

Developing Injury Prevention Indicators for
**First Nations Children
& Youth in Canada**



2010

First Nations and Inuit Children and
Youth Injury Indicators Working Group



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LIST OF FIRST NATIONS INJURY INDICATORS

AREA	INDICATOR
Across All Injury Areas	1. Mortality Rate: Number of deaths per 10,000 First Nations children and youth due to each type of injury
	2. Hospitalization Rate: Number of hospitalizations per 10,000 First Nations children and youth due to each type of injury
	3. Self-reported alcohol, solvent and substance use among First Nations children and youth (based on RHS data)
	4. Potential years of life lost due to injury among First Nations children and youth
Community Injury Prevention Training/ Response Systems	5. Proportion of community members who complete injury prevention training
	6. Presence of a community emergency preparedness plan (i.e. flooding, fires, blizzards, etc.)
	7. Availability of fire and ambulance services in a community within a defined response time
Animal Bites	8. Rate of injuries due to animal bites and maulings per 10,000 First Nations children and youth in a community
	9. Number of communities with Animal Control Services
Hypothermia/ Frostbite	10. Rate of hypothermia or frostbite per 10,000 First Nations children and youth
Violent/ Inflicted Injury	11. Rate of police calls and charges related to violent injury per 10,000 First Nations children and youth
	12. Self-reported rate of inflicted injury (violence and abuse) per 10,000 First Nations children and youth (not including self-inflicted injuries)
	13. Percentage of violent offenders participating in restorative justice programs
Burns and Falls	14. Proportion of homes in a community with working smoke detectors, tested fire extinguishers and carbon monoxide detectors
	15. Proportion of self-reported burns among First Nations children and youth, as well as the self-reported circumstantial details of each case
	16. Place where falls among First Nations children and youth happen (refers to self-reported falls within the last 12 months)
Drowning	17. Number of communities with Emergency Response Teams
	18. Number of communities with access to water safety education/ programs
	19. Number of First Nations children and youth who drown each year, including type of body of water and circumstances
	20. Percentage of First Nations children and youth enrolled in 'learn to swim' programs in a specific year
Suicide/ Self-Harm	21. The rate of suicide attempts/self harm per 10,000 among First Nations children and youth



Motorized Vehicle Collisions	22. Number of motor vehicle collisions involving First Nations children and youth, by type of vehicle and crash circumstances
	23. Number of seriously injured First Nations child and youth occupants who were unrestrained (not wearing a seatbelt)
	24. Proportion of First Nations youth enrolment and completion of Driver Education Courses – skills for car, snowmobile, boat, and ATV drivers (i.e. courses in the community or within 50km of the community)
	25. Proportion of proper use of child vehicle restraints (car seats) and booster seats
	26. Age and sex of First Nations drivers and occupants involved in motor vehicle crashes (including cars, ATVs, and skidoos) and road user type (driver, passenger, pedestrian, cyclist)
	27. Number of seriously injured or killed First Nations children and youth who were not wearing a helmet while riding ATVs, snowmobiles, and/or bicycles

ACRONYMS

ACADRE	Aboriginal Capacity and Development Research Environments	ITK	Inuit Tapiriit Kanatami
AFN	Assembly of First Nations	KRMS	Katenies Research and Management Services
APS	Aboriginal Peoples Survey	MCWWG	Manitoba Community Wellness Working Group
BAC	Blood Alcohol Content	NAHO	National Aboriginal Health Organization
BCIRPU	BC Injury Research and Prevention Unit	NICoH	National Inuit Committee on Health
CCHS	Canadian Community Health Survey	OCAP	Ownership, Control, Access and Possession
CCYHC	Canadian Child and Youth Health Coalition	OECD	Organization for Economic Co-operation and Development
CIHR	Canadian Institutes of Health Research	PFD	Personal Floatation Device
COO	Chiefs in Ontario (formerly Chiefs of Ontario)	PIWC	Pauktuutit Inuit Women of Canada
CRC	Canadian Red Cross	PHAC	Public Health Agency of Canada
CYHRNet	Child and Youth Health Research Network	PYLL	Potential Years of Life Lost
FNIHB	First Nations and Inuit Health Branch, Health Canada	RCMP	Royal Canadian Mounted Police
FNRIP	First Nations Regional Injury Prevention Working Group (AFN)	RHS	First Nations Regional Longitudinal Health Survey
ICAH	Information Centre on Aboriginal Health	TBI	Traumatic Brain Injury
ICDC	International Classification of Disease Codes	UNPFII	United Nations Permanent Forum on Indigenous Issues
INAC	Indian and Northern Affairs Canada		



1. EXECUTIVE SUMMARY

Injury affects First Nations people at a much higher rate than other Canadians. It is the leading cause of death for Aboriginal children, youth and young adults in Canada. The injury rates among Aboriginal teens are almost four times those of Canadians overall, and First Nations male and female youth are, respectively, five to seven times more likely to die of suicide than their peers in other populations (SMARTRISK, 2005).

In 2004, the Canadian Child and Youth Health Coalition (CCYHC) set out *injury prevention/trauma* as one of four theme areas to establish Canadian Infant, Child and Youth Health Indicators. Their goal was “to identify existing indicators and develop new indicators that will be used to monitor and evaluate the health of, and the health services provided to, infants, children, youth and their families.” The aim was “to improve services and, thereby, the health and well-being of infants, children, youth and their families” (National Child and Youth Health Coalition, 2004).

In 2007, a First Nations and Inuit Children and Youth Injury Indicators Project Task Group was established to begin a parallel process of developing injury indicators for First Nations and Inuit children and youth. The group included 19 participants from the Assembly of First Nations (AFN), Inuit Tapiriit Kanatami (ITK), Royal Canadian Mounted Police (RCMP), Indian and Northern Affairs Canada (INAC), SMARTRISK, CHEO’s Injury Prevention Program Plan-It-Safe, Katenies Research and Management Services (KRMS), Statistics Canada, Nunatsiavut Department of Health and Social Development, and Pauktuutit Inuit Women of Canada (PIWC).

PURPOSE

First Nations and Inuit children and youth indicators are important tools to influence policy and to measure community-specific aspects of health and wellness in a First Nations context. As a result, this project’s purpose was to develop a set of indicators that can be used to monitor and evaluate the health of Canadian First Nations children, youth and their families in relation to injury and injury prevention.

METHODOLOGY

A multi-phase research design was adapted and used for the development of First Nations and Inuit children and youth injury indicators. Development of each indicator was based on: the burden of injury among First Nations and Inuit children and youth, previous prevention research and best practices, and ongoing input and feedback from Task Group members and their respective networks.

The research stages entailed soliciting expert opinions specific to First Nations, conducting a First Nations-specific literature review, assembling Task Group meetings and establishing consensus on a short list of indicators for First Nations and Inuit children and youth.



Through its deliberations, the Task Group developed a list of 27 indicators which were broken down into the following categories: indicators that will be measured across all injury areas; community injury prevention training/response systems; animal bites; hypothermia/frostbite; violent/inflicted injury; burns and falls; drowning; suicide/self-harm; and motorized vehicle collisions.

Each indicator was rated by the Task Group and a broader group of participants on how important the indicator was to their community, how it would help track injuries in their community and how it would produce information needed to take action to prevent injuries.

RESULTS

A final list of 27 indicators was approved by the Task Group in the fall of 2009 from an original list of 33. The Task Group deliberated on a short list of indicators and members were asked to rate each of them based on the indicator's usefulness and ability to prompt action.

Indicators related to motorized vehicle collisions were rated the most useful and most likely to prompt action. Mortality rates and number of children/youth hospitalized due to each injury type were also ranked high in terms of usefulness and ability to prompt action. These were followed by community injury prevention training/response systems, violent/inflicted injury, burns and falls, and suicide although some were rated somewhat lower in terms of their ability to prompt action.

CONCLUSION

This report documents the work of the Task Group in developing a list of indicators, and clearly illustrates the needs of those working to prevent injuries among First Nations children and youth. Several next steps are required, including: continued work with partners in First Nations communities and government organizations to ensure the proposed indicators meet their needs; organizing data and information to be included in each indicator; and developing a 'dashboard' or display that will make the information accessible to those who need it.

Ultimately, it is hoped that First Nations communities will be empowered to use this information to prompt decisions and action to reduce injuries in children and youth.





2. INTRODUCTION

This report serves as a practical resource guide on developing indicators reflective of the injury issues facing First Nations children and youth in Canada. It builds on the initial work of the Canadian Injury Indicators Development Team – a group of national injury prevention researchers – which aimed to establish national injury indicators for Canadian children and youth. This work, supported by funding from the Canadian Institutes of Health Research (CIHR) and the BC Child and Youth Health Research Network (CYHRNet), is described in the two-volume report *Measuring Injury Matters* (Pike, 2010).

Stemming from this work, Health Canada's First Nations and Inuit Health Branch (FNIHB) invited the Canadian Injury Indicators Development Team to initiate the team-building and networking process required to identify and develop injury indicators specific for children and youth in First Nations and Inuit populations. Through this process, the working group concluded it was prudent to use these indicators to inform questions that could be included in the First Nations Regional Longitudinal Health Survey (RHS) in order to facilitate data collection and build a solid evidence base for injuries in a First Nations context. The questions have since been included in the RHS survey and a first wave of data has been collected.

This document describes the 27 First Nations specific indicators¹ in order to provide a baseline for documenting, analyzing and reporting First Nations child and youth injury data.

WHAT IS AN INDICATOR?

Indicators are measurements, such as life expectancy, disability or chronic disease rates, which are used to gauge various aspects of the health of a community or group. Like puzzle pieces, each indicator contributes to the overall picture. Tracked over time, these indicators tell a story of how a community or group's health has changed (First Nations Centre, 2007).

Indicators are also used for comparisons to other populations and can give policymakers and injury prevention practitioners powerful insights into the health of a community, what factors affect it and whether existing programs, services and policies are causing the desired outcomes within a community. They are important tools for priority setting and validating community needs and assist injury prevention and community workers to make decisions about what types of injury prevention services are needed most and where funding should be directed. Furthermore, they are useful in monitoring and evaluating these efforts.

Indicators are useful to First Nations populations both to assist them in understanding their current situation and to determine whether change is needed to make their community a healthier and more vital place for current and future generations to live (Health Canada,

¹ The 27 injury indicators are common to both First Nations and Inuit children and youth; however, a separate report addresses specific issues related to their use in Inuit communities.

2001). Indicators raise awareness of local problems and issues and provide evidence to support First Nations concerns and positions. They are important tools to influence policy and to measure community-specific aspects of health and wellness in a First Nations context.

In developing injury indicators for First Nations children and youth, the following characteristics were considered crucial:

- **Valid** - an indicator is valid if it measures what it is supposed to measure
- **Reliable** - a measure is reliable if, under the same circumstances, the same result will be produced every time
- **Sensitive** - an indicator is sensitive if it can measure differences or changes over time that are of interest to the user (such as injury rates)
- **Acceptable** - an indicator is acceptable if it is culturally appropriate and useful
- **Feasible** - an indicator is feasible if it encompasses measures that can be easily collected and managed
- **Universal** - an indicator is universal if it can be used with different populations and in different settings
- **Inclusive** - an indicator that is developed through an inclusive process will be relevant and useful (First Nations Centre, 2007; Last, 2001; Ware, 1981)

Many of the First Nations children and youth injury indicators rely on data from the RHS to support them. The RHS uses a cultural framework that is based on a First Nations Wellness model. According to the RHS Survey 2002-03, the model illustrates that indicators of wellness for First Nations People's Health are interrelated to culture, language, worldview, and spirituality (First Nations Regional Longitudinal Health Survey, 2005).

The cultural framework places people at the center of the circle and then organizes health and wellness into four cardinal directions: East (Vision), South (Relationships), West (Reason), and North (Action).

The RHS is the only national survey completely controlled by First Nations in keeping with the principles of OCAP (Ownership, Control, Access, and Possession). The diagram to the right illustrates the RHS cultural framework.

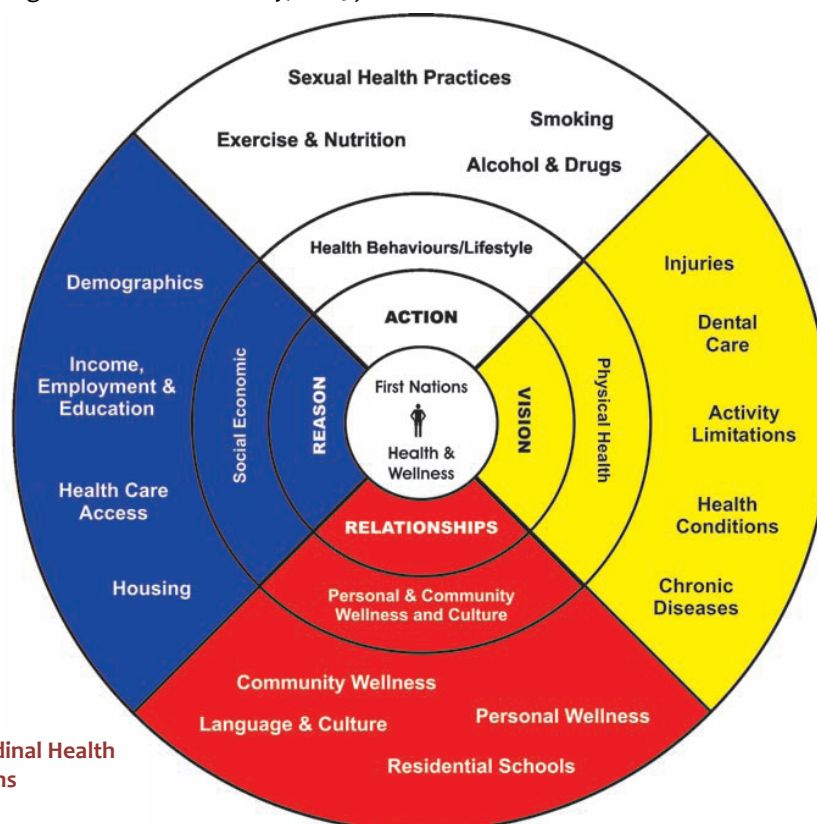


Figure 1: First Nations Regional Longitudinal Health Survey Cultural Framework (First Nations Information Governance Centre)



3. THE NEED

THE BURDEN OF INJURY TO FIRST NATIONS CHILDREN AND YOUTH IN CANADA

First Nations children and youth experience a significantly higher rate of injury-related death and disability than other young people in Canada. Injuries kill more children and young adults than all diseases combined and include both unintentional and intentional injuries (Health Canada, 2005). Among First Nations populations, injury is a leading cause of death and by far the greatest source of potential years of life lost at almost 3.5 times the national average (Health Canada, 2009). In 2002 alone, 13,477 Canadians died of injury – a rate of 37 individual deaths each day (PHAC, 2004).

Injuries are defined as the physical damage a person suffers from mechanical energy (a motor vehicle crash), thermal energy (a burn from a flame), electrical energy (a shock) or chemical energy (poisoning) or from the absence of essentials such as heat (resulting in frost bite or hypothermia) or oxygen (resulting in suffocation). Injury can be further categorized as unintentional (unexpected), such as falling or drowning, or intentional (having an intent to harm oneself or others), such as suicide or violence.

Data from the Organization for Economic Co-operation and Development (OECD) suggest each death from injury represents as many as 2,000 hospital emergency department visits for trauma and minor injuries (PHAC, 2004). This is known as the "tip of the iceberg" effect and means tens of thousands of injuries are treated in clinics, physician's offices, health centres, health and nursing stations or at home without ever being reported because they are outside the realm of official injury data collection sites. This creates a huge gap in our knowledge about injury rates.

Injury is a public health problem primarily because of the large burden of mortality, morbidity and long-term disability that it causes. Injury is also important to the public health sector because of the considerable, and as yet undeveloped, capacity for prevention that exists in Canada. For example, a recent report from SMARTRISK (2009) reported that falls are the leading cause of death due to injury among Canadians over 65 and that there has been a decline in the rates of falls-related cases. This decline has been credited to investment in province-wide falls prevention efforts, designed to reduce falls and injuries with seniors and their caregivers in mind. Preventing injuries will contribute to a healthier society and reduce health care utilization, and therefore should shorten wait times.

We know injury in Canada strikes particularly hard at the most vulnerable groups such as children, youth, seniors and Aboriginal populations (SMARTRISK, 2005). Indeed, the disparity in injury rates between First Nations and the remainder of the Canadian population is



significant. Injuries account for 26% of deaths among First Nations, compared to 6% of deaths overall in Canada (Health Canada, 2005). Injury is the leading cause of death among children, youth and young adults – a fact which is of great significance for First Nations communities as more than 50% of their population are under 25 years of age.

The following data illustrates the severity of the situation:

- Injury is the leading cause of death for Aboriginal children, youth, and young adults in Canada (SMARTRISK, 2005)
- The injury death rate among Aboriginal teens is almost four times that of Canadians overall (Health Canada, 1999)
- Aboriginal disability rates are reported at 31% -- double the national rate with a large proportion attributed to injuries (RHS, 1999)
- First Nations male and female youth are, respectively, five to seven times more likely to die of suicide than their peers in the overall population (SMARTRISK, 2005)
- Fire- and flame-related injuries are four to eight times higher than in the Canadian population (Johnson, 2006)
- Motor vehicle collisions (car/truck/ATV/ snowmobile) are a leading cause of death over all First Nations age groups (Health Canada, 2005)
- Only 50% of First Nations communities report seatbelt use; sharply contrasting with 80% seatbelt use in mainstream Canada (Health Canada, 2005)
- Death rate from falls among Status Indians was almost three times that of the provincial average for British Columbia in the period between 1991-1998 (Health Canada, 2005)
- Every day about 9,000 Canadians are injured seriously enough to require medical attention; of those, 37 die and 185 are left disabled because of their injuries (SMARTRISK, 2009)
- Injuries cost Canadians some \$19.8 billion each year in health care expenses and lost productivity (SMARTRISK, 2009)

A study in British Columbia indicated that the rates of potential years of life lost (PYLL) for Status Indians were higher than all other residents: a 224% higher rate for suicide, a 340% higher rate for homicide, and a 248% higher rate for deaths due to motor vehicle collisions. In fact, the rates of PYLL for homicide and deaths from motor vehicle collisions among Status Indian women surpassed those of the male residents in the province. For suicide, the PYLL rate of Status Indian men surpassed all other male residents of British Columbia (Bridges & Kunselman, 2005).

Another study compared premature mortality in high-Aboriginal population health regions with all other health regions and found that almost 40% of total PYLL in the high-Aboriginal population health regions were due to injuries – particularly, suicide and motor vehicle collisions (Allard et al., 2004). Unfortunately, this phenomenon is similar among indigenous populations around the world. A study conducted in New South Wales, Australia found that the rates of death from injury were higher for all age groups (except over the age of 65) in the indigenous population. Indigenous people aged 25-44 years were twice as likely to be hospitalized as non-indigenous people and five times as likely to be hospitalized for interpersonal violence (Schlundt et al., 2004).



Finally, another study found that American Indians/Alaska Natives have high rates of traumatic brain injury (TBI) hospitalization compared with other races. It also indicated that high blood alcohol content (BAC) levels and low use of protective equipment in motor vehicle incidents appeared to be linked with the higher rates in this population (Rutland-Brown et al., 2005).

CURRENT STATUS OF FIRST NATIONS INJURY INDICATORS

Despite the potential, it is difficult for First Nations to benefit from the injury indicators currently available to mainstream Canadian children and youth. First Nations-specific data are often fragmented or unavailable. Also, most Canadian indicators were developed without meaningful First Nations input and therefore do not reflect First Nations interests or realities (First Nations Centre, 2007).

A presentation made by experts at the Fifth Session of the United Nations Permanent Forum on Indigenous Issues (UNPFII) revealed that the development of indigenous indicators must involve meaningful dialogue with indigenous peoples, as well as community leaders and representatives. Experts also reinforced the importance of measuring the positive contributions made by Aboriginal self-government and local management of lands and resources.

Despite these challenges, one initiative that stands out is the First Nations Regional Longitudinal Health Survey (RHS) because it is the only national survey that is under complete First Nations control, enjoying formal First Nations mandates, political support and international recognition. Another benefit is that it is governed and coordinated by regional First Nations representatives that are invested in supporting First Nations research capacity at the local, regional, and national levels. Lastly, the RHS has produced innovations in First Nations data-sharing, research ethics and computer-assisted interviewing, as well as scientific and culturally valid methodologies and research questions (First Nations Centre, 2007).

In October 2006, the First Nations and Inuit Health Branch (FNIHB) at Health Canada contacted the Canadian Injury Indicators Development Team, led by Drs. Ian Pike and Alison Macpherson, to discuss adding First Nations and Inuit injury indicators to its children and youth injury indicators development project. FNIHB agreed to support the development of a First Nations and Inuit working group to develop national injury indicators specific to children and youth in these populations. Additional support and resources were provided by the BC Child and Youth Health Research Network (CYHRNet).

The indicators were used to help develop questions for the RHS to ensure that injury data would be generated and available for priority setting and prevention planning.

FIRST NATIONS CHILDREN AND YOUTH HEALTH

On average, injuries result in 1,271 PYLL per 100,000 Canadians. In contrast, injuries in First Nations populations result in 4,909 PYLL – almost four times as much (Draft FNIHB Injury Prevention Strategic Plan, 2007-2012).



Results from the 2001 Aboriginal Peoples Survey (APS) showed that about 13% of Aboriginal children in non-reserve areas aged 14 and under had been unintentionally (and non-fatally) injured in the previous year. For the Canadian child population as a whole, the figure was 11%. However, the differences between Canadian children overall and Aboriginal children are much greater with respect to deaths caused by unintentional injuries. It is estimated that the unintentional death rate is three to four times higher for Aboriginal children than for other children in Canada (Statistics Canada, 1996).

The 2002/2003 RHS highlighted a study conducted in Alberta that found First Nations children under age 10 were 71% more likely than non-First Nations children to suffer four or more injuries requiring medical attention. Injuries are also very common among First Nations youth. The RHS reported that half of the youth living on reserves indicated they had been injured in the previous year. This was almost double the rate for other youth in Canada, including First Nations youth living off-reserve.

In summary, gathering injury data is important and allows for increased understanding of the harms that occur among First Nations children and youth. Data are important for First Nations community health workers and injury prevention practitioners to better understand specific injury risk factors, to plan and implement community injury prevention programs, to monitor progress, to evaluate success, and to reduce the number of children and youth who are injured.

AVAILABLE FIRST NATIONS DATA SOURCES

Data sources are critical to supporting and validating First Nations injury indicators, and several sources of data have been identified to serve this purpose.

Local, community-level sources include local knowledge, community survey data and provincial databases. Other sources of local data include nursing station charts, registers and records, and local sales data, particularly in isolated communities. These can include sales of alcohol, protective equipment and other such items. Local data can also include police statistics, treatment centre statistics, numbers of community meetings such as feasts, cultural events and training sessions, as well as the number of participants and frequency of events.

Local schools may provide data for dropout statistics, and hunters and fishermen can offer information on changes in environment and animal patterns. Local Elders provide information about spiritual life in the community and how the community has adapted to change (First Nations Centre, 2007).

Other sources of data can be accessed via the Internet and include the following:

- The First Nations Centre at the National Aboriginal Health Organization (NAHO) has additional information about indicators, data sources and related topics (<http://www.naho.ca/firstnations/index.php>)
- The 2002-03 RHS (<http://www.rhs-ers.ca>) and university-based research groups can provide data support and integration
- The regional Aboriginal Capacity and Development Research Environments (ACADRE) can support communities (<http://www.cihr-irsc.gc.ca/e/9113.html>)

- 
- Regional FNIHB offices manage and analyze First Nations health data (<http://www.hc-sc.gc.ca/fnihah-spnia/index-eng.php>)
 - Indian and Northern Affairs Canada (INAC) maintains a large number of Aboriginal databases and produces reports and community profiles (<http://www.ainc-inac.gc.ca>)
 - Provincial and territorial health ministries collect and analyze health data for all clients using their services (www.hc-sc.gc.ca)
 - Statistics Canada provides statistics including “community profiles” and Aboriginal community profiles (<http://www.statcan.gc.ca/>)

INDICATORS USING FIRST NATIONS MORTALITY DATA

Each province or territory’s Central Vital Statistics Registry collects data from death registrations. FNIHB regional offices also have access to vital statistics through a First Nations identifier. Cases can be identified by the nature of injury and the external cause of injury codes that are recorded in mortality data files. Specific agreements and ethical approvals are necessary to access mortality data. Access to and reporting of mortality data must always respect the First Nations OCAP (Ownership, Control, Access, and Possession) principles.

INDICATORS USING FIRST NATIONS HOSPITALIZATION DATA

The number of children and youth who spend at least one night in hospital as a result of their injuries are included in hospital separations data, which measure the number of in-patients who leave hospital through discharge or death. Information can be further broken down based on injury type, external cause of injury, date of injury, age and sex. The number of children and youth who are injured can be expressed as a population rate for the purposes of comparison. Due to privacy issues, however, understanding the specific burden of injury hospitalization among First Nations children and youth is often problematic. Specific agreements and ethical approvals are necessary in order to access such data, when and where it exists. Further, when hospitalization data does exist, access and reporting must always respect the First Nations OCAP principles.





4. METHODOLOGY

FIRST NATIONS AND INUIT CHILDREN AND YOUTH INJURY INDICATORS PROJECT TASK GROUP

In early 2007, the Canadian Injury Indicators Team was invited by the First Nations and Inuit Health Branch (FNIHB) to begin a process of developing injury indicators for First Nations and Inuit children and youth². On April 30 and May 1, 2007, participants from the Assembly of First Nations (AFN), Inuit Tapiriit Kanatami (ITK), Royal Canadian Mounted Police (RCMP), Indian and Northern Affairs Canada (INAC), SMARTRISK, CHEO's Injury Prevention Program Plan-It-Safe, Katenies Research and Management Services (KRMS), Statistics Canada, Nunatsiavut Department of Health and Social Development, and Pauktuutit Inuit Women of Canada (PIWC), came together to plan the project and commence the process. These 19 people formed the First Nations and Inuit Children and Youth Injury Indicators Project Task Group.

STUDY DESIGN

A multi-phase modified Delphi research design was adapted for the development of First Nations and Inuit children and youth injury indicators. Development of each indicator was based on: the burden of injury among First Nations and Inuit children and youth, previous prevention research and best practices, and ongoing input from Task Group members and their respective networks.

PHASE I - LITERATURE REVIEW

A review of the relevant literature was conducted by FNIHB. The goal was to identify established First Nations and Inuit children and youth injury indicators that are valid and evidence-based. A total of six studies were selected and summarized from published and grey area literature (see Appendix D for a literature review summary).

PHASE II – ESTABLISHING IMPORTANT INJURY CATEGORIES AND RANKING INJURY INDICATORS

The research team presented the list of indicators resulting from the literature review, and the Task Group began by listing all important injury areas in First Nations and Inuit communities. The group split into small groups to create indicators in each injury area.

A dotocracy was then used as a way for the large group to rank the indicators. Each member was given a number of dots to mark the indicators he or she perceived to be most important. From this, a list of all indicators that had been marked with 10 or more dots by Task Group participants was developed. The result was a list of 62 indicators in seven injury categories:

² The resulting injury indicators are common to both First Nations and Inuit children and youth. A separate report addresses specific issues related to their use in Inuit communities.



(1) All Injury Areas, (2) Animal Bites and Hypothermia/ Frostbite, (3) Violent/Inflicted Injury, (4) Burns and Falls, (5) Drowning, (6) Suicide, and (7) Motorized Vehicle Collisions.

The next step in the process was to reduce the list of 62 indicators into a *shortlist* of approximately 40 indicators. To accomplish this, the list of 62 indicators was sent via email to task group members who were asked to place each indicator into one of three categories ('Keep,' 'Let Go' or 'Not Sure') based on their responses to three criterion questions:

1. ***Is this indicator important in your community?***
2. ***Would this indicator help you to track injuries in your community?***
3. ***Does this indicator give you the information you need to take action to prevent injuries?***

Eight feedback responses were received: four from individuals and four from organizations or regions (specifically, the PIWC and the regions of Alberta, Quebec and Manitoba). A first draft of the *shortlist* was developed, including all the indicators that five or more respondents (a majority) had placed in the 'Keep' category. Two additional suggested indicators were added based on feedback from the respondents. The result was a list of 36 injury indicators for First Nations and Inuit children and youth.

PHASE III - SELECTION OF EXISTING INDICATORS AND CREATION OF NEW ONES: REGIONAL MEETINGS

Further input was needed from a broader group of participants. Supported by FNIHB, Drs. Ian Pike and Alison Macpherson, Ms. Shannon Piedt and Ms. Rebecca Clodd attended regional meetings across the country to engage First Nations injury prevention practitioners and decision-makers. At each meeting, the project was explained and participants were asked for their feedback on the list of First Nations and Inuit children and youth injury indicators. Feedback on each injury indicator was incorporated from the Manitoba Community Wellness Working Group (MCWWG), the AFN First Nations Regional Injury Prevention (FNRIP) working group, the First Nations Early Childhood Circle (representatives from Saskatchewan Aboriginal Head Start Initiative and Federation of Saskatchewan Indian Nations), and Chiefs in Ontario (formerly Chiefs of Ontario). Several indicators were added through this iterative process, increasing the list of children and youth injury indicators to 43.³

PHASE IV – SPECIFICATION OF INDICATORS

A first draft of injury indicator specifications was developed for the 43 indicators by the research team. The format for specification was based on previously published technical reports from Australia, New Zealand, Europe and Canada (Canadian Institute for Health Information Pan-Canadian Primary Health Care Indicator Development Project). A standard template for indicator specification was created (see Table 1 on the following page).

Following the draft specification of 43 indicators, the Task Group met to discuss, revise, and refine the indicators and their specifications. The revised specification document was sent by email to the Task Group for further feedback. Nine members of the group responded. It is

³ The lack of Inuit feedback, participation and data were identified as a gaps in the process. Dr. Ian Pike was grateful to be invited to present to the National Inuit Committee on Health (NICoH) meeting in the Nunatsiavut community of Nain, Labrador in June of 2008. Input from NICoH was positive and supportive. They indicated their encouragement to continue with the development of the indicators despite the current gaps in Inuit data.

likely the responses were low due to the document's length and the amount of time it took to review it. The nine respondents recommended that some indicators could not be supported as data were not available. Their recommendations resulted in a list of 33 injury indicators.

Table 1: Template for the Specification of Children and Youth Injury indicators	
Indicator Definition	
Definition of Relevant Terms	
Justification for this Indicator	
Operational Definition of a Case	
Method of Calculation	
Numerator	
Denominator	
Data Sources, availability and quality years represented	
Units of Measurement	
Guide for Use	
Scope of Indicator	
Specifications of Data Needed	
Limitations	
How to Use this Indicator	

PHASE V – MODIFIED DELPHI PROCESS

A follow-up meeting of the Task Group, funded by FNIHB, was held in Ottawa, Ontario in December 2008. Thirteen members of the Task Group attended. Through paper-based Likert ratings and small group discussion, each indicator was rated for usefulness and the ability to prompt action. The discussion resulted in some indicators being dropped or changed. The Task Group signed off on a list of 27 injury indicators for First Nations and Inuit children and youth.

The indicators were re-visited at a meeting in September 2009 funded by the Canadian Institutes of Health Research (CIHR), the BC Child and Youth Health Research Network (CYHRNet) and FNIHB to plan the design, look, and feel of an online dashboard that would feature the injury indicators in a useful way. At this meeting, it was decided the group would be officially titled the First Nations and Inuit Children and Youth Injury Indicators Working Group.

Individual organizations wrote letters of support for a proposal to CIHR to further the work on injury indicators. At this stage, the Working Group was comprised of representatives from: AFN, ITK, FNIHB, RHS, PIWC, Canadian Red Cross, Chiefs in Ontario (COO), KRMS, and the research team of Drs. Ian Pike and Alison Macpherson, Ms. Kate Turcotte and Ms. Shannon Piedt.



5. RESULTS

INDICATOR USEFULNESS AND ACTIONABILITY

Using a nine-point Likert-type scale, nine respondents rated each of the 33 indicators on its usefulness and ability to prompt action related to child and youth injury prevention. Paper-based instructions and a list of indicators were provided as follows:

Rating of Injury Indicators for First Nations and Inuit Children and Youth

Please rate each of the 33 indicators in the following 2 ways:

- 1. On a scale of 1 to 9 with 1 being low and 9 being high, how useful is this indicator?***
- 2. On a scale of 1 to 9 with 1 being low and 9 being high how much would this indicator prompt action?***

The results, illustrated in Table 2 on the following page, were compiled and presented back to the Working Group at a follow-up meeting in September 2009. The Working Group deliberated on these results and made further recommendations to drop indicators that were perceived as not useful or actionable. These indicators are shaded in grey in Table 2.





Table 2: Indicator Usefulness and Actionability

GROUPING	INDICATOR		RATINGS	
			Usefulness	Actionability
Across All Injury Areas	Mortality Rate: Number of deaths per 10,000 First Nations children and youth due to each type of injury	HIGH	9	8
		MID	0	1
		LOW	0	0
	Hospitalization Rate: Number of hospitalizations per 10,000 First Nations children and youth due to each type of injury	HIGH	9	7
		MID	0	2
		LOW	0	0
	Self-reported alcohol, solvent and substance use among First Nations children and youth (based on RHS data)	HIGH	5	6
		MID	3	1
		LOW	0	2
	Number of communities that have culturally appropriate alcohol /drug programs available for community members	HIGH	2	2
		MID	4	4
		LOW	2	2
	Number of self-governing features that exist in the community	HIGH	6	5
		MID	2	2
		LOW	1	2
Community Injury Prevention Training/ Response Systems	Proportion of community members who complete injury prevention training	HIGH	6	5
		MID	3	4
		LOW	0	0
	Presence of a community emergency preparedness plan (i.e. flooding, fires, blizzards, earthquakes, etc.)	HIGH	8	8
		MID	1	1
		LOW	0	0
	Availability of fire and ambulance services in a community within a defined response time	HIGH	7	6
		MID	2	2
		LOW	0	1
Animal Bites	Rate of injuries due to animal bites and maulings per 10,000 First Nations children and youth in a community	HIGH	9	8
		MID	0	0
		LOW	0	1
	Number of communities with Animal Control Services	HIGH	5	4
		MID	3	3
		LOW	0	1
Hypothermia/ Frostbite	Rate of hypothermia or frostbite per 10,000 First Nations children and youth	HIGH	6	3
		MID	2	3
		LOW	0	2
Violent/ Inflicted Injury	Rate of police calls and charges related to violent injury per 10,000 First Nations children and youth	HIGH	9	7
		MID	0	2
		LOW	0	0
	Self-reported rate of inflicted injury (violence and abuse) per 10,000 First Nations children and youth (not including self-inflicted injuries)	HIGH	8	5
		MID	1	3
		LOW	0	0
	Percentage of violent offenders participating in restorative justice programs	HIGH	3	4
		MID	3	2
		LOW	3	3

Burns and Falls	Proportion of homes in a community with working smoke detectors, tested fire extinguishers and carbon monoxide detectors	HIGH	9	9
		MID	0	0
		LOW	0	0
	Proportion of self-reported burns among First Nations children and youth, as well as, the self-reported circumstantial details of each case	HIGH	5	4
		MID	2	3
		LOW	1	1
	Place where falls among First Nations children and youth happen (this refers to self-reported falls to children and youth within the last 12 months)	HIGH	9	6
		MID	0	3
		LOW	0	0
Drowning	Number of communities with Emergency Response Teams	HIGH	7	5
		MID	2	4
		LOW	0	0
	Number of communities with access to water safety education / programs	HIGH	8	7
		MID	1	2
		LOW	0	0
	Enforcement of laws related to water	HIGH	3	2
		MID	3	4
		LOW	2	2
	Number of First Nations children and youth (ages 0-19) who drown each year, including type of body of water and circumstances	HIGH	9	7
		MID	0	2
		LOW	0	0
	Percentage of First Nations children and youth (0-19) enrolled in 'learn to swim' programs in a specific year	HIGH	8	5
		MID	1	3
		LOW	0	0
Suicide	Access to Mental Health Promotion Programs and Traditional Healing: Number of communities with mental health and wellness promotion programs	HIGH	4	4
		MID	3	2
		LOW	1	1
	The rate of self-reported poor mental health among children and youth	HIGH	9	4
		MID	0	4
		LOW	0	1
	The rate of suicide attempts/self harm per 10,000 First Nations children and youth	HIGH	9	7
		MID	0	2
		LOW	0	0
	The number (rate) of calls to suicide prevention crisis telephone services, by geographical region	HIGH	8	7
		MID	1	2
		LOW	0	0
Motorized Vehicle Collisions	Number of motorized vehicle collisions involving First Nations children and youth, by type of vehicle and crash circumstances	HIGH	9	8
		MID	0	1
		LOW	0	0
	Number of seriously injured First Nations child and youth occupants (0-19 years of age) who were unrestrained (not wearing a seatbelt)	HIGH	9	8
		MID	0	1
		LOW	0	0
	Proportion of First Nations youth enrolment and completion of Driver Education Courses – skills for car, snowmobile, boat, and ATV drivers	HIGH	9	7
		MID	0	2
		LOW	0	0



Motorized Vehicle Collisions, Continued	Proportion of proper use of child vehicle restraints (car seats) and booster seats	HIGH	9	8
		MID	0	1
		LOW	0	0
	Age and sex of First Nations drivers and occupants involved in motor vehicle crashes (including cars, ATVs, and skidoos) and road user type (driver, passenger, pedestrian, cyclist)	HIGH	9	8
		MID	0	1
		LOW	0	0
	Presence of legislation of minimum age to drive an ATV. Number of provinces and territories with legislation of minimum age to drive an ATV	HIGH	6	4
		MID	1	3
		LOW	1	1
	Number of seriously injured or killed First Nations children and youth who were not wearing a helmet while riding ATVs, snowmobiles, and/or bicycles	HIGH	9	9
		MID	0	0
		LOW	0	0

The process resulted in the wording of some indicators being changed to more accurately reflect available data, and in the addition of one indicator: Potential Years of Life Lost (PYLL). A final list of 27 injury indicators for First Nations and Inuit children and youth resulted and is presented in Table 3 below.

Table 3: Injury Indicators for First Nations Children and Youth	
AREA	INDICATOR
Across All Injury Areas	1. Mortality Rate: Number of deaths per 10,000 First Nations children and youth due to each type of injury
	2. Hospitalization Rate: Number of hospitalizations per 10,000 First Nations children and youth due to each type of injury
	3. Self-reported alcohol, solvent and substance use among First Nations children and youth (based on RHS data)
	4. Potential years of life lost due to injury among First Nations children and youth
Community Injury Prevention Training/ Response Systems	5. Proportion of community members who complete injury prevention training <i>Examples:</i> - Babysitting program - CPR & First Aid - Firearm safety - Injury Prevention Curriculum
	6. Presence of a community emergency preparedness plan (i.e. flooding, fires, blizzards, etc.) <i>Key elements:</i> - Up-to-date - Community understanding and awareness of plan - Includes mock practice/drills
	7. Availability of fire and ambulance services in a community within a defined response time



Animal Bites	8. Rate of injuries due to animal bites and maulings per 10,000 First Nations children and youth in a community
	9. Number of communities with Animal Control Services <i>Rationale:</i> This will enable comparisons between how many animal-related injuries take place to children and youth in communities with animal control services vs. communities without animal control services.
Hypothermia/ Frostbite	10. Rate of hypothermia or frostbite per 10,000 First Nations children and youth
Violent/ Inflicted Injury	11. Rate of police calls and charges related to violent injury per 10,000 First Nations children and youth <i>Examples:</i> - Domestic violence and abuse - Child abuse - Bullying - Gang-related violence and abuse - Assaults (basic, with weapon, bodily assault) - Rapes, sexual abuse, etc. - Substance abuse related incidences - Gunshots fired
	12. Self-reported rate of inflicted injury (violence and abuse) per 10,000 First Nations children and youth (not including self-inflicted injuries)
	13. Percentage of violent offenders participating in restorative justice programs <i>Examples:</i> - Community justice forums - First Nations/Inuit justice programs - Alternative justice programs
Burns and Falls	14. Proportion of homes in a community with working smoke detectors, tested fire extinguishers and carbon monoxide detectors
	15. Proportion of self-reported burns among First Nations children and youth, as well as the self-reported circumstantial details of each case <i>Examples:</i> - What happened? - When? - How? - Was it intentional or unintentional?
	16. Place where falls among First Nations children and youth happen (refers to self-reported falls within the last 12 months) <i>Examples:</i> - Home - School, college, university - Sports fields school facilities - Street, highway, sidewalk



	• Community buildings (community centre, band office) • Industrial or construction area • Office • Countryside, forest, woodlot • Lake, river, ocean • Other
Drowning	17. Number of communities with Emergency Response Teams
	18. Number of communities with access to water safety education/ programs
	19. Number of First Nations children and youth who drown each year, including type of body of water and circumstances <i>Examples:</i> • Bath/Sink • Swimming pool • Pond/slough/lake/reservoir • River/stream/ditch/canal/culvert • Ocean • Wearing personal floatation device(PFD)/Sufficient number of PFDs in vessel
	20. Percentage of First Nations children and youth enrolled in 'learn to swim' programs in a specific year
Suicide/ Self-Harm	21. The rate of suicide attempts/self harm per 10,000 among First Nations children and youth
Motorized Vehicle Collisions	22. Number of motor vehicle collisions involving First Nations children and youth, by type of vehicle and crash circumstances <i>Examples:</i> • Cars/trucks/buses/ATVs/motorcycles/ snowmobiles • Speed • Driver impairment • Driver distraction • Bad weather • Wildlife
	23. Number of seriously injured First Nations child and youth occupants who were unrestrained (not wearing a seatbelt)
	24. Proportion of First Nations youth enrolment and completion of Driver Education Courses – skills for car, snowmobile, boat, and ATV drivers (i.e. courses in the community or within 50km of the community)
	25. Proportion of proper use of child vehicle restraints (car seats) and booster seats
	26. Age and sex of First Nations drivers and occupants involved in motor vehicle crashes (including cars, ATVs, and skidoos) and road user type (driver, passenger, pedestrian, cyclist)
	27. Number of seriously injured or killed First Nations children and youth who were not wearing a helmet while riding ATVs, snowmobiles, and/or bicycles



6. NEXT STEPS & FUTURE DIRECTIONS

This document captures the work of many, many people over several years. The high scores given to the injury indicators suggest that they capture the needs of those working to prevent injuries among First Nations children and youth. Yet, there are some limitations to this work which are important to highlight here.

The primary limitation is related to the availability of data necessary to illuminate the indicators. Data for many of the indicators is available as a result of the First Nations Regional Longitudinal Health Survey (RHS). We are very pleased that Ms. Jane Gray from RHS has been involved in our Working Group since the beginning and will assist us with data to populate the appropriate indicators. Some indicators currently do not have data available. We hope that, in time, communities will be able to gather data and information related to indicators that are of particular local interest and relevance. Another limitation is that the indicators may not apply equally to all communities. We hope that each community will undertake the appropriate review to determine which ones best meet their needs for decisions and actions to prompt child and youth injury prevention.

There are several important next steps in this process. First, we will continue to work with our partners in First Nations and Inuit communities, as well as in government organizations, to ensure that the proposed indicators meet their needs. The next step will be to identify the necessary data and information that will be used to illuminate the indicators and to access and organize that information wherever possible.

Finally, we will develop a ‘dashboard’ or information display that will make the information accessible to all those who need it. Initial work in this direction has started, and we will continue to seek appropriate resources to move forward. Ultimately, we hope that communities at all levels will gather the necessary data and information to illuminate the indicators. In turn, we hope that communities will then use the information provided by the indicators to plan, implement, monitor and evaluate programs and initiatives to prevent injury among children and youth.





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APPENDICES

APPENDIX A – CANADIAN CHILD AND YOUTH HEALTH INDICATORS PROGRAM BACKGROUND

The Canadian Child and Youth Health Coalition (CCYHC) launched the indicator program in 2004 to “identify existing indicators and develop new indicators that will be used to monitor and evaluate the health of, and the health services provided to, infants, children, youth, and their families. The aim of the program is to improve services and, thereby, the health and wellbeing of infants, children, youth and their families.”

Six expert panels were created, harnessing the experience of over 80 professional from coast to coast. Borrowing from the Canadian Institute for Health Information /Statistics Canada Indicator Framework, the injury prevention and trauma plan identified key questions that needed to be addressed to advance the health and healthcare of Canadian infants, children and youth, reviewed the literature for existing indicators and recommended the development of new indicators with a focus on future research. Potential partners and funding sources were also identified.

A steering committee was then created, comprised of the co-chairs of the six panels and key partner organizations – the Canadian Institute of Health Research, Accreditation Canada (formerly the Canadian Council on Health Service Accreditation, the Public Health Agency of Canada (PHAC). With input from the expert consultation community of over 100 health researchers, practitioners, administrators and decisions makers, a strategy pathway plan was developed to transform the expert panels’ visions and recommendations (Canadian Child and Youth Health Coalition, 2007).

APPENDIX B – FIRST NATIONS AND INUIT CHILDREN AND YOUTH INJURY INDICATORS WORKING GROUP

NAME	AFFILIATION	EXPERTISE
Ian Pike	BC Injury Research and Prevention Unit (BCIRPU)	Injury Indicators, Dashboard, Surveillance, Research
Alison Macpherson	York University	Injury Indicators, Surveillance, Research
Phat Ha/Melissa Deleary	Assembly of First Nations (AFN)	First Nations Injury Prevention
Looee Okalik	Inuit Tapirit Kanatami (ITK)	Inuit Injury Prevention/Health
Geri Bailey	Pauktuit Inuit Women of Canada (PWC)	Inuit Health Policy and Programs
Carol Milstone	First Nations and Inuit Health Branch (FNIHB), Health Canada	Journey to the Teachings
Rose-Alma McDonald	Katenies Research and Management Services (KRMS)	Facilitator and Researcher, First Nations Injury Prevention/Health
Jane Gray	First Nations Regional Longitudinal Health Survey (RHS)	Community data collection, First Nations data
Deanna Jones-Keeshig	Chiefs in Ontario (COO)	First Nations Injury Prevention
Heather Tait	Statistics Canada	Aboriginal Data
Shelley Cardinal	Canadian Red Cross	Walking the Prevention Circle
Parminder Thiara	FNIHB, Health Canada, Alberta Region	Community Medicine Specialist, Injury Prevention and Control
Kate Turcotte	BCIRPU	Injury Prevention, Grant Writing
Shannon Piedt	BCIRPU	Injury Indicators, Research Coordination



APPENDIX C – FIRST NATIONS AND INUIT CHILDREN AND YOUTH INJURY INDICATORS WORKING GROUP TERMS OF REFERENCE

PURPOSE

The Injury Prevention Unit in the FNIHB is developing injury indicators for First Nations and Inuit children and youth in parallel to the work being done by the Canadian Injury Indicators Development Team (CIIDT): Children and Youth, funded by Canadian Institutes of Health Research (CIHR).

Three types of indicators for First Nations and Inuit children and youth will be developed:

- Outcome Indicators (i.e. mortality and hospitalization rates)
- Policy Indicators (i.e. animal control)
- Risk Factor Indicators (i.e. helmet and child restraint system use)

The development of indicators will help ensure consistency and quality in research, evaluation and surveillance activities.

SCOPE AND FUNCTION

This task group will function for the length of the project, approximately eight to 12 months. In this time period, two in-person meetings in Ottawa are proposed, as well as, a series of conference calls.

THE TASK GROUP:

- Provides a forum for sharing ideas and information;
- Contributes data, documents, and other information of relevance;
- Assists in the development of an indicators framework, inventory, and gap analysis

MEMBERSHIP

FNIHB

Up to 8 representatives from:

- Community Programs Directorate
- Primary Health Care and Public Health Directorate
- Strategic Policy, Planning and Analysis Directorate
- Office of Nursing Services
- First Nations and Inuit Health Regions

AFN

Up to 8 representatives

ITK

Up to 8 representatives

Statistics Canada

One representative from the Canadian Community Health Survey



Indian and Northern Affairs Canada (INAC)

One representative from Research and Analysis

Royal Canadian Mounted Police (RCMP)

One representative from the National Aboriginal Policing Services Branch

Non-Governmental Organizations (NGOs)

One representative from each of the following:

- SMARTRISK
- Plan-It Safe
- Canadian Red Cross

Secretariat support will be provided by the BC Injury Research and Prevention Unit (BCIRPU) and the Community Programs Directorate, First Nations and Inuit Health Branch.

Appendix D – Injury Indicator Literature Review Summary

1. List of References Presenting Indicators Already Developed		
Reference	Summary	Injury Indicators
2004 Nunavut Report on Comparable Health Indicators. Department of Health and Social Services.	The February 2003 <i>First Ministers' Accord on Health Care Renewal</i> directed Health Ministers to develop further indicators to supplement the work undertaken pursuant to the September 2000 Communiqué. Based on the requirements set out in the 2000 Communiqué and the 2003 Health Accord, input from a range of stakeholders and experts, consultation with other Federal, Provincial and Territorial groups and the general public, the Advisory Committee for Governance and Accountability (ACGA) recommended to the Conference of Deputy Ministers a total of 70 indicators (86 sub-indicators). Eighteen indicators (26 sub-indicators) minimally will be made available on a common website. The ACGA has also initiated additional work related to the development of performance indicators for reporting in the long-term (beyond 2004). Considerations for long-term development include concepts and specific indicators that require further development. Nunavut has higher rate of PYLL due to unintentional injury than the rest of Canada. In addition, males in Nunavut have a significantly, five times higher rate of PYLL due to unintentional injury than females.	Potential years of life lost due to unintentional injury
Harrison, J., Steenkamp, M. (2002). <i>Technical review and documentation of current NHPA injury indicators and data sources. Injury Research and Statistics Series Number 14.</i> Australian Institute of Health and Welfare Canberra.	This document is a technical review of the current NHPA injury indicators and data sources. In particular this report is intended to: - Present an updated situation analysis of developments to current data sources relevant to the indicators, highlighting the limitations of sources and discussing the status of current indicators - Provide specifications to improve the technical adequacy of the indicators reported on previously through developing a framework and writing complete specifications for the injury indicators to the extent possible	- Death rate ratio comparing the injury status of Indigenous and non-indigenous populations - Hospital separation rate ratio comparing the injury status among Indigenous and non-Indigenous populations
List of References that Present Potential Indicators (not yet developed)		
Wood, D.S.; Grunewald, P.J. (2006). <i>Local alcohol prohibition, police presence and serious injury in isolated Alaska Native villages. Addition, 101(3), 393-403.</i>	This study reviewed the effects of alcohol prohibition and police presence upon serious injury attributed to assault, self-harm, motor vehicle collisions and 'other causes' between isolated Alaska Native villages with or without local police. Villages that prohibited alcohol had lower age-adjusted rates of serious injury resulting from assault, motor vehicle collisions and 'other causes'. Dry villages with a local police presence had a lower age-adjusted rate of serious injury caused by assault. Controlling for the relative effects of village isolation, access to alcohol markets and local demographic structures, local prohibition was associated with lower rates of assault injuries and 'other causes' injuries while local police presence was associated with lower rates of assault injuries.	- Prohibition of alcohol - Local police presence - Number of assault incidences

Phelan, K.J., Khoury, J., Grossman, D.C., Hu, D., Wallace, L.J., Bill, N., Kalkwarf, H. (2002). <i>Paediatric motor vehicle related injuries in the Navajo Nation: the impact of the 1988 occupant restraint laws</i> . <i>Injury Prevention</i> , 8(3), 216-220.	This study assessed the impact of the laws on the rate and severity of paediatric (0-19 years) motor vehicle injury resulting in hospitalizations in the Navajo Nation. Concurrent with enactment of the Navajo Nation occupant and child restraint laws there was a reduction in the rate of motor vehicle related hospital discharges for children. Severity of injury declined in the rate of motor vehicle related hospital discharges for children. Severity of injury declined in very young Navajo children. The effect of enactment and enforcement of this Native American child occupant restraint law may serve as an example of effective injury control effort directed at Native American children.	• Occupant and child restraint laws • Number of motor vehicle related hospital discharges for children • Severity rate of injury in young children • Enforcement of occupant and child restraint laws
Treacy, P.J., Jones, K., Mansfield, C. (2002). <i>Flipped out of control: single-vehicle rollover accidents in the Northern Territory</i> . <i>Medical Journal of Australia</i> , 176(6), 260-263.	Researchers studied the incidence of and factors associated with single vehicle rollover (SVRO) accidents in the "Top End" of the Northern Territory (NT) and sought to identify factors associated with major injury and death from SVRO accidents. The study found that SVRO accidents are a major cause of morbidity and mortality in the Top End of the NT. Effective methods of limiting speeding, drunk-driving and driver fatigue should be sought and populations more at risk should be targeted.	• Road conditions: straight, dry, unsealed road • Presence of vehicle defect • Travelling at excessive speed • Aboriginal, male, aged 41-50 • Influence of alcohol • Seatbelt • Ejection • Rural area
Campos-Outcalt, D., Bay, C., Dellapena, A., Cota, M.K. (2003). <i>Motor vehicle crash fatalities by race/ethnicity in Arizona, 1990-1996</i> . <i>Injury Prevention</i> , 9(3), 251-256.	This study compared the rates of motor vehicle crash (MVC) fatalities among different race/ethnic groups in urban and rural Arizona. The study found that the major disparity in Arizona is among American Indians. Higher MVC fatality rates among American Indians occur in all age groups, in both urban and rural areas, and among occupants and pedestrians. Rural residence, lower rates of seatbelt use, higher rates of alcohol related crashes, a greater number of occupants, and higher rates of pedestrian fatality occur in men in all three race/ethnic minorities in Arizona and among American Indian women. In contrast to other studies, African-Americans and Hispanic did not have raised total MVC fatality rates.	• Rural residence • Seatbelt • Alcohol influence • Greater number of occupants in the vehicle • Number of pedestrian deaths
LaValley, J., Crandall, C.S., Banks, L., Sklar, D.P., Boodlall, L. (2003). <i>Rural and urban fatal pedestrian crashes among United States American Indians and Alaska Natives</i> . <i>Annual Proceedings Association for the Advancement of Automotive Medicine</i> , 47, 127-143.	The Fatality Analysis Reporting System (FARS) and the Web-based Injury Statistic Query and Reporting System (WISQARS) were used to compare fatal pedestrian crashes in American Indians and Alaskan Natives (AI/AN) between urban and rural locations for 2000-2001. There were significant differences between urban and rural crashes for driver, pedestrian, environmental, and engineering factors. Rural pedestrian crashes more often occurred on highways lacking traffic control devices and artificial lighting. Alcohol was a significant cofactor in both environments. Prevention of AI/AN deaths should include engineering counter measures specific to the needs of rural (lighting) and urban (medians with barriers) environments and address drinking behaviour in both populations.	• Highways lacking traffic control devices and artificial lighting • Influence of alcohol
Schlundt, D., Warren, R., Miller, S. (2004). <i>Reducing unintentional injuries on the nation's high-</i>	This study reviewed the literature on behavioural and environmental factors that increase risk for traffic morbidity and mortality in populations at high risk. Each of the following was identified as a risky traffic-related behaviour: not wearing seat belts, not using child safety	• Seat belts • Child safety seats • Bicycle or motorcycle helmets • Driving after drinking



ways: a literature review. <i>Journal of Health Care for the Poor and Under-served</i> , 15(1), 76-98.	seats, not wearing bicycle or motorcycle helmets, driving after drinking, driving while fatigued or distracted, speeding, running red lights, and aggressive driving. Environmental factors that modify risk include urban sprawl, highway design, public policy, racism and economic inequality. High risk groups include youths, males, pickup truck drivers, urban dwellers, the elderly, African Americans, American Indians and Alaska Natives.	• Driving while tired or distracted • Speeding • Running red lights • Aggressive driving • Youths, males, pickup truck drivers, urban dwellers, the elderly, African Americans, American Indians, Alaska Natives
2002/2003 First Nations Regional Longitudinal Health Survey (RHS)		• Injury rates in children whose parents attended residential schools • Injury rate in children who engage in physical activity more than once a week • Injury rates in youth with personal problem indicators such as: depression, low self esteem, problems learning at school, recent loss due to suicide of someone close, and drinking • Injury rates in youth who participated in sports and extracurricular activities • Injury rates in males and older youths • Modifications in environment: guardrails in bleachers, proper playing fields and playground surfaces • Use of protective equipment • Enforcing game rules • Use of education with other strategies (i.e. enforcement of laws, graduated licensing, random alcohol checkpoints, bicycle rodeos, media campaigns and helmet discounts)
Groff, P., Albert, T., Cloutier, E., Jacobs, P., Legowski, B. (2004). <i>The cost-benefit of preventing injury related to falls and motor vehicle collisions among First Nations and Inuit populations in Canada. Health Canada.</i>	Using economic modeling this report: Estimated the costs of motor vehicle collisions and fall-related injuries among Aboriginal Canadians Demonstrated the potential return on investment from programs that would reduce these injuries Findings indicated that one-to-one targeted interventions between a professional and person at very high risk are more likely to be cost effective. The report also noted that interventions applicable on a broader population basis, tried and true programs (i.e. enforcing seat belt use) have potential in terms of saving lives and decreasing harm cost effectively.	• Seat belts • Brief physician counselling for alcohol use • Home exercise program for ages 60 and older • Multifactor intervention • Home occupational therapy visit

Appendix E – Project Key Milestones

Key Milestone	Major Outcome	Support Provided By
Oct. 18, 2006 - FNIHB, Health Canada contacted Canadian Injury Indicators Team	Teleconference with Geoff Cole, Lynda Richardson, Ian Pike, Alison Macpherson, and Shannon Piedt • Discussion of adding a First Nations and Inuit domain to the indicators project that would go through the same development process on a separate timeline • Decision to hold a face-to-face meeting with a First Nations and Inuit panel • Geoff Cole requested a proposal from the indicators team to support this work	BCIRPU
Dec. 22, 2006 - Proposal developed for FNIHB	<i>Project goal:</i> To support the development of a team that will undertake the team-building and networking required to identify and/or develop national injury indicators specific to children and youth in First Nations and Inuit populations. These indicators will be used to develop questions for the RHS so that data can be collected to build the evidence base for injuries affecting this population. In addition, preparation of future applications to granting agencies to validate these indicators and make use of them to develop primary, secondary and tertiary injury prevention initiatives may ensue. • FNIHB agreed to support a face-to-face meeting in Ottawa	Proposal written by Alison Macpherson, Ian Pike and Shannon Piedt
Feb. 16, 2007 - Teleconference to plan to face-to-face meeting (Ian, Alison, and Shannon)	• Decision not to address the CCYHC's goal of "improvement of capture and coding of First Nations Status" in the FNIHB project because we did not want a hidden agenda • Decision to let the meeting unfold in the direction that the group takes it.	BCIRPU
March 2007 - Literature Search conducted (Rebecca Clodd)	Few Aboriginal indicators found in the literature.	FNIHB
April 30/May 1, 2007 - Meeting (Ottawa): Developing Injury Indicators for First Nations and Inuit children and youth	• Participants identified key domains • Small groups brainstormed a long list of indicators and used a priority setting process (<i>dotocracy</i>) to identify indicators to take forward for further review • The result was a list of 62 indicators in 7 injury categories: (1) All Injury Areas, (2) Animal Bites and Hypothermia/Frostbite, (3) Violent/Inflicted Injury, (4) Burns and Falls, (5) Drowning, (6) Suicide, and (7) Motor Vehicle Collisions	FNIHB
Summer 2007 - Asked group to categorize indicators	Sent the indicator list to all the participants who had attended the May 1 meeting (19 people) and asked them to categorize each indicator into 'Keep', 'Let Go' or 'Not sure' based on three criteria questions: 1. Is this indicator important in your community? 2. Would this indicator help you to track injuries in your community? 3. Does this indicator give you the information you need to take action to prevent injuries? • Received 8 responses • Kept all indicators where a majority of respondents checked 'keep'	BCIRPU



	Resulted in a list of 36 indicators	
Fall 2007 - Further feedback requested through regional groups	In-person presentations made to: - Manitoba Community Wellness Working Group (MCWWG) - AFN's First Nations Regional Injury Prevention Working Group - First Nations Early Childhood Circle (representatives from Saskatchewan Aboriginal Head Start Initiative and the Federation of Saskatchewan Indian Nations) - COO Feedback from these groups resulted in indicators being added for a total of 43 indicators.	FNIHB
Summer/ Fall 2007 - Indicators Specifications Written	A first draft of indicator specifications was developed for 43 indicators.	FNIHB
Oct. 16/17, 2007 – Face-to-Face Meeting (Ottawa)	Participants reviewed the proposed changes to indicators and divided into small groups to provide input and feedback on each area of the indicator specifications. The following project Next Steps were outlined by Ottawa group participants: - Produce the specification document and send it to the Ottawa group of meeting participants by the end of November, 2007 - Get more regional input from community practitioners – get broad expert opinion by sending specification document out to participants of all regional meetings, the AFN Injury Prevention working group, and other key players by the end of January 2008 - Get broad expert opinion by end of March 2008 - Prepare a funding submission CIHR for further work on the project - Produce a final report - Ask FN Centre at National Aboriginal Health Organization (NAHO) to assist in writing a final Injury Indicators document and make it available to First Nations - Ask Inuit Centre at NAHO to assist in writing a final Injury Indicators document and make it available to Inuit - Evaluate the process	FNIHB
December 2007 - Specification document sent to meeting participants by email for further feedback	Feedback received from 9 participants. They recommended that some indicators could not be supported as data was unavailable. Resulted in list of 33 indicators	FNIHB
June 2008 - Inuit feedback and input on specifications received	Ian Pike attended the National Inuit Committee on Health meeting in the Nunatsiavut community of Nain, Labrador in June of 2008. This was important as it addressed the identified gap of lack of Inuit feedback up to this point	FNIHB
Dec. 3, 2008 - Follow-up meeting (Ottawa) to review and finalize list of indicators.	- Through paper-based likert ratings and small group discussion, each indicator was rated for usefulness and ability to prompt action - The discussion resulted in some indicators being 'dropped' or changed - New list of 27 indicators	FNIHB



April 2009 - First Nations and Inuit indicator projects included in CIHR STAIR application	Two indicators projects for First Nations and Inuit children and youth were written into the STAIR application 1. To use the RHS data to populate the 27 indicators 2. To develop a model that evaluates the multiple, inter-related criteria related to child and youth injury in First Nations communities with the following objectives: a. To identify, evaluate and prioritize the important criteria to be considered in assessing health of First Nations communities in terms of child and youth injury. b. To produce maps at multiple scales of child and youth injury among First Nations communities across Canada, depicting areas of high and low injury rates and factors that contribute to outcomes.	CYHRNet
Sept. 16/17, 2009 - Meeting (Ottawa): Development and Design of the First Nations and Inuit Children and youth injury indicators Dashboard	Meeting to plan the design, look, and feel of an online dashboard that would feature the injury indicators in a useful way. The working group made the decision to create injury portals containing injury dashboard data as well as other injury prevention resources. The Working Group signed off on a final list of 27 indicators at this meeting.	CYHRNet CIHR
Sept. 18, 2009 - Meeting (Ottawa): Preparation of a CIHR Operating Grant: Aboriginal Health Intervention	The Voices of First Nations and Inuit Children and Youth project was conceived at this meeting, and letters of support for the project were provided by member organizations of the working group as well as broader First Nations and Inuit stakeholders: AFN, ITK, FNIHB, NAHO – First Nations Centre, RHS, Arctic Health Research Network, Council of Yukon First Nations, Canadian Red Cross, COO and BC Provincial Health Services Authority – Aboriginal Health. The proposal was submitted in November 2009 and a decision on this funding is expected in May 2010.	FNIHB CIHR CYHRNet

