

# NAMA Toxicology Committee Report for 2008: Recent Mushroom Poisonings in North America

Michael W. Beug, Ph.D.  
Chair NAMA Toxicology Committee

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IN 2008, WE HAD a year of plentiful mushrooms in most of eastern North America, an average year in much of the rest of the country but a dry year in California. These conditions are reflected in the distribution and number of mushroom poisonings. There were 72 reports of human mushroom poisoning and allergic reactions involving 114 people, though four reports were for 2006 and 2007. Two **died**, one required a liver transplant, and one person needs ongoing kidney dialysis for kidney failure. There were also 18 reports involving 22 dogs, and one report involving a cat. There were 14 reported dog deaths or cases of animal euthanasia. The average number of reports to NAMA over the last 25 years is about 70 humans affected per year with about one death per year. For animals we had been receiving an average of fewer than ten reports per year involving about one death or instance of euthanasia per year.

The first ever North American case of kidney failure following ingestion of a *Cortinarius* was reported in early August. The victim collected and consumed the mushrooms under an oak tree in Ada, Michigan, on July 11. She is slowly improving, and her case will be published in detail elsewhere by physicians and mycologists directly involved it. DNA analysis of the mushrooms showed them to be a new species very closely related to *Cortinarius orellanus*.

The two fatalities both were in the Northeast, one in New York and the other in New Jersey. Both were reported as *Amanita bisporigera* poisonings, though the New York case probably involved the look-alike *Amanita elliptosperma*. Rod Tulloss reports that the two species are most easily distinguished by a drop of KOH on the cap. *Amanita elliptosperma* is unreactive while *Amanita bisporigera* will turn yellow.

In the New York poisoning, a 61-year-old woman who worked for a company that manages rest areas collected and consumed

10–15 mushrooms, and that large quantity played a significant role in her death. It is not clear how she prepared the mushrooms, but this toxin,  $\alpha$ -amanitin, retains its toxicity after cooking. Two other New York residents were hospitalized but survived after eating what was identified in press reports as *Amanita bisporigera*. A New Jersey woman was not so fortunate. She was attended by an internal medicine resident at the Robert Wood Johnson University Hospital who showed unusual initiative in following up on this case. Dr. Nici provided the following account:

In New Jersey in late August of 2008 a woman who had emigrated from India four years ago went to a field near her home where she had previously gathered mushrooms to eat. She gathered several and brought them home, where she cooked them into a curry. She ate a meal of the curry at 3:00 p.m. and was joined at the meal by her daughter, 24, and her daughter's husband, 25. The daughter ate lightly, and the husband only consumed some of the gravy. The mother then ate more of the curry at 7:00 p.m. She awoke at 3:00 a.m. to cramps, and she vomited 30 to 40 times. In the morning, the other two also felt ill. That afternoon they went to the hospital. On admission, their liver enzymes were near normal. By the next morning, all were feeling better, but the liver enzyme counts were up. The mother then began to go downhill at 12:30 p.m., almost 48 hours after eating the mushrooms. She was transferred to the ICU for consideration for liver transplant but she was deteriorating rapidly. She died the following day of multiple organ failure. The other two patients, who had consumed far less mushroom, recovered with no lasting ill effects.

Dr. Nici went to the field where the mushrooms were collected and readily found several. He also photographed the curry dish that the family had been eating from. Lots of mushroom chunks were evident in the dish. He called Rod Tulloss, who lives just a few blocks away. A quick spray of KOH on the caps of the all-white death caps yielded a yellow color, and Rod was able to confirm his initial suspicion that the mushrooms were *Amanita bisporigera*. Dr. Nici talked to the daughter and learned that her mother had never collected mushrooms in India but had started picking some to eat when they moved to New Jersey.

In September a 68-year-old Langley, British Columbia, woman suffered liver damage from consuming a mushroom from her lawn. *Amanita phalloides* was confirmed by Paul Kroeger, who provided the following account:

The patient ingested the mushrooms, "a fistful, cooked," 1800 hr September 06. Twelve hours later she experienced nausea, vomiting and diarrhea. She arrived at the hospital at 1430 hr Sept. 08. By 2324 hr she still had vomiting and diarrhea and liver enzymes were markedly elevated. She was rehydrated and N-acetylcysteine (NAC) IV given as liver protectant. Patient was continued on IV NAC through Sept. 11 and given morphine in small amounts for abdominal pain. Activated charcoal was given every 6 hours 4 times a day. By Sept. 12 she was on a regular diet and given the last morphine for pain, which was diminishing. Sept. 17 skin bright orange with jaundice. Sept. 20 anti-nauseants given. Sept. 22 "feeling unwell, nauseated, vomiting, occasional abdominal pain. Slight jaundice. Hands and feet edematous." Discharged Sept. 23.

A California Bay Area mushroom case involving *Amanita phalloides* received considerable press in late December. The 72-year-old grandmother, visiting from New York State, has been a mushroom hunter all her life, but as Debbie Viess reports, the victim lives in an area where the deadly *Amanita* species are white. The victim was not aware of the existence of the usually tan to green *Amanita phalloides*. She went picking with her twin grandsons and their parents on Mount Tamalpais. According to press reports, they picked two dozen mushrooms, and she made soup for

dinner. The boys' father and mother ate only a small portion of the soup, and the mother had no adverse symptoms while the father only suffered diarrhea. However, about ten hours after the meal, at 4:00 a.m., the grandmother and twin 11-year-old boys became violently ill with vomiting, abdominal pain, and diarrhea. Now comes the part that was not in most of the press reports: According to David Rust, the grandmother took samples of the mushroom that was not put in the soup with her when she went to Kaiser-Richmond. "They did nothing but hang an IV and send her home. It was not until her daughter, the mother of the two boys, went back to the spot where they had picked the death caps and got them ID'd (by David Campbell) that anyone would listen, and then they still had to drive themselves to UCSF Medical Center." Meanwhile they had twice gone to Kaiser-Richmond and been discharged both times!

At this point, Dr. Todd Mitchell in Santa Cruz was called. Almost exactly two years earlier he had been involved in a case where six members of a Mexican immigrant family had consumed deadly *Amanita phalloides*. In that case, Dr. Mitchell had arranged emergency FDA approval for injectable silymarin, a milk thistle extract called Legalon-Sil, to be flown from Germany by courier, an act that Dr. Mitchell is convinced saved lives by protecting and improving liver function. The grandmother recovered liver function but unfortunately died of kidney failure. Everyone else recovered fully. Dr. Mitchell again contacted the FDA but was told his permit for experimental use had expired. Meanwhile, he found a supply of the drug at a hospital in Munich and also promptly got a call back from the FDA with a new investigational drug number. A courier brought the drug on the next available Lufthansa flight with expenses paid by the drug maker Madaus. Lacking sufficient drug to treat all three, he treated the twins first. By the next morning the twins were improving, and the remaining drug was given to the grandmother. She recovered and was discharged three days later. The twins were in the hospital for eight days prior to discharge and are expected to make a full recovery. Dr. Mitchell feels that the FDA may soon grant an open investigational new drug application for Legalon-Sil, which Dr. Mitchell reports "would allow the antidote to be rapidly accessible from a California pharmacy after an amatoxin poisoning."

The drug is widely used in Europe to treat  $\alpha$ -amanitin poisonings and, from my interpretation of the studies, may provide some benefit, but its use in North America remains controversial. For example, the Mayo clinic has a section on Milk Thistle, *Silybum marianum*, on their website: [www.mayoclinic.com/health/silymarin/NS\\_patient-milkthistle](http://www.mayoclinic.com/health/silymarin/NS_patient-milkthistle). They report, "Milk thistle has been used traditionally to treat *Amanita phalloides* mushroom poisoning. However, there are not enough reliable studies in humans to support this use of milk thistle." Personally, I am intrigued by the potential promise of Legalon-Sil, in contrast to the oral Milk Thistle extracts commonly available. Still, given that most people survive ingestion of *Amanita phalloides* if they receive prompt qualified hospital care, it is going to be hard to demonstrate that Legalon-Sil provides any added benefit.

Two cases involving  $\alpha$ -amanitin from species other than *Amanita* are of note. Pat Leacock identified a small brown *Lepiota* in the *josserandii* (now *subincarnata*) group as the cause of such severe liver damage that a liver transplant was required. The case will be published, and no other information is available at this point. The other case involved a one-year-old dog that suffered severe liver necrosis and died of liver failure after consuming a *Galerina* species. Dr. Kathie Hodge did the Meixner test on the *Galerina* and got a dark blue color, a strong positive indicator of amatoxins. She studied the dried material but, due to the complexity of *Galerina* taxonomy, we were unable to positively determine what species the *Galerina* was. The other dog deaths were caused by a range of mushrooms including a *Scleroderma*, *Amanita bisporigera*, and *Amanita pantherina*.

The 2008 mushroom season saw a typical number of poisonings by *Chlorophyllum molybdites*, *Omphalotus illudens*, *Amanita pantherina*, *Amanita muscaria* and *Agaricus xanthodermus*. There were also a few unusual culprits and an unusually large number of people who consumed Morels, Verpas, and Gyromitras with little or no cooking. Patrice Benson sent in three of five total reports of people who had an adverse reaction to *Cantharellus formosus*. In all cases several other people shared the meal (two cases were at mushroom tastings with lots of people) and no one else was made ill. Two of the individuals tested their reaction to *Cantharellus*

*formosus* a week later and got sick again.

A number of cases involve mushrooms that we do not normally hear about. There were two people poisoned by *Amanita aprica* and three by *Amanita albocreata*. Those cases made it clear to anyone not yet convinced that both species contain the same or similar toxins as *Amanita muscaria* and *Amanita pantherina*. Meanwhile, five young people who ate *Amanita frostiana* thinking they were going to get high from *Amanita muscaria* learned that *Amanita frostiana* causes explosive vomiting and bad stomach cramps but does not make you high. Laurie Leonard reported on the consumption of just two forkfuls of *Boletus huronensis* by a couple of individuals who suffered five hours of severe vomiting and then diarrhea. Ernst Both, who conducted the identification, said that he knew of other cases of upset by *Boletus huronensis*. Roz Lowen reported on strong gas and diarrhea that she and her daughter-in-law experienced after consuming sautéed *Boletus castaneus*, another reportedly edible species. John Dawson reported from Pennsylvania that he, his wife, and two friends who were testing recipes for a Truffle-tasting using purchased *Leucangium carthusianum* (the Oregon Black Truffle) suffered three days of intermittent vomiting and diarrhea after consuming a soup with shavings of truffle infused into the soup. They noticed a peppery taste followed by burning pain in the esophagus and stomach and also experienced chills and fever. After telling the supplier of their plight, the supplier learned that an associate in Oregon had had a similar bad experience. It is hoped that testing will reveal whether or not there was some sort of bacterial toxin on the surface of the truffles.

The 2008 season was not without the usual large number of calls from parents of children who touched or picked a mushroom but had no symptoms. In one case, the mushroom was confirmed to be a poisonous species, *Agaricus xanthodermus*, but it was unclear whether or not any was swallowed. There were also a number of poisonings where the mushroom culprit was not saved or in the case of dog poisonings, could not be determined.

**Table I. Principal Poisonous Mushrooms in 2008**

Mushroom	# People	% of total Poisonings
Morels	13	12%
<i>Chlorophyllum molybdites</i>	9	8.4%
<i>Omphalotus illudens</i>	9	8.4%
<i>Amanita bisporigera</i>	6	5.6%
<i>Agaricus xanthodermus</i>	5	4.7%
<i>Amanita muscaria</i> group	5	4.7%
<i>Amanita phalloides</i>	4	3.8%

**Table II. Age Distribution of Human Poisonings in 2008**

Age Range	Male	Female	Unreported sex	% of Total Cases
<14	7	4		8.4%
15–29 <sup>1</sup>	8	5	5	16.8%
30–44	6	1		6.5%
45–59	4	5		8.4%
>60	6	10		14.9%
Unknown Age	13	20	13	42.9%

1. Many of the individuals in the 15- to 29-year age class were experimenting with hallucinogenic mushrooms.

**Table III. Summary of the Reports by Species**

Mushroom	When/Where	ID <sup>1</sup> /Prep	Sex <sup>1</sup> /Age	Onset (hrs)	Symptoms	Comments
<i>Agaricus xanthodermus</i>	7/10/08 CO	VL raw	M 38	2	Vomit (3-4X), diarrhea	Ate 1 raw from grass
<i>Agaricus xanthodermus</i>	8/20/08 NV	G raw	M,F 4,4	10	Vomited for 6 hrs (F less)	Mushrooms found in yard
<i>Agaricus xanthodermus</i>	8/26/08 CO	G raw	F 2	-	No symptoms	Ate 2 bites
<i>Agaricus xanthodermus</i>	9/10/08 ID	VL raw	F 1.5	~2	Staring as high, later diarrhea	Ate a small piece
<i>Amanita albocreata</i>	6/23/08 QC	G cook	F 60 2M 30,60	U	Characteristic ibotenic acid & muscimol incl respiratory distress (1), 2 days comatose episodes (2)	The wife was most affected but husband also comatose off and on for 2 days. Only wife had respiratory prob.
<i>Amanita aprica</i> + other species	~6/7/08 OR	VL cook	M,F U	2.5 & 4	Deed sleep, incontinent (F), Unsteady, felt drunk, tremors	Consumed an assortment of mushrooms + 2 glasses wine

1. G = confirmed, P = possible, Sp = confident of the genus, U = Unknown, VL = very likely

Table III. Summary of the Reports by Species, cont.

<i>Amanita bisporigera</i>	08/08 NJ	G cook	F ~50	12	Cramps, vomit 30-40x, multiple organ failure, <b>DEATH</b> in <72 hours	Made curry with lots of mushrooms ate two meals
<i>Amanita bisporigera</i>	08/08 NJ	G cook	F 24	~18	Felt ill, hospitalized but recovered fully	Consumed only small amount of curry at 1 meal
<i>Amanita bisporigera</i>	08/08 NJ	G cook	M 25	~18	Felt ill, hospitalized but recovered fully	Only consumed some of the gravy
<i>Amanita bisporigera</i>	7/2008 NY	GU	2U U	U	Severe illness	Recovered. No details available
<i>Amanita eliptosperma</i> Reported <i>A.</i> <i>bisporigera</i>	7/6/08 NY	G cook	F 61	U	Liver and kidney failing on hospital arrival. <b>DIED</b> in 3 days	Consumed large quantity from a freeway rest area
<i>Amanita frostiana</i>	08/08 MA	G raw	5U 19-22	2	Explosive vomiting, bad stomach cramps	Each consumed 2-3 raw. Expected <i>A. muscaria</i> high
<i>Amanita muscaria</i> ("ameri- muscaria")	~6/15/0 7 ID	G cook	M,F U	0.5	"Sick" unequal pupils, stable vitals (F), Felt drunk (M)	Female who ate a lot incoherent, reacted only to sharp stimulus
<i>Amanita muscaria</i>	10/26/ 08 BC	G U	U U	U	Classic ibotenic acid/muscimol	Young buttons, expected puffballs
<i>Amanita muscaria</i> ( <i>ameri-muscaria</i> )	10/15/ 08 VA	G cook	2M U	0.5	Vomit then drowsy, gas, 1 tingling fingers, 1 color visions	Two brothers consumed several cooked. Effects for 6 hours
<i>Amanita pantherina</i>	5/10/08 OR	G raw	M 3	U	Vomiting a lot, very agitated, heavy sleep	Consumed at least one 5-6" tall mushroom
<i>Amanita pantherina</i>	7/3/08 MT	G raw	M ~18	U	Seizures, deep sleep, brief wake, spasms	Eaten to get high
<i>Amanita pantherina</i>	8/26/08 ID	G raw	M 22	~2	Combative, chants, screams collapse, dilated pupils	Found in field, mushrooms in shoe, clothes off
<i>Amanita phalloides</i>	12/28/ 08 CA	G cook	F 70	16	Diarrhea, cramps, vomit, hepatitis	Given iv fluids, oral activated charcoal, recovered discharge at 3 days
<i>Amanita phalloides</i>	12/28/08 CA	G cook	2M 11	12	Diarrhea, cramps, vomit, hepatitis, discharged after 8 days	Given iv fluids, oral activated charcoal, iv silibinum, recovered
<i>Amanita phalloides</i>	9/6/08 BC	G cook	F 68	12	Nausea, vomiting, diarrhea, liver enzymes elevated, eventual jaundice	Consumed a fistful. Hospitalized 2 days later, discharged after 15 days
<i>Boletus castaneus</i>	~8/25/08 MA	G cook	2F U	~2	Strong gas pains 1 with diarrhea	Few dozen small mushrooms sautéed

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Table III. Summary of the Reports by Species, cont.

<i>Boletus huronensis</i>	08/08 ME	G cook	2M U	2.5	Dry heaves then vomit, diarrhea for 5 hours	Man, son each ate 2 forkfuls. Thought <i>B. subtomentosus</i>
<i>Cantharellus formosus</i>	12/2/08 OR	G cook	F 60+	3	Vomiting. RASH next day on arms, stomach, back	Three others - no effect. Jan Lindgren has heard other similar rash reports.
<i>Cantharellus formosus</i>	10/11/08 WA	G cook	F 21		Drowsiness, nausea	Consumed small amount @ tasting
<i>Cantharellus formosus</i>	9/26/08 10/5 WA	G cook	M 53	2	Vomiting for several hours	Reacted 2X to purchased cooked Chanterelles
<i>Cantharellus formosus</i>	10/4/08 10/11/08 WA	G cook	F 24	2	Intestinal cramps, vomit, nausea	Only one person ill. Tried week later, ill again
Chanterelles + bolete butter	10/12/08 WA	G Cook	F ~20	~2	Ill in evening & morning	Reacted to dish at a club tasting
"Cinnamon Cap"	12/30/08 CA	U cook	F 46	2.75	Flushing, salivation, dizzy, cramps, sweat, vomit, drowsy, RASH	Consumed a pizza at a local restaurant with wild mushrooms. ID by Chef.
<i>Chlorophyllum molybdites</i>	9/20/08 NY	G raw	M 23	~3	Vomit, diarrhea, weak, nausea, coldness etc.	Bill Bakaitis –surprised species was found so far north
<i>Chlorophyllum molybdites</i>	7/27/08 CA	G raw	M ~50	3-4	Cramping, severe vomit, diarrhea	Consumed 1 raw, recovered in 7 hours.
<i>Chlorophyllum molybdites</i>	5/15/08 HI	G raw	F 55	2	Vomiting	Consumed 3" lawn mushroom
<i>Chlorophyllum molybdites</i>	7/27/08 NV	VL raw	F 56	2.5	Vomiting	At a small piece raw
<i>Chlorophyllum molybdites</i>	8/8/08 CO	G raw	M 4	1.5+	Vomit (2x), diarrhea, altered, drowsy	Apparently ate some. <i>C. molybdites</i> found
<i>Chlorophyllum molybdites</i>	8/10/08 CO	G raw	2M ~18	2	Violent vomiting	Amount U. Also alcohol + cocaine
<i>Chlorophyllum molybdites</i>	9/4/08 CO	G raw	F 6	2	Vomiting, diarrhea	Mushroom from grass
<i>Chlorophyllum molybdites</i>	12/19/08 HI	G raw?	F 56	0.5	Vomit, bloody diarrhea	Consumed large one from grass
<i>Coprinus comatus</i>	10/20/08 & 10/21/08 QC	G cook	F U	12-24	First time just nausea. Second meal also muscle spasms, chills	Had eaten same mushrooms last year, no ill effect. Alcohol involved both meals
<i>Cortinarius "ameri-orellanus"</i>	7/11/08 MI	G U	F U	U	<b>Kidney failure</b> from orellanine, recovering with dialysis	New species under oaks close to European <i>C. orellanus</i>

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Table III. Summary of the Reports by Species, cont.

<i>Gomphus floccosus</i>	10/21/08 OR	G cook	F U	6.5	Severe diarrhea, vomit, dizzy, weakness	Consumed ~2 cups fried in butter. Also one <i>F.</i> <i>ochraceoroseus</i>
<i>Gyromitra esculenta</i>	5/25/08 ID	Sp raw	F,M 23,22	0.4	Stomach ache (F)	Consumed ½ #, most cooked
<i>Gyromitra esculenta</i>	~2006 ME	G raw	M 56	48	Nausea, vomiting, diarrhea, light headed	Ate <i>Gyromitra</i> raw two days in row, then sick. Following day ate it cooked and was sick again.
<i>Gyromitra montana</i>	5/2008 CA	G raw	F U	U	Suffered only headache	Sold as morels Amount unclear
<i>Inocybe rimosa</i>	1/9/08 QC	G cook	F 61 2M 62,84	0.5-1	Chills 2, diarrhea 2, headache 2, sweat 3, nausea 2, weakness 2	Iv fluids, oral activated charcoal. Thought <i>Pluteus</i> <i>cervinus</i> .
<i>Lactarius</i>	7/10/08 OH	Sp U	M,F U	3	vomiting	<i>Lactarius fragilis</i> expected
<i>Lepiota subincarnata</i> group	9/08 IL	G U	U U	U	<b>Liver failure</b> –survived after liver transplant	Small brown lawn fungus ( <i>Lepiota c.f.</i> <i>josserandii</i> )
<i>Leucangium carthusianum</i>	12/20/08 PA	G raw	F 63 M 64	¼	Intense GI burning, chills, fever, cramps, vomiting, diarrhea, nausea	Truffles from Oregon, Presumed surface contamination. Recovery 15 hours
<i>Leucangium carthusianum</i>	12/20/08 PA	G raw	F, M U	¼	Similar to above but no precise details	Same incident as above, second couple
<i>Leucangium carthusianum</i>	12/08 OR	G U	F U	U	Peppery taste, burning pain esophagus, etc.	An associate of the mushroom supplier above was affected
<i>Leucoagaricus leucothites</i>	10/6/08 CA	G raw	M 2	-	No symptoms	Treated with activated charcoal
Black Morels	6/14/08 MT	G cook	2M,F ~40	2	Vomiting, diarrhea	6-7 each, lightly cooked, + wine
Black Morels	6/25/08 MT	G raw	M,F U	1	Nausea & vomit, female less sick	Male ate 12, F 3-4 + beer. Male always had eaten Morels raw
Morels	~7/08 ID	G cook	M U	U	At 3-4 day, vomit & violent ill. At 1 week, red itchy rash	Consumed morel pasta for 3 days cooked then frozen morels. 1 of 8 sick
Morels	04/08 WA	G raw	M,F U	.01	Felt weird, visual disturb. Now ongoing reaction all food	Ate tiny bite raw. Male controlled symptoms.
Morels	6/18/08 WA	G cook	M 43	12	Muscle weakness with tremors	Consumed 6-8 oz purchased Morels, no alcohol

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Table III. Summary of the Reports by Species, cont.

Morels	6/12/08 MT	G raw	M 46	1.5	Vomiting	4 small morels raw
Morels	6/23/08 MT	G raw	M,F 80s	3	Vomiting (2), diarrhea (1)	6 small morels raw in salad
Morels + a Coral	6/5/08 ID	Sp raw	F U	0.5	Vomiting. Also had 2 shots alcohol	Ate 2 small morels + bite coral raw
<i>Omphalotus illudens</i>	08/08 NH	G U	F U	U	Stomach cramps and nausea	Given hydration, activated charcoal
<i>Omphalotus illudens</i>	10/3/08 ME	G cook	M 58+ 2U	2.5	Intestinal cramps, vomit, nausea	1 ate large serving, 2 small. Expected Chanterelles
<i>Omphalotus illudens</i>	7/27/08 ON	G cook	4U U	U	Cramps, vomit, nausea	Oral activated charcoal given
<i>Omphalotus illudens</i>	~9/1/08 KS	G cook	M U	1	Nausea, sweat, vomit, fatigue, appetite loss	Sick for 3 hrs Expected Chicken of Woods
<i>Panaeolus foenisecii</i>	7/11/08 CO	P raw	M 15	2	Cramps, nausea, vomit, felt goofy	Ate several from grass. Two others ate less, no effect
<i>Panaeolus foenisecii</i>	6/9/06 ME	G raw	M 4	U	Told mother he saw pictures on the blank wall.  Mild hallucinate	Ate a couple. Most such cases in ME show no symptoms
<i>Paxillus involutus</i>	10/21/08 BC	G U	U U	U	Hospitalized, no details	Voucher @ UBC herbarium
<i>Pholiota squamosa</i> + other species	8/17/08 CO	G cook	M 39	U	Light-headed, gas, GI pain, itched all night	1/2 # include <i>A. bernardii</i> , <i>L. rachodes</i>
<i>Russula c.f. emetica</i>	6/25/08 ME	Sp raw	U 3	U	Irritated tongue	Took a bite
<i>Scleroderma sp</i>	8/2008 ME	Sp cook	2F, M U	U	Abdominal pain (severe), sweat, vomit, diarrhea, man unconscious	Noted lovely purple interior on "Puffballs" consumed anyway
<i>Scleroderma c.f. citrina</i>	8/27/06 ME	Sp cook	3M U	U	Cramping, vomit, diarrhea	Ate a pan full
<i>Tylopilus eximius</i>	7/31/08 ME	G U	U U	4	Violently ill: Nausea, vomit	
<i>Verpa bohémica</i>	6/17/08 ID	VL cook	M,F 60s	<0.25	Both felt flushed, vomiting	Man ate 2/3 cereal bowl briefly cooked
<i>Verpa bohémica</i>	6/27/08 MT	VL cook	1M 3F U	0.5	Very bloated (1), nauseated later light head, tremors(4)	Restaurant meal "mushrooms sautéed in cream sauce"
Unknown "Liberty Caps"	6/9/08 CO	U raw	M U	2	Vomiting from eating 6 caps from mountains	Reported bluing stems, but not an area where <i>Psilocybe</i> found

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Table III. Summary of the Reports by Species, cont.

Unknown	6/24/08 QC	U cook	F 64	U	Chills, diarrhea, dizzy, headache, vomit, weak	One of 2 ill. Patient did not speak French or English
Unknown	8/2008 ME	U U	2U U	U	Seriously ill	2 chefs ill from purchased foraged fungi

Table IV. Summary of Reports by Species: Ingestion by Dogs

Mushroom species	When/Where	ID <sup>1</sup> /Animal	Sex/Age	Onset (hrs)	Symptoms	Comments
<i>Agaricus sp?</i>	8/22/08 CO	P Dog	U 13	U	Shaking & vomit mushroom & grass	e-mailed photo of <i>Agaricus?</i>
<i>Amanita bisporigera</i>	9/08 MI	VL Dog	F 1/4	>3	"Textbook case", vomit, lethargic, liver failure, <b>DIED</b>	<i>A. bisporigera</i> in yard. Mush. in dog's mouth
<i>Amanita bisporigera</i>	8/08 NY	VL Dog	3U ~1, 2U	U	Dog <b>DIED</b> , unrelated 2 dogs in clinic recovered	<i>Amanita</i> found in yard of dead dog.
<i>Amanita?</i> suspect Destroying Angel type	8/08 VI	P Dog	U 1.5	U	Vomit, bloody diarrhea, loss muscle control, shock, liver damage	Low blood pressure, brain swell, seizures, <b>DEATH</b> in 9 hr
<i>Amanita muscaria v. guessowii</i>	7/12/08 QC	G Dog	M 0.5	U	Diarrhea, vomit, nausea, salivation	Treated by vet, recovered
<i>Amanita pantherina</i>	5/8/08 BC	G Dog	M,F Pup	~0.5	Uncoordinated, depressed (1) seizures (1), both hypothermic (2), coma, depressed respiration, etc.	One puppy given small dose atropine. Both puppies <b>Euthanized</b> after few hours
<i>Amanita pantherina?</i>	7/24/08 MT	P Dog	U U	U	Tremors, cannot walk, dilated pupils	<i>Coprinus sp</i> found in yard
<i>Amanita pantherina?</i>	7/25/08 CO	P Dog	U U	U	Seizures, treated with tranquilizers, <b>DIED</b>	Whitish pieces of mushroom found from stomach
<i>Clitocybe sp</i>	9/26/08 MD	VL Dog	U 2	0.25	Vomit, collapse, drool, diarrhea	Dog seen eating the mushroom
<i>Galerina sp</i>	8/11/08 NY	Sp Dog	F 2	U	Diarrhea, vomit, liver necrosis, <b>DIED</b> in 7 days	Meixner strong for amatoxins, Dr. K. Hodge
<i>Leratiomyces ceres?</i>	11/2008 CA	G Dog	U U	U	Dog <b>DIED</b> suddenly	Possibly ate this mushroom
<i>Scleroderma sp</i>	12/27/08 MS	Sp Dog	F,U 3, U	3-4	Diarrhea, vomit, salivation, spasms, dizziness, cramps, drowsy, weak	liver support, antibiotics, etc. Dog(F) <b>DIED</b> , 1 survived
Unknown LBM	7/1/08 MT	U Dog	F 1	1	Vomit, diarrhea, limp, incontinent, drooling, foaming mouth	Mushroom in grass from unsprayed lawn Pupils normal
Unknown, <i>Ganoderma</i>	4/2008 NC	U Dog	U U	U	Liver failure in puppy, <b>DEATH</b>	A <i>Ganoderma</i> found by owner

1. G = confirmed, P = possible, Sp = confident of the genus, U = Unknown, VL = very likely

**Table IV. Summary of Reports by Species: Ingestion by Dogs, cont.**

Unknown	8/29/08 ID	U Dog	F 10	-	Diarrhea, salivation, vomit, disorientation, <b>DIED</b> in hours	Dog consumed one whole mushroom
Unknown Two incidents for same owner	10/15/08 11/4/08 MA	U Dog	U,U 6,1	U	Chills, fever, bloody diarrhea & vomit, cramps, spasms, drowsy, ataxia, weak	Supportive care, plasma transfusions <b>Euthanasia</b> Both dogs
Unknown	10/19/08 VA	U Dog	F 6	12- 18	Diarrhea, vomit, salivation, weak, cramps. <b>DIED</b>	Mushrooms in vomit, 19# Min. schnauzer
Unknown	1/24/08 PA	U Cat	U U	48	Cat went blind	Ate at least 50 mushrooms

1. G = confirmed, P = possible, Sp = confident of the genus, U = Unknown