

Table S1. Epidemiologic information of confirmed cases of strychnine poisonings in dogs in Western Canada from 2014 to 2023.

Year	Province	Month	Signalment	Sample submitted	Strychnine concentration (ppm)	History
2015	AB	Jan	3-year-old FS Labrador Retriever	Stomach contents	246	<ul style="list-style-type: none">• Found dead 3 h after owner had been playing with her.• Meat found near body.• Owner had given her no meat or scraps, only kibble.• No health issues previously.• At necropsy, right ventricular dilation and hemorrhage over the vena cava and mild hemothorax.• Stomach full of meat.
2015	SK	April	1-year-old MN dog, breed not specified	Grain	1567	<ul style="list-style-type: none">• Two dogs found dead on farm.• Dogs had gotten into a bag with rotten grain and some black substance.
2015	SK	July	5-year-old F Great Pyrenees	Stomach contents	76.9	<ul style="list-style-type: none">• Died overnight.• Two sudden deaths and 3 hospitalized dogs• Signs of sickness: sudden death of 2 dogs and 3 presented to veterinary clinic seizing (clonic/tonic, hyperexcitable). All were discharged, doing well at home.• Dogs housed outside.
2015	AB	July	4-year-old F Australian Cattle Dog, 6-year-old F Labrador Retriever	Stomach contents	ACD: 11.8 LR: 22.5	<ul style="list-style-type: none">• Owner just opened a new bag of dog food.• Australian cattle dog: 20 min after eating it, the dog started to stiffen and seizure; died soon after.• Labrador retriever: Started to seizure ~ 20 min after eating some new dog food. The dog went stiff legged, fell over, seized for ~15 min then died.• Postmortem normal.

2015	SK	Oct	English Springer Spaniel, no age or sex specified	Meat	3.8	<ul style="list-style-type: none"> • Owner found in yard. • Unclear if dog poisoning occurred.
2016	AB	April	3-year-old MN Chihuahua	Stomach contents	22.8	<ul style="list-style-type: none"> • Dog was normal earlier. He walked into the shop, fell down, and seized for ~ 10 min prior to arrival at veterinary clinic. • Dead on arrival with cyanotic mucous membranes. • Owner lost another dog 2 wk ago with similar symptoms and sudden death.
2016	AB	Sept	14-month-old MN Labrador Retriever	Urine	5.4	<ul style="list-style-type: none"> • Possible bait material in stomach.
2016	AB	Oct	9.5-year-old MN Border Collie	“Fresh tissue”	23.4	<ul style="list-style-type: none"> • Dog seized for 3 h and died.
2017	AB	Jan	4-year-old F Bull Mastiff	Urine	4.7	<ul style="list-style-type: none"> • Previously healthy dog had acute onset of seizures. • Died on the way to veterinary clinic. • Necropsy revealed feathers, meat, and bone in stomach.
2017	SK	Jan	10-year-old FS Jack Russell Terrier	Stomach contents	108	<ul style="list-style-type: none"> • Dog was reportedly normal in the morning, but owner thought she developed a stiff gait throughout the day. • Dog was unable to jump on the couch and started to lick her lips while resting. Also started to stretch out and tremble on the couch, which progressed to paddling and hypersensitivity to sounds and touch. • Dog was euthanized at the veterinary clinic. • Owner is concerned because in May 2016 her 9-month-old puppy presented with similar clinical signs.

2017	SK	June	2-year-old FS Weimaraner	Stomach contents	100	<ul style="list-style-type: none"> • Young healthy dog with no prior history of seizures or illness. • The dog been seizing for a1 h prior to call to the veterinary clinic. • Owner lives on acreage 1 h from the veterinary clinic; dog died enroute to clinic.
2017	AB	Aug	3-month-old F Golden Retriever	Stomach contents	50.2	<ul style="list-style-type: none"> • Owner phoned the veterinary clinic that dog was seizing. • Dog was dead on arrival at veterinary clinic. • Dog had a history of being at a ball tournament; was off leash for a very short interval.
2017	AB	Aug	3-year-old MN English Springer Spaniel	Stomach contents	55.5	<ul style="list-style-type: none"> • Owner phoned clinic that dog was seizing about 15 min after the other dog (3-month-old female Golden Retriever) arrived at the clinic. • Dog was dead on arrival with dark blue mucous membranes. • History of being at ball tournament; was off leash for a short interval and was playing with the Golden Retriever. • History of strychnine being used at campground in area.
2017	SK	Oct	1.5-year-old FS Rottweiler	Meat	1786	<ul style="list-style-type: none"> • Dog ingested sausage in morning and died away within 30 min after ingestion. • Started convulsing within couple minutes after eating and was dead on arrival at clinic. • Owner found sausage with pink content inside and brought it to clinic to be submitted for testing.
2017	SK	Nov	6-month-old Labrador Retriever	Stomach contents	15.7	<ul style="list-style-type: none"> • Dog was 1 h away and owner called and said the dog started to convulse/seizure.

						<ul style="list-style-type: none"> • Owner made it to the clinic and said the dog never stopped convulsing. • Dog died soon after arriving at the veterinary clinic. • Owner lives on a farm. The dog was out with owner and wandering around while he was doing chores. The dog wasn't in a new area, • The owner doesn't use rodenticide or poison on the farm. • Stomach contents contained kibble with small fragments of unknown white material.
2018	AB	Jan	Bull Terrier X, age and sex not specified	Pellet	1552	<ul style="list-style-type: none"> • Dog was presented to veterinary clinic seizing. • Owners later found empty box of gopher strychnine on property; sending pellet to confirm strychnine.
2018	SK	Sept	F Mastiff X, age not specified M German Shepherd Dog, age not specified	Stomach contents	M: 15.7 GSD: 10.0	<ul style="list-style-type: none"> • Both dogs were last seen in the owner's yard and ~ 1.5 later, the GSD was laying on lawn acting unusual; dog was taken into the garage, began convulsing and died within 15 min.
2019	AB	Jan	6-month-old M Brittany Spaniel	Stomach contents	502	<ul style="list-style-type: none"> • A short time later the Mastiff acted unusual and died within 15 min. • Dog was unattended, outside in a fenced yard for 10-15 min; dog was typically indoors. • Immediately on return he drank a lot of water and began seizing. • The dog had 2 seizures at home then seized for ~40 min en route to clinic, died before arriving at clinic. • No prior history of seizures. Fully vaccinated as a puppy. • Stomach contained large amounts of mash, deli meat and small bones.

2019	AB	March	1.5-year-old M Border Collie X	Stomach contents	702	<ul style="list-style-type: none"> • One of 2 dogs found dead.
2019	BC	April	Unspecified age and breed of dog	Meat	184	<ul style="list-style-type: none"> • Conservation officer collected a suspicious piece of meat that was left out on a remote forest service road. • A dog ate something right next to the package of meat and died within minutes. • Second dog that is suspected poisoned.
2019	MB	April	10-year-old MN Husky X	Stomach contents	98.6	<ul style="list-style-type: none"> • Young dog died suddenly 2 wk earlier. • Old dog (Husky X) died yesterday after seizures.
2019	AB	May	1-year-old F Australian Cattle Dog	Stomach contents	65.5	<ul style="list-style-type: none"> • Presented with convulsions; initially convulsions responded to valium, but died shortly thereafter. • Stomach contents revealed partially digested muscle tissue and some grass and straw.
2019	AB	July	2-year-old F Golden Retriever	Stomach contents	10.4	<ul style="list-style-type: none"> • Dog presented for seizures, possible exposure to strychnine. • Dog died despite treatment with CRI of pentobarbital. • Lots of grain in stomach contents.
2020	AB	May	3-year-old FS Golden Retriever, 9-year-old FS Golden Retriever	Stomach contents	3-year-old: 33.4 9-year-old: 72.9	<ul style="list-style-type: none"> • Two dogs died suddenly on weekend. Concerned that were poisoned. • 3-year-old died the day before the 9-year-old. • Necropsy (3-year-old) - rigor, full stomach contents, Hemorrhagic viscera, muscles, pulmonary edema, nasal bloody discharge.
2020	SK	Sept	6-year-old MN German Shepherd Dog	Stomach contents	341	<ul style="list-style-type: none"> • Dog had history of epilepsy and is currently on phenobarbital.

						<ul style="list-style-type: none"> • Both dogs on property were in yard when owner suspected they had ingested something toxic. • Within 15-20 min, GSD was found dead. • Other dog on property had signs of poisoning (panting excessively, neurological signs, stiffness, trembling, etc.).
2020	SK	Oct	3-year-old MN Staffordshire Terrier X	Meat	354	<ul style="list-style-type: none"> • Suspicious bag with meat found in yard after dog started to uncontrollably seizure.
2022	BC	May	Dog of unspecified breed, age, and sex	Urine	<p><0.5</p> <p>The sample was considered diluted due to intravenous fluid therapy.</p>	<ul style="list-style-type: none"> • Suspected ingestion of a toxic substance the evening prior. • Urine collected from dog ~1 d later at veterinary clinic. Patient was on IV fluids before sample collection.
2022	SK	Oct	8-month-old MI Australian Shepherd X	Stomach contents	4.8	<ul style="list-style-type: none"> • Dog was out in yard when it was noticed that he was foaming at the mouth and very agitated. The dog would not let the owners near him, which was highly unusual. • Quickly progressed to leaking urine and feces, a grand mal seizure with stiff legs, and then respiratory distress and ultimately death. • When the dog arrived at the clinic, he was in rigor with all limbs extended. Large amount of pink liquid coming from mouth and foam from nose with a very distinct smell. • Dog appeared grossly normal on necropsy.
2023	SK	Feb	8-month-old F Rottweiler	Stomach contents	5.5	<ul style="list-style-type: none"> • Found dead.
2023	SK	April	4-year-old M Australian Cattle Dog	Stomach contents	101	<ul style="list-style-type: none"> • Dog was dead on arrival at the veterinary clinic. • Outdoor farm dog, access to most of the property.

2023	AB	Oct	10-month-old F Great Pyrenees X	Stomach contents	68.4	<ul style="list-style-type: none"> • Normal prior evening, dead next morning • No previous health concerns, vaccinated. • No known access to toxins; no access to farm shop where chemicals are kept. • Another dog in household also found dead. at • Both dogs were found stiff and stretched out.
2023	SK	Dec	9-year-old F Jack Russell Terrier, 14-year-old M Beagle, 2-year-old M Labrador Retriever X	Stomach contents	JRT: 18.9 B: 220 LR: 63.6	<ul style="list-style-type: none"> • Dogs were completely normal early in morning; by late morning, 2 dogs dead in the chicken pen. Great Pyrenees was hunched over; then she took off running. The other dog started having a seizure, died 20 min later and was very stiff. • Great Pyrenees found dead; 2 dogs died within 45 min of each other. • No apparent toxin in chicken pen. • Signs of sickness: abnormal stance, seizures, sudden death
						<ul style="list-style-type: none"> • The 3 dogs were outside on the farm for a~ 30 min. • Beagle was found dead next to meat scraps. • Jack Russell Terrier was seizing and died shortly thereafter. • Labrador Retriever found dead outside later in the evening. • Owner kept dogs/meat scraps frozen in vehicle outside.

Abbreviations: AB = Alberta, BC = British Columbia, F(S) = female (spayed), MB = Manitoba, M(N) = male (neutered), SK = Saskatchewan