

## Managing Risks Associated With Malignant Hyperthermia

Malignant hyperthermia (MH) is a serious condition that can develop in response to the administration of certain anesthetic agents and/or the muscle relaxant succinylcholine. Although rare, MH can develop rapidly and lead to severe patient harm or death. Thus, anesthesia providers, surgeons, and surgical team members need to take steps to prevent MH when possible and to respond quickly and appropriately when it occurs.

This checklist can help healthcare facilities and providers who administer anesthesia assess their current MH protocols and identify any gaps or improvement opportunities.<sup>1</sup>

	Yes	No
<i>Prevention</i>		
Do all surgical patients undergo a thorough medical/family history and physical?	<input type="checkbox"/>	<input type="checkbox"/>
As part of the preoperative screening process, are patients asked about their anesthetic history, including whether they: <ul style="list-style-type: none"> <li>• Have ever had general anesthesia before and whether they had any reactions to it?</li> <li>• Know of any blood relatives who have had MH?</li> <li>• Know of any blood relatives who have had adverse outcomes or who have died because of anesthesia?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
Is airway assessment part of routine preoperative screening for patients undergoing general anesthesia?	<input type="checkbox"/>	<input type="checkbox"/>
Do patient undergo baseline testing prior to surgery (e.g., complete blood count, electrocardiogram, liver function tests, comprehensive metabolic panel, creatine kinase, urinalysis, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
<b>Prevention (continued)</b>		
Does the surgical team obtain baseline vital signs (e.g., temperature, heart rate, and blood pressure) prior to commencing surgery?	<input type="checkbox"/>	<input type="checkbox"/>
Does an anesthesia specialist evaluate patients who have muscular disorders prior to surgery?	<input type="checkbox"/>	<input type="checkbox"/>
Do anesthesia providers take the lead on developing preventive measures for patients who are identified as MH susceptible?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Education</b>		
Do all members of the perioperative team receive periodic training about MH, including information about signs/symptoms and treatment?	<input type="checkbox"/>	<input type="checkbox"/>
Does your organization conduct table-top exercises and simulation drills to assess preparedness for managing MH?	<input type="checkbox"/>	<input type="checkbox"/>
Are members of the surgical team educated about which <b>anesthetics</b> are safe and unsafe for patients at risk of MH?	<input type="checkbox"/>	<input type="checkbox"/>
Do anesthesia providers know how to prepare <b>anesthesia machines</b> for patients who are at risk of MH?	<input type="checkbox"/>	<input type="checkbox"/>
Is the surgical team knowledgeable about the risk factors for MH, such as family history, myopathies, and musculoskeletal disorders?	<input type="checkbox"/>	<input type="checkbox"/>
Do all members of the surgical team receive adequate information about dantrolene (the antidote for MH), including indications, dosage and administration, and adverse reactions?	<input type="checkbox"/>	<input type="checkbox"/>
Are visual aids, such as pocket guides and posters, used to reinforce key facts about MH and provide critical information, such as the Malignant Hyperthermia Association of America's emergency hotline (1-800-644-9737)?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Emergency Response and Follow-Up</b>		
Is the surgical team aware of and alert to potential early and advanced signs of MH, and do they know that these signs can develop at different times during anesthesia administration and following surgery?	<input type="checkbox"/>	<input type="checkbox"/>



	Yes	No
<i>Emergency Response and Follow-Up (continued)</i>		
If your facility is an ambulatory surgery center or outpatient setting, do you have an effective plan in place to transfer patients to a nearby hospital for emergency medical care?	<input type="checkbox"/>	<input type="checkbox"/>
Does facility protocol require that providers stabilize patients prior to hospital transfer?	<input type="checkbox"/>	<input type="checkbox"/>
Does your facility have guidance for steps to take following a known or suspected MH occurrence, such as protocols for documenting the event, following-up with the patient about further testing, and reporting the event to the North American Malignant Hyperthermia Registry?	<input type="checkbox"/>	<input type="checkbox"/>

## Resources

- [American Association of Nurse Anesthesiology: Malignant Hyperthermia](#)
- [American Dental Association: Guidelines for the Use of Sedation and General Anesthesia by Dentists](#)
- [American Society of Anesthesiologists: A Primer for Diagnosing and Managing Malignant Hyperthermia Susceptibility](#)
- [Malignant Hyperthermia Association of the United States: Healthcare Professionals](#)
- [Pennsylvania Patient Safety Authority: Malignant Hyperthermia: Is Your Facility Prepared to Treat This Rare Condition?](#)

## Endnotes

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<sup>1</sup> The information in this checklist is based on the following sources: Pennsylvania Patient Safety Authority. (2008). Malignant hyperthermia: Is your facility prepared to treat this rare condition? *Pennsylvania Patient Safety Advisory*, 5(3), 90-95. Retrieved from [http://patientsafety.pa.gov/ADVISORIES/Pages/200809\\_90.aspx](http://patientsafety.pa.gov/ADVISORIES/Pages/200809_90.aspx); Malignant Hyperthermia Association of the United States. (n.d.). Healthcare professionals. Retrieved from [www.mhaus.org/healthcare-professionals/](http://www.mhaus.org/healthcare-professionals/); Rosenbaum, H. K., & Rosenberg, H. (2022, March 25 [last updated]). Malignant hyperthermia: Diagnosis and management of acute crisis. *UpToDate*. Retrieved from [www.wolterskluwer.com/en/solutions/uptodate](http://www.wolterskluwer.com/en/solutions/uptodate); Watt, S., & McAllister, R. K. (2023, January 16 [last updated]). Malignant hyperthermia. *StatPearls*. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK430828/>; Criscitelli, T. (2012, September 7). Clinical concerns — managing malignant hyperthermia. *Outpatient Surgery*. Retrieved from [www.aorn.org/outpatient-surgery/article/2012-September-clinical-concerns-managing-malignant-hyperthermia](http://www.aorn.org/outpatient-surgery/article/2012-September-clinical-concerns-managing-malignant-hyperthermia); American Association of Nurse Anesthesiology. (2018). *Malignant hyperthermia crisis preparedness and treatment position statement*. Retrieved from [www.aana.com/docs/default-source/practice-aana-com-web-documents-\(all\)/professional-practice-manual/malignant-hyperthermia-crisis-preparedness-and-treatment.pdf?sfvrsn=630049b1\\_10](http://www.aana.com/docs/default-source/practice-aana-com-web-documents-(all)/professional-practice-manual/malignant-hyperthermia-crisis-preparedness-and-treatment.pdf?sfvrsn=630049b1_10)

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