

Supplementary Appendix 2. Databases by sector with potentially linkable firearm and firearm injury data in Canada.

Database	Type of Data	Data Elements	Population/Jurisdiction	Relevance to Firearms	Custodian	Years
Hospital Data:						
Alberta Health Services Practitioner Claims, British Columbia Medical Services Plan, Manitoba Medical Services – Medical Claims, Ontario Health Insurance Plan	Contains information on physician billing claims to provincial health ministries for services provided	Includes: -Billing claims -ICD 8/9/10 diagnosis codes (one per claim) -Location of service -Treating physician	Fee-for-service physicians billing for patient encounters under provincial medical insurance plans	Provides data on assessment or treatment of injury based on provincial health insurance fee and diagnostic codes	AB: Alberta Health Services BC: Population Data BC MB: Manitoba Health ON: ICES; Ontario Ministry of Health	AB: 1993-Present BC: 1985-Present MB: 2000-Present ON: 1991-Present
Alberta Trauma Registry; British Columbia Trauma Registry; New Brunswick Trauma Registry; Nova Scotia Trauma Registry; Ontario Trauma Registry; Quebec Trauma Registry	Collect data on traumatic injuries that are brought to medical attention at trauma centres across various provinces	Includes: -Trauma facility -ICD 10 code -Injury mechanism	Participating trauma centres across each province	Provides data on firearm-related that were assessed at a trauma centre	AB: Alberta Health Services BC: Trauma Services BC NB: Trauma New Brunswick NS: Trauma Nova Scotia ON: Canadian Institute for Health Information QB: Quebec Health Insurance Board	AB: 2015-Present BC: 1992-Present NB: 2014-Present NS: 2000-Present ON: 1994-Present QB: 2000-Present
Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)	Injury and poisoning surveillance system that collects and analyses data on injuries to people who are seen in 20 emergency departments across Canada (pediatric and general), including pre-event injury data.	<i>Patient/Caregiver Facing</i> -Circumstances of injury -Cause of injury -Factors contributing to the injury -When and where the injury occurred -Age and sex of the patient <i>Clinician Facing</i>	20 emergency departments across Canada Mostly urban hospitals: -11 pediatric -9 general	Provides data on pediatric and adult firearm injuries that are seen in the emergency department with detailed information about the	Public Health Agency of Canada	1990-Present

		-Nature of injury -Body part injured -Treatment received		circumstances surrounding the injury		
Canadian Institute for Health Information Discharge Abstract Database (DAD)	Administrative, clinical, and demographic information on hospital discharges (including deaths, sign-outs, and transfers), and day surgery data for specified provinces/territories.	Includes: -Admit via ambulance -Length of stay -ICD-10 diagnostic codes including external cause of injury (up to 25 diagnostic codes) -Intervention codes -Comorbidities	Data are received directly from acute care facilities or from their respective health/regional authority or ministry/department of health. Facilities in all provinces and territories except Quebec are required to report. Day surgery data is available for 4 provinces (Manitoba, Saskatchewan, British Columbia, Newfoundland and Labrador) and all territories.	Provides data individuals hospitalised with a firearm injury including weapon type and intent and any hospital interventions	Canadian Institute for Health Information	1988-Present
Hospital Mental Health and Substance Use (HMHSU)	Contains data on hospitalisations for mental health and substance use across all Canadian provinces and territories.	Includes: -Fiscal year of discharge -Patient geography -Hospital geography -Unique record identifier -Unique patient identifier -Length of stay -Sex -Age group -Diagnosis category -Discharge disposition	Data from 4 sources: 1. Discharge Abstract Database 2. Hospital Morbidity Database (psychiatric hospitals in Quebec and selected acute separation records from all provinces and territories) 3. Hospital Mental Health Survey (Separation records from selected psychiatric hospitals that do not report to the DAD) 4. OMHRS (Separation records for individuals admitted as inpatients to adult mental health services in Ontario, as well as some individuals in youth inpatient beds and selected facilities in other provinces)	Can elucidate a connection between mental health status of patient and firearm use/injury	Canadian Institute for Health Information	2018-2022
Hospital Morbidity Database	National data holding that captures information on inpatient separations from acute care hospitals (not for psychiatric hospitals or federal facilities)	Contains -Pan-Canadian acute care data -Quebec day surgery data as of 2012–2013 -Provides national discharge statistics from Canadian health care institutions by diagnoses and procedure	Quebec is not required to submit to the DAD, as such, Quebec data is appended to the DAD to create the Hospital Morbidity Database	Data on inpatient events for individuals who were admitted to hospital due to firearm injury	Canadian Institute for Health Information	1994-2024
Canadian Institute for Health Information National Ambulatory Care Reporting System (NACRS)	Data for community-based and hospital-based ambulatory care (day surgery, outpatient and community-based day clinics, ED visits)	Includes: -Admit via ambulance -Triage level -Main ED intervention -Discharge diagnosis codes including external cause of injury (up to 10 diagnoses)	- 956 facilities across Canada submit data to NACRS. No data were submitted from facilities in Newfoundland and Labrador, the Northwest Territories, or Nunavut.	Data on emergency department visits related to firearm injury	Canadian Institute for Health Information	2001-2024
National Rehabilitation Reporting System (NRS)	Collects data from participating adult inpatient rehabilitation facilities and programs	Includes: -Most responsible health condition -Activities and participation (Functional Independence Measure for admission and discharge)	Collects data from participating adult inpatient rehabilitation facilities and programs from 9 provinces in Canada.	Data for individuals who might be undergoing physical rehabilitation due to firearm injury	Canadian Institute for Health Information	2000-2024
National Trauma Registry (NTR)	Provides national hospitalisation information on injury or trauma in Canada	Includes: -Injury type -Injury place -Injury severity	Made of Comprehensive Data Set (CDS) and Minimum Data Set (MDS) CDS: Only designated trauma hospitals in provinces with a provincial/regional trauma registry or participating trauma facilities	Data on firearms as mechanism of injury	Canadian Institute for Health Information	1994-2013

			provide the trauma registry information included in the CDS. MDS: Extracted from Hospital Morbidity Database			
Ontario Mental Health Reporting System (OMHRS)	Analyses and reports on information submitted to CIHI about individuals receiving adult mental health services, and some individuals in youth inpatient beds	Includes: -Mental health service history -Mental state indicators -Substance use -Harm to self and others -Behaviour disturbance -Health conditions and possible medication side effects -Stressors -Service utilisation/treatments -Control procedures/observation -Role functioning and social relations -Psychiatric diagnostic information -Service history -Medication	As of May 15, 2022, 93 facilities had submitted data to OMHRS since its inception; 89 of these facilities were in Ontario, 3 were in Newfoundland and Labrador and 1 was in Manitoba. Population of reference is individuals admitted to Ontario facilities with designated adult inpatient mental health beds for mental health/addictions services	Linkage of mental health history of those injured by firearm or perpetrating firearm injury. Opportunity for linkage to firearm licensing data.	Ontario Ministry of Health	2005-Present
Other Health or Death Data:						
Canadian Coroner and Medical Examiner Database (CCMED) (linked to CVSD)	Data for all deaths of Canadian residents and non-residents in Canada for which a coroner's/medical examiner's investigation was conducted	- Age and sex of the deceased - Date of birth, date of death and date found dead - For cases of found remains, whether the death occurred in the current calendar year - Province or territory of the occurrence of the death - Whether recommendations were made or if an inquest will be held - Usual residence of the deceased - Place of death, place of event leading to death - Date of event leading to death, activity at the time of event leading to death - Manner of death - Circumstances of injury - Whether any safety devices were in use - If the death was one of multiple deaths associated with a single event - Narrative	Pan-Canadian All provincial/territorial chief medical examiners report a minimum dataset, which contains variables about the deceased, causes and circumstances of death, and related factors.	Provides data on deaths by firearm, that were investigated by a coroner, and details about perpetrator/victim	Statistics Canada	2006-2023
Canadian Vital Statistics Death Database	Collects demographic and medical cause of death information	Includes: - Age, sex, marital status, place of residence and birthplace of the deceased - Date of death - Underlying cause of death classified to the ICD code - Province or territory of occurrence of death - Place of accident (for most non-transport accidental deaths) - Autopsy	Pan-Canadian	Provides firearm cause of death data (based on ICD –10 codes since 2000)	Statistics Canada	2000-Present

Office of the Registrar General – Deaths (Vital Statistics)	Obtains information about mortality from death certificates completed by physicians	Includes: -Total deaths -Time of death -Cause of death (ICD-10) -Location of death	Ontario	Provides data on firearm injury as cause of death	ICES	1990-2018
School Mental Health Survey (Sub-study of OCHS)	Sub-study of the OCHS enlisting schools across Ontario, examining school-level influences on student mental health Infrequent data collection	Includes: -Self-perceptions on mental health -Use of mental health services -Perspectives on reaching out for help	248 Ontario schools; 31,124 students, 3373 teachers, 206 principals	Exposure to firearm violence and mental health of victim or perpetrator	Statistics Canada	2014; 250 Ontario Schools (180 elementary, 68 secondary)
Ontario Student Drug Use and Health Survey (OSDUHS)	Survey conducted across Ontario every two years with the purpose of identifying epidemiological trends in risk behaviours, and risk/protective factors for students from Grade 7-Grade 12 (schools are randomly selected to participate in each iteration)	Includes: -Drug use -Mental health -Bullying -Physical health behaviours	Typically, the OSDUHS surveys thousands of students in over 200 elementary and secondary schools across Ontario	Identifying trends in risk behaviours associated with firearm ownership, use, injury or perpetration	Centre for Addiction and Mental Health	1977-2023
Firearms/Criminal Justice						
Canadian Firearms Registry	The registry is not publicly available but contains registration information about restricted and prohibited firearms in Canada. The RCMP issues a “Commissioner of Firearms Report” that includes relevant data (found under “Reference to Reports”)	-Number of individual firearms licenses issued by province or territory -Reasons for denial or firearm licensure or firearm revocation -Firearms registered by class and province -Firearm license renewals	Pan-Canadian	Provides data on firearm ownership in Canada, including weapon type	Royal Canadian Mounted Police	1996-2012
Homicide Survey	Collects detailed data on homicides, victims, and accused persons (census with cross-sectional design)	<i>Incident Questionnaire:</i> -Date and location -Related offence associated with homicide -Gang activity -Drug involvement -Motive <i>Victim Questionnaire:</i> -Demographics -Cause of death -Weapon used -Firearm details -Relationship with accused	Police services must report information to the Homicide Survey on all homicides that occur in Canada	Provides data on firearm as cause of death, victims, and perpetrators	Statistics Canada	1961-2023

		<i>Charged/Suspect-Chargeable Questionnaire includes:</i> -Demographics -Employment status -Mental health status -Alcohol and/or drug use -Previous criminal convictions				
Integrated Criminal Court Survey	National database of information on appearances, charges and cases in youth courts and adult criminal courts.	Contains data such as: -Age and sex of the accused -Case decisions -Sentencing information -Case-processing -Court workload indicators	A census of pending and completed federal statute charges heard in provincial-territorial and superior courts in Canada. Appeal courts, federal courts (e.g., Tax Court of Canada) and the Supreme Court of Canada are not covered by the survey. Superior courts in Manitoba, Ontario, Saskatchewan, and municipal courts in Quebec are also not reported to the survey	Provides data on court appearances related to firearm injury and victimisation	Statistics Canada	2005-2024
Manitoba Corrections Offender Management System (COMS)	Contains records of adult and youth individuals in the Manitoba Corrections system and their associated data	Includes data on: Offender: sociodemographic data Charge: charge details about an offence Disposition/Bail: court decision(s) for charge	Manitoba	Provides data on individuals involved with Manitoba Corrections system related to firearms	Manitoba Justice	Jan 1, 2002 – Dec 31, 2023
Manitoba Criminal Courts Automated Information Network (CCAIN)	Contains records of criminal court appearances and criminal charges relating to each case	Includes data on: Offence and charge Police department that laid charge Charge category Disposition date and court location	Manitoba	Provides data on charges and dispositions related to firearms	Manitoba Justice	July 1, 2001- March 31, 2023
Manitoba Prosecution Information and Scheduling Management (PRISM)	Provides information on incidents and charges laid by prosecution in Manitoba	Includes data on: Incident from and to dates Involvement type Police agency involved and incident type Charge and charge status	Manitoba	Provide information to prosecutors on firearm incidents, involvement, and initial charges	Manitoba Justice	Sept 1, 2002 – Jan 13, 2023
Uniform Crime Reporting Survey	Designed to measure the incidence of crime in Canada that has come to the attention of the police and its characteristics (collects information from municipal, provincial, and federal police services across the country – mandatory responses from these units)	Includes: -Accused-victim relationship -Call for police service -Crime severity index -Location of police service -Violation type -Firearm seized/stolen/discharged -Unsafe storage of firearms	All police services in Canada Over 1,000 separate police detachments responding to the survey, comprising about 180 different police forces. The Canadian Forces Military Police became an active respondent to the UCR survey in 2022	Reports incidence of firearm crime brought to police attention Includes information about family violence and intimate partner violence	Statistics Canada	1988-Present
Toronto Police Services Open Data	Created to improve transparency and understanding of policing in Toronto	Includes data on: -Homicides -Shootings and firearm discharges -Offences related to seized firearms	Toronto	Reports incidence of firearm crime brought to police attention	Toronto Police Services	2004-Present

Tracking (In)Justice	Show police involved use of force deaths and deaths in custody	Includes data on: -Death counts -Highest level of force used -Race of victim	Pan-Canadian based upon publicly available sources such as governmental reports, press releases, and accredited Canadian media sources	Reports instances of police involved force on victims using firearms	Carleton University, Queens' University, University of Toronto, and Canadian Civil Liberties Association	2000-Present
Other municipal police open data maps include: Calgary (file:///Users/aliki/Downloads/Quarterly%20Statistical%20Report%20Q4_2023.pdf) Edmonton (https://experience.arcgis.com/experience/8e2c6c41933e48a79faa90048d9a459d) Halifax (https://www.halifax.ca/fire-police/police/crime-mapping) Hamilton (https://www.communitycrimemap.com/?address=Hamilton,ON&crimeTypes=%5B1,6,7,10,11,16,17%5D&startDate=14&zoom=12) Montreal (https://spvm.qc.ca/en/Fiches/Details/Crime-profiles) Newfoundland and Labrador (provincial): https://opendata.gov.nl.ca/public/opendata/page/?page-id=datasetdetails&id=68 Ottawa (https://experience.arcgis.com/experience/0bd1487a428b44c5ae29915cdca28685/#data_s=id%3AdataSource_1-18a6702c4f0-layer-9%3A160) Regina (https://www.reginapolice.ca/crime-dashboard/ , https://www.reginapolice.ca/resources/crime/community-crime-report-2023/ , https://www.reginapolice.ca/resources/crime/community-crime-map/) Vancouver (https://geodash.vpd.ca/opendata/# , https://vpd.ca/wp-content/uploads/2024/03/crime-rate-by-incident-2019-2023.pdf , https://geodash.vpd.ca/Html5Viewer/?disclaimer=on&viewer=VPDPublicRefresh_gvh&x=189&y=31) Winnipeg (https://public.tableau.com/app/profile/winnipeg.police.service/viz/CrimeMaps_16527244424350/Disclaimer)						
Other Linkable Demographics Datasets:						
Canadian Child Welfare Research Portal	Provides access to research on Canadian child welfare services	Includes: -Number and type of child maltreatment investigations -Number of child protective services placements	Pan-Canadian	Can better understand role of firearms in context of child and youth safety	Centre for Research on Children and Families (CRCF), School of Social Work, McGill University	2008-2022
Canadian Income Survey	Provides information on income and income sources of Canadians, along with their individual and household characteristics	Includes: -Occupation -Total income -Visible minority -Immigrant status	Covers all individuals in Canada, excluding persons living on reserves and other Indigenous settlements in the provinces, institutionalised, and households in extremely remote areas with very low population density (total is less than 2% of pop) The CIS takes a sample of respondents from the Labour Force Survey in each iteration. Approximately 60,000 households sampled at a time.	Can better understand lower income as a risk for firearm use	Statistics Canada	2012-2021
Canadian Index of Multiple Deprivation (CIMD)	Geographically based index of deprivation and marginalisation	Includes: -Households and dwellings -Material resources -Age and labour force -Immigration and visible minority	All Canadian provinces	Lower income or racialised communities tend to be more affected by firearm use	Statistics Canada	2016, 2021

Canadian Marginalization Index (CAN-Marg)	Measures axes of deprivation in Canada	Includes: -Households and dwellings -Material resources -Age and labour force -Immigration and visible minority	Every census tract and dissemination area in Canada, except where data are suppressed	Can contextualise firearm injury relative to socioeconomic status and marginalisation	MAP Centre for Urban Health Solutions at St. Michael's Hospital and McMaster University	1991, 1996, 2001, 2006, 2016
Child and Family Services (CFS)	Provides information concerning children in care and families receiving voluntary protection and support services	Includes: -Maltreatment -Unintentional serious injuries	Manitoba	Reporting on maltreatment and unintentional injuries could involve firearms	Manitoba Families – Social Innovation Office	All programs : April 1, 2004-March 31, 2020
General Social Survey (GSS)	Shares details on how Canadians perceive crime and the justice system as well as their own experiences of victimisation (theme of questions asked changes every cycle)	Includes: -Experiences of crime/violence/abuse -Family structure -Use of social services due to victimisation -Experiences of discrimination	Pan-Canadian	Can capture experiences of victimisation or concerns about safety related to firearm use	Statistics Canada	1985-Present (every 5 years)
Intergenerational Income Database (IID)	Links children and their parents using administrative tax data, allowing researchers and analysts to study intergenerational phenomena	Includes: -T1 annual tax returns -Earnings -Investment income –Government transfers	Pan-Canadian	Better understand how social mobility could be related to firearm use	Statistics Canada	1978-2022
Longitudinal Immigration Database (IMDB)	Provides detailed information immigration variables for those with permanent residency in Canada	Includes: -Admission year of immigrant -Status of immigrant -Country of birth -Expenditures of person -Incomes sources of person -Knowledge of official languages	All immigrants admitted to Canada since 1952 and all non-permanent residents since 1980. Outcomes for this population are available from tax files since 1982	Immigration status and socioeconomic status have been linked to firearm interactions	Statistics Canada	1980-2022
Ontario Child Abuse and Neglect Data System (OCANDS)	Provides child protection agencies a way to access comprehensive data about investigations conducted in Ontario	Includes: -Initial allegations -Investigations -Child placement information	Child abuse and neglect investigations in Ontario from child welfare agencies' administrative data.	Data on children who might be in an unsafe environment or abused due to firearms	OCANDS (University of Toronto)	Not Available
Ontario Marginalization Index (ON-MARG)	Census based index used to quantify the degree of marginalisation occurring across the province of Ontario	Includes: -Households and dwellings -Material resources -Age and labour force -Immigration and visible minority	Data derived from Statistics Canada Census of Population for Ontario	Can measure neighbourhood level measures of marginalisation and relationship with firearms and injuries.	Public Health Ontario	2001 – 2021 (every 5 years)
Ontario Social Assistance Database (OSAD)	Contains client-level administrative data that supports the administration of Ontario Works and Ontario Disability Support Program	Includes: -Benefit Unit (Family) information -Program Status (OW/ODSP) -Pay/Benefit - Income/ Deductions	Ontario social assistance client population	Identifies those receiving disability support services following firearm injury	Statistics Canada	2003-2019

Survey of Residential Facilities for Victims of Abuse (SRFVA)	Census of residential facilities that were primarily mandated to provide services to victims of abuse	Includes: -Geographic location of shelter -Reason of abuse -Relationship to abuser -Service provided by shelter	Canadian residential facilities whose primary mandate is providing services to victims of abuse (for 2022/2023, there were 560 facilities across the country identified and 457 participated)	Data on individuals, including children, who might be in an unsafe environment or abused due to firearms	Statistics Canada	2017-Present (Re-design of the Transition Home Survey)
Rurality Index for Ontario	Measure population size and proximity to a health centre	Includes a rurality score: -Population -Travel time to a basic referral centre -Travel time to an advanced referral centre	Ontario urban and rural settings	Measure and understand firearm user/victim demographics between rural and urban communities	Ontario Ministry of Health	Present status

*Abbreviations: AB – Alberta; BC – British Columbia; CAN-Marg - Canadian Marginalization Index; CCAIN - Manitoba Criminal Courts Automated Information Network; CCMED - Canadian Coroner and Medical Examiner Database; CDS – Comprehensive Data Set; CFS - Child and Family Services; CHIRPP - Canadian Hospitals Injury Reporting and Prevention Program; CIHI – Canadian Institute for Health Information; CIMD - Canadian Index of Multiple Deprivation; COMS - Manitoba Corrections Offender Management System; CRCF - Centre for Research on Children and Families; CVSD – Canadian Vital Statistics – Death; DAD – Discharge Abstract Database; ED – Emergency Department ; GSS – General Social Survey; HMHSU - Hospital Mental Health and Substance Use; ICD-8 - International Classification of Diseases – Eighth Revision; ICD-9 - International Classification of Diseases – Ninth Revision; ICD-10 - International Classification of Diseases – Tenth Revision; IID - Intergenerational Income Database; IMDB - Longitudinal Immigration Database; MB – Manitoba; MDS – Minimum Data Set; NACRS - National Ambulatory Care Reporting System; NB – New Brunswick; NRS - National Rehabilitation Reporting System; NS – Nova Scotia; NTR – National Trauma Registry; OCANDS - Ontario Child Abuse and Neglect Data System; OCHS – Ontario Child Health Study; OMHRS - Ontario Mental Health Reporting System; ON – Ontario; ON-MARG - Ontario Marginalization Index; OSAD - Ontario Social Assistance Database; OSDUHS – Ontario Student Drug Use and Health Survey; PRISM - Manitoba Prosecution Information and Scheduling Management; SRFVA – Survey of Residential Facilities for Victims of Abuse