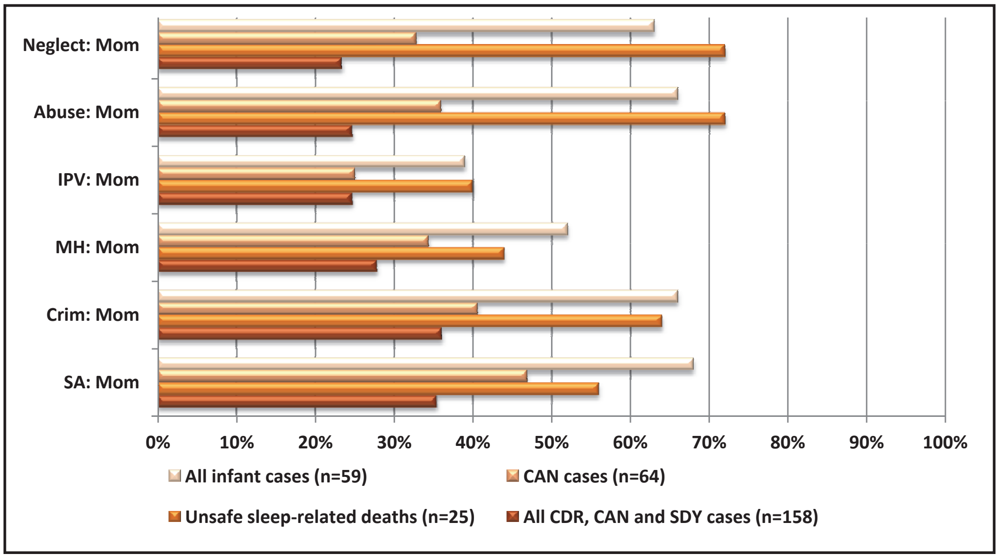
Table 12: Prevalence of psychosocial risk factors in parents' lives: CDR, SDY, CAN cases reviewed in 2014-2015								
	All CDR, CAN and SDY cases (n=158)		**Unsafe Sleep-Related deaths (n=25)**		**CAN cases (n=64)**		**All infant cases (n=59)**	
ACE Indicator	**% cases**	**Number (%) of cases with information available**	**% cases**	**Number (%) of cases with information available**	**% cases**	**Number (%) of cases with information available**	**% cases**	**Number (%) of cases with information available**
Household makeup								
Single, separated divorced	45%	124 (79%)	36%	25 (100%)	29%	38 (59%)	32%	59 (100%)
Substance abuse								
Maternal	75%	56 (35%)	100%	14 (56%)	60%	30 (47%)	70%	40 (68%)
Paternal	68%	25 (16%)	100%	3 (12%)	65%	23 (36%)	67%	24 (41%)
Criminal history								
Maternal	53%	57 (36%)	81%	16 (64%)	42%	26 (41%)	51%	39 (66%)
Paternal	69%	35 (22%)	100%	11 (44%)	59%	27 (42%)	69%	35 (59%)
Mental health issue								
Maternal	77%	44 (28%)	91%	11 (44%)	73%	22 (34%)	81%	31 (52%)
Paternal	50%	14 (9%)	100%	3 (12%)	36%	11 (17%)	50%	14 (24%)
Intimate partner violence								
Maternal	69%	39 (25%)	100%	10 (40%)	50%	16 (25%)	65%	23 (39%)
Paternal	62%	21 (13%)	100%	1 (4%)	60%	20 (31%)	60%	20 (34%)
Abuse: physical, emotional, sexual								
Maternal	46%	39 (25%)	56%	18 (72%)	43%	23 (36%)	46%	39 (66%)
Paternal	32%	31 (20%)	71%	7 (28%)	6%	16 (25%)	24%	21 (36%)
Neglect: physical, emotional								
Maternal	54%	37 (23%)	72%	18 (72%)	43%	21 (33%)	54%	37 (63%)
Paternal	45%	31 (20%)	57%	7 (28%)	29%	14 (22%)	35%	20 (34%)

Figure 11: Prevalence of psychosocial risk factors in mother's life



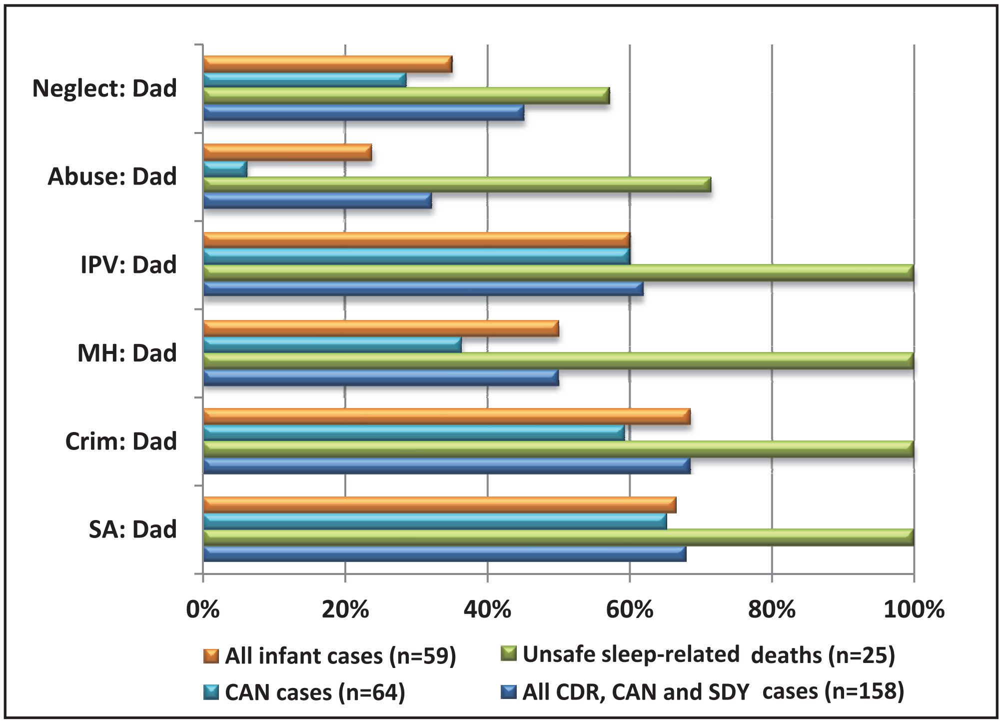
IPV= intimate partner violence, MH=mental health issue, Crim= criminal history, SA= substance abuse

Figure 12: Completeness of psychosocial data on mothers in 2014-2015 cases



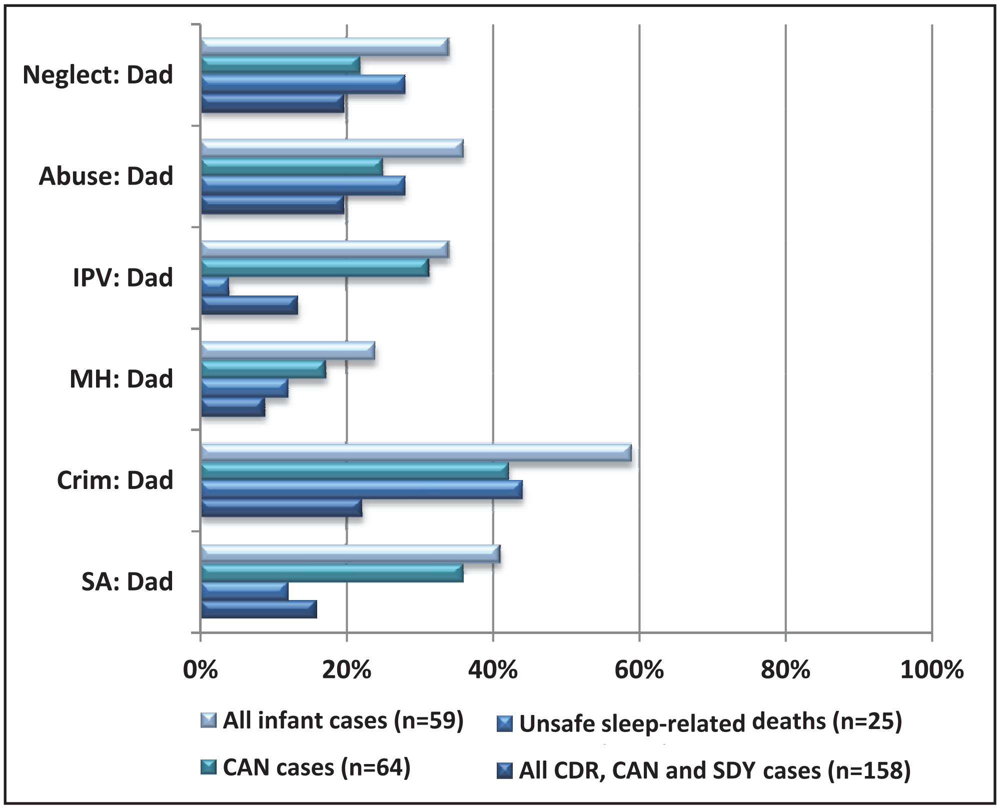
IPV= intimate partner violence, MH=mental health issue, Crim= criminal history, SA= substance abuse

Figure 13: Prevalence of psychosocial risk factors in father's life



IPV= intimate partner violence, MH=mental health issue, Crim= criminal history, SA= substance abuse

Figure 14: Completeness of psychosocial data on fathers in 2014-2015 cases



IPV= intimate partner violence, MH=mental health issue, Crim= criminal history, SA= substance abuse

VII. CDRC Collaborations and Trainings

Marjorie L. Hershberger worked with the University of Delaware, Delaware Institute for Excellence in Early Childhood Education program to develop infant safe sleep and AHT syndrome lectures for on-line training modules. The modules are intended to educate the lay public using an interactive style. Child care providers can register and receive credit for the online module. The modules can be found at http://depdnow.com.

In further fulfilling its statutory mandate, CDRC also actively participated in the following committees:

- Coalition for Injury Prevention
- Training Committee (including the Joint Conference workgroup and the CAN Best Practices workgroup)
- Abuse Intervention Committee
- Delaware Healthy Mother and Infant Consortium (DHMIC), including the following DHMIC subcommittees:
    - ➢ Data and Science Committee
    - ➢ Education and Prevention Committee
    - ➢ Health Inequities Committee
    - ➢ Standards of Care Committee
- National Center for Fatality Review and Prevention (NCFRP) Mid-Atlantic CDR Coalition
- Chaired the coalition
    - ➢ Chaired the Disability Workgroup
    - ➢ Vicarious Trauma Workgroup
    - ➢ Family Involvement Workgroup
    - ➢ Collaboration between CDR/FIMR
- One of four states participating in the National FIMR database beta-testing in conjunction with the Michigan Public Health Institute
- Nurse Family Partnership Advisory Board
- Suicide Prevention Taskforce
- Youth Suicide Subcommittee
- Wilmington Healthy Start Consortium

CDRC Prevention Partners

- 2nd Chance Resale
- American Academy of Obstetrics and Gynecology (National FIMR)
- Bayhealth Medical Center
- Child Protection Accountability Commission
- Children and Families First
- Christiana Care Health System
- Delaware American Academy of Pediatrics
- Delaware Birth Defects Registry
- Delaware Division of Public Health
- Delaware Health and Social Services
- Delaware Healthy Mother and Infant Consortium
- Delaware Office of the Child Advocate
- Delaware SIDS Affiliate
- Delaware Suicide Prevention Coalition
- Department of Services for Children, Youth, and Their Families (DSCYF)
- Delaware General Assembly
- Department of Justice
- Every Child Matters
- Family Court
- Medical Society of Delaware
- National Center for Fatality Review and Prevention
- Nemours Foundation/A.I. duPont Hospital for Children
- Nurse Family Partnership
- Prevent Child Abuse Delaware
- Safe Kids Delaware

CDRC Trainings and Presentations

CDRC staff attended several local and national conferences to further enhance the effectiveness of CDRC within Delaware. These included the DHMIC Summit (2014/2015), National Center on Shaken Baby Syndrome (September 2014), National Commission to End Child Abuse/ Neglect Fatalities (Denver and Philadelphia), National FIMR Consortium (October 2014), Ohio Child Death Scene First Responders Training (March 2014), Pennsylvania Annual Child Death Review Summit (Focus on Child Scene Investigation) (May 2015), NCFRP Mid-Atlantic Coalition, and the SDY Case Registry Site Visit (2014 and 2015).

At the Association of Maternal Child Health Programs (AMCHP) 2015 annual conference, CDRC and DPH presented a poster on “In-Home Education as a Tool for Success in a Statewide Cribs for Kid’s Program”. In addition, the CDRC Executive Director was asked to present in two different workshops. One was on the Delaware FIMR program and the other workshop was on the infant safe sleeping education efforts in Delaware. This workshop on infant safe sleeping education efforts was repeated at the National Cribs for Kids Conference in April 2015. The Executive Director was also asked to present on the Delaware MMR program at the Delaware Chapter Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) conference in October 2016.

Protecting Delaware's Children Conference

CPAC and CDRC held its fifth Protecting Delaware's Children Conference, a multidisciplinary conference, on March 3-4, 2015. This conference was primarily funded by the Federal Court Improvement Project and U.S. Department of Health and Human Services' Children's Justice Act grant. Approximately 524 professionals attended the two-day event geared towards law enforcement, prosecutors, judges, attorneys, case workers, therapists, educators, community providers and medical professionals who regularly respond to allegations of child abuse and neglect in Delaware. The conference featured 39 workshops by national and local experts who addressed multidisciplinary collaboration and various aspects of child abuse. The workshops were organized into five learning tracks: Legal, Trauma, Child Welfare Trends, Domestic Violence, and Investigation.

A one-day Child Abuse Multidisciplinary Team Advanced Training Course was offered at the same time to first responders, which was facilitated by the National Children's Advocacy Center (NCAC). The training course was attended by 138 professionals with direct responsibility for the investigation and prosecution of child abuse cases. Participants had the opportunity to work through case scenarios involving serious physical injury, death and sexual abuse cases. Participants were introduced to best practice protocols being developed in the revised MOU between the Department of Services for Children, Youth and their Families, Children's Advocacy Center, Department of Justice, and the Delaware police departments.[22]

VI. Fetal and Infant Mortality Review

Description of Cases Reviewed

Calendar years (CY) 2014 and 2015 marked the eighth and ninth years of programming for the Delaware (DE) Fetal and Infant Mortality Review (FIMR). DE FIMR is based on the national FIMR model focusing on in-depth case review to inform systems change and continuous quality improvement. The overall aim of the DE FIMR program is to enhance the health and well-being of women, infants and their families by improving community resources and service delivery systems available to them.

When the CDRC office is informed of a fetal or infant loss over 20 weeks gestation, the mother is invited to speak with the CDRC senior medical social worker for a maternal interview (MI). The MI is an opportunity for the mother to share her perspective on her experiences leading up to and after the loss, including her experiences with medical and social service systems of care. Cases are selected for FIMR based on the application of three criteria:

1. The cases of mothers who participated in an MI are reviewed by a FIMR case review team (CRT).
2. The cases of women who have experienced multiple losses over different pregnancies are reviewed. All of a woman's affected pregnancies are included for review together to better identify risk factors and inter-pregnancy issues that may have contributed to the poor outcomes.

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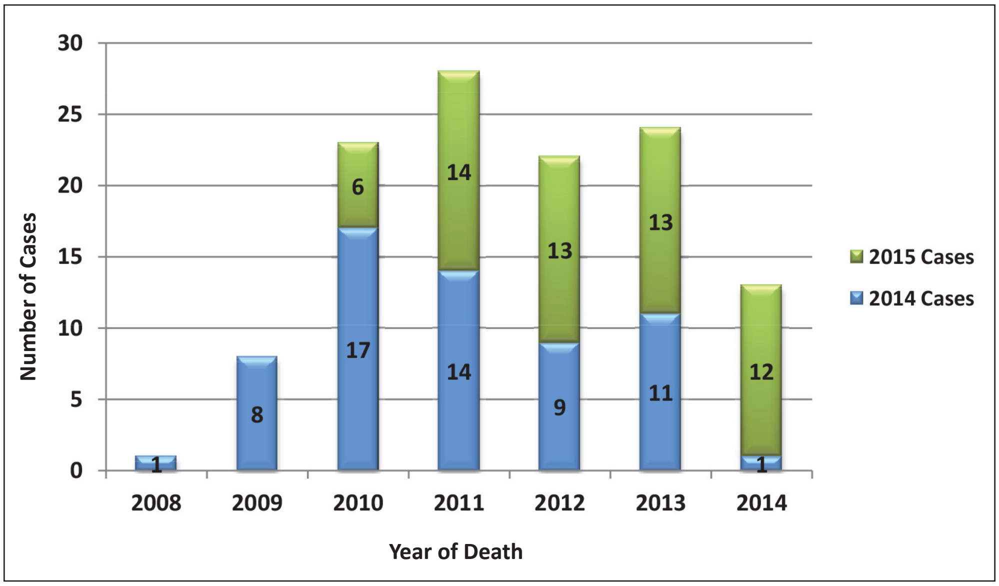
[22] CPAC Fiscal Year 2015 Annual report: http://courts.delaware.gov/childadvocate/cpac/cpac_reports.aspx

3. All other cases (without an MI or a history of multiple losses) are selected for CRT review by a randomized date of death process: the odd dates of death are selected for six months of the year, and the even dates of death are selected for another six months of the year. This randomization process based on date of death was instituted in 2010 to help bring into balance the number of fetal and infant death cases occurring in DE and the capacity of the CRTs to review them in a timely fashion.

Many states and counties that conduct FIMR programs throughout the country similarly employ criteria to select a sample of the total fetal and infant deaths for review. Because the FIMR process is a time intensive review, the quality of the data lies not in vast numbers of cases reviewed but the in-depth, multidisciplinary review of select cases.

In 2014 and 2015 two CRTs—one for New Castle County and one for Kent and Sussex Counties—reviewed 119 cases of fetal and infant deaths. An additional fetal death case also involved the death of the mother, and this case was reviewed by the DE Maternal Mortality Review (MMR) panel, making a total of 120 fetal and infant deaths reviewed in 2014 and 2015. These cases involved 113 mothers: two mothers experienced the loss of twins, and four mothers had multiple losses in different pregnancies. Thirty-one cases (26%) included information from an MI. Figure 15 shows the years of death represented by the FIMR cases reviewed. The majority of cases spanned 2010-2013. Seven percent of cases (n=8) involved deaths occurring in 2009, 19% (n=23) in 2010, 23% (n=28) in 2011, 18% (n=22) in 2012, 20% (n=24) in 2013, and 11% (n=13) in 2014. CRTs reviewed an average of three to four cases per meeting, and each CRT met eight times over the year. When multiple cases occur in the same high-risk community (based on zip code of maternal residence) as previously identified by a Division of Public Health Maternal Child Health needs assessment, the cases are grouped together for review in the same CRT session.[23] This is done to highlight any possible community-level factors or trends that may be occurring.

Figure 15: Year of death for FIMR cases reviewed in CY 2014-2015



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[23] Division of Public Health. Affordable Care Act Maternal, Infant and Early Childhood Home Visiting Updated State Plan. June 2011.

Some key demographic features of the 118 mothers whose losses comprise the CY 2014-2015 FIMR cohort are shown in Table 13. Mothers who had a loss of both babies in a twin gestation pregnancy were only counted once. If a mother had more than one loss in different pregnancies, she was counted once for each affected pregnancy. Fifty percent of FIMR cases (n=59) involved White mothers, and 47% (n=56) involved Black mothers. Black mothers comprised a higher proportion of FIMR fetal death cases (51%) compared to the 2011-2012 total DE fetal death cohort (35%). Sixty-two percent of FIMR 2014-2015 cases (n=73) occurred to single mothers. Among Black mothers 68% (38 out of 56) were single. This is a higher proportion than the single mothers comprising the 2011 DE live birth and fetal death cohorts. The proportion of FIMR mothers on Medicaid was 53%, which is comparable to the proportion of mothers with live births in 2011-2012 covered by Medicaid (49%). It is important to note that FIMR cases are not representative of all infant deaths occurring in DE because some causes of infant death are not reviewed by FIMR but by the CDR and CAN panels in DE. This is true for infant deaths involving accidents, abuse or neglect, Sudden Infant Death Syndrome (SIDS), Sudden Unexpected Infant Death (SUID), and unsafe sleep environments.

Key fetal or infant characteristics of the 120 FIMR cases in 2014-2015 are shown in Table 14. When available, the proportion of these characteristics among the five-year total group of Delaware infant deaths from 2007-2011 (n=459) is also shown in Table 14 for comparison. Of the 120 FIMR cases, over half were fetal deaths (58%, n=70). The proportion of FIMR infant death cases occurring under 28 weeks gestation was higher than the proportion of FIMR fetal deaths at this gestational period: 68% (n=34 out of 50) compared to 54% (n=38 out of 70), respectively. Overall 25% of cases (n=30) occurred between 28-36 weeks gestation, and 15% (n=18) occurred at 37 weeks gestation or later. The distribution of birthweights among cases is also shown in Table 14 and was similar between infant and fetal deaths.

Table 13: Maternal Characteristics of 2014 - 2015 DE FIMR Cases

	FIMR Cases					DE Comparison Groups		
	% Total FIMR cases (n=118)	% Fetal deaths (n=69)	% Infant deaths (n=49)	% White mothers (n=59)[1]	% Total DE live births % Black mothers (n=56)	% Total DE fetal 2011-2012 (n= 22,209)[3]	% Total DE infant deaths deaths 2011-2012 (n=139)[4]	2011-2012 (n=182)[5]
Maternal race								
White	50%	48%	53%			67%	62%	45%
Black	47%	51%	43%			27%	35%	45%
Other	3%	1%	4%			6.0%	3%	10%
Hispanic[2]	6%	6%	6%			13% reported	Not reported	Not
County of residence								
New Castle	55%	54%	55%	51%	57%	60%	65%	73%
Kent	24%	20%	29%	22%	27%	20%	12%	19%
Sussex	23%	26%	16%	27%	16%	20%	24%	9%
Maternal age (years)[7]								
<20	15%	12%	20%	14%	18%	8%	8%	
20-29	45%	41%	51%	42%	45%	52%	*	
30-39	36%	42%	27%	37%	36%	37%	*	
40+	3%	6%	0%	5%	2%	3%	*	
No information	1%	0%	2%	2%	0%	0%	0%	
Maternal education[7]								
<12 years	16%	16%	16%	19%	14%	20%	13%	
High school diploma or GED	41%	41%	41%	31%	52%	25%	42%	
College 1-3 years	15%	14%	16%	17%	14%	27%	25%	
College 4+ years	23%	25%	20%	25%	20%	28%	12%	
No information	5%	4%	6%	8%	0%	1%	9%	
Marital status[7]								
Single	62%	55%	71%	56%	68%	48%	51%	
Married	38%	45%	29%	44%	32%	52%	49%	
Entry into prenatal care[6]								
1st trimester	74%	71%	78%	76%	70%	73%		
2nd trimester	18%	19%	16%	15%	21%	17%		
3rd trimester	0%	0%	0%	0%	0%	5%		
No prenatal care	7%	9%	4%	7%	7%	2%		
No information	2%	1%	2%	2%	2%	2%		
Method of payment								
Medicaid	53%	46%	61%	41%	63%	49%		
Private	39%	45%	31%	46%	32%	47%		
Self-pay	2%	1%	2%	3%	2%	1%		
Other	4%	4%	4%	7%	2%	3%		
No information	3%	3%	2%	3%	2%	1%		

[1] Includes 7 White mothers of Hispanic descent

[2] Women of Hispanic origin can be of any race

*Categories not comparable

[3] Delaware Health Statistics Center. Delaware Vital Statistics Annual Reports, 2011 and 2012. Delaware Department of Health and Social Services, Division of Public Health; 2015.

[4] Delaware Health Statistics Center. Delaware Vital Statistics Annual Reports, 2011 and 2012. Delaware Department of Health and Social Services, Division of Public Health; 2015.

[5] Delaware Health Statistics Center. Delaware Vital Statistics Annual Reports, 2011 and 2012. Delaware Department of Health and Social Services, Division of Public Health; 2015.

[6] For this category, the data is only available on Delaware live births for 2012 (n=10,982)

[7] For these categories, data is only available on Delaware fetal deaths for 2011 (n=77)

Table 14: Infant and Fetal Characteristics of 2014-2015 FIMR Cases

	FIMR Cases					
	% Total FIMR cases (n=120)	% Fetal deaths (n=70)	% Infant deaths (n=50)	% White infants/ fetuses (n=61)[1]	% Black infants/ fetuses (n=56)	% Total DE infant deaths 2007-2011 (n=459)[2]
Sex of fetus or infant						
Male	53%	50%	58%	52%	54%	54%
Female	47%	50%	42%	48%	46%	46%
Plurality						
Single	91%	94%	86%	85%	96%	85%
Multiple gestation	9%	6%	14%	15%	4%	15%
Gestational age (weeks)						
<28	60%	54%	68%	51%	70%	*
28-36	25%	29%	20%	30%	20%	*
37+	15%	17%	12%	20%	11%	28%
Birthweight (grams)						
<500	29%	29%	30%	26%	32%	28%
500-1499	41%	39%	44%	36%	46%	32%
1500-2499	14%	16%	12%	16%	11%	14%
2500+	16%	17%	14%	21%	11%	25%

Just over half of FIMR infant deaths occurred in the first 24 hours of life. (Table 15) Eighty-six percent of infant cases were neonatal deaths (e.g. occurring between 0-28 days), a higher proportion than among all 2011-2012 DE infant deaths. Part of the reason why more FIMR infant cases are neonatal deaths is because FIMR does not review those cases attributed to accidents, abuse/neglect, SIDS, SUID or unsafe sleep practices. These causes of infant deaths are more common in the post-neonatal period, and relevant cases are reviewed by the DE CDR panels.

Table 15: Age of infant death

Age at death	% FIMR infant deaths (n=50)	% Total DE infant deaths 2011-2012 (n=182)
<24 hours	56%	Not reported
0-28 days	86%	76%
29-364 days	14%	24%

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[1] Includes babies born to 7 White mothers of Hispanic descent

[2] Delaware Health Statistics Center. Delaware Vital Statistics Annual Report, 2012. Delaware Department of Health and Social Services, Division of Public Health: 2015.

*Categories not comparable

The primary causes of infant deaths among the 2014-2015 FIMR cases are shown in Table 16. Fifty percent of overall infant deaths (n=25) were primarily due to prematurity, and this cause of death was more prevalent among Black infants (57%). Prematurity contributed disproportionately to FIMR deaths compared to all the DE infant deaths occurring between 2007 and 2011, 25% of which (n=115 out of 459 deaths) were ascribed to disorders of short gestation and low birthweight.[24] Almost one-quarter (22%) of FIMR cases were attributed to cardiac or respiratory distress or failure. Only 4% of FIMR cases were primarily due to congenital malformations and/or chromosomal abnormalities. In comparison, 15% (n=69 out of 459) of 2007 to 2011 DE infant deaths were ascribed to the corresponding category of congenital malformations, deformations and chromosomal abnormalities.[25]

Table 16: Primary cause of infant deaths

	FIMR Cases		
Primary cause of death	**% Total infant deaths (n=50)***	**% White infant deaths (n=27)**	**% Black infant deaths (n=21)**
Prematurity	50%	44%	57%
Cardiac or respiratory distress/failure[1]	22%	26%	19%
Congenital malformations & chromosomal abnormalities[2]	4%	4%	5%
Renal failure	0%	0%	0%
Other[3]	22%	26%	14%

*11 cases (22%) had an associated congenital anomaly

[1] Cardiac/respiratory causes included aspiration (n=1) and cardiomyopathy (n=1)

[2] Includes congenital heart disease (n=1) and hydrops fetalis (n=1)

[3] Includes sepsis (n=2), necrotizing enterocolitis (n=1), and air embolism (n=1)

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[24] Delaware Health Statistics Center (DHSC). Delaware Vital Statistics Annual Report 2012: Infant Mortality. Accessed at: http://dhss.delaware.gov/dph/hp/2012.html on February 3, 2016.

[25] Delaware Health Statistics Center (DHSC). Delaware Vital Statistics Annual Report 2012: Infant Mortality.

FIMR Findings

Application of the Impact Matrix to 2014-2015 FIMR “Change Ideas”

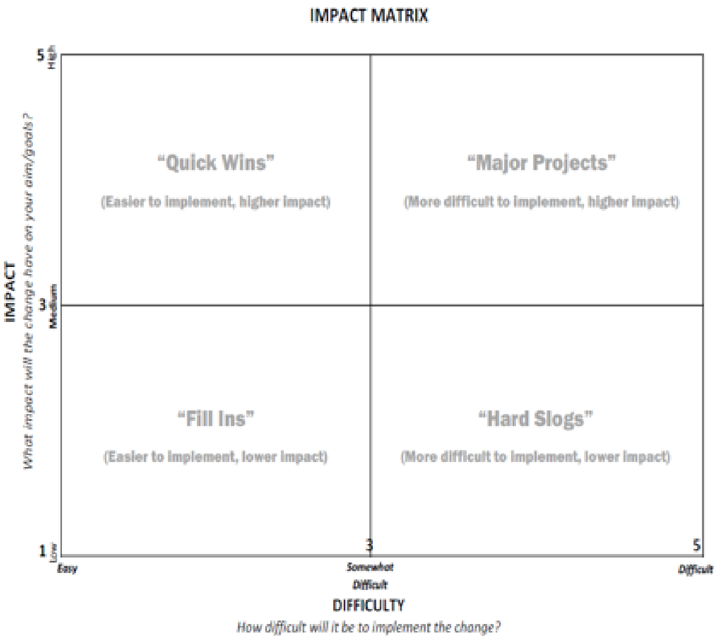
Impact Matrix

In April and October 2015, FIMR CRTs undertook a participatory exercise of plotting the 2014 and 2015 FIMR findings and top BASINET (the FIMR database) suggestions on an impact matrix. The impact matrix is a quality improvement tool used to help prioritize change ideas as they relate to furthering an aim statement (Figure 16). CRT members were asked to consider each change idea and rate them based on two criteria:

1. Impact: what impact will the change idea have on our aim?
2. Difficulty: how difficult will it be to implement the change idea?

Change ideas considered by the CRTs were either findings that came out of FIMR case deliberations or BASINET suggestions that were made in about 50% or more of cases. These BASINET suggestions were grouped into themes, and each theme was plotted on the impact matrix.

Figure 16



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FIMR Finding I

FIMR CRTs noted the importance of referring mothers without prenatal care, or limited or late prenatal care, for follow up medical services. Some of these mothers may be seen at acute care settings, such as emergency departments, and that may be an opportunity to get a social work assessment to evaluate what services are available for the mother and what appropriate referrals can be initiated.

Aggregate CRT Findings: In 38% of the 2014-2015 FIMR cases, the CRTs suggested mothers receive education on the importance of early and consistent prenatal care. (Table 17) Seventeen percent of mothers entered prenatal care after the first trimester, and this proportion was higher among cases involving Black mothers (21%). These proportions are comparable to the total Delaware cohort of live births in 2011-2012, among whom 22% of mothers entered prenatal care in the second or third trimester.[26] Seventeen percent of mothers had inconsistent prenatal care with missed appointments, including 21% of White mothers. Seven percent of all FIMR mothers had no prenatal care; this is slightly higher than the proportion of 2011-2012 Delaware live births in which the mothers had no prenatal care (2%).[27] Emergency room or other acute care visits are an opportunity to try and connect mothers with care if they do not have a prenatal or interconception care provider.

CRT Discussion: Both the New Castle CRT (NCC CRT) and the Kent/Sussex CRT (K/S CRT) considered this recommendation a "major project" with high impact but also high difficulty. (See Figures 17 and 18, "Rec 1-SS referral".) The CRT members felt that the feasibility of getting a social work assessment varies based on the location of the clinical facility and the time of day. Even in larger hospitals, the social work staff is busy during the day and pregnant women "may not be a priority." At night, there may be one social worker on call and covering multiple sites, so access is limited. Other smaller hospitals or free-standing emergency rooms usually do not have any social worker on call.

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[26] Delaware Health Statistics Center. Delaware Vital Statistics Annual Reports, 2011 and 2012. Delaware Department of Health and Social Services, Division of Public Health; 2015.

[27] Delaware Health Statistics Center. Delaware Vital Statistics Annual Reports, 2011 and 2012. Delaware Department of Health and Social Services, Division of Public Health; 2015.

Table 17: Case review deliberation findings pertaining to recommendation 1

	% of all FIMR cases (n=120)	% of White mothers (n=61)	% of Black mothers (n=56)
Strengths			
Adequate prenatal care with appropriate referrals	72%	75%	68%
Early prenatal care (1st trimester)	76%	79%	71%
Compliance with prenatal care/kept appointments	70%	70%	73%
Compliance with postpartum care, kept appointment	63%	62%	64%
No gaps in medical or social services	22%	16%	29%
Contributing Factors			
Late entry into prenatal care after 1st trimester	17%	13%	21%
Inconsistent prenatal care with missed visits	17%	21%	11%
No prenatal care	7%	7%	7%
Suggestions			
Patient education on the importance of early and consistent prenatal care	38%	36%	41%

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FIMR Finding 2

It is important to expand access to and reimbursement for LARCs (long acting reversible contraception) in both the public and private clinics statewide.

Aggregate CRT Findings: About one-third of FIMR cases (32%) were unplanned pregnancies, compared to 19% that were planned pregnancies, according to CRTs. (Table 18) FIMR cases involving White mothers were twice as likely to be planned pregnancies (26%) compared to cases involving Black mothers (13%), even though more Black mothers were prescribed contraceptives in the postpartum period prior to hospital discharge. This discrepancy suggests that, among FIMR mothers, acceptance or appropriate use of family planning services is lower in Black women. As is often the case, knowledge is not necessarily sufficient to change behavior. In 38% of cases, CRTs recommended that birth control be provided in the immediate postpartum period. LARCs are more likely to result in effective contraception, because once they have been placed, their effectiveness is not dependent upon daily decisions by women to assure that they are being used properly. Increasing access to and insurance coverage of LARC will provide more options to women for making family planning choices that fit their preferences and lives.

CRT Discussion: The NCC CRT considered this recommendation a “quick win,” while the K/S CRT put this recommendation in the middle, on the line between a “quick win” and a “major project.” (Figures 17 and 18, “Rec 2-LARC”) There is a resurgence of interest in LARC and discussion of increasing access to these contraceptive options. As one CRT member put it, LARC is “coming down the pike.” However, there are some issues to sort out in order to be compliant with the manufacturer’s protocol, for example, who will be trained and can insert LARCs. Reimbursement is a key piece, with different issues for the hospital, private and public clinic settings. Delaware Medicaid has approved the reimbursement of postpartum LARC insertion outside the bundled services for a delivery admission, making the procedure more economically feasible for providers and hospitals. The Delaware chapter of the American Congress of Obstetricians and Gynecologists (ACOG) sponsored a conference in June 2015 that featured a speaker on LARC methods and differences in insertion immediately postpartum.

Table 18: Case review deliberations and findings pertaining to recommendation 2 and family planning

	% of all FIMR cases (n=120)	% of White mothers (n=61)	% of Black mothers (n=56)
Strengths			
Planned pregnancy	19%	26%	13%
Mother received family planning counseling	47%	43%	52%
Contraceptives or prescription given postpartum at hospital discharge	24%	18%	32%
Mother offered contraception at postpartum visit	25%	26%	23%
Contributing Factors			
Unplanned pregnancy	32%	30%	36%
Suggestions			
Importance of family planning, preconception or interconceptional care	69%	74%	66%
Birth control in the immediate postpartum period and compliance with chosen contraceptive method	38%	41%	36%
Family planning counseling with contraception dose or prescription prior to hospital discharge	23%	25%	21%
Persistent follow-up on contraception/family planning when mothers initially refuse services in hospital or at postpartum visit	14%	13%	13%

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FIMR Finding 3

It is important that home visiting (HV) representatives notify a woman's obstetrician when she is enrolled in an evidenced based home visiting program and provide regular clinical and/or psychosocial updates to facilitate interagency communication and continuity of care.

Aggregate CRT Findings: There is a low prevalence of use of evidence based HV services among mothers in FIMR. In Delaware, evidence based HV services are based on three models: Healthy Families America—the Smart Start (SS) program in Delaware--Nurse Family Partnership (NFP), and Parents as Teachers. Improving the communication between prenatal care providers and home visit providers could help increase provider awareness of the content and benefit of such services. This may, in turn, result in providers' being more apt to screen and refer high risk mothers for HV services. In 68% of FIMR cases, the CRT suggested that HV services may have been of benefit to the mother, and in 66% of cases CRTs made the recommendation that providers be better educated on the benefit of such services. (Table 19)

CRT Discussion: Both CRTs rated this recommendation somewhere between a "quick win" and a "major project." (Figures 17 and 18 "Rec 3-HV feedback") There is a need for a centralized, standardized form to communicate between home visit staff and the obstetric provider. Children and Families First, the organization running NFP in the state, and the Delaware Home Visiting Community Advisory Board have worked to create such a form. Written communication between Smart Start staff and providers used to be the norm, according to some DPH staff on the CRTs, but then the process was discontinued as it appeared that providers did not read the communications. However, with the increase in pregnant women with medically and socially complex cases, there is a need for better communication between clinic and community-based providers. For example, the obstetric provider can alert the home visit staff of issues to be followed up on during visits and vice versa.

The efficient communication of quality, relevant information will be key to the success of this effort. If providers realize that the information is of value, they will be on board with participating and, in turn, increasing referrals to HV programs. The providers will see the worth of the programs and have more buy-in. It may be necessary to provide education on HV services to all obstetric practices. This will increase the awareness among clinic staff of the services available, and they can have procedures in place to receive faxes or phone calls from home visit staff and include this information in patients' medical records for provider review. The Perinatal Cooperative and Children and Families First has undertaken an education initiative with obstetrical providers concerning this issue and is working to engage providers on the content and value of HV services.

The Delaware Home Visiting Community Advisory Board has developed templates for a provider feedback form, an enrollment letter and a referral letter to standardize and efficiently communicate information between home visiting and healthcare providers. The final templates for these three forms are included in Appendix A.

Table 19: Case review findings pertaining to Recommendation 3 and prenatal care providers referrals to home visiting programs

	% of all FIMR cases (n=120)	% of White mothers (n=61)	% of Black mothers (n=56)
Strengths			
SS/NFP involvement	2%	0%	5%
Provider screened for SS/NFP	1%	0%	2%
Provider referred mother to SS/NFP	2%	0%	4%
Contributing Factors			
Provider did not screen for SS/NFP referral	73%	74%	77%
Medical and social services/ community resources available, but not used	78%	77%	80%
Suggestions			
Home visits during pregnancy to monitor clinical status in high risk mothers and provide education	68%	66%	71%
Providers need to better understand benefits of SS/NFP as evidenced by referrals	66%	62%	70%

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FIMR Finding 4

Accurate documentation of the gestational age of the fetus/infant on the death certificate is necessary for accurate vital statistical reporting.

CRT Discussion: The NCC CRT which made this recommendation rated it as somewhat difficult and high impact, so between a “quick win” and “major project” (Figure 17, “Rec 4-Vital stats”). It is hard to control individual providers’ actions and there are many providers who fill out death certificates, but it is important to educate on the importance of accurately recording information. The NCC CRT chair will take this recommendation to the Perinatal Cooperative, which includes representatives from each of the Delaware birthing hospitals. Increasing attention to this issue is facilitated by having such a forum to get the word out to all hospitals at one time. The potential impact of accurately recording gestational age on the death certificate is high because Delaware is a small state, and a few erroneously categorized deaths can affect the infant mortality rate or fetal death rate.

Key Themes from BASINET Suggestions

CRTs deliberated 120 cases in 2014 and 2015 and in 98% of cases deemed that the case review records were adequately complete, with 94% of cases including information from multiple sources, such as prenatal records, hospital records and specialist visit notes. Strengths, contributing factors and suggestions are recorded on each case. Suggestions made in about half of the 2014-2015 cases reviewed were pulled from the FIMR database BASINET. Five main themes emerged from the case reviews:

1. Initiation of a home visiting referral
2. Diet/nutrition
3. Education in the prenatal and interconception periods
4. Grief support
5. Substance abuse referral

CRTs plotted each of these themes on the impact matrix. A discussion of each theme and the proportion of cases with relevant strengths, contributing factors and suggestions are presented below.

Initiation of a Home Visiting Referral

Aggregate CRT Findings: The low number of FIMR cases for which HV screening and referrals were initiated continues to be of concern to CRT members. This issue is one that CRTs have been tracking for several years, and in five of the last six years of FIMR, a formal recommendation has been made on the importance of prompt and adequate screening and referral for support services. Finding 3 above also pertains to the importance of increasing provider engagement with home visiting programs. FIMR CRTs determined that 68% of 2014-2015 cases could have benefited from home visits during pregnancy to monitor women with risk factors and to provide education, and yet 73% of mothers were not screened for risk factors that could prompt a SS or NFP referral. (Table 20) Indeed, in 78% of cases, CRTs felt there were medical, social or community resources available that were not used, and the most common resource found lacking was the use of home based nursing or social service support in 85% of these cases. Only three FIMR cases had documentation of SS or NFP involvement. Yet 82% of mothers—including 88% of Black mothers—had a chronic pre-existing medical condition, and 20% of mothers lacked adequate social support systems in their lives. Those mothers with a combination of medical risk factors and socioeconomic stressors may have benefited most from the additional support provided by a HV professional.

CRT Discussion: Both CRTs rated this issue as a “major project.” (Figures 17 and 18, “Initiation of HV referral”) If providers see that home visits make a difference, they will buy into the programs and, hopefully, make more referrals. If the HV programs generate a “mass of paperwork” without providing good information, providers will not buy in, and referral rates will not increase. Therefore, the communication from HV programs needs to be focused on the patient and her care and of value and relevance to providers. The new forms designed to succinctly convey information to providers and referring agencies on the content and status of HV cases are included in Appendix A.

Table 20: CRT findings on the initiation and possible benefit of home visiting services in FIMR cases			
	% of all FIMR cases (n=120)	**% of White mothers (n=61)**	**% of Black mothers (n=56)**
Strengths			
Active social services involvement	55%	46%	66%
Referrals to needed community resources such as WIC, food stamps, shelter, etc.	36%	30%	45%
SS/NFP involvement	2%	0%	5%
Provider screened for SS/NFP	1%	0%	2%
Provider referred mother to SS/NFP	2%	0%	4%
Provider referred mother to Healthy Beginnings	10%	7%	14%
Contributing Factors			
Pre-existing medical conditions such as asthma, hypertension, diabetes, mental health disorders, etc.	82%	77%	88%
Provider did not screen for SS/NFP referral	73%	74%	77%
Medical and social services/ community resources available, but not used	78%	77%	80%
Lack of support systems in mother's life	20%	16%	23%
Poverty	44%	38%	52%
Suggestions			
Better assessment of family's home/socioeconomic situation	68%	62%	75%
Home visits during pregnancy to monitor clinical status in high risk mothers and provide education	68%	66%	71%
SS/NFP prenatal screening on initial prenatal care visit	75%	82%	70%
Providers need to better understand benefits of SS/NFP as evidenced by referrals	66%	62%	70%
Mothers should be educated on importance of SS/NFP services	64%	67%	63%
Early referrals to social services	38%	30%	46%
Timely entry of risk assessment s cores and/or referrals so care can be initiated promptly	22%	25%	21%

Diet / Nutrition

Aggregate CRT Findings: Improving women's nutrition to optimize healthy weight in the peripartum period has been an ongoing theme in FIMR cases for several years. Twice in the last five annual reports, FIMR CRTs have made a formal recommendation pertaining to the importance of diet and nutrition education and counseling to optimize health, and this issue has also been designated as a tracking issue in one prior annual report.

Table 21 shows the proportion of FIMR cases with strengths, contributing factors and suggestions relating to nutrition, anemia, and healthy weight gain during pregnancy. There was a higher prevalence of obesity among Black mothers (36%) compared to White mothers (28%). Black mothers were more likely to have excessive weight gain during pregnancy (39%) compared to White mothers (18%). A higher proportion of Black mothers were also anemic during their pregnancy. In 65% of cases, the FIMR CRTs recommended more patient education on the importance of proper nutrition and weight gain during pregnancy; and in 48% of cases they believed mothers would have benefited from closer evaluation of dietary habits and nutritional counseling.

CRT Discussion: The NCC CRT rated this issue of moderate difficulty and impact while the K/S CRT considered it a "major project," higher in difficulty and impact. (Figures 17 and 18, "Diet/nutrition") As one member said, "weight is the biggest impact on health," but it is not just about eating right and exercise. Emotional and cultural issues play a role in a person's nutritional choices. The K/S CRT saw the issue as being very complex and multifactorial, hence "just talking to a nutritionist won't solve" the problem of unhealthy weight or diet. This issue could be helped by having a home visitor who could take more time with a woman and help her to strategize about choices she has in the context of her life. Some physicians do not know how to approach weight as an issue or may not have the time, and access to a nutritionist or dietician varies by clinical site. Hospital-based clinics have more access to a nutritionist or WIC staff for referrals. In the Healthy Beginnings model, a dietician and social worker are part of the care team. In Centering Pregnancy programs, a dietician meets women at one of the prenatal visits. Women may need more time and discussions with trained staff to find feasible changes they can make in their lives to move towards a healthier diet and optimal nutrition. Private obstetric offices do not have easy access to nutritional counseling services, so women seen there may not be as well linked to such services.

Table 21: Case review findings relating to nutrition, weight, and weight gain during pregnancy

	% of all FIMR cases (n=120)	% of White mothers (n=61)	% of Black mothers (n=56)
Strengths			
Patient education on nutrition	62%	56%	71%
Mother achieved weight loss as directed per physician	2%	0%	4%
Contributing Factors			
Obesity	31%	28%	36%
Overweight	14%	11%	18%
Inadequate weight gain	23%	26%	18%
Excessive weight gain	28%	18%	39%
Inadequate nutrition, including anemia in 1st trimester of pregnancy	28%	25%	32%
Anemia diagnosed after the 1st trimester	37%	31%	43%
Suggestions			
Patient education on the importance of proper nutrition and weight gain during pregnancy	65%	59%	73%
Closer evaluation of dietary habits and evaluation of diet content/nutritional counseling	48%	36%	61%
Patient education on risks of obesity	40%	36%	46%

Education in the Prenatal and Interconception Periods

Aggregate CRT Findings: CRTs recommended more emphasis on the importance of being healthy before pregnancy and appropriate birth spacing in 84% and 79% of 2014-2015 FIMR cases, respectively. The importance of family planning, preconception and interconception care is clearly evident upon considering some notable strengths and contributing factors among cases. Over three-quarters of FIMR mothers (82%) had a pre-existing medical condition. (Table 22) Being as healthy as possible before getting pregnant is an important aspect of preconceptual and interconceptual care. Especially for mothers with a fetal or infant loss, taking the time to optimize their health between pregnancies is key. Black mothers--39% of whom had a history of a fetal or infant loss--were also more likely to have a short interpregnancy interval (less than 18-24 months) compared to White mothers (20% vs. 11%, respectively). Most women are not receiving education on appropriate birth spacing prior to hospital discharge or at the postpartum visit. From data on 116 cases, 77% of cases had no documentation of birth spacing education in the postpartum visit note, 9% of mothers were told to wait less than 12 months, and only 14% were told to wait at least 12 months before getting pregnant again.

White mothers were also more likely to receive genetic counseling and education on folic acid intake. The former may be due to the higher frequency of genetic anomalies in White fetuses or infants in the FIMR cohort.

CRT Discussion: Both CRTs felt this issue was of medium-high impact, but the K/S CRT rated it of moderate-high difficulty, while the NCC CRT considered education changes of moderate difficulty. (Figures 17 and 18, "Education") There are many tools available for preconceptual and interconceptual education such as the reproductive life plans. There is still a need for consistent messages, and the whole healthcare community needs to be involved. Every contact with a woman is a potential opportunity for preconceptual or interconceptual teaching and intervention. Primary care physicians, in particular, play a key role by asking women about their pregnancy intention and prescribing vitamins and medicines that can affect a potential pregnancy. Increasing access to LARCs will impact this issue by potentially decreasing the rate of unintended pregnancies and increasing interpregnancy intervals.

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Table 22: Case review findings pertaining to education in the prenatal and interconception periods

	% of all FIMR cases (n=120)	% of White mothers (n=61)	% of Black mothers (n=56)
Strengths			
Genetic counseling	24%	30%	20%
Comprehensive prenatal teaching	42%	39%	46%
Folic acid teaching	15%	18%	9%
Prenatal education appropriate in each trimester	25%	21%	29%
Pregnancy interval at least 24 months	31%	34%	29%
Contributing Factors			
Pre-existing medical conditions such as asthma, hypertension, diabetes, mental health disorders, etc.	82%	77%	88%
History of fetal or infant loss	35%	31%	39%
Lack of or inadequate prenatal education	26%	28%	23%
Inadequate birth spacing	15%	11%	20%
Fetus or infant with a genetic/ congenital anomaly incompatible with life	4%	8%	0%
Pre-existing medical condition in the fetus or infant such as a nonlethal anomaly, metabolic disorder, etc.	12%	15%	9%
Suggestions			
Importance of being healthy before pregnancy	84%	85%	84%
Importance of family planning/preconception/ interconception care	69%	74%	66%
Education on appropriate birth spacing	79%	85%	75%
Pre-conceptual care teaching	62%	62%	63%
Education on folic acid intake	55%	52%	61%
Improve prenatal education in appropriate trimester	16%	16%	16%

Grief Support

Aggregate CRT Findings: Almost all FIMR mothers received grief counseling in the hospital (96%) but very few (7%) had documentation of outpatient grief counseling. (Table 23) This low outpatient percentage may be an ascertainment bias due in part to the lack of records from outpatient grief counselors. Twenty seven cases had documentation of being offered or receiving photography services such as Now I Lay Me Down to Sleep. CRTs suggested debriefing parents after a loss to help them understand the cause or circumstances surrounding the loss (38% of cases) and prenatal care providers taking an active part in addressing grief and denial issues (62%). Women who have experienced a loss are at higher risk for a subsequent loss as evidenced by the fact that about one-third of FIMR mothers had a history of a prior fetal or infant loss. Appropriate and repeated contact for bereavement counseling—including a follow up phone call from hospital-based staff--is an issue that FIMR CRTs have been tracking for several years now, and will continue to do so. Seven FIMR recommendations have been made in the previous six years pertaining to improving access to community-based services and culturally appropriate bereavement support.

CRT Discussion: Both CRTs felt this issue was of moderate-high difficulty, with the NCC CRT rating it of higher impact. (Figures 17 and 18, "Grief support") Access and quality of grief support may depend on where a woman lives and the reason for her fetal or infant loss. Women with infants who have major anomalies or genetic defects may get better counseling because there is more information to convey about what happened. Women who have preterm labor and a resulting loss, on the other hand, may not get as much counseling because providers do not have as many answers for them as to what happened and why.

Community-based grief support resources are also limited, particularly in Kent and Sussex Counties. Even in New Castle County, the Compassionate Friends support group meets once a month. Women's access to these groups will depend on where they live and how frequently the groups meet.

In the hospital and clinic setting, compassionate care may not be documented in the records, even if it is provided. Some CRT members felt that healthcare providers try to treat women with a loss compassionately because "it is the right thing to do," but it is not necessarily reflected in the medical record.

Some CRT members expressed the concern that debriefing women two to three months after a loss may be too late. Women may be pregnant again. This is however an important issue to discuss with a woman, because her mental health affects her overall health as well as her anxieties and fears during any subsequent pregnancy.

Table 23: Case review findings on grief support			
	% of all FIMR cases (n=120)	% of White mothers (n=61)	% of Black mothers (n=56)
Strengths			
Chaplain, pastor, nurse, or social work grief support in the hospital	96%	95%%	96%
Family requested to see baby to bond	71%	77%%	64%
Referral to community grief support services after discharge	65%	61%%	70%
Chaplain, pastor, nurse or social work grief support outside the hospital	7%	5%%	9%
Follow up per hospital bereavement team	10%	8%%	11%
Contributing Factors			
History of fetal or infant loss	35%	31%	39%
Suggestions			
Debrief parents 2-3 months after loss to assess their understanding of the cause(s)/ circumstances of the death	38%	44%	32%
Referral to community agency for grief counseling	62%	59%	64%
Prenatal care providers to take an active part in addressing grief and denial issues	62%	61%	61%
Postpartum depression screening/education and assessment of grieving status with appropriate referrals	50%	54%	48%

Substance Abuse (SA) Referral

Aggregate CRT Findings: Thirty-five FIMR cases (29%) involved mothers with identified SA issues, and four cases (3%) had evidence of high-risk lifestyle behaviors to support an addiction. (Table 24) In 26% of FIMR cases there was no documented screening for SA, and this was more prevalent among cases involving White mothers (34%). In 18% of cases a referral to help quit smoking was not documented. Based on 26% of the cases, CRTs recommended that a SA referral for treatment should have been made. Consistent or ongoing drug screening was recommended in 27% of cases.

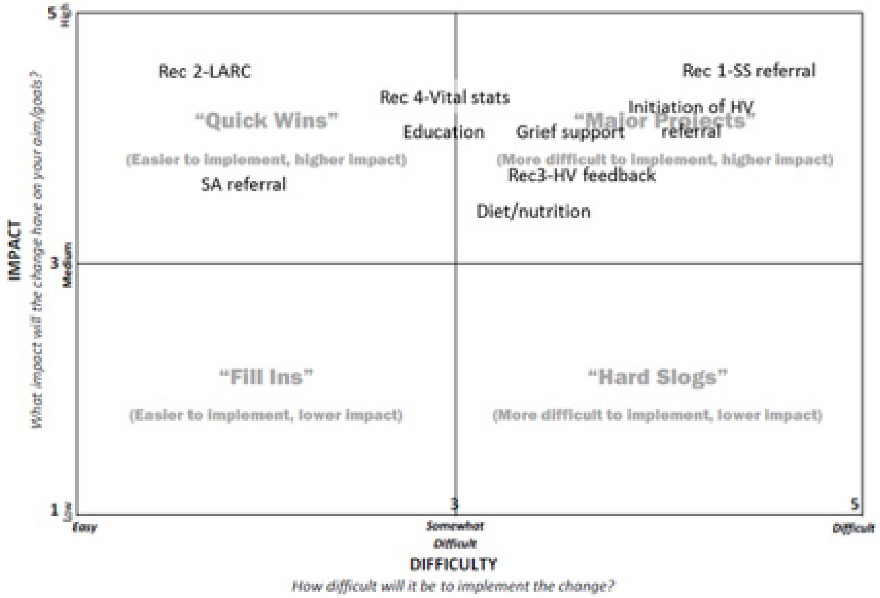
CRT Discussion: The NCC CRT considered this issue a qualified "quick win", while the K/S CRT considered it of moderate difficulty, so more towards the "major projects" category. (Figures 17 and 18, "SA referral") If considering just the referral piece of addressing a SA problem, then this issue may appear less difficult. However, if one considers the larger picture of a patient's life course perspective (LCP) and readiness to change, the difficulty of tackling SA and addiction increases. Some clinics are doing a drug screen on all pregnant women, which is a key first step. Then the next problem that is encountered is having access to referral and treatment centers. For example, there are no inpatient services for drug treatment in Sussex County. In New Castle County there is Brandywine Counseling, where priority admission is given to pregnant women for treatment and services. Project Engage at Christiana Care Health System is another resource; it is an early intervention program to connect hospital patients with a SA problem to community-based treatment programs. In a setting with more options for drug treatment and counseling—such as New Castle County--this issue is more of a "quick win" as women may be more motivated to change their behavior during the window of the prenatal period. In settings with less drug treatment and counseling services—such as Kent and Sussex Counties—this issue is more of a "major project" because the infrastructure for referrals needs to be built up.

Table 24: Case review findings on substance abuse

	% of all FIMR cases (n=120)	% of White mothers (n=61)	% of Black mothers (n=56)
Strengths			
Drug screening done	57%	54%	63%
Smoking cessation referral	5%	6%	4%
Contributing Factors			
Substance abuse (medical issue)	29%	33%	27%
Substance abuse lifestyle (social issue)	3%	5%	2%
No substance abuse screening	26%	34%	18%
No referral to smoking cessation program	18%	16%	21%
No referral to drug or alcohol rehabilitation or treatment	8%	7%	9%
Suggestions			
Patient or community education on the importance of not using drugs anytime, especially when pregnant	20%	20%	21%
Consistent/ongoing drug screening	27%	34%	20%
Substance abuse referral for treatment (including smoking cessation)	26%	30%	23%

Figure 17: New Castle CRT rankings of 2014-2015 FIMR change ideas on the impact matrix:

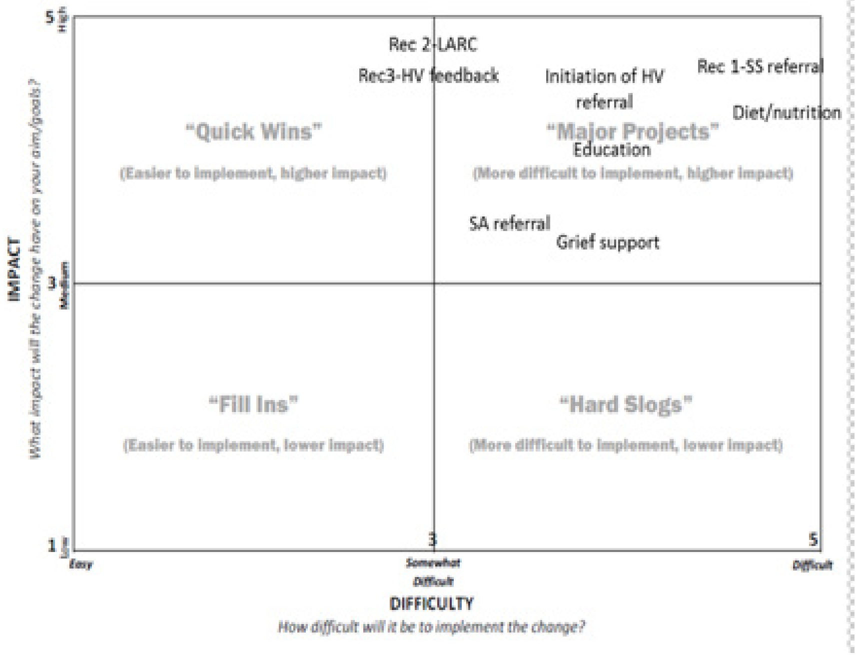
The New Castle CRT categorized FIMR findings as either “major projects” or “quick wins,” reflecting their opinion that all the FIMR findings could have notable impact if fully implemented.



Note: SS=social service, and SA=substance abuse

Figure 18: Kent/Sussex CRT rankings of 2014-2015 FIMR change ideas on the impact matrix:

The Kent/Sussex CRT categorized most of the FIMR findings as “major projects.” This may reflect the relative lack of support services, such as for substance abuse treatment/counseling and nutrition referrals in these counties. Implementing FIMR findings would require building up service infrastructure and access to care.



Note: SS=social service, and SA=substance abuse

Life Course Perspective (LCP)

FIMR staff is continuing to group cases, when possible, into high-risk zones and present these cases together to CRTs. The goal is to help identify any community-level factors that may have contributed to the case outcome and that could have been modified. During the Maternal Interview (MI), the FIMR medical social worker explains the LCP theory to mothers and tries to elicit more information about their childhood and experiences to get a broader picture of their life history. For cases with a completed MI, the FIMR social worker fills out a MI summary checklist which is also presented to CRTs for their consideration at the time of case deliberation. The checklist clearly presents LCP factors such as: issues during childhood (ACEs), employment history, housing, environment and community, transportation, social support, social stressors, cultural issues, any history of violence or abuse, sources of financial assistance, and referrals made during and after pregnancy.

Overall, in 63% of FIMR cases (n=76), CRTs identified the presence of an LCP risk factor (such as stressors in childhood, history of abuse, poverty or lack of social support) as a contributing factor in the pregnancy outcome. Sixty-one percent of White mothers and 68% of Black mothers had a history of LCP risk factors. Table 25 presents some strengths, contributing factors and suggestions made in FIMR cases with an LCP risk factor identified compared to cases without an identified LCP risk factor. FIMR cases that did not have an identified major LCP risk factor were more likely to be cases in which the mother had private insurance, was in a stable marriage and had a stable financial situation. Cases in which a major LCP risk factor was identified were more likely to be cases in which the mother had timely Medicaid, had supportive friends, was involved with social services in the past or present, was poor, had a history of fetal or infant loss, and had an unplanned pregnancy.

Table 25: CRT findings based on the presence or absence of a LCP risk factor

Strengths	% cases with LCP risk factor present (n=76)	% cases with LCP risk factor not present (n=44)
Church support	12%	11%
Patient with private insurance	32%	61%
Patient with timely Medicaid	66%	30%
Family support	76%	59%
Father of baby involved/supportive	80%	80%
Parents in stable marriage	24%	41%
Stable financial situation	16%	30%
Supportive friends	32%	9%
Mother demonstrated self-advocacy	39%	45%
Mother's positive attitude despite multiple hardships and challenges in her life	37%	18%
Mother with college/advanced degree	20%	32%
Past social service involvement	47%	16%
Active social service involvement	67%	34%
Child protective services involvement	9%	0%

Table 25: CRT findings (Con't)

Strengths	% cases with LCP risk factor present (n=76)	% cases with LCP risk factor not present (n=44)
Compliance with prenatal care/ kept appointments	72%	66%
Medication compliance	54%	41%
Compliance with postpartum care/ kept appointments	62%	66%
Planned pregnancy	17%	22%
Contributing Factors		
Pre-existing medical conditions	88%	70%
Obesity	36%	23%
History of fetal or infant loss	46%	16%
Maternal age less than 21 years	22%	16%
Maternal age over 35 years	14%	18%
Father of baby involved but not supportive	11%	5%
Domestic abuse during pregnancy or infant's life	4%	5%
Lack of support systems during pregnancy or infant's life	24%	14%
Poverty	59%	18%
Other emotional stressors during pregnancy such as loss of job, loss of loved one, incarceration, divorce	75%	41%
Late entry into prenatal care after 13th week	14%	20%
Inconsistent prenatal care (missed appointments)	21%	9%
No prenatal care	8%	5%
Unplanned pregnancy	43%	11%
Substance abuse (medical issue)	32%	25%
Suggestions		
Better assessment of family's home/ socioeconomic situation	76%	52%
Early referrals to social services	47%	23%
Referral for financial assistance, WIC, food stamps, emergency shelter, etc.	24%	7%
Easier access to care for those without insurance	11%	0%
Home visits during pregnancy to monitor clinical status in high risk patients and provide education	75%	55%
More intensive services/ follow up to address patient education and non-compliance issues	13%	9%
Smart Start/ NFP prenatal screening on initial prenatal visit	78%	70%

Tracking Issues

There are a few additional issues that the FIMR CRTs have been tracking to identify trends that have been of interest in past years. These issues are briefly described below.

Fetal Kick Counts: Delaware rolled out a statewide provider and patient education campaign in 2010 to encourage pregnant women to track fetal movements after the 24th week of gestation and seek medical care early for decreased fetal movement. In 42% of 2014-2015 FIMR cases there was documented provider education on fetal kick counts; this proportion has increased from cases reviewed in 2010-2011--prior to the roll out of a statewide education initiative-- when 9%-16% of FIMR cases had documented education on fetal movement tracking. In 16% of 2014-2015 cases, parental lack of knowledge about fetal kick counts was identified as a contributing factor, and in 24% of cases CRTs made the suggestion that fetal kick counts education should have been done.

Intimate partner violence screening: The CRTs have tracked with interest the screening of women for Intimate Partner Violence (IPV) at multiple time points when the mother comes into contact with the medical system. In 78% of FIMR cases there was at least one documented encounter when the mother was screened for IPV, while in 18% of cases there was no documented IPV screening done. In 37% of cases CRTs recommended that consistent and ongoing IPV screening should have been done.

Postpartum visit rate: An important part of interconception care is the postpartum visit. It presents an opportunity to discuss multiple issues with the mother including follow up on any medical conditions, provide family planning counseling, and assess her mental health and support systems. In 63% of the FIMR cases the mother went to her postpartum visit.

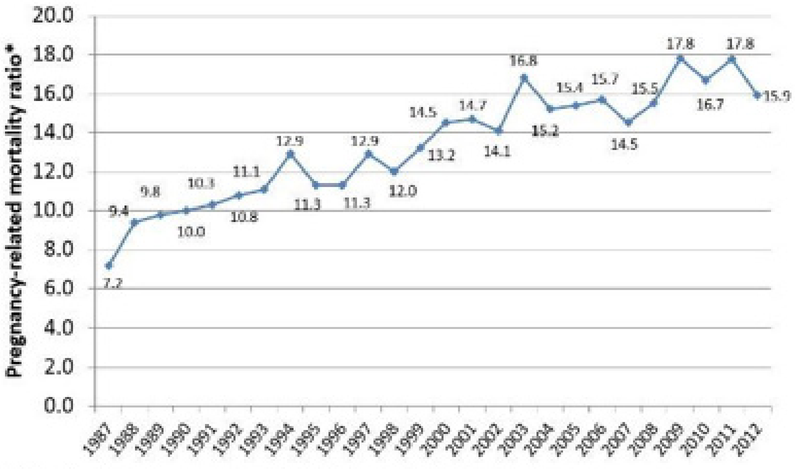
Postpartum depression screening: In 50% of FIMR cases, the CRTs suggested that providers screen and educate on postpartum depression and assess the mothers' grieving status to make appropriate referrals as needed. Mothers with a history of fetal or infant loss are at a very high risk for recurring losses and should be given extra support to help them heal physically and emotionally to optimize their physical and mental health before going into any future pregnancies.

VII. Maternal Mortality Review (MMR)

Trends in U.S. Maternal Mortality

The Centers for Disease Control and Prevention (CDC) has been tracking the U.S. pregnancy-related mortality ratio since 1986. In the last 25 years, there has been an increasing trend in this key maternal health statistic. As shown in Figure 19, the pregnancy-related mortality ratio has increased from 7.2 deaths per 100,000 live births in 1987 to 15.9 deaths in 2012, the latest year for which data is available.[28] A pregnancy-related death is defined as "the death of a woman while pregnant or within one year of pregnancy termination—regardless of the duration or site of the pregnancy—from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes."[29]

Figure 19: Trends in pregnancy-related mortality in the United States: 1987-2012



**Note:* Number of pregnancy-related deaths per 100,000 live births per year.

While some of the increase in pregnancy-related deaths may be due to better reporting or identification of cases, the reasons for this upward trend is unclear. An increasing number of pregnant women in the U.S. have chronic medical conditions such as hypertension, diabetes and chronic heart disease—conditions that may put them at higher risk for pregnancy complications.[30] In the U.S. there is also significant racial disparity in the risk of pregnancy-related mortality, with the ratio being over three times higher among Black women compared to White women. In 2011-2012, the pregnancy-related mortality ratio was 41.1 deaths per 100,000 live births for Black women and 11.8 deaths per 100,000 live births for White women.[31]

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[28] CDC. Pregnancy Mortality Surveillance System. Available at http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PMSS.html [updated Jan 21, 2016]. Accessed on Feb 17, 2016.

[29] CDC. Pregnancy Mortality Surveillance System.

[30] CDC. Pregnancy Mortality Surveillance System.

[31] CDC. Pregnancy Mortality Surveillance System.

This upward trend in maternal mortality presents cause for concern because it is the tip of the iceberg in terms of severe maternal outcomes. For every woman who dies of pregnancy-related causes, about 100 experience severe maternal morbidity, maternal complications that can have significant and lasting impacts.[32] In 2010-2011, 163 women experienced a severe maternal morbidity for every 10,000 delivery hospitalizations.[33] Severe maternal morbidity is defined by International Classification of Diseases (ICD) codes for diagnoses or procedures that indicate a potentially life-threating maternal condition or complication.[34] The ratio of severe maternal morbidity also increased steadily in the U.S. between 1998 and 2011.[35]

MMR in Delaware

Over the last ten years, there has been zero to four maternal deaths reported annually by the Delaware Office of Vital Statistics.[36] A maternal death, also known as a pregnancy-associated death, is defined as the death of a woman while pregnant or within one year of the end of her pregnancy, irrespective of cause.[37] In Delaware, the CDRC received statutory authority to review maternal deaths in 2011. In that year, the CDRC instituted an MMR process for reviewing select maternal deaths occurring after July 1, 2008. The goal of MMR is to conduct in-depth, multidisciplinary reviews of pregnancy-related deaths and some pregnancy-associated deaths to achieve the following objectives:

- Describe and track factors associated with maternal deaths in Delaware;
- Identify system-wide issues that may have contributed to the deaths;
- Develop and disseminate recommendations for change;
- Assist in the implementation of action steps that will improve the health of mothers in Delaware.

Potential cases for MMR are identified by the pregnancy check box on the death certificate. Initial information is assessed to select cases based on the following criteria:

1. Cases with a pregnancy-related cause of death;
2. Cases involving proven or suspected intimate partner violence, substance abuse, suicide or homicide;
3. Cases that do not have pending litigation.

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[32] Callaghan W. "Maternal deaths and severe maternal morbidity: national surveillance, local review and taking action." Grand Rounds at Christiana Hospital, DE, Nov 5, 2014.

[33] CDC. Severe Maternal Morbidity in the United States. Available at http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/SevereMaternalMorbidity.html [updated Jan 22, 2014]. Accessed on Sept 18, 2015.

[34] CDC. Severe Maternal Morbidity in the United States.

[35] CDC. Severe Maternal Morbidity in the United States.

[36] Delaware Health Statisticis Center. Delaware Vital Statistics Annual Report 2011. Available at: http://dhss.delaware.gov/dph/hp/2011.html. Accessed on Sept 21, 2015.

[37] Berg C, Danel I, Atrash H, Zane S, Bartlett L (Editors). Strategies to reduce pregnancy-related deaths: from identification and review to action. Atlanta: Centers for Disease Control and Prevention; 2001.

If selected, medical records are requested on the case from clinics and hospitals involved in the mother's care. Delaware's MMR is one of the few programs in the U.S. that seeks to obtain a family interview. The CDRC senior medical social worker contacts the next of kin or emergency contact to try to gain a better perspective on the mother's life circumstances in the prenatal and peripartum period and her access to and experiences with systems of care. A de-identified case summary is then presented to the Delaware MMR Panel, a multidisciplinary group that meets semiannually to review cases statewide. The MMR Panel includes representatives from the Division of Forensic Sciences Medical Examiner (DFS-ME), the Division of Public Health (DPH), the Delaware Healthy Mother and Infant Consortium (DHMIC), the Delaware Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN), and the Perinatal Cooperative, as well as practitioners with expertise in obstetrics, midwifery, nursing, internal medicine, maternal fetal medicine, anesthesia, intensive care, licensed clinical social work, law enforcement and victim's services (as needed). The Panel determines whether or not the cause of death was pregnancy-related and puts forth recommendations to improve systems of care for women of reproductive age.

The Every Mother Initiative (EMI) Grant – Delaware's Participation in an Action Learning Collaborative

In 2013 the CDRC, in partnership with DPH, received a grant from the Association of Maternal and Child Health Programs (AMCHP) to participate in the EMI. Delaware was part of the first group of six states to go through the 15-month learning collaborative cycle as one of three emerging MMR programs. The EMI's goal is to help states address maternal health issues through strengthening and enhancing the maternal mortality surveillance system and using the data from MMRs to implement action plans and strategies to improve maternal health outcomes. Delaware's EMI team identified three strategic goals to address in the EMI collaborative:

1. Develop and implement provider education based upon findings from the MMR reviews.
2. Improve Delaware's MMR data and analysis.
3. Evaluate data for "near misses" (severe maternal morbidity) for future feasibility.

Fostered by regular collaborative-wide conference calls, webinar trainings and a site visit to an established MMR program in Colorado, the Delaware EMI team achieved progress on these strategic goals. Further details on the progress and action steps relating to each goal are provided below.

I. Provider and Community Education

The CDRC worked in partnership with many groups in Delaware to help organize and support educational sessions to disseminate evidence informed principles for maternal care.

a. April 2014-April 2015: A Maternal Transport Nurse Course "Safety on the Road" was developed and conducted in collaboration with AWHONN, the Christiana Care Critical Care Transport Team, the Delaware Perinatal Cooperative, Delaware State University Department of Nursing and the DHMIC. This course was offered eleven times and 68 nurses attended. Student nurses from Delaware State University were trained as "standard model patients."

b. April 2014: In collaboration with the DHMIC, CDRC supported a lecture by Dr. Robert Ammerman, Professor, University of Cincinnati School of Medicine, on maternal depression and its impact on maternal morbidity and mortality at the 2014 DHMIC annual summit.

c. June 2014: A Maternal Addiction and Neonatal Abstinence Syndrome training was conducted by M. Bawn Maguire, MSN, BSN, RN and Dr. David Paul in collaboration with the Medical Society of Delaware (MSD), Delaware chapter of ACOG, and March of Dimes.

d. September 2014: As a result of the on-going partnership with the MSD, CDRC was able to collaborate with St. Francis Hospital in Wilmington to provide funds for the "Face of Addiction" training which focused on maternal addiction.

e. November 2014: Dr. William Callaghan, Chief of the Maternal and Infant Health Branch at the CDC, presented two Grand Rounds—at Christiana Hospital and Kent General Hospital—for obstetric staff on "Maternal deaths and severe maternal morbidity: national surveillance, local review and taking action."

2. MMR Data and Analysis

As part of the EMI collaborative, CDRC staff and consultants received training on the use of a new database tool called the Maternal Mortality Review Database System (MMRDS) developed by the CDC. The Delaware team participated in pilot testing the new database and provided input on the refinement of the MMRDS prior to its national release. Cases are now abstracted using this Epi Info 7-based database beginning with the cases deliberated in 2015. Cases deliberated before 2015 are in the process of being entered into the MMRDS for completeness of the file. Use of the MMRDS will help provide aggregate data and facilitate data analyses once a minimum number of cases are reviewed (n=20). The database will help facilitate analysis for a five-year MMR report that will help provide some quantitative data on the causes and contributing factors present in reviewed cases.

Through shared information from other states in the learning collaborative, CDRC staff and consultants also updated the case summary form and discussion form used in the MMR Panel meetings. The new forms were intended to improve the clarity and quality of information presented to teams for their discussion and the subsequent recording of Panel findings.

A feedback survey of MMR members was done in late 2015 to gauge the effectiveness of the review process and suggestions for improvement. Of 34% of Panel members responding (n=14), 93% felt there was sufficient information included in the revised MMR case summary to adequately review cases. Two-thirds of responders felt the quality of the MMR discussions was "very good" and one-third felt it was "good." Most of the respondents said they enjoyed participating in the MMR process (64% strongly agreed), benefit professionally from their participation (64% strongly agreed), and would like to continue to serve on the MMR Panel (71% strongly agreed).

In March 2014, CDRC staff and consultants also met with staff from DPH's Office of Vital Statistics to explore the feasibility of identifying maternal deaths through the linking of live birth or fetal death certificates with maternal death certificates. Many MMR programs nationwide use a linked birth-death certificate process to identify maternal death cases. This is believed to improve the accuracy of case identification as it matches vital statistic records based on such variables as mother's name, date of birth and social security number. Currently Delaware identifies maternal deaths by the pregnancy check box on the death certificate. The main limitation of this method of case identification is that it is dependent on the knowledge and accuracy of the person filling out the death certificate. The accuracy of the pregnancy check box in identifying postpartum deaths may decrease with increasing time since pregnancy end. Given current staffing issues in the Office of Vital Statistics, linking birth and death certificates cannot be done at this time in Delaware. This issue should be revisited in the future as resources may become available.

3. Severe Maternal Morbidity or "Near Misses"

Dr. Callaghan was invited to speak at two obstetric grand rounds to present on the topic of severe maternal morbidity. This educational session helped increase buy in from hospitals and the Delaware Perinatal Cooperative on the importance of reviewing—at least at an institutional level—severe maternal morbidity cases. Such "near miss" cases can be identified by a five-factor scoring system with 94% specificity: organ system failure, extended intubation, intensive care unit (ICU) admission, surgical intervention, or transfusion of four or more units of blood.[38] For simplification and increased feasibility, an institutional review based on two criteria—admission to an ICU and transfusion of four or more units of blood—has been recommended as part of a national effort to reduce the increasing trend of maternal morbidity[39] and mortality. Delaware birthing hospitals have agreed to work with the Perinatal Cooperative to ensure that "near misses" are reviewed.

MMR Cases and Findings

2014 and 2015 represent the third and fourth years of the MMR process in Delaware. The MMR Panel met three times to review eight cases. The cases included one death from 2011, four deaths from 2013, and three deaths from 2014. In seven cases the MMR Panel deemed that there were substantially complete or just minor gaps in the information available for the review, usually comprising prenatal records, hospital records, and autopsy reports. The MMR Panel also reviewed, when applicable and available, information from police reports, accident investigation reports, linked fetal death or live birth certificates, and specialist clinic notes. None of the MMR cases in 2014-2015 included a family interview.

As a result of these reviews the following areas of improvement were identified on a system level:

Professional Education: All health care providers of women of childbearing age should keep abreast of current trends and technological improvements for the care of pregnant women. These areas include but are not limited to:

- Fetal heart monitoring
- Perioperative emergency drills and prioritization of cases
- Universal immunization of pregnant women for influenza
- Standardization of care provided in free-standing health facilities
- Decision making algorithms relating to notification of the medical examiner's office of maternal deaths
- The importance of simulation training for all high risk, low occurrence maternity care components

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[38] Geller SE, Rosenberg D, Cox S, et al. A scoring system identified near-miss maternal morbidity during pregnancy. J Clin Epidemiol 2004; 57(7): 716-720.

[39] Kilpatrick SJ, Berg C, Bernstein P, et al. Standardized severe maternal morbidity review: rationale and process. JOGNN 2014.

Public Education: The general public, especially women of childbearing age and their families, should receive information relating to:

- The importance of receiving the influenza vaccine as well as other appropriate. immunizations during pregnancy for the protection of the mother and unborn baby
- Public health alerts for water, nutrition & travel.
- The importance of initiating the 911 emergency alert system for assistance and transportation to health care facilities for pregnant women experiencing health related difficulties.

The CDRC believes that the implementation of these findings will help improve systems of care to prevent future maternal deaths, decrease severe maternal morbidity, and improve the health of women in Delaware.

Appendix A

home visiting

REFERRAL LETTER

Nurse Family Partnership
(302) 777-9798

Healthy Families America / Smart Start
Division of Public Health
Terry Dombrowski
(302) 283-7159

Healthy Families America / Smart Start Children & Families First
(302) 777-9798

Healthy Families America / Smart Start
Kent Sussex Community Services
Teri Carter
(302) 854-0172 ext. 302

Parents as Teachers
Carmen Gallagher
(302) 735-4295

Early Head Start
April Hill-Addison
(302) 735-4295

Dear_____________________________,
(Referring Agency)

I would like to thank you for referring_____________________________to
(Client Name)
the_____________________________.
(Program Name)

This letter is to indicate that _   was
(Client Name)
referred to us on_____________________________and as of
(Date of Referral)
_____________________________has:
(Date of Action - i.e. enrolled)

☐ Enrolled in our_____________________________program

- *Please find enclosed a feedback form that will be sent quarterly to provide information regarding services being provided. If there is something specific that you would like to know that is not included, please contact me.*

☐ Declined Services

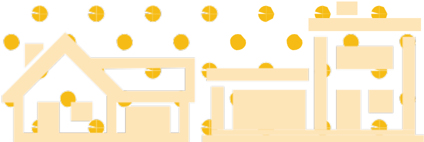
☐ Unresponsive to phone calls, texts and/or letters. Please send updated contact information and encourage patient to respond during your next office visit.

☐ Unable to be reached and referral is closed

Sincerely,

____
(Home Visitor Name)

____
(Agency Name and Number)



Enclosed: Provider Feedback Form

DE THRIVES home visiting

ENROLLMENT LETTER

Nurse-Family Partnership
Helping First-Time Parents Succeed

healthy families america

DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health

children & FAMILIES first

EARLY HEAD START

Parents as Teachers

Nurse Family Partnership
(302) 777-9798

Healthy Families America / Smart Start
Division of Public Health
Terry Dombrowski
(302) 283-7159

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Healthy Families America / Smart Start
Kent Sussex Community Services
Teri Carter
(302) 854-0172 ext. 302

Parents as Teachers
Carmen Gallagher
(302) 735-4295

Early Head Start
April Hill-Addison
(302) 735-4295

To Whom It May Concern,

Your patient, ______________________ has enrolled in
(Name of Patient)

- ______________________, a home visiting program. The women
(Name of Home Visiting Program)
in this program are provided home visits by an experienced home visitor in

delivering the ______________________ model of care.
(Evidence Based Model Name)

Visits occur every one to four weeks during pregnancy and until the child is 2, 3, or 5 years of age.

Home Visitors provide education and support several different domains:

- Maternal and Infant Health
- Injury Prevention
- School Readiness
- Domestic Violence
- Family Economic and Self-Sufficiency
- Referrals to Community Resources
- Parenting Skills

It is our hope that this program, in addition to your medical care, will assure that your client will have the support and services to have a healthy family.

If you would like more information about this program or to receive an on- site visit from one of our staff, please call. Your patient's home visitor's name and number is (name of home visitor) 302-999-9999. We appreciate your efforts in supporting this program and thank you for your collaboration.

Sincerely,

______________________________ ______________

(Home Visitor Supervisor Name Agency name and number)

home visiting

PROVIDER FEEDBACK FORM

Nurse Family Partnership
(302) 777-9798

Healthy Families America / Smart Start
Division of Public Health
Terry Dombrowski
(302) 283-7159

Healthy Families America / Smart Start Children & Families First
(302) 777-9798

Healthy Families America / Smart Start
Kent Sussex Community Services
Teri Carter
(302) 854-0172 ext. 302

Parents as Teachers
Carmen Gallagher
(302) 735-4295

Early Head Start
April Hill-Addison
(302) 735-4295

NAME:_________________________________ DOB:_____________

PROGRAM:_________________________________ DATE: _____________

LAST VISIT DATE:_____________ CURRENT VISIT SCHEDULE: __________________

RECENTLY COMPLETED STANDARD ASSESSMENTS

MOTHER: _________________________________

_ Domestic Violence Screening

_ Depression Screening

CHILD: _________________________________

_ ASQ-3 (Developmental Screening)

_ ASQ-Social Emotional

Referrals:_

Comments:_

EDUCATION PROVIDED IN LAST 3 MONTHS

_ Breastfeeding
_ Folic Acid
_ Prenatal Appts.
_ Nutrition
__Well Child Visits
_ Immunizations
_ Safe Sleep
__Birth Spacing
__Injury Prevention
_ Parenting
_ Child Development
__Oral Health
__Other

HOME VISITOR COMMENTS:

____

____

____

____

PROVIDER COMMENTS:

____

____

Home Visitor Name:_

Agency:_

Direct Phone Number:_______________

Commissioners

Margaret-Rose Agostino, DNP, MSW, RN-BC (MMR Chair)
Rodney Brittingham, Victoria Kelly, and Shirley Roberts (DSCYF)
Aleks Casper (NCC FIMR Chair)
Patricia Ciranni, RN (K/S FIMR Chair)
C. Malcolm Cochran, Esq. (CPAC)
Dr. Garrett Colmorgen (Chair, MS/Perinatology)
Mary Ann Crosley (Child Advocate, statewide nonprofit organization)
Tania Culley, Esq. (OCA)
Patricia Dailey Lewis, Esq., and Allison Reardon (DOJ)
Dr. Gerard Gallucci (DHSS)
Mawuna Gardesey (DPH)
Marjorie L. Hershberger, MSN, APN (NCC/SDY Panel Chair)
Judge Joelle Hitch (Family Court)
Dr. Kathy Janvier and Nancy Forsyth (DE Nurses Association)
Dr. Amanda Kay (Medical Society of DE~Pediatrician)
Rebecca Laster, LCSW (CAN Panel Chair)
Mary Ann Mieczkowski (DOE)
Deborah Miller, LCSW (NASW)
Leslie Newman (Child Advocate, statewide nonprofit organization)
Cpl Adrienne Owen (DSP)
Michael Price and Rebecca Walker, Esq./RN (Division of Forensic Sciences)
Dr. David Paul (MS/Neonatology)
Dr. Philip Shlossman (K/S Panel Chair, MS/Obstetrics)
Chief Henry Tobin and Chief Laura Giles (Police Chief's Council)
Lt. Teresa Williams (NCCPD)

NCC (now SDY) CDR Panel Members

Veronica Blackston (DOJ)
Sarah Cantoni (parent advocate)
Alice Coleman, LCSW
Dr. Kate Cronan (A.I. duPont)
Jill Dugar(DPH)
Kristen Dunne (parent advocate)
Sgt. Philip Dzielak (DSP)
Greer Firestone (parent advocate)
Marjorie L. Hershberger (Chair)
Carrie Hyla (Family Court)
Stewart Krug (parent advocate)
Det. Reginald Laster (NCCPD)
Kimberly Liprie (CDRC)
Ross Megargel/ Laurie Garrison (Emergency Medical Services)
Maryann Mieczkowski / Linda Smith (DOE)
Rosalie Morales/Angela Birney (OCA)
Det. Ron Mullin (WPD)
Michael Price and Julia Vekasy (OME)
Natasha Smith (DVCC)
Renee Stewart (DSCYF)

Secondary SDY LEVEL

Dr. Gina Baffa
Dr. Aaron Chidekel
Dr. Kate Cronan
Dr. Stephen Falchek
Kristi Fitzgerald, MS, LCGC
Dr. Alisha Frazier
Dr. Karen Gripp
Dr. Steven Ritz
Dr. Bradley Robinson
Donna Stanowski
Dr. Joel Temple

Kent/Sussex CDR Panel Members

Kevin Bristowe
Det. Kenneth Brown (Milford PD)
Helene Diskau / Maureen Ewadinger(Child Development Watch)
Capt. Melissa Hukill (DSP)
Carrie Hyla (Family Court)
Dr. Edward McDonough -retired(OME)
Lt. Daniel McKeown and now Lt Chad Bernat (Dover PD)
Deborah Miller (LCSW)
Rosalie Morales and Angela Birney (OCA)
Christopher Parker (DOJ)
Joseph Richardson (Dover PD)
Dr. Phillip Shlossman (Chair / Christiana Care)

CDRC
Child Death Review Commission

Linda Smith (DOE)
Renee Stewart (DSCYF)
Aimee String (DVCC)
Karen Triolo / Belvie Herbert-Perry (DSCYF)
Ophelia Wallace

NCC FIMR CRT Members

Carla Aponte
Pam Armstrong
Heather Baker
Linda Brittingham
Stephanie Britz
Aleks Casper (Chair)
Danielle Cooper
Janet Coston
Sandy Elliott
Alex Farrell
Barbara Hobbs (co-Chair)
Shirley Ibrahimovic
Venus Jones
Emily Haas-Katzen
Moonyeen Klopfenstein
Katie McCarthy
Simone McKellar
Rebecca McMillan
Delsy Morales
Nancy O'Brien
Virginia Phillips
Joann Prado
Angelica Sineni
Damaris Santiago
Loida Soto
Lesley Tepner
Dana Thompson
Clare Szymanski

Kent and Sussex County FIMR CRT Members

Margaret-Rose Agostino
Brittany Austin
Bridget Buckaloo (co-Chair)
Linda Brauchler
Patricia Ciranni (Chair)
Garrett Colmorgen
Theresa Crowson
Casey Duld
Maureen Ewadinger
Anthony Hill
Nanette Holmes
Beth Keena
Karen Kelly
Jessica Kuperavge
Juanita Mireles
Metetwa K. Shakur
Rebecca Whitham
Melody Wireman

MMR Members

Margaret-Rose Agostino
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Bridget Buckaloo
Janice Tildon-Burton
Melanie Chichester
Patricia Ciranni
Gary L. Collins
Garrett Colmorgen
Mary Ann Crosley
Anna D'Amico
Gregory DeMeo
Terry Dombrowski
Sandy Elliott
Lamar Ekbladh
David Hack
Steven Katz
Susan Kelly
Susan Kline
Veronica Kopec
Pamela Laymon
Edward McDonough
Meena Ramakrishnan
Kirsten M. Smith
Megan O'Hara
Crystal Sherman
Phillip Shlossman
Clare Symanski
Lesley Tepner
Michael Vest

CDRC
Child Death Review Commission

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Stacie Muldiang
Administrative Office of the Courts Summer Foster Care Youth Program

A special thanks to Dr. Meena Ramakrishnan (for her work on FIMR and Maternal Death Review), Dr. Anna D'Amico and Dr. Margaret-Rose Agostino (Maternal Mortality Review), and Marjorie L. Hershberger (NCC/SDY Panel Chair, Specialist on Safe Sleep and Abusive Head Trauma Coordinator) for their continued contributions to the CDRC.

This annual report is dedicated to

Moonyeen Klopfenstein, MS, RN

The CDRC, specifically the FIMR staff (Joan Kelley and Kristin Joyce) would like to thank Moonyeen Klopfenstein, MS, RN "Kloppy" for her dedication to the success of Delaware's FIMR. Kloppy dedicated her career to maternal child health and has been a passionate advocate for FIMR and its mission and goals in working to decrease infant mortality and improve outcomes for mothers and their babies. She joined the FIMR team in early 2007 when we first met and reviewed our first case. She consistently came to the case review team meetings and for the few occasions she was unable to attend; she would share her findings of the cases with the FIMR staff so her views could be shared with the team. Over time, Kloppy moved into different roles to include transitioning her career and resigned from FIMR in 2015. True to form, Kloppy recruited another Maternal Child Health RN for the FIMR team who in turn brought another RN to participate in case reviews for FIMR. We are grateful for Kloppy's dedication to the success of FIMR and to the mothers and their babies in the state of Delaware.

Delaware CDRC
REVIEW & PREVENTION
OF CHILD DEATHS

Due to continued fiscal constraints in the State of Delaware, the Calendar Year 2014 and 2015 Child Death Review Commission Report has been distributed through electronic distribution. This effort will both save taxpayer dollars and help reduce the State's environmental footprint. Copies of the Report are available online at the CDRC website.[40]

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[40] http://courts.delaware.gov/childdeath/reports.aspx