


# SELECTED POISONS BLOCK Q

## THE "RAPID RECALL" ANTIDOTE TABLE

Poison	Antidote / Key Management	Classic Sign
Acetaminophen	N-Acetylcysteine (NAC)	Liver Failure (Late)
Organophosphates	Atropine + Pralidoxime	Pinpoint pupils + Wet everywhere
Benzodiazepines	Flumazenil (Use with caution!)	Coma with Normal Vitals
Opioids	Naloxone	Pinpoint pupils + Respiratory depression
Methanol	Fomepizole or Ethanol	Blindness ("Snowstorm vision")
Carbon Monoxide	100% Oxygen (Hyperbaric)	Cherry Red Skin
Snake Bite (Viper)	Anti-Venom	Bleeding / Non-clotting blood

### 1. ACETAMINOPHEN (PARACETAMOL)

 **THE LIVER KILLER**

**Toxic Dose:** >150 mg/kg (or 7-10g in adults).

**Mechanism:** Depletion of Glutathione -> Accumulation of toxic NAPQI.

**The 4 Hour Rule:** Do NOT check levels before 4 hours post-ingestion. Plot on Rumack-Matthew Nomogram.

**Rx:** N-Acetylcysteine (NAC). Most effective if given within 8 hours.

### 2. THE "WET" POISON (INSECTICIDES)

**Organophosphates / Carbamates**

**Mechanism:** Inhibits Acetylcholinesterase -> Too much Acetylcholine (Cholinergic Crisis).

**Mnemonic:** DUMBELS (Leak from everywhere)

- Diarrhea / Diaphoresis (Sweating)
- Urination
- Miosis (Pinpoint Pupils)
- Bradycardia / Bronchorrhea (Lung secretions - Killer!)
- Emesis (Vomiting)
- Lacrimation
- Salivation

**Rx:** Atropine (dries secretions) + Pralidoxime.

### 3. THE "DRY" POISON (ANTICHOLINERGICS)

**Atropine / Datura / Tricyclics**

**Mnemonic:** "The Mad Hatter"

- **Blind** as a Bat (Dilated pupils/Mydriasis).
- **Dry** as a Bone (No sweat/saliva).
- **Red** as a Beet (Flushing).
- **Hot** as a Hare (Hyperthermia).
- **Mad** as a Hatter (Confusion/Delirium).

**Rx:** Physostigmine (rarely used), Benzodiazepines for agitation.

### 4. CARBON MONOXIDE (CO)

**Source:** Gas heaters, fires, exhaust.

**Pathology:** CO binds Hemoglobin 200x stronger than O2. Shifts curve to Left (Oxygen trapped).

**Signs:** Headache ("Flu-like" in winter), Confusion, **Cherry Red Skin** (Post-mortem finding, rare in life).

**Pulse Oximeter:** Shows NORMAL (Falsely high) because it reads CO-Hb as Oxy-Hb.

**Rx:** 100% Oxygen (decreases CO half-life).

### 5. ALCOHOLS (THE GAP ACIDOSIS)

**Methanol (Wood Alcohol):**

- Metabolized to **Formic Acid**.
- **Key Sign: Blindness** / Visual disturbances ("Snowstorm").
- **Labs:** High Anion Gap Metabolic Acidosis.

**Ethanol (Drinking Alcohol):**

- CNS depression, Hypoglycemia (in kids/malnourished).

**Management:** Fomepizole (inhibits Alcohol Dehydrogenase) or Ethanol infusion (competes with methanol).

### 6. STIMULANTS VS DEPRESSANTS

**Stimulants (Cocaine / Amphetamines):**

- **Sympathetic Overdrive:** Tachycardia, Hypertension, Dilated Pupils (Mydriasis), Agitation, Hyperthermia.
- **Complication:** MI, Stroke, Rhabdomyolysis.
- **Rx:** Benzos for agitation. **NO Beta-Blockers** (causes unopposed alpha constriction -> HTN crisis).

**Depressants (Benzodiazepines):**

- Coma, Hypotonia, but usually **Normal Vitals** (unlike Opioids which stop breathing).
- **Rx:** Supportive. Flumazenil (Antidote) - \*Warning: Can cause seizures in chronic users.\*

### 7. SNAKE BITE (ENVENOMATION)

**Vipers (Hemotoxic):**

- **Local swelling, necrosis.**
- **Bleeding: Systemic bleeding (Gums, Hematuria). Prolonged PT/APTT.**
- **Test: 20 Minute Whole Blood Clotting Test (WBCT20). If blood doesn't clot -> Give Anti-venom.**

**Cobras/Kraits (Neurotoxic):**

- **Ptois (drooping eyes), Paralysis, Respiratory failure.**
- **Minimal local swelling.**

### 8. CLINICAL SCENARIOS

**Q: Farmer found unconscious in field. Pupils pinpoint. Profuse sweating and drooling. Muscles twitching.**

**Organophosphate Poisoning.** Give Atropine until chest clears (secretions dry up).

**Q: 20yo male, agitated, BP 180/110, Dilated pupils. Chest pain.**


**Cocaine/Amphetamine.** Do NOT give Beta Blockers. Give Benzos.

**Q: Patient drank "homemade liquor". Now complains of blurred vision and severe abdominal pain.**

**Methanol Poisoning.** High Anion Gap Acidosis. Needs Fomepizole/Dialysis.

# APPROACH TO POISONING

## 1. THE GOLDEN RULE

 **TREAT THE PATIENT, NOT THE POISON**  
**A: Airway** (Protect it! GCS < 8 = Intubate).  
**B: Breathing** (O2 Saturation, Respiratory Rate).  
**C: Circulation** (IV access, Fluids for hypotension).  
**D: Disability** (GCS, Pupils, Glucose).  
**E: Exposure** (Remove contaminated clothes).

## 2. THE COMATOSE PATIENT (EMPIRIC RX)

**"The Coma Cocktail" (DONT)**  
If patient is unconscious with unknown cause, give:  
**D: Dextrose** (Hypoglycemia mimics everything).  
**O: Oxygen** (Hypoxia kills fastest).  
**N: Naloxone** (Opioid reversal - pinpoint pupils).  
**T: Thiamine** (Before Dextrose in alcoholics to prevent Wernicke's).

## 3. DIAGNOSIS: THE TOXIDROME HUNT

**Step 1: Look at the Pupils**

- **Pinpoint:** Opioids, Organophosphates, Clonidine.
- **Dilated:** Cocaine, Amphetamines, Anticholinergics (Atropine).

**Step 2: Look at the Skin**

- **Wet/Sweaty:** Sympathomimetics (Cocaine), Organophosphates.
- **Dry/Hot:** Anticholinergics ("Dry as a bone").
- **Red/Cherry:** Carbon Monoxide.
- **Blue (Cyanosis):** Methemoglobinemia.

## 4. DIAGNOSIS: THE NOSE (ODORS)

Odor	Suspect Poison
Bitter Almonds	Cyanide
Garlic	Organophosphates / Arsenic
Rotten Eggs	Hydrogen Sulfide
Fruity	DKA / Isopropanol

## 5. DECONTAMINATION (GET IT OUT)

**1. Activated Charcoal (The Universal Binder):**

- **Dose:** 1g/kg.
- **Timing:** Best within **1 hour** of ingestion.
- **Useless for:** Metals (Iron/Lithium), Alcohols, Corrosives.

**2. Gastric Lavage ("Stomach Pump"):**

- **Indication:** Life-threatening poison within **1 hour**.
- **Contraindication:** Corrosives (burns coming up), Hydrocarbons (aspiration).

**3. Whole Bowel Irrigation (PEG solution):**

- For "Body Packers" (drug mules) or Iron tablets (don't bind to charcoal).

## 6. ENHANCED ELIMINATION (DIALYSIS)

**Who needs Hemodialysis? "I STUMBLE"**

- **I:** Isopropanol
- **S:** Salicylates (Aspirin) - \*Common exam Q\*
- **T:** Theophylline
- **U:** Uremia
- **M:** Methanol
- **B:** Barbiturates
- **L:** Lithium
- **E:** Ethylene Glycol

## 7. THE ANION GAP (MUDPILES)

**Calculation:**  $Na - (Cl + HCO_3)$ . Normal = 8-12.

**High Gap Metabolic Acidosis (>12):**

- Methanol
- Uremia
- DKA
- Paraldehyde
- Iron / Isoniazid
- Lactic Acidosis
- Ethylene Glycol
- Salicylates

## 8. CLINICAL SCENARIOS

**Q: Patient found comatose. RR 6/min. Pupils pinpoint. Needle tracks on arm.**  
**Opioid Overdose.** Give Naloxone immediately (Diagnostic & Therapeutic).

**Q: 20yo female, took bottle of pills. Ringing in ears (Tinnitus), hyperventilating. ABG shows Respiratory Alkalosis + Metabolic Acidosis.**  
**Salicylate (Aspirin) Poisoning.** Alkalinize urine. Dialysis if severe.

**Q: Comatose alcoholic. Glucose is normal. What do you give first?**  
**Thiamine.** Before any glucose containing fluids to prevent Wernicke's Encephalopathy.