Pericardial Effusion: Outpatient Management After Cardiac Surgery Clinical Pathway Synopsis

Objective of Clinical Pathway

To provide care standards for the post-operative cardiac surgery patient presenting to the outpatient cardiology clinic with a known or suspected pericardial effusion. The pathway provides recommendations for evaluation, management, and follow-up in the outpatient setting.

Background

Pericardial effusion is a frequent postoperative complication in pediatric cardiac surgery, occurring in up to 20% of patients in the month following their procedure.[1] Though many cases may be mild and asymptomatic, progression can lead to hospital readmission and life-threatening cardiac tamponade.[2]

Despite its prevalence and potential for significant morbidity, there are no standard recommendations for the management of this condition in pediatric patients. Several pharmacologic treatment strategies are available, but are informed primarily by adult literature and non-comparative single-center studies in children.[1-4] Due to the paucity of pediatric literature and variability in care at our institution, the Pericardial Effusion: Outpatient Management Clinical Pathway was developed to guide evaluation, early management, and follow-up of patients with postoperative pericardial effusions in the outpatient setting.

Target Users

- Physicians (Cardiology, Cardiac Surgery, Fellows, Residents)
- Advanced Practice Providers
- Pharmacy

Target Population

Exclusion Criteria

- Patients who are post-transplant
- Patients in the interstage phase of single ventricle care

Practice Recommendations

Practice recommendations in this clinical pathway are based on consensus among providers with knowledge of the existing evidence and expertise in the evaluation, treatment, and monitoring of pediatric patients with post-operative pericardial effusions.

Additional Questions Posed by the Pericardial Effusion Clinical Pathway Committee

- In patients (peds and adults) with postoperative pericardial effusion, is colchicine versus prednisone/ prednisolone more effective in attaining clinical resolution of effusion?
    - A literature search was conducted with the assistance of a medical librarian on September 17, 2025, see Appendix 1 for search strategy and results. These results were shared with the committee on September 22, 2025. Although several articles discussed the use of each of these agents individually, there were no direct head-to-head studies in either pediatric or adult patients.
- In patients (peds and adults) with postoperative pericardial effusion, is a higher dose of diuretic versus a lower dose of diuretic more effective in attaining clinical resolution of effusion?
    - A literature search was conducted with the assistance of a medical librarian on September 25, 2025, see Appendix 2 for search strategy and results. These results were shared with the committee on November 3, 2025. Despite the routine use of diuretics in the immediate post-operative care of cardiac surgery patients, literature on the titration of these agents in the weeks following surgery is lacking. There were no studies that directly addressed this scenario in the outpatient setting; therefore, no recommendations could be made.

Measures

- Number of patients with pericardial effusion

- Number of patients receiving NSAIDs, steroids, and/or colchicine
- Number of patients requiring readmission
- Access of the clinical pathway (website hits)

Value Implications

The following improvements may increase value by reducing healthcare costs and non-monetary costs (e.g., missed school/work, loss of wages, stress) for patients and families, as well as reducing costs and resource utilization for healthcare facilities.

- Decreased unwarranted variation in care

Organizational Barriers and Facilitators

Potential Barriers

- Variability in the acceptable level of risk among providers
- Difficulty with follow-up faced by some families

Potential Facilitators

- Collaborative engagement across the continuum of clinical care settings and healthcare disciplines during clinical pathway development
- Anticipated high rate of use of the clinical pathway

Bias Awareness

Our aim is to recognize social determinants of health and minimize healthcare disparities, acknowledging that our unconscious biases can contribute to these inequities

Clinical Pathway Preparation

This pathway was prepared by the Evidence Based Practice (EBP) Department in collaboration with the Pericardial Effusion Clinical Pathway Committee, composed of content experts at Children's Mercy Kansas City.

Laceration Clinical Pathway Committee Members and Representation

- Aseel Dabbagh, DO, MBA | Pediatric Cardiologist, Heart Center | Committee Co-chair
- Blakelee Wright, DNP, APRN, CPNP-AC/PC | Heart Center | Committee Co-chair
- Edo Bedzra, MD, MBA | Congenital Cardiac Surgeon, Heart Center | Committee Member
- Margaret Brimeyer, DNP, ARNP, CPNP-AC/PC | Heart Center | Committee Member
- Bianca Cherestal, MD | Pediatric Cardiologist, Heart Center | Committee Member
- Jenny Leath, MSN, APRN, CPNP-AC | Heart Center | Committee Member
- Justin Sheets, PharmD, BCPPS | Pharmacy | Committee Member

EBP Committee Members

- Todd Glenski, MD, MSHA, FASA | Anesthesiology, Evidence Based Practice
- Kori Hess, PharmD | Evidence Based Practice

Clinical Pathway Development Funding

The development of this clinical pathway was underwritten by the following departments/divisions: Evidence Based Practice, Cardiac Surgery, Cardiology, and Pharmacy.

Conflict of Interest

The contributors to the Pericardial Effusion: Outpatient Management Clinical Pathway have no conflicts of interest to disclose related to the subject matter or materials discussed.

Approval Process

- This pathway was reviewed and approved by the EBP Department and the Pericardial Effusion Committee after committee members garnered feedback from their respective divisions/departments. It was then approved by the Medical Executive Committee.

Review Requested

Department/Unit	Date
Cardiac Surgery	January 2026
Cardiology	January 2026
Pharmacy	January 2026
Evidence Based Practice	December 2025

Version History

Date	Comments
February 2026	Version one (development of algorithm, synopsis, and corresponding supporting pages)

Date for Next Review

- 2029

Implementation & Follow-Up

- Once approved, the pathway was implemented and presented to the appropriate care teams:
  - Announcements made to relevant departments
  - Additional institution-wide announcements were made via the hospital website and relevant huddles
- Care measurements may be assessed and shared with appropriate care teams to determine if changes need to occur.
- Pathways are reviewed every 3 years (or sooner) and updated as necessary within the EBP Department at Children's Mercy. Pathway committees are involved with every review and update.

Disclaimer

When evidence is lacking or inconclusive, options in care are provided in the supporting documents and the power plan(s) that accompany the clinical pathway.

These clinical pathways do not establish a standard of care to be followed in every case. It is recognized that each case is different, and those individuals involved in providing health care are expected to use their judgment to determine what is in the best interests of the patient based on the circumstances existing at the time.

It is impossible to anticipate all possible situations that may exist and to prepare clinical pathways for each. Accordingly, these clinical pathways should guide care with the understanding that departures from them may be required at times.

References

1. Giordano R, Comentale G, Tommaso LD, et al. Pericardial effusion after pediatric cardiac surgery: A single-center study. *Heart Lung*. 2021;50(3):455-460. doi:10.1016/j.hrtlng.2020.10.011
2. Somani N, Breur H. The Efficacy of Corticosteroids, NSAIDs, and Colchicine in the Treatment of Pediatric Postoperative Pericardial Effusion. *Pediatr Cardiol*. 2022;43(2):279-289. doi:10.1007/s00246-022-02820-4
3. Giacinto O, Minati A, Lusini M, et al. Treatment and Prophylaxis of Post-pericardiotomy Syndrome in Cardiac Surgery Patients: a Systematic Review. *Cardiovasc Drugs Ther*. Aug 2023;37(4):771-779. doi:10.1007/s10557-021-07261-4
4. Mizumoto M, Masaki N, Sai S. Efficacy of Short-Term Oral Prednisolone Treatment in the Management of Pericardial Effusion Following Pediatric Cardiac Surgery. *Pediatr Cardiol*. 2022;43(4):764-768. doi:10.1007/s00246-021-02783-y

Appendix

Appendix 1. Search Strategies and Results for Colchicine Versus Prednisone/Prednisolone

Embase

1) 'colchicine'/exp OR 'colchicine':ti,ab,kw OR 'prednisone'/exp OR 'prednisone':ti,ab,kw OR 'prednisolone'/exp OR 'prednisolone':ti,ab,kw OR 'corticosteroid'/exp
2) 'postpericardiotomy syndrome'/exp/dm_dt OR 'pericardial effusion'/exp/dm_dt
3) 'postpericardiotomy syndrome'/exp OR 'postpericardiotomy syndrome':ti,ab,kw
4) 'pericardial effusion'/exp OR 'pericardial effusion':ti,ab,kw
5) 'postoperative complication'/exp OR 'postoperative complication':ti,ab,kw OR 'postoperative care'/exp OR 'heart surgery'/exp OR 'cardiac surgery':ti,ab,kw OR 'cardiovascular surgery'/exp OR 'surgical complication':ti,ab,kw
6) #4 AND #5
7) #3 OR #6
8) #7 AND ('drug therapy'/exp OR 'drug therapy'/lnk OR 'treatment outcome'/exp)
9) #2 OR #8
10) #1 AND #9
11) #10 AND [humans]/lim AND [english]/lim
12) #11 AND ('Article'/it OR 'Article in Press'/it OR 'Clinical Trial'/it OR 'Editorial'/it OR 'Review'/it OR 'Short Survey'/it)
13) #12 NOT ('animal experiment'/de OR 'case report'/de OR 'in vitro study'/de OR 'nonhuman'/de)

Search Dates: No restrictions
Records identified through Embase database searching, *n* = 662
Additional records identified through other sources, *n* = 0

Appendix 2. Search Strategy and Results for High Dose Versus Low Dose Diuretics

Embase

1) 'diuretic agent'/exp OR 'diuretic' OR 'chlorothiazide'/exp OR 'chlorothiazide':ti,ab,kw OR 'furosemide'/exp OR 'furosemide':ti,ab,kw
2) 'postpericardiotomy syndrome'/exp/dm_dt OR 'pericardial effusion'/exp/dm_dt
3) 'postpericardiotomy syndrome'/exp OR 'postpericardiotomy syndrome':ti,ab,kw
4) 'pericardial effusion'/exp OR 'pericardial effusion':ti,ab,kw
5) 'postoperative complication'/exp OR 'postoperative complication':ti,ab,kw OR 'postoperative care'/exp OR 'heart surgery'/exp OR 'cardiac surgery':ti,ab,kw OR 'cardiovascular surgery'/exp OR 'surgical complication':ti,ab,kw
6) #4 AND #5
7) #3 OR #6
8) #7 AND ('drug therapy'/exp OR 'drug therapy'/lnk OR 'treatment outcome'/exp)
9) #2 OR #8
10) #1 AND #9
11) #10 AND [humans]/lim AND [english]/lim
12) #11 AND ('Article'/it OR 'Clinical Trial'/it OR 'Editorial'/it OR 'Review'/it OR 'Short Survey'/it)
13) #12 NOT ('animal experiment'/de OR 'animal model'/de OR 'animal tissue'/de OR 'case report'/de OR 'human cell'/de OR 'in vitro study'/de OR 'nonhuman'/de)

Search Dates: No restrictions
Records identified through Embase database searching, *n* = 284
Additional records identified through other sources, *n* = 0