



Cross-National Product Injury Data Consolidation Guide

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Overview

Consumer product safety is a shared concern across borders, particularly in the English-speaking regions of North America. To explore this critical issue, we consolidated and analyzed injury-related incident data from two major national sources:

- **United States:** U.S. Consumer Product Safety Commission (CPSC) — National Injury Information Clearinghouse
- **Canada:** Canadian Ministry of Health (Health Canada) — Consolidated Consumer Product Incidents System

This data integration effort supports a broader analysis of injury patterns, product risks, and reporting practices, enabling a more comprehensive understanding of consumer safety in North America.

Data Sources and Scope

The combined dataset includes consumer product-related incidents reported between **2013 and 2019**, drawn from both agencies' databases. The original data features both **structured**

variables (e.g., product type, injury severity, body part affected) and **unstructured narrative reports** that provide rich, descriptive context about each incident.

This dual-format dataset offers a unique opportunity to:

- Study **structured metadata** at scale
- Explore **unstructured incident narratives** to detect nuanced or previously overlooked safety issues
- Compare reporting patterns between the U.S. and Canada

Data Volume and Structure

Dataset	Country	Source	Records	Variables
Clearinghouse	U.S.	CPSC – Injury Information Clearinghouse	194,474	33
House Canada	Canada	Health Canada – Consumer Incidents System	20,221	33
Total		214,695		

Although both datasets contain 33 variables, only **7 variables** are common between them — forming the core of our consolidation effort.

More specific Goal

We will unify and create **7 new variables** with same label naming conventions, Those variables are:

Here's the content converted into a clean, structured table format:

Variable	Description	Example (Clearing House)	Example (Canada)
ID	Identifies the unique case in the dataset	20120103-79AB5-1222873	2011-000028
Product Code	Describes the product involved in the incident	"Stairs or Steps (1842)"	"HC-NEISS > Household Items > Slow cookers - 0268"

Variable	Description	Example (Clearing House)	Example (Canada)
Severity	Describes how severe the result of the incident was	"Severe Bruising"	"Incident > Injury Severity > No Injury"
Hazard	Indicates the type of hazard involved	"Mechanical - Fall"	"Hazard 1: Primary > Mechanical and physical > Broken Part"
Injury	Describes the type of injury sustained	"Severe Bruising"	"Incident > Injury Type > Cut"
Body Part	Describes the body part affected by the injury	"Arm"	"Body Part > Arm > Hand"
Narrative	A text-based description of the incident	"74 YOF DECEDENT FELL DOWN 6 STAIRS. CAUSE OF DEATH: BRAIN DEATH; INTRA CRANIAL HEMORRHAGE."	"<redacted> was driving golf car down the hill toward #7 green and it rolled over injuring passenger <redacted>. Ambulance called."

Process

Variable	Processing Steps	Clearing House	Canada
ID	Check for duplicate entries	No duplicates found	1 duplicate removed (identical data except for hazard)
Product Code	Extract/standardize 4-digit product codes	<ul style="list-style-type: none"> 1 unique label without code (found in manual) Converted 3-digit codes to 4-digit format 	<ul style="list-style-type: none"> 14 unique labels without code Only 1 found in manual Assigned codes using: <ul style="list-style-type: none"> Similar manual entry Custom 4-digit codes
Severity	Map existing labels to 7 unified severity categories	<ul style="list-style-type: none"> Substituted 11 old labels with 7 new ones Severity and Treatment stored in same variable 	<ul style="list-style-type: none"> Substituted 8 severity + 11 treatment labels to 7 new ones Stored in two separate variables Overlap handled carefully
Hazard	Normalize hazard labels into 16 categories	Substituted 37 old hazard labels with 16 new ones	Substituted 55 old hazard labels with 16 new ones

Variable	Processing Steps	Clearing House	Canada
Injury	Standardize injury types	Substituted 32 old labels with 15 new ones	Substituted 16 old labels with 15 new ones
Body Part	Harmonize body part labels	Substituted 25 old labels with 23 new ones	Substituted 48 old labels with 23 new ones
Narrative	Clean and label text descriptions	No missing values within 40-character length	<ul style="list-style-type: none"> • 15 unique placeholders for missing narratives (within 60-character length) → labeled [MT] • 32 labels indicating “see other document” → labeled [OS]

Label detail (Hazard)

Unified Hazard Category	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
Toxic Substance	<ul style="list-style-type: none"> • Chemical - Poisoning - Carbon Monoxide • Heavy Metals (Lead / Other) • Other Gases/Vapors • Other Liquid/Solid 	<ul style="list-style-type: none"> • Hazard 1: Primary > Toxicological
Electrical	<ul style="list-style-type: none"> • Electrical • Electric shock/Electrocution • Other Electrical malfunction • Water leaking 	<ul style="list-style-type: none"> • Hazard 1: Primary > Electrical • Electrical, unknown • Arcing or sparking • Short circuit • Exposed wiring • Overload • Tripping of (safety device) • Loose connection • Excessive heat • Electrical, other

Unified Hazard Category	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
Crushing/Pinching	<ul style="list-style-type: none"> ● Mechanical - Crushing/Pinching 	<ul style="list-style-type: none"> ● Mechanical and physical > Pinch or shear
Entanglement/Entrapment	<ul style="list-style-type: none"> ● Mechanical - Entanglement/Entrapment 	<ul style="list-style-type: none"> ● Entrapment ● Entanglement ● Confinement
Explosion	<ul style="list-style-type: none"> ● Mechanical - Explosion (pressure related) 	<ul style="list-style-type: none"> ● Mechanical and physical > Expansion
Slip/Fall	<ul style="list-style-type: none"> ● Mechanical - Fall ● “Mechanical-Slip” (invalid label) 	<ul style="list-style-type: none"> ● Fall ● Slippery surface
Sharp/Pointed Object	<ul style="list-style-type: none"> ● Mechanical - Sharp or Pointed Objects 	<ul style="list-style-type: none"> ● Sharp edge or point
Small Part	<ul style="list-style-type: none"> ● Mechanical - Small Parts 	<ul style="list-style-type: none"> ● Broken Part ● Small part ● Detached Part
Struck By/Against	<ul style="list-style-type: none"> ● Projectile/Falling Objects ● Struck by ● Collision 	<ul style="list-style-type: none"> ● Struck by or against ● Impaction
Asphyxiation	<ul style="list-style-type: none"> ● Threat to Breathing 	<ul style="list-style-type: none"> ● Impermeable to air
Tip Over / Instability	<ul style="list-style-type: none"> ● Tip Over / Instability / Rollover 	<ul style="list-style-type: none"> ● Instability ● Tip over
Mechanical-Other	<ul style="list-style-type: none"> ● Mechanical (generic) ● Malfunctioning safety equipment ● Submersion 	<ul style="list-style-type: none"> ● Mechanical and physical (general) ● Collapse ● Leak (mechanical failure) ● Moving part ● Rough surface ● Mechanical and physical, unknown ● Noise ● Trip over ● Suction

Unified Hazard Category	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
		<ul style="list-style-type: none"> • Lens effect (magnifying)
Thermal-Fire	<ul style="list-style-type: none"> • Thermal - Fire 	<ul style="list-style-type: none"> • Flammability > Fire • Combustion
Thermal-Other	<ul style="list-style-type: none"> • Thermal • Extreme Cold • Flammable Liquids/Gases • Hot Liquid/Steam • Hot surface • Other Flammable Materials 	<ul style="list-style-type: none"> • Flammability • Reignition • Flammability unknown • Flammability other • Overheating • Smoke
Other	<ul style="list-style-type: none"> • Other • Chemical • Allergenic • Caustic/Corrosive • Particulates 	<ul style="list-style-type: none"> • Radiation Emitting > Laser • Radiation, unknown • Radiation, other • Microwaves • Radio waves • Light ultraviolet • No Hazard
Missing	<ul style="list-style-type: none"> • (Blank) 	N/A

Label detail (Severity)

Unified Severity Category	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
Fatality	<ul style="list-style-type: none"> • "Death" 	<ul style="list-style-type: none"> • Fatal
Hospitalization	<ul style="list-style-type: none"> • "Hospital Admission" 	<ul style="list-style-type: none"> • Not Fatal & Hospital - Admission
Injury Requiring Medical Attention	<ul style="list-style-type: none"> • "Emergency Department Treatment Received" 	<ul style="list-style-type: none"> • Life threatening or disabling & ! Hospital - Admission • Moderate & ! Hospital - Admission

	<ul style="list-style-type: none"> • "Seen by Medical Professional" 	<ul style="list-style-type: none"> • Severe & ! Hospital - Admission • Minor & (ER Doctor Other)
First Aid Only	<ul style="list-style-type: none"> • "First Aid Received by Non-Medical Professional" 	<ul style="list-style-type: none"> • ! Fatal & ! Life threatening & ! Severe & ! Moderate & First Aid
Less than First Aid	<ul style="list-style-type: none"> • "No First Aid or Medical Attention Received" 	<ul style="list-style-type: none"> • (No Injury Unknown Minor) & (No Treatment Poison Control Health Info Service) • Minor & (No Treatment "" Unknown) ** (custom)
No Injury	<ul style="list-style-type: none"> • "Incident No Injury" • "No Incident No Injury" 	<ul style="list-style-type: none"> • No Injury & No Injury - no treatment • No Injury & ("" Unknown ER Doctor Other) ** (custom)
Unknown	<ul style="list-style-type: none"> • "Level of care not known" • "Unspecified" • "" 	<ul style="list-style-type: none"> • Unknown & ! Hospital - Admission & ! First Aid & ! No Treatment & ! Poison Control & ! Health Info Service • "" & ! Hospital - Admission & ! First Aid

Legend (Canada rules):

- ! = NOT
- & = AND
- | = OR
- ** = Custom classifications not in original schema

Purple represent Severity, Blue represent Treatment

Label detail (Narrative)

Category	Example Labels	Assigned Token
Narratives < 40 characters (missing)	<ul style="list-style-type: none"> • "N/A" • NA • "unknown" • "None." 	[MT] (Missing Text)

Category	Example Labels	Assigned Token
	<ul style="list-style-type: none"> ● "NONE" ● "none" ● "No " ● "AUCUN " ● "Not applicable." ● "non-applicable" ● "Not Applicable" ● "Not provided/Non fourni" ● "étiquette inadequate" ● "we dont have a incident data " ● "Non-compliant label - see images attached" 	
Narratives < 60 characters (referencing other documents)	<ul style="list-style-type: none"> ● "see coroner report." ● "See attachment." ● "See section 4." ● "see attach" ● "See Attached. " ● "See Attachment" ● "See attachment" ● "See attached." ● "Voir rapport fourni" ● "See Schedule A" ● "See initial report." ● "Please see attachment " ● "See below for details" ● "See attached document. " ● "Please see attached report." ● "Please see attached report" ● "See attached incident report" ● "Please see attached letter." ● "See description in section 4." ● "Please see attached Word Document." ● "See the attached correspondence." ● "See the attached correspondence. " ● "Please see the initial submission." ● "Please see attached Appendix A." ● "Voir rapport d'incident consommateur" ● "Please see attached letter and report." ● "See Attachment "Section 3 - Incident"" ● "See attached copy of email to " ● "See ATTACHMENT A (Section 3) for details." ● " See ATTACHMENT A (Section 3) for details. " 	[OS] (Other Source)

Category	Example Labels	Assigned Token
	<ul style="list-style-type: none"> • "Canadian Incident Please see attachment. " • "See Attachment A (Section 3) for details." 	

Narrative Category	Clearing House (U.S.)
Missing (< 40 characters)	None found

Label detail (Injury)

Unified Injury Category	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
Amputation	• Amputation	• Incident > Injury Type > Amputation
Fracture	• Break Fracture	• Incident > Injury Type > Fracture
Bruise/Scratch	<ul style="list-style-type: none"> • Bruising Scratches • Severe Bruising 	• Incident > Injury Type > Bruising
Burn	<ul style="list-style-type: none"> • Burn • Burn-Chemical • Burn-Electrical • Burn-not specified • Burn-Radiation • Burn-Scald • Burn-Thermal 	• Incident > Injury Type > Burn
Cut	• Cut	• Incident > Injury Type > Cut
Irritation or Allergic Reaction	• Dermatitis Conjunctivitis Skin or Eye Irritation/Rash	• Incident > Injury Type > Irritation or Allergic reaction
Shock	• Electric Shock	• Incident > Injury Type > Electric shock
Foreign Object	• Foreign Object Stuck in or on the body	• Incident > Injury Type > Foreign body
Asphyxia	• Lack of oxygen	• Incident > Injury Type > Asphyxia
Poisoning	• Poisoning	• Incident > Injury Type > Poisoning
Strain/Sprain	• Strain / Sprain	• Incident > Injury Type > Sprain or strain
Concussion/Brain Injury	• Concussion	• Incident > Injury Type > Brain injury
Unknown	• Unspecified	<ul style="list-style-type: none"> • Incident > Injury Type > No Injury • Incident > Injury Type > Unknown

Unified Injury Category	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
Other	<ul style="list-style-type: none"> • Bleeding • Dental Injury • Dislocation • Drowning • Internal Organ Injury • Nerve Damage • Object Inhaled • Object Swallowed • Puncture • Skin Tear / Flap / Nail Detachment • Other/Not Stated 	<ul style="list-style-type: none"> • Incident > Injury Type > Other
Missing Data	<ul style="list-style-type: none"> • "" (Blank) 	<ul style="list-style-type: none"> • "" (Blank)

Label detail (Product Code)

Labels Without Digit Product Codes

Label Name	Occurrences
■ ■	1460
HC-NEISS > Miscellaneous > other products/other department	289
HC-NEISS > Household Items > other household items	38
HC-NEISS > Household Items > appliances - small	6
HC-NEISS > Modifiers > Second Hand	1
HC-NEISS > Miscellaneous > other second-hand products	1
HC-NEISS > Household Items > appliances - large	8
HC-NEISS > Childcare > other childcare items	7
HC-NEISS > Miscellaneous > Vaping Device	110
HC-NEISS > Chemicals > Marine chemicals (excluding antifreeze, lubricants, waxes, windshield wiper fluids)	2
HC-NEISS > Household Textiles > other household textile items	2
HC-NEISS > Chemicals > cleaners - wood, incl bleaches	1
HC-NEISS > Sports/Leisure > Bicycles or accessories (excluding mountain or all-terrain bicycles)	17
HC-NEISS > Household Items > Electrical power bars	1

Suggested Mappings for Labels Without Numerical Codes

Label Name	Similar Label / Suggestion	Suggested Code
■ ■	No product identified	0000
Miscellaneous > other products/department	0100 (Deleted); Product NOS	(Uncoded NOS)
Household Items > other household items	0482 – Appliances, other or not specified	0482
Household Items > appliances - small	0482 or 5020 – Pretend electronics, tools, appliances	0482 / 5020
Modifiers > Second Hand	No clear NEISS match	(NOS)
Miscellaneous > other second-hand products	Similar to Miscellaneous > other products; NOS	(NOS)
Household Items > appliances - large	0482 or 5020	0482 / 5020
Childcare > other childcare items	1500 (Deleted); nursery equipment	(Uncoded)
Miscellaneous > Vaping Device	0305 – Vaporizers	0305
Chemicals > Marine chemicals (excl. antifreeze, lubricants, etc.)	0921 – Chemicals, not elsewhere classified	0921
Household Textiles > other household textile items	0666 – Towels/cloths or 4045 – Fabrics (not part of finished item)	4045
Chemicals > cleaners - wood, incl bleaches	0956 – Bleaches 1294 – Bleachers 0954 – General-purpose cleaners (excl. abrasives, ammonia, etc.)	0954
Sports/Leisure > Bicycles or accessories (excluding mountain bikes)	5040 – Bicycles or accessories (excluding mountain or all-terrain bicycles)	5040
Household Items > Electrical power bars	4083 – Surge suppressors or power strips	4083

Label detail (Body Part)

Unified Body Part	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
Head	• Head	<ul style="list-style-type: none"> • Head • Head > Hair • Head > Head/Scalp

Unified Body Part	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
Face	● Face (including eyelid eye area and nose)	● Face (includes eyelid, eye area and nose) ● Head > Face (includes eyelid, eye area and nose)
Ear	● Ear	● Head > Ear
Eyeball	● Eyeball	● Eyeball ● Head > Eyeball
Mouth	● Mouth	● Mouth (including lips, tongue and teeth) ● Head > Mouth (including lips, tongue and teeth)
Arm	● Arm	● Arm ● Arm > Arm, lower (excludes elbow or wrist) ● Arm, lower ● Arm > Arm, upper
Elbow	● Elbow	● Arm > Elbow
Hand	● Hand	● Arm > Hand ● Hand
Finger	● Finger	● Arm > Finger ● Finger
Wrist	● Wrist	● Wrist ● Arm > Wrist
Trunk	● Trunk	● Trunk ● Trunk, Upper ● Trunk > Trunk (upper not including shoulders) ● Trunk, lower
Shoulder	● Shoulder (including clavicle collarbone)	● Trunk > Shoulder (including clavicle or collarbone)
Pubic Region	● Pubic Region	● Pubic region ● Trunk > Pubic region
Neck	● Neck	● Neck ● Trunk > Neck
Leg	● Leg	● Leg ● Leg > Leg, Upper ● Leg, Upper

Unified Body Part	Original Labels – Clearing House (U.S.)	Original Labels – House Canada (Canada)
		<ul style="list-style-type: none"> • Leg > Leg, lower (excludes knee or ankle)
Ankle	<ul style="list-style-type: none"> • Ankle 	<ul style="list-style-type: none"> • Leg > Ankle
Knee	<ul style="list-style-type: none"> • Knee 	<ul style="list-style-type: none"> • Leg > Knee
Foot	<ul style="list-style-type: none"> • Foot 	<ul style="list-style-type: none"> • Leg > Foot • Foot
Toe	<ul style="list-style-type: none"> • Toe 	<ul style="list-style-type: none"> • Leg > Toe
>50% of Body	<ul style="list-style-type: none"> • All Parts of the body 	<ul style="list-style-type: none"> • All parts of body (more than 50% of body)
25–50% of Body	<ul style="list-style-type: none"> • 25–50% of body 	<ul style="list-style-type: none"> • 25–50% of body
Internal	<ul style="list-style-type: none"> • Internal (use with aspiration and ingestion) 	<ul style="list-style-type: none"> • Internal
Other	<ul style="list-style-type: none"> • Unspecified • Not Recorded 	<ul style="list-style-type: none"> • Internal • No Injury
Missing	<ul style="list-style-type: none"> • "" (blank) 	<ul style="list-style-type: none"> • "" (blank)

Consolidated Datasets

New Dataset	Description	Dimensions
USCA_inner	Dataset with only the 6 standardized variables	$214,695 \times 6$
USCA_outer	Dataset with all original + 6 standardized variables	$214,695 \times 72$