

2019 Report of the Paediatric Death Review Committee and Deaths Under Five Committee

Office of the Chief Coroner of Ontario
December 2020



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Message from the Chair



There have been a number of achievements made over the past two years in advancing child death investigation and review. As the new Chair of the Paediatric Death Review and Deaths Under Five Committees, it is a privilege and honour to continue the work of Dr. Dirk Huyer, Chief Coroner for Ontario and the former Chair of the Paediatric Death Review and Death Under Five Committees. The investigation and review of child deaths is an area that continues to be one of the most important and challenging parts of our mandate. Both the Paediatric Death Review Committee (PDRC) and Deaths Under Five Committee (DU5C) exist to help us learn from child deaths in order to help prevent further deaths. Each opportunity to learn offers an important opportunity to reduce child mortality - potentially sparing the profound grief families suffer when a young life full of promise is lost prematurely.

Enhancing these opportunities to learn is a priority for the Office of the Chief Coroner (OCC) and for others. Since 2014, we have been working with the Ministry of Children, Community and Social Services (MCCSS), formerly known as the Ministry of Children and Youth Services (MCYS) and the former Office of the Ontario Child Advocate (OCA) to develop a “best-in-class” model of review that will be data-driven, evidence informed and grounded in collaborative partnerships in an effort to maximize the potential for affecting public health analysis, policy development, research and prevention strategies in the province of Ontario.

The Child and Youth Death Review and Analysis Team (CYDRA) has been operational since December 2017 and has been granted pilot funding through by a tripartite agreement between the Office of the Chief Coroner, the former Ontario Child Advocate and MCCSS.

Recognizing that death prevention is a shared responsibility and that children, youth and families are impacted by multiple systems, the new model will aim to understand how these systems impacted their lives prior to their deaths and incorporate multiple organizations at various levels to thoroughly inform the death investigation and review process at each stage. With broader input and participation, there will be increased opportunity for timely, relevant learning, and more comprehensive data will be available to inform surveillance and help to identify trends and themes that can point to systemic issues. This is key to determining the right areas for targeting further analysis, prevention strategies and areas where research could be of benefit.

We have developed and are in the process of piloting this new model and expect to complete the proof of concept by early 2021.

While the new model is piloted, the PDRC and DU5C have continued their valuable work. Their thoughtful analysis continues to identify important recommendations that can make a significant contribution to community safety and are instrumental in bringing preventative strategies to the attention of organizations. I am grateful for the hard work of the committee members and their ongoing commitment to child death review. Their work is well documented in this annual report.

I look forward to continued work with others toward the shared goal of improving the health, safety and well-being of Ontario's children and youth.

Dr. Joel Kirsh, MD, MHCM, FRCP(C)

Regional Supervising Coroner – Central East Region

Chair, Paediatric Death Review Committee and Deaths Under Five Committee

The Office of the Chief Coroner and the Context of Paediatric Deaths in Ontario

In Ontario, death investigation services are provided by the Office of the Chief Coroner (OCC) and the Ontario Forensic Pathology Service (OFPS). Together, they form a division within the Ministry of the Solicitor General (SolGen).

The OCC partners with the OFPS to ensure a coordinated and collaborative approach to conduct the highest quality death investigations in the public interest. Other key death investigation partners include police services, the Centre of Forensic Sciences and other investigative agencies including but not limited to Children's Aid Societies, the Ministry of Labour and the Office of the Fire Marshal. Ontario is the largest medico-legal death jurisdiction in North America.

In Ontario, coroners are medical doctors with training in the principles of death investigation. Coroners investigate approximately 17,000 deaths per year in accordance with Section 10 of the *Coroners Act*. They investigate all non-natural deaths such as those involving violence, foul play, suicide, and where accidental injury may be involved. Investigations are completed on natural deaths that are sudden and unexpected as the manner of death is initially unclear. Other natural death investigations may occur depending on the type of death and/or if there are concerns about the care of the deceased prior to death. The OCC applies the following definitions when determining the manner of death:

Natural: a death is natural if it is due to a natural disease or complication thereof; or known complication of diagnosis or treatment of the disease.

Accident: if a death is due to an occurrence, incident or event that happens without foresight or expectation.

Homicide: a death is classified as homicide if it results from the action of a human being killing another human being.

Suicide: a death is a suicide if it results from an intentional act of a person knowing the probable consequence of what he/she is about to do - that is (the consequence would be) his/her own death.

Undetermined: a death is classified as undetermined when a full investigation has not demonstrated adequate evidence for a specific classification or there is equal evidence or a significant contest among two or more manners of death.

The OCC investigates approximately 20% of all deaths that occur within the province each year. In paediatric deaths (i.e. from live birth to the nineteenth birthday), this proportion over the past five years is approximately 35%.

The Paediatric Death Review Committee (PDRC) and the Deaths Under Five Committee (DU5C) are two of the seven expert death review committees that report to the Chief Coroner for Ontario. For administrative purposes, the PDRC is composed of two sections based on the nature and circumstances of the death: PDRC - Child Welfare reviews cases with involvement of a children's aid society or Indigenous child wellbeing society, and PDRC - Medical reviews the deaths of children where issues or concerns about the medical diagnosis or provision of care have been identified.

The OCC has death investigation procedures that mandate expert death committee reviews for deaths in certain circumstances. The DU5C reviews all deaths investigated by coroners involving children under the age of five. The PDRC - Child Welfare must review all deaths involving children and youth when the child, the youth or their family was receiving, or had received, the services of a children's aid society or Indigenous child wellbeing society ("Society") within 12 months of the death. All other reviews conducted by the PDRC, particularly those with medical implications, are done on a discretionary basis and are referred to the PDRC – Medical by the relevant Regional Supervising Coroner or DU5C.

Child and Youth Deaths in Ontario and Canada: Trends Over Time

While deaths of children and youth comprise a small percentage of those investigated by the OCC, each of these deaths is challenging from emotional and investigative perspectives. It is important to consider the findings published in the Annual Report within the broader context of childhood deaths in Canada.

While the OCC defines the paediatric age group from live birth to the nineteenth birthday, adolescent data provided by Statistics Canada also includes the nineteenth year (i.e. up to the twentieth birthday). For the purpose of the comparisons demonstrated in Charts 1 – 4, data from the OCC includes investigations of adolescent deaths up until the twentieth birthday as well. Over the previous five years, on average, the OCC has investigated 60 deaths of individuals in their nineteenth year per year.

Chart 1 illustrates the number of child and youth deaths per year and compares the number of cases investigated by the OCC with the provincial and national numbers. Between 2005 and 2018 the year to year totals have remained fairly consistent.

Chart 1: Comparison of Child and Youth Deaths in Canada and Ontario with Ontario Coroner's Cases 0-19 Years of Age (2005-2018)

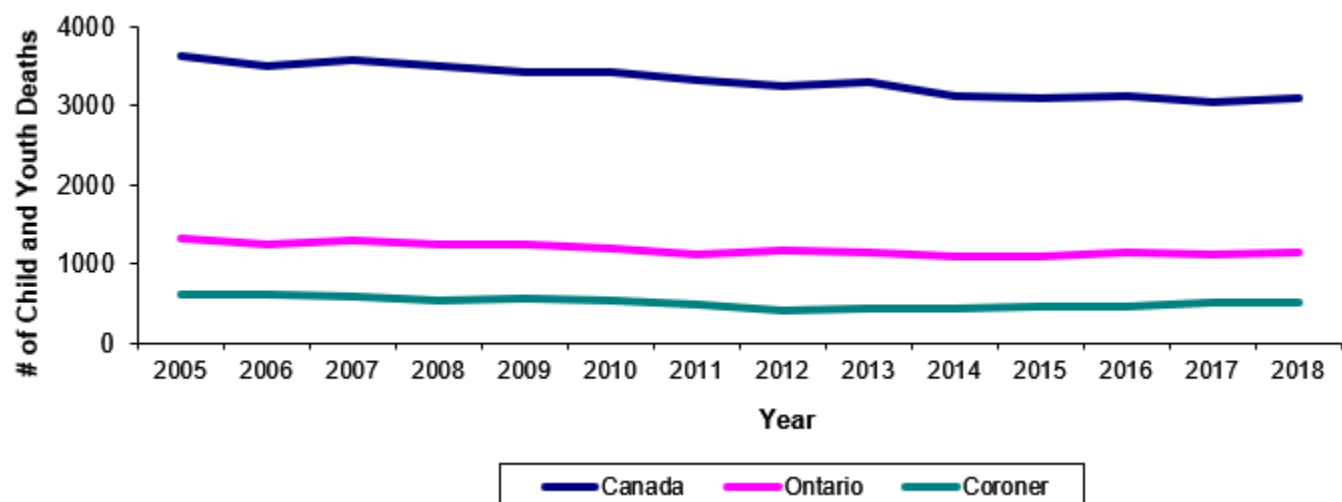


Chart 2: Paediatric population vs. paediatric deaths in Ontario compared with Canadian totals (Age 0-19)

Chart 2 provides the actual numbers of child and youth deaths per year and shows the percentage of paediatric deaths in Ontario as a proportion of the national total. Between 2005 and 2018, the year to year totals have remained fairly consistent.

Year	Paediatric Population – Canada (Total)	Paediatric Population – Ontario (Total)	% of Ontario paediatric population vs. Canada	Paediatric Deaths - Canada (Total)	Paediatric Deaths - Ontario (Total)	% of Ontario paediatric deaths vs. Canada
2005	7,874,686	3,129,130	40%	3640	1335	37%
2006	7,865,435	3,127,664	40%	3513	1249	36%
2007	7,859,930	3,116,390	40%	3591	1297	36%
2008	7,869,257	3,112,369	40%	3517	1237	35%
2009	7,867,349	3,101,042	39%	3423	1247	36%
2010	7,850,628	3,087,884	39%	3424	1201	35%
2011	7,833,278	3,074,838	39%	3245	1122	35%
2012	7,828,135	3,062,498	39%	3247	1166	36%
2013	7,848,394	3,069,969	39%	3295	1157	35%
2014	7,843,048	3,051,984	39%	3135	1092	35%
2015	7,886,794	3,062,245	39%	3112	1086	35%
2016	7,949,667	3,079,434	39%	3120	1134	36%
2017	8,002,039	3,096,032	39%	3043	1110	36%
2018	8,072,495	3,122,693	39%	3092	1138	37%
Average	7,889,367	3,092,441	-	3314	1184	-

Child and Youth Deaths in Ontario: Distribution Across Age Groups

Chart 3 illustrates the number of death investigations completed by the OCC compared with the total number of Ontario deaths in 2018, distributed by age group. Proportionately, infants compose the largest subgroup of deaths, followed by adolescents.

Chart 3: Distribution of Paediatric Deaths Across Age Groups (2018)

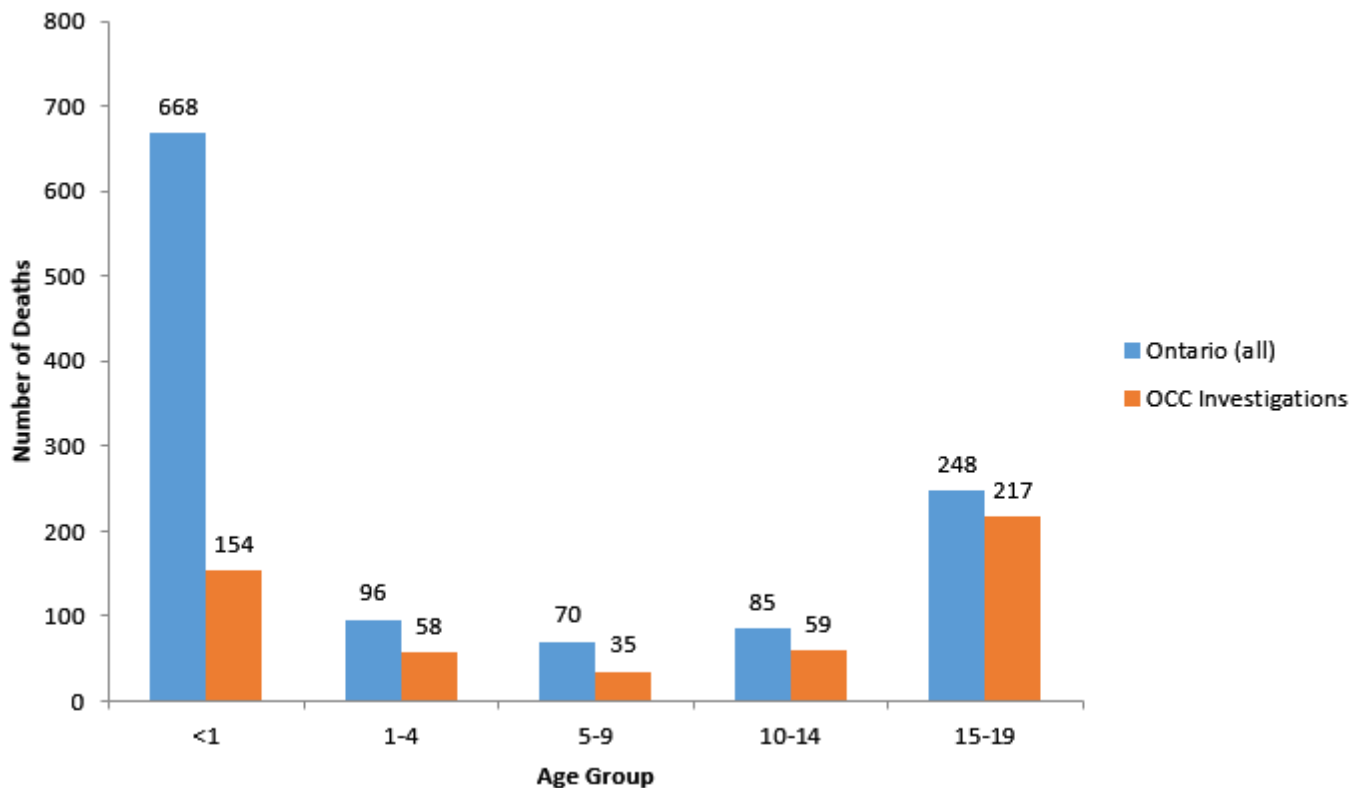


Chart 4 illustrates that in 2018, the OCC investigated approximately 23% of infant deaths (< 1 year), 60% of deaths of 1-4 year olds, 50% of the 5-9 year olds, 69% of 10-14 year olds and 88% of adolescent deaths (15-19 year olds).

Chart 4: Proportion of Ontario Deaths Investigated by the OCC across Age Groups (2018)

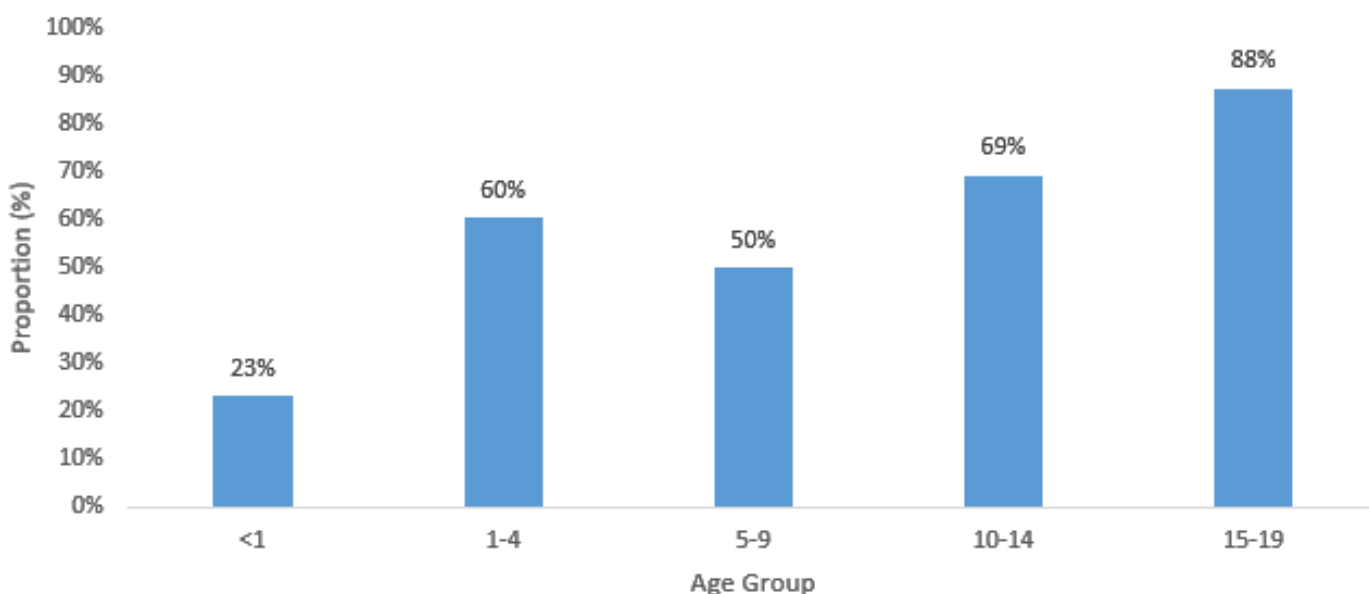
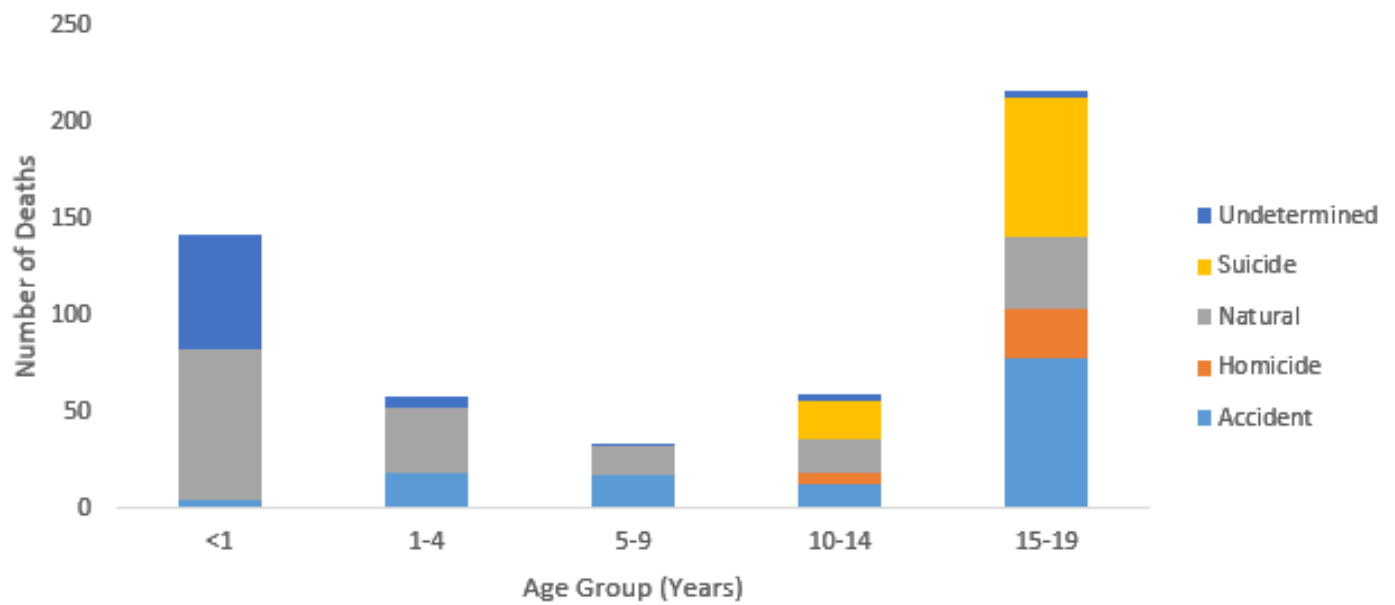


Chart 5 illustrates the manners of paediatric deaths investigated by a coroner in 2018 by age group. The chart demonstrates that there is a change in the distribution of the manner of death provided by Ontario coroners that follows age progression from infancy to adolescence. Natural and undetermined deaths dominate

investigations of children under one, gradually changing to non-natural manners (accident, homicide and suicide) which are more prevalent among adolescents.

Chart 5: Manner of Death in OCC Investigations – Distribution Across Age Groups (2018)



Deaths Under Five Committee

Introduction

The Deaths Under Five Committee (DU5C) of the Office of the Chief Coroner (OCC) is a multi-disciplinary committee and members include forensic pathologists, coroners, police detectives, child maltreatment and child welfare experts, crown attorneys, a Health Canada product safety specialist and executive staff from the OCC. Attendance for knowledge enhancement is common, including learners from different stages of medical education and detectives from police services that are not active committee members. The membership is balanced to reflect Ontario's geography. It also includes members from several police agencies that provide diversity in terms of geographic area, size of police service and the skill set of the investigators.

In November 2018, the DU5C was discontinued as it was determined that rigorous quality assessment of coroner's investigations involving the deaths of children under age five years was being achieved through other mechanisms including peer reviews of post mortem examinations and the establishment of the Child Injury Interpretation Committee (CIIC).

From November 2018 onwards, complex cases involving the deaths of children under age five, where the determination of cause and/or manner of death remain unanswered, may be referred to the Paediatric Death Review Committee – Medical (PDRC) for thorough review.

Scope and Mandate

The DU5C reviewed all cases investigated by a coroner involving the deaths of children under five years of age including neonatal cases where the death was potentially linked to parental behaviour (e.g. sleep circumstances/unsafe sleep environment, maternal substance use, neglect, domestic violence, etc.) and those in which a children's aid society or Indigenous child wellbeing society ("Society") was involved at time of the death. The committee did not review neonatal deaths that occurred prior to discharge from hospital where no substantive issues had been identified.

The mandate of the DU5C was to determine the cause and manner of death for all cases meeting the criteria for review. Case-specific recommendations for additional investigation, further laboratory/pathologic testing, evaluative testing of relatives or systemic improvements could arise during the review.

DU5 Review Process

Cases were referred to the DU5C by the relevant Regional Supervising Coroner. Case reviews were not confined to deaths that occurred during the calendar years of this annual report. Given the complexities involved in paediatric death investigations, the investigations sometimes take a long time to complete, delaying the DU5C review.

The DU5C review was a two-tiered "triaging" process involving an Executive Team Review and/or Full Committee Review.

Executive Team

The Executive Team reviewed cases of deaths under five that were:

- Natural deaths with defined illnesses and no issues (i.e. the deaths are “all natural” and there are no police or child welfare concerns)
- Accidental deaths that were well documented where no issues were identified (e.g. motor vehicle collision, drowning)
- Homicides or criminally suspicious deaths where the case was still under active police investigation or before the courts.

The cases were received, tracked and triaged by the Executive Team, whose membership included the DU5C Chair, Executive Lead and other individuals as necessary.

Full Committee

The full committee reviewed cases of deaths under five including:

- All cases where the cause of death remained undetermined after a complete investigation
- Deaths where the sleep circumstances/unsafe sleep environment may have been a potential contributor
- Potential cases of Sudden Infant Death Syndrome (SIDS)
- Natural deaths with complex medical presentations where potential investigative or pathologic issues that may affect the cause and/or manner of death had been identified
- Accidental deaths involving unusual circumstances
- Deaths resulting from head injuries that were not well documented accidental deaths (i.e. motor vehicle collision)
- Homicides (when the investigation and court process had been completed)
(Most homicides were reviewed by the Executive Team and presented to the committee prior to completion of the court process given the time period until resolution in the criminal justice system)

Cases referred to the DU5C underwent a comprehensive and detailed review of investigative materials including (but not limited to):

- Post mortem examination, toxicology results and other investigative findings
- Photographs (of the scene and post mortem examination)
- Coroner’s Investigation Statement
- Investigation Questionnaire for Sudden and Unexpected Deaths in Infants
- Police and other investigative reports (e.g. Fire Marshal and children’s aid society/Indigenous child wellbeing society reports, etc.)

Chart 6 Illustrates that over the past nine years, the full DU5C reviewed between 55 and 108 cases. The manner of death for the majority of cases were “undetermined.”

Chart 6: DU5C - Full Committee Reviews Based on Manner of Death 2010-2018

Year	Natural	Accident	Homicide	Undetermined	Total
2010	17	14	4	73	108
2011	3	13	3	79	98
2012	6	2	9	75	92
2013	3	3	0	49	55
2014	7	4	0	53	64
2015	7	3	0	45	55
2016	2	1	0	58	61
2017	4	2	0	51	57
2018	8	1	0	51	60

DU5C cases reviewed in 2018

Summary of Full DU5C Reviews in 2018:

- In 2018, the full DU5C reviewed 60 cases.
- Of the cases reviewed by full DU5C, 53% (32) involved male children and 47% (28) female children.
- Of the cases reviewed by the full DU5C, the manner of death was 85% (51) undetermined, 13% (8) natural and 2% (1) accident.
- Of the cases reviewed by the full DU5C, 78% (47) involved children less than one year old.
- Of the cases reviewed by the full DU5C, 22% (13) involved children aged one to five years.

Summary of Executive Reviews in 2018:

- In 2018, the executive team reviewed 60 cases.
- Of the cases reviewed by the executive team, 50% (30) involved male children and 50% (30) female children.
- Of the cases reviewed by the executive team, 50% (30) involved children less than one year old.
- Of the executive reviews involving children less than one year, the manner of death was 73% (22) natural, 3% (1) homicide, 17% (5) undetermined, 7% (2) accident.
- Of the cases reviewed by the executive team, 50% (30) involved children aged one to five years.
- Of the executive reviews involving children aged one to five years, the manner of death was 53% (16) natural, 47% (14) accident.

Collectively, for all executive team reviews, the manner of death was 63% (38) natural, 27% (16) accident, 2% (1) homicides and 8% (5) undetermined deaths.

Total Cases Reviewed by the DU5C (Executive Team + Full Committee) in 2018:

- In 2018, there were 60 cases reviewed by the executive team and 60 cases reviewed by the full DU5C, for a combined total of 120 cases.
- Of all cases reviewed by the executive team and full DU5C, 52% (62) involved male children and 48% (58) female children.
- Collectively, for all executive team and full DU5C reviews, the manner of death was 38% (46) natural, 14% (17) accident, 1% (1) homicide and 47% (56) undetermined.
- Of the cases reviewed by the executive team and full DU5C in 2018, 87% (107) involved deaths that occurred in 2016 and 2017.

Analysis of findings

Chart 7 demonstrates the findings of manner of death for cases reviewed by the executive and full DU5C reviews in 2018. The majority of executive reviews involved natural deaths. The majority of full DU5C reviews involved deaths where the manner was undetermined.

Chart 7: Manner of Death – Executive vs. Full DU5 Reviews (2018) (n=120)

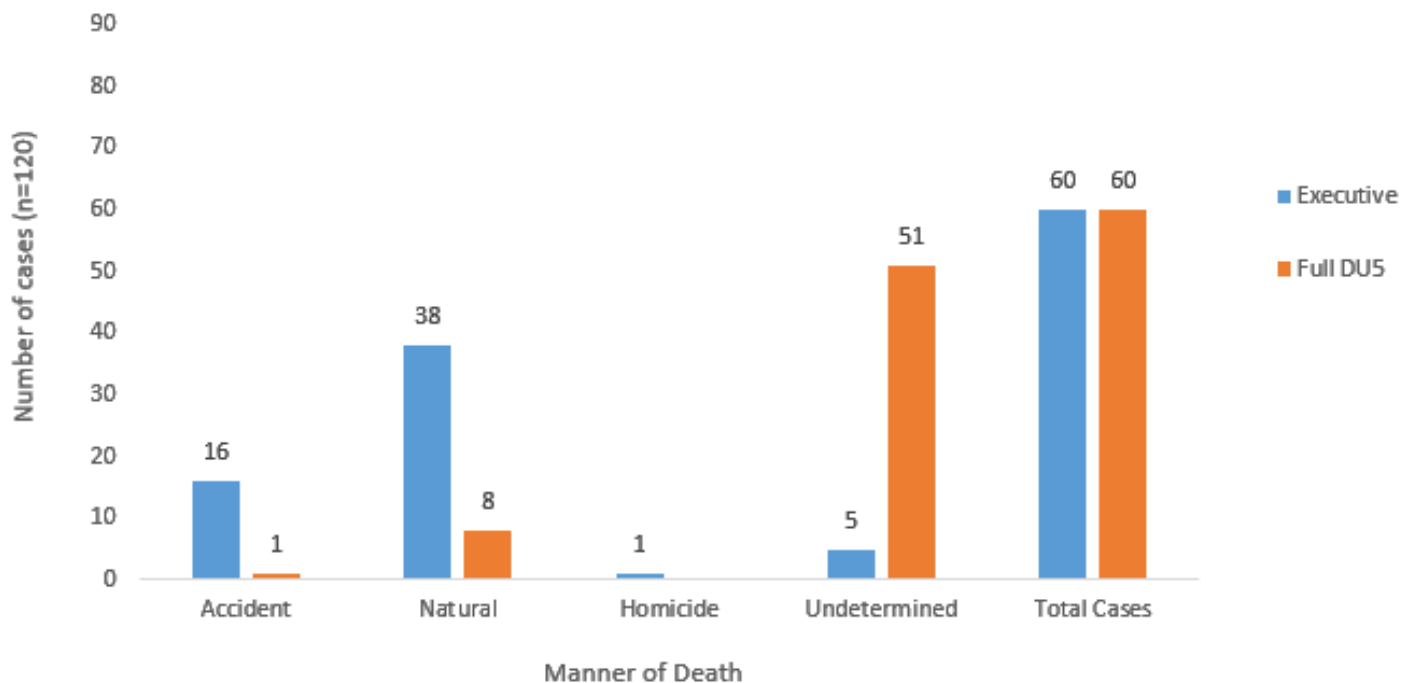


Chart 8 demonstrates the manner of death categorized by age for both the executive and full DU5C in 2018. The majority of executive reviews of natural deaths involved children less than one year old. The majority of full DU5C reviews of undetermined deaths involved children less than one year old.

Chart 8: Manner of Death based on age (<1yr vs. 1-5 yrs) and level of review (Executive vs. Full DU5 Committee) – 2018 (n=120)

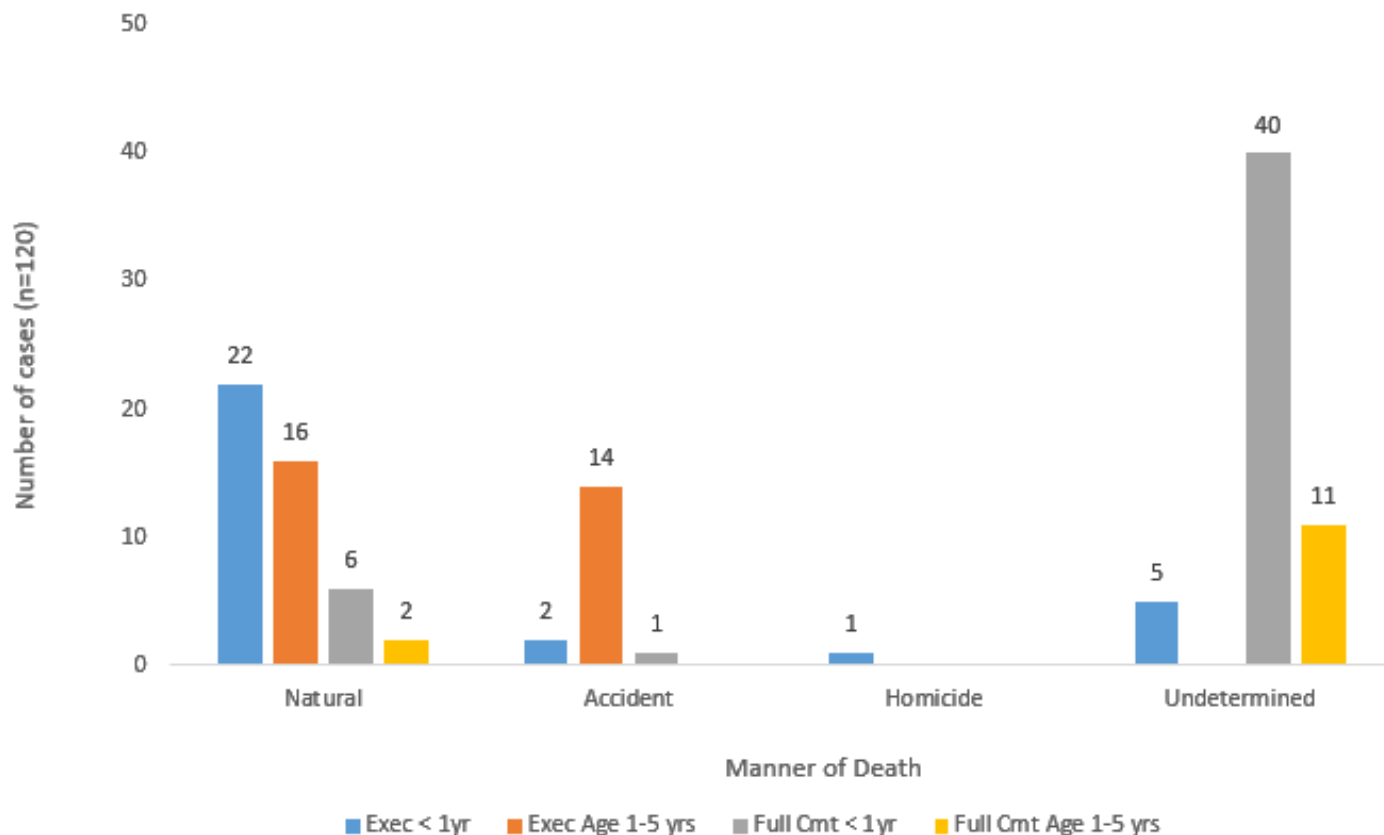
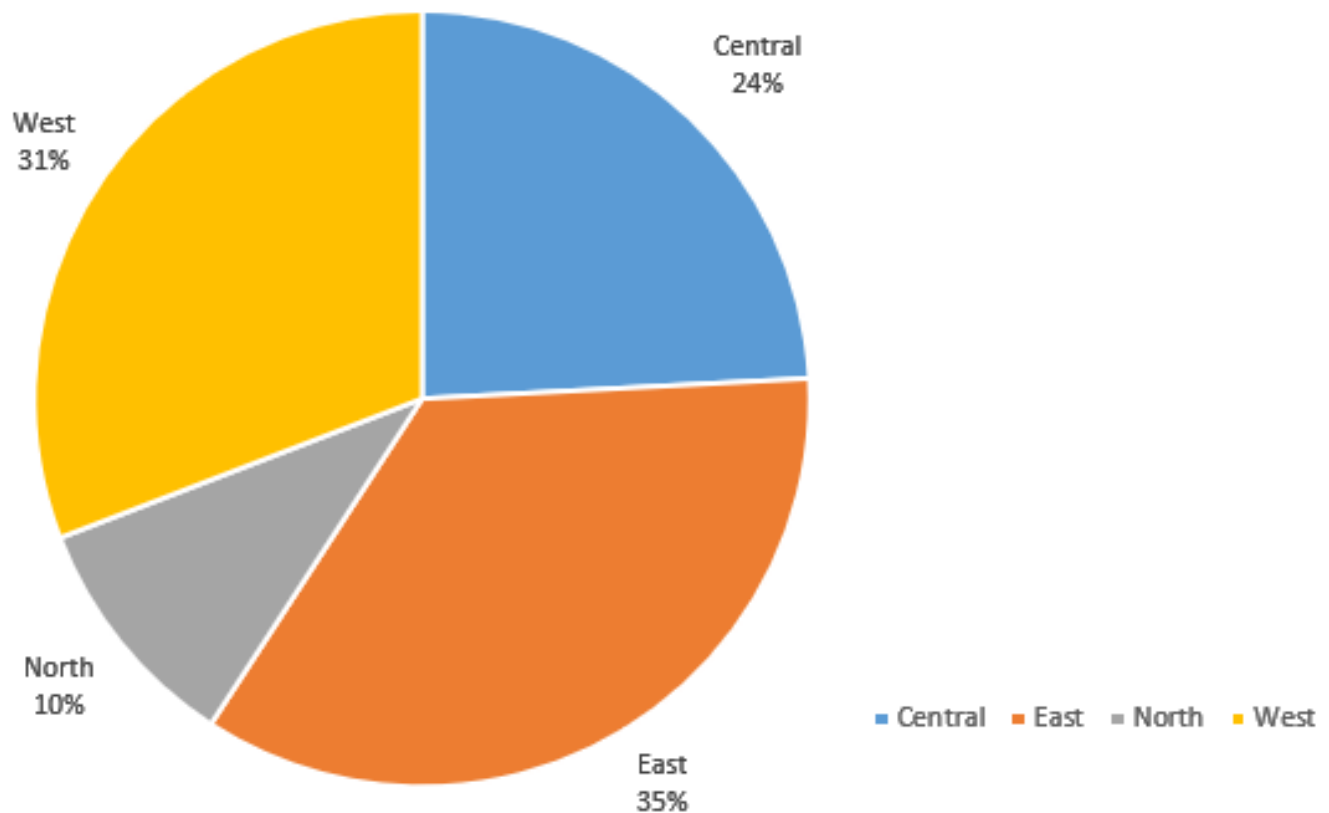


Chart 9 demonstrates that 24% of all DU5C referrals in 2018 came from Central Region, 31% of referrals came from West Region, 35% of referrals came from the East Region and 10% of referrals came from the North Region (based on regional boundaries of the Office of the Chief Coroner (2015)).



Determining the Cause and Manner of Death

One of the greatest challenges the DU5C reviewers face is trying to properly assign manner and cause of death. The most challenging cases are in children less than one year of age, where the autopsy has not clearly demonstrated a cause of death. Even with the most qualified and experienced forensic pathologists performing the autopsy, it is not uncommon for the cause of death to be undetermined.

Learning more about sudden and unexpected infant deaths and advancing our findings continues to be a priority for Ontario's death investigation system with regular discussion about the approach to death investigation, and specifically, post mortem examination at the time of a sudden and unexpected infant death.

The Ontario Forensic Pathology Service (OFPS) adheres to scientifically informed guidelines that forensic pathologists follow when they complete these examinations at regional forensic pathology units. Ancillary testing includes: extensive histology; microbiologic evaluation; toxicologic analysis and detailed metabolic

analysis. Additional testing and expert evaluation are completed when required and DNA is routinely isolated and retained.

In recent years molecular testing has not been completed in all cases of sudden and unexpected infant death. While testing was considered in unexpected infant deaths, there was concern that if testing identified abnormalities of unknown significance relating to the death, reporting the abnormality could lead to undue concern for surviving and future family members. It was felt that clinicians were in the best position, based upon their clinical assessment of family members, to determine the most appropriate testing.

There have been significant advances in the area of molecular testing over recent years including in the area of unexpected infant deaths. Ontario's death investigation system has continued to work closely with paediatric cardiologists and geneticists who have expertise in evaluating heritable cardiac abnormalities. Consultation with these experts has informed the development of a protocol for molecular testing in all cases of unexpected infant deaths where the post mortem examination has not identified a cause of death.

The classification of infant deaths continues to be a topic of discussion for the death investigation field. Different death investigations, including Canadian provincial and territorial jurisdictions, use their own approaches in the classification of infant deaths. Consistent use of definitions and terminology is important to ensure clear understanding and effective classification of sudden and unexpected infant deaths.

One of the significant changes reflected in the classification of these deaths (see Chart 10) involves the cause of death being provided as "undetermined" in cases where there is a comprehensive investigation but no conclusive finding. Previously, based upon a 2005 publication of the National Association of Medical Examiners, many death investigation jurisdictions use the often confusing "Sudden Unexpected/Unexplained Death in Infancy (SUDI)" on the Medical Certificate of Death. This terminology is not used by the DU5C.

Chart 10 identifies the criteria used for classifying infant deaths in Ontario.

Chart 10: Infant Death Classification

	Autopsy Findings	Investigative Findings	Cause of Death on Death Certificate	Manner of Death
1	Autopsy reveals a definitive cause of death (pneumonia, head injury, etc.) that informs a definitive manner of death	Variable/may directly inform cause/manner of death	As per the autopsy/investigative findings	Based on autopsy/circumstances
2*	No anatomic or toxicologic cause of death identified	No findings of concern identified during the complete investigation -child found supine or prone -no evidence of sleep-associated circumstances** -may include exposure to environmental tobacco smoke or in utero tobacco use	Ia- Sudden Infant Death Syndrome (SIDS)	Natural

	Autopsy Findings	Investigative Findings	Cause of Death on Death Certificate	Manner of Death
3A	No anatomic or toxicologic cause of death identified	Presence of sleep associated circumstances** Presence or absence of social risk factors***	Ia- Undetermined Ib- II-Unsafe Sleep Environment (description in parentheses)	Undetermined
3B	No anatomic or toxicologic cause of death identified	Includes cases that do not meet definition of SIDS No sleep associated circumstances** May be presence of social risk factors***	Ia- Undetermined Ib- II-	Undetermined
4	No anatomic or toxicologic cause of death identified	Findings in investigation/ autopsy, examples include: - autopsy findings for which the differential diagnosis includes non- accidental injury (eg: healing fracture, bruises, etc.) -death of a previous child in suspicious circumstances -significant toxicologic findings for which there is an inadequate explanation	Ia- Undetermined Ib- II- Multiple healing rib fractures	Undetermined

** Sleep associated circumstances include:

- Sharing a sleep surface with a person or pet (adult, toddler, child, cat, dog, etc.)
- Sleeping on a surface not intended for infant sleep (adult bed, waterbed, sofa, child carrier, car seat, non-approved playpen or bassinet)
- Sleeping in a cluttered sleep environment (bedding, toys, clutter in the sleep area that represent an asphyxia potential)

*** **Social Risk Factors**, including, but not limited to:

- Previous involvement with child welfare agencies, substantial mental health histories in caregivers, domestic violence in the home, alcohol or substance use in the caregivers, concerning, but non- specific investigative findings (e.g: inconsistent accounts of circumstances surrounding the death)
- these risk factors will not be listed on the Medical Certificate of Death.

***Category 2** represents deaths that meet the definition of Sudden Infant Death Syndrome (SIDS)

As defined: Sudden death of an infant **under 1 year of age** that remains unexplained after a thorough case investigation, which must include:

- A complete autopsy
(including full skeletal survey & toxicology)
- Review of the circumstances of death

Examination of the death scene
Police investigation
Review of the clinical history

A death will not be considered in Category 2 (SIDS definition is not met) if any of the following is/are present:

- Presence of sleep associated circumstances (described above):
- Presence of social risk factors (described above)
- Anatomic or toxicologic findings that do not establish a cause of death, but for which the differential diagnosis includes maltreatment, and the caregiver has no explanation for the findings, or the caregiver's explanation for the findings is unwitnessed, or undocumented

A death would be considered as Category 4 if:

-Anatomic or toxicologic findings are present that do not establish a cause of death, but for which the differential diagnosis includes non-accidental injury, AND the caregiver's explanation of these findings are unwitnessed or undocumented.

Deaths Under Five Committee Classification of Infant Deaths

2018 Findings

In 2018, 64% (77 of 120) of the deaths reviewed by the DU5C occurred in infants who were less than one year of age. Chart 11 provides the classification of Infant deaths reviewed by the Deaths Under Five Committee in 2018.

Chart 11: Classification of infant deaths (under age 1 year) reviewed by the Deaths Under Five Committee in 2018

	Autopsy findings	Investigative Findings	Environment	# of 2018 DU5 Cases (Executive + Full Committee) involving infants under age 1 year	% of total DU5C Reviews involving infants under age 1 year
1	Autopsy reveals a definitive cause of death (e.g. pneumonia, head injury, etc.) that informs a definitive manner of death	Variable/may directly inform cause/manner of death.	Natural (no sleep issues) Undetermined (with sleep issues) Accident (with no sleep issues) Accident (with sleep issues) Homicide Total	28 1 2 1 1 33	43%
2	No Anatomic or toxicologic cause of death identified	No findings of concern identified during the complete investigation - Child found supine or prone - No evidence of sleep-associated circumstances - May include exposure to environmental tobacco smoke or utero tobacco use	Natural - SIDS	0	0%
3A	No Anatomic or toxicologic cause of death identified	Presence of sleep associated circumstances and/or presence or absence of social risk factors	Undetermined (unsafe sleep circumstances) *Unsafe sleeping environment (other) *Bedsharing Undetermined (with social factors) Total	40 (15) (25) 2 42	55%

	Autopsy findings	Investigative Findings	Environment	# of 2018 DU5 Cases (Executive + Full Committee) involving infants under age 1 year	% of total DU5C Reviews involving infants under age 1 year
3B	No Anatomic or toxicologic cause of death identified	Include cases that do not meet definition of SIDS. No sleep associated circumstances. May be presence of social risk factors.	Undetermined	1	1%
4	No Anatomic or toxicologic cause of death identified	Findings in investigation/autopsy, examples include: - Autopsy findings for which the differential diagnosis includes non-accidental injury (e.g. healing fracture, bruises, etc.) - Death of a previous child in suspicious circumstances - Significant toxicologic findings for which there is inadequate explanation	Undetermined - no explanation	1	1%
			Total	77	

The Importance of Consistent Definitions

Clear understanding and effective classification of sudden and unexpected infant deaths can be hampered by inconsistent use of definitions and terminology. There is variable use of terminology in scientific and medical literature when discussing unexpected infant deaths. Death investigation organizations frequently have individualized approaches to the classification of these deaths.

To accurately study unexpected infant deaths, data needs to be collected from consistently defined records and reports. Collection of consistently defined data sets across many death investigation systems would enable a true analysis of the key factors contributing to these deaths – if the definitions are not the same, it is difficult to compare. The more data we can gather from these tragic deaths, the better positioned our community safety partners will be to develop strategies to prevent similar deaths.

Sudden Infant Death Syndrome (SIDS)

The Ontario death investigation system continues to use the term Sudden Infant Death Syndrome (SIDS) as a classification of a unique category of natural infant deaths, where in the future, a specific underlying natural cause may be found, e.g. cardiac, neurologic, metabolic. These are cases that would benefit from further research within the scientific community that may find common underlying factors causing these deaths. The value of categorizing deaths as SIDS (i.e. recognizing SIDS as an “entity”) has been clearly demonstrated through focused research projects. The Back to Sleep Program, for example, had significant public health benefit, contributing to a 53% reduction in deaths ([NICHD Back to Sleep Campaign](#)). Research in this area is ongoing by several others.

In Ontario, a death will be attributed to SIDS following a thorough review of all components of the death investigation including: the autopsy; examination of the death scene; review of the clinical history; and a review of the police investigation. The death is then reviewed by the DU5C, who will only attribute the death to SIDS if a consensus decision is reached that the case strictly meets the definition. The DU5C strictly applies the definition of SIDS and excludes cases with even minor deviations. SIDS is only given as a cause of death when all other causes have been ruled out. If the investigation reveals any concerning finding, the cause of death will not be classified as SIDS. It is a finding of exclusion, which is why there were no SIDS cases in 2018

Understanding the Manner of Death

The following is a discussion about the classification system to ensure those reading this report – families, health care providers, academics, researchers, prevention experts, advocates, media, and others – have insight into Ontario’s approach to help understand the data presented.

In 57% (44 out of 77 - see data in Chart 11 – Sections 3A+3B+4) of infant deaths reviewed in 2018 by DU5C, the manner of death was “undetermined.” There was one additional case coded as category 1 where the manner of death was undetermined, but there was a medical cause of death noted, bringing the total percentage of undetermined infant deaths to 45/77 or 58%. Undetermined is one of four potential manners of death that would apply in infancy.

The Office of the Chief Coroner applies the following definitions when determining the manner of death:

Natural: a death is natural if it is due to a natural disease or complication thereof; or known complication of diagnosis or treatment of the disease.

Accident: if a death is due to an occurrence, incident or event that happens without foresight or expectation.

Homicide: a death is classified as homicide if it results from the action of a human being killing another human being.

Undetermined: a full investigation has shown no evidence for any specific classification or there is equal evidence or a significant contest among two or more manners of death.

The manner of death is informed by the autopsy and other investigative findings. At times, the external and internal examinations completed at the time of autopsy do not reveal an anatomic cause of death. This is more common for infant deaths than youth or adult cases.

A so-called “negative autopsy” may present in a number of situations including, but not limited to:
Toxicologic deaths

Metabolic disorders
Asphyxial deaths (e.g. airway obstruction)
Infectious disease
Cardiac diseases (e.g. conduction disorders)
Sudden Infant Death Syndrome (SIDS)

To evaluate for these potential causes, ancillary (additional) testing is completed. This includes: histologic review, vitreous biochemistry, toxicologic analysis, metabolic and genetic testing as well as microbiologic testing for infectious agents. These tests may identify a cause of death from which a specific manner of death can be determined.

It is important to look at how all the information available fits together when investigating death. For example, information about the incident leading to the death can be helpful when considering the autopsy findings in drowning cases. Investigative information may also be of assistance in determining cause and manner of death. For example, a negative autopsy with observed sudden cardiac arrest with accompanying defibrillator data indicating definitive arrhythmia, may allow an opinion of Sudden Cardiac Death with natural manner.

Alternatively, in criminal cases, a police investigation may demonstrate clear evidence of airway obstruction while the post mortem examination did not demonstrate any pathologic findings (with cause of death provided as undetermined) leading to the manner of death being provided as homicide.

The finding of undetermined cause and manner of death is challenging for investigators and family members to receive, given the lack of conclusiveness and/or the fact that other potentials remain. This is especially true within the context of the emotional response that accompanies any death, especially infant deaths. An undetermined finding follows careful consideration of all the evidence and is a true representation of a thorough investigation. It should not be considered a failure to reach this conclusion. The classification of undetermined allows for future review that may contribute to a better understanding and knowledge about infant deaths.

The undetermined classification is applied when the death investigation system is not able to clearly delineate the cause and manner of death. Therefore, deaths classified as undetermined may include SIDS deaths.

Unsafe Sleep Circumstances - Determining the Role

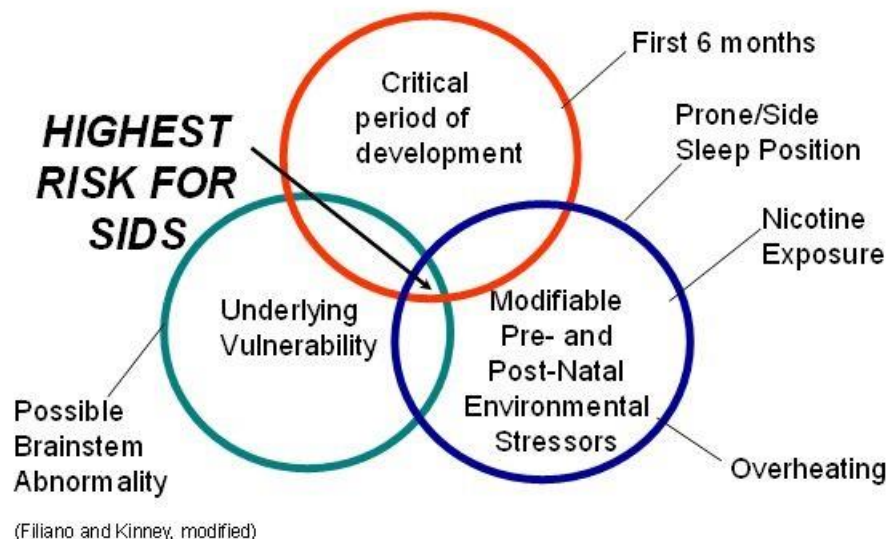
Specific findings during post mortem examinations are typically absent in situations of airway obstruction in infants, whether intentional, accidental (e.g. overlay during bed sharing) or other unsafe sleep circumstances.

Potential unsafe sleep circumstances exist along a continuum, from the defined safe environment (i.e. infant sleeping on their back in an uncluttered crib that conforms to regulation) to situations clearly identified as dangerous and likely a direct contributor to death. The lack of specific pathologic findings of airway obstruction and the potential of other unidentified causes of death have hampered the ability to accurately determine how frequently unsafe sleep circumstances cause infant deaths. These limitations require assigning an undetermined manner of death. However, experience in Ontario, supported by epidemiologic data, is that sleep circumstances may be a contributing factor in many cases.

Capturing Factors Potentially Related to the Death

A risk factor is something associated with ill health, disease and death; it may predispose individuals to develop a particular disease. SIDS has been conceptualized as a “Triple Risk Theory” where a child with (1) an underlying vulnerability (2) at a critical period of development is (3) exposed to an external factor align to lead to the death (Kinney, HC, Thach BT. The sudden infant death syndrome. N Engl J Med 2009; 361 (8): 795-805).

Triple Risk Model to Explain SIDS



In most literature, accepted risk factors associated with SIDS include: prone positioning, cigarette smoking during pregnancy (and in the post-delivery period) and overheating. These external factors have been defined as modifiable risk factors that predispose the infant to be directly affected by an underlying natural abnormality.

It is unclear where on the safe sleep continuum specific external factors identified in individual death investigations move from acting as factors that predispose to a natural death (e.g. SIDS) to those that directly contribute to an accidental death (e.g. airway obstruction during overlay while bed sharing or suffocation on a soft sleep surface). In other words, we don't know the dividing point on the continuum from natural to accidental death.

The DU5C considers the potential contribution of sleep related circumstances within the context of stratification of risk (based upon literature and experience). During case review by the DU5C, unsafe sleep circumstances found at the death scene preclude the death from being classified as SIDS. Any factor identified at the death scene which might interfere with an infant's breathing and/or cause entrapment, overlaying, or suffocation is identified. These include: sharing a sleep surface; unsafe sleep surfaces (not intended for infant sleep) such as adult mattresses, waterbeds, couches, car carriers, car seats; a safe sleep surface which is cluttered with toys, blankets and pillows; or a non-approved bassinet or playpen. This is in contrast to previous literature and the practices of some jurisdictions, where these deaths are classified as SIDS.

The association between unsafe sleep environments and sudden unexpected infant deaths has been recognized by death investigators and researchers for many years. The literature, including a number of recent publications, adds to the growing field of knowledge about infant deaths. Two articles of interest are: Sleep

Environment Risks for Younger and Older Infants (Colvin, JD, Collie-Akers V, Schunn C, et al. *Pediatrics* 2014; 134: e406-e412); and the Registered Nurses' Association of Ontario Working with Families to Promote Safe Sleep for Infants 0-12 months of age. The American Academy of Pediatrics released updated recommendations for a safe infant sleep environment: SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. *Pediatrics*. 2016;138(5):e20162938

Additional research and documentation of sleep environments at the time of death is necessary to help understand the cause and effect and identify potential prevention strategies. When it is believed that the sleep environment **may have** contributed to the death, it is included as a contributing factor on the Medical Certificate of Death. This will be captured as data which can be used to inform the development of public health policies and further research into unsafe sleep environments and the potential role in sudden and unexpected infant death. This is reflected in Category 3A in Charts 10 and 11.

While the DU5C recognizes the convention of not including contributing factors when the cause of death is undetermined, the committee believes that these cases are a special group and deserve a unique approach. The committee maintains that entering potential contributing factors on the Medical Certificate of Death is more inclusive and recognizes the scope of the death investigation. Similar to the identification of SIDS as a special group, this may allow easier identification for further case study, facilitating future research and potentially informing a public safety approach.

Unsafe Sleep Environment – What is the data?

Review of Charts 11 demonstrates that there were 45 infant deaths reviewed by the DU5C in 2018 where the manner was deemed to be undetermined (Categories 3A + 3B + 4 and one from category 1). There were 41 (54%) cases (40 were classified as 3A and one was classified as 1) where sleep circumstances may have been a contributing factor.

Paediatric Death Review Committee – Medical

The Paediatric Death Review Committee (PDRC) – Medical is a multi-disciplinary committee that consists of specialized paediatric practitioners including: paediatric pathology, paediatric critical care, community paediatrics, paediatric emergency medicine, neonatology and cardiology. The membership is balanced to reflect Ontario's geography and includes differing levels of institutions that provide paediatric care and teaching centres, when possible.

Medical reviewers analyze and consider the medical issues involved in the time preceding a child's death to gain a better understanding of the circumstances of the death. Case referrals for committee evaluation include medically complex deaths when there are concerns regarding the medical care or if there are questions about the clinical diagnosis, cause and/or manner of death.

Review process

Case assignment occurs by aligning the practice profile and expertise of the committee members with the circumstances of the death. For example, paediatric deaths from a community setting will be reviewed by one of the community paediatricians. Similarly, the death of a neonate will be primarily reviewed by the neonatologist. The review process involves analyzing the existing record of the decedent. The record routinely

includes medical records, the Coroner's Investigation Statement, the report of the post mortem examination, toxicology report, police report and other relevant documents.

At the committee meetings, the primary reviewer presents the findings to the members for discussion. This provides an opportunity for discussion about issues that may have been identified through the review. The committee may also develop recommendations based on the findings of the review. The primary reviewer will compose a final report reflecting the committee's consensus opinion. The report, which will include the cause and manner of death and any committee recommendations, is provided to the referring Regional Supervising Coroner. If the recommendations are systemic, the ministry, organization, agency or individuals are notified by the Committee Chair. Organizations were asked to respond back with the status of implementing the recommendation(s) within one year. Commencing in 2017, organizations were asked to respond back within six months of receiving the recommendations, which is consistent with the approach to inquest recommendations.

Where a case presents a potential or real conflict of interest for a committee member, that member will not participate in the review. Should a case require expertise from another discipline, an external expert will review and attend a PDRC meeting to participate in the discussion and drafting of recommendations.

Limitations

The PDRC case reports are prepared for the OCC and are governed by the *Coroners Act*, the *Vital Statistics Act*, the *Freedom of Information and Protection of Privacy Act* and the *Personal Health Information and Protection of Privacy Act*.

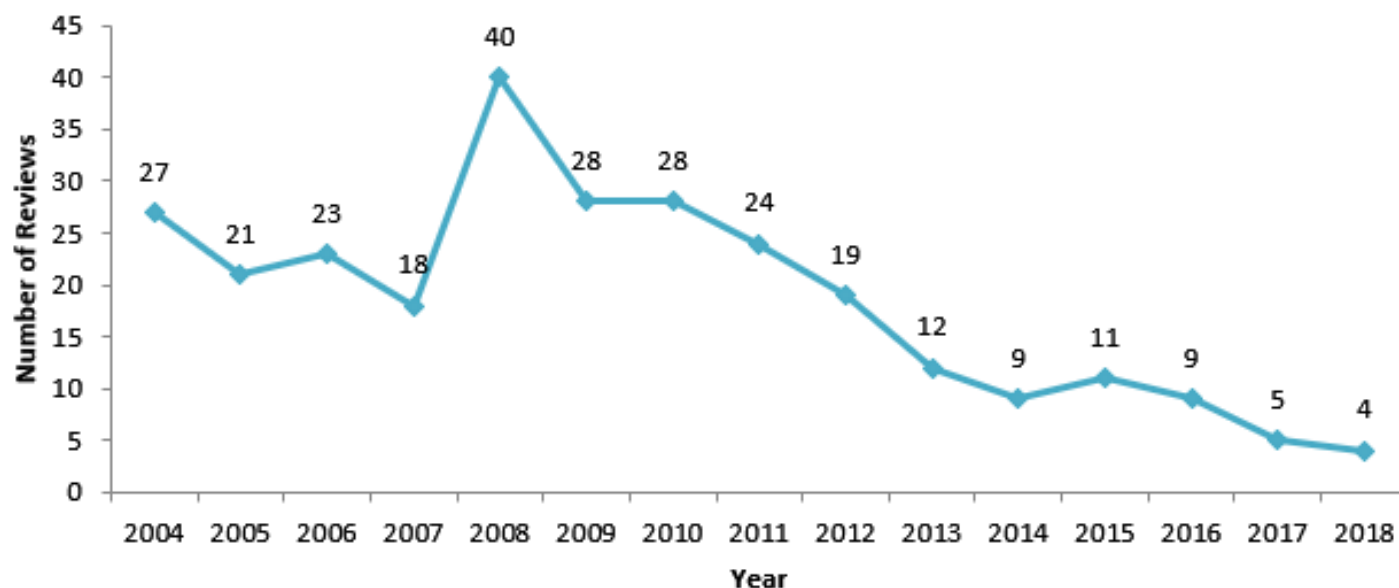
The consensus report of the committee is limited by the data provided. While efforts are made to obtain all relevant data, it is important to acknowledge that these reports are generated from a review of the written records. Sometimes the coroner/Regional Supervising Coroner conducting the investigation may have received additional information not included in the records that may render one or more of the committee's conclusions invalid.

Recommendations are made following a careful review of the circumstances of each death; they are not intended to be policy directives.

Statistical Analysis for Paediatric Death Review Committee – Medical

The number of PDRC – Medical reviews varies from year to year. Chart 12 illustrates the number of PDRC - Medical reviews from 2004 to 2018. In 2018, there were four cases reviewed.

Chart 12: PDRC (medical) – Total number of reviews (2004-2018)



Analysis of 2018 Case Reviews PDRC – Medical

In 2018, there were four cases reviewed by the PDRC – Medical.

Of the cases reviewed in 2018, three involved children under one year of age, one involved a child that was just over one year.

Recommendations

One of the important benefits of PDRC – Medical review is informing medical systems through recommendations using a “no blame” approach. The focus is on preventing further deaths via:

- Systemic changes;
- Changes in professional practice; and
- Response to emerging trends.

Given the PDRC – Medical referral criteria, recommendations are commonly directed to health care facilities. The collective expertise of the committee provides comprehensive reports that can be helpful to inform a healthcare organization’s Quality of Care Review processes. The findings and recommendations in the reports create an opportunity for the organization to see the potential for improvement in its internal processes or policies to avoid similar outcomes in the future.

In 2018, the four reviews resulted in eight recommendations. There was one case that resulted in no recommendations.

Summary of 2018 recommendations made by PDRC – Medical

The recommendations made from the PDRC – Medical reviews in 2018 focused on the following themes and were addressed to the identified organizations:

Organization(s) asked to respond to recommendation	Theme of recommendation(s)	Number of reviews where theme was identified 2018
Health care organizations	Quality of Care	3
Treating Health Care Professionals		1
Health care organizations Treating Health Care Professionals	Differential diagnosis	3
Health care organizations	Communication	2
Health care organizations	Documentation	2
Health care organizations	Transport	1
Health care organizations	Education	3

Some cases resulted in multiple recommendations touching on different themes.

Themes arising during medical reviews

Themes are often identified in individual case reviews and sometimes patterns may emerge when similar issues are observed in other reviews. Over time, the PDRC – Medical has identified and compiled a number of themes that have been common in child death reviews. The benefit of having a thematic approach is that the recurring themes can become an agent for systemic change. Over the past several years, there have been a number of initiatives stemming from PDRC – Medical recommendations that have enhanced paediatric health care in Ontario.

Themes from 2018

The cases reviewed by the PDRC – Medical in 2018 were associated with four key themes. Some cases had more than one theme identified.

While these themes are consistent with past findings, by taking the extra step of evaluating for emerging trends, a refined focus for recommendations is taken with a view of systemic improvement instead of only considering the individual cases. The consistent themes, and issues associated with each, are:

Treatment - Quality of Care

The following treatment and/or quality of care issues were identified:

- Management of temperature, respiratory symptoms and increased white cell count in the post-operative period in a potentially medically fragile child;
- The criteria for activation of the Critical Care Response Team;
- Hospital policies and procedures related to the dosing, route and rate of administration for medications and other treatments used in the management of acutely ill infants and children and ensuring that they are in keeping with best practice guidelines;
- Use of the Broselow system of weight estimate and dosage calculation throughout the hospital where paediatric patients receive care.
- Approach to and knowledge of common causes of convulsive status epilepticus, principles of management and indicated investigations.

Differential Diagnosis

Issues with differential diagnosis were identified:

- Use of diuretics in child with congenital heart disease;
- Wheezing in a child with heart disease.

Documentation

Documentation issues included:

- Communication and documentation of concerns raised by the family.

Transport/Transfer

Transport/transfer issues included:

- Role for the critical care transport of acutely ill children;
- Potential opportunity for primary care paramedics to provide benzodiazepines for status epilepticus in the pre-hospital setting;
- Understanding the role of medical handover and transfer of care between Physicians;
- Opportunity for emergency medical services to inform their approach to Advanced Care Paramedic deployment.

PDRC – Medical: Case Example

This case was reviewed by the PDRC – Medical in 2018 and illustrates the difficulties and challenges that can arise for health care practitioners when caring for paediatric patients.

File: 2017-3272 (PDRC 2018-03)

Age: 14 months

Sources Reviewed:

- Coroner's Investigation Statement
- Medical records from:
 - Primary pediatrician
 - Hospital A
 - Hospital B – from Health System A
 - Hospital C – from Health System A
- Report of Post Mortem Examination
- Cardiovascular Pathology Report
- Report of Pediatric Cardiovascular Pathology Consultation

Past Medical History:

The decedent was a 14-month-old male child who was born with an antenatal diagnosis of borderline left ventricle with critical aortic stenosis and endocardial fibroelastosis (EFE). He underwent balloon dilation of the aortic valve three times and was then palliated with a hybrid procedure (i.e. banding of his pulmonary arteries and stenting of his ductus arteriosus) in December 2015. He was readmitted to a quaternary children cardiac care hospital in June 2016 to complete a biventricular repair consisting of debanding and patch augmentation of his branch pulmonary arteries, excision of the ductal stent, coarctation repair with end-to-end anastomosis, and EFE resection. An adjustable atrial septal defect was left open. His post-operative course was complicated by atrial ectopic tachycardia treated with propranolol, diuretic dependence, vocal cord palsy, and feeding intolerance with gastro-esophageal reflux.

Upon discharge in August 2016, his echocardiogram reported mildly reduced left ventricular function, good right ventricular function, mild tricuspid and mitral regurgitation, and no outflow tract obstruction. His discharge medication included domperidone, omeprazole, ranitidine, furosemide (twice daily), and propranolol. A follow-up appointment with his quaternary care cardiologist was arranged for two months with a sedated echocardiogram. A children's cardiac care centre (Hospital A - closer geographically to the family) pediatrician was recorded as the primary physician on the discharge note provided to the parents.

Following hospital discharge, the child's course was marked by recurrent community hospital visits and admission. He was first seen on August 22, 2016 after experiencing an apnea associated with a coughing/choking spell. The parents suctioned thick secretions and the child was near baseline by the time he was seen in the emergency department.

During this presentation, a referral was made to a local pediatrician and all ongoing medical follow-up and coordination of care was transitioned on September 2, 2016. There was no information to indicate that the child's prior medical records were transferred from his previous providers.

On October 4, 2016, the child was readmitted to the quaternary children's hospital for a G-tube insertion. A follow-up echocardiogram revealed a dilated left ventricle with mild-moderate dysfunction (ejection fraction = 38-45%), an aortic valve gradient of 28mmHg (peak) and 15mmHg (mean), moderate aortic insufficiency, and

mild dilation of the ascending aorta and transverse arch. The child was seen during the hospitalization by the quaternary care cardiologist and one-year follow-up was arranged. Discharge medications remain unchanged and included regular Lasix. The discharge summary was sent only to the child's Hospital A pediatrician.

Over the subsequent three months, the child had multiple pediatric clinic, Community Care Access Centre (CCAC), and hospital visits/admissions for respiratory distress and wheezing, often associated with upper respiratory tract infection symptoms. Isolated nasal pharyngeal swabs were negative. Symptoms were attributed to bronchiolitis and possibly aspiration syndrome. Treatment included routine use of salbutamol (held sporadically by parents during short periods in which he was asymptomatic) inhaled and systemic corticosteroids, and short courses of oral antibiotics for presumed episodes of pneumonia. Oral feeds were held due to concern of aspiration and ENT consultation (for vocal cord re-assessment) and feeding studies was sought.

Swallowing assessment by Hospital A's gastro-intestinal and swallowing team recorded no further episodes of spit ups on history and revealed no evidence of penetration or aspiration. The team recommended that it was safe to start oral purees. Medication reconciliation by CCAC and the child's pediatrician no longer listed furosemide, but it is unclear when it was discontinued.

The child's final hospital admission was on December 28, 2016 with a diagnosis of bronchiolitis and pneumonia. He was last seen in a pediatric clinic and CCAC nursing on January 23, 2017 with ongoing wheezing.

Terminal Events:

On January 29, 2017 at 0901 hours, the child was brought to Hospital B with a two-day history of cold symptoms, runny nose and vomiting; fever was not noted. The child was irritable, pale and grey (according to notes from the triage nurse) and had difficulty breathing (not relieved with Ventolin). Initial vitals included tachycardia (heart rate 178), blood pressure of 111/90, respiratory rate of 32, and oxygen saturation of 92-97% in room air. The child's breathing was distressed with a decrease air entry to the left base. A murmur was audible and capillary refill time was less than two seconds. A left lung consolidation and stable cardiomegaly were seen on chest X-ray. Treatment included Ceftriaxone, Ventolin (x3) nebulizations, epinephrine nebulization, ipratropium bromide nebulization and dexamethasone. A normal saline intravenous bolus of 20 mL/kg was given. The child remained tachycardic (heart rate 170-180) and had respiratory rates in 40's. The child was transferred to Hospital A by emergency medical services (EMS).

At 1155 hours, upon arrival at Hospital A, the child was described as being alert with grunting respiration. He was febrile (39.2C) with similar vital signs (heart rate of 192, blood pressure 90/40, and oxygen saturation of 95%). He was given a diagnosis of bronchiolitis/reactive airway disease and given Salbutamol (x2), Atrovent (x2), methylprednisolone, acetaminophen, and magnesium sulfate. Ventolin was repeated every 20 minutes and a 10 mL/kg normal saline bolus was administered.

By 1312 hours, the child was noted to have increased irritability which prompted the parents to request a medical re-evaluation.

At 1354 hours, it was noted that the child was "looking unwell."

At 1404 hours, blood work revealed a lactate level of 6 and base excess of -9. The child had gasping respirations and poor systemic perfusion. A chest X-ray showed increasing cardiomegaly, vascular congestion, and patchy airspace disease. Cardiology and Intensive Care Unit (ICU) teams were contacted for consultation.

Short, self-limited runs of ventricular tachycardia were seen and a point-of-care ultrasound showed poor ventricular function. The child was transferred to the paediatric ICU where he was started on BiPAP, milrinone 0.3 mcg/kg/min, furosemide, sodium bicarbonate, and calcium. A formal echocardiogram revealed severely dilated and dysfunctional left ventricle (with an ejection fraction of 19%), mild mitral regurgitation, mild aortic

stenosis and moderate aortic insufficiency. He had good right ventricular function and an unobstructed aorta arch. Transfer to the Cardiac Critical Care Unit at the quaternary children's hospital was initiated. Amiodarone (2.5 mg/kg) was given for runs of ventricular tachycardia.

Prior to transfer, the child developed intractable ventricular tachycardia followed by pulseless electrical activity and asystole. Resuscitation attempts were made for 90 minutes but were unsuccessful. The child died at 1829 hours.

Post Mortem Examination Findings:

Autopsy results indicated:

- Weight (75th percentile), length (<3rd percentile)
- Pulmonary congestion - bilateral, right greater than left
- Bilateral serous pleural effusions

Cardiovascular system:

- Cardiomegaly (weight 157.3g – expected 45 g)
- Aortic stenosis with fusion of right and left coronary cusps
- Left ventricular hypertrophy
- Endocardial fibroelastosis of the left ventricle
- Dilated ascending aorta (2.5 cm)
- Dilated main pulmonary artery
- Atrial septal defect (2 x 3 mm)
- Double lumen aortic arch. Superior lumen is blind-ended and gives rise to all head and neck vessels. Inferior lumen in continuity with descending aorta with evidence of surgical repair at junction.

Gastrointestinal system:

- Congestion of gastric mucosa
- Distension of jejunum and large intestine

Pediatric Cardiovascular Pathology Consultation:

Review of the cardiovascular pathology confirmed congenital aortic stenosis with a bicuspid aortic valve and mild residual stenosis. Previous repair showed an unobstructed aortic arch with double lumen configuration. Marked cardiomegaly, extensive endocardial fibroelastosis of the left ventricle, and stigmata of congestive heart failure (pulmonary oedema, pulmonary and hepatic congestion) was also found. Evidence of acute bronchopneumonia of the left lung and right upper lobe was noted.

The cause of death was determined to be acute bronchopneumonia complicating congestive heart failure due to congenital heart disease with marked EFE, post-cardiovascular surgery (remote).

Cause of Death:

Acute bronchopneumonia

Manner:

Natural

Discussion:

The decedent was a 14-month-old male child born with complex congenital heart disease and had a clinical course complicated by numerous comorbidities associated with this condition and the resulting surgical interventions. Although he died from bronchopneumonia in the setting of end-stage heart failure, the severity of his evolving heart dysfunction went unrecognized as his symptoms were attributed to upper respiratory tract infections and his other medical conditions (i.e. gastroesophageal reflux disease and vocal cord palsy).

A number of systemic issues were identified that impacted communication and may have influenced this child's medical course.

At 9.5 months of age, primary care was assumed by a new pediatrician after the child presented with an acute aspiration event. The new pediatrician was intended to provide specialized pediatric care within the child's immediate community. There had been no prior relationship with this pediatrician as earlier care was provided by a pediatrician from another community, including through to the child's final, and definitive, heart surgery.

Following his initial consultation, the new pediatrician became the child's primary medical contact, managing acute issues and coordinating care with numerous specialist referrals and community resources, including CCAC nursing. However, despite the child's extensive pre-existing medical history, there was no evidence of an official transfer or handover of care; the charts available for review from the new pediatrician contained no prior records. The change in primary provider was also not updated at the quaternary care children's hospital, as all medical communication from his final visit was sent to the Hospital A pediatrician; only a copy of the parent summary for his last hospitalizations at the children's hospital was found. As a result, the new pediatrician may not have appreciated the complete historical and clinical context for the child. Updates from the children's hospital were based on parent communication and, possibly through the electronic child health network. These levels of separation increased the potential for errors, loss of data, and may have compromised opportunities for effective communication and sharing of information.

Following his G-tube insertion, the child presented with persistent increased work of breathing and wheezing. Intercurrent illness, pneumonia, and recurrent aspiration were considered the likely etiologies, in setting of higher risk of reflux and vocal cord palsy, ancillary testing (including nasal pharyngeal swabs and swallowing assessments), were negative.

Despite a long history of known comorbidities, the respiratory symptoms were not seen previously and appeared to be poorly responsive to the medical therapies introduced. It is important to note that Furosemide was no longer included on his medication list following his G-tube insertion, but it is unclear when this was discontinued. When last re-evaluated, his echocardiogram showed mild-to-moderate left ventricular dysfunction, which was considered reassuring, and a one-year follow-up with cardiology was arranged. It is likely, however, that the child's cardiac status and evolution contributed, at least in part, to his symptoms.

The child was at risk for poor relaxation of his heart muscle such that even if his contractility was adequate, poor relaxation could have made him sensitive to fluid balances and poorly tolerant of discontinuation of his diuretics. A cardiac cause of wheezing, however, was not mentioned in the medical record and therefore, likely not considered or appreciated. Earlier communication with, and reassessment by cardiology may have identified progressive deterioration of his heart function and provided an earlier opportunity for intervention.

The child presented to Hospital B in poor condition and transfer was rapidly initiated to the regional tertiary care center. His transfer was arranged directly through the emergency medical services and he was taken to the emergency department.

Consideration for critical care transport, through Criticall Ontario, would have been fitting for this situation. His early treatment, both at Hospital B and Hospital A centered on diagnosis of reactive airway disease/bronchiolitis; the possibility of cardiac origin for his condition was raised only later by the consulting ICU team. He deteriorated despite institution of appropriate therapy. It is unclear if earlier recognition and transfer to quaternary care center would have impacted his outcome.

It was also noted that the cardiology team of Hospital A, despite being the regional provider, were not previously aware of, or provided care to the child prior to his final decompensation. This did not impact the child's care or his final outcome.

Recommendations:

To Hospitals A and B:

1. Hospital A and Hospital B emergency departments should conduct a lessons-learned case review of the care and management of the child. The review should include the Chiefs of Emergency Department in each hospital, physicians and nursing staff involved in the care, and the primary physician at Hospital B who was providing ongoing care. The review should focus on:
 - Wheezing in a child with congenital heart disease
 - Use of diuretics in child with congenital heart disease
 - Role for Criticall for the transport of acutely ill children

To the regional chair and chief of pediatrics for Health System A (where Hospitals A and B are located):

2. The Regional Chief for the area where Hospitals A and B are geographically located, should conduct a lessons-learned case review with all pediatric physicians in the region to discuss:
 - Understanding the role of medical handover and transfer of care between physicians
 - Wheezing in a child with heart disease

To the children's hospital involved:

3. The children's hospital should review their practice of updating receiving physician information for all patients upon hospital admission and discharge.

To the children's hospital and Hospital A:

4. Consideration should be given for the establishment of a framework between the quaternary children's hospital and regional tertiary care pediatric centers for sharing information relating to local, medically complex children that are receiving primary care from the quaternary children's hospital.

Paediatric Death Review Committee – Child Welfare

Child welfare services in Ontario are provided by 38 independent children’s aid societies and twelve Indigenous child wellbeing societies (“Societies”) to deliver child protection services, for a total of 50 societies. All societies receive provincial funding from the Ministry of Children, Community and Social Services (MCCSS).

By policy, coroners in Ontario investigate all paediatric deaths where a Society has been involved with the child, youth or family within 12 months of the death. In 2006, the OCC and the MCCSS implemented a Joint Directive on Child Death Reporting and Review. The Directive outlines the process Societies must follow when reporting and reviewing child deaths when they have been involved with the child, youth or family within 12 months of the death (see Appendix A for more information).

Stemming from the process outlined in the Directive, there are three distinct information sets that are relevant to Societies, the government and the public, resulting from:

1. The death investigation by the coroner;
2. Children’s aid society / Indigenous child wellbeing society reporting related to these deaths; and
3. PDRC - Child Welfare reviews completed in certain circumstances.

This annual report presents an analysis of this information, to support data driven public safety, by:

- Comparing paediatric deaths with Society involvement to paediatric deaths without Society involvement;
- Conducting an analysis of data about paediatric deaths where there has been Society involvement; and
- Providing recommendations in an effort to prevent further deaths.

Prior to 2014, the PDRC – Child Welfare’s annual report focused on an analysis of PDRC case reviews. More can be learned from considering all paediatric deaths with Society involvement, using the information provided by Societies in relation to those deaths. For this reason, this year’s annual report follows the same approach as the reports published after 2014.

The PDRC – Child Welfare and the OCC believe that this data is valuable to provide a better understanding of paediatric deaths with society involvement in Ontario. The OCC continues to receive feedback from many parties about the value of the approach and the utility of the information. It is hoped that by continuing to provide the additional analysis this will assist Societies, policy makers, researchers and the public to identify relevant areas to develop strategies and policies to help prevent further deaths.

Use of data by the PDRC – Child Welfare

There are a number of challenges with the data available for analysis that merit consideration when reading this report, including:

- The data is primarily collected by coroners from across the province. Limits in standardization and non-confirmation of data accuracy may affect the analysis. The OCC has been piloting a new data capture

system since 2018 that is expected to significantly improve the quality and completeness of the OCC's data with implementation anticipated in 2020-2021.

- The lack of comparator data from other sources. Data from different sources is collected with varying sets of parameters, depending on the needs of the organization. Some of the data required for effective comparison is unavailable. Other data sets are incomplete or are measured in ways that do not align with the data that the OCC and the PDRC collect.
- There are varying interpretations of the Joint Directive on Child Death Reporting and Review. We are not proceeding with clarification of the Joint Directive at this time, pending the implementation of the new Child and Youth Death Review and Analysis (CYDRA) model of child death review, to avoid potential duplication of efforts.

In August 2016 a standardized, PDF fillable Child Fatality Case Summary Report was implemented. This has significantly enhanced the consistency in the data collected from Societies. As implementation took place part way through the year, there continues to be some variability in the data collected.

Where an analysis of the six available years of data, 2013 – 2018, was feasible, the results have been included in the report. The data analyzed to-date suggests that there is sufficient variability within the data year-over-year to merit the ongoing examination of the data prior to drawing any conclusions. As time passes and larger data sets are developed the ability to identify trends or draw conclusions from the data will improve. At this time, the significance of some available data is unknown.

PDRC – Child Welfare's Approach to Statistical Analysis

As in previous years, statistical analysis was completed to determine how “close” observed rates of paediatric deaths are to that expected in the context of one of two standard populations – paediatric coroner's investigations, or child deaths in Ontario.

In some cases, no statistical analysis could be completed because of limitations arising from the nature of the data, the size of the populations, or challenges with data as discussed above.

In this section of the annual report, basic statistical analyses have been utilized to support the presentation of available data.

Looking forward: Data-Driven Death Review

Since 2014, the OCC has been working with the Ministry of Children, Community and Social Services (MCCSS) and the Office of the Ontario Child Advocate (OCA) to develop a “best-in-class” model of child and youth death review that will be data-driven, evidence informed and grounded in collaborative partnerships. This will maximize the potential for affecting public health analysis, policy development, research and prevention

strategies in the province of Ontario. All three parties have provided funding to support a Child and Youth Death Review and Analysis Project Team that have been working to pilot a new model of child and youth death review since 2018. To date, the framework for a new model has been developed and pilot projects are expected to be completed by September 2020.

Ultimately, the objective of a new model is to improve the health, safety and well-being of Ontario's children and youth and reduce the child mortality rate in Ontario. We recognize that the factors that influence the circumstances of a person's death are not isolated to the immediate time surrounding their death; they have intersected with various systems throughout the course of their life, and those systems may have influenced the circumstances of their death. Consequently, to be maximally effective, a new model of child and youth death review and analysis requires integrated data regarding the circumstances of a person's death *and* their intersections with systems over their life course. This is key to determining the right areas for targeting further analysis, prevention strategies and areas where research could be of benefit.

To achieve this vision, the new model will leverage data (existing and/or new) to undertake surveillance and identify trends and themes that may point to broader systemic issues – and therefore, target the “right” areas for further analysis to promote and advance death prevention. The OCC is actively working with a number of key governmental partners on the design and methods for collecting and analyzing data for the Data Integration Pilot to inform the next steps for implementing Ontario's new model of child and youth death review. Full implementation of the new model is anticipated following the pilot's evaluation in January 2021.

2018 Paediatric Deaths with Society Involvement Compared to Other Paediatric Deaths in Ontario

In 2018, there were 1,092 deaths of children and youth aged 0 – 18 inclusive in Ontario, of which 455 (42%) of these deaths met the criteria for a coroner's investigation. Of the paediatric deaths investigated by a coroner in 2018, 119 (26%) of them were reported to the Paediatric Death Review Committee – Child Welfare (PDRC-CW) as a result of Society involvement with the child, youth or family within 12 months prior to the death. This is consistent with the proportion of deaths investigated in the past in this age group.

In addition to the 119 deaths reported by a society in 2018, societies also reported the deaths of seven youth outside of the typical age range of the paediatric group (aged 19 – 21). As these seven youth were receiving Continued Care and Support for Youth (CCSY) supports from a society at the time of their death, they were included in this analysis (total age 0-21 with Society involvement = 126). There were seven additional deaths of children and youth that were reported to the PDRC for the year 2018 but were excluded from this analysis as they did not meet the criteria for required reporting to the OCC. Two of these children did not have involvement with the society prior to their death and five of these deaths occurred outside of Ontario. Societies are not typically required to report deaths that occurred outside of Ontario to the PDRC as the OCC does not investigate deaths that occurred outside its jurisdiction. In total, 126 deaths were reviewed by the PDRC for the year 2018, 119 age 0-18 and seven age 19-21.

It should be noted that MCCSS does not collect data on the number of children and youth that receive services in the community from a Society. Instead, the number of families served by Societies is reported, so it is not

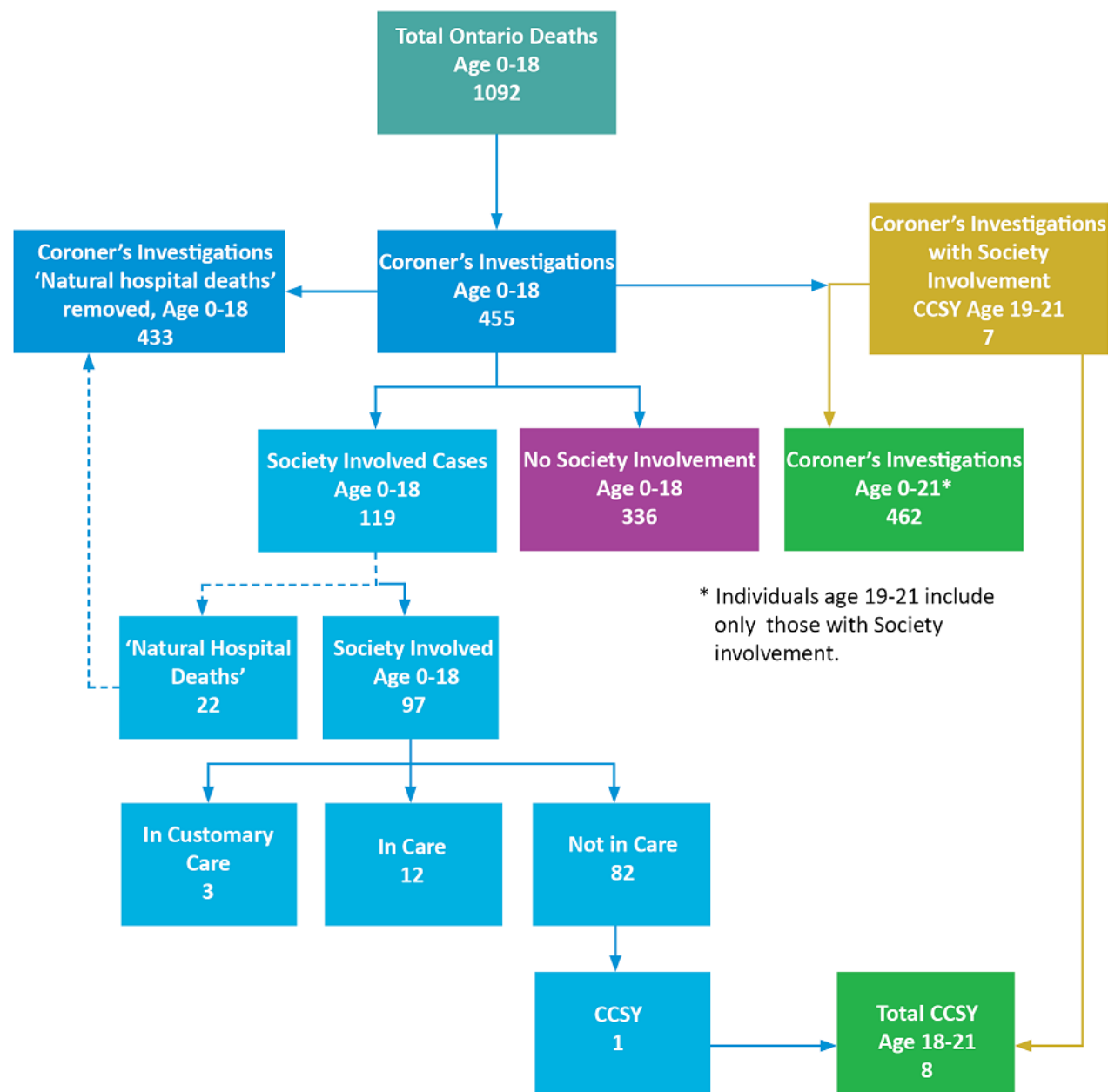
possible to determine whether the rate of paediatric deaths in Ontario is the same as, or different from, the rate of paediatric deaths in the population of children and youth served by Societies.

PDRC – Child Welfare Analysis: Understanding the role of Natural Deaths with Child Welfare Involvement and Deaths Still Under Investigation

By policy, coroners in Ontario investigate all paediatric deaths of children and youth between the ages of 0 to 18 that occur where a Society has been involved with the child, youth or family within 12 months of the death. Consequently, some paediatric deaths that would not ordinarily meet the criteria for a coroner's investigation are investigated solely because of the involvement of a Society. These deaths include natural deaths that occurred in a hospital/hospice or that were expected to occur, which under normal circumstances would not likely be investigated by a coroner. In 2018, 22 paediatric deaths fell into this category. These 22 deaths have been excluded from some of the analyses undertaken in this report to allow for the comparison of deaths with Society involvement against the cohort of paediatric coroners' investigations (which does not include natural deaths free of care related concerns). It should also be noted that a Society was involved within 12 months prior to the deaths in all the paediatric deaths that have been excluded from the analyses.

Therefore, 433 (455 deaths – 22 natural deaths = 433 deaths) is the number used in analyses of total paediatric deaths investigated by a coroner and 97 is the number used in analyses of paediatric deaths with Society involvement (119 deaths – 22 natural deaths = 97 deaths) for the year 2018. This is consistent with the approach taken in previous years. Figure 1 represents the deaths of children and youth in Ontario in 2018 that were subject to a coroner's investigation.

Figure 1: 2018 Paediatric Deaths and Coroner’s Investigations in Ontario



Coroner's Cases with Society Involvement Compared with Coroner's Cases without Society Involvement – Gender and Age

In 2018, the proportion of female decedents between the ages of 0-18 with and without Society involvement was 43% (n=196) which a binomial test indicated was lower than the expected 50%, $p<0.001$. This is consistent with what has been observed in previous years.

Charts 13 demonstrates the proportion of coroner investigations with and without Society involvement within the percentage of all paediatric deaths between the ages of 0-18 that occurred across five age groups in Ontario.

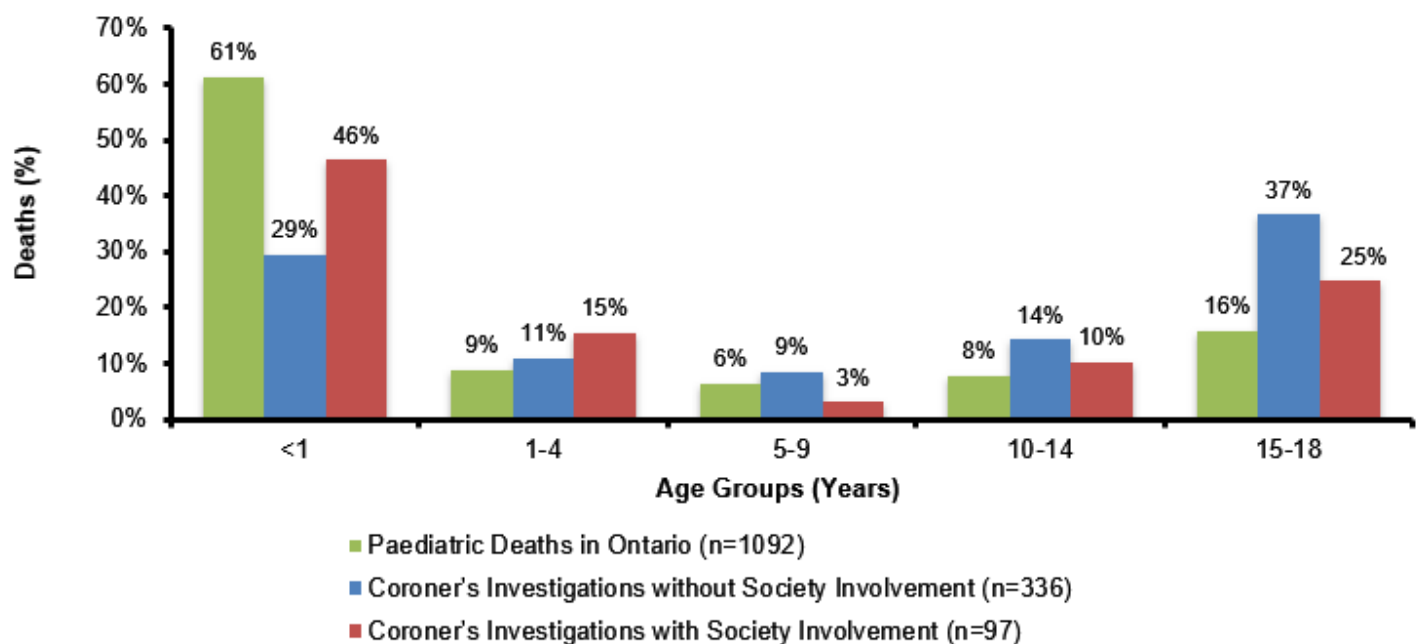
The number of deaths with Society involvement was compared to the number of coroner investigations without such, across age groups to evaluate if the Society involved population was the comparable to the population of paediatric deaths that are the subject of a coroner's investigation without Society involvement.

The 2018 data, within the context of limitations noted earlier, demonstrated a significant association between individuals under the age of one who had Society involvement within a year of their death, which is similar to previous years (Chi-square test was performed $\chi^2(4, n=433) = 14.861, p = 0.005$. Relationship between the age group of <1 year with Society involvement was significant, where residual for this age group was greater than 2, (2.24)).

The proportion of deaths across age groups was similar from each year, from 2013-2017.

Chart 13 compares the proportion of coroner investigations with and without Society involvement within the percentage of all paediatric deaths of children and youth between the ages of 0-18 in Ontario across five age groups in 2018. The data demonstrates that of the coroners' investigations, there was a significant difference from the expected number of deaths for those under the age of one who had involvement with a Society within a year of their death compared to those with no Society involvement. There was no significant difference in other age groups.

Chart 13: Proportion of Deaths across Age Groups in 2018



The regional distribution of Ontario's paediatric population and paediatric deaths correlate (see Chart 14); however, analysis of the available data shows that there is a significant difference across the four regions of Ontario, between the proportion of paediatric deaths in Ontario and the proportion of Coroner's investigations in Ontario with Society Involvement. Specifically, there was a negative association between Society involvement and those who died in Central Region (Chi-square test was performed. Relation between the variables was significant, $\chi^2(3, n=433 \text{ in } 2018) = 13.589, p < 0.0035$. Negative relationship between the Central Region and Society involvement was significant, where absolute residual was greater than 2, (-2.34)).

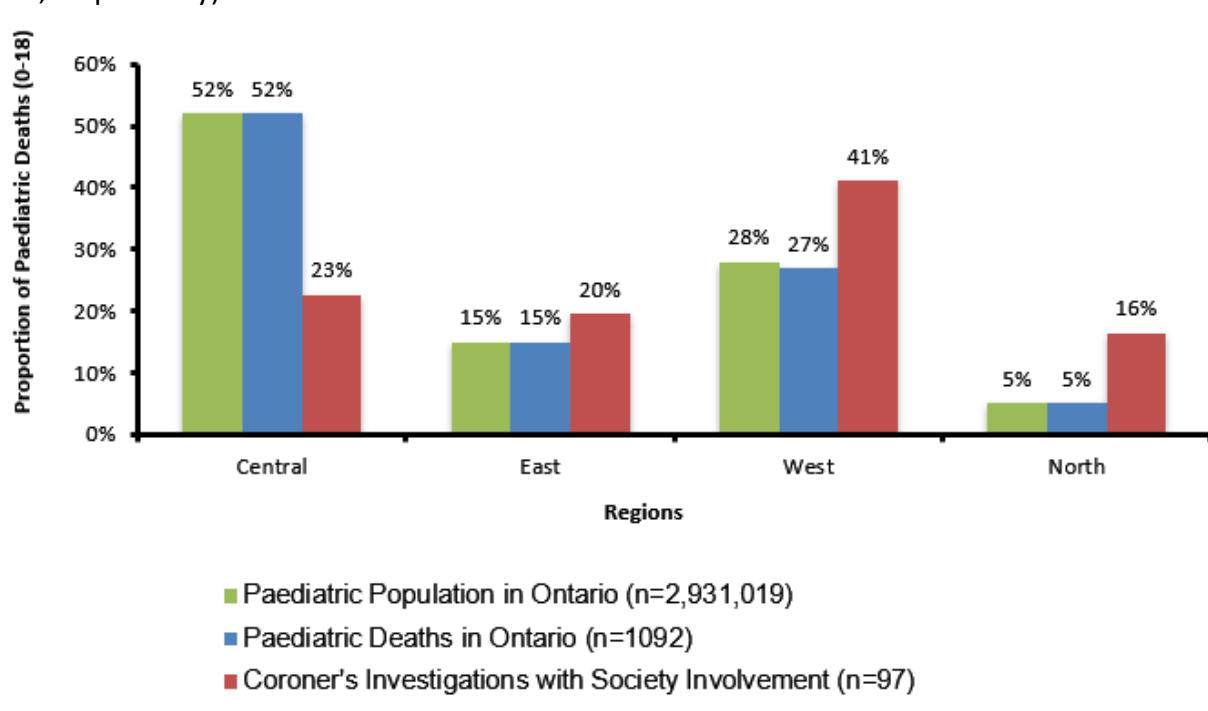
As in previous years, fewer deaths with Society involvement appear to occur in the Central region when compared to the overall number of child deaths in Ontario and the data continue to suggest that more deaths with Society involvement occur in the North when compared to the overall number of child deaths in Ontario. While it is still elevated, there was a slight decrease in 2018 compared with previous years and there has been an increase in the proportion of deaths with Society involvement in the East and West Regions. In 2018, five percent of paediatric deaths in Ontario occurred in the North overall, with 15% of all Ontario paediatric deaths with Society involvement occurring in that region. Similarly, in the West Region, while 27% of paediatric deaths in Ontario occurred in the West Region, 39% of all Ontario paediatric deaths with Society involvement occurred in that region.

As noted in previous annual reports, there are a number of potential reasons that may be associated with the apparent overrepresentation of child and youth deaths with Society involvement in the North, including but not limited to: lower health status, challenges to accessing healthcare services and higher mortality rates that increase with remote place of residence (The Northern and Rural Healthcare Panel (2011, March 30). [Rural and Northern Healthcare Report Executive Summary](#)).

In 2018, available data indicated that 61% of the deaths with Society involvement that occurred in the North region were Indigenous children and youth. This is lower than what was observed in the previous two years and closer to what was observed in 2014 and 2015.

Chart 14: Proportions of Paediatric Population in Ontario, Paediatric Deaths in Ontario, and Coroner's Investigations in Ontario with Society Involvement, 2018, by Region

Chart 14 illustrates that the percentage of paediatric deaths occurring in each region of the province is generally the same as the percentage of children and youth across Ontario, by region. More deaths with Society involvement occurred in the North (16%) and the West (41%), when compared to the number of paediatric deaths that occurred in that region as a proportion of total paediatric deaths in Ontario (5% and 27%, respectively).



* The Office of the Chief Coroner Central Region boundaries include Toronto.

Manner of Death – Coroner's Cases with Society Involvement Compared with Coroner's Cases without Society Involvement

The manner of death indicates how children and youth in Ontario die. If the well-being, living environments and circumstances of children and youth across Ontario, aged 0 - 18, with or without Society involvement, were equal, it would be expected that the number of paediatric deaths occurring from a given manner of death would be the same in each category.

It is recognized that vulnerable children and youth have a greater likelihood of receiving services from Societies. The manner of death may provide valuable insight into the impact of services provided but should not be used as an indicator of the effectiveness of service in isolation of many other indicators because Societies provide services in the broader context of a number of variables and are generally not the only service providers engaged with this population of children and youth.

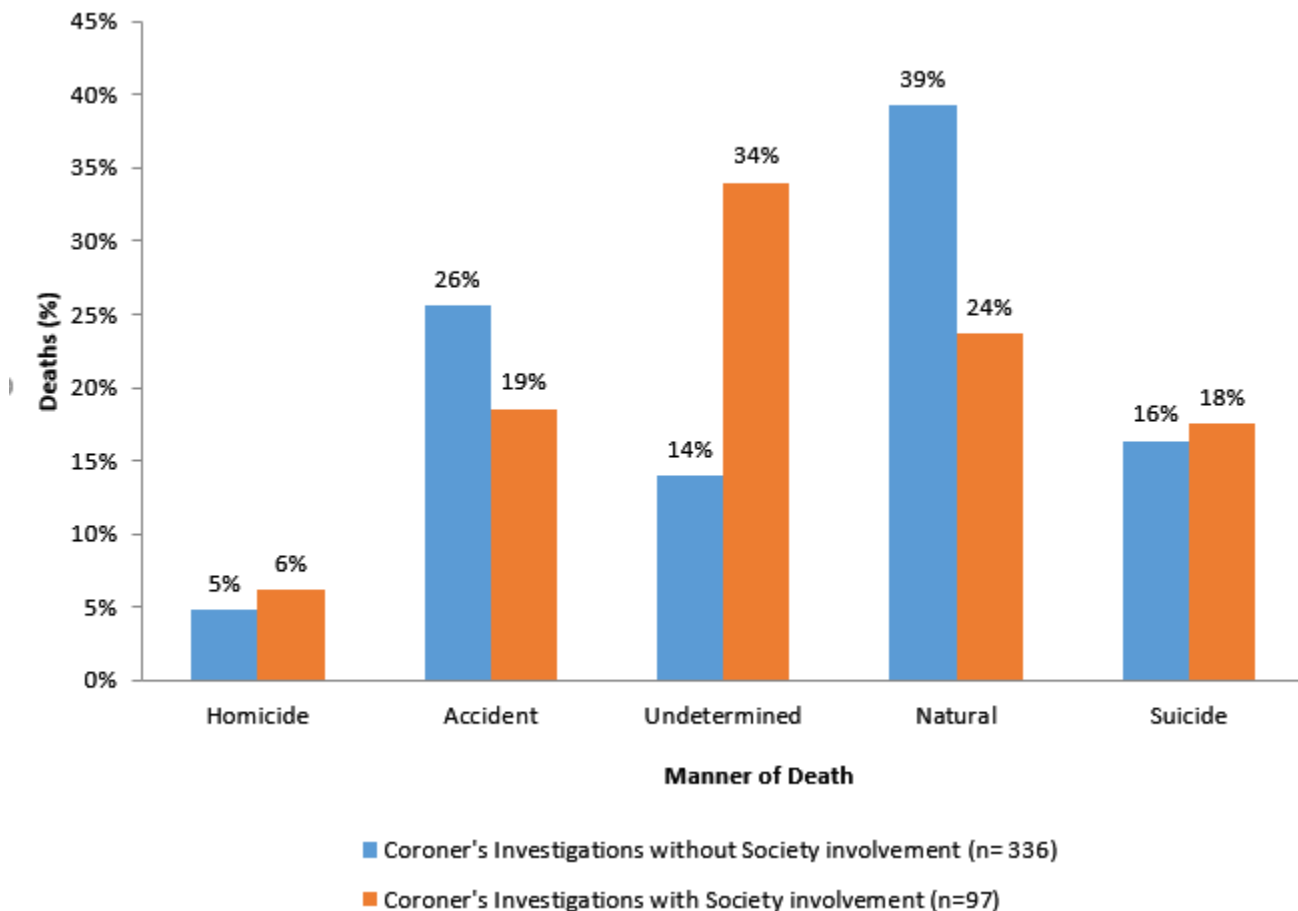
A significant difference was noted between the number of deaths with Society involvement compared to the number of deaths investigated by a coroner without Society involvement, by manner of death (A Fisher's Exact test was performed. Relationship between the variables was significant: $p = 0.0005$).

Chart 15 illustrates that in 2018, undetermined deaths appear to be more prevalent where a Society was involved with the child, youth or their family prior to the death, while accidents and natural deaths appear to be less prevalent, which is consistent with the previous two years. In 2018, homicides were equivalent amongst those with and without Society involvement which is consistent with the two years prior. Considering the overall sample size, no significance can be determined within each manner of death and the relationship to Society involvement.

When viewed as a six-year cohort of data, significant differences were present for all manners of death with the exception of suicide which was fairly evenly distributed. As in previous years, it was found that there was a positive association for children and youth with Society involvement who died as a result of homicide or of undetermined manner, while a negative association was found for children and youth with Society involvement who died as a result of accidents or of natural causes. (n=2331 coroner investigations, omitting natural hospital deaths). *Note: Chi-square test was performed. Relation between the variables was significant, $\chi^2 (4, n=2331) = 122.81, p < 0.00005$. Relationship between Homicide and Society involvement, and Undetermined manner of death and Society involvement was significant, where the residual was >2 , (2.64 and 7.8, respectively). Negative relationship between Accidents and Society involvement, and Natural deaths and Society involvement was significant, where absolute residual was greater than 2, (-2.9 and -4.30, respectively). Relationship between Natural manner of death and no Society involvement was significant, where residual was >2 (2.31). Negative relationship between no Society involvement and undetermined manner of deaths was significant with an absolute residual >2 (-4.15).*

Chart 15: Manner of Death of Coroners Investigations with or without Society Involvement in 2018 (n=433)

Chart 15 illustrates that in 2018, undetermined deaths were more prevalent where a Society was involved with the child, youth or their family prior to the death at 34%, while accidents and natural deaths appear to have been less prevalent respectively (19%, and 23%). Homicides and suicides were found to be equivalent amongst those with and without Society involvement. This chart includes data for all paediatric deaths, age 0-18 with the exception of natural deaths with Society involvement that would not have been investigated otherwise.

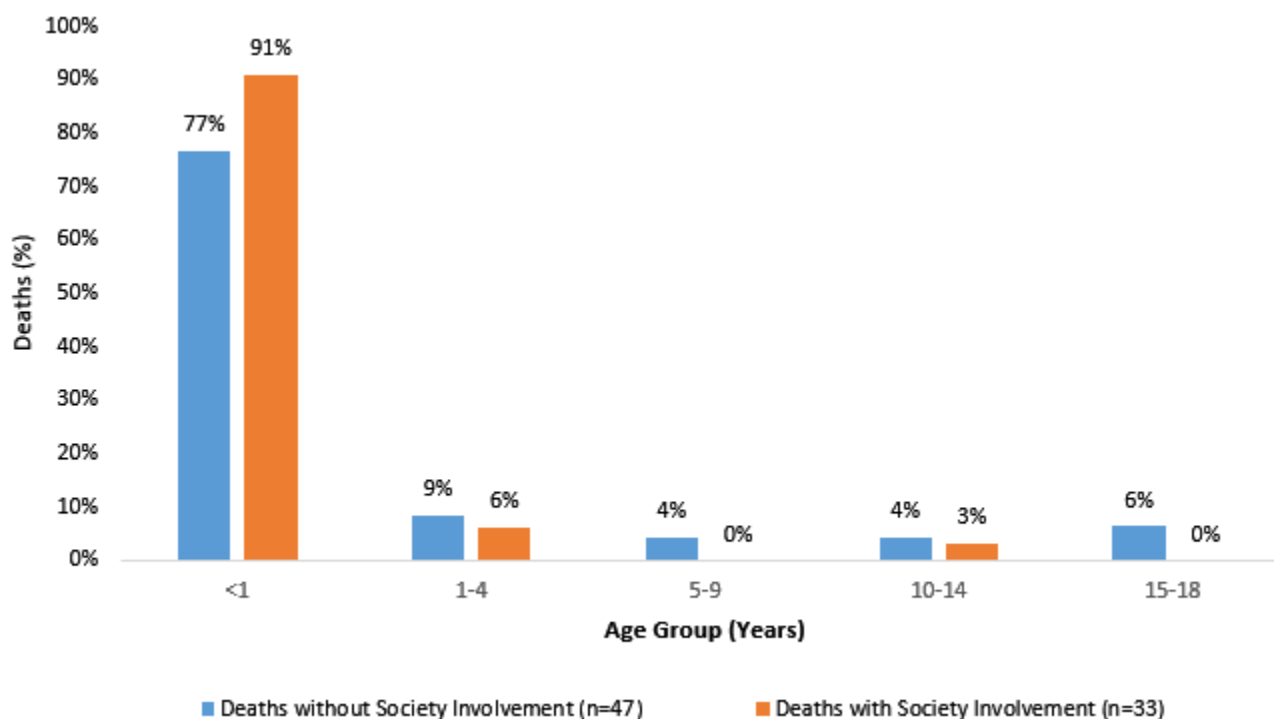


What do we know about deaths where the manner of death is undetermined?

When a complete investigation, including an autopsy, review of the clinical history and evaluation of the scene, does not allow for identification of a specific manner of death, or there are competing manners of death, the death will be classified as undetermined. Most paediatric deaths that are classified as undetermined occur in children under one year of age, with a smaller proportion occurring in children aged one to five and even fewer in the older age groups.

Chart 16: Paediatric Deaths Classified as Undetermined – with or without Society Involvement in 2018 (n=80)

Chart 16 illustrates the number of undetermined deaths by age group, with and without Society involvement prior to the death in 2018. Most paediatric deaths that are classified as undetermined occur in children under one year of age, with a smaller proportion occurring in children in older age groups.



Presence of Sleep Associated Circumstance as a Potential Contributing Factor in Undetermined Deaths

In 2018, sleep circumstances were identified in 48% (38) of the 80 paediatric deaths where the manner of death was classified as undetermined. Of the paediatric deaths where sleep circumstances were identified as a factor, 47% (n=18) of these children or their families received services from a Society within 12 months of their death.

While the data demonstrates a statistically significant difference in the number of deaths of children with and without Society involvement where the manner was undetermined, when considering only those cases where sleep circumstances were identified as potential contributing factors to the death there was no significant difference between Society involved and non-Society involved populations (a Fisher's exact test was performed. The relation between the variables was not significant, $p = 0.187$). This is consistent with the findings of previous years. Analysis of a six-year cohort did not identify a statistically significant difference (a Fisher's exact test was performed. The relation between the variables was not significant, $p = 0.121$). The number of deaths of children with Society involvement where sleep circumstances were identified as a potential contributing factor has been decreasing since this type of data analysis began in 2014, although in 2018 there was a slight rise in these cases.

As noted in previous annual reports, many variables require consideration when interpreting this finding. First and foremost, the small sample size must be considered. In addition, Societies are not the only organizations promoting safe sleep in communities. The independent impact of Society practice on the number of paediatric deaths occurring in unsafe sleep environments is unknown; however, the continued absence of a significant difference between Society involved deaths and those without Society involvement may suggest that the practices of Societies have potentially contributed to the overall prevention of paediatric deaths where sleep environment may be factor.

2018 Deaths with Society Involvement – Status of Children and Youth

Consistent with findings in previous years, 84% (106/126) of the children and youth that died in 2018, where a Society was involved with the child, youth or family within 12 months of the death, were not in the care of a Society at the time of their death. This includes seven youth (aged 19-21) that were receiving Continued Care and Support for Youth (CCSY) from a Society, which a youth in care may be eligible to receive when their care and/or custody order expires upon their 18th birthday, as well as those who died of natural causes whose deaths would not have been investigated if they were not receiving services from a Society. Excluding those who died from natural causes that would not have otherwise been investigated as well as those over the age of 18, 85% (82/97) were not in care at the time of their death. Of the 15% (15/97) of these children and youth that were in the care of a Society, three were in customary care, four were in extended Society care, five were in temporary Society care, one was subject to a temporary care agreement, one had a voluntary youth services agreement and one was in residential care for medical reasons.

What does the available data tell us?

Information provided by the Societies through Child Fatality Case Summary Reports supports a greater understanding of the circumstances surrounding the deaths of children and youth. In particular, the information helps to illuminate particular risks and vulnerabilities. The information below summarizes information received from the society(ies) involved with the child/youth. There is one cases for which information is pending.

- In 2018, 95 (75%) of cases where a child or youth, including those receiving CCSY that had been receiving services from a Society were open files at the time of death (see Chart 17). This is consistent with previous years.
- 37% of the cases in 2018 were rated as high or very high risk at the time of death (see Chart 18). The Ontario Child Protection Standards released in February 2016 require that when deciding whether more frequent visits are required the worker considers:
 - the risk rating on the risk assessment;
 - the strengths and needs of the family;
 - whether a safety plan is actively being monitored and the child continues to reside in the home; and
 - the vulnerability of the child.” (Standard 7, p.83).
- Requirements of the Standards would suggest that in these cases, the Society would have been engaging with the family with some frequency prior to the death.
- A history of verified abuse and neglect of the child or youth and/or the sibling(s) of the deceased continued to be the most commonly reported vulnerability factor (see Chart 19). 35% of society reports in 2018 regarding the deaths of children and youth indicated that the child or youth had been the subject of verified abuse or neglect, and in 48% of cases reported in 2018 indicated that a sibling of the child or youth had been the subject of verified abuse or neglect. In 28 cases (22%) reported in 2018, both of these vulnerability factors were present.
- Disabilities are the next most commonly reported vulnerability factor (see Chart 19). 22% of the children and youth that died in 2018 had physical disabilities, and 26% in 2018 had mental or emotional disabilities. In 4% of cases in 2018, both of these vulnerability factors were present. Chart 19 provides a comparison of 2016 through 2018 data on vulnerability factors reported by societies.
- Suicide was the manner of death for 17 youth receiving services from a society (ages 0-18) and three of the youth who received CCSY in 2018 (aged 19-21). Of these, three were Indigenous youth. There are three known or suspected vulnerability factors related to suicide reported on the Child Fatality Case Summary Report by societies – child/youth has previously attempted suicide, recently experienced the suicide of a friend or relative, and/or had spoken to someone about suicidal thoughts. For eight of the 20 youth, there was more than one of these vulnerability factors present. In 2018, eight youth had previously attempted suicide, 12 had previously spoken to someone about suicidal thoughts and three had recently experienced the suicide of a friend or relative.

Chart 17: Case Status at the Time of Death – Society Involved Cases in 2018 (n=126)

Chart 17 shows the case status for Society involved cases of children and youth between the ages 0 – 21 that died in 2018, which includes individuals who were receiving Continued Care and Support for Youth at the time of their death. 75% of cases were open at the time of the death, and 25% of cases were closed at the time of the death but had been open in the 12 months preceding the death.

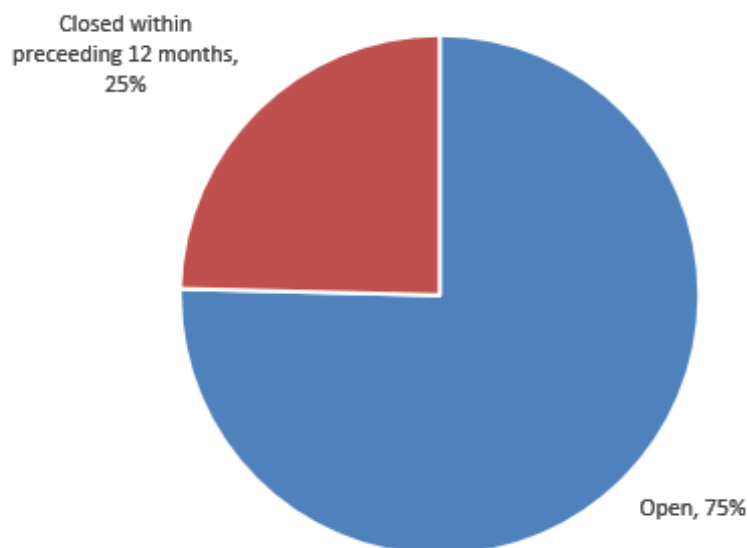


Chart 18: Overall Risk Rating at Time of Death/Case Closure – Society Involved Cases in 2018 (n=126)

Chart 18 illustrates the risk rating reported by the Society at the time of death or case closure for Society involved cases in 2018. 11% of the cases were rated very high risk, 26% of cases were rated as high risk, 27% moderate risk, 6% low risk and 30% were categorized by the reporting Society as “not applicable”.

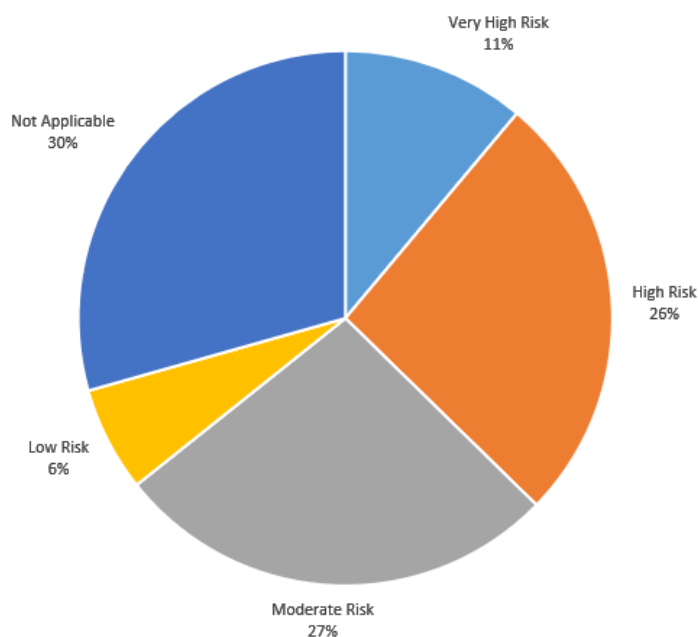
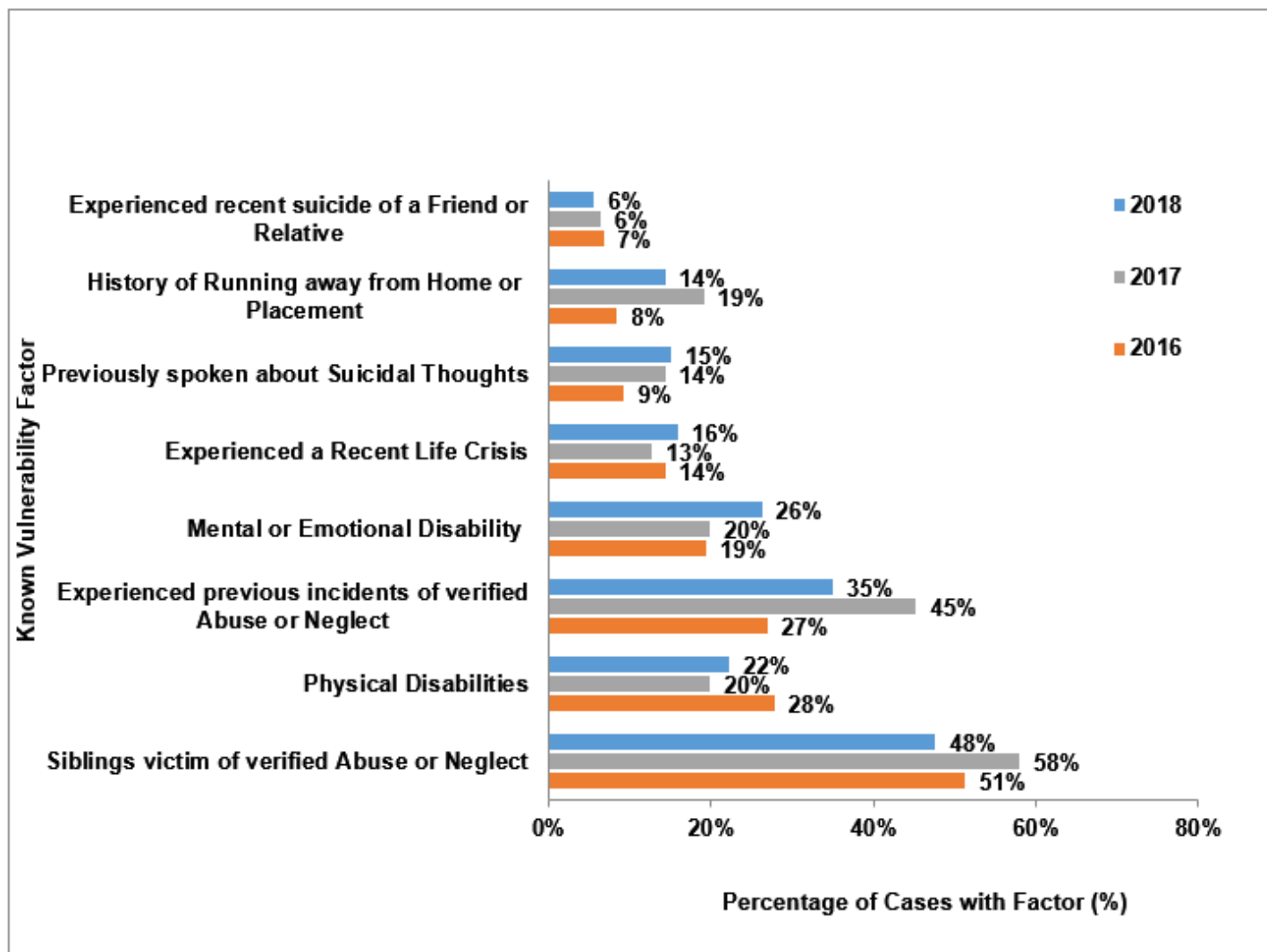


Chart 19: Known Vulnerability Factors – Society Involved Cases 2016-2018

Chart 19 illustrates the proportion of 2016, 2017 and 2018 cases with Society involvement of children and youth aged 0-21 where the Society reported known vulnerability factors. As in previous years, in 2018, verified abuse and neglect of the child or youth that died and/or their sibling were the most commonly reported vulnerability factors. Mental or emotional disabilities were the next most commonly reported vulnerability factor, followed by physical disabilities.



While the information that the Society provides when a child or youth dies is valuable in identifying particular vulnerability factors, there may be other risk factors for children and youth that are not reported through the Joint Directive reporting process. This is because all potential risk factors for children and youth in Ontario are not collected in a standardized way. Furthermore, the factors collected should not be construed as unique to children and youth that have died, or to children and youth that were receiving the services of a Society. It is not known whether the prevalence of identified factors is different in the population of children and youth that have died as compared to the living population of children and youth in Ontario or receiving services from a Society.

Deaths of Indigenous Children and Youth with Society Involvement Investigated by the Office of the Chief Coroner in 2018

The ability to undertake meaningful analysis of the deaths of Indigenous children and youth served by societies is affected by limited data available to the OCC. The coroner may not identify children and youth as Indigenous as they rely on the information available in the course of their investigation (information sources include but are not limited to family members, community service providers and police). This affects the determination of the true number of Indigenous children and youth deaths that were investigated by the OCC in 2018. In addition, the number of deaths of Indigenous children and youth where a Society has been involved is small, preventing meaningful statistical analysis. Furthermore, the data available from other sources has limitations (for example, societies do not report identity or ethnicity).

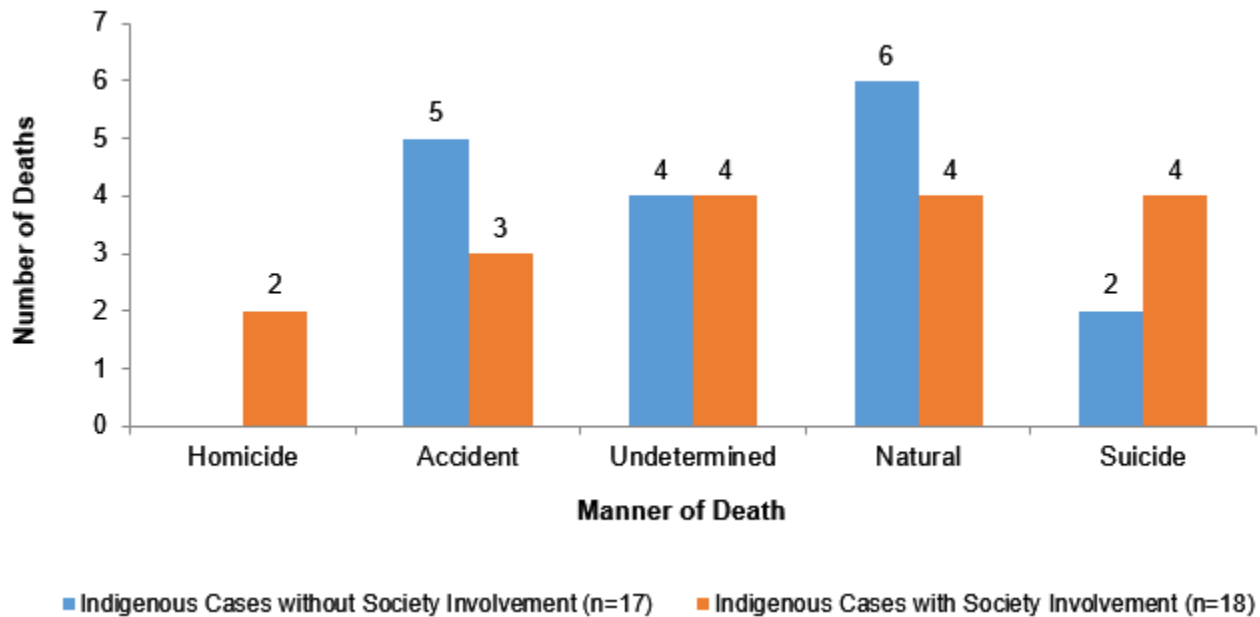
The available data has been provided; however, given the noted limitations, meaningful inferences cannot be made. The OCC and PDRC – Child Welfare anticipate that with the future changes to the child and youth death review model, the quality and availability of data relating to Indigenous children and youth will be enhanced to support analyses that may inform prevention strategies targeted to Indigenous children and youth.

What does the available data tell us?

- Provincially, of the 34 coroner investigations into deaths of confirmed Indigenous children and youth age 0-18, 17 (50%) received the services of a Society within the 12 months prior to their death in 2018. This excludes one individual who died of natural causes, whose death would not have been investigated if there was no Society involvement and one Indigenous individual in the 19-21 age group who had Society involvement.
- Of the 17 Indigenous children and youth that had received the services of a Society within the 12 months prior to their death in 2018, 12 were involved with Indigenous child wellbeing societies, all of whom were 0-18 years of age at the time of their death. The other 5 were involved with non-Indigenous children's aid societies. Indigenous children and youth are served by Indigenous child wellbeing societies when they reside in an area of Ontario in which a designated organization has jurisdiction.
- In 2018, there was a decrease in the number of deaths of identified Indigenous children and youth as well as the proportion of investigations of children and youth who were Indigenous in the North Region, where they or their family had Society involvement within 12 months prior to their death. In 2018, 11 (61%) of the 18 deaths in North Region where the Society had been involved with the child, youth or their family within 12 months of the death were identified as Indigenous children and youth. In 2018, one of the seven coroner investigations into the deaths of children and youth in the care of a Society or youth in receipt of Continued Care and Support for Youth (CCSY) involved Indigenous children and youth. The number of deaths of Indigenous children and youth that had involvement with a Society is too small to allow analysis of the manner of death. Chart 20 provides available information on the manner of death of the 35 Indigenous children and youth who died in 2018 (age 0-21). The distribution of the manner of death of Indigenous children and youth varies year-over-year and no consistent pattern has been identified.

Chart 20: Manner of Death among Indigenous Children and Youth in 2018, by Society Involvement, Age 0-21* (n=35)

Chart 20 provides available information on the manner of death of the 35 Indigenous children and youth that died in 2018, and compares cases with Society involvement to cases without Society involvement. The manners of death in 2018 were: 2 homicides, 8 accidents, 8 undetermined, 10 natural and 6 suicide. *This data includes children and youth age 0-21, where those in the 19-21 age group were involved with a Society. This data excludes natural deaths that would have not normally been investigated by a coroner if there were no Society involvement.



Children and Youth in the Care of a Society or Receiving Continued Care and Support for Youth (CCSY) at the Time of Death

Chart 21 illustrates that in 2018, 17 children and youth (aged 0-18) were in the care of a Society at the time of their death, three were in customary care and eight youth were receiving CCSY. These 28 children and youth ranged in age from 6 days to 21 years. Note that this chart includes those who died of natural causes where a coroner's investigation would not have taken place if there was no Society involvement.

Chart 21: Age Breakdown of Children and Youth in care of Society or receiving CCSY at the time of death in 2018 (n=28)

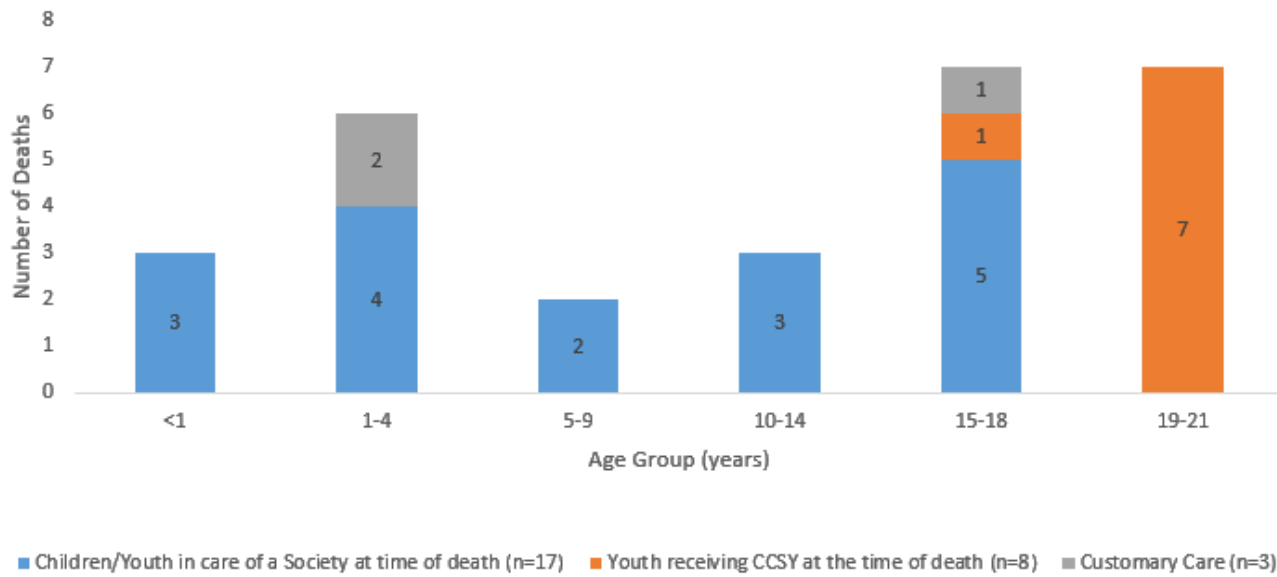
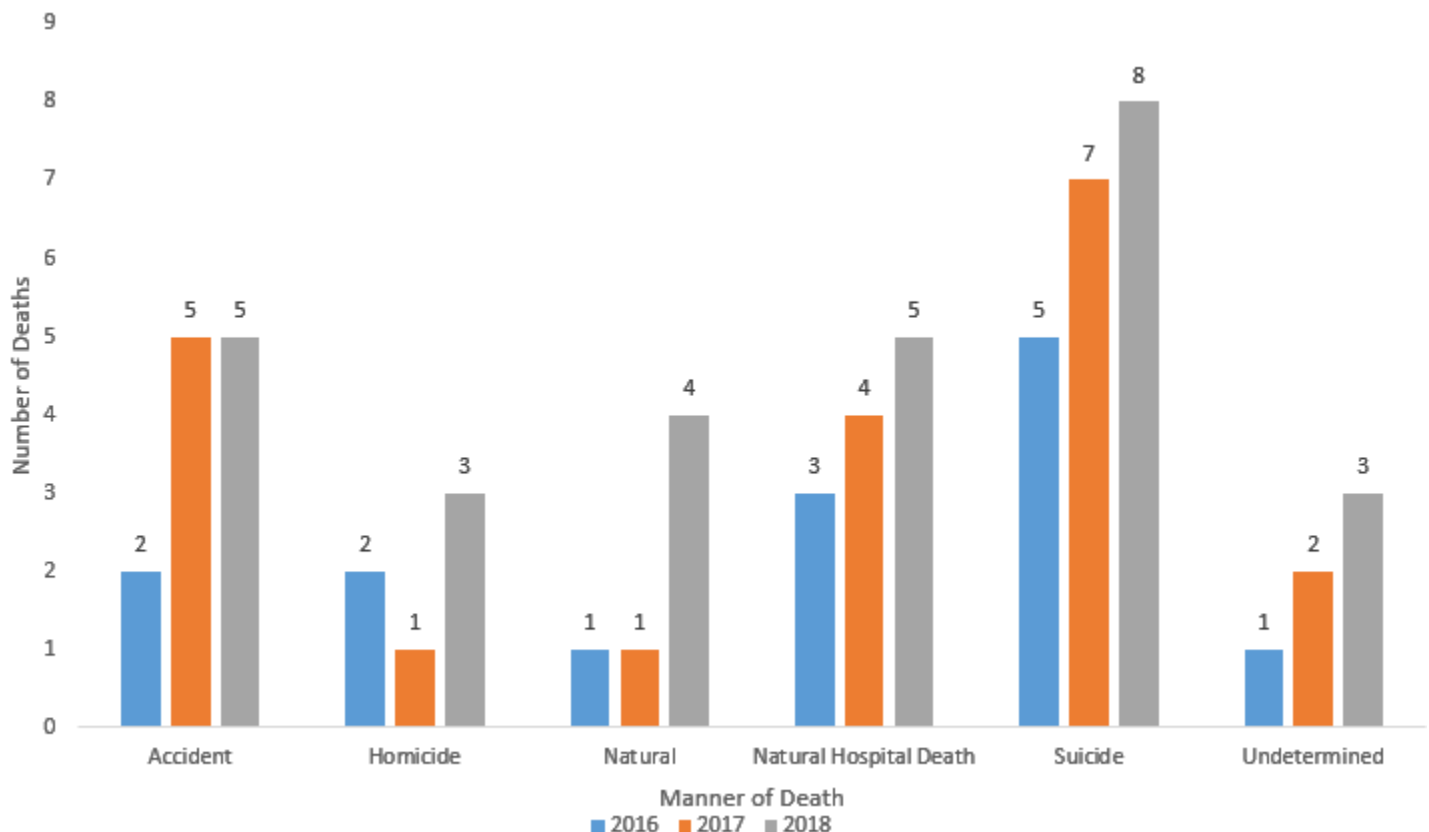


Chart 22: Manner of Death of Children and Youth in the care of a Society or receiving CCSY at the time of death in 2016 – 2018

Chart 22 shows the manners of death of children and youth in care or that were in receipt of CCSY in 2016 through to 2018. This chart includes data for those whose manner of death was natural that would not have been investigated if there was no Society involvement (n=28)



Paediatric Death Review Committee (PDRC) – Child Welfare Reviews of Cases with Society Involvement in 2018

All child deaths are tragic and typically have a number of contributing factors. Occasionally, the actions or inactions by those in a caregiving role (e.g. family members or the child welfare system) may have played a part in the circumstances of the death. The Paediatric Death Review Committee (PDRC) – Child Welfare reviews the circumstances of the death and may make recommendations to the health care sector, child welfare systems and others with a goal to reduce the number of child deaths and/or to improve the services and care provided to children, youth and families. It is anticipated that by examining these cases with a non-blaming approach, we can learn from individual deaths to improve the lives of other children.

Reports Received by the PDRC – Child Welfare in 2018

PDRC – Child Welfare cases reported to the Committee are usually not reviewed within the same calendar year in which death occurs. Committee reviews in any given year will include review of deaths occurring in different years (see Chart 24). This results from a number of factors, including: complexity of the investigation, time allotment for completion of other reviews (for example, DU5C), case volume, and other parallel investigations or proceedings, including involvement of the criminal justice system.

In 2018, as required by the Joint Directive, 126 deaths of children and youth were reported by Societies to the PDRC – Child Welfare, which included 119 children and youth aged 0-18 and seven youth aged 19-21 who were receiving Continued Care and Support Services (CCSY) supports from a society at the time of their death. These cases are at various stages of the PDRC review process.

Chart 23: PDRC Status of 2018 Deaths with Society Involvement

Chart 23 illustrates the status of review for the 126 cases reported to the PDRC – Child Welfare in 2018. 34% of cases did not require a full PDRC review and 49% of cases are pending a decision.

Status	Number of Cases
Closed A PDRC Executive Review has taken place, and no full PDRC review is planned. This occurs when the circumstances surrounding the child's death do not relate in any way to the reasons for services and/or the Society involvement.	43 (34%)
Pending Decision Cases may be pending a decision regarding PDRC review because additional information is required or because there are other pending investigations or criminal justice system involvement	61 (48%)
Full PDRC Review to be Undertaken	14 (11%)

Status	Number of Cases
An internal child death review has been requested from the Society, and the PDRC will undertake a full review of the case.	
Full PDRC Review Completed An internal child death review was requested from the Society, and the PDRC has undertaken a full review of the case.	8 (6%)

Reports Reviewed by the PDRC – Child Welfare in 2018

Following the process outlined in Chart in Appendix A, the PDRC - Child Welfare reviewed the deaths of 17 children and youth who had involvement with a Society within the 12-month period leading up to their deaths in 2018. Fewer cases were reviewed in 2018 than in previous years due, in part to the efforts dedicated to piloting the Data Integration and Local Death Review Table projects as part of the work to operationalize the Child and Youth Death Review and Analysis (CYDRA) model.

Chart 24: Year of death of 2018 PDRC Case Reviews

Chart 24 illustrates the year of death for those cases reviewed by the PDRC – Child Welfare in 2018. The majority, 12 of the 17 cases reviewed in 2018 were of deaths that occurred in 2016 and 2017. The year of death for those cases reviewed in 2018 ranged from 2012 – 2017.

Year of Death	PDRC Cases Reviewed in 2018
2012	2
2013	0
2014	2
2015	1
2016	7
2017	5
2018	0
TOTAL	17

Of the 17 cases reviewed by the PDRC in 2018, 8 were males (47%) and 9 were females (53%).

The age of the children and youth at the time of their death ranged from 35 days to 18 years.

Historically, a greater proportion of reviews completed by the PDRC – Child Welfare involve children under one and adolescents. Chart 25 demonstrates the age categories for the cases reviewed. This information illustrates that in 2018, 41% of the PDRC – Child Welfare’s reviews focused upon deaths of children under the age of five, 18% on children and youth age 1-4 and 24% on those ages 15-18 with a smaller percentage on those ages 5-9 (12%) and ages 10-14 (6%).

Chart 25: PDRC – Child Welfare Reviews across Age Groups 2018 (n=17)

Chart 25 demonstrates the age categories for the cases reviewed in 2018. This information illustrates that in 2018, 59% of the cases reviewed at PDRC – Child Welfare focused on the deaths of children and youth under age of 5, 24% on those age 15-18 and 18% on those age 5-14.

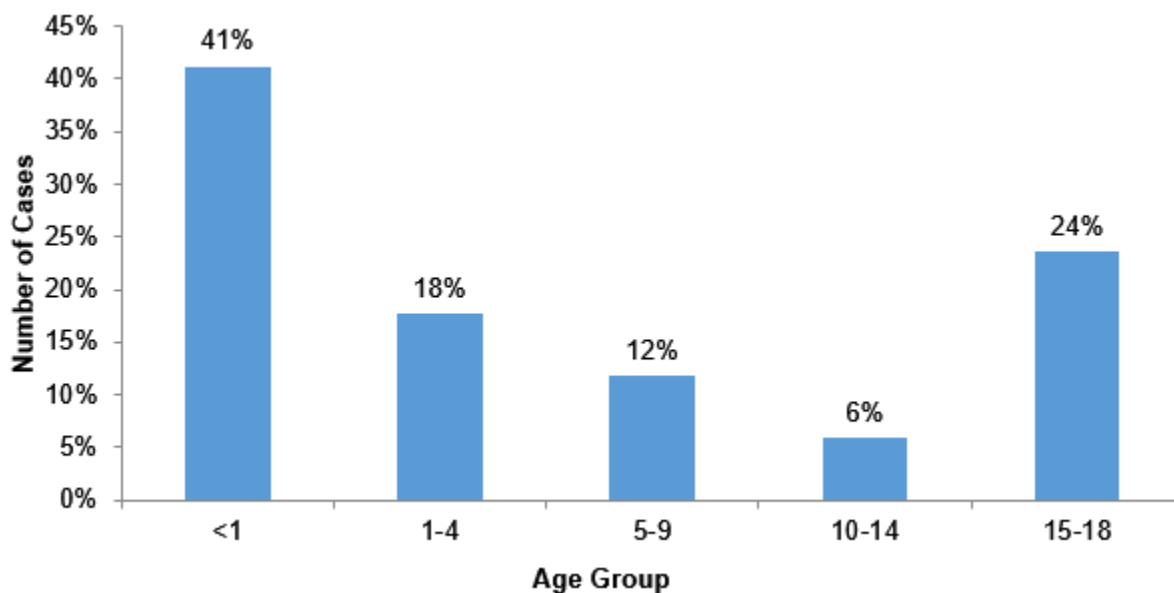
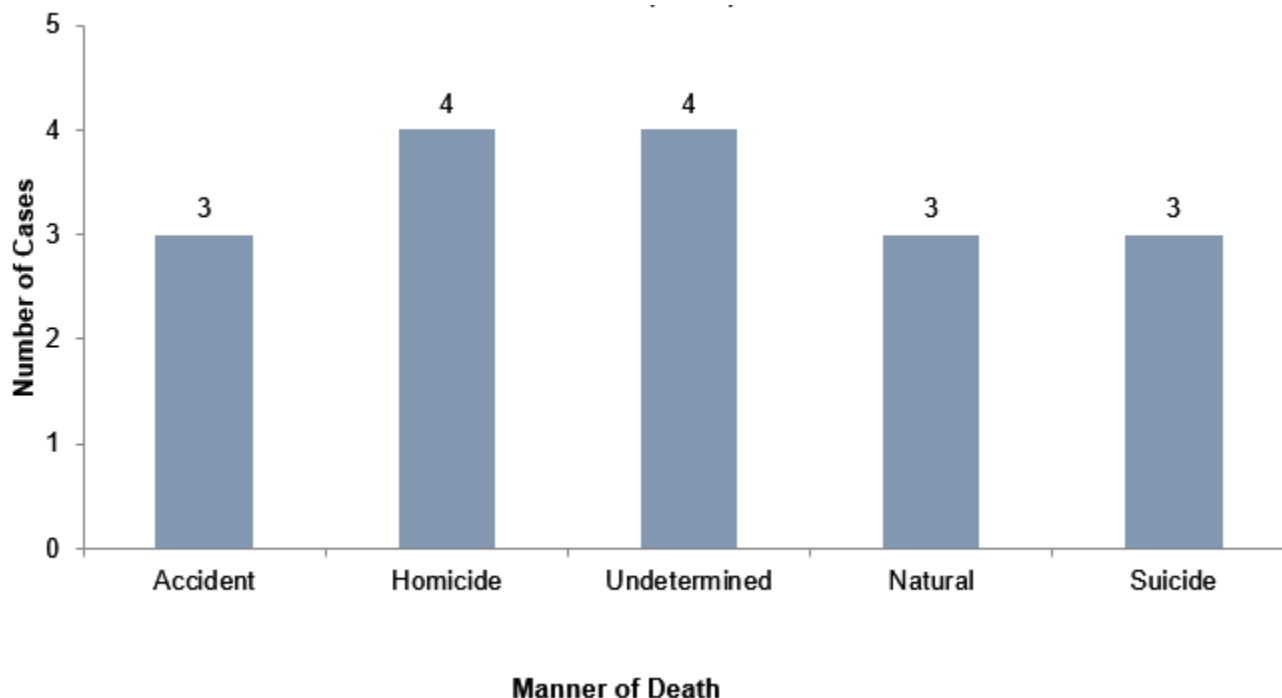


Chart 26: PDRC – Child Welfare Reviews across Manner of Death in 2018 (n=17)

Chart 26 illustrates the manner of death of children and youth whose cases were reviewed by the PDRC – Child Welfare in 2018. In 2018 there were four homicides and four undetermined deaths, three accidents, natural and suicide deaths each.

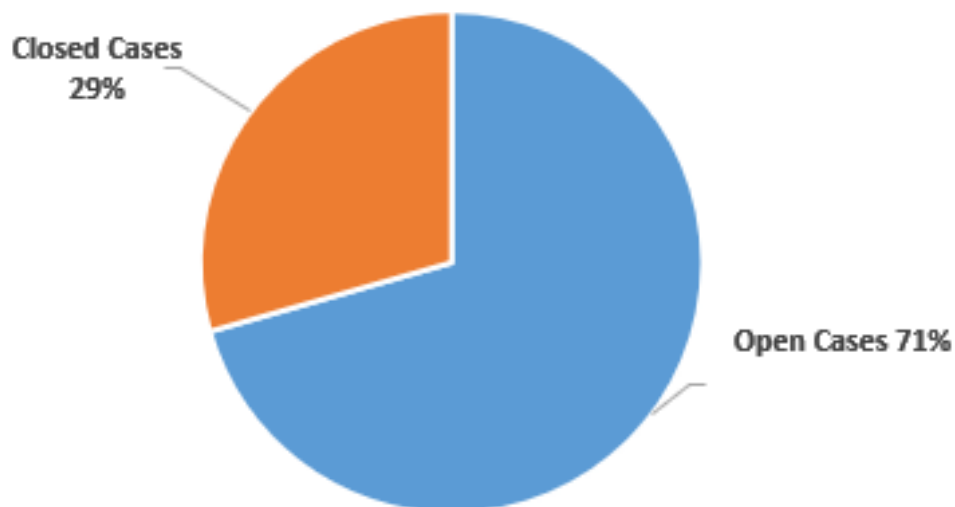


Of the 17 cases reviewed by the PDRC – Child Welfare in 2018, 71% (12) were open to the Society at the time of death (see Chart 27)

Of the 12 cases open to a Society in 2018, a majority of the cases (4) had open protection status at the time of death, three had ongoing protection intervention, two had open investigations, two had no status and one was living independently and receiving Continued Care and Support for Youth (CCSY) services. Of all the opened cases PDRC reviewed in 2018, none were in the care of a society.

Chart 27: PDRC – Child Welfare Reviewed Cases in 2018 Open vs. Closed (n=17)

Charts 27 illustrates that of the 17 cases reviewed by the PDRC – Child Welfare in 2018, 12 (71%) were open to a Society at the time of death, while 29% of cases (5) were closed to a Society at the time of death.



PDRC – Child Welfare Case Reviews in 2018 – Analysis of Factors Identified through Case Reviews

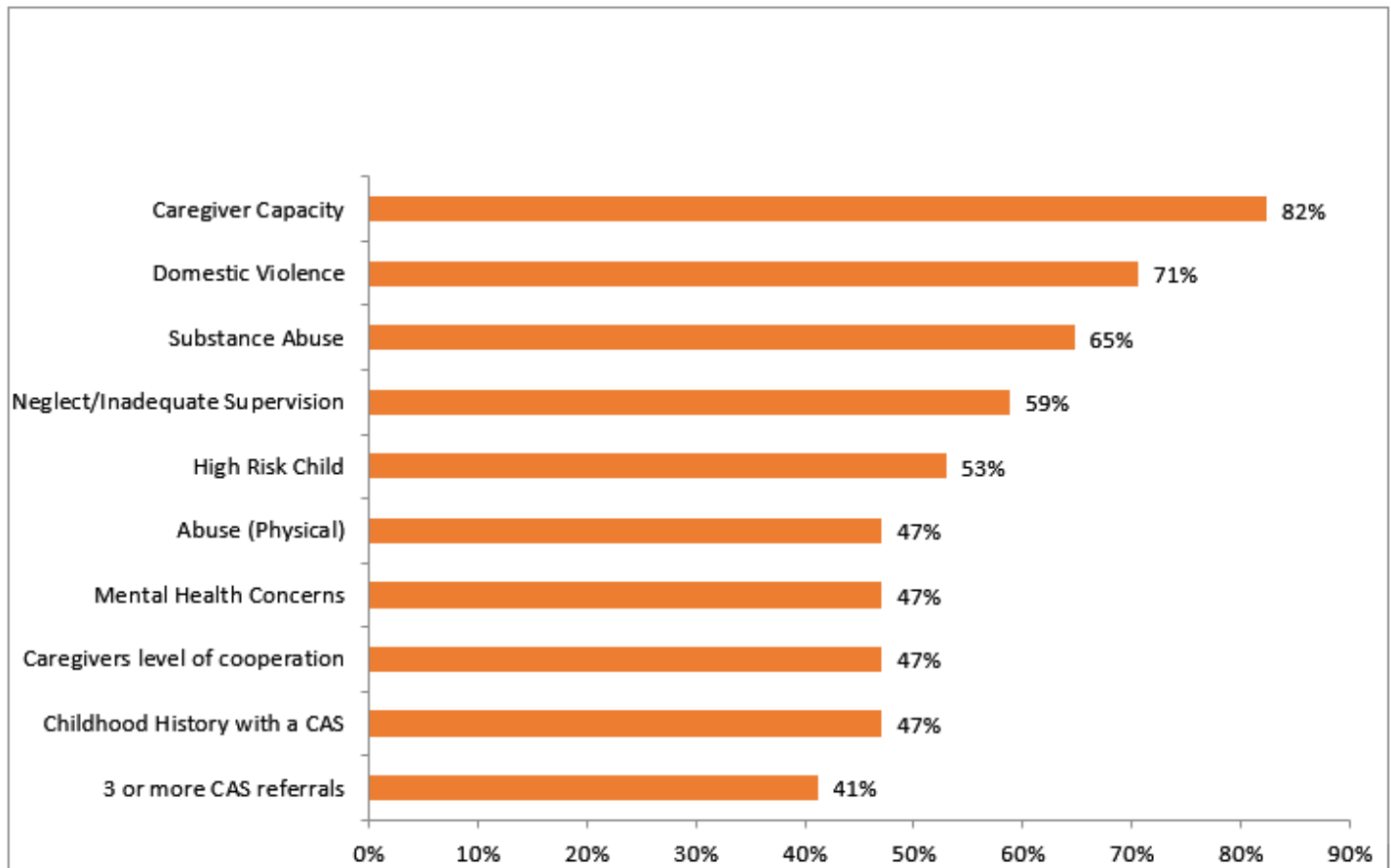
Through case reviews, the PDRC – Child Welfare collects information that, when tracked over time, may identify emerging trends. This knowledge can help contribute to understanding how services may be enhanced to better ensure the safety of children who are involved with the child welfare system. Definitions which describe the criteria for these factors can be found in Appendix B.

In addition to the factors identified by the PDRC – Child Welfare as part of the case review process, Societies report on vulnerability factors associated with the child, youth or their family as part of their submission of the Child Fatality Case Summary Report. These vulnerability factors have similarities to the factors tracked by the PDRC – Child Welfare. Neither the vulnerability factors nor the factors that are tracked through PDRC case review are necessarily predictive of death, however; both sets of data are collected and help evaluate trends over time.

Currently, the OCC is attempting to align the approach to tracking both sets of information for the Child and Youth Death Review and Analysis (CYDRA) Data Integration pilot project.

Chart 28: Top Ten Factors Identified in PDRC- Child Welfare Case Reviews (2018)

Chart 28 illustrates the top risk factors for the cases reviewed by the PDRC in 2018, which were caregiver capacity (82%), domestic violence (71%), substance abuse (65%), neglect and/or inadequate supervision (59%) and involved a high risk subject child (i.e. under the age of 1 and/or had special needs) (53%). 47% of the cases reviewed involved risk factors such as physical abuse, mental health concerns, problems with the caregiver's level of cooperation and/or motivation for intervention and where the parents and/or caregivers had a history of involvement with a society were risk factors.



As in previous years, the findings highlight the prevalence of multiple factors in cases reviewed by the PDRC:

82% (14 out of 17) of the cases reviewed by the PDRC – Child Welfare in 2018 had five or more of the ten most frequently identified factors present. In 18% (3) of cases, all of the five most frequently identified factors were present (i.e. caregiver capacity concern, domestic violence, substance abuse, neglect and/or inadequate supervision and involved a high risk subject child (i.e. under the age of 1 and/or had special needs). One case (6%) in 2018 had all ten of the most frequently identified factors present; and in 8 cases (47%), eight of the most frequently identified factors were present.

The prevalence of these factors in cases reviewed by the PDRC – Child Welfare may warrant additional investigation to determine whether or not these factors speak to an increased risk of death.

PDRC – Child Welfare Recommendations

The PDRC – Child Welfare offers recommendations to Societies arising from review of the case materials. The recommendations are aimed at the prevention of further deaths including suggestions for enhancement or change in practice and/or procedures that may inform improvement in service delivery and potentially impact child and youth safety.

In 2018, the PDRC – Child Welfare reviewed fewer cases (17) due in part to the focus on the work to develop and pilot the Child and Youth Death Review and Analysis Project, which contains a data collection and integration component from ministries that provides the services most frequently accessed by young people, and a local death review table mechanism where specific cases are reviewed in the region in which the young person typically received services in. Of the 17 cases reviewed, a total of 12 recommendations were issued from 11 cases and six cases provided no recommendations.

Recommendations to MCCSS and Children's Aid/Indigenous Children's Aid Societies (societies) in 2017

The section below provides some examples of the recommendations made to children's aid/Indigenous children's aid societies (societies) by the PDRC – Child Welfare in 2017. The themes of the recommendations include a focus on mental health service delivery and improving the policies and practices of societies in delivering child protection services.

2017 PDRC – Child Welfare Recommendations and Themes

Mental Health Recommendations:

1. The Society to consider how to establish a priority service approach with the local children's mental health centre to facilitate referral and treatment of high risk youth in need of children's mental health treatment services.
2. The Society work with the community children's mental health services, education, and the Band to establish a strong collaborative approach to strengthen positive family engagement that incorporates the use of case conferences on a regular basis.
3. The Society consider working with the education system and the mental health services to support anti-bullying programs and reduce the negative impact on the children in the community.

Society Policies and Practices Recommendations:

1. The Society should investigate the deaths of children in receipt of agency service where the death is suspicious and may be attributable to abuse or neglect by a caregiver.
 - *Society Response:* Reporting Child Death: The Direct Services Manual to be revised to reflect reporting of Serious Occurrence Reports for child deaths is one hour;

- Investigation of suspicious death: Direct Services Manual to be revised to meet the 11 categories (levels of severity) that are above the intervention line and to ensure required opening on an investigation. The Direct Services Manual to ensure Ontario Child Protection Standards are met.
2. The agency to review its practices with respect to what qualifies as a 'private arrangement' when children are residing with kin and when kinship service standards should be applied.

Implementation Status of 2017 PDRC – Child Welfare Recommendations to Societies

MCCSS monitors the implementation status of the PDRC – Child Welfare recommendations and the actions taken by Societies to respond to specific recommendations. In 2017, MCCSS reported that 100% of the PDRC – Child Welfare's recommendations directed to Societies had the content or intent of the recommendation already in place.

PDRC – Child Welfare Recommendations to Other Organizations in 2017

The PDRC – Child Welfare did not make any recommendations to other organizations in 2017.

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York Regional Police

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Det. Sgt. Peter Trimble
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York Regional Police

Staff Sgt. Rhonda Corsi
York Regional Police

Ms. Brenda Marsillo

Product Safety Officer

Consumer Product Safety, Health Canada

Ms. Mary Ellen Hurman

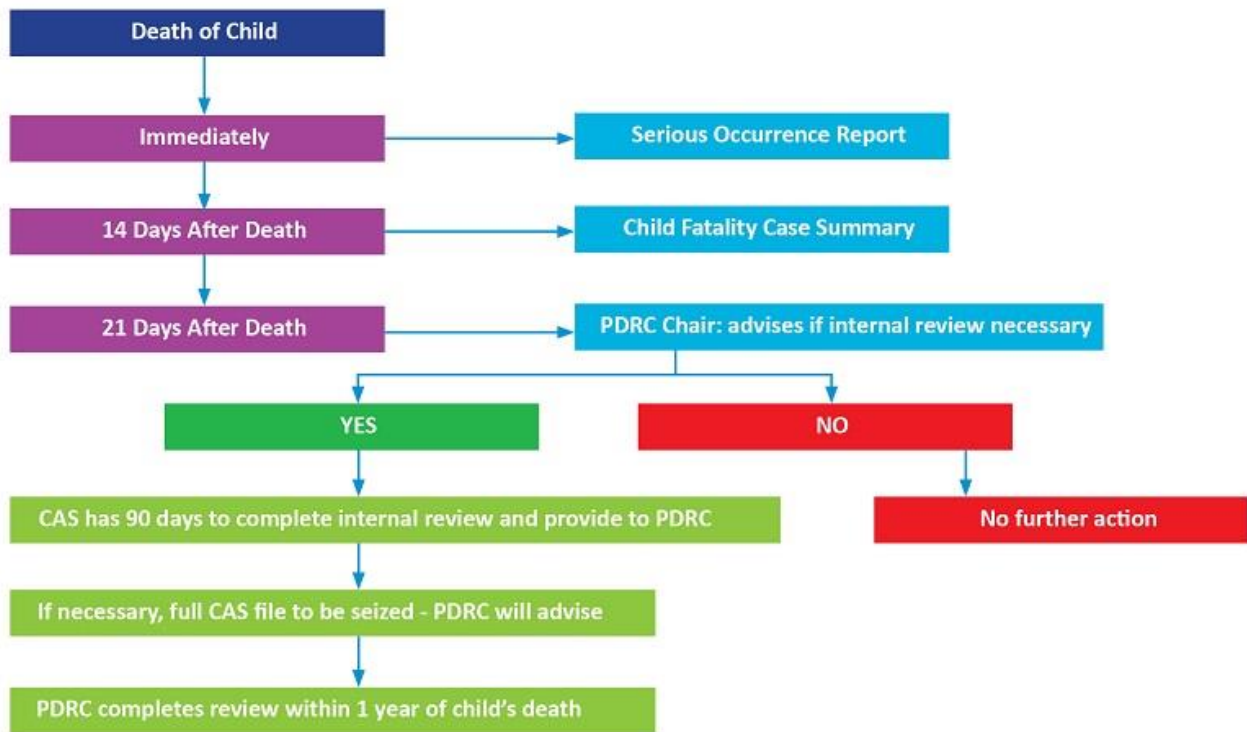
Crown Attorney

Ministry of the Attorney General, Toronto

Appendix A – Joint Directive on Child Death Reporting and Review

Chart 29 shows the process and timelines arising from the 2006 Joint Directive between the OCC and MCYS for Child Death Reporting and Review.

Chart 29: Joint Directive Flow Chart – Office of the Chief Coroner and Ontario Children’s Aid Societies



Society Internal Child Death Reviews

When is an internal child death review requested?

The Chair of the PDRC reviews the Society’s Child Fatality Case Summary Report and the Coroner’s Investigation Statement (CIS) and considers the following criteria when deciding if the Society will be requested to conduct and forward an Internal Review to the PDRC:

- Meets the criteria of the 2006 Joint Directive (Society involvement within 12 months of the death)
- When a child dies as a result of questionable circumstances; and
- Where the circumstances surrounding the child's death may relate in any way to the reasons for service and/or Society involvement.

Why is an internal child death review requested?

An internal child death review is requested by the Chair of the PDRC for the purposes of conducting an analysis of the context within which the death occurred. Internal child death reviews provide an opportunity for individual Societies, and the child welfare sector as a whole, to learn from child deaths with a view to identifying areas of potential improvement to Society policies, practices and procedures.

Who completes the Society internal child death review?

When the Chair of the PDRC requests that a Society undertake an internal child death review, the CAS is required to establish a review team which must include an independent external reviewer with appropriate clinical expertise to participate in the review.

Levels of PDRC – Child Welfare Reviews

There are three levels of PDRC – Child Welfare review:

Executive Review: These cases which upon review by the Executive Committee of the PDRC, it is determined that no further review by the CAS or PDRC – Child Welfare is required, as the circumstances surrounding the child's death do not relate to the reasons for services and/or Society involvement. For example, cases where the child's family had no Society involvement until the injury leading to the death, or the child was known to CAS, but the death was natural and not unexpected, or the child died as the result of an incident unrelated to the reasons for the family's involvement with the Society.

Pending DU5C/further investigation: On occasion, the decision to request an internal child death review from a Society is postponed pending the completion of the Coroner's

investigation and/or review by the DU5C, to await additional information and context regarding the child's death.

Internal and PDRC Review: If the PDRC – Child Welfare requests an internal child death review, Societies are requested to submit their report within 90 days, and the PDRC – Child Welfare has up to 12 months to review the case and issue a report that may contain further recommendations. All cases in which an internal child death review has been completed are reviewed by at least two members of the PDRC – Child Welfare – one police representative and one child welfare representative – review the following case material for each death with Society involvement: the Serious Occurrence Report, Child Fatality Case Summary Report, the Internal Child Death Review, police report, Coroner's Investigation Statement, Report of Post Mortem Examination, toxicology reports (if applicable) and any other investigative reports provided (e.g. report from the Office of the Fire Marshal). After discussion at a committee meeting, a final case report is prepared consisting of a summary of events, discussion and recommendations (if any), with a goal to inform the prevention of future deaths. The report is forwarded to the involved Society, MCYS and the referring Regional Supervising Coroner who may conduct further investigation (if indicated).

Recommendations are also distributed by the Committee Chair to agencies and organizations who may be in a position to effect implementation. Organizations are asked to respond back within one year with the status of implementation of recommendations.

Society Response to PDRC – Child Welfare and Internal Review Recommendations

Following receipt of PDRC – Child Welfare reports, individual societies consider the report and implement recommendations as appropriate. Progress reports are submitted to MCCSS Regional Offices outlining agency responses to the recommendations addressed to them. Ministry Regional Offices are responsible for follow-up with individual agencies on a quarterly basis regarding the actions taken to respond to the Internal Review and PDRC recommendations.

Findings and recommendations from these reviews have been utilized to change practices, develop training, policy and procedures and to initiate new approaches and programs.

Appendix B - PDRC – Child Welfare Case Review Themes - Definitions

Substance Abuse: Society documented that at least one of the caregivers suffered from substance abuse issues.

Mental Health: Society documented that at least one of the caregivers suffered from mental health issues.

Domestic Violence: Society documented that the caregiver(s) had been involved in at least one partner violence incident.

Criminal Activity: Society and/or PDRC have information that the caregiver (s) has a history of criminal activity.

Physical Abuse: It was suspected and/or verified by a Society on at least one occasion, that the child/children in the family were victims of physical abuse.

Emotional Abuse: It was suspected and/or verified by a Society on at least one occasion, that the child/children in the family were victims of emotional abuse.

Sexual Abuse: Society documented history of sexual abuse within the family (caregivers were victims or perpetrators) and/or the Society has suspected and/or verified on at least one occasion that the child/children in the family were victims of sexual abuse and/or perpetrators.

Neglect/Inadequate Supervision: It was suspected and/or verified by a Society on at least one occasion, that the child/children in the family were victims of neglect or inadequate supervision.

3 or more Society Openings: A Society had opened a file relating to the caregiver(s) on at least three separate occasions.

3 or more CAS Referrals: A Society had received at least three separate referrals relating to the caregiver(s) (referrals could have been received during one opening, or during a number of openings or could have been reports received, not investigated).

Previous Death of a Child: The caregiver(s) have experienced a previous death of a child.

Caregiver Capacity Concerns: Society or PDRC has noted concerns about the caregiver(s) parenting capacity either before or after the death of the child.

Childhood History with CAS: One or both of the caregivers has had involvement with the Society as a child.

Youth of Primary Caregiver: The primary caregiver is 24 years old or younger

High Risk Subject Child: The deceased child was “high risk” meaning < 1 year of age; and/or had special needs

Unsafe/hazardous Living Conditions: Home environment may have placed a child at risk of harm and/or contributed to the death of the child (very cluttered, dirty, dangerous)

Problems with caregivers’ level of motivation or cooperation with intervention: Pattern of avoidance, lack of follow through, aggressive and/or unmotivated to cooperate.

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