

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS

| POISON* | SYMPTOMS | TREATMENT |
|---|--|---|
| ACE inhibitors | Angioedema, hypotension | Charcoal, supportive care For angioedema, epinephrine, antihistamines, or corticosteroids possibly effective For hypotension, consideration of naloxone |
| Acephate | See Organophosphates | — |
| Acetaminophen | See Acetaminophen Poisoning | — |
| Acetanilid | Cyanosis due to formation of methemoglobin and sulfhemoglobin, dyspnea, weakness, vertigo, angina, rashes and urticaria, vomiting, delirium, depression, respiratory and circulatory failure | Ingestion: Charcoal; then as for inhalation |
| Aniline dyes and oil | | Skin contact: Clothing removed and area washed with copious soap and water; then as for inhalation |
| Chloroaniline | | Inhalation: O ₂ , respiratory support, blood transfusion |
| Phenacetin (acetophenetidin, phenylacetamide) | | For severe cyanosis, methylene blue 1–2 mg/kg IV |
| Acetic acid | Low concentration: Mild mucosal irritation High concentration: See Caustic Ingestion | Supportive care with irrigation and dilution |
| Acetone | Ingestion: As for inhalation, except for direct pulmonary effect | Removal from source |
| Ketones | | Respiratory support, O ₂ and fluids, correction of metabolic acidosis |
| Model airplane glues or cements | Inhalation: Bronchial irritation, pneumonia (pulmonary congestion and edema, decreased respiration, dyspnea), drunkenness, stupor, ketosis, cardiac arrhythmias | |
| Nail polish remover | | |
| Acetonitrile | Converted to cyanide, with usual symptoms and signs | See Cyanides |
| Cosmetic nail adhesive | | |
| Acetophenetidin | See Acetanilid | — |
| Acetylsalicylic acid | See Salicylates | |
| Acids and alkalis | See specific acids and alkalis (eg, Boric acid, Fluorides) and see Caustic Ingestion Eye contact: See Burns in Eye Injuries Skin contact: See Burns | — |
| Airplane glues or cements (model- building) | See Acetone, Benzene (toluene), and Petroleum distillates | — |
| Alcohol, ethyl (ethanol) Brandy Whiskey Other liquors | Emotional lability, impaired coordination, flushing, nausea, vomiting, stupor to coma, respiratory depression | Supportive care, IV glucose to prevent hypoglycemia |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|--|
| Alcohol, isopropyl Rubbing alcohol | Dizziness, incoordination, stupor to coma, gastroenteritis, hemorrhagic gastritis, hypotension No retinal injury or acidosis | Supportive care, IV glucose, correction of dehydration and electrolyte abnormalities For gastritis, IV H ₂ blockers or proton pump inhibitors |
| Alcohol, methyl (methanol, wood alcohol) | Severe toxicity with 60–250 mL (2–8 oz) in adults or 8–10 mL (2 tsp) in children | Fomepizole (15 mg/kg, then 10 mg/kg q 12 h); alternatively, 10% ethanol/5% D/W IV with an initial loading dose of 10 mL/kg over 1 h, then 1–2 mL/kg/h to maintain a blood ethanol level of 100 mg/dL (22 mmol/L) |
| Antifreeze | Latency period 12–18 h | |
| Paint solvent | Headache, weakness, leg cramps, vertigo, seizures, retinal injury, dimmed vision, acidosis, decreased respiration | |
| Solid canned fuel | | |
| Varnish | | Hemodialysis (which is definitive treatment) |
| Aldrin | See Chlorinated hydrocarbons | — |
| Alkalis | See Acids and alkalis | — |
| Alphaprodine | See Opioids | — |
| Aminophylline | Wakefulness, restlessness, anorexia, vomiting, dehydration, seizures, tachycardia | Ingestion: Charcoal, discontinuation of drug, measurement of blood theophylline level, phenobarbital or diazepam for seizures, parenteral fluids, maintenance of BP |
| Caffeine | | |
| Theophylline | In adults, greater toxicity after acute overdose added to chronic intake | For serum level > 50–100 mg/L (> 278–555 mmol/L), acidosis, seizures, or coma, possibly dialysis For patients without asthma, possibly β-blocker (eg, esmolol) |
| Amitriptyline | See Tricyclic antidepressants | — |
| Ammonia gas (anhydrous ammonia [NH ₃]) | Irritation of eyes and respiratory tract, cough, choking, abdominal pain | Flushing of eyes for 15 min with tap water or saline If severe toxicity, positive pressure O ₂ to manage pulmonary edema, respiratory support |
| Ammonia water (ammonium hydroxide [NH ₄ OH]) | See Caustic Ingestion | — |
| Ammoniated mercury (NH ₂ HgCl) | See Mercury | — |
| Ammonium carbonate ([NH ₄] ₂ CO ₃) | See Caustic Ingestion | — |
| Ammonium fluoride (NH ₄ F) | See Fluorides | — |
| Amobarbital | See Barbiturates | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|---|
| Amphetamines Amphetamine sulfate or phosphate Dextroamphetamine Methamphetamine Phenmetrazine | Increased activity, exhilaration, talkativeness, insomnia, irritability, exaggerated reflexes, anorexia, diaphoresis, tachyarrhythmia, anginal chest pain, psychotic-like states, inability to concentrate or sit still, paranoia | Charcoal possibly effective long after ingestion because of recycling via enterohepatic circulation, benzodiazepines for sedation and seizures, reduction of external stimuli, external cooling, prevention of cerebral edema For patients without asthma, β -blockers possibly helpful but rarely necessary |
| Amyl nitrite | See Nitrites | — |
| Aniline | See Acetanilid | — |
| Anticoagulants Dicumarol Superwarfarins Warfarin | Increased PT/INR after repeated ingestions | Observation for single ingestion For repeated chronic ingestions, measurement of PT/INR to determine whether vitamin K therapy is needed |
| Antidepressants | See Bupropion, Mirtazapine, SSRIs, Trazodone, Tricyclic antidepressants, and Venlafaxine | — |
| Antifreeze | See Alcohol, methyl and Ethylene glycol | — |
| Antihistamines | Anticholinergic symptoms (eg, tachycardia, hyperthermia, mydriasis, warm and dry skin, urinary retention, ileus, delirium) | For diagnostic testing or for treatment of severe symptoms refractory to sedation (CAUTION: <i>Seizures—see Physostigmine</i>), consideration of physostigmine 0.5–2.0 mg in adults or 0.02 mg/kg in children IV (slowly) |
| Antihyperglycemic drugs, oral | See Hypoglycemic drugs, oral | — |
| Antimony Stibophen Tartar emetic | Throat constriction, dysphagia, burning GI pain, vomiting, diarrhea, GI hemorrhage, dehydration, pulmonary edema, renal failure, lactic acidosis, liver failure, shock | Chelation with penicillamine, dimercaprol for patients who cannot take oral drugs, hydration, treatment of shock and pain |
| Antineoplastic drugs Methotrexate Mercaptopurine Vincristine > 50 Others | Effects on hematopoiesis, nausea, vomiting, specific acute vs chronic effects depending on drug | Supportive care, leucovorin rescue, observation for postacute problems (> 24–48 h) |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|--|
| Antipsychotic drugs (conventional) Chlorpromazine Fluphenazine Haloperidol Loxapine Mesoridazine Molindone Perphenazine Pimozide Prochlorperazine Thioridazine Thiothixene Trifluoperazine Triflupromazine | A wide range of symptoms (eg, sedation, seizures, excitement, coma, dystonia, hypotension, tachycardia, ventricular arrhythmias or torsades de pointes, anticholinergic effects, hyperthermia or hypothermia) | For dystonia, diphenhydramine or benztropine For hypotension refractory to fluids, norepinephrine For ventricular arrhythmias, consideration of alkalization |
| Antipsychotic drugs (2nd-generation) Clozapine Olanzapine Quetiapine Risperidone Ziprasidone | CNS depression (particularly with olanzapine), miosis, anticholinergic effects, hypotension, dystonia, QT prolongation (occasionally), fatal bone marrow suppression (rare) | For dystonia, diphenhydramine or benztropine For hypotension refractory to fluids, norepinephrine For ventricular arrhythmias, consideration of alkalization |
| Ant poison | See Arsenic (sodium arsenate) and Borates | — |
| Arsenic Donovan's solution Fowler's solution Herbicides Paris green Pesticides Selenium Sodium arsenate | Same as for Antimony | Same as for Antimony |
| Arsine gas | Acute hemolytic anemia | Transfusions, diuresis |
| Artificial bitter almond oil | See Cyanide | — |
| Asphalt | See Petroleum distillates | — |
| Aspirin | See Aspirin and Other Salicylate Poisoning | — |
| Atropine | See Belladonna | — |
| Automobile exhaust | See Carbon monoxide | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|--|---|
| Barbiturates Amobarbital Meprobamate Pentobarbital Phenobarbital Secobarbital | Bradycardia, hypothermia, confusion, delirium, loss of corneal reflex, respiratory failure, drowsiness, ataxia, coma | Charcoal up to 24 h after ingestion, supportive care, forced alkaline diuresis for phenobarbital (to aid in elimination) For severe cases, hemodialysis |
| Barium compounds (soluble) Barium acetate Barium carbonate Barium chloride Barium hydroxide Barium nitrate Barium sulfide Depilatories Explosives Fireworks Rat poisons | Vomiting, abdominal pain, diarrhea, tremors, seizures, colic, hypertension, cardiac arrest, dyspnea and cyanosis, ventricular fibrillation, severe hypokalemia, skeletal muscle weakness | KCl 10–15 mEq/h IV; Na or Mg sulfate 60 g po to precipitate barium in stomach, then possibly gastric lavage Diazepam to control seizures For dyspnea and cyanosis, O ₂ |
| Belladonna Atropine Hyoscyamine Hyoscyamus Scopolamine (hyoscine) Stramonium | Anticholinergic symptoms (eg, tachycardia, hyperthermia, mydriasis, warm and dry skin, urinary retention, ileus, delirium) | For diagnostic testing or for treatment of severe symptoms refractory to sedation, which is rarely needed (CAUTION: <i>Seizures—see Physostigmine</i>), consideration of physostigmine 0.5–2.0 mg in adults or 0.02 mg/kg in children IV (slowly) |
| Benzene Benzol Hydrocarbons Model airplane glue Toluene Toluol Xylene | Dizziness, weakness, headache, euphoria, nausea, vomiting, ventricular arrhythmia, paralysis, seizures With chronic poisoning, aplastic anemia, hypokalemia, leukemia, CNS depression | Decontamination with water, avoiding vomiting and aspiration; O ₂ ; respiratory support; ECG monitoring (ventricular fibrillation can occur early) Diazepam to control seizures For severe anemia, blood transfusions Replacement of K as necessary <i>Epinephrine contraindicated</i> |
| γ-Benzene hexachloride Benzene hexachloride Hexachloro-cyclohexane Lindane | Irritability, CNS excitation, muscle spasms, atonia, tonic-clonic seizures, respiratory failure, pulmonary edema, nausea, vomiting, obtundation, coma | Supportive care, activated charcoal after airway control Diazepam to control seizures |
| Benzine (benzin) | See Petroleum distillates | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|--|
| Benzodiazepines Chlordiazepoxide Diazepam Flurazepam | Sedation to coma, particularly if drugs are accompanied by alcohol Hypotension | Airway control For hypotension, IV fluids and vasopressors Avoidance of flumazenil <i>(CAUTION: If tricyclic antidepressants are involved, flumazenil may precipitate seizures; in patients who depend on benzodiazepines, flumazenil may precipitate withdrawal.)</i> |
| Benzol | See Benzene | — |
| Beta-blockers | Hypotension, bradycardia, seizures, cardiac arrhythmias, hypoglycemia, altered mental status | Close monitoring and attention to airway maintenance For symptomatic patients, consideration of dopamine, epinephrine, other vasopressors, glucagon 3–5 mg IV followed by infusion, CaCl ₂ , IV insulin and glucose, cardiac pacing, and intra-aortic balloon pump |
| Bichloride of mercury | See Mercury | — |
| Bichromates | See Chromic acid | — |
| Bidrin (dicrotophos) | See Organophosphates | — |
| Bifenthrin | See Pyrethroids | — |
| Bishydroxycoumarin | See Warfarin | — |
| Bismuth compounds | Acute: Abdominal pain, oliguria, acute renal failure Chronic: Poor absorption, ulcerative stomatitis, anorexia, progressive encephalopathy | Respiratory support, consideration of chelation with dimercaprol and succimer (see Table 326-4) |
| Bitter almond oil | See Cyanides | — |
| Bleach, chlorine | See Hypochlorites | — |
| β-Blockers | See Beta-blockers | — |
| Boric acid | Nausea, vomiting, diarrhea, hemorrhagic gastroenteritis, weakness, lethargy, CNS depression, seizures, “boiled lobster” rash, shock | Removal from skin, prevention or treatment of electrolyte abnormalities and shock, control of seizures For severe poisoning (rare), dialysis |
| Brandy | See Alcohol, ethyl | — |
| Bromates | Vomiting, diarrhea, epigastric pain, acidosis, deafness | Supportive care, thiosulfate to reduce bromate to less toxic bromide For renal failure, hemodialysis for renal failure |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|---|
| Bromides | Nausea, vomiting, rash (may be acneiform), slurred speech, ataxia, confusion, psychotic behavior, coma, paralysis, negative anion gap | Discontinuation of drug, hydration and NaCl IV to promote diuresis, furosemide 10 mg q 6 h For severe poisoning, hemodialysis |
| Bromine | Highly corrosive With exposure to liquid or vapor, skin and mucous membrane burns | Aggressive decontamination, supportive care |
| Bupropion HCl | Respiratory depression, ataxia, seizures | Charcoal, benzodiazepines, supportive care |
| Butyl nitrate | See Nitrites | — |
| Cadmium Cadmium oxide fumes (eg, from welding) | Ingestion: Severe gastric cramps, vomiting, diarrhea, dry throat, cough, dyspnea, headache, shock, coma, brown urine, renal failure Inhalation: Pneumonitis with dyspnea and bilateral pulmonary infiltrates, hypoxia, death | Dilution with milk or albumin, respiratory support, hydration, possibly chelation with succimer or dimercaptopropane sulfonate (see Table 326-4) <i>Dimercaprol contraindicated</i> For inhalation, O ₂ , sometimes bronchodilators, corticosteroids |
| Caffeine | See Aminophylline | — |
| Ca channel blockers Diltiazem Nifedipine Verapamil Others | Nausea, vomiting, confusion, bradycardia, hypotension, total cardiovascular collapse Toxicity sometimes occurring after hyperglycemia | For sustained-release preparations, consideration of whole-bowel irrigation For hypotension or severe arrhythmias, consideration of CaCl ₂ (eg, 1 g–10 mL of a 10% solution) or 3 times as much Ca gluconate IV with additional amounts as needed, pacemaker, or intra-aortic balloon pump Possible consideration of regular insulin 10–100 units IV and 50–100 mL 50% dextrose plus 50–100 mL/h 10% dextrose IV infusion Possible consideration of glucagon 5–10 mg IV |
| Calomel | See Mercury | — |
| Camphor Camphorated oils | Camphor odor on breath, headache, confusion, delirium, hallucinations, seizures, coma | Diazepam to prevent and treat seizures, respiratory support |
| Canned fuel, solid | See Alcohol, methyl | — |
| Cantharides Cantharidin Spanish fly | Irritated skin and mucous membranes, skin vesicles, nausea, vomiting, bloody diarrhea, burning pain in back and urethra, respiratory depression, seizures, coma, abortion, menorrhagia | Avoidance of all oils, respiratory support, treatment of seizures, maintenance of fluid balance No specific antidote |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|--|---|
| Carbamates Aldicarb Bendiocarb Benomyl Carbaryl Carbofuran Fenothiocarb Methiocarb Methomyl Oxamyl Propoxur | Slightly to highly toxic effects; similar to those of organophosphates except cholinesterase inhibition is not permanent | See Organophosphates |
| Carbamazepine | Progressive CNS depression, seizures (occasional), cardiac arrhythmia (rare) | Supportive care after decontamination, heart rate monitoring For arrhythmias, consideration of IV Na bicarbonate |
| Carbolic acid | See Phenols | — |
| Carbonates (ammonium, potassium, sodium) | See Caustic Ingestion | — |
| Carbon bisulfide | See Carbon disulfide | — |
| Carbon dioxide | Dyspnea, weakness, tinnitus, palpitations, asphyxia | Respiratory support, O ₂ |
| Carbon disulfide Carbon bisulfide | Garlic-breath odor, irritability, weakness, mania, narcosis, delirium, mydriasis, blindness, parkinsonism, seizures, coma, paralysis, respiratory failure | Washing of skin, O ₂ , diazepam sedation, respiratory and circulatory support |
| Carbon monoxide Acetylene gas Automobile exhaust Coal gas Furnace gas Illuminating gas Marsh gas | Variable toxicity depending on length of exposure, concentration inhaled, and respiratory and circulatory rates Various symptoms depending on % carboxyhemoglobin in blood Headache, vertigo, vomiting, dyspnea, confusion, dilated pupils, seizures, coma | 100% O ₂ by mask, respiratory support if needed, immediate measurement of carboxyhemoglobin level; if carboxyhemoglobin is > about 25%, hyperbaric O ₂ (see Carbon Monoxide Poisoning) possibly effective |
| Carbon tetrachloride (sometimes used in chemical manufacturing) Cleaning fluids (nonflammable) | Nausea, vomiting, abdominal pain, headache, confusion, visual disturbances, CNS depression, ventricular fibrillation, kidney injury, liver injury, cirrhosis | Washing of skin, O ₂ , respiratory support, monitoring of kidney and liver function and appropriate treatment |
| Carbonyl iron | See Iron | — |
| Caustic soda (sodium hydroxide) | See Caustic Ingestion | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|--|---|
| Chloral hydrate Chloral amide | Drowsiness, confusion, shock, coma, respiratory depression, kidney injury, liver injury | For ventricular arrhythmias, respiratory support, assessment of concomitant ingestions, β -blockers |
| Chlorates and nitrates Herbicides Manufacture of explosives and matches | Vomiting, nausea, diarrhea, cyanosis (methemoglobin), toxic nephritis, shock, seizures, CNS depression, coma, jaundice | Methylene blue for methemoglobinemia, 10% thiosulfate to reduce chlorate to the less toxic chloride, transfusion for severe cyanosis, ascorbic acid, treatment of shock, O ₂ For complex cases, possibly dialysis |
| Chlordane | See Chlorinated hydrocarbons | — |
| Chlorethoxyfos | See Organophosphates | — |
| Chlorinated and other halogenated hydrocarbons | Slightly toxic effects (eg, with methoxychlor) to highly toxic effects (eg, with dieldrin) | Diazepam or phenobarbital to prevent and control tremors and seizures, cautious use of epinephrine, avoidance of sudden stimuli, parenteral fluids |
| Aldrin | Vomiting (early or delayed), paresthesias, malaise, coarse tremors, seizures, pulmonary edema, ventricular fibrillation, respiratory failure | For renal and liver failure, monitoring |
| Benzene hexachloride | | |
| Chlordane | | |
| Chloroethalonil | | |
| DDD (2-dichlorethane) | | |
| DDT (chlorophenothane) | | |
| Dicofol | | |
| Dieldrin | | |
| Dienochlor | | |
| Dilan | | |
| Endosulfan | | |
| Endrin | | |
| Heptachlor | | |
| Lindane | | |
| Methoxychlor | | |
| Perchlordecone | | |
| Prolan | | |
| Toxaphene | | |
| Other chlorinated organic insecticides and industrial compounds | | |
| Chlorinated lime | See Chlorine | — |
| Chlorine (see also Hypochlorites) | Ingestion: Irritation, corrosion of mouth and GI tract, possible ulceration or perforation, abdominal pain, tachycardia, prostration, circulatory collapse | Ingestion: Dilution with water or milk, treatment of shock |
| Chlorinated lime | | Inhalation: O ₂ , respiratory support, observation for and treatment of pulmonary edema |
| Chlorine water | | |
| Tear gas | Inhalation: Severe respiratory and ocular irritation, glottal spasm, cough, choking, vomiting, pulmonary edema, cyanosis | |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|----------------------|---|---|
| Chloroaniline | See Acetanilid | — |
| Chloroform | Drowsiness, coma | Ingestion: Observation for kidney and liver damage; respiratory, cardiac, and circulatory support |
| Ether | With nitrous oxide, delirium | |
| Nitrous oxide | | Inhalation: Respiratory, cardiac, and circulatory support |
| Trichloromethane | | |
| Chlorothalonil | See Chlorinated hydrocarbons | — |
| Chlorothion | See Organophosphates | — |
| Chlorpromazine | See Phenothiazines | — |
| Chlorpyrifos | See Organophosphates | — |
| Chromates | See Chromic acid | — |
| Chromic acid | Corrosive effects due to oxidation, ulcerated and perforated nasal septum, severe gastroenteritis, shock, vertigo, coma, nephritis | Dilution with milk or water, cautious use of fluids and electrolytes to support kidney function, consideration of <i>N</i> -acetylcysteine and ascorbic acid to convert hexavalent to the less toxic trivalent compound |
| Bichromates | | |
| Chromates | | |
| Chromium trioxide | | |
| Chromium | Irritation of skin and mucous membranes | Thorough washing with water and 10% ascorbic acid solution for 15 min |
| Chromium trioxide | See Chromic acid | — |
| Cimetidine | Slight dryness and drowsiness, possible altered metabolism of concomitant drugs | No specific antidote available |
| Ranitidine | | Monitoring for effect on metabolism of other drugs being taken |
| Clonidine | Bradycardia, sedation, periodic apnea, hypotension, hypothermia | Supportive care; vasopressors; naloxone 5 µg/kg up to 2–20 mg, repeated prn, to possibly reduce sedation |
| Coal gas | See Carbon monoxide | — |
| Cobalt | Tachycardia, tachypnea and hypoxia after inhalation, skin and mucous membrane irritation, glomerulonephritis, hypothyroidism (rare) | Supportive care, decontamination with water and soap |
| Cobaltous chloride | See Cobalt | — |
| Cocaine [†] | Stimulation then depression, nausea, vomiting, loss of self-control, anxiety, hallucinations, sweating, hyperthermia, seizures, MI (rare) | Diazepam for excitation (primary treatment), O ₂ , respiratory and circulatory support if needed, IV NaHCO ₃ For arrhythmias, extremely cautious use of IV esmolol Observation for myocardial or pulmonary disorder (usually before emergency department arrival) For hyperthermia, external cooling |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|--|---|
| Codeine | See Opioids | — |
| Copper | See Copper salts | — |
| Copper salts | Vomiting, burning sensation, metallic taste, diarrhea, pain, shock, jaundice, anuria, seizures | Penicillamine or dimercaprol (see Table 326-4), maintenance of electrolyte and fluid balance, respiratory support, monitoring of GI tract, treatment of shock, control of seizures, monitoring for liver and renal failure |
| Cupric sulfate, acetate, or subacetate | | |
| Cuprous chloride or oxide | | |
| Zinc salts | | |
| Corrosive sublimate (mercuric chloride) | See Mercury | — |
| Coumaphos | See Organophosphates | — |
| Creosote, cresols | See Phenols | — |
| Cyanides | Tachycardia, headache, drowsiness, hypotension, coma, rapid severe acidosis, seizures, death, possibly bitter almond odor on breath, bright red venous blood | <i>Speed essential</i> |
| Bitter almond oil | | For inhalation, removal from source |
| Hydrocyanic acid | | For both inhalation and ingestion, 100% O ₂ ; respiratory support |
| Nitroprusside | <i>Very rapidly lethal</i> (in 1–15 min) | Standard treatment for inhalation and ingestion: Inhalation of amyl nitrite 0.2 mL (1 ampule) for 30 sec of each min; 3% Na nitrite 10 mL at 2.5–5 mL/min IV (in children, 10 mg/kg), then 25% Na thiosulfate 25–50 mL at 2.5–5 mL/min IV (Lilly cyanide kit); treatment repeated if symptoms recur |
| Potassium cyanide | | Hydroxocobalamin 5 g IV (will probably become preferred treatment) |
| Prussic acid | | |
| Sodium cyanide | | |
| Wild cherry syrup | | |
| Cyfluthrin | See Pyrethroids | — |
| Cypermethrin | See Pyrethroids | — |
| DDD (2-dichlorethane) | See Chlorinated hydrocarbons | — |
| DDT (chlorophenothane) | See Chlorinated hydrocarbons | — |
| Demeton | See Organophosphates | — |
| Deodorizers, household | See Naphthalene and Paradichlorobenzene | — |
| Depilatories | See Barium compounds | — |
| Desipramine | See Tricyclic antidepressants | — |
| Detergent powders | See Caustic Ingestion | — |
| Dextroamphetamine | See Amphetamines | — |
| Diazinon | See Organophosphates | — |
| Dichlorvos | See Organophosphates | — |
| Dicofol | See Chlorinated hydrocarbons | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|--|--|
| Dicumarol | See Warfarin | — |
| Dieldrin | See Chlorinated hydrocarbons | — |
| Dienochlor | See Chlorinated hydrocarbons | — |
| Diethylene glycol | See Ethylene glycol | — |
| Digitalis | See discussion of digitalis preparations | — |
| Digitoxin | | |
| Digoxin | | |
| Dilan | See Chlorinated hydrocarbons | — |
| Dimethoate | See Organophosphates | — |
| Dinitrobenzene | See Nitrobenzene | — |
| Dinitro- <i>o</i> -cresol Herbicides Pesticides | Fatigue, thirst, flushing, nausea, vomiting, abdominal pain, hyperpyrexia, tachycardia, loss of consciousness, dyspnea, respiratory arrest, skin absorption | Fluid therapy, O ₂ , anticipation of kidney and liver toxicity, no specific antidote, detergents to rinse skin |
| Diphenoxylate with atropine | Lethargy, nystagmus, pinpoint pupils, tachycardia, coma, respiratory depression (NOTE: Toxicity may be delayed up to 12 h.) | Activated charcoal, naloxone, careful monitoring of all children for 12–18 h if ingestion is verified, supportive care |
| Diquat | See Paraquat | — |
| Dishwasher detergents | See Caustic Ingestion | — |
| Disulfoton | See Organophosphates | — |
| Diuretics, mercurial | See Mercury | — |
| Donovan's solution | See Arsenic | — |
| Doxepin | See Tricyclic antidepressants | — |
| Drain cleaners | See Caustic Ingestion | — |
| Endosulfan | See Chlorinated hydrocarbons | — |
| Endrin | See Chlorinated hydrocarbons | — |
| Ergot derivatives | Thirst, diarrhea, vomiting, light-headedness, burning feet, increased heart rate and BP, cardiovascular collapse, seizures, hypotension, coma, abortion, gangrene of feet, cataracts | Benzodiazepine or a short-acting barbiturate for seizures For peripheral ischemia, heparin plus phentolamine 5–10 mg in 10 mL normal saline IV or intra-arterially or nitroprusside 1–2 µg/kg/min IV For coronary vasospasm, IV nitroglycerin and nifedipine |
| Eserine | See Physostigmine | — |
| Esfenvalerate | See Pyrethroids | — |
| Ethanol | See Alcohol, ethyl | — |
| Ether | See Chloroform | — |
| Ethion | See Organophosphates | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|--|--|
| Ethyl alcohol | See Alcohol, ethyl | — |
| Ethyl biscoumacetate | See Warfarin | — |
| Ethylene glycol | Ingestion: Inebriation but no alcohol odor on breath, nausea, vomiting | Ingestion: Respiratory support, correction of electrolyte imbalance (anion gap), consideration of correcting acidemia, ethanol (see treatment of methyl alcohol) or fomepizole 15 mg/kg IV (loading dose) followed by 10 mg/kg IV q 12 h |
| Diethylene glycol | Later, carpopedal spasm, lumbar pain, oxalate crystalluria, oliguria progressing to anuria and acute renal failure, respiratory distress, seizures, coma | Hemodialysis, which is definitive treatment |
| Permanent antifreeze | Eye contact: Iridocyclitis | Eye contact: Flushing of eyes |
| Explosives | See Barium compounds (fireworks) and Nitrogen oxides | — |
| Famphur | See Organophosphates | — |
| Fava bean (favism) | See Table 326-5 | — |
| Fenthion | See Organophosphates | — |
| Ferric salts | See Iron | — |
| Ferrous salts (eg, gluconate, sulfate) | See Iron | — |
| Fireworks | See Barium compounds | — |
| Fluorides | Ingestion: Salty or soapy taste | Ingestion: Dilution with milk or water, IV glucose and saline, 10% Ca gluconate 30 mL IV (for children, 0.6 mL/kg) or 10% CaCl ₂ 10 mL IV (in children, 0.1–0.2 mL/kg), monitoring for cardiac irritability, treatment of shock and dehydration |
| Ammonium fluoride | With large doses: tremors, seizures, CNS depression, shock, renal failure | |
| Fluorine | | |
| Hydrofluoric acid | Skin and mucosal contact: Painful superficial or deep burns | |
| Rat poisons | Inhalation: Intense eye and nasal irritation, headache, dyspnea, sense of suffocation, glottal edema, pulmonary edema, bronchitis, pneumonia, mediastinal and subcutaneous emphysema due to bleb rupture | Skin and mucosal contact: Copious flushing with water, debridement of white tissue, sometimes injection of 10% Ca gluconate locally but may be given intra-arterially, application of Ca gluconate or Ca carbonate paste |
| Roach poisons | | |
| Sodium fluoride | | |
| Soluble fluorides generally | | Inhalation: O ₂ , respiratory support, prednisone for chemical pneumonitis (in adults, 15–40 mg bid), management of pulmonary edema |
| Fluvalinate | See Pyrethroids | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|--|
| Formaldehyde Formalin (NOTE: May contain methyl alcohol.) | Ingestion: Oral and gastric pain, nausea, vomiting, hematemesis, shock, hematuria, anuria, coma, respiratory failure Skin contact: Irritation, coagulation necrosis (with high concentrations), dermatitis, hypersensitivity Inhalation: Eye, nose, and respiratory tract irritation; laryngeal spasm and edema; dysphagia; bronchitis; pneumonia | Ingestion: Dilution with water or milk, treatment of shock, NaHCO ₃ to correct acidosis, respiratory support, observation for perforations Skin contact: Washing with copious soap and water Inhalation: Flushing of eyes with saline, O ₂ , respiratory support |
| Fowler's solution | See Arsenic | — |
| Fuel, canned | See Alcohol, methyl | — |
| Fuel oil | See Petroleum distillates | — |
| Furnace gas | See Carbon monoxide | — |
| Gas | See Ammonia gas, Carbon monoxide (acetylene gas, automobile exhaust, coal gas, furnace gas, illuminating gas, marsh gas), Chlorine (tear gas), Hydrogen sulfide (sewer gas, volatile hydrides), and Organophosphates (nerve gas) | — |
| Gasoline | See Petroleum distillates | — |
| Glues, model airplane | See Acetone, Benzene (toluene), Petroleum distillates | — |
| Glutethimide | Drowsiness, areflexia, mydriasis, hypotension, respiratory depression, coma | Activated charcoal, respiratory support, maintenance of fluid and electrolyte balance, hemodialysis possibly helpful, treatment of shock |
| Gold salts | See gold in Table 326-4 and gold compounds under Joint Disorders: Rheumatoid Arthritis: Treatment | — |
| Guaiacol | See Phenols | — |
| H ₂ blockers (eg, cimetidine, ranitidine) | Minor GI problems, possibly altered levels of other drugs | Nonspecific supportive measures |
| Heptachlor | See Chlorinated hydrocarbons | — |
| Herbicides | See specific ingredient (eg, Arsenic, Dinitro- <i>o</i> -cresol, and Chlorates) | — |
| Heroin | See Opioids | — |
| Hexachlorocyclohexane | See γ -Benzene hexachloride | — |
| Hexaethyltetraphosphate | See Organophosphates | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|---|---|
| Histamine-2 blockers | See H ₂ blockers | — |
| Hydrides, volatile | See Hydrogen sulfide | — |
| Hydrocarbons | See Benzene | — |
| Hydrocarbons, chlorinated | See Chlorinated hydrocarbons | — |
| Hydrocarbons, halogenated | See Chlorinated hydrocarbons | — |
| Hydrochloric acid | See Caustic Ingestion | — |
| Hydrocodone | See Opioids | — |
| Hydrocyanic acid | See Cyanides | — |
| Hydrofluoric acid | See Fluorides | — |
| Hydrogen chloride or fluoride | See Nitrogen oxides | — |
| Hydrogen sulfide Alkali sulfides Phosphine Sewer gas Volatile hydrides | Gas eye (subacute keratoconjunctivitis), lacrimation and burning, cough, dyspnea, pulmonary edema, caustic skin burns, erythema, pain, profuse salivation, nausea, vomiting, diarrhea, confusion, vertigo, sudden collapse, unconsciousness | O ₂ , respiratory support |
| Hyoscine (scopolamine) Hyoscyamine Hyoscyamus | See Belladonna | — |
| Hypochlorites Bleach, chlorine Javelle water | Usually mild pain and inflammation of oral and GI mucosa Cough, dyspnea, vomiting, skin vesicles | Dilution with milk for usual 6% household preparations (little else required); treatment of shock If concentrated forms have been ingested, esophagoscopy |
| Hypoglycemic drugs, oral Chlorpropamide Glipizide | Hypoglycemia, diaphoresis, lethargy, confusion | Admission to the hospital, IV dextrose as needed, frequent feeding (not just sugar) plus careful observation of behavior and periodic measurement of plasma glucose For persistent hypoglycemia, consideration of octreotide 50–75 µg sc q 8 h |
| Illuminating gas | See Carbon monoxide | — |
| Imipramine | See Tricyclic antidepressants | — |
| Insecticides | See Chlorinated hydrocarbons, Organophosphates, Paradichlorobenzene, and Pyrethroids | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|---|---|
| Iodine | Burning pain in mouth and esophagus, brown-stained mucous membranes, laryngeal edema, vomiting, abdominal pain, diarrhea, shock, nephritis, circulatory collapse | Milk, starch, or flour po; early airway support; fluid and electrolytes; treatment of shock; early, aggressive airway management |
| Iodoform Triiodomethane | Dermatitis, vomiting, cerebral depression, excitation, coma, respiratory difficulty | Ingestion: Dilution with milk or water, respiratory support Skin contact: Washing with NaHCO ₃ or alcohol |
| Iron Carbonyl iron (see Carbon monoxide) Ferric salts Ferrous salts Ferrous gluconate Ferrous sulfate Vitamins with iron (NOTE: Children's chewables with iron are remark- ably safe.) | Vomiting, upper abdominal pain, pallor, cyanosis, diarrhea, drowsiness, shock; possible toxicity if > 20 mg/kg of elemental iron is ingested | For serum iron > 400–500 µg/dL (> 72–90 mmol/L) at 3–6 h plus GI symptoms, deferoxamine IV infusion starting at 15 mg/kg/h and titrated to BP |
| Isofenphos | See Organophosphates | — |
| Isoniazid | CNS stimulation, seizures, obtundation, coma | Pyridoxine IV for seizures, mg for mg ingested or, if amount ingested is unknown, 5 g IV For acidosis, NaHCO ₃ |
| Isopropyl alcohol | See Alcohol, isopropyl | — |
| Javelle water | See Hypochlorites | — |
| Kerosene | See Petroleum distillates | — |
| Ketones | See Acetone | — |
| Lambda-cyhalothrin | See Pyrethroids | — |
| Lead Lead salts Solder Some paints and painted surfaces | Acute ingestion: Thirst, burning abdominal pain, vomiting, diarrhea, CNS symptoms (eg, irritability, inattentiveness, decreased level of consciousness, seizures) Acute inhalation: Insomnia, headache, ataxia, mania, seizures Chronic exposure: Anemia, peripheral neuropathy, confusion, lead encephalopathy | See Lead Poisoning |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|--|---|
| Lead, tetraethyl | Vapor inhalation, skin absorption, or ingestion, CNS symptoms (eg, insomnia, restlessness, ataxia, delusions, mania, seizures) | Supportive care, diazepam to control seizures, fluids and electrolytes, elimination of source |
| Lime, chlorinated | See Chlorine | — |
| Lindane | See γ -Benzene hexachloride and Chlorinated hydrocarbons | — |
| Liquor | See Alcohol, ethyl | — |
| Lithium salts | Nausea, vomiting, diarrhea, tremors, fasciculations, drowsiness, diabetes insipidus, ataxia, seizures, hypothyroidism | Acute: Hydration, diazepam, possibly dialysis for end-organ damage or serum lithium level > 4 mEq/L Chronic: Dialysis if symptoms are severe |
| Lye (sodium hydroxide [NaOH]) | See Caustic Ingestion | — |
| Lysergic acid diethylamide (LSD) | Confusion, hallucinations, hyperexcitability, coma, flashbacks | Supportive care, benzodiazepines For severe agitation, haloperidol 2–10 mg IV or IM in adults (repeated as necessary) |
| Malathion | See Organophosphates | — |
| Manganese | See Potassium permanganate | — |
| Marsh gas | See Carbon monoxide | — |
| Meperidine | See Opioids | — |
| Meprobamate | See Barbiturates | — |
| Mercury | Acute: Severe gastroenteritis, burning mouth pain, salivation, abdominal pain, vomiting, colitis, nephrosis, anuria, uremia | Consideration of gastric lavage, activated charcoal, penicillamine (or succimer—see Table 326-4) |
| All mercury compounds | | |
| Ammoniated mercury | With alkyl and phenyl mercurials, skin burns | Maintenance of fluid and electrolyte balance, hemodialysis for renal failure, observation for GI perforation |
| Bichloride of mercury | Chronic: Gingivitis, mental disturbance, neurologic deficits | |
| Calomel | | |
| Corrosive sublimate | Mercury vapor: Severe pneumonitis | Skin contact: Soap and water for scrubbing Lungs: Supportive care |
| Diuretics, mercurial | | |
| Mercuric chloride | | |
| Mercury vapor (otherwise, not elemental mercury) | | |
| Merthiolate | | |
| Merthiolate (thimerosal) | See Mercury—usually nontoxic | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|---|---|
| Metaldehyde Slug bait | Nausea, vomiting, retching, abdominal pain, muscular rigidity, hyperventilation, seizures, coma | Supportive care, diazepam |
| Metals | See specific metals | See Table 326-4 |
| Metformin | See Hypoglycemic agents, oral | — |
| Methadone | See Opioids | — |
| Methamphetamine | See Amphetamines | — |
| Methanol | See Alcohol, methyl | — |
| Methidathion | See Organophosphates | — |
| Methoxychlor | See Chlorinated hydrocarbons | — |
| Methyl alcohol | See Alcohol, methyl | — |
| Methyl parathion | See Organophosphates | — |
| Methyl salicylate | See Aspirin and Other Salicylate Poisoning | — |
| Mineral spirits | See Petroleum distillates | — |
| Mirtazapine | Usually benign Most commonly, sedation, confusion, tachycardia | Observation for ≥ 8 h |
| Model airplane glues, solvents | See Acetone, Benzene, Petroleum distillates, and Toluene | — |
| Monoamine oxidase (MAO) inhibitors Isocarboxazid Phenelzine Selegiline Tranylcypromine | Nonspecific and highly variable symptoms, which are often delayed 6–24 h Sympathomimetic toxidromes, headache, nausea, dystonia, hallucinations, nystagmus, fasciculations, diarrhea, seizures, agitation, muscle rigidity Hypotension and bradycardia (which may be ominous) | Consideration of gastric decontamination, supportive care |
| Monosodium glutamate | Burning sensations throughout the body, facial pressure, anxiety, chest pain (Chinese restaurant syndrome) | Supportive care |
| Morphine | See Opioids | — |
| Moth balls, crystals, or repellent cakes | See Naphthalene, Camphor, Paradichlorobenzene | — |
| Mushrooms, poisonous | See Chemical Food Poisoning | — |
| Nail polish remover | See Acetone | — |
| Naled | See Organophosphates | — |
| Naphtha | See Petroleum distillates | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|--|---|
| Naphthalene Deodorizer cakes Moth balls, crystals, or repellent cakes (see also Paradi- chlorobenzene) | Ingestion: Abdominal cramps, nausea, vomiting, headache, confusion, dysuria, intravascular hemolysis, seizures, hemolytic anemia in people with G6PD deficiency Skin contact: Dermatitis, corneal ulceration Inhalation: Headache, confusion, vomiting, dyspnea | Ingestion: Blood transfusion for severe hemolysis, urine alkalin- ization for hemoglobinuria, ben- zodiazepines to control seizures Skin contact: Clothing removed if formerly stored with naphtha- lene moth balls, flushing of skin and eyes |
| Naphthols | See Phenols | — |
| Narcotics | See Opioids | — |
| Nefazodone | See Trazodone | — |
| Neostigmine | See Physostigmine | — |
| Nerve gas agents | See Organophosphates | — |
| Nickel | Hypersensitivity dermatitis Chronic inhalation: Pulmonary inflammation | Removal from source of nickel, irrigation with water |
| Nickel carbonyl | Pneumonitis, cyanosis, delirium, seizures (see also Nickel) | Removal from source, decontami- nation, consideration of Na diethyldithiocarbamate po (mild exposure) or IV (severe expo- sure) or disulfiram if Na diethyldithiocarbamate is unavailable |
| Nicotine | See Tobacco | — |
| Nitrates | See Chlorates and Nitrates | — |
| Nitric acid | See Caustic Ingestion | — |
| Nitrites Amyl nitrite Butyl nitrite Nitroglycerin Potassium nitrite Sodium nitrite | Methemoglobinemia, cyanosis, anoxia, GI disturbance, vomit- ing, headache, dizziness, hypotension, respiratory failure, coma | O ₂ For methemoglobinemia, 1% methylene blue 1–2 mg/kg slowly IV |
| Nitrobenzene Artificial bitter almond oil Dinitrobenzene | Bitter almond odor (suggests cyanides), drowsiness, headache, vomiting, ataxia, nys- tagmus, brown urine, convulsive movements, delirium, cyanosis, coma, respiratory arrest | See Acetanilid |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|---|---|
| Nitrogen oxides (see also Chlorine, Fluorides, Hydrogen sulfide, Sulfur dioxide, and Environmental Pulmonary Diseases) Air contaminants that form atmospheric oxidants and that have been liberated from missile fuels, explosives, or agricultural wastes Cobaltous chloride Hydrogen chloride Hydrogen fluoride | Delayed onset of symptoms with nitrogen oxides unless heavy concentration Fatigue, cough, dyspnea, pulmonary edema Later, bronchitis, pneumonia | Bed rest, O ₂ as soon as symptoms develop For excessive pulmonary edema: suction, postural drainage, mechanical ventilation, prednisone 30–80 mg/day in adults and dexamethasone 1 mg/m ² BSA in children to possibly prevent pulmonary fibrosis |
| Nitroglycerin | See Nitrites | — |
| Nitroprusside | See Cyanides | — |
| Nitrous oxide | See Chloroform | — |
| NSAIDs Ibuprofen | Nausea, vomiting, CNS toxicity (eg, seizures with massive overdoses) | Clinical observation, supportive care |
| Nortriptyline | See Tricyclic antidepressants | — |
| Octamethyl pyrophosphoramide | See Organophosphates | — |
| Oil of wintergreen | See Aspirin and Other Salicylate Poisoning | — |
| Oils | See Acetanilid (aniline oil) and Petroleum distillates (fuel oil, lubricating oils) | — |
| Opioids (see Opioids) Alphaprodine Codeine Fentanyl Heroin Hydrocodone Meperidine Methadone Morphine Opium Oxycodone Propoxyphene | Pinpoint pupils, drowsiness, shallow respirations, spasticity, respiratory failure | Charcoal, respiratory support, naloxone IV as required to awaken patients and improve respiration, IV fluids to support circulation |
| Opium | See Opioids | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|-------------------------------|---|--|
| Organophosphates | Absorption via skin, inhalation, or ingestion: Nausea, vomiting, abdominal cramping, excessive salivation, increased pulmonary secretion, headache, rhinorrhea, blurred vision, miosis, slurred speech, mental confusion, difficulty breathing, frothing at the mouth, coma | Removal of clothing, flushing and washing of skin For increased secretions, atropine 2–5 mg in adults or 0.05 mg/kg in children IV or IM q 15–60 min, repeated and increased prn (massive amounts may be necessary) as often as q 3–5 min; pralidoxime chloride 1–2 g in adults or 20–40 mg/kg in children IV over 15–30 min, repeated in 1 h if needed; O ₂ ; respiratory support; correction of dehydration For attendants, avoidance of self-contamination |
| Acephate | | |
| Bidrin | | |
| Chlorethoxyfos | | |
| Chlorothion | | |
| Chlorpyrifos | | |
| Coumaphos | | |
| Demeton | | |
| Diazinon | | |
| Dichlorvos | | |
| Dimethoate | | |
| Disulfoton | | |
| Ethion | | |
| Famphur | | |
| Fenthion | | |
| Hexaethyltetra-phosphate | | |
| Isofenphos | | |
| Leptophos | | |
| Malathion | | |
| Merphos | | |
| Methidathion | | |
| Methyl parathion | | |
| Mipafox | | |
| Naled | | |
| Nerve gas agents | | |
| Octamethyl pyrophospho-ramide | | |
| Oxydemeton-methyl | | |
| Parathion | | |
| Phorate | | |
| Phosdrin | | |
| Phosmet | | |
| Pirimiphos-methyl | | |
| Temefos | | |
| Terbufos | | |
| Tetrachlorvinphos | | |
| Trichlorfon | | |
| Triorthocresyl phosphate | | |
| Oxalic acid | Burning pain in throat, vomiting, intense pain, hypotension, tetany, shock, glottal and kidney damage, oxaluria | Milk or Ca lactate, 10% Ca gluconate 10–20 mL IV, pain control, saline IV for shock, observation for glottal edema and stricture |
| Oxalates | | |
| Oxycodone | See Opioids | — |
| Oxydemeton-methyl | See Organophosphates | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|--|--|
| Paints | See Lead | — |
| Paint solvents | See Alcohol, methyl; Petroleum distillates (mineral spirits); and Turpentine | — |
| Paradichlorobenzene Insecticides Moth repellents Pesticides Toilet bowl deodorizers | Abdominal pain, nausea, vomiting, diarrhea, seizures, tetany (rare) | Fluid replacement, diazepam to control seizures |
| Paraldehyde | Acetic acid odor on breath, incoherence, miosis, depressed respiration, coma | O ₂ , respiratory support |
| Paraquat (a strong corrosive) Diquat | Immediate: GI pain and vomiting Within 24 h: Respiratory failure (but no pulmonary problems with diquat) | Activated charcoal, fuller's earth, limited O ₂ , consultation with poison control center or manufacturer |
| Parathion | See Organophosphates | — |
| Paris green | See Arsenic | — |
| Pentobarbital | See Barbiturates | — |
| Perchlordecone | See Chlorinated hydrocarbons | — |
| Permanent wave neutralizers | See Bromates | — |
| Permethrin | See Pyrethroids | — |
| Pesticides | See Organophosphates | — |
| Petroleum distillates (see also Hydrocarbon Poisoning) Asphalt Benzine (benzin) Fuel oil Gasoline Kerosene Lubricating oils Mineral spirits Model airplane glue Naphtha Petroleum ether Tar | Ingestion: Burning throat and stomach, vomiting, diarrhea, pneumonia only if aspiration has occurred Vapor inhalation: Euphoria, burning in chest, headache, nausea, weakness, CNS depression, confusion, dyspnea, tachypnea, rales, possibly myocardial sensitization to catecholamines (which can result in cardiac arrhythmias) Aspiration: Early acute pulmonary changes | Because major problems result from aspiration (not GI absorption), gastric evacuation usually not warranted Supportive care for pulmonary edema, O ₂ , respiratory support |
| Phenacetin | See Acetanilid | — |
| Phencyclidine (PCP) | Inattentiveness with eyes open, agitation, violent behavior, unconsciousness, tachycardia, hypertension | Quiet environment Benzodiazepines if needed to provide sedation |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|--|---|
| Phenmetrazine | See Amphetamines | — |
| Phenobarbital | See Barbiturates | — |
| Phenols | Corrosive effects, mucous membrane burns, pallor, weakness, shock, seizures in children, pulmonary edema, smoky urine, esophageal stricture (rare) | Removal of clothing, washing of external burns with water, activated charcoal, pain relief, O ₂ , respiratory support, correction of fluid imbalance, observation for esophageal stricture |
| Carbolic acid | | |
| Creosote | | |
| Cresols | | |
| Guaiacol | Respiratory, cardiac, and circulatory failure | |
| Naphthols | | |
| Phenothiazines | Extrapyramidal symptoms (eg, ataxia, muscular and carpopedal spasms, torticollis), usually idiosyncratic; if overdose, dry mouth, drowsiness, seizures, coma, respiratory depression | Diphenhydramine 2–3 mg/kg IV or IM for extrapyramidal symptoms, diazepam to control seizures |
| Chlorpromazine | | |
| Prochlorperazine | | |
| Promazine | | |
| Trifluoperazine | | |
| Phenylpropanolamine | Nervousness, irritability, bradycardia, hypertension plus other sympathomimetic effects | Supportive care, diazepam For hypertension, phentolamine 5 mg IV over about 1 min or nitroprusside IV |
| Phorate | See Organophosphates | — |
| Phosdrin | See Organophosphates | — |
| Phosmet | See Organophosphates | — |
| Phosphine | See Hydrogen sulfide | — |
| Phosphoric acid | See Caustic Ingestion | — |
| Phosphorus (yellow or white) | Stage 1: Garlicky taste, garlic-breath odor, local irritation, skin and throat burns, nausea, vomiting, diarrhea, corrosion of mucous membranes | Protection of patient and attendant from vomitus and feces |
| Rat poisons | | |
| Roach powders (NOTE: Red phosphorus is unabsorbable and nontoxic.) | Stage 2: Symptom-free 8 h to several days | GI lavage with dilute K permanganate (1:5000) or hydrogen peroxide (eg, 1–2%), which may change phosphorus to nontoxic oxides |
| | Stage 3: Nausea, vomiting, diarrhea, liver enlargement, jaundice, hemorrhages, kidney damage, seizures, coma | If phosphorus is embedded in skin: |
| | Toxicity enhanced by alcohol, fats, or digestible oils | <ul style="list-style-type: none"> • Submersion of the patient's body in water • Irrigation with dilute K permanganate or cupric sulfate (250 mg in 250 mL of water), recommended by some experts • Mineral oil 100 mL (applied topically to prevent absorption), repeated in 2 h • Prevention of shock • Meticulous surgical debridement • 5% NaHCO₃ plus 3% cupric sulfate plus 1% hydroxyethyl cellulose as a paste applied to exposed skin, which is thoroughly washed off after 30 min (prolonged contact with cupric sulfate may result in copper poisoning) |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|--|
| Physostigmine Eserine Neostigmine Pilocarpine <i>Pilocarpus</i> genus | Dizziness, weakness, vomiting, cramping pain, bradycardia, possibly seizures, agitation | Atropine sulfate 0.6–1 mg in adults or 0.01 mg/kg in children sc or IV, repeated prn Benzodiazepine prn to provide sedation |
| Pilocarpine | See Physostigmine | — |
| <i>Pilocarpus</i> genus | See Physostigmine | — |
| Pirimiphos-methyl | See Organophosphates | — |
| Potash (potassium hydroxide or potassium carbonate) | See Acids and alkalis | — |
| Potassium cyanide | See Cyanides | — |
| Potassium nitrite | See Nitrites | — |
| Potassium permanganate | Brown discoloration and burns of oral mucosa, glottal edema, hypotension, kidney involvement | Dilution with water or milk, consideration of early endoscopy, maintenance of fluid balance |
| Prochlorperazine | See Phenothiazines | — |
| Prolan | See Chlorinated hydrocarbons | — |
| Promazine | See Phenothiazines | — |
| Propoxyphene | See Opioids | — |
| Protriptyline | See Tricyclic antidepressants | — |
| Prussic acid | See Cyanides | — |
| Pyrethrin | See Pyrethroids | — |
| Pyrethroids Bifenthrin Cyfluthrin Cypermethrin Esfenvalerate Fluvalinate Lambda-cyhalothrin Permethrin Pyrethrin Resmethrin Sumithrin Tefluthrin Tetramethrin | Allergic response (including anaphylactic reactions and skin sensitivity) in sensitive people; otherwise, low toxicity unless vehicle is a petroleum distillate | Thorough washing of skin, symptomatic and supportive care |
| Ranitidine | See Cimetidine | — |
| Rat poisons | See specific components (eg, Barium compounds, Fluorides, Phosphorus, Thallium salts, and Warfarin) | — |
| Resmethrin | See Pyrethroids | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|--|---|--|
| Resorcinol (resorcin) | Vomiting, dizziness, tinnitus, chills, tremor, delirium, seizures, respiratory depression, coma, methemoglobinemia | Respiratory support, methylene blue for methemoglobinemia |
| Roach poisons | See Fluorides, Phosphorus, and Thallium salts | — |
| Rubbing alcohol | See Alcohol, isopropyl | — |
| Salicylates | See Aspirin and Other Salicylate Poisoning | — |
| Salicylic acid | See Aspirin and Other Salicylate Poisoning | — |
| Scopolamine (hyoscine) | See Belladonna | — |
| Secobarbital | See Barbiturates | — |
| Selenium | See Arsenic and Thallium salts | — |
| Sewer gas | See Hydrogen sulfide | — |
| Silver salts Silver nitrate | Stained lips (white, brown, then black), gastroenteritis, shock, vertigo, seizures | Control of pain, diazepam to control seizures |
| Smog | See Sulfur dioxide | — |
| Soda, caustic (Na hydroxide) | See Caustic Ingestion | — |
| Sodium carbonate | See Acids and alkalis | — |
| Sodium cyanide | See Cyanides | — |
| Sodium fluoride | See Fluorides | — |
| Sodium hydroxide | See Caustic Ingestion | — |
| Sodium nitrite | See Nitrites | — |
| Sodium salicylate | See Aspirin and Other Salicylate Poisoning | — |
| Solder | See Cadmium and Lead | — |
| SSRIs Citalopram Escitalopram Fluoxetine Fluvoxamine Paroxetine Sertraline | Commonly, sedation, vomiting, tremor, tachycardia Possibly, seizures, hallucinations, hypotension, serotonin syndrome Rarely, death With citalopram, QRS prolongation possible | Airway protection, consideration of alkalinization for QRS prolongation, admission of patients who have symptoms > 6 h after ingestion |
| Stibophen | See Arsenic | — |
| Stramonium | See Belladonna | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|--|
| Strychnine | Restlessness; hyperacuity of hearing, vision, and tactile sensation Violent myoclonus that simulates generalized seizures but with intact mental status, caused by minor stimuli; complete muscle relaxation between apparent seizures; perspiration; respiratory arrest | Isolation and restricted stimulation to prevent seizures, activated charcoal po, IV diazepam, respiratory support For severe seizures, neuromuscular blockade and mechanical ventilatory support |
| Sulfur dioxide Smog | Respiratory tract irritation, sneezing, cough, dyspnea, pulmonary edema | Removal from contaminated area, O ₂ , positive pressure breathing, respiratory support |
| Sulfuric acid | See Caustic Ingestion | — |
| Sumithrin | See Pyrethroids | — |
| Syrup of wild cherry | See Cyanides | — |
| Tar | See Petroleum distillates | — |
| Tartar emetic | See Arsenic | — |
| Tear gas | See Chlorine | — |
| Tefluthrin | See Pyrethroids | — |
| Temefos | See Organophosphates | — |
| Terbufos | See Organophosphates | — |
| Tetrachlorvinphos | See Organophosphates | — |
| Tetraethyl lead | See Lead, tetraethyl | — |
| Tetramethrin | See Pyrethroids | — |
| Thallium salts (formerly used in ant, rat, and roach poisons) Selenium | Abdominal pain (colic), vomiting (may be bloody), diarrhea (may be bloody), stomatitis, excessive salivation, tremors, leg pains, paresthesias, polyneuritis, ocular and facial palsy, delirium, seizures, respiratory failure, loss of hair about 3 wk after poisoning | Treatment of shock, supportive care, diazepam to control seizures, activated charcoal (which effectively binds thallium and interrupts enterohepatic circulation), Prussian blue 60 mg/kg qid via NGT (same purpose as charcoal), chelation therapy with dimercaprol (used with varying success) Avoidance of penicillamine and diethyldithiocarbamate (which may redistribute thallium into the CNS) Consultation with poison control center for latest information advisable |
| Theophylline | See Aminophylline | — |
| Thyroxine | Usually asymptomatic Rarely, increasing irritability progressing to thyroid storm in 5–7 days | Emesis, observation at home, diazepam, possibly antithyroid preparations and propranolol but only if symptoms occur |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|--|--|
| Tobacco Nicotine | Excitement, confusion, muscular twitching, weakness, abdominal cramps, generalized myoclonus, CNS depression, rapid respirations, palpitations, cardiovascular collapse, coma, respiratory failure | Activated charcoal, respiratory support, O ₂ , diazepam for seizures, thorough washing of skin if contaminated |
| Toilet bowl cleaners, deodorizers | See Caustic Ingestion and Paradichlorobenzene | — |
| Toluene, toluol | See Benzene | — |
| Toxaphene | See Chlorinated hydrocarbons | — |
| Trazodone Nefazodone | CNS depression, orthostatic hypotension, seizures, QRS prolongation (but torsades de pointes is rare), hypotension (rare) | Airway protection For hypotension refractory to fluids, norepinephrine |
| Trichlorfon | See Organophosphates | — |
| Trichloromethane | See Chloroform | — |
| Tricyclic anti-depressants Amitriptyline Desipramine Doxepin Imipramine Nortriptyline Protriptyline | Anticholinergic effects (eg, blurred vision, urinary hesitation), CNS effects (eg, drowsiness, stupor, coma, ataxia, restlessness, agitation, hyperactive reflexes, muscle rigidity, seizures), cardiovascular effects (eg, tachycardia, other arrhythmias, bundle branch block, QRS widening, impaired conduction, heart failure), respiratory depression, hypotension, shock, vomiting, hyperpyrexia, mydriasis, diaphoresis | Symptomatic treatment and supportive care, charcoal, monitoring of vital signs and ECG, maintenance of airway NaHCO ₃ as a rapid IV injection (0.5–2 mEq/kg), repeated periodically to narrow the QRS, prevent arrhythmias, and maintain blood pH > 7.45 (constant infusion may be needed) Diazepam to control seizures Vasopressors (eg, norepinephrine) to maintain BP |
| Trifluoperazine | See Phenothiazines | — |
| Triiodomethane | See Iodoform | — |
| Tungsten | See Table 326-4 | — |
| Turpentine Paint solvent Varnish | Turpentine odor, burning oral and abdominal pain, coughing, choking, respiratory failure, nephritis | Respiratory support, O ₂ , control of pain, monitoring of kidney function |
| Valproate | Progressive CNS and respiratory depression | Respiratory and cardiovascular supportive measures, monitoring of liver function |
| Varnish | See Alcohol, methyl and Turpentine | — |
| Venlafaxine | Possibly sedation, seizures, QRS prolongation, sympathomimetic symptoms (eg, tremor, mydriasis, tachycardia, hypertension, diaphoresis), hypotension Rarely, death | Observation for ≥ 6 h For QRS prolongation, consideration of alkalization |
| Vitamins with iron | See Iron | — |

SYMPTOMS AND TREATMENT OF SPECIFIC POISONS—CONTINUED

| POISON* | SYMPTOMS | TREATMENT |
|---|---|--|
| Warfarin (sometimes used in pesticides) Bishydroxycoumarin Dicumarol Ethyl biscoumacetate Superwarfarins (sometimes used in pesticides) | Single ingestion not serious With multiple overdoses, coagulopathy | For hemorrhagic manifestations, vitamin K ₁ (phytonadione) until INR is normal, transfusion with fresh blood if necessary |
| Wild cherry syrup | See Cyanides | — |
| Wintergreen oil | See Salicylates | — |
| Wood alcohol | See Alcohol, methyl | — |
| Xylene | See Benzene | — |
| Zinc | See Table 326-4 | — |
| Zinc salts | See Copper salts | — |

*Inclusion of one poison with another (eg, toluene with benzene) in a single row indicates that the terms are synonymous, that the poisons are chemically related, or that one poison is an ingredient or impurity of the other.

†Physicians should be aware of people who smuggle plastic bags of cocaine in the GI tract (through the mouth or rectum) or the vagina (so-called packers) and people who hurriedly ingest poorly wrapped packs of drugs to avoid criminal consequences when being pursued by police (so-called stuffers).