

Maine EMS 2025 Protocol Implementation Frequently Asked Questions



The following represent some of the most common questions encountered during the 2025 Maine EMS Protocol dissemination and implementation process. If a question arises that is not included on this list, please reach out to any of the MDPB members, who will either answer that question directly or will escalate the question to the Medical Direction and Practices Board as a whole for an answer.

This is intended to be a living document and will be updated during the dissemination and implementation process. Please refer to the Maine EMS website, under the “Protocols” tab for the most up to date version of this document.

Question #1: Does the inclusion of oral dexamethasone for adults in the Blue 7 “Respiratory Distress with Bronchospasm” protocol mean the MDPB does NOT want EMS Clinicians to use IV dexamethasone?

Answer: Oral and intravenous dexamethasone are similarly effective for the treatment of acute bronchospasm, with no significant differences in clinical outcomes, relapse rates, or length of hospitalization in both adults and children.^[1-5] Studies comparing oral and intravenous corticosteroids in acute asthma exacerbations consistently show equivalent efficacy in improving peak expiratory flow rates, symptom control, and preventing relapse. The oral route avoids the discomfort and resource use associated with IV access. However, the MDPB considers both the oral and IV routes of administration to be equally acceptable.

References:

1. Intravenous Versus Oral Corticosteroids for Treatment of Acute Asthma Exacerbations. Fulco PP, Lone AA, Pugh CB. *The Annals of Pharmacotherapy*. 2002;36(4):565-70. doi:10.1345/aph.1A107.
2. Oral Versus Intravenous Corticosteroids in Adults Hospitalised With Acute Asthma. Cunningham D, Smith N, Steed K, et al. *Pulmonary Pharmacology & Therapeutics*. 2005;18(3):207-12. doi:10.1016/j.pupt.2004.12.003.
3. Dexamethasone for Acute Asthma Exacerbations in Children: A Meta-Analysis. Keeney GE, Gray MP, Morrison AK, et al. *Pediatrics*. 2014;133(3):493-9. doi:10.1542/peds.2013-2273.
4. 2025 Global Strategy for Asthma Management and Prevention. Helen Reddel, Eric Bateman, Gerard FitzGerald, et al *Global Initiative for Asthma Practice Guideline*
5. 2024 Global Strategy for Asthma Management and Prevention. Helen K. Reddel, Leonard B. Bacharier, Eric D. Bateman, et al *Global Initiative for Asthma Practice Guideline*

The Bottom Line: *Steroids are beneficial to patients suffering from bronchospastic disease. IV access is not necessary to provide steroids. This protocol change allows for the provision of steroids independent of the need for IV access.*

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Question #2: If there is more than one hospital choice for a suspected STEMI patient, one of which has the ability to perform cardiac catheterization (PCI-capable) and the other which uses a lytic strategy, which is the most appropriate hospital to choose?

Answer: For patients with suspected ST-elevation myocardial infarction (STEMI), direct transport to a PCI-capable hospital is preferred, with a goal of first medical contact (FMC) to device time of ≤ 90 minutes. This does not mean that patients should be routinely [word choice here could be changed] transported to a PCI hospital if they are located within 90 minutes of that facility. Instead, the total time between FMC and PCI needs to be considered, including the in-hospital time prior to catheterization. Therefore, working with your local PCI center is likely the best strategy to determine if direct transport to that facility is the most appropriate destination. If PCI cannot be achieved within 90 minutes from EMS first medical contact, fibrinolytic therapy should be administered at non-PCI receiving facility, followed by transfer to a PCI center for angiography and possible PCI within 3–24 hours.^[1-4]

Whenever possible, prehospital identification of STEMI and direct transfer to a PCI-capable facility is associated with shorter reperfusion times and lower mortality compared to initial transport to a non-PCI-capable hospital.^{[1][5]}

References

1. 2025 ACC/AHA/ACEP/NAEMSP/SCAI Guideline for the Management of Patients With Acute Coronary Syndromes: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Rao SV, O'Donoghue ML, Ruel M, et al. *Journal of the American College of Cardiology*. 2025;;S0735-1097(24)10424-X. doi:10.1016/j.jacc.2024.11.009. Practice Guideline
2. Acute Myocardial Infarction. Anderson JL, Morrow DA. *The New England Journal of Medicine*. 2017;376(21):2053-2064. doi:10.1056/NEJMr1606915.
3. 2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Lawton JS, Tamis-Holland JE, Bangalore S, et al. *Journal of the American College of Cardiology*. 2022;79(2):e21-e129. doi:10.1016/j.jacc.2021.09.006.
4. ST-segment Elevation Myocardial Infarction. Vogel B, Claessen BE, Arnold SV, et al. *Nature Reviews. Disease Primers*. 2019;5(1):39. doi:10.1038/s41572-019-0090-3.
5. Systems of Care for ST-Segment-Elevation Myocardial Infarction: A Policy Statement From the American Heart Association. Jacobs AK, Ali MJ, Best PJ, et al. *Circulation*. 2021;144(20):e310-e327. doi:10.1161/CIR.0000000000001025.

The Bottom Line: *EMS Clinician decisions regarding entry points into the healthcare system for time-sensitive illnesses/injuries are linked to improved survival and decreased morbidity.*

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Question #3: If D5 is preferred for Magnesium infusions, why is there an option to use other fluids?

Answer: 5% dextrose is preferred for mixing magnesium over normal saline or Lactated Ringer's solution primarily due to compatibility and safety concerns. When magnesium is mixed with Lactated Ringer's, there is a risk of precipitation or clot formation, especially in the presence of blood products, as demonstrated in experimental studies.^[1] This is because Lactated Ringer's contains calcium, which can interact with magnesium and other additives, increasing the risk of incompatibility and clotting.

Normal saline does not contain calcium, but it also lacks the carbohydrate calories provided by dextrose, which can be beneficial for patients requiring maintenance fluids and electrolyte replacement.^[2]

For more information, the MDPB has prepared a White Paper titled “The Importance of Proper Preparation of Injectable Medications” which can be found at this website - <https://www.maine.gov/ems/sites/maine.gov/ems/files/inline-files/White-Paper-IV-Medication-Preparation-20250902.pdf>.

References:

1. Blood Products, Crystalloids, and Rapid Infusion: An Experimental Study With Magnesium. Schumann R, Zaimi I, Shebacllo K, Gupta A. *Journal of Cardiothoracic and Vascular Anesthesia*. 2022;36(4):1040-1046. doi:10.1053/j.jvca.2021.07.006.
2. NORMOSOL-M AND DEXTROSE. Food and Drug Administration Updated date: 2021-07-13

The Bottom Line: *While Magnesium infusions may be mixed in any Maine EMS-approved IV fluid, D5 is preferred to avoid precipitation.*

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Question #4: Is it safe to provide acetaminophen (Tylenol), in oral or IV form, to a woman who is or may be pregnant?

Answer:

Acetaminophen is generally considered safe for use during pregnancy when used at the lowest effective dose for the shortest duration and only when medically indicated. Major regulatory agencies and professional societies, including the American College of Obstetricians and Gynecologists (ACOG), continue to recommend acetaminophen as the preferred analgesic and antipyretic in pregnancy when clinically necessary.^[1]

Recent large, methodologically rigorous studies—including sibling-controlled analyses—do not support a causal association between prenatal acetaminophen exposure and neurodevelopmental disorders such as autism or ADHD.^[1-2] While some observational studies have reported weak associations, these are likely due to confounding factors rather than direct causation.^[1-3] Systematic reviews and meta-analyses also show no increased risk of adverse perinatal outcomes such as preterm birth, low birth weight, or small for gestational age.^[4-5]

References:

1. Paracetamol (Acetaminophen) Use During Pregnancy and Autism Risk: Evidence Does Not Support Causal Association. Louwen F, Deuster E, McAuliffe FM, et al. *International Journal of Gynaecology and Obstetrics: The Official Organ of the International Federation of Gynaecology and Obstetrics*. 2025;. doi:10.1002/ijgo.70577.
2. Acetaminophen Use During Pregnancy and Children’s Risk of Autism, ADHD, and Intellectual Disability. Ahlqvist VH, Sjöqvist H, Dalman C, et al. *JAMA*. 2024;331(14):1205-1214. doi:10.1001/jama.2024.3172.
3. Use of Paracetamol During Pregnancy and Child Neurological Development. de Fays L, Van Malderen K, De Smet K, et al. *Developmental Medicine and Child Neurology*. 2015;57(8):718-24. doi:10.1111/dmcn.12745.
4. Association Between Paracetamol Use During Pregnancy and Perinatal Outcomes: Prospective NISAMI Cohort. de Castro CT, Pereira M, Dos Santos DB. *PLoS One*. 2022;17(4):e0267270. doi:10.1371/journal.pone.0267270.
5. Effect of Acetaminophen Use During Pregnancy on Adverse Pregnancy Outcomes: A Systematic Review and Meta-Analysis. Castro CT, Gama RS, Pereira M, et al. *Expert Opinion on Drug Safety*. 2022;21(2):241-251. doi:10.1080/14740338.2022.2020246.

Additional Resources:

- American College of Obstetrics and Gynecology Statement on Acetaminophen use in Pregnancy: <https://www.acog.org/news/news-releases/2025/09/acog-affirms-safety-benefits-acetaminophen-pregnancy>

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- American College of Obstetrics and Gynecology “Acetaminophen in Pregnancy: Frequently Asked Questions” - <https://www.acog.org/clinical-information/physician-faqs/acetaminophen-in-pregnancy>
- FDA September 22, 2025 “Notice to Physicians on the Use of Acetaminophen During Pregnancy” - <https://www.fda.gov/media/188843/download>

The Bottom Line: *The administration of acetaminophen in the pre-hospital, emergency setting is considered safe in pregnancy.*

Question #5: Why do patients receiving IV Tylenol by AEMT’s need to be 70 kg or larger?

Answer: The dose of acetaminophen in the Fever Protocol (Gold 20) is 10-15 mg/kg with IV dosing delivered over 15 minutes. Patients weighing less than 70 kg would require a dose less than 1,000 mg and would require infusion on a pump. Setting infusion rates on Maine EMS-approved pumps is not within the scope of practice of AEMTs. Patients weighing 70 kg or more may receive the 1,000 mg maximum which, when delivered without a pump, takes approximately 15 minutes to infuse.

The Bottom Line: *The 70 kg patient requirement for IV acetaminophen at the AEMT level is a direct result of scope of practice (pump utilization).*

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Question #6: What are the indications for needle thoracostomy (AKA needle decompression) in a patient with chest trauma and suspected tension pneumothorax? Why is it essential to ONLY perform needle thoracostomy in patients with suspected tension pneumothorax?

Answer #1: Assume tension pneumothorax in

- a. ALL patients suffering traumatic cardiac arrest, and/or
- b. Chest trauma with increasing respiratory distress/hypoxia, and/or
- c. Chest trauma with unexplained shock or hypotension.

Answer #2: Tension pneumothorax is a life-threatening condition, when pleural pressure in the hemithorax is so high that the mediastinum is shifted, thus kinking the great vessels and limiting return of blood to the heart. Performing a needle thoracostomy relieves this tension in the hemithorax, decreases the pressure in the chest, and reverses shifting of the mediastinum allowing for improved blood return to the heart. Patients with a simple pneumothorax ARE NOT benefited by needle thoracostomy as they do not have the same tension physiology. In addition, injuries to organs are more likely when blindly placing a needle into the hemithorax of a patient without tension pneumothorax.

PLEASE RECALL, two of the most important steps to safe and successful needle thoracostomy are:

- a. Performing the procedure under the proper indications and
- b. Understanding the anatomy of the chest and proper placement of the needle when performing the procedure.

The MDPB suggests regular, recurrent education in both of these skills to ensure safety and efficacy when performing the procedure.

The Bottom Line:

Clinical signs/symptoms of tension pneumothorax include chest trauma with severe, progressive respiratory distress, hypotension, tachypnea, tachycardia, hypoxia, and shock. Additional signs, which are either difficult to appreciate in the dynamic prehospital environment or occur very late in the disease process include: an enlarged, hyper-resonant hemithorax with absent breath sounds, tracheal deviation and mediastinal shift toward the contralateral side, chest retractions, cyanosis, and jugular venous distension. Rapid deterioration and cardiac arrest can occur without immediate management.^[1] Prehospital needle thoracostomy is a potentially lifesaving procedure, but must be performed only under the proper indications and must be placed in the proper position, with diligent attention to proper procedural steps to ensure safety.

References: 1. Light RW. Pleural diseases. Dis Mon. 1992 May;38(5):266-331

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Question #7: Should a suspected fracture that has broken the skin but then retracted back into the wound receive antibiotics?

Answer: Yes. The American College of Surgeons defines an open fracture as a condition in which a fractured bone is exposed to contamination from the external environment through a disruption of the skin and subcutaneous tissues. This exposure may occur either because the fractured bone itself creates the disruption or because an overlying wound penetrates down to the broken bone.^[1]

References:

1. Best Practices In The Management Of Orthopaedic Trauma. Matthew L. Davis MD FACS, Gregory J. Della Rocca MD PhD FACS, Megan Brenner MD MS RPVI FACS, et al American College of Surgeons (2015)

The Bottom Line: *National guidelines recommend antibiotics be provided within 1 hour of hospital arrival to help prevent the short- and long-term complications of infection. Prehospital provision of antibiotics can off load this responsibility from hospitals and provide medications in a shorter timeframe.*

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Question #8: How can members of the EMS community and stakeholder groups participate in the protocol revision process?

Answer: The Medical Direction and Practices Board (MDPB) reviews and updates the Maine EMS Protocols approximately every 2 years. The majority of the deliberations regarding the protocols occurs in the context of the MDPB meetings, which occur on the 3rd Wednesday of every month. Participating in these meetings is one means of involvement in the Maine EMS Protocol review process. Engaging with any of the MDPB members, who's name and email address can be found at this link <https://www.maine.gov/ems/boards-committees/medical-direction-practices-board> is another means of involvement with the protocol review process. Maine EMS and the MDPB have also published a Protocol Development Stakeholder Input Form, found here: <https://www.maine.gov/ems/sites/maine.gov.ems/files/inline-files/20220211-Protocol-Update-Stakeholder-Input-Template.pdf> which is intended to allow any EMS clinician or stakeholder the ability to offer protocol suggestions. Please note, this form is organized using the process the MDPB employs to consider protocol changes, and it asks targeted questions that allow a facilitated review by the MDPB. Please be as detailed as possible and fill as much of the form out as possible to allow for timely and comprehensive review.

Resources:

1. MDPB Member List and Emails: <https://www.maine.gov/ems/boards-committees/medical-direction-practices-board>
2. Protocol Development Stakeholder Input Form: <https://www.maine.gov/ems/sites/maine.gov.ems/files/inline-files/20220211-Protocol-Update-Stakeholder-Input-Template.pdf>

The Bottom Line: *The Maine EMS Protocols are our collective commitment to consistently do our best when called to care for our neighbors or other citizens and visitors to the State of Maine. These protocols are strengthened by the input and engagement of the entire EMS community.*

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Question #9: Explain the wording in Green 10 (Head Trauma #3) "For SBP below goal for age, give 20 mL/kg IV bolus. May repeat x 2 up to a total of 60 mL/kg to achieve goal SBP. If needing the **third bolus**, please consult OLMC."

Answer: When resuscitating pediatric patients, sequential boluses of 20 mL/kg are recommended volume goals, with reassessment after each bolus, in an attempt to achieve the desired response. Please recall: children with congenital heart disease are commonly resuscitated with an alternate volume of 10 mL/kg. Three 20 mL/kg boluses are common before considering additional steps. If shock persists after 2-3 boluses, evidence shows that patients likely have worse outcomes including longer ICU and hospital stays. Boluses greater than 60 mL/kg can increase the risk of fluid overload, coagulopathy, and respiratory compromise. The MDPB's statement in Green 10 (Head Trauma) allows for THREE sequential boluses of 20 mL/kg but asks the EMS clinician to consult OLMC if the third bolus has been started. This is in part intended to prompt a conversation with the receiving hospital and physician regarding next steps should the third bolus not meet resuscitative goals. This same practice should be followed for Green 13 (Hemorrhagic Shock) when resuscitating pediatric patients.

References:

1. [Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children.](#) Weiss SL, Peters MJ, Alhazzani W, et al. *Pediatric Critical Care Medicine* : A Journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies. 2020;21(2):e52-e106. doi:10.1097/PCC.0000000000002198.
2. [Part 4: Pediatric Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.](#) Topjian AA, Raymond TT, Atkins D, et al. *Circulation*. 2020;142(16_suppl_2):S469-S523. doi:10.1161/CIR.0000000000000901
3. [Pediatric Rapid Fluid Resuscitation.](#) Simpson JN, Teach SJ. *Current Opinion in Pediatrics*. 2011;23(3):286-92. doi:10.1097/MOP.0b013e3283460599.
4. [Multicenter Study of Crystalloid Boluses and Transfusion in Pediatric Trauma-When to Go to Blood?.](#) Polites SF, Nygaard RM, Reddy PN, et al. *The Journal of Trauma and Acute Care Surgery*. 2018;85(1):108-112. doi:10.1097/TA.0000000000001897.
5. [Timing and Volume of Crystalloid and Blood Products in Pediatric Trauma: An Eastern Association for the Surgery of Trauma Multicenter Prospective Observational Study.](#) Polites SF, Moody S, Williams RF, et al. *The Journal of Trauma and Acute Care Surgery*. 2020;89(1):36-42. doi:10.1097/TA.0000000000002702.
6. [Are Crystalloid-Based Fluid Expansion Strategies Still Relevant in the First Hours of Trauma Induced Hemorrhagic Shock?.](#) Tubert P, Kalimouttou A, Bouzat P, David JS, Gauss T. *Critical Care (London, England)*. 2024;28(1):416. doi:10.1186/s13054-024-05185-7.
7. [Initial Care of the Severely Injured Patient.](#) King DR. *The New England Journal of Medicine*. 2019;380(8):763-770. doi:10.1056/NEJMra1609326.

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The Bottom Line: *Begin pediatric resuscitation with a 20 ml/kg bolus. Repeat up to a total of 60 ml/kg, contacting OLMC to discuss additional therapies should the third bolus not achieve goals of resuscitation.*

Question #10: The recent AHA ACLS 2025 update notes that the usefulness of vector change (VC) and dual sequential defibrillation (DSD) for refractory ventricular fibrillation has not been established. Despite this, the MDPB continues to recommend DSD for refractory ventricular fibrillation, if the initial 3 "standard defibrillations" do not result in termination of ventricular fibrillation to a perfusing rhythm. Why the different approaches?

Answer: The recommendation for DSD for refractory ventricular fibrillation was largely based on the DOSE VF study, which suggested some benefit to vector change and a statistically significant benefit to DSD for patients in refractory ventricular fibrillation. The AHA study group notes their recommendation against DSD was largely based on ILCOR (International Liaison Committee on Resuscitation) International Consensus on CPR and ECC recommendations from 2023. However, ILCOR noted that DSD or VC could be considered for VF that persisted after 3 standard defibrillations. Both AHA and ILCOR note the level of evidence supporting their recommendations against and for DSD is "weak recommendation, low certainty evidence" based on a single randomized trial. Both groups point out that the DOSE VF study enrolled fewer patients than anticipated (due to COVID-19) and had several other minor design flaws that may limit the strength of the conclusions drawn from it. The MDPB agrees, DOSE VF is not a perfect study and look forward to subsequent studies that further answer the question of DSD's utility in terminating refractory VF. Until these studies are completed, what is the best available therapy for patients in refractory VF? Persistent VF is a fatal arrhythmia. Understanding that the DOSE VF trial has some flaws, such as group size, that limit the strength of the conclusions, DOSE VF remains an ambitious study that explored a treatment for a rare but fatal arrhythmia and suggests that DSED (and to a lesser degree VC) are useful treatments for refractory VF. Until further studies are available, the MDPB continues to recommend considering DSD, or, less preferred, VC, for refractory VF when appropriate equipment is available.

References:

Wigginton JG, Agarwal S, Bartos JA, et al. Part 9: Adult Advanced Life Support: 2025 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. Published October 22, 2025.

Katherine M. Berg, Janet E. Bray, Kee-Chong Ng, et al., 2023 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations: Summary

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From the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces, *Circulation* 148, no. 24 (2023): e187–e280, <https://www.ahajournals.org/doi/10.1161/CIR.0000000000001179>.

<https://costr.ilcor.org/document/double-sequential-defibrillation-strategy-for-cardiac-arrest-with-refractory-shockable-rhythm-als-tf-sr>

Cheskes S, Verbeek PR, Drennan IR, McLeod SL, Turner L, Pinto R, Feldman M, Davis M, Vaillancourt C, Morrison LJ, et al. Defibrillation strategies for refractory ventricular fibrillation. *N Engl J Med*. 2022;387:1947–1956. doi: 10.1056/NEJMoa2207304

The Bottom Line: *The ideal approach to refractory VF is yet to be determined. The best study to investigate this question suggests that DSD is useful. Future studies will confirm or refute DOSE VF. Consider DSD or VC for refractory VF.*

Question #11: The 2025 AHA Guidelines state that “the routine use of mechanical CPR devices is not recommended for adult cardiac arrest” and that these devices may be considered only in specific settings where high-quality manual compressions are difficult or dangerous, provided interruptions are minimized. Does this change the MDPB’s recommendations regarding mechanical CPR (mCPR) in the 2025 Maine EMS Protocols or the MDPB’s 2019 Mechanical CPR White Paper?

Answer:

1. Why did the AHA make this statement?
 - Multiple randomized controlled trials and an updated ILCOR/AHA evidence review have shown no improvement in survival or neurologically intact outcome with mechanical CPR compared with high-quality manual CPR. Some studies have raised concerns about delays in initial defibrillation, prolonged pauses during device deployment, and potential injuries, without offsetting benefit. As a result, AHA/ILCOR classify routine mechanical CPR use as “no benefit,” while explicitly allowing that it may be considered in specific situations where manual CPR is difficult or unsafe and where interruptions during deployment are strictly limited.
2. How does this align with the MDPB’s view?
 - The MDPB agrees with the AHA that high-quality manual CPR remains the standard of care and that mechanical CPR should not be used routinely. The 2019 MDPB Mechanical CPR White Paper already limits mCPR to very specific circumstances (e.g., few rescuers, prolonged resuscitation, and situations where manual CPR is difficult or unsafe, such as transport or hazardous environments). This is conceptually identical to the 2025 AHA

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position that mechanical CPR may be considered only when high-quality manual compressions cannot be reliably provided.

3. Does anything change for Maine EMS protocols?
 - No. The 2025 AHA language is consistent with the approach already taken in the 2019 MDPB White Paper and the Maine EMS protocols:
 - Manual, high-quality CPR is the default.
 - Mechanical CPR is an optional tool for carefully selected situations in which manual CPR is dangerous, impractical, or unsustainable.
 - Therefore, the MDPB continues to recommend consideration of mCPR only in those specific circumstances outlined in the White Paper.
4. Training and minimizing pauses remain critical
 - A key vulnerability of mechanical CPR is the risk of prolonged pauses in compressions during device application, which can worsen outcomes. Services that choose to use mCPR devices must provide ongoing training that emphasizes:
 - Staged application of the device within the flow of the resuscitation.
 - No unnecessary interruptions in chest compressions during deployment and removal. Pauses in chest compressions should be kept as brief as possible and must not exceed 10 seconds.
 - Coordination of device placement after the 2nd round of manual CPR staged during the subsequent rhythm checks . This is to ensure high quality initial CPR, reduce pauses, and emphasize rhythm checks and defibrillations early in the resuscitation efforts.
 - Clinicians should review and follow the MDPB Mechanical CPR White Paper for detailed recommendations on indications, placement, and integration into the team-based resuscitation approach, available at the following link:
<https://www.maine.gov/ems/sites/maine.gov.ems/files/inline-files/Mechanical-CPR-White-Paper-20190913.pdf>.

References:

1. Callaway CW, Soar J, Aibiki M, Bottiger BW, Brooks SC, Deakin CD, Donnino MW, Drajer S, Kloeck W, Morley PT, et al; Advanced Life Support Chapter Collaborators. Part 4: Advanced Life Support: 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. *Circulation*. 2015;132:S84–145. doi: 10.1161/CIR.0000000000000273
2. Kleinman M, et. al: Part 7: Adult Basic Life Support: 2025 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, *Circulation*. 2025, Volume 152, Number 16, suppl 2, <https://doi.org/10.1161/CIR.0000000000001369>
3. Maine EMS, Mechanical CPR (mCPR) White Paper, 2019, available at (<https://www.maine.gov/ems/sites/maine.gov.ems/files/inline-files/Mechanical-CPR-White-Paper-20190913.pdf>)
4. Soar J, Callaway CW, Aibiki M, Bottiger BW, Brooks SC, Deakin CD, Donnino MW, Drajer S, Kloeck W, Morley PT, et al; Advanced Life Support Chapter Collaborators. Part 4: Advanced life support: 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

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Science with Treatment Recommendations. *Resuscitation*. 2015;95:e71–120. doi: 10.1016/j.resuscitation.2015.07.042

5. Koster RW, Beenen LF, van der Boom EB, Spijkerboer AM, Tepaske R, van der Wal AC, Beesems SG, Tijssen JG. Safety of mechanical chest compression devices AutoPulse and LUCAS in cardiac arrest: a randomized clinical trial for non-inferiority. *Eur Heart J*. 2017;38:3006–3013. doi: 10.1093/eurheartj/ehx318
6. Gao C, Chen Y, Peng H, Chen Y, Zhuang Y, Zhou S. Clinical evaluation of the AutoPulse automated chest compression device for out-of-hospital cardiac arrest in the northern district of Shanghai, China. *Arch Med Sci*. 2016;12:563–570. doi: 10.5114/aoms.2016.59930
7. Couper K, Quinn T, Booth K, Lall R, Devrell A, Orriss B, Regan S, Yeung J, Perkins GD. Mechanical versus manual chest compressions in the treatment of in-hospital cardiac arrest patients in a non-shockable rhythm: A multicentre feasibility randomised controlled trial (COMPRESS-RCT). *Resuscitation*. 2021;158:228–235. doi: 10.1016/j.resuscitation.2020.09.033
8. Anantharaman V, Ng BL, Ang SH, Lee CY, Leong SH, Ong ME, Chua SJ, Rabind AC, Anjali NB, Hao Y. Prompt use of mechanical cardiopulmonary resuscitation in out-of-hospital cardiac arrest: the MECCA study report. *Singapore Med J*. 2017;58:424–431. doi: 10.11622/smedj.2017071
9. Baloglu Kaya F, Acar N, Ozakin E, Canakci ME, Kuas C, Bilgin M. Comparison of manual and mechanical chest compression techniques using cerebral oximetry in witnessed cardiac arrests at the emergency department: A prospective, randomized clinical study. *Am J Emerg Med*. 2021;41:163–169. doi: 10.1016/j.ajem.2020.06.031
10. Pocock H, Nicholson T, Szarpak L, Soar J, Berg KM; on behalf of the International Liaison Committee on Resuscitation Advanced Life Support Task Force. Mechanical CPR devices. 2024. Accessed March 15, 2025. <https://costr.ilcor.org/document/mechanical-cpr-devices-als-3002-tf-sr>.

The Bottom Line: *Manual, high-quality CPR remains the standard for cardiac arrest care. Mechanical CPR should not be used routinely but may be considered only in very specific situations where manual CPR is dangerous, impractical, or unsustainable (e.g., limited staffing, prolonged resuscitation, transport, or hazardous environments). When mechanical CPR is used, deployment must be carefully staged to avoid unnecessary pauses in compressions and delays in defibrillation, supported by regular, scenario-based training and adherence to the MDPB Mechanical CPR White Paper.*