Epidemiology of Child Maltreatment Determinants in Alaska Native and American Indian Populations in Alaska

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The Indigenous population of Alaska or "Alaska Native people" can be further classified based on cultural, geographic, and other characteristics as Aleuts, Inupiat, Yupik, Athabascans, Tlingit, and Haida. Although these crude subclassifications may reflect some cultural or geographic similarities, they may not be consistent with traditional Indigenous distinctions representing an array of unique cultural, ancestral, and genetic differences.

By the mid-eighteenth century, there were an estimated 80,000 Alaska Native people, but contact with the Russian and European peoples brought various social ills and epidemics that had drastic impacts. While actual population losses are unknown, estimates range between 50% and 80% (Bjerregaard, Young, Dewailly, & Ebbesson, 2004; Fleming, 1992; Sandberg, Hunsinger, & Whitney, 2013).

The Indigenous populations of Alaska have experienced much historical trauma, including mass illness, forceful removal of children from family settings to attend boarding schools, loss of traditions, marginalization, substance abuse, and violence. Collectively, these traumatic experiences have likely contributed to the current health status of the Alaska Native population (La Belle, Smith, Easley, & Charles, 2005).

One social ill that continues to impact the Alaska Native population disproportionally (relative to the Alaska non-Native population) is child maltreatment (Parrish, Young, Perham-Hester, & Gessner, 2011). Child maltreatment is often defined similarly across agencies but differs with respect to jurisdictional responsibility and operationalization. For the purposes of this article, child maltreatment is defined using the public health definitions as described by the CDC; thus, maltreatment consists of both acts of commission (physical, sexual, and psychological abuse) and acts of omission (physical, emotional, medical, education neglect, and failure to supervise adequately) (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008). It should be noted that the application of these definitions may not be consistent across all groups due to population practices and traditional values (i.e., educational neglect could be represented by the education system in one community and by hunting, fishing, or a trade in another).

The causes of child maltreatment are multifaceted with likely no single causal mechanism; however, specified patterns and behaviors do exist, which may increase one's risk of maltreatment (Thompson et al., 2012; Turner et al., 2012). The most likely root causes of maltreatment can be best understood under a socio-ecological framework that incorporates the influences at the macro and micro levels (Evans-Campbell, 2008). Such influences of historical trauma, loss of community and culture, substance abuse, mental health, economic status, and disease are all likely part of a diverse, dynamic, and complex causal chain leading to each single incident of maltreatment (Evans-Campbell, 2008).

This article will not address causality but will rather provide an overview and description of child maltreatment and factors among the Alaska Native population from a variety of publicly available data sources in an attempt to elucidate some of the simplistic yet striking social determinants potentially contributing to childhood neglect and violence. This description can provide a context for which maltreatment prevention efforts can be realized.

Finally, it should be remembered that the crude grouping of all Alaska Indigenous people into one classification of "Alaska Native people" represents a large diversity of people each with distinct cultural practices, history, and traditions. These unique cultural and community experiences should be incorporated when implementing population-based public health interventions as well as providing direct clinical services.

Data Sources

Utilizing five primary publicly available data sources, this article provides a descriptive assessment of Alaska Native children's experiences with known risk factors and reported maltreatment. Except for the child protective services (which use self-reported and/or observed race), all other sources defined race as maternal race indicated on the child's birth certificate. The five data sources are briefly described as follows:

Child Protective Services (CPS)
The Office of Children's Services (OCS) is the State of Alaska's CPS agency. By state law, all reported cases of child maltreatment that come to its attention are documented. Further statutory regulations govern the operational definitions of what reports are screened in and investigated. OCS is primarily responsible for responding to and investigating all reports of maltreatment for children <18 years of age occurring in the home under a designated caregiver's supervision.

Child Death Review
Since 1989, the Maternal Infant Mortality Review (MIMR) committee has reviewed all deaths of infants and mothers that the Alaska Bureau of Vital Statistics reports to them. The MIMR committee is made up of various professionals (including physicians, content experts, nurses, epidemiologists, social services, and others). The MIMR committee reviews information regarding the death from a variety of sources (including vital records, medical records, first responder reports, autopsy, police, court, child protection, and social media) and comes to a consensus on the causes, contributors, and key circumstances of each death. This committee has increased sensitivity in detecting maltreatment-related mortality that may not meet the level required by judiciary definitions for prosecution. This is accomplished by applying a public health approach and utilizing medical and psychological definitions to identify cases where maltreatment probably or possibly contributed to the death rather than requiring a specific legal determination.

Pregnancy Risk Assessment Monitoring System (PRAMS)
The PRAMS questionnaire collects self-reported information on maternal attitudes, experiences, and behaviors before, during, and after delivery of a live newborn infant. PRAMS was initiated in 1987 by the CDC by funding five states and the District of Columbia, and it has been ongoing in Alaska since 1990. Currently 40 states and New York City are participating in PRAMS, representing nearly 78% of all annual live births in the United States. Using a mixed model design (mail and phone questionnaires), mothers are complex sampled and surveyed, and responses are weighted to represent the population (Gilbert, Shulman, Fischer, & Rogers, 1999; Shulman, Gilbert, & Lansky, 2006).

Alaska PRAMS samples approximately one in every six live births, with stratified sampling of the births occurring by maternal race (Alaska Native and non-Native) and birth weight (<2500g and ≥2500g). Response rates have maintained (for the most part) above 70%.

Childhood Understanding Behaviors Survey (CUBS)
The CUBS survey in Alaska is a 3-year follow-up to PRAMS respondents. The CUBS questionnaire asks about maternal, family, and child experiences and behaviors. Among eligible respondents from 2006–2009 births, the average response rate for CUBS was 51.3%. Like PRAMS, CUBS attempts to preserve population representation by applying complex weighting and nonresponse adjustments.

All PRAMS and CUBS data presented (unless otherwise noted) come from the *Alaska Maternal and Child Health Data Book 2011: Alaska Native Edition* (Young, Perham-Hester, & Kemberling, 2011).

The Alaska Surveillance of Child Abuse and Neglect (SCAN)
Established in 2008 by the MCH-Epidemiology Unit of the Alaska Division of Public Health, the Alaska SCAN program provides a public health approach to describing maltreatment at the population level. The SCAN program links multiple data sources in an attempt to provide a more comprehensive assessment of the incidence and factors contributing to maltreatment. While the general definition of maltreatment is similar to other agencies (acts of commission and omission by a designated caregiver), the operationalization of this definition crosses jurisdictional boundaries and applies tiered public health focused definitions of maltreatment with varying degrees of sensitivity and specificity (not limited to any agency determination or legal definition).

Population Description
The 2012 population of Alaska was estimated at 732,298 persons, among which 16.8% identified as American Indian and/or Alaska Native and 70.1%, as Caucasian. The largest city, Anchorage, had an estimated 40.1% (n=298,842) of Alaska's population. Among the Alaska Native population, 76.5% lived outside Anchorage (59.3% among the Caucasian population). Of the estimated 122,944 Alaska Native people, 50.2% were male and 49.9% were female (Robinson, Hunsinger, Howell, & Sandberg, 2013).

The estimated 2012 child population (ages 0–14 years) was 158,865 (21.7% of the total population), among which 22.5% were Alaska Native and 62.7% were Caucasian. Approximately 78.0% of Alaska Native children lived outside of Anchorage (Robinson et al., 2013).

Alaska is geographically expansive with 570,641 square miles of land with a small population density per land mass (1.2 persons per square mile, compared with 87.4 for the total U.S.), which makes providing services a unique challenge. Texas, the next largest geographic state, has 261,232 square miles of land mass and a population density of 96.3 persons per square mile (Figure 1). Wyoming has the lowest population density in the contiguous U.S. at 5.8 per square mile, which is still nearly 5 times that of Alaska (U.S. Census Bureau, 2014). Much of Alaska is inaccessible by road, requiring the use of a plane, boat, snow machine, or dogsled to reach many Alaskan communities (Figure 1).

Figure 1. State of Alaska Superimposed on the Contiguous United States

Source: Alaska Division of Public Health photo stock; approximate scaling.

General Population Characteristics

The average life expectancy at birth in 2010 for all Alaskans was 76.1 years for males and 80.5 for females. Among the Alaska Native population, it was 68.6 years for males, and 73.3 for females. The median age in 2010 was 26.7 and 35.4 years among the Alaska Native and non-Native populations, respectively (Hunsinger, Howell, & Whitney, 2012).

The overall Alaska teen birth rate is similar to the national average (41.9 vs 41.5 per 1,000 females ages 15–19 years). The teen birth rate among Alaska Native women, however, was 2.7 times that of non-Native Alaskan women (82.3 vs 30.1 per 1,000 females ages 15–19 years). Unintended pregnancy among Alaska Native women has declined from 54.3% in 2000 to 50.5% in 2008, but the prevalence is still 39% greater than non-Native women (50.5% vs 36.3%). Not surprising, women less than 18 years of age had the highest prevalence of unintended pregnancies resulting in a live birth among both Alaska Native and non-Native women (77% and 84%, respectively) (Young, Perham-Hester, & Kemberling, 2011).

Childhood Stressful Life Events

Violence in the Home

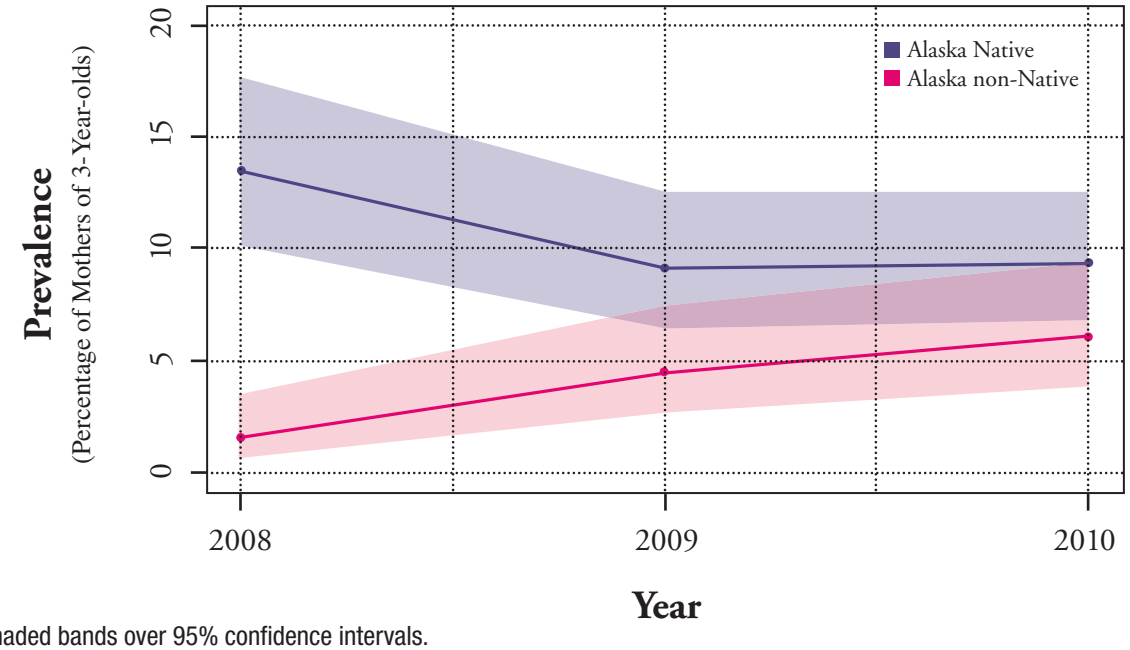
Children who are raised in homes with violence can be adversely impacted, leading to many lifelong negative social and health effects (Anda et al., 2006). Respondents of the CUBS questionnaire were asked about various events that their 3-year-old child may have ever experienced prior to completion of the survey. Within Alaska in 2010, 6.9% (95%CI 5.1%, 9.3%) of mothers reported that their child had seen violence or physical abuse in person; stratified by Alaska Native and non-Native race groupings, the prevalence was 9.4% (95%CI 6.9%, 12.6%) and 6.1% (95%CI 3.9%, 9.4%), respectfully (unpublished CUBS data, 2013). From 2008 through 2010, the trend has decreased among Alaska Native mothers and slightly increased among non-Native mothers (Figure 2). Although the disparity between mothers reporting the child has witnessed violence has attenuated, the Alaska Native population remains significantly elevated ($p<0.05$; unpublished CUBS data, 2013).

According to PRAMS, from 2000 to 2008 the percentage of Alaska Native women reporting physical abuse during the 12 months before they became pregnant has declined 61% (16.2% to 6.4%) but is still higher than that for non-Native women (3.9% in 2008). The percentage of Alaska Native women reporting a controlling partner 12 months before, during, or after pregnancy was consistently higher compared with non-Native women (11.2% vs 7.4% in 2008).

Parenting Practices

Knowledge, and likely more important, attitudes and use of appropriate and effective discipline practices for a misbehaving child, can be difficult to assess. Discipline practices specified in the CUBS survey were designed for the general population and

Figure 2. Three-Year-Old Children Seeing Violence or Physical Abuse, CUBS Data, Alaska 2008–2010



Shaded bands over 95% confidence intervals.

may not reflect traditional methods used. Furthermore, age-appropriate discipline, correction, and expectations can be difficult for many parents. While many experts oppose any form of physical punishment, the impact of "nonabusive" spanking is mixed and currently no law prohibits corporal discipline by Alaska parents (bruises or other marks could be reported if detected) (Larzelere, 2000; Slade & Wissow, 2004).

Among the forms of general discipline practices measured on CUBS, talking to the child was the most common and similar in prevalence for both Alaska Native and non-Native mothers (80% and 86%, respectively). Dissimilar parenting actions between Alaska Native and non-Native mothers include using a "time out" distraction or redirection, removing privileges, and spanking with an object (Figure 3).

Family Instability

Indications of family instability are diverse and may include factors such as paternal involvement, homelessness, and job loss by a parent or caregiver. While these indicators are dynamic over time and require longitudinal assessment with relation to the actual influence on completed maltreatment, the contrasting differences between Alaska Native and non-Native populations are compelling (Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008). Among births occurring in Alaska for the years 2008 through 2011, 6.0% of births had no father's name listed on the birth certificate. Alaska Native mothers (12.6%) were significantly more likely ($p < 0.05$) to be missing a father's name on the birth certificate compared with non-Native mothers (3.6%).

In 2010, the proportion of Alaska Native (73.0%) and non-Native (76.4%) mothers of 3-year-olds reporting that their child spent every day with the father in the past week was similar, but it was significantly different among those reporting no paternal contact days in the past week (9.7% vs 4.9%, respectively; $p<0.05$) (unpublished CUBS data, 2013).

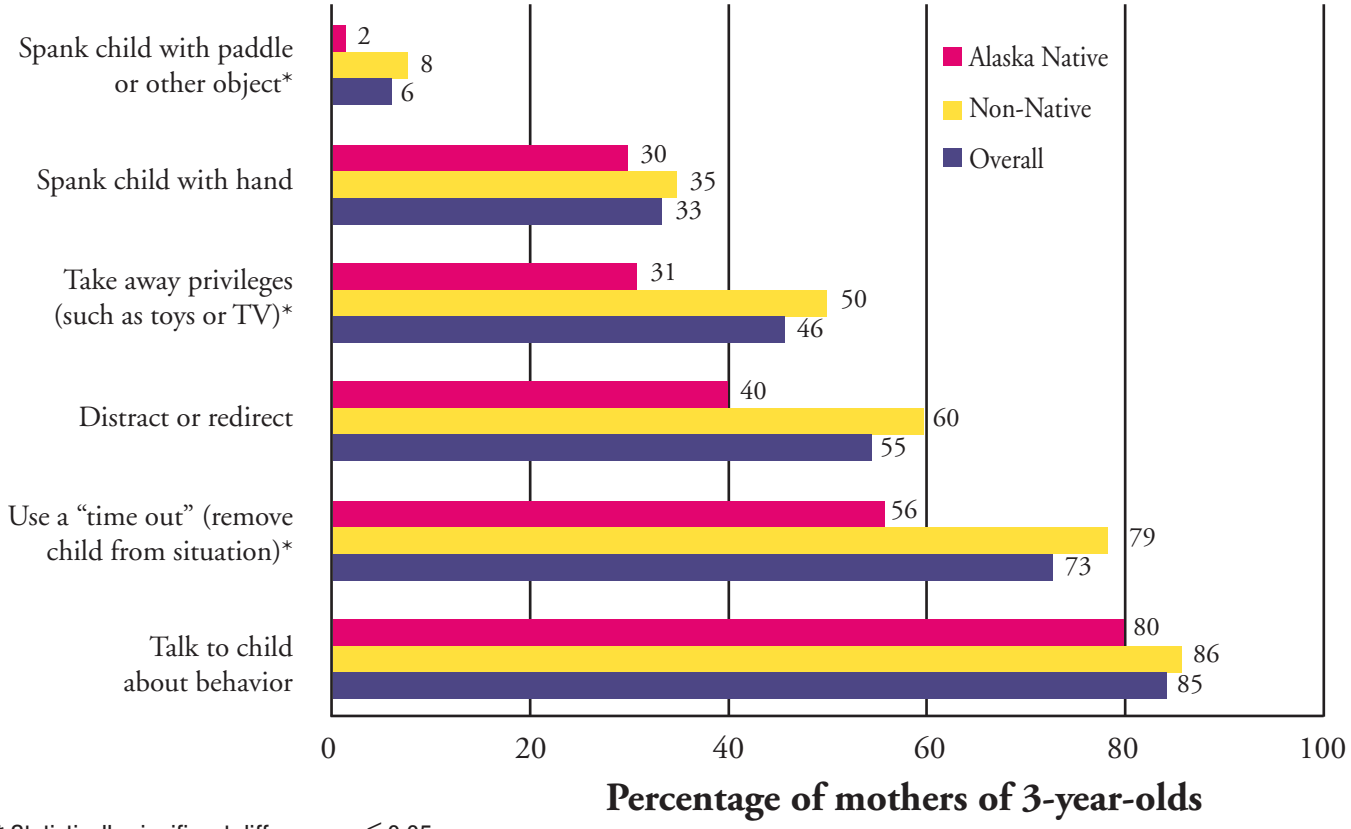
From the PRAMS survey during 2007–2008, compared with non-Native women, Alaska Native women were more likely ($p<0.05$) to report loss of a job (10% vs 6%), homelessness (5% vs 3%), a death of someone close to them (28% vs 15%), separation or divorce (11% vs 7%), respondent or her husband or partner went to jail (11% vs 4%), someone close had a problem with drinking or drugs (27% vs 15%), or arguing with their husband or partner more than usual (28% vs 24%).

Child Maltreatment Statistics

Child Protection

From 2009 through 2012, nearly 42,251 unique children ages 0–18 years had at least one alleged allegation of maltreatment reported and recorded by Alaska child protective services (total alleged allegations against these alleged victims = 144,056). The number of allegations per child ranged from 1 to 52, with 57% having 2 or less and 95% having 10 or less total allegations. Each

Figure 3. Discipline Actions Taken by Parents When Child Was Misbehaving, by Action, CUBS Data, Alaska, 2008



* Statistically significant difference, p ≤ 0,05

alleged incident of maltreatment can have multiple allegations (e.g., 1 maternal allegation and 1 paternal allegation).

From 2008 through 2012, the total annual number of allegations received by OCS consistently increased. Neglect allegations experienced the sharpest increase, followed by mental injury, abuse, and (last) sexual abuse (Vadapalli & Hanna, 2013). Race was known for nearly 75% of the children reported to child protection (36% Alaska Native, 38% non-Native, and 26% unknown).

Abusive Head Trauma (AHT)

A recent study published by the SCAN program for the years 2005–2010 reported an incidence of 34.4 (95%CI 25.1, 46.1) per 100,000 children < 2 years of age in Alaska (56.0; 95%CI 39.4, 77.1, among infants <1 year old) (Parrish, Baldwin-Johnson, Volz, & Goldsmith, 2013). This study utilized the CDC pediatric AHT definitions and applied the coding algorithm to a multisource database that included records from vital statistics, the Violent Death Reporting System, MIMR-CDR, Alaska Trauma Registry, hospital discharges, and Medicaid claims to increase the case capture rate (multisource linkage captured 49% more AHT cases than any source alone).

Among Alaska Native children, the incidence of AHT per 100,000 children < 2 years was 33.1 (95%CI 16.5, 59.2). Relative to Caucasian children, the incident rate ratio (IRR) was 1.3 (95%CI 0.6, 2.8) with no significant difference detected. While no statistically significant disparity between Alaska Native and Caucasian races was present, both races still exhibit an elevated AHT incidence indicating a need for statewide AHT primary prevention efforts (Parrish et al., 2013).

Longitudinal Maltreatment

The SCAN program has followed all 2008 Alaska births (n=11,330) through 2012 to assess the hazard of maltreatment by age 4 years. The birth cohort was linked with death records, annual residence applications for the Permanent Fund Dividend (PFD), and child protection records to define the cohort. The PFD database contains all Alaska resident applications for a resource dividend of the State oil return investments (nearly all eligible residents register). Cohort members were censored for

Table 1. Basic Birth Characteristics Among the 2008 Birth Cohort by Alaska Native and non-Native Race Classifications*

	Alaska Native	non-Native	p-value†
Allegation of Maltreatment			
Yes	1034 (35.9)	1111 (13.3)	<0.001
No	1844 (64.1)	7224 (86.7)	
Missing	0 (0.0)	0 (0.0)	
Marital Status			
Unmarried	1963 (68.2)	2263 (27.2)	<0.001
Married	912 (31.7)	6066 (72.8)	
Missing	3 (0.1)	6 (0.0)	
Maternal Age			
<19 years	301 (10.5)	329 (4.0)	<0.001
19+ years	2577 (89.5)	8000 (96.0)	
Missing	0 (0.0)	6 (0.1)	
Maternal Education			
<12 years	791 (27.5)	800 (9.6)	<0.001
12 years	1523 (52.9)	3679 (44.1)	
12+ years	491 (17.1)	3691 (44.3)	
Missing	73 (2.5)	165 (2.0)	
Paternal Name§			
Not Present	338 (11.7)	273 (3.3)	<0.001
Present	2540 (88.3)	8062 (96.7)	
Missing	0 (0.0)	0 (0.0)	

*117 missing a race classification and excluded from analysis
†calculated using a chi-square test
§paternal name present on the birth certificate

leaving the cohort at time (t) for deaths (n=76), and they were interval censored for an annual nonlinkage with the PFD database (proxy for leaving the state).

Basic demographic birth factors stratified by Alaska Native and non-Native classification are presented in Table 1. In addition to having a greater crude proportion of maltreatment allegations, all factors known to be associated with an increased risk of maltreatment are elevated among the Alaska Native population compared with the non-Native population.

During the study period, Alaska Native children born in 2008 had an incidence of experiencing at least one valid allegation of maltreatment by age four of 8.2 per 1,000 person-months (95%CI 7.2, 8.7). The crude hazard ratio comparing Alaska Native children to non-Native children was 2.6 (95%CI 2.3, 2.8). Upon adjustment for limited confounders (marital status, maternal age, maternal education, and paternal name on birth certificate) the adjusted hazard ratio (albeit still significant) decreased to 1.4 (95%CI 1.3, 1.6). Likely with more complete adjustment for other known confounders, the association found here could be mitigated even further or removed and should be interpreted cautiously (unpublished SCAN data, 2013).

Cycle of Violence

Another recent study from SCAN linked the Alaska PRAMS data to CPS reports to assess the etiologic association between a maternal self-reported history of intimate partner violence (IPV) 12 months prior to pregnancy and subsequent allegations of maltreatment of the birth child by age 2 years. Adjusting for multiple identified confounders (marital status, poverty, maternal age, maternal smoking, maternal race, maternal education, and maternal race/IPV interaction) the stratum-specific odds ratios (OR) for Alaska Native children (2.6; 95%CI 1.2, 4.5) and non-Native children (2.6; 95%CI 1.2, 5.6) were approximately equivalent. This indicates that a history of maternal exposure to IPV even prior to the birth of a child is a substantial indicator of potential maltreatment regardless of Alaska Native or non-Native race classifications (unpublished SCAN data, 2013).

Infant Maltreatment-Related Mortality

Among the 366 infant fatalities that occurred in Alaska during 2005–2010 and that have been reported to MIMR, 69 (19%) were maltreatment related. Based on a public health model, the MIMR Committee determines that fatalities were maltreatment related if abuse or neglect contributed or probably contributed to the death, or if negligence contributed. The percentage of maltreatment-related infant fatalities during this time period could be as high as 25% if deaths with possible abuse or neglect or probable negligence are included, and as low as 16% if only those deaths with definite abuse, neglect, or negligence are included.

Where race was known, 24% of all Alaska Native infant (n=153) fatalities were maltreatment related, compared with 14% among non-Native infants (n=192, 5.7% missing; p<0.047). From 2005 to 2010, the incidence of maltreatment-related infant mortality among Alaska Native infants was 2.1 (95%CI 1.5, 2.9) per 1,000 live births, which is 3.7 (95%CI 2.3, 6.1) times that of non-Native infants. While the overall infant mortality trend has significantly decreased from 2005 through 2010 (p=0.013), the maltreatment-related infant mortality incidence trend remained flat (p=0.952). Although the Alaska Native maltreatment-related mortality has been on a slight downward trend since 2008, a large degree of year-to-year variability is present and additional years of

data are needed to see if this continues. The Alaska Native and non-Native maltreatment-related infant mortality incidence trends from 2005 through 2010 have both remained flat (p=0.693 and p=0.542, respectively).

Conclusion

Alaska Native children currently disproportionally experience more contributing factors and episodes of maltreatment than do their non-Native counterparts. One study indicated that the odds of experiencing a report of maltreatment among Alaska Native children could be up to 4 times that of non-Native children (Parrish et al., 2011). Further studies also suggest that Alaska Native children are at an increased risk of maltreatment-related mortality relative to non-Native children (Parrish & Gessner, 2010).

While racial disparities persist and variations in causal pathways may differ, the influence of race itself can largely be mitigated with appropriate confounder control at all levels of the socio-ecological framework. Maltreatment and other violence is often a symptom of the underlying multifaceted etiology contributing to instability in family and community. Due to the geographical size of Alaska and limited mental health and substance abuse services in rural Alaska, innovative prevention efforts (e.g., telemedicine programs) are needed. A focus should be on integrating cultural practices and increasing protective factors rather than limited short-term interventions aimed at preventing maltreatment only. Efforts to strengthen the individual, family, and community will have a greater impact on the long-term health and safety of families (DeBruyn, Chino, Serna, & Fullerton-Gleason, 2001; Scribano, 2010).

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