

Selected* Clinical Syndromes and Potential Chemical Etiologies

Category	Clinical syndrome	Potential chemical etiology
Cholinergic crisis	<ul style="list-style-type: none"> • Salivation, diarrhea, lacrimation, bronchorrhea, diaphoresis, and/or urination • Miosis, fasciculations, weakness, bradycardia or tachycardia, hypotension or hypertension, altered mental status, and/or seizures 	<ul style="list-style-type: none"> • Nicotine[†] • Organophosphate insecticides[†] <ul style="list-style-type: none"> — decreased acetylcholinesterase activity • Carbamate insecticides • Medicinal carbamates (e.g., physostigmine)
Generalized muscle rigidity	<ul style="list-style-type: none"> • Seizure-like, generalized muscle contractions or[‡] painful spasms (neck and limbs) and usually tachycardia and hypertension 	<ul style="list-style-type: none"> • Strychnine <ul style="list-style-type: none"> — intact sensorium
Oropharyngeal pain and ulcerations	<ul style="list-style-type: none"> • Lip, mouth, and pharyngeal ulcerations and burning pain 	<ul style="list-style-type: none"> • Paraquat[†] <ul style="list-style-type: none"> — dyspnea and hemoptysis secondary to pulmonary edema or hemorrhage; can progress to pulmonary fibrosis over days to weeks • Diquat • Caustics (i.e., acids and alkalis) • Inorganic mercuric salts • Mustards (e.g., sulfur)
Cellular hypoxia	<ul style="list-style-type: none"> • Mild: nausea, vomiting, and headache • Severe: altered mental status, dyspnea, hypotension, seizures, and metabolic acidosis 	<ul style="list-style-type: none"> • Cyanide[†] (e.g., hydrogen cyanide gas or sodium cyanide) <ul style="list-style-type: none"> — bitter almond odor[§] • Sodium monofluoroacetate (SMFA)[†] <ul style="list-style-type: none"> — hypocalcemia or hypokalemia • Carbon monoxide • Hydrogen sulfide • Sodium azide • Methemoglobin-causing agents
Peripheral neuropathy and/or neurocognitive effects	<ul style="list-style-type: none"> • Peripheral neuropathy signs and symptoms: muscle weakness and atrophy, "glove and stocking" sensory loss, and depressed or absent deep tendon reflexes • Neurocognitive effects: memory loss, delirium, ataxia, and/or encephalopathy 	<ul style="list-style-type: none"> • Mercury (organic)[†] <ul style="list-style-type: none"> — visual disturbances, paresthesias, and/or ataxia • Arsenic (inorganic)[†] <ul style="list-style-type: none"> — delirium and/or peripheral neuropathy • Thallium <ul style="list-style-type: none"> — delirium and/or peripheral neuropathy • Lead <ul style="list-style-type: none"> — encephalopathy • Acrylamide <ul style="list-style-type: none"> — encephalopathy and/or peripheral neuropathy
Severe gastrointestinal illness, dehydration	<ul style="list-style-type: none"> • Abdominal pain, vomiting, profuse diarrhea (possibly bloody), and hypotension, possibly followed by multisystem organ failure 	<ul style="list-style-type: none"> • Arsenic[†] • Ricin[†] <ul style="list-style-type: none"> — inhalation an additional route of exposure; severe respiratory illness possible • Colchicine • Barium <ul style="list-style-type: none"> — hypokalemia common

* Not intended as a complete differential diagnosis for each syndrome or a list of all chemicals that might be used in a covert chemical release.

[†] Potential agents for a covert chemical release based on historic use (i.e., intentional or inadvertent use), high toxicity, and/or ease of availability.

[§] Unreliable sign.