King County Child Death Review Report

July 2012 - December 2015

Child Death Review incorporates strategies to understand better why children die and encourages community action to prevent child deaths

Public Health
Seattle & King County

Dedication

We dedicate this report to the memory of the children whose deaths were reviewed through a highly confidential and legally-protected process. We continue to dedicate our work to identify modifiable risk factors from these cases and make recommendations to strengthen our communities in order to prevent future unexpected child deaths in King County.

Acknowledgements

This report is an important representation of the hard work of numerous individuals and organizations across King County who dedicate time and expertise to understanding and preventing child deaths. These individuals and organizations include the former and current members of King County's Child Death Review team, first responders, health and human services providers, and countless others who play a role in the lives of the children of King County. This work would not be possible without the contributions of our partners at the King County Medical Examiner's Office.

Report prepared on behalf of Child Death Review team by:

Public Health – Seattle & King County

Special thanks to Tatiana Kaehler, Centers for Disease Control and Prevention (CDC) Public Health Associate, for her assistance in compiling this report

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Thank You to King County Child Death Review Participating Organizations

Auburn Police Department

Bellevue Police Department

Benton-Franklin Health District

Center for Children and Youth Justice

Centers for Disease Control and Prevention

Consumer Product Safety Commission

Eastside Fire & Rescue

Education Development Center, Inc.

Eritrean Community Association

Evergreen Health - Kirkland

Federal Way Aquatics

Federal Way Police Department

Federal Way Traffic

Feet First

Forefront - Innovations in Suicide Prevention

Group Health Cooperative

Harborview Injury Prevention and Research Center

Harborview Medical Center

Highline School District

Interlake Psychiatric Associates

Issaquah School District

Kent Fire Department

Kent Police Department

King County Department of Community and Human Services

King County Department of Transportation

King County Housing Authority

King County Medical Examiner's Office

King County Office of Performance, Strategy and Budget/United for Youth

King County Prosecuting Attorney's Office

King County Search and Rescue

King County Sheriff's Office

King County Superior Court - Juvenile Probation

King County Target Zero Task Force

Kirkland Fire Department

Kirkland Police Department

Lake Forest Park Police Department

Navos

Normandy Park Police Department

Northshore Fire Department

Northshore School District

Odessa Brown Children's Clinic

Overlake Medical Center

Pacific Police Department

Pediatric Associates

Public Health - Seattle & King County

Puget Sound Educational Service District

Queen Anne Medical Associates

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Redmond Medic One

Redmond Police Department

Redmond School District

Renton Fire Department

Renton Police Department

Renton School District

Safe Kids Eastside

Sea Mar Community Health Center

Seattle Children's Hospital

Seattle Counseling Service

Seattle Department of Transportation

Seattle Fire Department

Seattle Indian Health Board

Seattle Medic One

Seattle Police Department

Seattle Youth Violence Prevention Initiative

Shoreline Fire Department

Snohomish County Target Zero Task Force

Sound Mental Health

Sudden Unexplained Infant Death Investigation Foundation

Swedish Medical Center

Virginia Mason Separation and Loss Services

Washington Bikes

Washington Child Passenger Safety

Washington State Department of Health

Washington State Department of Licensing

Washington State Department of Social and Health Services

Washington State Department of Transportation

Washington State House of Representatives

Washington State Office of the Family and Children's Ombuds

Washington State Parks

Washington State Patrol

Washington State Traffic Safety Commission

Wellspring Counseling

Youth Suicide Prevention Program

Contents

Executive Summary

The purpose of King County's Child Death Review (CDR) is to review systematically the unexpected but preventable deaths of children ages 0-17 in King County, Washington, and make recommendations to improve programs, systems, environments, and policies that impact risk factors for child death, with the aim of ultimately preventing future child deaths. This review is conducted by a CDR core team of violence and injury experts, along with individual case consultants and is convened by Public Health – Seattle & King County. CDR's framework is the socio-ecological model as it allows for the consideration of the complex interplay of factors at the policy, community, organizational, interpersonal, and individual levels which put children at risk for violence- and injury-related deaths[i]. (See Figure 1) This approach also allows CDR participants to identify factors and make recommendations across a variety of systems that can be improved in order to better protect children in King County. Through case studies, CDR participants make expert recommendations for prevention of future deaths by focusing on *modifiable* risk factors and population-level trends. Modifiable risk factors are those that can be changed, unlike genetic or fixed environmental conditions. Recommendations are targeted to specific systems (e.g., healthcare, public health, school districts, law enforcement, etc.) or policy bodies, including both those participating in CDR and other entities that can reduce risk factors to protect children. Some recommendations are programmatic and simple, some are multi-system and complex. Because no one entity can successfully mitigate all risk factors, a community effort is needed to generate, monitor and implement these recommendations in order to make King County safer for all children.

Deaths Reviewed from July 2012 – December 2015

In partnership with the King County Medical Examiner's Office, multiple law enforcement agencies, healthcare systems, school districts, and social service providers, Public Health – Seattle & King County convened the CDR 21 times to review 125 of 136 unexpected or unexplained deaths of children under the age of 18 that occurred between July 2012 and December 2015. These 125 deaths, which are outlined in this report, include:

- 42 sleep-related infant deaths (Sudden Unexpected Infant Death (SUID)/Sudden Infant Death Syndrome (SIDS))
- 40 unintentional injury deaths, including 23 traffic-related fatalities and 17 other unintentional injury deaths (such as unintentional drownings, suffocations/strangulations, falls, and poisonings)
- 43 intentional injury deaths, including 10 homicides and 33 suicides

For each death, the reviews examined racial and socio-economic disparities, as well as family history of abuse, and behavioral health concerns among the children whose cases were reviewed. While lack of access to stable housing, family employment, and education were not identified as specific modifiable risk factors, CDR acknowledges the important role that the social determinants of health plays in positive health outcomes for children.

[i] Due to the comprehensive nature of these reviews, approximately 6-8 cases can be reviewed at a time. This results in some deaths being reviewed in years other than when they occurred. In addition, reviews do not include deaths where the King County Medical Examiner's Office does not take jurisdiction.

SUID/SIDS

Sudden Unexpected Infant Death (SUID)/Sudden Infant Death Syndrome (SIDS) is the fourth leading cause of death for infants in the United States and the seventh leading cause of death for infants in King County.[1] [2] While the majority of infants die from other causes in King County (perinatal or congenital conditions, complications of pregnancy or labor, or prematurity), SUID/SIDS is responsible for the majority of all preventable infant deaths reviewed by CDR, as well as 34 percent of the cases of all deaths reviewed in all age groups between 0 and 17 years of age. African American, American Indian, and Alaska Native children were disproportionately represented in the cases reviewed. Most SUIDs, which are sudden, unexpected deaths, are found to involve a combination of modifiable risk factors related to an unsafe sleep environment, including sharing a bed with adults, loose or soft bedding, an overly warm sleep environment, and parental substance use. Additional modifiable risk factors identified by CDR include exposure to second-hand smoke and premature birth.

To prevent SUID/SIDS, CDR recommends the following:

- Healthcare providers should ask parents about infant sleep practices during check-ups and public health nurses should look at rooms and sleeping situations;
- Increase safe sleep options for low-income parents with infants; and
- Increase and strengthen culturally competent safe sleep messaging by training healthcare and service providers especially those serving mothers in substance abuse treatment.

In addition, CDR recommends improving data collection about SUID/SIDS in order to identify modifiable risk factors by expanding first responders' capacity to document the scene when responding to an infant death. Because the loss of an infant is traumatic, CDR also recommends providing bereavement resources to families following the death of an infant.

Death from Unintentional Injury

Death from unintentional injury is almost always preventable. However, unintentional injury remains the leading cause of death of children ages one to 17 years old in the United States and King County.[3] [4] Thirty-two percent of the cases reviewed by CDR involved death from unintentional injury, including traffic deaths, drownings, unintentional suffocations/strangulations, poisonings and falls. Modifiable risk factors in the environment generally contribute to these deaths, including modifiable risk factors found in the home, family automobile, and public places (like roads and swimming areas). Additional modifiable risk factors may be caregiver error, barriers to safety (including lack of comprehensive injury prevention education), or a child's unsafe behavior.

To prevent deaths from unintentional injury, CDR recommends the following:

Traffic-Related:

- Washington State's Intermediate Driver's License laws should reflect best practice and model legislation, as recommended by the National Highway Traffic Safety Commission;
- Expand outreach to immigrant communities regarding permits and Intermediate Driver's Licenses by using multilingual resources;
- Expand culturally competent educational resources on road safety to community colleges and law enforcement agencies for youth drivers (17 – 20 years); and
- Traffic safety partners should research injuries and fatalities related to yellow flashing lights for left turns.

Drowning-Related:

- Support the development of rules and regulations for bathing (swim) beaches county-wide;
- Reinstate lifeguards at bathing (swim) beaches in Washington State Parks in King County; and

- Expand culturally competent public water safety education efforts with an emphasis on using life jackets and choosing to swim at lifeguarded beaches.

Fall-Related:

- Establish educational programs and availability of window safety mechanisms to reduce window falls.

Homicide

Homicide is the third leading cause of death of children between the ages of one to 17 in the United States and the fourth leading cause of death for children in King County.[5] [6] Eight percent of the cases reviewed by CDR were homicides. Child homicide is generally due to child abuse or community violence. Homicide cases were clustered among infants and toddlers and among older teens. Children of color were disproportionately impacted in the cases reviewed. Modifiable risk factors are similar for the causes of homicide by child abuse and community violence. They include: substance use, exposure to violence and conflict in the family, parental substance abuse or criminality, and a history of being the victim of violence.

To prevent child and youth homicides, CDR recommends the following:

- Review a possible change of RCW 9A.16.100 – Washington's Use of Force on Children Policy;
- Research science of discipline for children 0-3 years of age and potentially having PSA campaign; and,
- Implement training for all Public Health's Parent Child Health providers on *Periods of Purple Crying* in order to better educate parents and caregivers on the risk of abusive trauma.

In addition, CDR recommends improving data collection about homicides in order to continue to identify modifiable risk factors. Data collection should include:

- Identify potential Adverse Childhood Experiences (ACEs) and trauma that contribute to youth and young adult violence in King County; and,
- Support detailed investigations by law enforcement and medical examiner partners into the origins of firearms involved in youth deaths and whether unsafe storage was a modifiable risk factor.

Suicide

Suicide is the second leading cause of death of adolescents in the United States and is the single leading cause of injury- and violence-related death for children ages 10-17 years old in King County.[7] [8] Suicide accounted for 27 percent of child deaths reviewed in CDR. Suicides are concentrated among older adolescents, but CDR has seen a recent increase in suicides among younger children around the beginning of adolescence. Washington is home to national leaders in the field of suicide prevention who are creating a robust policy and research environment through their work at community-based organizations, academic institutions, and state and local government. One modifiable risk factor for firearm suicide is safe storage of firearms, due to evidence demonstrating that firearm suicide attempts are almost always lethal and removing access can be an effective interrupter in a suicidal crisis.

To prevent suicides, CDR recommends the following:

- Firearms, drugs, and alcohol in the homes of all youth should be stored safely;
- Provide postvention/grief support resources to schools and youth present at the scene of a suicide;
- Restore funding for substance abuse and mental health services in schools so that they are provided in all middle and high schools;

- Support schools in developing comprehensive suicide prevention plans, as required by state law, including student education; and,
- Improve communication between emergency department, primary care, and mental healthcare providers for at-risk youth.

In addition, CDR recommends improving data collection about potentially modifiable risk factors related to suicides, such as more detailed investigation of the origins of suicide-involved guns. This will allow for an understanding of how the child acquired the firearm and whether unsafe storage was a modifiable risk factor.

Building Capacity for CDR's Prevention Efforts

CDR is a valuable process that can be strengthened and expanded. As the facilitator of the CDR process, Public Health also recommends the following:

- In order to improve the prevention of child injury and death, ensure consistent, stable and dedicated statewide funding for Child Death Review across all counties in Washington, so that data can be collected and shared consistently statewide. Local-only efforts limit the impact of CDR response recommendations, particularly when modifiable risk factors to prevent deaths in each community, such as unsafe firearm storage or alcohol-caused traffic fatalities, are better addressed at a statewide level.

- Establish a Prevention Action Team to perform quality assurance on implementation and follow up of recommendations to the degree required to make the most impact. In-kind or increased investment would be needed to launch and staff a Prevention Action Team. CDRs in other parts of the US have Prevention Action Teams to ensure that this quality assurance is provided.

- Support school districts to participate consistently as a valuable community partner with unique understanding of the life circumstances and modifiable risk factors that can be addressed in our community.

Introduction

I. The History and Purpose of Child Death Review

According to the National Center for the Review and Prevention of Child Deaths, the purpose of child death review is to "conduct a comprehensive, multidisciplinary review of child deaths, to better understand how and why children die, and use the findings to take action that can prevent other deaths and improve the health and safety of children."[9] Child death review (also sometimes called child fatality review) focuses on deaths caused by SIDS/SUIDS, injury and violence, which are leading causes of death among children and teens in the United States and King County.[10] [11] These deaths are preventable, and community child fatality reviews serve as an essential step in identifying and addressing the modifiable risk factors contributing to these deaths. The child fatality review process is recognized by the American Academy of Pediatrics as a "powerful tool in understanding the epidemiology and preventability of child death locally, regionally, and nationally; improving accuracy of vital statistics data; and identifying public health and legislative strategies to reduce preventable child fatalities."[12]

CDR applies a socio-ecological approach as a framework for prevention while reviewing child deaths and making recommendations to reduce those risks that are modifiable. This model considers the complex interplay of factors at the policy, community, organizational, interpersonal, and individual level which put children at risk for violence- and injury-related deaths. (See Figure 1) A socio-ecological approach allows CDR to identify and improve factors across a variety of systems in order to better protect children in King County.

Figure 1: The Socio-Ecological Model

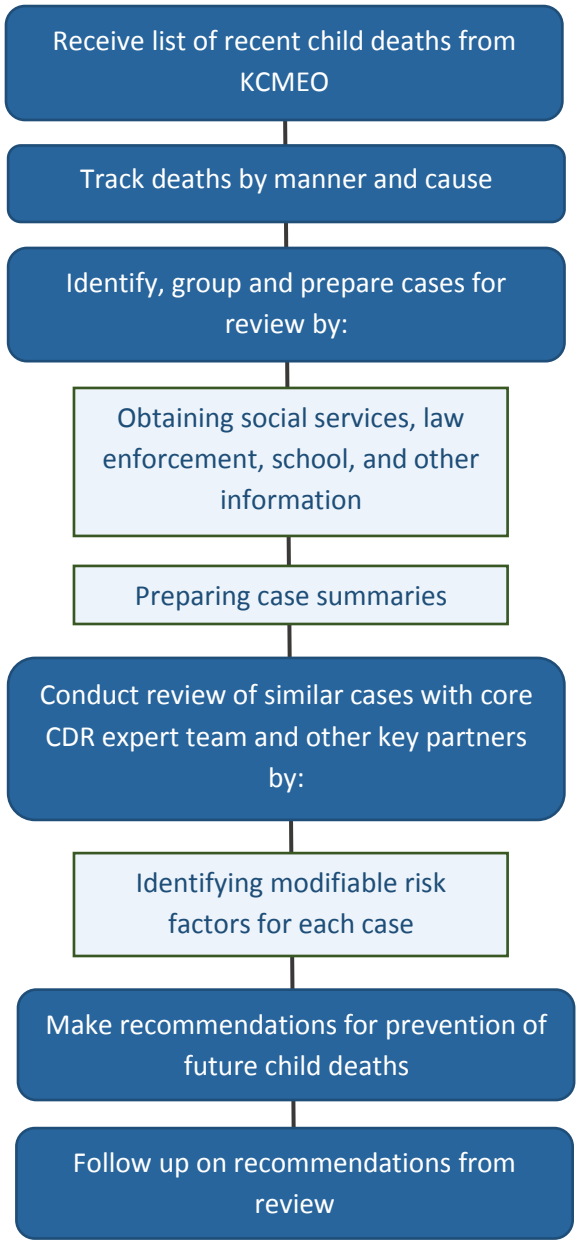
In 1998, the Washington State Legislature authorized local health departments to conduct these confidential child death review processes for children in their jurisdictions.[13] Public Health – Seattle & King County (PHSKC) manages King County's Child Death Review (CDR). The goal of the program is to generate, monitor, and implement actionable recommendations to prevent injuries and deaths through a comprehensive review of child deaths. The review team is intentionally cross-disciplinary and countywide - members represent a broad range of agencies, including the King County Medical Examiner's Office (KCMEO), King County Emergency Medical Services (EMS), law enforcement agencies, hospitals and healthcare systems, mental health providers, injury prevention research experts, Public Health – Seattle & King County, Washington's Children's Administration (CA) (which includes Child Protective Services), schools, and other health and social services providers. These groups, the community, and county leadership have a strong interest in protecting and improving the health and safety of the estimated 417,529 children in King County.[14] Because the deaths reviewed are preventable, and children and youth are often disproportionately impacted by violence and injury in comparison with adults, identifying and implementing key recommendations represents one way that our community can strive to be more equitable and just for all of our residents, regardless of age and circumstance.

II. King County Child Death Review Process

Methodology

CDR follows detailed procedures to identify and review both intentional and unintentional child deaths. (See Figure 2) Each month, the King County Medical Examiner's Office (KCMEO) sends the CDR program manager a detailed list of all deaths among children ages 0-17 years old that occurred in King County during the previous month. The cases are sorted by manner and cause of death to determine the need or groupings of cases for purposes of review (e.g., cases are grouped by manner and cause of death and when a threshold of 6-8 cases are identified, a review is scheduled). Each review then focuses on a specific grouping of cases. Once a review is scheduled, key partners are invited to participate. Key partners include subject matter experts, and service providers that interacted with the children whose deaths are under review, as well as investigators. Case summaries for the review are based upon investigation reports from KCMEO and responding law enforcement agencies, phone interviews of relevant partners, and information from other sources when available. Case summaries convey the story of each child's life and the circumstances surrounding his or her death. This provides CDR participants with the information necessary to identify and discuss opportunities to improve the systems that interacted with the child prior to his or her death and other modifiable risk factors along the socio-ecological model.

Figure 2: Outline of King County Child Death Review Process



Each review requires the collaboration of subject matter prevention experts, social services agencies, medical professionals, law enforcement agencies, death investigators and public health staff. During the review, partners discuss each case, identifying modifiable risk factors and other factors that contributed to the death. Modifiable risk factors are those that can be changed, unlike genetic or fixed environmental conditions. By reviewing individual cases with community prevention experts and identifying modifiable risk factors that contribute to child deaths, CDR participants develop recommendations with the aim of preventing future child deaths. CDR participants and the CDR program manager are responsible for following up on the agreed-upon recommendations to implement.

Limitations

The data in this report represents 125 of 136 unexpected or unexplained deaths of children under the age of 18 that occurred in King County between July 2012 and December 2015. The cases that were not reviewed through the Child Death Review process and are therefore not included in this report are those that 1) Are not legally under the jurisdiction of the King County Medical Examiner's Office, and are usually reviewed through other means, such as hospital morbidity and mortality meetings, or 2) A small percentage of deaths that were eligible to be reviewed, but were not reviewed either due to staffing or time limitations and will be reviewed if possible in the future. While it is the CDR goal to have all cases reviewed by the CDR team, there are also instances where individual cases are not readily

grouped with other similar cases; these cases may be reviewed by staff with individual or smaller groups of experts to identify modifiable risk factors. Expert recommendations in this report include many but not all recommendations made by the CDR process as a whole.

While deaths reviewed in CDR are examined with the most current available and accessible evidence (e.g., data and information from responding law enforcement agencies, treatment or service providers, schools, and other systems), there are limitations to the completeness of the data. For example, poverty has been documented in the literature as a modifiable risk factor for many of the unintentional and intentional injuries that result in child death, but neither law enforcement nor medical examiner reports document socioeconomic status as part of case demographics.[15] Additionally, it is not always possible to identify correctly the demographic information of decedents, such as their race and ethnicity.

The availability of participants can also influence the completeness of data included in a review. For example, school participation is enormously helpful during the review of cases involving children who attended school. Schools often provide important contextual details that may not be available from other sources. Additionally, by participating, schools are given access to a panel of experts whose ideas can guide response and future prevention efforts. Unfortunately, concerns about liability and confidentiality deter some school districts from participating, demonstrating a need for ongoing outreach to schools and district risk management. (Information shared in CDR is confidential and though participation does not violate the Federal Educational Rights and Privacy Act (FERPA), CDR has found that school districts may need legal reassurance that they are allowed to participate.)

Further limitations are due to CDR's limited funding and staffing support. CDR is supported at the state level with 15 percent of two employees' time, and no funding is provided to the county health departments in Washington to conduct child death reviews. Limited resources limit both the frequency of reviews and the communication among CDR staff in different parts of the state regarding case similarities and emerging issues or trends. (Due to budget cuts, there are only seven CDR teams currently operating in Washington State, each of which is conducted by a local public health jurisdiction.[16] King County continues to operate its Child Death Review, leveraging various opportunities such as Local Capacity Dollars that are provided by the Washington State Department of Health, as well as King County's levy-funded Best Starts for Kids initiative. It is important to note that even with these opportunities; CDR has seen a reduction in resources since 2014, including cuts in local staff support.) These limitations have prevented some deaths from being reviewed within the same year that they occurred. Additionally, King County's CDR does not have capacity to convene a Prevention Action Team to monitor and to work implement rapidly CDR recommendations, a promising practice and structure that exists in some other parts of the US.

Confidentiality

Confidentiality is fundamental to the CDR process and assured by state law.[17] All participants in attendance understand that information presented in CDR will not be shared beyond the group, except as aggregate data, such as the summary in this report, or as a part of necessary direct communications (e.g., offering support to agencies that may be able to work to prevent future deaths). Because of high confidentiality standards that comply with state law, it is within the bounds of legal confidentiality for school districts, government agencies, healthcare providers and other keepers of protected information to participate in CDR.[18]

Written information used in CDR is held under strict confidentiality as well. Case summaries and other communications are sent to participants via encrypted email, which participants are instructed to delete at the end of the meeting. Printouts and notes with case-specific details are collected and destroyed at the end of each review.

Confidentiality is maintained in the use and dissemination of CDR aggregate data as well. Some types of child death affect very small numbers of children or small demographic groups. In reports like this one, small numbers are combined into larger groups as appropriate.

III. Use of This Report

The primary purpose of this report is to provide a summary of reviewed cases, including priority recommendations and actions of King County's CDR, with the aim of increasing awareness of CDR and encouraging the implementation of recommendations. This report presents information on demographics, cause of death, modifiable risk factors, and recommendations for prevention as identified by King County CDR and its participating organizations.

Section I: Overview of Child Deaths Reviewed

Since 2013, King County's Child Death Review (CDR) has been coordinated by the Violence and Injury Prevention Unit at Public Health – Seattle & King County. The information in this report focuses only on preventable child deaths that occurred between July 2012 and December 2015. The values presented are solely representative of the 125 unexpected, unintentional, or intentional deaths reviewed by CDR (92% of all CDR eligible cases).

Manner of death classifications are determined by the King County Medical Examiner's Office during an investigation or by a physician signing a death certificate in the hospital when the death does not warrant a medical examiner's investigation. CDR cases are categorized and reviewed based on their official manner of death and can be placed into one of five categories: natural, accidental, suicide, homicide, or undetermined. King County's CDR focuses on unexpected, intentional, or unintentional child deaths, including accidental, suicide, homicide, undetermined, and sleep-related natural deaths. For the purpose of identifying trends, reviews are organized based on the following categories:

- Sleep-related infant deaths (Sudden Unexpected Infant Death (SUID)/Sudden Infant Death Syndrome (SIDS))
- Traffic-related deaths
- Unintentional deaths due to suffocation, strangulation, fall, or poisoning
- Drownings
- Homicides
- Suicides

The majority of the 125 cases reviewed were SUID/SIDS (34%), suicides (26%), or unintentional traffic deaths (18%). (See Figure 3) Nearly two-thirds (66%) of all cases reviewed were male. (See Table 1) Black, American Indian and Alaska Native, and multi-racial children were overrepresented among the deaths reviewed. Deaths occurred in locations across King County, with the majority occurring in South King County (47%) and Seattle (27%). (See Table 2) Deaths reviewed from these two sub-county areas were disproportionate to the child (under age 18) population in these areas.

Figure 3: Child Deaths Reviewed by Death Type

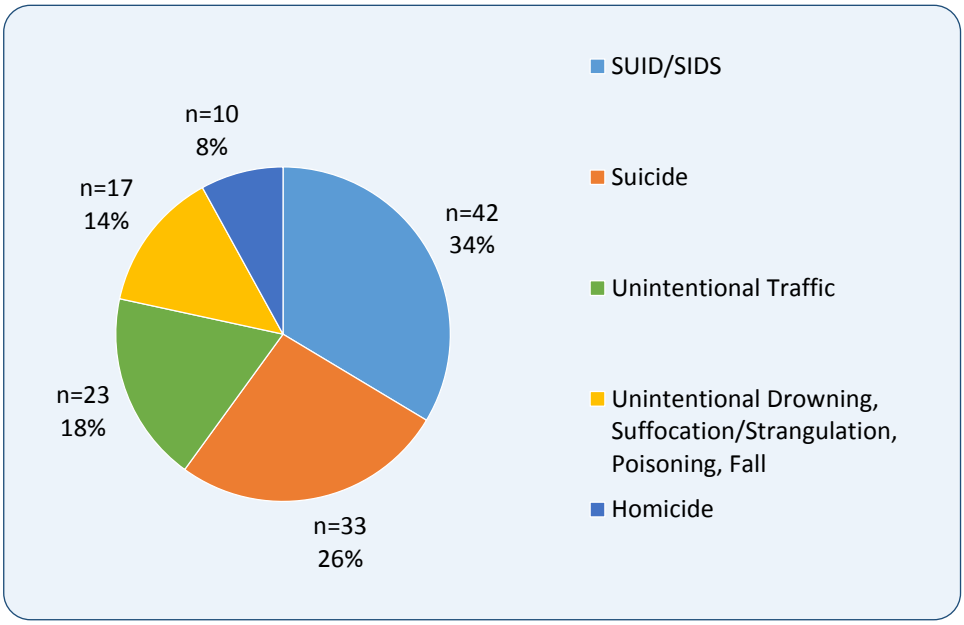


Table 1: Child Deaths Reviewed by Sex, Race and Ethnicity

	# of Cases	% of Cases	% of King County <18 Population[19]
Sex			
Male	83	66%	51%
Female	41	33%	49%
Transgender	1	1%	n/a
Race			
White	70	56%	60%
Asian	16	13%	15%
Black or African American	21	17%	8%
American Indian or Alaska Native	4	3%	1%
Pacific Islander	3	3%	1%
Multi-Racial	10	8%	12%
Unknown	1	1%	n/a
Ethnicity			
Hispanic	13	10%	15%
Not Hispanic	112	90%	85%
Total cases reviewed[ii]	**125**		

Table 2: Child Deaths Reviewed by King County Region

Region	# of Cases	% of Cases	% of King County <18 Population[20]
South King County	59	47%	41%
Seattle	34	27%	21%
East King County	25	20%	30%
North King County	7	6%	8%
Total	**125**		

[ii] The data in this report does not include all child deaths that occurred between July 2012 and December 2015. The remaining 8% of cases not reviewed in 2012-2015 were reviewed in 2016 or will be reviewed in later years individually or in groups.

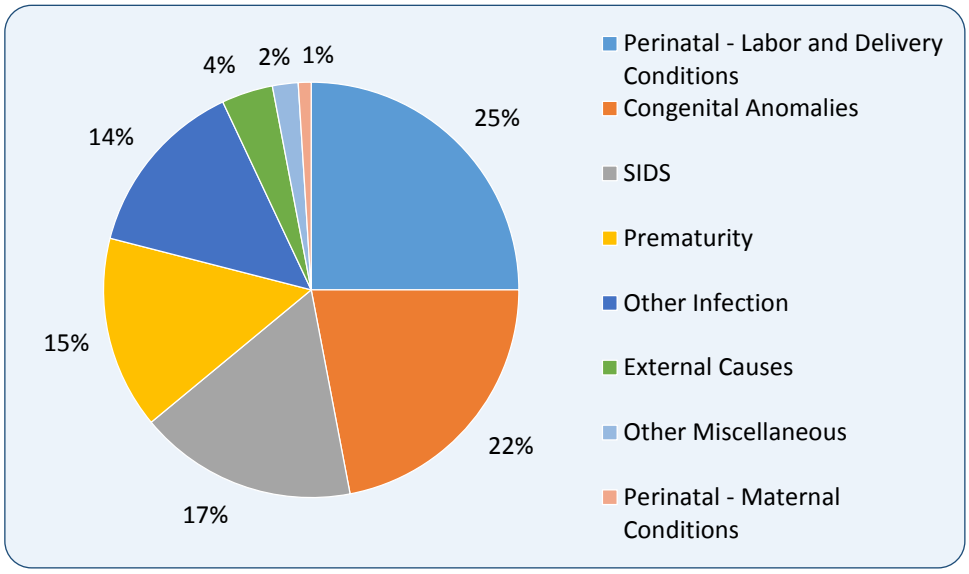
Section II: Infant Deaths – SUID and SIDS

While the majority of infant deaths that occurred between 2007 and 2012 were explained by medical conditions, twenty-three percent during this time period included SUIDS/SIDS and other causes, such as blunt force injury (note that this is a slightly different time period than the period covered in this report, but this data is provided for comparative purposes). (See Figure 4) It is these deaths not explained by medical conditions that are the focus of infant deaths reviewed in CDR.

Sudden Unexpected Infant Deaths (SUIDs) occur suddenly and unexpectedly in previously healthy infants and have no obvious cause of death prior to investigation. Most SUIDs occur while the infant is sleeping in an unsafe sleep environment. Sudden Infant Death Syndrome (SIDS), a subgroup of SUID, is the "death of an infant less than one year of age that cannot be explained after a thorough investigation is conducted, including a complete autopsy, examination of the death scene, and a review of the clinical history."[21]

King County's CDR examined 42 SUID/SIDS cases from July 2012 to December 2015. Although the causes of SIDS are not yet fully understood, CDR identified at least one known modifiable risk factor – most of which related to sleep environment – in nearly every case. (See Table 4) More than half (52%) of infants whose cases were reviewed were sleeping in an adult bed at the time of death. (See Figure 5) Besides bed-sharing, the most common modifiable risk factors in reviewed cases were a sleep environment with loose bedding or a soft sleep surface, parental substance use, and/or a warm sleep environment, which researchers theorize could cause an infant to sleep so deeply that they would be unable to wake themselves up. Seventy-eight percent (78%) of cases involved multiple modifiable risk factors. Research suggests that bed-sharing can compound risk posed by other factors.[22] In the SUID/SIDS cases reviewed by CDR, bed-sharing was commonly identified as an overlapping modifiable risk factor. (See Figure 6)

Figure 4: All Infant Mortality, by Cause, King County 2007-2012 Combined



Interactions with public health nurses and Children's Administration (CA) serve as important educational opportunities for families who are at risk for losing an infant to SUID/SIDS. In the majority (58%) of cases, the infants' families had received services from a public health nurse. (See Figure 5) Nearly half (48%) of deceased infants' families had previous contact with Children's Administration (CA). (See Figure 5) CDR works closely with these services to provide safe sleep messaging to families.

Racial disproportionality was evident in the infant deaths reviewed by King County's CDR. For example, approximately eight percent of the county population under the age of 18 is black or African American, but black or African American infants made up 29 percent of reviewed infant deaths. (See Table 3)

Figure 5: SUID/SIDS Deaths Reviewed

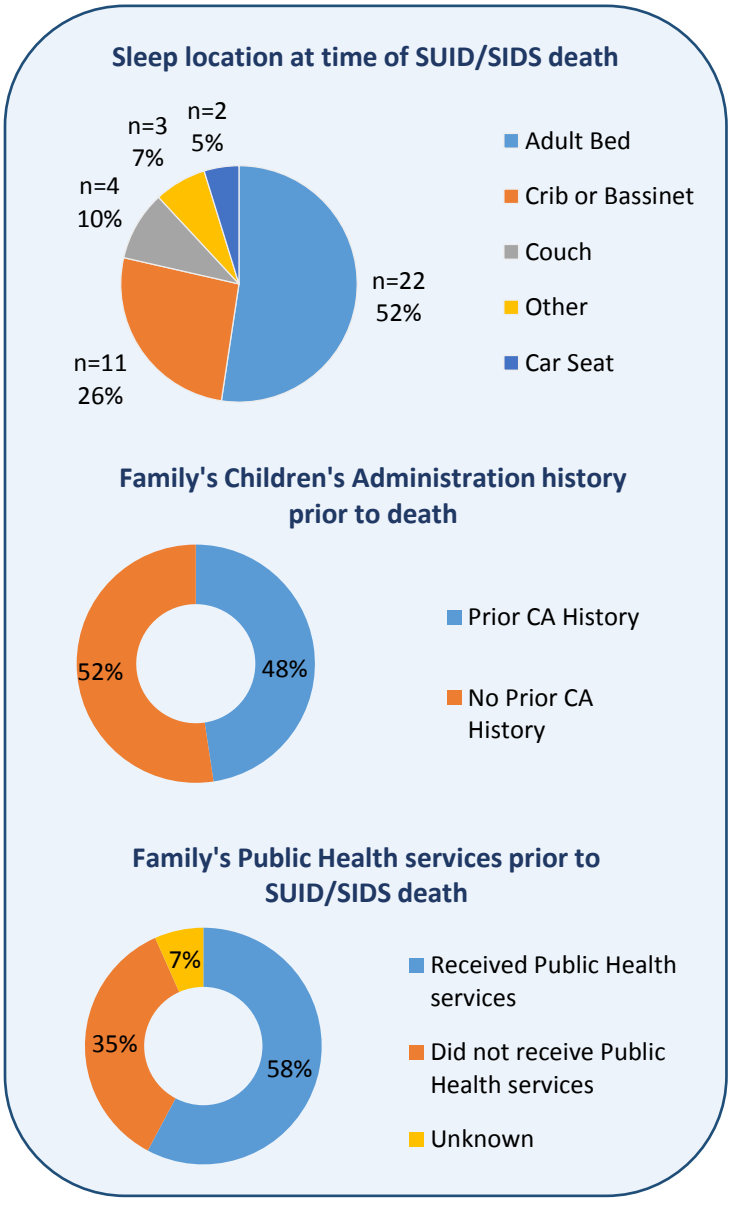


Table 3: SUID/SIDS Deaths Reviewed by Sex, Race, and Ethnicity

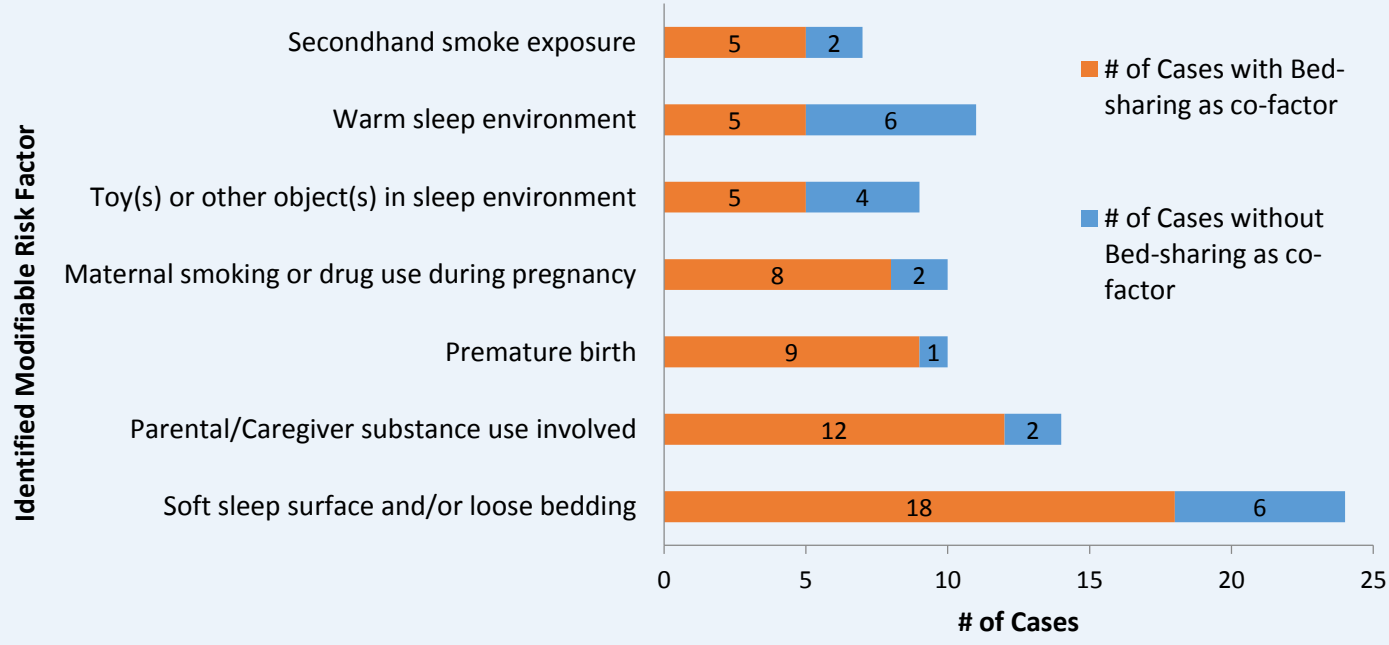
	# of Cases	% of Cases	% of King County <18 Population[23]
Sex			
Male	27	64%	51%
Female	15	36%	49%
Race			
White	23	55%	60%
Asian	1	2%	15%
Black or African American	12	29%	8%
American Indian or Alaska Native	1	2%	1%
Pacific Islander	1	2%	1%
Multi-Racial	4	9%	12%
Ethnicity			
Hispanic	4	10%	15%
Not Hispanic	38	90%	85%
Total SUID/SIDS cases reviewed[iii]	**42**	**42**	

[iii] The data in this report does not include all child deaths that occurred between July 2012 and December 2015. The remaining 8% of cases not reviewed in 2012-2015 were reviewed in 2016 or will be reviewed in later years individually or in groups.

Table 4: Sample of Identified Modifiable Risk Factors in SUID/SIDS Deaths Reviewed

Modifiable Risk Factor	# of Cases	% Occurrence
Bed-sharing	25	60%
Soft sleep surface and/or loose bedding	24	57%
Parental/caregiver substance use involved	18	43%
Premature birth	13	31%
Warm sleep environment	12	29%
Toy(s) or other object(s) in sleep environment	11	26%
Maternal smoking or drug use during pregnancy	10	24%
Secondhand smoke exposure	7	17%
Sleep position on stomach	4	10%
Cases with multiple identified modifiable risk factors	**33**	**79%**
Total SUID/SIDS cases reviewed	**42**	

Figure 6: Bed-sharing Identified as Common Overlapping Modifiable Risk Factor in CDR SUID/SIDS Deaths



Note: Multiple cases have more than two identified modifiable risk factors

Priority Recommendations SUID/SIDS Deaths

CDR developed the following recommendations based on individual case findings and trends in modifiable risk factors. These priority recommendations were selected to be included in this report by Public Health – Seattle & King County staff and CDR Core Team members based on their level of potential impact.

Recommendation: Healthcare providers should ask parents about infant sleep practices during check-ups. Public Health Nurses should look at rooms and sleeping situation during home visits.

> **Status:** The American Academy of Pediatrics announced new safe sleep recommendations to protect against SIDS, sleep related infant deaths. Implementation of recommendation is pending. PHSKC is anticipating developing a coordinated education program. **(I/P) (C)**

Recommendation: Increase safe sleep options for low-income parents with infants.

> **Status:** CDR Core Team members obtained grant funding to purchase a limited number of "baby bed boxes" to support safe sleep environment conversations between providers and families. CDR, in partnership with the Baby Bed Box Company, intends to evaluate and expand this pilot project. **(I/P)**

Recommendation: Increase and strengthen culturally competent safe sleep messaging by training family healthcare and service providers, especially those serving mothers in substance abuse treatment.

> **Status:** The CDR Core Team developed a trauma-informed safe sleep script, which outlines messaging options for providers to use while discussing safe sleep environments and risk factors with clients and patients. **(I/P) (C)**

> **Status:** King County law enforcement agencies and the Washington State Criminal Justice Training Center are distributing a SUIDI Foundation training video to increase law enforcement awareness of risks of SIDS/SUID. **(I/P) (C)**

Recommendation: Because the loss of an infant is particularly traumatic, CDR also recommends providing bereavement resources to families following the death of an infant.

> **Status:** Public Health – Seattle & King County Parent Child Health Program implemented additional follow-up with bereavement resources for families identified by the Medical Examiner. **(I/P) (C)**

Key: (I/P) = Internal/Programs Change (P) = Policy Change (S) = Systems Change
(R) = Research (C) Community Partner

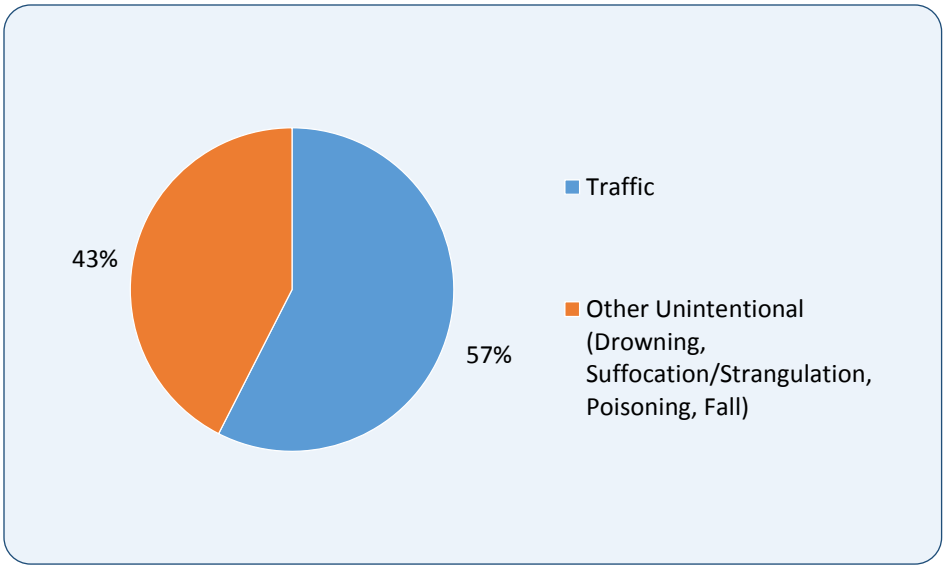
Section III: Unintentional Injury Deaths

Unintentional injury is the leading cause of death for children starting at age one year in the United States and King County.[24] [25] In King County, unintentional injuries were responsible for 75 deaths in children under 18 years of age between 2009 and 2013.[26] Unintentional injuries include drowning, falls, fire/burns, poisoning, suffocation/ strangulation, unintentional firearm injury, and traffic-related injury (traffic injury is disaggregated by injury of a pedestrian, bicyclist, motorcyclist, driver or passenger, or related to another kind of vehicle.)[27] It is important to note that children are often not in control of the circumstances in which they are injured; due to the disproportionate burden of violence and injury to children in comparison with the overall population, children themselves are a group experiencing inequity. The CDC outlines the scope of this problem nationwide:

> *"Unintentional injury deaths are responsible for more years of potential life lost before age 65 years than cancer, heart disease, or any other cause of death, in part because children and adolescents die from unintentional injuries much more commonly than other causes. For every childhood injury death, more than 1,000 are treated or receive medical consultation for a nonfatal injury. In 2009, child and adolescent unintentional injuries resulted in approximately 9,000 deaths, 225,000 hospitalizations, and 8.4 million patients treated and released from emergency departments."* [28]

Despite these statistics, unintentional injury and unintentional injury deaths are preventable. Many of the modifiable risk factors creating the conditions in which they happen are well known, and ways to minimize risk are well-researched. In King County, the most common unintentional injury deaths reviewed in Child Death Review were unintentional traffic deaths. (See Figure 7) Due to the small number of unintentional deaths reviewed due to drowning, suffocation/ strangulation, poisoning, and falls, these causes are grouped together in this report to preserve confidentiality.

Figure 7: Unintentional Injury Deaths Reviewed by Type of Injury



I. Unintentional Traffic Deaths

Unintentional traffic deaths are the most common type of unintentional injury death among children 10 years old and older in King County.[29] Children who died from motor vehicle-related injuries whose cases were reviewed in CDR were most often pedestrians (31%) or car passengers (30%); teen drivers were a smaller (22%), but still significant group. (See Figure 8) Smaller numbers of children were riding a bicycle, motorcycle, or in a recreational vehicle (17%).

There is disproportionality by race and gender in the unintentional traffic deaths reviewed by CDR. Asian children made up 26 percent of reviewed cases, while comprising only 15 percent of King County's population under the age of 18 years. (See Table 5) A majority (70%) of children who died from traffic-related injuries were male, and approximately one-half (52%) of traffic-related cases were 15 to 17 years old. (See Figure 8) The majority (92%) of the cases that occurred in 15 to 17 year olds were males. Demographics, including age, race, gender, driving record and license status, were also reviewed for drivers over the age of 18 who were involved in these cases. Though not included in this report, these findings contributed to prevention recommendations.

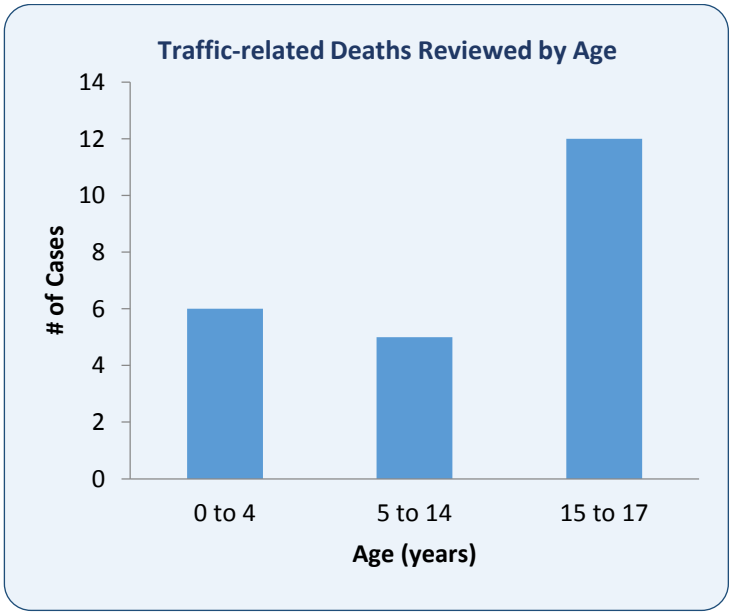
A large number of modifiable risk factors are at play in unintentional traffic deaths. In cases reviewed by CDR, driver inexperience (26%), speeding (26%), improper or lack of use of seatbelts or car seats (26%), a young driver with two or more teen passengers (22%), and driver distraction (22%) were the most common modifiable risk factors. (See Table 6) Other modifiable risk factors appeared in only one or two cases. Forty-three percent of all cases had more than one identified modifiable risk factor.

Table 5: Traffic-related Deaths Reviewed by Sex, Race, and Ethnicity

	# of Cases	% of Cases	% of King County <18 Population[30]
Sex			
Male	16	70%	51%
Female	7	30%	49%
Race			
White	15	65%	60%
Asian	6	26%	15%
Black or African American	1	4%	8%
Pacific Islander	1	4%	1%
Ethnicity			
Hispanic	4	17%	15%
Not Hispanic	19	83%	85%
Total traffic-related cases reviewed[iv]	**23**		

[iv] The data in this report does not include all child deaths that occurred between July 2012 and December 2015. The remaining 8% of cases not reviewed in 2012-2015 were reviewed in 2016 or will be reviewed in later years individually or in groups.

Figure 8: Traffic-related Deaths



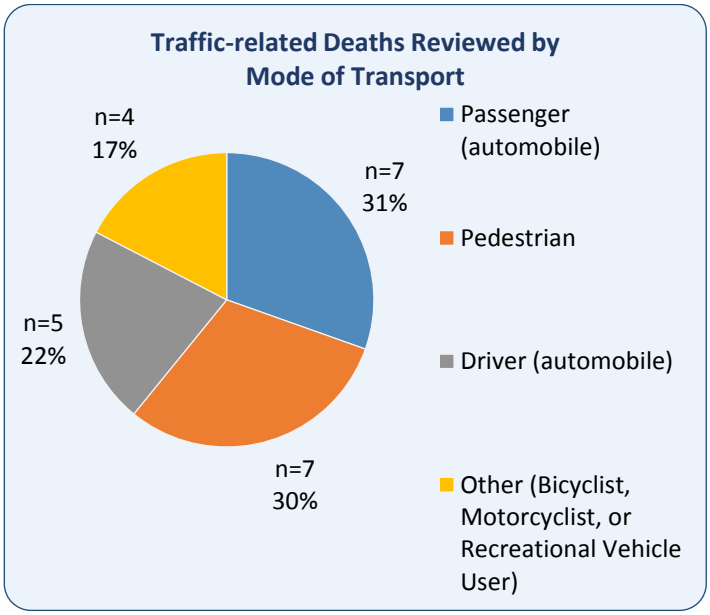


Table 6: Sample of Identified Modifiable Risk Factors in Traffic-Related Deaths Reviewed

Identified Modifiable Risk Factor	# of Cases	% Occurrence
Driver inexperience	7	30%
Exceeding safe speeds for driving conditions	6	26%
Improper or lack of use of seatbelts or car seats	6	26%
Young driver with two or more teen passengers	5	22%
Driver distraction	5	22%
Street racing involved	4	17%
Alcohol or drug impaired driver	3	13%
Riding in front seat (child under 16)	2	9%
Driver fatigue	2	9%
Cases with multiple identified modifiable risk factors	**10**	**44%**
Total traffic-related cases reviewed	**23**	

Priority Recommendations for Prevention of Unintentional Traffic Deaths

CDR developed the following recommendations based on individual case findings and trends in modifiable risk factors. These priority recommendations were selected to be included in this report by Public Health – Seattle & King County staff and CDR core team members based on their level of potential impact.

Recommendation: Washington State's Intermediate Driver's License Laws (IDLs) should reflect best practice and model legislation, as recommended by the National Highway Traffic Safety Commission.

> **Status:** Although changes to IDL laws have been proposed to the Washington State Legislature each year following this recommendation, these changes have not been passed. Changes include increased supervised driving practice hours for new drivers, longer restrictions to transport non-familiar passengers, earlier nighttime curfew hours, and other best-practice measures to improve driver training. The Washington Young Driver Task Force will make additional policy recommendations for the 2017 legislative session. **(P) (C)**

Recommendation: Expand outreach to immigrant communities regarding permits and IDLs by using multilingual resources.

> **Status:** Public Health – Seattle & King County reviewed and catalogued Washington State Department of Licensing (WA DOL) resources available in non-English formats. Few multi-lingual resources for parents regarding traffic safety and permit and IDL rules were available. This catalog and identified need was shared with the Washington Traffic Safety Commission (WTSC) and WA DOL. **(I/P) (C)**

Recommendation: Expand culturally competent educational resources on road safety to community colleges and law enforcement agencies for youth drivers (17 – 20 years).

> **Status:** Due to funding issues, WTSC and WA DOL have not been able to provide adequate resources to follow through with this recommendation since 2014. **(I/P) (C)**

Recommendation: Traffic safety partners should research injuries and fatalities related to yellow flashing lights for left hand turns.

> **Status:** King County Target Zero Task Force is evaluating and monitoring the issue with member law enforcement agencies and local WA Department of Transportation offices. **(I/P) (R) (C)**

Key: (I/P) = Internal/Programs Change (P) = Policy Change (S) = Systems Change
(R) = Research (C) Community Partner

II. Other Unintentional Injury Deaths

Other forms of non-traffic unintentional injury reviewed by CDR include drowning, unintentional suffocation/strangulation, unintentional poisoning and death from a fall. Although these cases include diverse causes of death, the modifiable risk factors for each type of injury often overlap. Due to the small case numbers and the need to maintain confidentiality, these deaths are grouped together in this report.

CDR reviewed 17 unintentional injuries, including drownings, strangulations or suffocations, poisonings, and falls. These deaths accounted for 43 percent of unintentional injury deaths reviewed and 14 percent of all deaths reviewed. In the cases reviewed, unintentional injuries disproportionally affected males, black or African American, and Asian individuals. (See Table 7) However, this small number of cases cannot be used to make inferences about disproportionality on a population level.

Table 7: Non-Traffic Unintentional Injuries by Sex, Race, and Ethnicity

	# of Cases	% of Cases	% of King County <18 Population[31]
Sex			
Male	13	77%	51%
Female	4	23%	49%
Race			
White	11	65%	60%
Asian	3	18%	15%
Black or African American	3	18%	8%
Ethnicity			
Hispanic	1	6%	15%
Not Hispanic	16	94%	85%
Total non-traffic unintentional injury deaths reviewed[v]	**17**		

Unintentional Drownings

Drowning ranks second only to traffic fatality in causes of death from unintentional injury. It is notable that King County has extremely few drownings in swimming pools as compared to national data. Sustained work on drowning prevention in King County includes policy and enforcement of regulations about swimming pool safety.

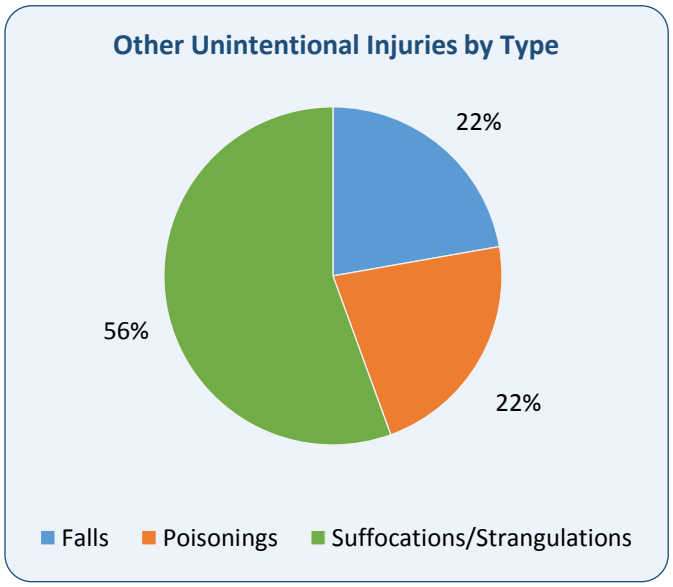
Modifiable risk factors for drowning vary by age and location. Generally, most infant drownings occur in home bathtubs, while drownings in swimming pools or open water are more of a concern for older children. Seven of the eight drowning cases reviewed by CDR occurred in open water. The children that drowned in open water were all between the ages of 10 to 17. All of these open water incidences occurred when the child involved was not wearing a life jacket or other personal flotation device. Notably, the child did not know how to swim in only one of the seven open water drowning cases. Five of the seven children who drowned in open water were swimming without a lifeguard present.

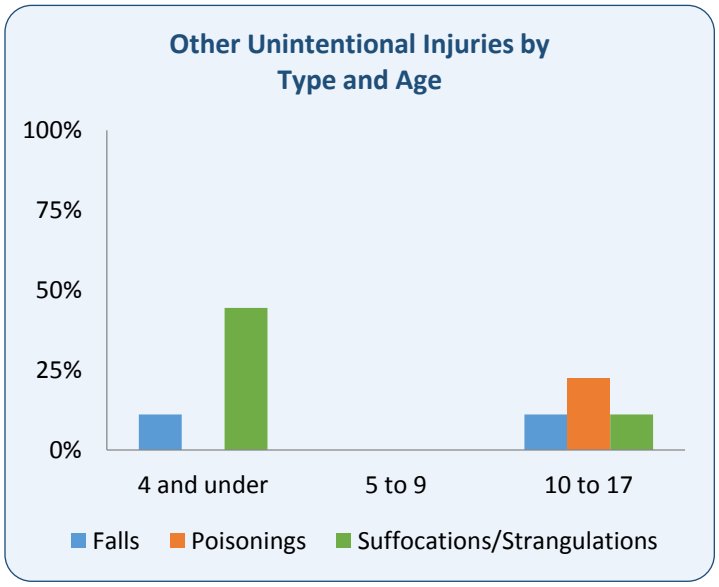
[v] The data in this report does not include all child deaths that occurred between July 2012 and December 2015. The remaining 8% of cases not reviewed in 2012-2015 were reviewed in 2016 or will be reviewed in later years individually or in groups.

Unintentional Suffocations/Strangulations, Poisonings, and Falls

Other unintentional injuries reviewed by CDR include unintentional suffocation/strangulation, unintentional poisoning and death from a fall. Although these cases include diverse causes of death, the modifiable risk factors for each type of injury overlap. About one third of the cases involved lack of or lapse in adult supervision. More unintentional suffocations/strangulations were reviewed than unintentional poisonings or falls. (See Figure 9) The majority (80%) of the unintentional strangulations or suffocations occurred in children ages four or under. All of the unintentional drug poisonings that were reviewed occurred in children over the age of 15.[vi]

Figure 9: Unintentional Suffocations/Strangulations, Poisonings and Falls





[vi] The total number of unintentional suffocations/strangulations, poisonings, and falls has been omitted in order to maintain confidentiality for the small number of cases. Estimates should be interpreted with caution.

Priority Recommendations for Prevention of Other Unintentional Injury Deaths

CDR developed the following recommendations based on individual case findings and trends in modifiable risk factors. These priority recommendations were selected to be included in this report by Public Health – Seattle & King County staff and CDR core team members based on their level of potential impact.

Recommendation: Support the development of rules and regulations for bathing (swim) beaches county-wide.

> **Status:** The Washington State Department of Health (WADOH) and the Washington State Board of Health identified the need for statewide bathing beach guidelines and an implementation process. This has been indicated as a part of the WADOH work plan for this or next year. Therefore, there is no separate local effort being pursued. **(P) (C)**

Recommendation: Reinstate lifeguards at bathing (swim) beaches in Washington State Parks in King County.

> **Status:** After reviewing drownings that occurred in two Washington State Parks in King County in open water without lifeguards present, CDR members helped engage key state legislators, Washington State Parks leadership, and the Washington State Drowning Prevention Network to support the reinstatement of lifeguards at these two state parks in King County, that were previously lifeguarded. At this point, only one (Lake Sammamish State Park) is scheduled to have lifeguards reinstated starting in the summer of 2017. **(P) (C)**

Recommendation: Expand culturally competent public water safety education efforts with an emphasis on using life jackets and choosing to swim at lifeguarded beaches.

> **Status:** Public Health – Seattle & King County worked with water safety partners (e.g. Seattle Children's Hospital, marine patrol entities, Washington State Parks and Washington State Department of Health and local parks programs) to expand water safety messaging efforts focused on high-risk populations. These include media stories in major and small media markets that promote and increase awareness of lifejacket loaner stations, lifeguarded swim beach opportunities, and free swim lesson opportunities. **(I/P) (C)**

Recommendation: Establish educational programs and availability of window safety mechanisms to reduce window falls by young children.

> **Status:** CDR provided information and recommendations as a participant of a newly established Regional Window Falls Forum held by the Western Pacific Injury Prevention Network in June 2014. The forum outcomes included: 1) the development of a Rapid Response Packet; 2) some increase in the use of the "Stop at 4" website (www.stopat4.com), which promotes window safety; and 3) a review of Washington and Oregon state building codes. **(I/P) (P) (C)**

Key: (I/P) = Internal/Programs Change (P) = Policy Change (S) = Systems Change
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Section IV: Intentional Injury Deaths

Death from intentional injury includes death by both homicide and suicide. In the United States, death by homicide peaks in early childhood, decreases in late childhood, and then rises steadily through adolescence and into adulthood; [32] death by self-inflicted injury is not generally considered suicide until at least age 10 (though usually a bit older) and rates rise through adolescence. Multiple forms of violence, including homicide and suicide, share many upstream and acute modifiable risk factors that are evident in the cases reviewed by King County's Child Death Review (CDR).

I. Homicides

CDR reviewed ten homicides that occurred between July 2012 and December 2015. Four deaths were from firearm or stabbing injury and six from blunt force trauma. (See Figure 10) Of the six cases of homicide by blunt force trauma, all but one child was under three years old. Seven out of the ten homicide cases reviewed were female. (See Table 8) Compared to the county population, black or African American, American Indian and Alaska Native, and multi-racial children were overrepresented among homicide victims reviewed by CDR, while white and Asian children were underrepresented. (See Table 8) However, findings related to disproportionality in homicides among some groups may be inconclusive due to the small number of cases reviewed.

While there were many modifiable risk factors identified in homicide cases reviewed in CDR, some common factors rose to the top of the list, regardless of whether the homicide was perpetrated by a parent or caregiver or by another person. Eight of the ten children were from families that had had contact with Children's Administration. (See Figure 10) Exposure to violence and conflict in the family, including domestic violence, was identified as a modifiable risk factor in seven of the ten cases. (See Table 9) The most common modifiable risk factor was substance use involvement, which was a factor in nine of the ten homicides. (See Table 9)

In the nine cases where substance abuse was a risk factor, the parents were involved in substance abuse in five cases, while the victims used substances in the other four cases. Five of the ten victims had previously been victims of violence. All of the cases had more than one identified modifiable risk factor. Additional data is needed to understand the origin of firearms used in homicide to include the accessibility of stolen firearms. 40% of the homicide cases reviewed were eligible for public health nursing (PHN) services for at-risk families, with some no-shows for the PHN appointment or not following through on the referral. Some information suggests a high likelihood of Adverse Childhood Experiences (ACES) in these cases, though this information is not consistently collected or available to CDR. In a number of cases, historical family (parent/caregiver) ACES were also found.

Table 8: Homicide Deaths Reviewed by Sex, Race, and Ethnicity

	# of Cases	% of Cases	% of King County <18 Population[33]
Sex			
Male	3	30%	51%
Female	7	70%	49%
Race			
White	1	10%	60%
Black or African American	3	30%	8%
American Indian or Alaska Native	2	20%	1%
Multi-Racial	3	30%	12%
Unknown	1	10%	n/a
Ethnicity			
Hispanic	2	20%	15%
Not Hispanic	8	80%	85%
Total homicide cases reviewed[vii]	**10**		

[vii] The data in this report does not include all child deaths that occurred between July 2012 and December 2015. The remaining 8% of cases not reviewed in 2012-2015 were reviewed in 2016 or will be reviewed in later years individually or in groups.

Figure 10: Homicide Deaths Reviewed

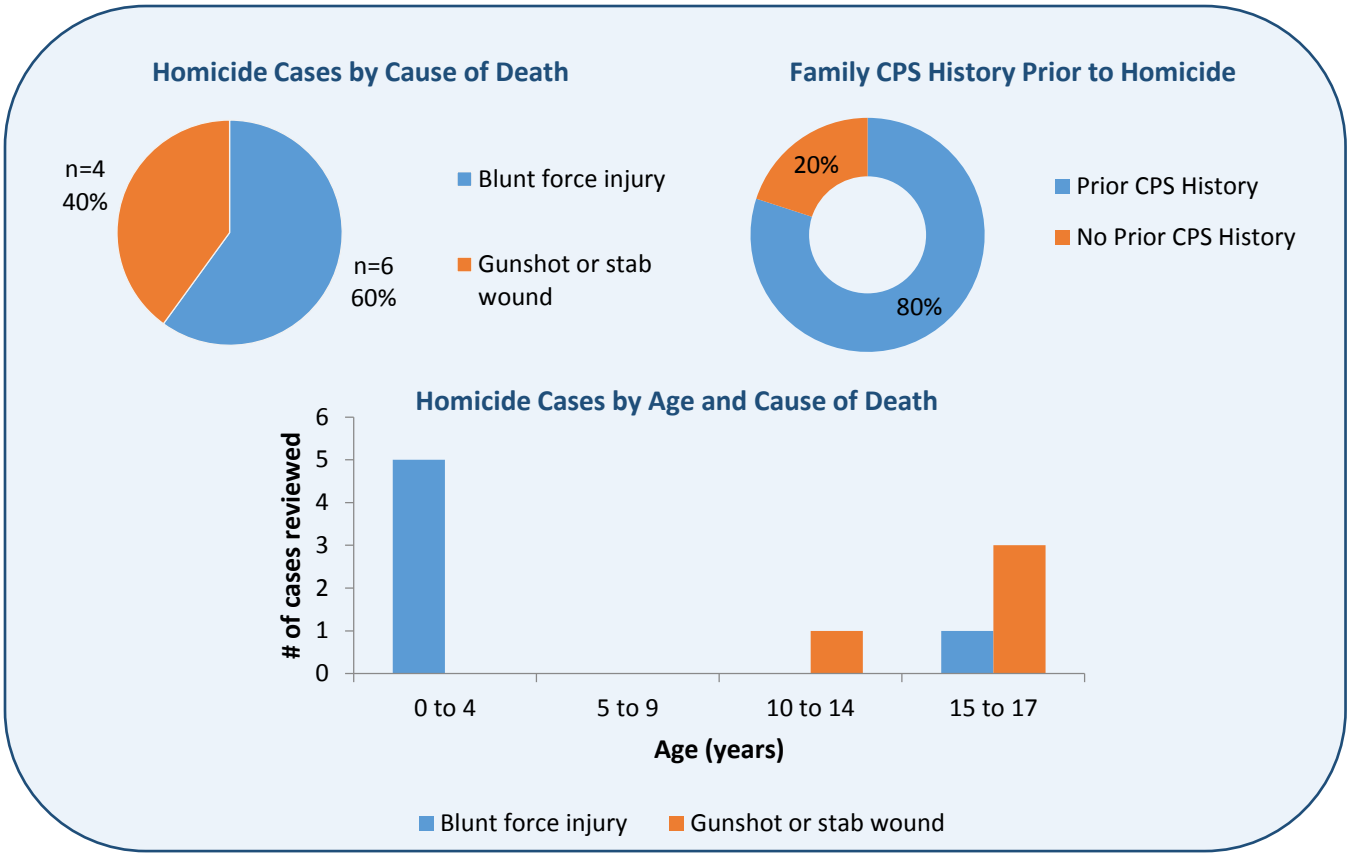


Table 9: Sample of Identified Modifiable Risk Factors in Homicide Deaths

Identified Modifiable Risk Factor	# of Cases	% Occurrence
Substance use involved	9	90%
Exposure violence and conflict in the family, including domestic violence	7	70%
Victim has history of being victimized by violence	5	50%
Parental substance abuse	5	50%
Victim involvement with drugs, alcohol or tobacco	4	40%
Cases with multiple identified modifiable risk factors	**10**	**100%**
Total homicide cases reviewed	**10**	

Priority Recommendations for Homicides

CDR developed the following recommendations based on individual case findings and trends in modifiable risk factors. These particular recommendations were a result of findings from homicides reviewed that involved domestic violence and abuse of young children. These priority recommendations were selected to be included in this report by Public Health – Seattle & King County staff and CDR core team members based on their level of potential impact.

Recommendation: Review possible change of RCW 9A.16.100 – use of force on children policy. Research science of discipline for children 0-3 years of age and potentially have PSA campaign.

Status: Implementation of recommendation is pending. **(P) (R) (C)**

Recommendation: Implement training for all of Public Health's Parent Child Health providers on *Periods of Purple Crying* in order to better educate parents and caregivers on the risk of abusive head trauma.

Status: Public Health – Seattle & King County's Parent Child Health and Seattle Children's Hospital are coordinating the *Periods of Purple Crying* training. **(I/P)**

Recommendation: Identify potential Adverse Childhood Experiences (ACEs) and trauma that contribute to youth and young adult violence in King County.

Status: Following the example of CDR, Public Health – Seattle & King County is initiating a Youth and Young Adult Violence Review, which will research the lives of young men who have been victims or perpetrators of gun violence in order to identify further opportunities to prevent violent injury deaths and injuries among children and young adults. **(I/P) (R) (C)**

Recommendation: Support detailed investigations by law enforcement and medical examiner partners into the origins of firearms involved in youth deaths and whether unsafe storage was a modifiable risk factor.

Status: Public Health –Seattle & King County will meet with the King County Sheriff and local police chiefs to discuss this. **(S) (R) (C)**

Key: (I/P) = Internal/Programs Change (P) = Policy Change (S) = Systems Change
(R) = Research (C) Community Partner

II. Suicides

Although suicide risk and suicidal thinking are beginning to increase among children of certain racial groups at younger ages, particularly black children, it is rare for the deaths of children younger than adolescence to be classified by medical examiners and coroners as suicide.[34] The majority of decedents' cases reviewed by CDR were 15 to 17 years old. (See Figure 11) Additionally, approximately thirteen percent (13%) of public school 8th, 10th and 12th grade teens surveyed in King County in 2014 reported having made a suicide plan in the previous year, while between seven and nine percent reported having attempted suicide.[35]

While about half of all suicides in Washington are by firearm,[36] the majority (55%) of suicides reviewed by CDR were by hanging. (See Figure 11) Thirty percent were by firearm and smaller numbers by poisoning, asphyxiation other than hanging, and falls. Research shows that hanging and firearms are the most lethal means by which people attempt suicide. Due to the lethality of these means, there are fewer survivors among those who attempt suicide by hanging and firearms than among those who attempt suicide by other means.

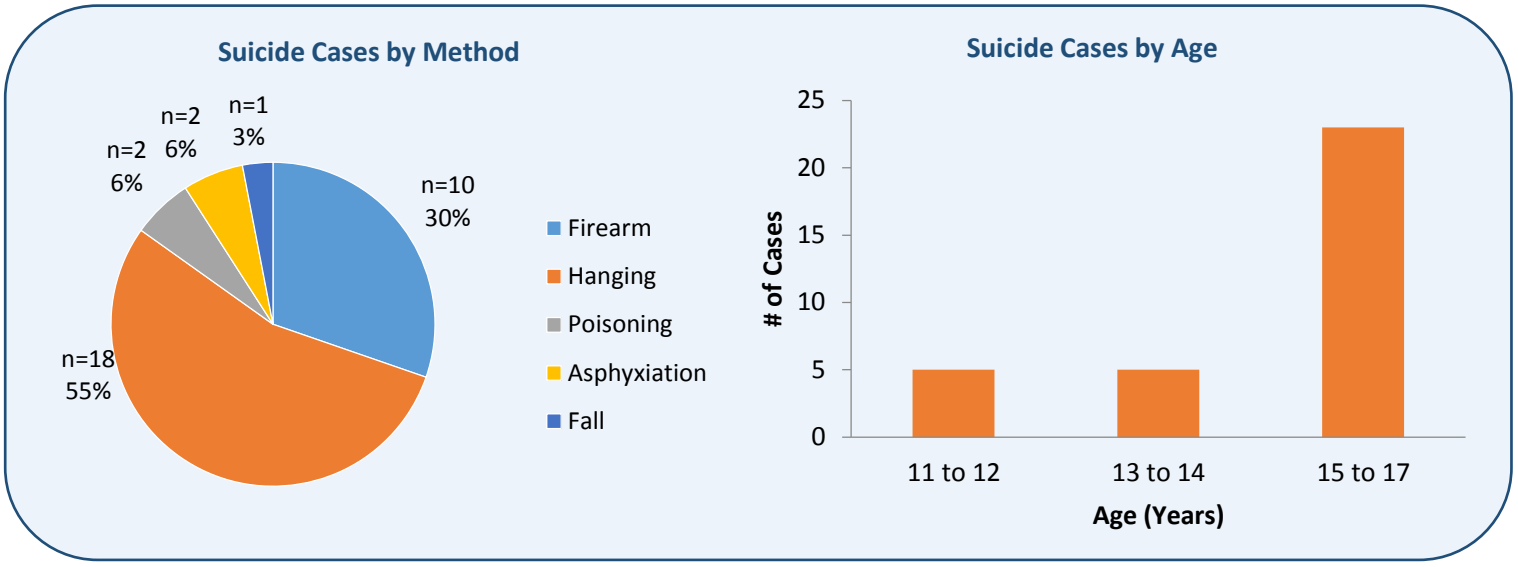
In the 33 suicide cases reviewed, 61 percent were white, and 18 percent were Asian (a higher percentage than in the county population) and smaller numbers were of other races. (See Table 10) The proportion of youth of Hispanic origin who died by suicide was consistent with King County's population.

Suicide modifiable risk factors identified in CDR are consistent with research findings. Almost half of youth who died by suicide had a diagnosed mental illness, and nearly half had a history of substance abuse – two of the most common modifiable risk factors for suicide. (See Table 11) Nearly one-quarter of the decedents had attempted suicide previously and 18 percent had a known history of self-injury. Trauma history was also a concern – thirty three (33%) percent had experienced domestic violence or family conflict, 9 percent had lost a family member or close acquaintance to suicide, and 21 percent had been raped, sexually abused, or physically abused. Many of the youth who died by suicide had shown warning signs like verbalizing suicidal ideation (39%) and changes in school performance (36%). Recent adversities like a breakup (33%), an argument with a family member (18%), legal trouble (15%), and the death of a family member (12%) were also noted as modifiable risk factors in multiple cases. Ninety percent of cases had more than one identified modifiable risk factor.

Table 10: Suicide Deaths Reviewed by Sex, Race, and Ethnicity

	# of Cases	% of Cases	% of King County <18 Population[37]
Sex			
Male	24	73%	51%
Female	8	24%	49%
Transgender	1	3%	n/a
Race			
White	20	61%	60%
Asian	6	18%	15%
Black or African American	2	6%	8%
American Indian or Alaska Native	1	3%	1%
Pacific Islander	1	3%	1%
Multi-Racial	3	9%	12%
Ethnicity			
Hispanic	3	9%	15%
Not Hispanic	30	91%	85%
Total suicide cases reviewed[viii]	**33**		

Figure 11: Suicide Deaths Reviewed



[viii] The data in this report does not include all child deaths that occurred between July 2012 and December 2015. The remaining 8% of cases not reviewed in 2012-2015 were reviewed in 2016 or will be reviewed in later years individually or in groups.

Table 11: Sample of Identified Modifiable Risk Factors in Suicide Deaths

Modifiable Risk Factor	# of Cases	% Occurrence
Diagnosed mental illness	16	49%
History of substance abuse	16	49%
Verbalized suicidal ideations	13	39%
School or job issues (failure, attendance, new school, loss of job)	12	36%
Recent breakup or argument with boyfriend or girlfriend	11	33%
Access to firearm	10	30%
Experienced domestic violence or family conflict	10	30%
Made prior suicide attempts	8	24%
History of rape, physical or sexual abuse	7	21%
History of self-harm/mutilation	6	18%
Recent argument with parent or caregiver	6	18%
Involvement in juvenile justice system and/or legal trouble	5	15%
Experienced the recent death of a family member	4	12%
Experienced suicide of a friend, relative, or acquaintance	3	9%
Cases with multiple identified modifiable risk factors	**30**	**91%**
Total suicide cases reviewed	**33**	

Priority Recommendations for Prevention of Suicides

CDR developed the following recommendations based on individual case findings and trends in modifiable risk factors. These priority recommendations were selected to be included in this report by Public Health – Seattle & King County staff and CDR core team members based on their level of potential impact.

Recommendation: Firearms, drugs, and alcohol in the homes of all youth should be stored safely.

> **Status:** Public Health – Seattle & King County's LOK-IT-UP campaign partners with local law enforcement agencies to deliver safe storage messaging to gun owners and with firearm retailers to provide discounts on safe storage devices, and works with law enforcement to increase education of concealed pistol license (CPL) applicants about safe storage. **(I/P) (C)**

Recommendation: Provide postvention/grief support resources to schools and youth present at the scene of a suicide.

> **Status:** CDR partners – the Youth Suicide Prevention Program (YSPP) and Forefront – are involved in school postvention supports. Forefront provided a brochure with bereavement support resources to the King County Medical Examiner's Office for death investigators to distribute to survivors at the scene. The CDR program manager is providing a script developed with the King County Prosecuting Attorney's Office to schools about available community resources. **(I/P) (C)**

Recommendation: Restore funding for substance abuse and mental health services in schools so that they are provided in all middle and high schools.

> **Status:** The state of Washington and local school districts would need to lead full implementation of this recommendation. While budget limitations have made this impossible, both of these aspects of school suicide prevention were recognized as a priority at the state level and written into the WA State Suicide Prevention Plan. **(P) (C)**

Recommendation: Support schools in developing comprehensive suicide prevention plans, as required by state law, including student education.

> **Status:** Local suicide prevention organizations are working with school districts on their suicide prevention plans and have made progress in several King County districts. **(S) (C)**

Recommendation: Improve communication between emergency department, primary care, and mental healthcare providers for at-risk youth.

> **Status:** Participating organizations met and discussed how this recommendation could be implemented, but were unable to take action in 2016. **(I/P) (S) (C)**

Recommendation: Develop more detailed law enforcement and medical examiner investigations into the origins of firearms involved in youth deaths, including the storage, ownership, and circumstances of youth and parental possession of the firearms.

> **Status:** Public Health –Seattle & King County will meet with the King County Sheriff and local police chiefs to discuss this. **(S) (R)**

Key: (I/P) = Internal/Programs Change (P) = Policy Change (S) = Systems Change
(R) = Research (C) Community Partner

Section V: Actions for Prevention of Child Death

I. Making Changes in our Community to Prevent Child Deaths

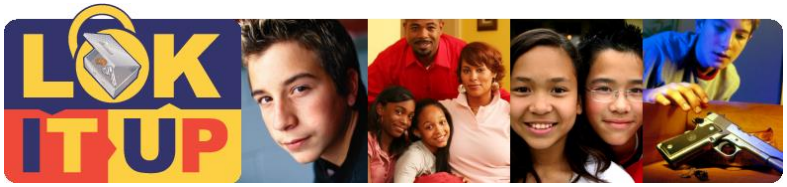
Injury prevention efforts lead to a high return on investment because the costs of medical care and lost productivity for a child injury or death are also high. Yet investment in injury prevention pales in comparison to investment in preventing diseases and illnesses that lead to fewer deaths.[38] Despite recent reductions in funding, King County's Child Death Review (CDR) continues to work to improve the county's systems, policies, professionals, and people through its formation of collaborative partnerships, recommendations, and actions, which ultimately protect children. The CDR process gives our community an opportunity to honor the memories of the children lost by striving to prevent as many future deaths due to violence or injury as is possible. Using a methodological case approach, we are able to identify these prevention opportunities through targeted recommendations for change.

> Child Death Review is "of [significant] benefit on a few fronts: a) by bringing together a thoughtful and disparate collection of professionals, it is insightful to address cases at all levels. This insight supports our other prevention efforts in terms of consideration of perspective taking; b) this forum naturally invites valuable networking opportunities, which can lead to partnerships for building on problem solving and systems protocol in related areas; c) by engaging in this process we have been able to recognize gaps and challenges for our system; d) the cumulative impact of these reviews is to create policy change opportunities and/or further drive prevention efforts. These can take place at multiple areas, and it is important for us to be kept abreast with effective practices and policy proposals."
>
> - Child Death Review participant, 2016

CDR has made numerous recommendations that have resulted in internal/programmatic, policy, and systems-level changes, including the reinstatement of lifeguards at bathing (swim) beaches at Lake Sammamish State Park; Seattle Children's Hospital's lifejacket loaner program; the improvement of a long-standing firearms safe storage campaign, LOK-IT-UP; the development of a "safe sleep script" to help providers have a conversation with patients/clients about safe sleep environments for infants; the Baby Bed Box Project that provides an immediate safe sleep solution; and the provision of postvention resources to survivors in school communities and families after the suicide of a child in order to reduce risk of additional suicides.

Highlighted Response # 1

CDR reviews of cases of youth suicides involving stolen or family-owned firearms, combined with review of population health data that shows that over half of King County firearm-owning households report storing at least one firearm unlocked, CDR recommended implementing a firearm safe storage campaign. In 2013, Public Health relaunched the LOK-IT-UP firearm safe storage campaign to include a new education component in which concealed pistol license (CPL) applicants receive safe storage information through law enforcement agencies in King County (www.LokItUp.org). The campaign partners with law enforcement agencies, who educate gun owners, and retailers. Participating retailers also provide discounts on firearms safes and lockboxes. Informed by CDR case data, several members of CDR are also serving on the state's legislatively-mandated Safer Homes Task Force, which aims to reduce firearm suicide by educating firearm retailers, and providing effective training through hunter safety courses about safe storage of firearms.



Highlighted Response # 2

While reviewing the deaths of teens by suicide, CDR participants consistently brought up concerns for the well-being of surviving members of the families and the youths' communities. CDR developed a recommendation to provide grief support resources to these families. The King County Medical Examiner's Office, Forefront (a nonprofit community-based organization working to prevent suicide), Virginia Mason Hospital's Loss and Separation Services, and the Youth Suicide Prevention Program, also a nonprofit organization working to prevent suicide, are currently collaborating to implement this recommendation.

Highlighted Response # 3

After a series of reviews of infant deaths, in which unsafe sleep environments were a prominent modifiable risk factor, CDR recognized the need for more consistent safe sleep messaging for parents and caregivers and recommended actions to assist healthcare providers when working with parents of infants. CDR developed a "safe sleep script," which guides healthcare providers through culturally appropriate conversations about safe sleep with their patients or clients. Additionally, CDR participants received grant funding to fund a "Baby Bed Box" pilot project, modeled on the Finnish baby bed box approach, in which every infant receives a box with a waterproof mattress to ensure a safe sleep environment. Finland has seen a reduction in SIDS/SUIDS deaths since the approach was implemented. In addition to using the safe sleep script, providers distribute Baby Bed Boxes, which serve as a safe place for babies to sleep.[39] Together, the script and boxes give providers the information and resources necessary to promote safe sleep with their patients and clients. Public Health – Seattle & King County has educated the public about safe sleep environments through social media about the Baby Bed Box project.

Highlighted Response # 4

While reviewing youth homicides, CDR data showed that older teens and young adults of color were disproportionately impacted by firearm deaths. In response, PHSKC and community partners received training on the Milwaukee Homicide Review Process which strives to reduce homicides and nonfatal shootings. The Prosecuting Attorney's Office (PAO) and community partners, including Public Health – Seattle & King County, are exploring utilizing a similar approach for a youth and young adult firearm violence review process in King County via a United States Department of Justice, Bureau of Justice Assistance Administration grant.

II. Building Capacity for CDR's Prevention Efforts

In addition to making recommendations to prevent child deaths, Public Health – Seattle & King County and members of the CDR core team have informally identified the need for additional actions to address current limitations to the CDR process. These actions include: expanding CDR's impact via recruitment and participation of other key entities and stakeholders; reviewing deaths more rapidly after they occur; including CDR as a Foundational Public Health Service in the state of Washington; increasing funding; and establishing a Prevention Action Team. Although these are not formal recommendations, strengthening the CDR process will improve CDR's abilities to review and prevent child deaths in King County.

Currently, CDR is not a Foundational Public Health Service, which means that there is no statewide funding available to support CDRs in each county. As a result, only seven local health departments in Washington State are currently conducting reviews, and there is little coordination and sharing of information to identify trends between these local health jurisdictions. CDR recommendations, such as implementing the LOK-IT-UP campaign and the Baby Bed Box Project for safe sleep environments, can have tremendous impacts when implemented. Establishing a Prevention Action Team would provide an ideal mechanism to incorporate CDR recommendations into local efforts. This model exists in communities around the United States and has aided local CDR teams in gaining support towards implementation of recommended strategies. Other recommendations are longer-term projects that are more complex and involve multiple systems across communities, such as a recommendation for improvement in communication across systems to improve supports for youth at risk of suicide. Just as with communicable disease, many causes of violence and injury spill-over from one community to another, such as with alcohol-caused traffic fatalities where a teen or adult travels into another jurisdiction, or unsafely stored firearms that are stolen and wind up causing injury in a neighboring community. Statewide case-level data and coordination is needed to effect these system and policy changes.

III. Next Steps

CDR partners are currently working to increase visibility of CDR and educate key stakeholders about the value of the CDR program. Additionally, Public Health – Seattle & King County aims to ensure that the wider public is aware of CDR recommendations and prevention opportunities through the distribution of this report, discussions with King County leadership, education of PHSKC staff, media opportunities, collaboration with various injury prevention coalitions, and conversations with policymakers.

King County's CDR gives a voice to children and families who have been victims of preventable child death. The program will continue to strengthen collaboration among community injury and violence prevention partners in order to improve outcomes and end unexpected or unintentional deaths of children in King County.

Appendix

I. Data Sources and Priority Recommendations

The data in this report was collected and verified by the Violence and Injury Prevention Unit at Public Health – Seattle & King County. Data was collected from medical examiner and law enforcement records, CDR case summaries, and review notes. Some of the data included in this report may be grouped into categories due to small case numbers; data should be interpreted with caution. The priority recommendations included in this report were selected by Public Health – Seattle & King County staff and CDR core team members based on their level of potential impact.

II. References

[1] CDC 10 Leading Causes of Death by Age Group, United States, 2014

[2] Washington State Department of Health: Death Certificate Data, 2012-2014, provided to Public Health – Seattle & King County, July 2016

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[4] Washington State Department of Health: Death Certificate Data, 2012-2014, provided to Public Health – Seattle & King County, July 2016

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[7] CDC 10 Leading Causes of Death by Age Group, United States, 2014

[8] Washington State Department of Health, Injury Data Tables

[9] National Center for the Review & Prevention of Child Deaths - CDR Principles

[10] CDC National Action Plan for Child Injury Prevention

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[14] Public Health - Seattle & King County, Assessment, Policy Development & Evaluation, July 2014

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[22] NIH Safe to Sleep - Research on Other SIDS Risk Factors

[23] American Community Survey, 2010-2014, Prepared by Public Health – Seattle & King County, Assessment, Policy Development & Evaluation Unit, July 2016

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[28] CDC MMWR - Unintentional Injury Deaths Among Persons Aged 0-19 Years - United States, 2000-2009

[29] Washington State Department of Health, Injury Data Tables

[30] American Community Survey, 2010-2014, Prepared by Public Health – Seattle & King County, Assessment, Policy Development & Evaluation Unit, July 2016

[31] American Community Survey, 2010-2014, Prepared by Public Health – Seattle & King County, Assessment, Policy Development & Evaluation Unit, July 2016

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[37] American Community Survey, 2010-2014, Prepared by Public Health – Seattle & King County, Assessment, Policy Development & Evaluation Unit, July 2016

[38] Tony Gomez, Laura Hitchcock, Marguerite Ro, Public Health – Seattle & King County, "Report on the Status of Violence and Injury Prevention (VIP) in the Local Health Department (LHD)System of Washington State, 2014-2015," June 2015

[39] PHSKC Public Health Insider