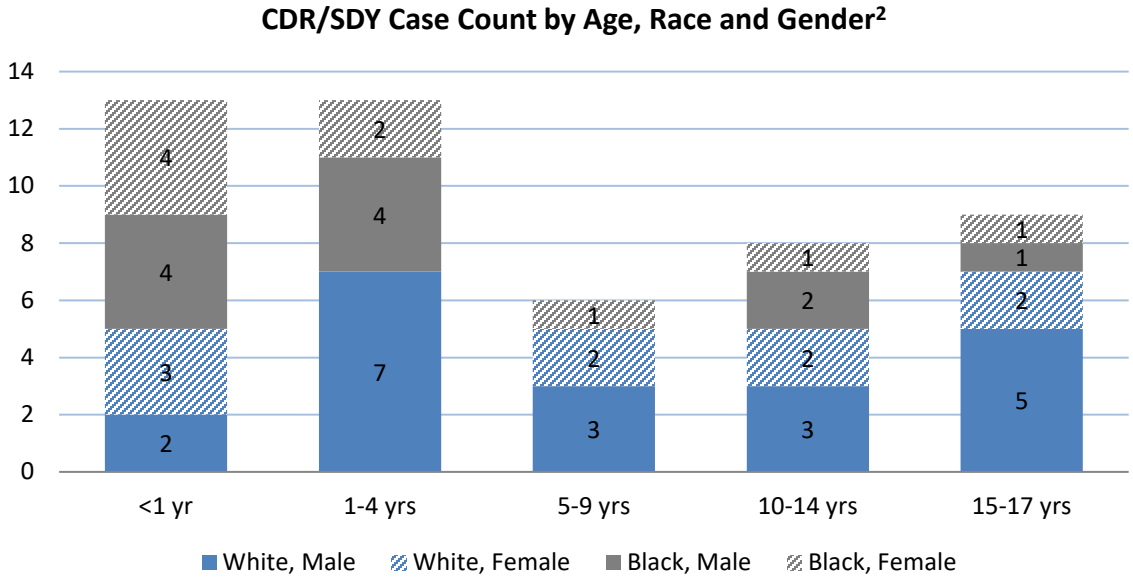
2019 Child Death Review Commission (CDRC) Data Addendum

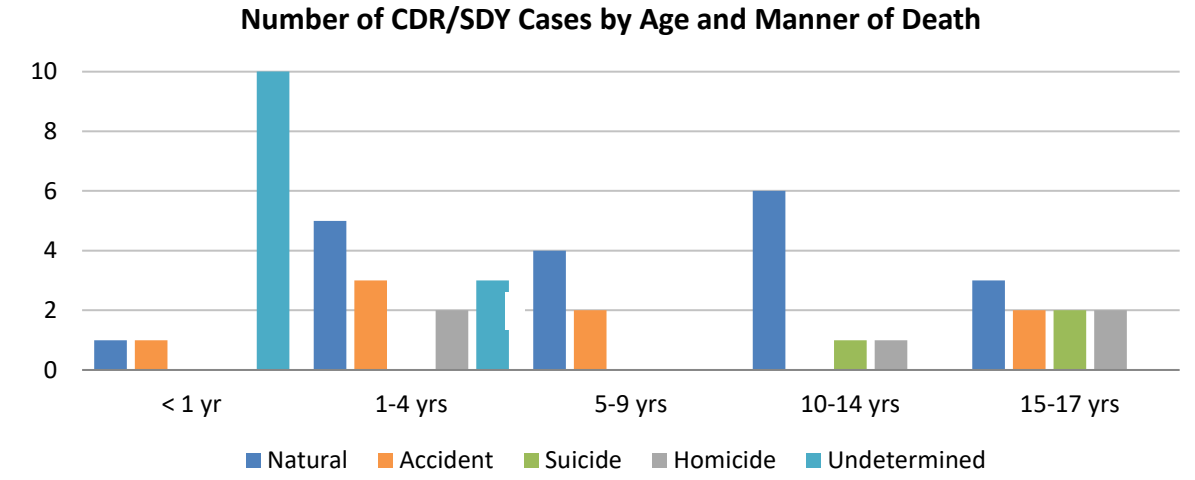
Child Death Review and Sudden Death in the Young (CDR/SDY)

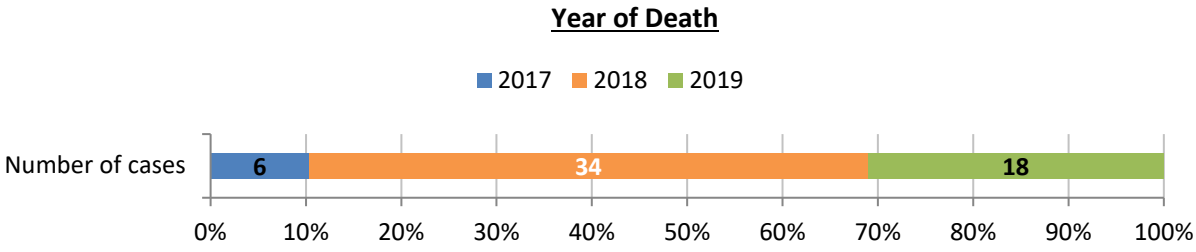
Quick Statistics:

- 49 cases reviewed in 2019—CDR 28 cases; SDY 21 cases
- 13 infant cases reviewed
- 12 unsafe sleep deaths reviewed
- 13 cases were reviewed jointly with the Child Abuse and Neglect (CAN) panel
- 19 children (39%) had chronic health conditions
- New Castle residents made up 59%, Kent 15% and Sussex 22% of cases
  - This is proportional to the % of the total population of children under 18 years living in these counties: 59% of children live in New Castle County, 20% live in Kent and 21% live in Sussex.[1]
- Almost two-thirds of cases were males (63%, n=31) and over one-third (37%, n=18) were female
- 7 Hispanic children



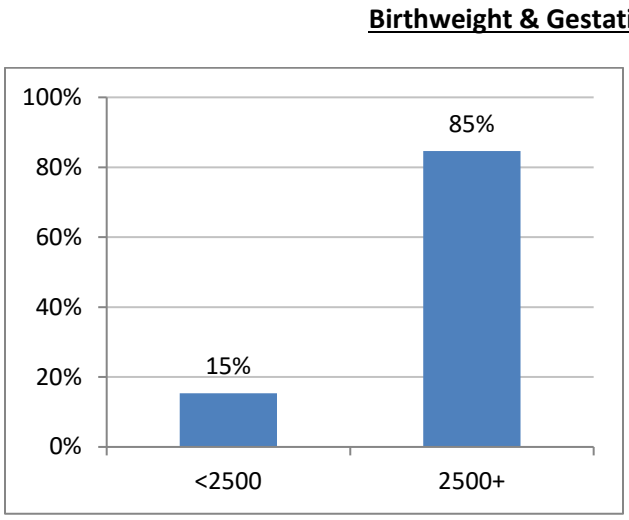
[1] US Census Bureau. QuickFacts, population estimates from 7/1/2018. Accessed 2/14/2020.



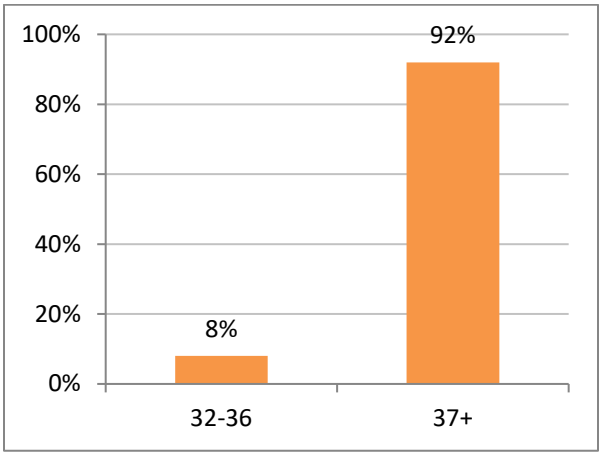


- Average time to first review meeting = 6 months

CDR/SDY Infant Deaths



Birthweight in grams (n=13)



Gestational age in weeks (n=13)

Infant Cases: Tracking Issues by Year of Review

	2019 (n=13)	2018 (n=16)	2017 (n=16)	2016 (n=31)
Intrauterine tobacco exposure[1]	62%	31%	29%	52%
Intrauterine alcohol exposure[1]	0%	6%	6%	3%
Intrauterine drug exposure	38%	38%	19%	13%
Late or no prenatal care[2]	15%	25%	12%	23%
Insurance coverage for infant				
Medicaid	92%	63%	69%	86%
Private	0%	19%	18%	10%
None	8%	6%	0%	5%
No ABC education documented	25%	44%	50%	13%
No infant safe sleep education documented	17%	6%	38%	6%
Drug screen done on mother	100%	87%	94%	94%
NAS scoring	29%	13%	0%	22%
Substance exposed infants with DFS notification[3]	75%	25%	6%	13%
Home visiting referral made	46%	50%	25%	19%
Home visiting enrollment	0%	19%	0%	10%

[1]From NCFRP standardized report

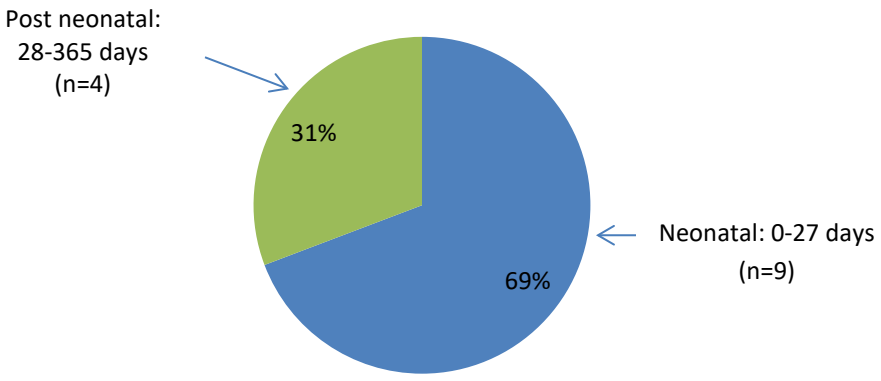
[2]Late prenatal care defined as >6 months into pregnancy

[3]One case did not get a DFS referral involved MJ use and occurred in 2017 (n=1/4)

	2019 (n=13)	2018 (n=16)	2017 (n=16)	2016 (n=31)
Caregiver at time of death				
Parent	85%	87%	81%	97%
Other	15%	13%	19%	3%
Substance use at time of death	67%*	31%	19%	3%

*includes two cases with buprenorphine use

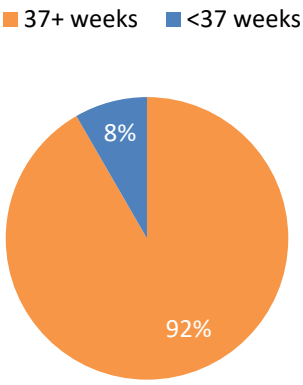
Age at infant death



CDR/SDY Specific Causes of Death

Unsafe sleep related deaths reviewed in 2019 (n=12)

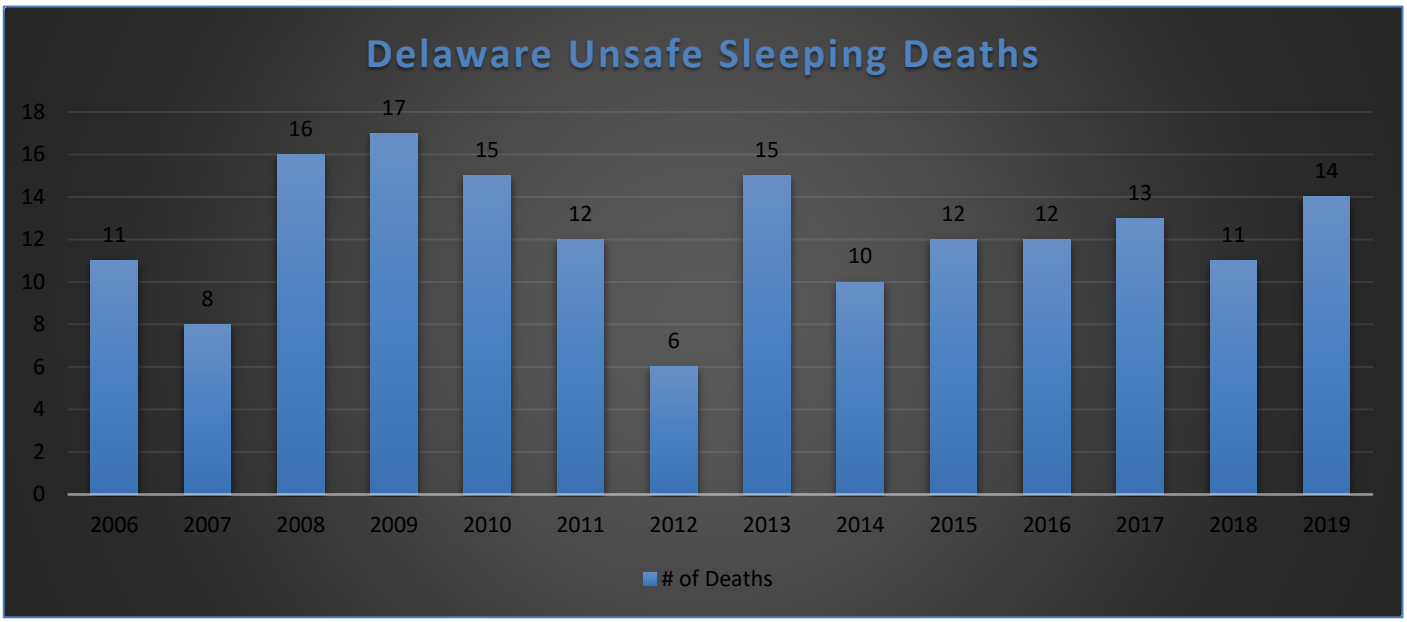
Gestational age at birth (weeks)



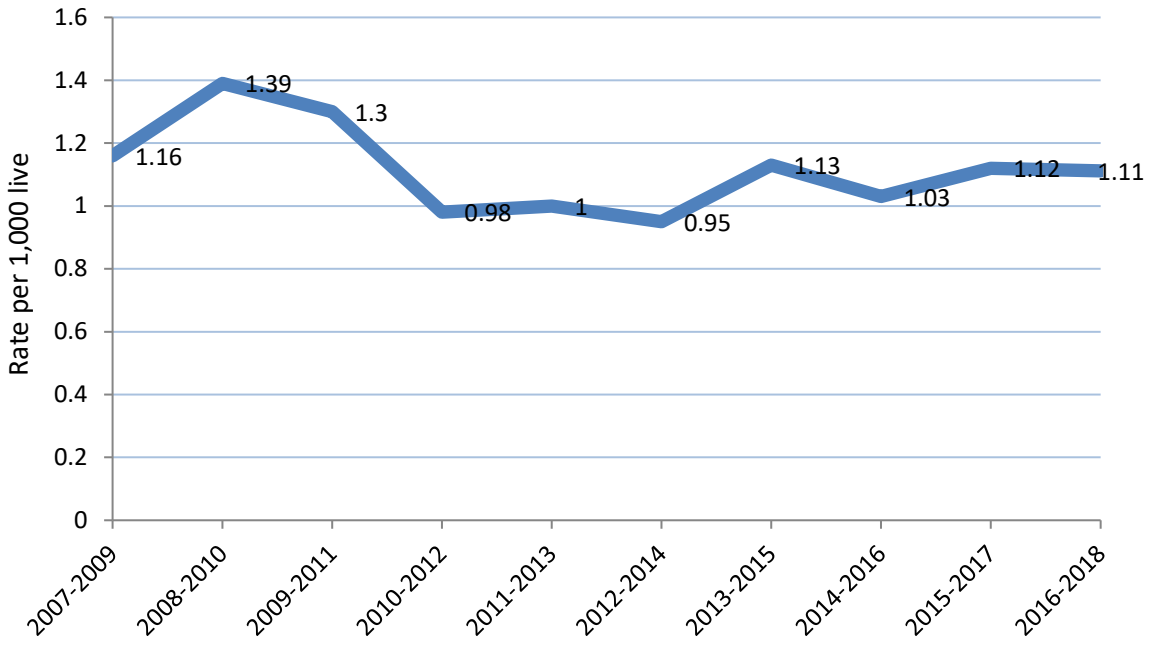
Age and race of unsafe sleep related deaths reviewed in 2019:

- 5 White infants, 7 Black infants
- 7 infants < 1 month old
- 5 infants 2-11 months old

Number of unsafe sleep deaths, by year of death in Delaware



Unsafe sleep related deaths: 3-year averaged rate per 1,000 live births



Unsafe sleep related deaths, associated risk factors, by year of review

	2019 (n=12)	2018 (n=12)	2017 (n=12)	2016 (n=23)	PRAMS 2012-2015[1]
Not in a crib, bassinette, side sleeper or baby box	100%	100%	100%	82%	--
Not sleeping on back	50%	75%	60%	50%	21%
Unsafe bedding or toys near infant	92%	100%	90%	83%	--
Sleeping with other people	75%	67%	83%	65%	16%[2]
Intrauterine drug exposure	42%	33%	10%	*	--
Tobacco use: mother	67%	58%	40%	57%	24%[3]
Adult was alcohol or drug impaired	67%	25%	25%	26%	--
Infant ever breastfed	45%	50%	60%	48%	83%
Mother fell asleep while breastfeeding	0%	8%	0%	9%	--

[1]PRAMS=Pregnancy Risk Assessment Monitoring System. Hussaini SK. PRAMS Consolidated Report 2012-2015. Delaware Department of Health and Social Services, Division of Public Health. July 2018.

[2]Always or often

[3]Three months before pregnancy

*More than 50% of values unknown

Other causes of preventable deaths reviewed by the CDR panel in 2019

- Homicides n=5
- Poisonings n=2
- Suicides n=3
- Accidental deaths n=9

CDR/SDY Tracking Issues

Adverse Family Experiences, by year of review[1]

	2019 Total (n=49)	2019 Infants (n=13)	2018 (n=52)	2017 (n=44)	2016 (n=105)
DFS notified of death[2]	52%	100%	100%	100%	100%
DFS rejected MDT response that should have been accepted, 0-3 year olds	18%	8%	6%	27%	50%
Active with DFS at time of death	13%	31%	8%	18%	10%
Active with DFS within 12 months of death	23%	46%	13%	32%	17%
DFS history: parents as adults	52%	62%	50%	64%	60%
DFS history: parents as children	40%	62%	35%	36%	
Single/divorced/separated parents	31%	46%	41%	27%	42%
Maternal substance abuse[3]	46%	77%	45%	33%	*
Paternal substance abuse[3]	59%	89%	50%	25%	*
Maternal criminal history	36%	38%	19%	21%	*
Paternal criminal history	58%	67%	43%	42%	*
Maternal mental health issue	58%	60%	32%	25%	*
Paternal mental health issue	38%	40%	19%	15%	*
Maternal intimate partner violence	33%	64%	31%	24%	*
Paternal intimate partner violence	31%	57%	36%	52%	*
Maternal history of abuse	7%	18%	19%	22%	*
Paternal history of abuse	10%	20%	6%	3%	*
Maternal history of neglect	19%	42%	21%	32%	*
Paternal history of neglect	19%	25%	17%	25%	*

[1]Denominator is applicable cases with known information

[2]Denominator is cases specified by statute: Title 16, Chapter 9, Subsection 906(e) (3) for DFS investigation

[3]Current, history or suspected

*More than 50% of values unknown so not reported here

Other Tracking Issues, by year of review

	2019 (n=49)	2018 (n=52)	2017 (n=44)	2016 (n=105)
Hospice involved	NR	17%	30%	NR
Teen parent	2%	4%	5%	NR
No SUIDI reporting form[1]	8%	0%	0%	17%
No scene investigation[1]	0%	0%	0%	0%
No scene photos[1]	0%	0%	0%	0%

No toxicology screen of perpetrator[1]	8%	23%	42%	13%
No doll re-enactment[1]	8%	38%	50%	52%

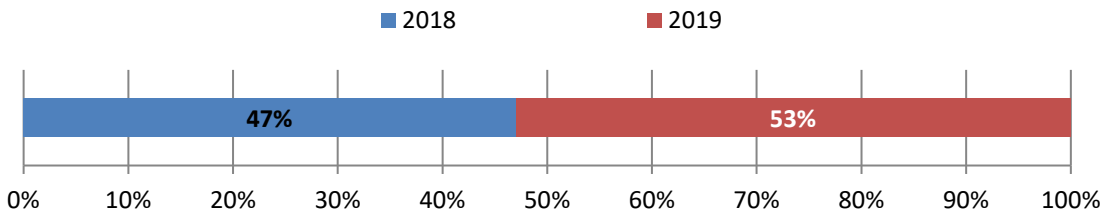
[1]denominator is infant deaths due to unsafe sleeping or undetermined manner
NR=not recorded

Fetal and Infant Mortality Review (FIMR)

Quick Statistics:

- 58 FIMR cases reviewed in 2019
- 24 cases were infant deaths
- 34 cases were fetal deaths
- 7 cases (12%) had a maternal interview

Year of death



N=27 in 2018
N=31 in 2019

Process & Workflow

Number of FIMR referrals to CDRC in 2019: n=99
Number of cases that did not meet FIMR criteria (i.e. <20 weeks gestation or involved a termination of pregnancy): n=3
Number of cases that involved out of state residents: n=7
Number of cases triaged out of FIMR based on date of death randomization process: n=36

Maternal interview completion rate: 12% (n=7) in 2019

- Compared to 4% (2018), 19% (CY2017) and 34% (CY2016)

Average time between referral and CRT review: 4 months in 2019

- Compared to 4 months (2018), 8 months (2017)

Race/ethnicity*

Race/Ethnicity	FIMR Total (n=58)	FIMR Infant (n=24)	FIMR Fetal (n=34)	DE live births 2018 (n=10,593)	DE infant deaths 2018 (n=62)	DE fetal deaths 2018 (n=59)
White, non-Hispanic	24% (14)	25% (6)	24% (8)	49%	31%	27%
Black, non-Hispanic	50% (29)	42% (10)	56% (19)	27%	53%	49%
Hispanic	17% (10)	17% (4)	18% (6)	17%	NR	20%
Other	9% (5)	17% (4)	3% (1)	7%[1]	3%	3%

*from FIMR Tracking database
[1]Includes unknown race as well
NR=not reported

- Non-Hispanic Blacks are over-represented in FIMR cases and non-Hispanic Whites are under-represented in FIMR cases compared to live births occurring in Delaware.
- FIMR cases are representative of racial composition of all DE infant deaths and DE fetal deaths.

County & Zip Zones

	FIMR cases (n=58)	DE live births 2018 (n=10,593)	DE infant deaths 2018 (n=62)	DE fetal deaths 2018 (n=59)
New Castle	66% (38)	58%	60%	63%
Wilmington	33%	8%	21%	NR
Kent	17% (10)	20%	21%	22%
Sussex	17% (10)	22%	19%	15%

NR=Not reported

- FIMR cases with a high-risk zip zone: 57% (n=33).
- FIMR cases are representative of county compared to DE live births, DE infant deaths and DE fetal deaths.

Birth Hospital & Mode of Delivery

Among the 58 FIMR cases:

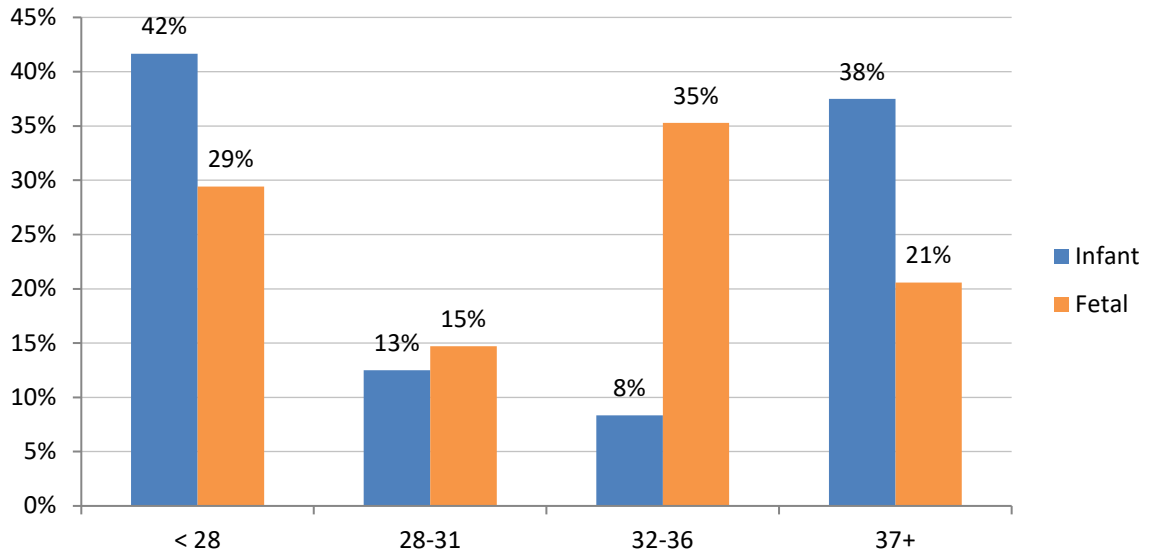
- N=35 (60%) were born at a level 3 hospital[2]
- N=14 (24%) were born at a level 2 hospital
- N=9 (16%) were born at a level 1 hospital
- C-section delivery: 38% (n=22)
    - This is compared to 32% of all DE live births delivered by C-section in 2017; this proportion was higher among pre-term infants in the DE live birth cohort (48%).[3]

Gestational age

[2] Defining Hospital Level of Trauma

[3] Delaware Health Statistics Center. Delaware Vital Statistics Annual Report, 2017. Delaware Dept. of Health and Social Services, Division of Public Health: 2019.

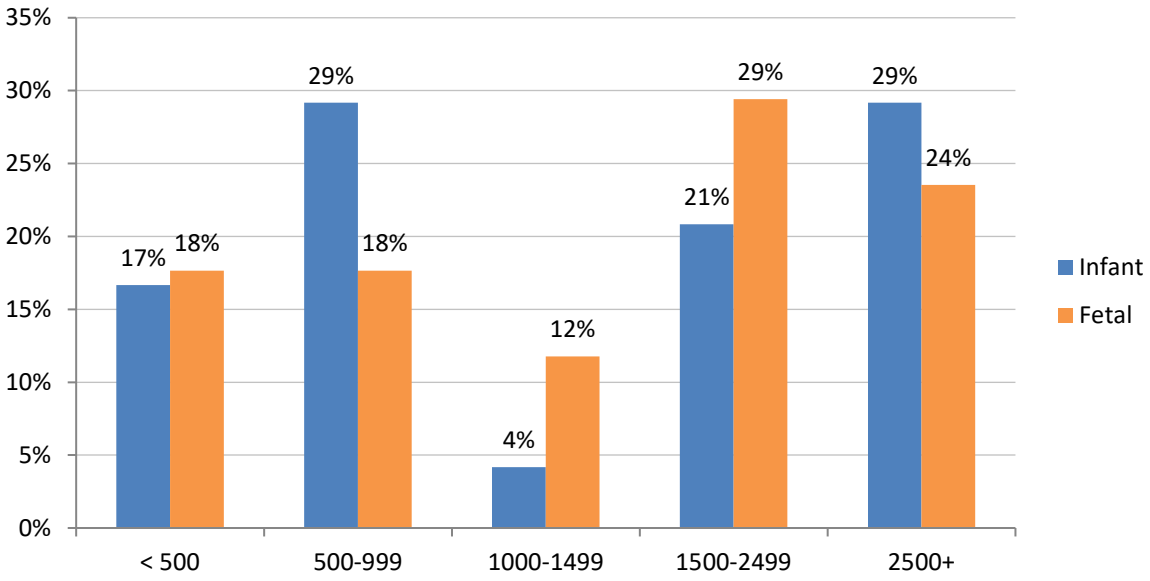
Gestational age in weeks, by type of death



Average infant gestational age = 31 weeks
Average fetal gestational age = 31 weeks

Birthweight

Birthweight in grams, by type of death



Average infant birthweight = 1649 grams
Average fetal birthweight = 1764 grams

Infant deaths – Underlying cause of death

- Congenital anomalies 42% (n=10/24)
- Prematurity 29% (n=7/24)
- Infection/Sepsis 17% (n=4/24)
- Other 13% (n=3/24)

Fetal deaths - Underlying contributing factors from medical history:

- Placental abruption 24% (n=8/34)
- Cord problem, chorioamnionitis, pre-existing diabetes, pre-eclampsia and PPROM
  - each 6% (n=2/34)
- Also pre-existing hypertension, incompetent cervix, obesity, PROM

FIMR Issues Summary

Pre/Inter/Post-Conception Care

	2019 (n=58)*	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE PRAMS 2015[4]
Preconception care	20%	13%	11%	--	23%
Postpartum visit kept	72%	60%	61%	71%	89%

*denominator=cases with issue reported (yes or no)

Medical: Mother

either as present or contributing factor

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE live births 2018 (n=10,593)	DE PRAMS 2012-2015
Pre-existing diabetes	16%	2%	4%	13%		
Gestational diabetes	5%	4%	6%	10%		
Mother overweight or obese	48%	40%		43%		28%[1]
Pre-existing hypertension	16%	7%	5%	8%		
Pre-eclampsia	17%	13%	7%	NR		15%[2]
Eclampsia	0%	2%		NR		
Short inter-pregnancy interval < 18 months	26%	20%	19%	19%		
Previous fetal loss	7%	2%	3%	6%		
Previous infant loss	7%	4%	4%	11%		
Previous low birthweight delivery	16%	2%	12%	7%		
Previous preterm delivery	22%	16%	24%	19%		
Associated reproductive technology	2%	7%	7%	4%		
Teen pregnancy <20 years old	3%	9%	5%	2%	5%	
Pregnancy > 35 years old	14%	18%		15%	17%	
First pregnancy < 18 years old	16%	24%		13%		

[1]Obesity

[2]Hypertension, pregnancy-induced hypertension, pre-eclampsia or toxemia

Prenatal Care/Delivery

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)
No prenatal care	5%	11%	11%	6%
Late entry into prenatal care	22%	11%	13%	13%
Missed appointments	22%	24%	17%	17%
Multiple provider sites	33%	33%	12%	8%
Inappropriate use of ER	0%	4%	3%	1%

[4] CDC. Pregnancy Risk Assessment Monitoring System. Prevalence of selected maternal and child health indicators for Delaware, PRAMS, 2012-2015.

Medical Care: Fetal/Infant

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE infant deaths 2013-2017 (n=380)
Non-viable fetus	59%	42%	9%	24%	
Low birthweight (1500-2500 grams)	4%	11%	15%	6%	11%
Very low birthweight (750-1500 grams)	9%	4%		7%	Not comparable
Extremely low birthweight (<750 grams)	12%	33%	67%	45%	Not comparable
Intrauterine growth restriction	24%				
Congenital anomaly*	42%[1]	35%[1]	12%[2]	17%[2]	
Prematurity*	54%[1]	87%[1]	77%[2]	67%[2]	
Infection/sepsis*	21%[1]	26%[1]	2%[2]	7%[2]	

*only among infant cases

[1]Present or contributing factor, more than 1 may be applicable in a given case

[2]Underlying cause of death, mutually exclusive categories

Family Planning

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE PRAMS 2012-2015
Intended pregnancy	16%	14%	26%	14%	49%
Unintended pregnancy	36%	11%	33%	31%	51%
Counseled on birth spacing > 18 months	7%	7%	6%	4%	
Counseled on family planning postpartum	59%	71%	64%	58%	
Accepted family planning postpartum		51%	46%	48%	
Accepted LARC postpartum	14%	9%	12%	5%	
Expressed interest in LARC no documented receipt	7%	13%			

Substance Use

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE PRAMS 2012-2015
Mother with positive drug test	14%	22%	18%	14%	
No drug test done on mother	21%	13%	20%	31%	
Tobacco use (current)	21%	18%	22%	16%	24%
Illicit drug use (current)	17%	24%	11%	10%	
Illicit drug use (history)	17%	13%	15%	11%	
In utero drug exposure	17%	7%	2%	0%	
Neonatal abstinence syndrome diagnosis	0%	0%	0%	0%	

Social Support & Family Transitions

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE live births 2018 (n=10,593)
Lack of family support	14%	18%	9%	5%	--
Lack of partner support	9%	16%	9%	18%	--
Single parent	52%	58%	45%	31%	47%

<12th grade education	10%	16%	11%	14%	14%
Mother incarcerated	9%				
Father incarcerated	16%				
Homeless	0%	7%		0%	
Concern regarding citizenship	4%	4%		2%	

Mental Health/Stress

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE PRAMS 2012-2015
History of mental illness: mother	36%	40%	24%	29%	
Depression screening documented	71%	71%	69%	56%	70%
Depression/mental illness during pregnancy	12%	9%	12%	10%	
Depression/mental illness in postpartum	35%	22%	25%	27%	13%
Multiple stressors	55%	49%	45%	51%	
Social chaos	16%	11%	19%	20%	
Concern about money	19%	24%	9%	25%	
Problems with family/relatives	10%	13%	11%	8%	

Family Adverse Experiences

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE PRAMS 2012-2015
History of abuse: mother	16%	36%		11%*	
Current abuse: mother	2%	2%	12%		
History of neglect: mother	16%	22%	7%	14%*	
History of abuse: father	7%	7%	10%		
History of neglect: father	9%	4%	5%		
DFS history	36%	33%	36%	38%	
Active with DFS	2%	2%	4%	2%	
Police reports	21%	24%	25%	3%	
Criminal history: mother	33%	22%	23%	26%*	
Criminal history: father	41%	18%	21%		
Intimate partner violence screening documented	76%	71%	81%	68%	58%
Intimate partner violence	15%	7%	7%	4%	3%

*history in either parent

Culture

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)
Language barrier	12%	13%	13%	11%
Beliefs regarding pregnancy/health	14%	9%		4%

Payment for Care

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE live births 2018 (n=10,593)
Private	43%	44%	33%	38%	50%
Medicaid	52%	49%	48%	51%	44%
Self-pay/medically indigent	2%	7%	3%	4%	2%
Other	9%	11%	13%	11%	3%

Services Provided/Access

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE PRAMS 2012-2015
Lack of home visiting referral (eligible)	60%	58%	--	--	
Lack of WIC (eligible)	33%				
Client dissatisfaction	9%	4%	5% (prenatal)	12% (hospital)	
Inadequate/unreliable transportation	9%	7%		5%	14%
Poor provider to patient communication	7%				
Poor provider to provider communication	5%				

Tracking Issues

	2019 (n=58)	2018 (n=45)	2017 (n=81)	2016 (n=84)	DE PRAMS 2012-2015
Antenatal steroids used when appropriate	90% (out of 10)	64% (out of 14)	33%		
17-Progesterone offered when appropriate	58% (out of 19)	33% (out of 9)	20%		
Fetal kick counts education when appropriate	72% (out of 43)	69% (out of 29)	31%	45%	89%
Home visiting referral made	4%	2%	11%	8%	18%[1]

[1]Home visit received postpartum

Maternal Mortality Review (MMR)

Quick statistics:

- 9 cases reviewed in 2019

Year of death:

- 2017 n=2
- 2018 n=6
- 2019 n=1

Maternal age: 19-40 years old

Maternal Race:

- White n=4/9
- Black n=5/9

Pregnancy-relation:

- Pregnancy related n=3/9
- Pregnancy associated (but not related) n=5/9
- UTD n=1

Timing of death:

- Pregnant n=1
- <42 days PP n=2
- 43-365 days PP n=6

Preventability:

- Preventable n=6 (3 pregnancy related and 3 pregnancy associated)
- Not preventable n=3

Source of initial case identification:

- Vital statistics linkage n=4/9
- Pregnancy checkbox on death certificate n=3/9
- Reported by provider n=2/9

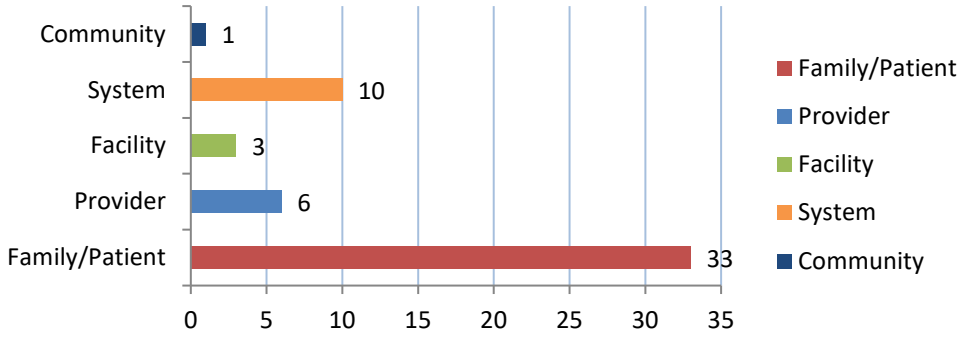
Process:

- Average time between death and MMRC: 1.2 years
- No family interviews obtained
- 1 case also a FIMR case (fetal death)

Psychosocial risk factors identified, by year of review

	2019 (n=9)	2018 (n=5)	2017 (n=5)	2016 (n=6)
DFS active within 12 months	56%	40%	0%	17%
DFS history	78%	60%	40%	33%
Current drug use	67%	60%	60%	33%
Delivery of substance exposed infant	44%	60%	0%	17%
Mental health issue	33%	80%	20%	17%
No prenatal care	22%	40%	0%[2]	0%
Home visiting referral	25%	0%	20%	0%
Criminal history	44%	80%	20%	17%
History of abuse/neglect	22%	20%	40%	17%
Intimate partner violence	25%	0%	40%	17%

Number of contributing factors identified by level



List of contributing factors by level and in order of decreasing frequency

Family/patient factors: n=33

- Lack of access/financial resources
- Substance use disorder
- Mental health condition
- Delay in seeking care
- Adherence to medical recommendations
- Chronic disease
- Tobacco use
- Childhood abuse/trauma
- Unstable housing
- Knowledge
- Violence
- Lack of social support/isolation

Provider factors: n=6

- Clinical skill/quality of care
- Lack of continuity of care/care coordination
- Inadequate community outreach

Facility factors: n=3

- Lack of continuity of care/care coordination
- Lack of standard policies/procedures

System factors: n=10

- Other
- Poor communication/lack of case coordination/management
- Knowledge
- Legal
- Assessment
- Inadequate law enforcement response

Community factors: n=1

- Environmental