



Portage County EMS Patient Care Guidelines



Toxic Exposure and Overdose

Note:

- Perform scene size-up and ensure crew safety. In a hazardous materials incident, stage up wind of the incident, and do not attempt to treat any patients who have not been decontaminated. Be especially suspicious of scenes in which many people or animals appear to be affected.
- Do not transport patients until properly decontaminated.
- Beware of the potential for the patient to vomit spontaneously. Following any form of cyanide ingestion, emesis may off-gas toxic hydrogen cyanide, placing rescuers and health care workers at risk.
- Beware of the potential for seizures or altered level of consciousness due to toxic exposures.
- Beware of the potential for cardiovascular collapse and respiratory compromise due to toxic exposures.
- Whenever it is possible and safe to do so, bring any medication or poison containers with the patient to the emergency department.

Priorities	Assessment Findings
Chief Complaint	"Overdose", "Exposure to chemicals", "Unresponsive"
LOPQRST	Determine time of exposure/ingestion, Determine amount/length of exposure
AS/PN	Dyspnea, nausea/vomiting, abdominal pain, unresponsive; Suicidal ideation or suicide attempt. Accidental or intentional exposure.
AMPL	Psychiatric history and medications, exposure to chemicals
Initial Exam	Check ABC's, and correct any immediate life threats
Detailed Focused Exam	Vitals: BP, HR, RR, Temp, SpO ₂ General Appearance: level of alertness, signs of agitation, willingness to cooperate with authorities Skin: Cool, pale and diaphoretic? Warm, dry and flushed? HEENT: Are the pupils constricted or dilated? Nystagmus? Lungs: Wheezes, rales or rhonchi? Heart: Rate, regularity, BP, peripheral perfusion? Neuro: Signs of intoxication? Ataxia? Slurred speech? Psych: Depressed affect? Bizarre thoughts? Signs of suicidal ideation or intent?
Data	Blood glucose, Identify possible toxic substances ingested/exposed to. 12 lead EKG, ETCO ₂ , CO-oximetry
Goals of Therapy	Reduce amount of substance absorbed into the body; Treat with antidotes if possible; Correct toxic effects on the CNS, cardiovascular and respiratory systems.
Monitoring	Cardiac monitoring, capnography

EMERGENCY MEDICAL RESPONDER

- Routine medical care
- Administer oxygen 2 – 4 LPM per nasal canula if SpO₂ < 94%.
 - Increase flow and consider non-rebreather mask to keep SpO₂ > 94%
 - Administer 100% oxygen via tight-fitting NRB for possible carbon monoxide poisoning regardless of SpO₂
- If the patient is unconscious, place him/her in the recovery position and check a blood glucose. Follow the *Altered Level of Consciousness Guidelines*.
- Consider use of a non-visualized airway.

Give a status report to the ambulance crew by radio ASAP.

EMERGENCY MEDICAL TECHNICIAN

- For toxic ingestions (except those listed below), if the patient is conscious with an intact gag reflex, administer **activated charcoal with sorbitol** 50 Gm (adults) or 1 Gm/kg (children < 110 pounds)
- Caveats:
 - Do not give charcoal if the ingestion involves caustics, hydrocarbons, or heavy metals
 - Do not give Syrup of Ipecac or attempt to induce vomiting in any patients
 - Do not give repeat doses of activated charcoal products containing sorbitol.
- If an altered level of consciousness is likely due to a narcotic overdose AND you are unable to maintain the patient's airway and breathing with manual maneuvers or basic adjuncts, consider **naloxone** 0.5 mg intranasal and repeat every 5 minutes X 3 total doses. If there is no response to naloxone, consider an alternative explanation or contact medical control.
 - May administer naloxone via nebulizer. Place 2 mg naloxone in 3 ml saline for inhalation.

Give a status report to the ambulance crew by radio ASAP.

ADVANCED EMERGENCY MEDICAL TECHNICIAN

- IV normal saline @ KVO
- Initiate a bolus of 500 ml normal saline, if the patient is hypotensive or tachycardic. Refer to *Hypovolemia, Shock and Suspected Sepsis Guidelines*.
- Initiate EKG monitoring and obtain a 12-lead EKG and transmit to receiving facility. If transmission is not possible, may read monitor's interpretation to hospital.
- If an altered level of consciousness is likely due to a narcotic overdose AND you are unable to maintain the patient's airway and breathing with manual maneuvers or basic adjuncts, consider **naloxone** 0.5 mg IV/IN/IM and repeat every 5 minutes X 3 total doses. If there is no response to naloxone, consider an alternative explanation or contact medical control.
 - May administer naloxone via nebulizer. Place 2 mg naloxone in 3 ml saline for inhalation.

Contact Medical Control for the following:

- Additional fluid orders
- Additional naloxone orders

INTERMEDIATE/ PARAMEDIC

- Acquire, interpret and transmit 12-lead EKG to receiving hospital
- Specific overdose therapies are contained in the table below
 - If you do not recognize to which class the drug or toxin belongs, contact Medical Control.

<i>Class of drugs</i>	<i>Treatment Indications</i>	<i>Specific Treatment(s)</i>	<i>Treatments Available Only After Contact with Medical Control</i>
Narcotics [1]	<p>Naloxone may be used in cases of over sedation due to narcotic administration, or in suspected narcotics overdoses in patients without a history of long-term use, chronic abuse or addiction. Signs of narcotic overdose or over sedation include: decreased level of consciousness, pinpoint pupils (except Demerol), and respiratory depression.</p> <p>Caveat: Giving naloxone to a long-term narcotic user, chronic abuser or addict can induce narcotic withdrawal, which creates a new set of difficult problems. Airway management and supportive care is the preferred approach.</p>	<p>In the setting of an intentional overdose, if the patient has ALOC – with or without a gag reflex, or shows signs of respiratory depression, airway management takes precedence over reversing the overdose with naloxone.</p> <p>EMT-P: Consider RSI/RSA [2] and withholding naloxone.</p> <p>For other patients with narcotic overdose or over sedation give Naloxone 0.5 mg IV/IN/IM every 5 minutes until the patient reaches a desirable level of consciousness and respiratory function, or as directed by medical control. If no response, reconsider diagnosis and contact medical control. May administer naloxone via nebulizer. Place 2 mg naloxone in 3 ml saline for inhalation.</p>	
Benzodiazepines (BZD) [1]	<p>Flumazenil is indicated when there are signs of over sedation from therapeutic uses of benzodiazepines, including decreased level of consciousness, respiratory depression and hypotension.</p> <p>Flumazenil is <u>contraindicated</u> in poly-drug overdose, especially with TCAs and elevated ICP. Flumazenil is contraindicated for patients with chronic benzodiazepine use.</p>		<p>EMT-P: Consider flumazenil 0.2 mg slow IVP; Repeat 0.2 mg every minute up to a maximum of 1 mg.</p>

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	Caveat: Pure benzodiazepine overdoses are rarely life-threatening. Since flumazenil can induce seizures, the risk of flumazenil must be weighed against the risk of the overdose.		
Tricyclic Antidepressants (TCA)	<p>Decreased level of consciousness; hypotension, seizures, malignant arrhythmias (e.g. <i>Torsades de Pointes</i>, VT), prolongation of the QT or QRS intervals.</p> <p>Caveat: Patients with TCA overdoses are prone to deteriorating very quickly.</p> <p>Note: Sodium containing solutions act like antidotes, because they protect the heart against the toxic effects of the TCA. Induced alkalosis from bicarbonate and hyperventilation also protect against the toxic effects of TCAs.</p>	<p>Run 1 or 2 IVs of normal saline wide open.</p> <p>Treat arrhythmias according to the appropriate protocol.</p> <p>Treat seizures according to the <i>Seizure Guidelines</i></p> <p>EMT-P: Consider RSI/RSA[2] and controlled hyperventilation to an end-tidal CO₂ of 30 – 35 mmHg</p>	EMT-P: Sodium bicarbonate 1 – 2 amps (50 – 100 mEq) IV bolus.
Beta Blockers	Profound bradycardia, hypotension or conduction defects	Refer to <i>Bradycardia Guidelines</i>	EMT-P: Consider glucagon 1 mg slow IVP. May repeat up to 3 mg total.
Calcium Channel Blockers	Profound bradycardia, hypotension or conduction defects	Refer to <i>Bradycardia Guidelines</i>	EMT-P: Consider calcium chloride [3] 10 ml of 10% solution IV over 20 minutes.
Amphetamines/ cocaine/ synthetic sympathomimetics (i.e. bath salts, synthetic marijuana)	<p>Agitation, psychosis, or ventricular arrhythmias</p> <p>Increased strength and decreased pain perception</p>	<p>Refer to <i>Seizures Guidelines</i></p> <p>Refer to <i>Agitation and Combativeness Guidelines</i></p>	
Organophosphate Poisoning (Pesticides and Nerve Agents)	Profound bradycardia, seizures, abnormal (wet) lung sounds	Atropine 2 mg IV/IO/IM (contact medical control for pediatric dosing) every 3 - 5 minutes until lung sounds clear to	

<i>Class of drugs</i>	<i>Treatment Indications</i>	<i>Specific Treatment(s)</i>	<i>Treatments Available Only After Contact with Medical Control</i>
Move to standing order box	<p>The organophosphate toxidrome:</p> <p>S – Salivation, Seizures</p> <p>L – Lacrimation</p> <p>U – Urination</p> <p>G – GI vomiting and diarrhea</p> <p>B – Bradycardia*, bronchorrhea, bronchospasm</p> <p>A – Arrhythmias</p> <p>M – Miosis (small pupils)*</p> <p>* Tachycardia and mydriasis (dilated pupils) are also possible</p> <p>Caveat: Organophosphates are highly toxic in very small quantities and pose a significant risk to EMS and health care workers through secondary contamination.</p>	<p>auscultation. Use atropine in the initial treatment of bradycardia and seizures.</p> <p>Refer to <i>Seizures Guidelines</i></p>	

Contact Medical Control for the following:

- Additional orders

FOOTNOTES:

[1] The CNS depressant effects of narcotics and benzodiazepines are potentiated by ingestion of other CNS depressants, especially alcohol.

[2] RSI/RSA requires 2 paramedics at the patient's side

[3] Calcium gluconate 10% may be substituted for calcium chloride during a medication shortage. Calcium gluconate 500 mg (15 mL of 10% solution) IV slow.

Other Hazardous Materials. Refer to Bronstein and Currance *Emergency Care for Hazardous Materials Exposures*, 2nd

References:

- Tataris, K. (2013). The effect of prehospital nebulized naloxone on suspected heroin-induced bronchospasm. *Am J Emerg Med*, 31(4), 717-8. doi: 10.1016/j.ajem.2012.11.025

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