


The title "OREGON'S CHEMPACK PROGRAM" in white, bold, sans-serif font, set against an orange rounded rectangular background.

**OREGON'S
CHEMPACK
PROGRAM**

The text "Presentation by: Timothy Hall MS USA SGM ret. Former Green Beret 18D/18Z Medical Countermeasures Coordinator Oregon Health Authority Health Security, Preparedness, & Response" in white, sans-serif font, positioned in the lower right area of the slide.

Presentation by:
Timothy Hall MS USA SGM ret.
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Medical Countermeasures Coordinator
Oregon Health Authority
Health Security, Preparedness, & Response



Sensitivity Statement

The material and information discussed in this presentation may contain potentially triggering or upsetting content.

Please take the necessary steps to ensure your emotional safety. This may mean leaving the (real or virtual) room for a period or leaving the presentation altogether.

We want everyone to feel safe and comfortable.

Medical Countermeasures (MCMs)

- FDA-regulated (biologics, drugs, devices) that may be used in the event of a potential public health emergency
- Biological, chemical or radiological/nuclear material or naturally emerging disease
- MCMs can be used to diagnose, prevent, protect from, or treat
 - **Biologic products**, such as vaccines, blood products and antibodies
 - **Drugs**, such as antimicrobial or antiviral drugs, **Antidotes**
 - **Devices**, including diagnostic tests to identify threat agents, and personal protective equipment (PPE), such as gloves, respirators (certain face masks), and ventilators

CHEMPACK Program

- Housed across the U.S. beginning in 2003 as a response to global threats
- Managed by the (SNS) Strategic National Stockpile.
- Strategic National Stockpile (SNS) has a 12-hour response time, which is too long in the event of a chemical attack
 - Nerve Agent response should be 1-2 hours maximum depending on exposure
- Nerve agents' exposure can cause rapid system failure and death.
- Antidotes can reverse symptoms immediately when administered in a timely manner
- Autoinjectors are easy to use for the untrained.

Types of CHEMPACKs

Two types:



EMS

- Antidotes are packaged to single use IM auto-injectors
- Designed for treatment by emergency responders
- 85% auto-injectors with fewer multi-dose vials
- 454 doses or applications

****IM = Intramuscular**

****IV= Intravenous**



HOSPITAL



- Antidotes are packaged are in IV multi-dose vial
- Designed for treatment in emergency rooms
- 85% packaged in multi-dose vials for IVs
- Treat 1000 causalities potentially

Oregon CHEMPACK Program

- 17 locations housing 9 hospital and 13 EMS packs across Oregon
- Contains nerve agents and organophosphate antidotes in autoinjectors and vials
- Assets stored in self-monitoring containers with notification capabilities for temp and access
- **Provide additional response tools to EMS and Hospitals facilities for treating nerve agent exposure including;**
 - **Accidents involving pesticides**
 - **Intentional acts by internal and external threats**

Program will not be expanding. No additional Packs can be added unless a location nationwide return one of theirs.

EMS CHEMPACK Cage



Benefits of the Program

- **Pre-deployed nerve agent antidotes**
 - Antidotes are more readily available regionally
 - 90% of the population lives within one hour of pack
 - Allows for a quicker response time
 - Provide care to large populations
 - EMS packs contains 454 doses
 - Hospital packs Contain 1000 doses potentially
- **Federally owned cache**
 - Decrease cost to local areas
 - Several sites across Oregon
 - Shelf-Life Extension Program (SLEP)
 - Temp monitor and cage maintenance provided

CHEMPACK Maintenance

- Scope and responsibility of sites includes:
 - Provide point of contact (POC) & Drug Enforcement Administration (DEA) Registrant current licenses
 - DEA and State Board of Pharmacy License
 - Environmentally controlled and secure site
 - Sign and maintain Agreement with OHA-PHD
 - Communicate with MCM and HPP Regional Emergency Coordinator
 - Participate annually in sustainment training program.
 - **Integrated Preparedness Plan with county and hospital emergency response plans**

CHEMPACK 3 phases of use

1. Maintenance Phase

- **Storage, training, medication management**
 - CHEMPACK Site cooperator
 - HPP Regional Emergency Coordinators
 - State CHEMPACK Coordinator & SNS Program

2. Activation Phase

- Request for Chempack deployment to respond to a nerve agent /organophosphate contamination.
- Chain of custody
- Transportation to incident where requested. EMS, LE, POV?
- **Recovery Phase or Post incident**
 - Local County Emergency Management
 - Local Public Health Authorities
 - Emergency First Responders & Hospitals
 - Oregon Health Authority Public Health Division
 - Oregon Poison Center
 - Federal CHEMPACK Program



ACTIVATION & DEPLOYMENT



EMS FIELD



EXPOSURE

HOSPITAL REQUEST

Authorized person(s) request CHEMPACK following protocols As described in local response plans.

Per local plan:

Dispatch, Tribal or County Emergency Management / Public Health OR Poison Control makes request to CHEMPACK site

Notify Oregon Emergency Response System (OERS)
1-800-452-0311
(or in Salem 503-378-6377)

Who is authorized?

Law enforcement, EMS/Fire responders, Tribal / County Public Health & Emergency Managers, Hospital Administrator, Emergency Dept Staff, or any Clinician who has reason to believe an exposure has happened.

OERS notifies State agencies including PHP Duty officer
PHP Duty Officer will notify MCM coordinator and RECS of CHEMPACK request & deployment.

DEPLOY CHEMPACKS

CHEMPACK site partner opens CHEMPACKs, completes chain of custody form and loads materials into transport >>>

Types of transport can include any emergency or private vehicle or air asset.

See local plan for specifics.

****Chain of custody completed at every point of CHEMPACK deployment****

ADMINISTER CHEMPACKS

Please refer to your LOCAL CHEMPACK PLAN for specific deployment instructions

**NERVE AGENTS
v.
ORGANOPHOSPHATES**

A Look at Toxins

NERVE AGENTS

Tabun
Sarin
VX

VESICANTS

Mustard Gas
Lewisite

MISCELLANEOUS

Ammonia

CYANIDE

Hydrogen
Cyanide
Cyanogen
Chloride

ORGANOPHOSPHATES

Diazinon
Malathion
Parathion

PULMONARY INTOXICANTS

Phosgene
Chlorine

RIOT CONTROL

Mace®
Pepper Spray

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Nerve Agents

- Chemical that affects the nervous system
- Manmade and have been manufactured for use in chemical warfare. Deemed a war crime by the Hague
 - Sarin (GB), soman (GD), tabun (GA) and VX
 - **Novichok, 5x to 10x more potent than VX and GD**
 - 2018 & 2020 used in failed assassination attempts in England.

Historical Fact!

First created in the 1930s as a pesticide but more commonly known as a chemical weapon used during WWII and more recently in 2017 in Syria

Nerve Agents

- **Examples of chemical warfare agents**

VENOMOUS AGENT X Or "VX"

- Oily liquid; resembles light weight oil
- Usually a pale amber color (colorless in pure form)
- Odorless and tasteless
- Persistent; designed to cling to whatever it splatters on (persistence is weather-dependent)

SARIN or "GB"

- Clear, colorless, and tasteless liquid that has no odor in its pure form
- **Used in terrorist attacks in Japan in 1994 and 1995**
- Can be manufactured by in small quantities for nefarious means.

TABUN or "GA"

- Clear or colorless-to-brown liquid (depending on purity)
- It is tasteless and has a faint fruity odor

Nerve Agents Cont.

- Most recently developed agent of concern

Novichuk or VR A-234

- Fine white powder, liquid, or aerosol.
- Binary agent
- Difficult to detect since binary substance may be inert until combined.
- Odorless and tasteless
- Slow evaporation and potentially potent for 50+ years

Organophosphates (OPs)

- A group of human-made chemicals that poison insects and mammals.
- Widely used insecticides today. They are used in **agriculture**, the home, gardens, and veterinary practice.
- May be present in the soil, surface waters and on the surface of plants.
- Slow to act, longer duration and less severe in low concentrations
 - **Diazinon, Malathion, Parathion, Chlorpyrifos, Dimethoate, Ethoprophos, Phosmet.**

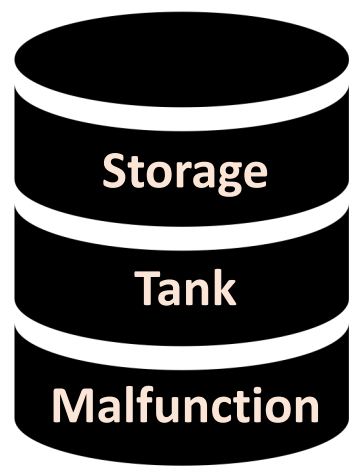
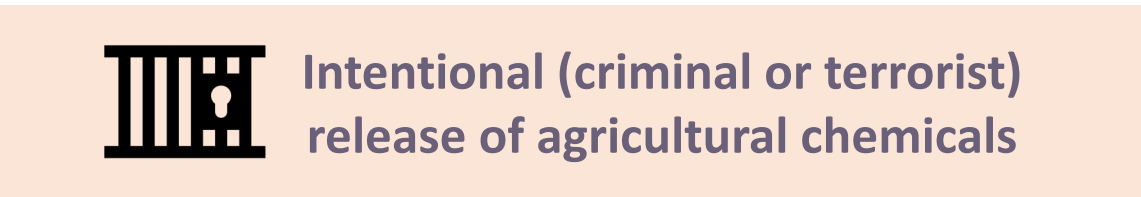
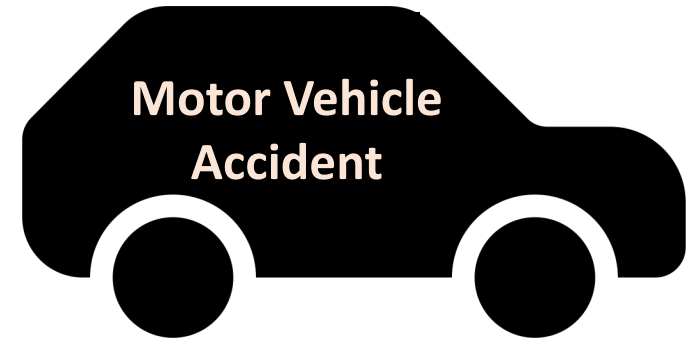
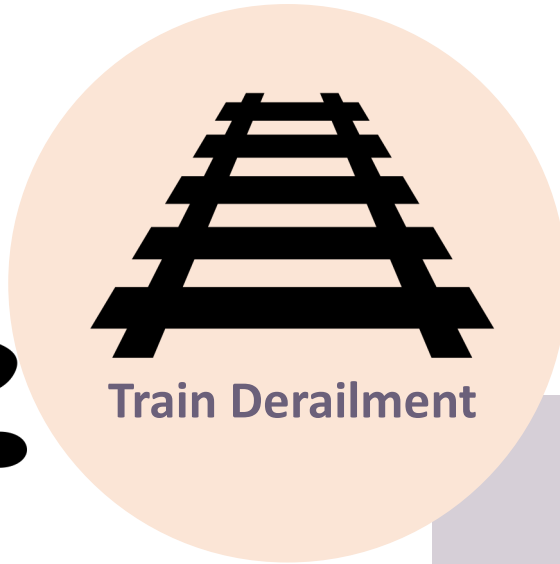
Organophosphates

• Examples

Malathion	Diazinon	Parathion
<ul style="list-style-type: none"> • Comes in two forms: a pure form of a colorless liquid and a technical-grade solution (brownish-yellow liquid), which contains malathion (greater than 90%) and impurities in a solvent. • The technical-grade malathion smells like garlic. • Registered for use in the United States since 1956. 	<ul style="list-style-type: none"> • Pure diazinon is a colorless and practically odorless oil. • Preparations used in agriculture and by exterminators contain 85-90% diazinon and appear as a pale to dark-brown liquid. • Diazinon preparations sold in the past for home and garden use contained 1-5% diazinon in a liquid or as solid granules. • Most diazinon used is in liquid form, but it is possible to be exposed to the solid form. • Diazinon does not dissolve easily in water and does not burn easily. 	<ul style="list-style-type: none"> • NOTE: No longer registered for any official use • At room temperature, it is a combustible pale yellow to dark brown liquid that may be difficult to ignite. • In commercial products, parathion is usually dissolved in hydrocarbon solvents such as toluene or xylene, which are flammable. • Insecticide primarily used on fruit, cotton, wheat, vegetables, and nut crops. • Garlic-like odor.

In brand names: Real Kill, Ortho, and Spectracide.

Exposure Possibilities



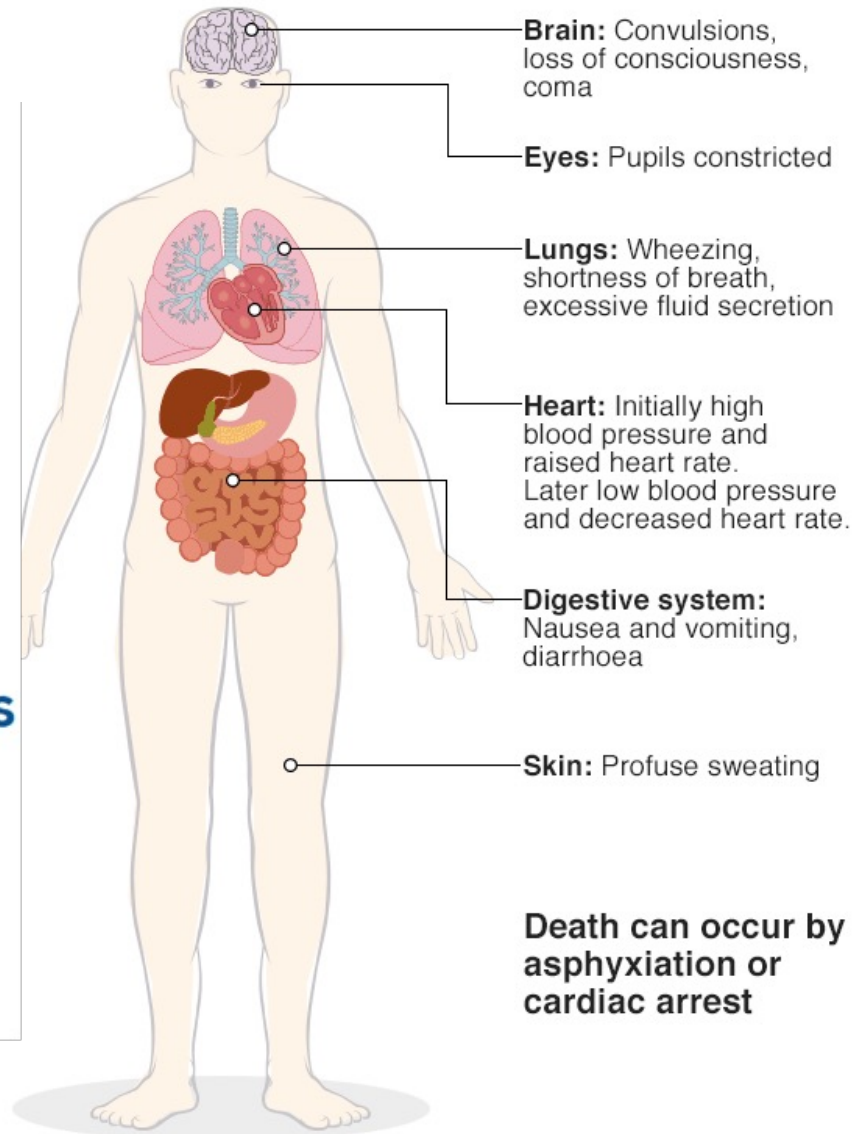
How Nerve Agents affect the body

- Nerves use chemical enzymes, acetylcholinesterase, to transmit messages to organs and tissues in the body. Nerve agents block normal functioning of these chemicals at nerve endings. The nerve then sends too many signals. This constant signaling of the nerve can cause overload in parts of the body.

Signs & Symptoms

What nerve agents do to the body

	P	Pinpoint pupils
	S	Salivation
Mild	L	Lacrimation (tearing)
Severe	U	Urination
	D	Defecation
	G	Gastrointestinal; pain & gas
	E	Emesis (Vomiting)
	M	Muscle Twitching
	C	Convulsions



Signs & Symptoms - Levels



MILD

- Pinpoint pupils
- Dim or blurred vision
- Difficulty in breathing
- Teary eyes
- Runny nose

MODERATE

- Increased oral/nasal secretions
- Localized sweating
- Nausea and vomiting
- Abdominal cramping

SEVERE

- Involuntary urination or bowel movements
- Heartbeat irregularities
- Generalized weakness
- Twitching or muscle spasms
- Convulsions come

Initial First Aid

- Immediate removal from source of exposure
- Removal of clothing
- Decontamination by “wetting agent”(water)
- Antidote(s) administration with airway management support as necessary
- Continued monitoring
- **Watch for symptoms in First Responders**

Antidotes (available in CHEMPACKs)

Atropine Auto-injector



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DuoDote is the only auto-injector used in the state of Oregon since 2022.



DuoDote Auto-injector

Atropine

Pralidoxime
(2-PAM)

DuoDote

Diazepam or
Midazolam

Atropine, 2-PAM, & Diazepam vials include sterile water

SUMMARY

Summary

- CHEMPACK program is a federally owned, State managed cache of nerve agents and organophosphate **antidotes**
- The program allows for a **quicker response** (time from exposure to treatment)
- **17 locations** housing **9 hospital** and **13 EMS packs** across Oregon
- Nerve agents and organophosphates are toxic chemicals that can cause adverse reactions in humans and animals
- CHEMPACKs are used by: **EMS and Hospital responders**
- Many different exposure possibilities: cross-contamination in the field, train derailment, agriculture and more
- CHEMPACK site personnel refer to their **local CHEMPACK plans** for specific deployment instructions

For more info on Nerve Agent and Or Organophosphate Poisoning: <https://emergency.cdc.gov/agent/nerve/tsd.asp>



ODA 563 Iraq 2003

QUESTIONS?



THANK YOU!

Oregon Health Authority, Health Security Preparedness and Response Program is responsible for maintaining the CHEMPACK Program.

For more information about the program or ask questions, contact:

Hospital Preparedness Program RECS

or

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