



OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND
READINESS

The Honorable Roger F. Wicker
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510

JUL 11 2025

Dear Mr. Chairman:

The Department's response to section 722 of the National Defense Authorization Act for Fiscal Year 2024 (Public Law 118-31), "Study on Opioid Alternatives," is enclosed.

This report summarizes the quantitative and qualitative study conducted to examine the use of opioid alternatives in the Military Health System (MHS); provides an overview of Department of Defense research efforts and funding opportunities; discusses a novel, large-scale clinical trial initiative conducted through an interagency collaboration to close the gap between science and clinical practice for pain management; and includes a recommendation to improve the efficacy and use of opioid alternatives in the MHS. Based on published literature and feedback from MHS clinical experts and administrators, more research is needed to prove the efficacy of cryotherapy, hyperbaric oxygen therapy, and sensory deprivation as a treatment for pain; develop standards of care for their use; and determine the resources needed for effective utilization within the MHS.

Thank you for your continued strong support for the health and well-being of our Service members, veterans, and their families. I am sending a similar letter to the House Armed Services Committee.

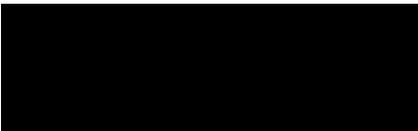
Sincerely,



Jules W. Hurst III
Performing the Duties of the Under Secretary of
Defense for Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Jack Reed
Ranking Member





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4000 DEFENSE PENTAGON
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PERSONNEL AND
READINESS

The Honorable Mike D. Rogers
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

JUL 1 1 2025

Dear Mr. Chairman:

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This report summarizes the quantitative and qualitative study conducted to examine the use of opioid alternatives in the Military Health System (MHS); provides an overview of Department of Defense research efforts and funding opportunities; discusses a novel, large-scale clinical trial initiative conducted through an interagency collaboration to close the gap between science and clinical practice for pain management; and includes a recommendation to improve the efficacy and use of opioid alternatives in the MHS. Based on published literature and feedback from MHS clinical experts and administrators, more research is needed to prove the efficacy of cryotherapy, hyperbaric oxygen therapy, and sensory deprivation as a treatment for pain; develop standards of care for their use; and determine the resources needed for effective utilization within the MHS.

Thank you for your continued strong support for the health and well-being of our Service members, veterans, and their families. I am sending a similar letter to the Senate Armed Services Committee.

Sincerely,

Jules W. Hurst III
Performing the Duties of the Under Secretary of
Defense for Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Adam Smith
Ranking Member

Report to the Committees on Armed Services of the Senate and the House of Representatives



Study on Opioid Alternatives

July 2025

The estimated cost of this report for the Department of Defense (DoD) is approximately \$8,600.00 in Fiscal Years 2024-2025. This includes \$2,700.00 in expenses and \$6,000.00 in DoD labor.
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PURPOSE

This report is in response to section 722 of the National Defense Authorization Act for Fiscal Year 2024 (Public Law 118–31), “Study on Opioid Alternatives,” which requires that the Secretary of Defense carry out a study in military medical treatment facilities (MTFs) on the efficacy of opioid alternatives for pain management and submit a report on the results of the study to the Committees on Armed Services of the Senate and the House of Representatives, including recommendations regarding the use of opioid alternatives in MTFs. The Conference Report defines the term “opioid alternative” as including cryotherapy, hyperbaric oxygen therapy (HBOT), and sensory deprivation. This report provides the results of a qualitative and quantitative study on the efficacy of opioid alternatives in the Military Health System (MHS).

BACKGROUND

The use of opioids for pain management can lead to Opioid Use Disorder (OUD) and unintentional opioid overdose. The risk posed by OUD to Service members has shaped MHS pain management clinical practice guidelines. The Department of Defense (DoD) and the Department of Veterans Affairs (VA) have developed clinical practice guidelines, endorsed by the VA/DoD Evidence Based Practice Work Group, which provide clear and comprehensive evidence-based recommendations and incorporate current information and practices for practitioners throughout the DoD and VA health care systems.¹

For the purpose of this report, opioid alternatives for pain management encompass the following treatment options: (1) cryotherapy; (2) HBOT; and (3) sensory deprivation. Cryotherapy is a medical treatment that uses extreme cold to treat a variety of health conditions. Application methods include ice baths, ice massage, gel packs, chemical cold packs, and vapocoolant sprays (Garcia et al., 2021). Although cryotherapy has been used for centuries (Allan et al., 2022), further research is required to establish a standardized approach for its use in pain management (Garcia et al., 2021). HBOT involves intermittent inhalation of 100 percent oxygen while under exposure to increased atmospheric pressure inside a hyperbaric chamber. Published literature has shown that HBOT is capable of lowering pain levels and increasing quality of life in individuals affected by chronic pain (Kiralp et al., 2004); however, limited evidence exists that shows HBOT’s overall clinical effectiveness for pain management (Pejic & Frey, 2018). Sensory deprivation typically refers to therapy in which a person lies horizontally in a quiet, dark tank (sensory deprivation tank) filled with magnesium sulphate-saturated water. While sensory deprivation has been used as a treatment for a variety of health conditions, including chronic pain, limited randomized clinical studies have been conducted examining its effectiveness (Farrell & Loshak, 2022).

METHODOLOGY

To address the congressional research requirement, the Defense Health Agency (DHA) conducted a qualitative and quantitative research study and literature search to determine if and how cryotherapy, HBOT, and sensory deprivation are being used in the MHS for clinical or research purposes. The qualitative research component consisted of a survey to collect information on the availability and utilization of cryotherapy, HBOT, and sensory deprivation within the MHS and research programs from DHA, Uniformed Services University of the Health

¹ <https://health.mil/Military-Health-Topics/Access-Cost-Quality-and-Safety/VADOD-CPGs>.

Sciences (USUHS), and MHS leadership and clinical experts. The quantitative research component of the study used cryotherapy, HBOT, and sensory deprivation Current Procedural Terminology (CPT) codes from the MHS Data Repository over a three-month period (April-June 2024) to quantify and understand how often and why these therapies are being used in the MHS. CPT codes are a uniform system of terminology used by healthcare providers to describe and report medical procedures and services.

RESULTS

1. Cryotherapy

There are research efforts within the MHS studying the efficacy of cryotherapy to treat chronic pain. The USUHS Departments of Anesthesiology and Physical Medicine and Rehabilitation are using cryotherapy at the Walter Reed National Military Medical Center (WRNMMC) in their chronic pain clinical studies. The Department of Physical Medicine and Rehabilitation conducted a study on the use of cryoanalgesia as a treatment for intractable post-amputation phantom limb pain, the results of which did not show any benefit of this therapy at four months following treatment initiation (Ilfeld et al., 2023). A study on cryotherapy following orthopedic surgery is ongoing.

2. Hyperbaric Oxygen Therapy

Currently, there are no ongoing preclinical or clinical studies within the MHS examining the efficacy of HBOT for use in pain management. Major limitations faced by the MHS for the clinical and research use of HBOT for pain management include limited access to hyperbaric chambers and trained personnel.

3. Sensory Deprivation

The MHS has one clinical study examining the efficacy of sensory deprivation for use in pain management. The USUHS Department of Anesthesiology has reported using sensory deprivation float tanks at the Brooke Army Medical Center, Joint Base San Antonio for pain management purposes; however, data on outcomes and efficacy are currently unavailable.

CONCLUSION

Based on the quantitative (medical data collection) and qualitative (survey) study analysis on the use of opioid alternatives for pain management, DHA found that cryotherapy, HBOT, and sensory deprivation are available in the MHS; however, these therapies are not currently being used in the MHS clinical setting for pain management. These therapies are primarily being used to supplement physical therapy regimens and treat decompression sickness and psychiatric disorders. These opioid alternative treatments are not being used for pain management due to the lack of sufficient clinical evidence, resources, and trained personnel supporting these therapies. Currently, there are ongoing research studies evaluating cryotherapy at the WRNMMC and sensory deprivation at the Brooke Army Medical Center for the management of chronic pain. At this time, the use of cryotherapy, HBOT, and sensory deprivation are not recommended as opioid alternatives in the MHS.

REFERENCES

- Allan R, Malone J, Alexander J, Vorajee S, Ihsan M, Gregson W, Kwiecien S, Mawhinney C. Cold for centuries *ldviews on evidence-based nursing*, 15(4), 264–271. <https://doi.org/10.1111/wvn.12301>
- Bennett, A. S., Watford, J. A., Elliott, L., Wolfson-Stofko, B., & Guarino, H. (2019). Military veterans' overdose risk behavior: Demographic and biopsychosocial influences. *Addictive Behaviors*, 99, 106036. <https://doi.org/10.1016/j.addbeh.2019.106036>
- Efrati, S., & Ben-Jacob, E. (2014). Reflections on the neurotherapeutic effects of hyperbaric oxygen. *Expert Review of Neurotherapeutics*, 14(3), 233–236. <https://doi.org/10.1586/14737175.2014.884928>
- Farrell, K., & Loshak, H. (2022). *Floatation Therapy for Physical Conditions: CADTH Health Technology Review*. Canadian Agency for Drugs and Technologies in Health. <https://www.ncbi.nlm.nih.gov/books/NBK595362/>
- Garcia, C., Karri, J., Zacharias, N. A., & Abd-Elsayed, A. (2021). Use of Cryotherapy for Managing Chronic Pain: An Evidence-Based Narrative. *Pain and Therapy*, 10(1), 81–100. <https://doi.org/10.1007/s40122-020-00225-w>
- Ifeld, B. M., Smith, C. R., Turan, A., Mariano, E. R., Miller, M. E., Fisher, R. L., Trescot, A. M., Cohen, S. P., Eisenach, J. C., Sessler, D. I., Prologo, J. D., Mascha, E. J., Liu, L., Gabriel, R. A., & PAINfRE Investigators. (2023). Ultrasound-guided Percutaneous Cryoneurolysis to Treat Chronic Postamputation Phantom Limb Pain: A Multicenter Randomized Controlled Trial. *Anesthesiology*, 138(1), 82–97. <https://doi.org/10.1097/ALN.0000000000004429>
- Kiralp, M. Z., Yildiz, S., Vural, D., Keskin, I., Ay, H., & Dursun, H. (2004). Effectiveness of hyperbaric oxygen therapy in the treatment of complex regional pain syndrome. *The Journal of International Medical Research*, 32(3), 258–262. <https://doi.org/10.1177/147323000403200304>
- Pejic, W., & Frey, N. (2018). *Hyperbaric Oxygen Therapy for the Treatment of Chronic Pain: A Review of Clinical Effectiveness and Cost-Effectiveness*. Canadian Agency for Drugs and Technologies in Health. <https://www.ncbi.nlm.nih.gov/books/NBK537956/>
- Reif, S., Adams, R. S., Ritter, G. A., Williams, T. V., & Larson, M. J. (2018). Prevalence of Pain Diagnoses and Burden of Pain Among Active Duty Soldiers, FY2012. *Military Medicine*, 183(9–10), e330–e337. <https://doi.org/10.1093/milmed/usx200>
- Sherry, T. B., Roth, C. P., Bhandarkar, M., & Hepner, K. A. (2021). *Chronic Pain Among Service Members: Using Administrative Data to Strengthen Research and Quality Improvement*. Santa Monica, CA: RAND Corporation. https://www.rand.org/pubs/research_reports/RRA1160-1.html