

Detroit SonoWAR 2023

#2 Toxic Ingestion Station

True Story. Last year a man in Ohio was mowing some new weeds in his lawn and ended up on a ventilator and hospitalized for 109 days¹. It was initially mistaken for COVID but further investigation determined he had been mowing poison hemlock and the aerosolized toxins caused paralysis and alveolar hemorrhage². In recent years, poison hemlock has begun spreading both locally and across the United States³.

Additionally, there are multiple medical case reports of people ingesting poison hemlock after mistaking it for lookalikes such as parsley, chervil, or wild carrot (Queen Ann's Lace).



You are hiking today's trails for the SonoW.A.R. and notice one of your teammates showing off their toxicology skills by identifying and snacking on some wild plants they found growing here along the banks of Belle Isle. They then become ill.

References and frightening articles from the title page:

1. *Lethal Poison Hemlock Plant Can Cause Respiratory Failure*. New York Post, 2022. <https://nypost.com/2022/03/31/lethal-hemlock-plant-can-cause-respiratory-fa/>
2. *The Highly Poisonous Plant That Could Be Hiding In Your Backyard*. Good Housekeeping, 2022. <https://www.goodhousekeeping.com/home/gardening/a39562625/poison-hemlock-dangers-ohio-man-hospitalized/>
3. *Invasive Poison Hemlock Takes Root in Macomb County*. Warren Weekly, 2020. <https://www.candgnews.com/news/invasive-poison-hemlock-takes-root-in-macomb-county-117912>
4. West, P et al. *Poison Hemlock-Induced Respiratory Failure in a Toddler*. Pediatric Emergency Care, 2009

References and thought-provoking articles to consider while en route to this station:

1. Barbuto, A et al. *Potentially toxic plant ingestions in children: Clinical manifestations and evaluation*. www.Uptodate.com, 2022.
2. Schep, Leo et al. *Poisoning due to water hemlock*. Clinical Toxicology (2009) 47, 270–278
3. US Department of Agriculture Research Service. *Poisonous Plant Research, Poison Hemlock (Conium Maculatum)*. Accessed 2022. <https://www.ars.usda.gov/pacific-west-area/logan-ut/poisonous-plant-research/docs/poison-hemlock-conium-maculatum/>
4. Santana, P et al. *Diaphragmatic ultrasound: a review of its methodological aspects and clinical uses*. Jornal Brasileiro de Pneumologia, 2020.
5. D'Andrea, A et al. *Transcranial Doppler Ultrasound: Physical Principles and Principle Applications in Neurocritical Care Unit*. Journal of Cardiovascular Echocardiography, 2016. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5224659/>

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#2 Toxic Ingestion Station

- 1 Point Discover the location of this station
- 1 Point [REDACTED]
- 1 Point What parts of the poison hemlock plant are dangerous?
- 1 Point What toxidrome does poison hemlock (*Conium Maculatum*) produce?
- 1 Point What is the hallmark and *most dangerous* feature of poison hemlock (*Conium Maculatum*) toxicity [REDACTED] ?
- 1 Point You suspect your teammate is developing respiratory paralysis from poison hemlock toxicity. What does paradoxical motion of the diaphragm on m-mode indicate during a voluntary sniffing maneuver?
- 1 Point Assess your teammate's diaphragmatic mobility during quiet breathing, deep breathing, and voluntary sniffing.
- 1 Point Water hemlock (*Cicuta and Oenanthe spp.*) is in many ways similar to poison hemlock (*Conium spp.*) and is also frequently mistaken for edible wild plants... but has a different mechanism of toxicity and mortality. What is the hallmark feature of water hemlock poisoning, [REDACTED] ?
- 1 Point Transcranial doppler ultrasonography can identify cerebral hemodynamic changes, diagnosing vasospasm before appearance of clinical neurological deficits, and can suggest earlier intervention³. What condition(s) related to water hemlock toxicity might be identifiable with transcranial doppler?
- 1 Point A transcranial doppler cutoff of >200cm/s can predict the presence of MCA vasospasm and <120cm/s can predict the absence of MCA vasospasm. Measure the MCA transcranial doppler peak velocity on your teammate.

Bonus Point: Tweet a photo of with your team name for this station (and an action shot) with #SonoWAR to have a bonus point added on the back end!