IV Iron Infusion Reaction
Clinical Pathway

Objective of Clinical Pathway

To provide care standards for the patient experiencing a reaction during an IV iron infusion. The IV Iron Infusion Reaction Clinical Pathway provides guidance for assessment, management, and follow-up care to maximize patient safety and minimize the variation of care.

Background

Intravenous (IV) iron is increasingly used in children and is generally safe and well-tolerated.[1] Recent literature indicates reactions are generally mild and resolve spontaneously without sequelae or intensive treatment.[1]

A critical challenge in pediatric IV iron administration is distinguishing benign infusion reactions from true hypersensitivity reactions. Most acute infusion reactions are not true IgE-mediated hypersensitivity reactions but transient complement activation-related pseudo-allergy (CARPA), presenting with symptoms such as flushing, pruritus, nausea, headache, or urticaria.[2-4] The classic Fishbane reaction, characterized by flushing and chest or back pressure without signs of anaphylaxis, typically resolves when the infusion is paused and restarted at a slower rate.[5]

Distinguishing benign infusion reactions from true hypersensitivity is critical to avoid unnecessary treatment with epinephrine or antihistamines, which may worsen symptoms and lead to avoidable interventions.[3,6] Risk factors for hypersensitivity include prior infusion reactions, rapid infusion rates, severe atopy or asthma, multiple drug allergies, systemic inflammatory disease, and concurrent beta-blocker or ACE inhibitor use.[2,7]

Expert consensus is that pediatric IV iron be administered in settings with appropriate monitoring, resuscitation equipment, and trained clinicians to ensure prompt recognition and management of adverse events.[7,8] Despite increasing use of IV iron in pediatric practice, the recognition and management of infusion-related reactions continue to vary. The IV Iron Infusion Reaction Clinical Pathway Committee aimed to provide a standardized guidance tool to support safe administration and management, promote appropriate responses to adverse events, and reduce unnecessary escalation of care.

Target Users

The target users of this clinical pathway include the following healthcare professionals:

- Physicians in hematology and oncology
- Fellow physicians
- Resident physicians
- Advanced practice providers
- Registered nurses
- Pharmacists

Target Population

Inclusion Criteria

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 in determining 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 a clinical pathway for each. Accordingly, these clinical pathways should guide care with the understanding that departures from them may be required at times.

- Patient with signs and symptoms of an infusion-related reaction following the administration of iron
- Age > 6 months and < 21 years old

Exclusion Criteria

- Anaphylaxis symptoms clearly attributed to other causes; *refer to the Children's Mercy Anaphylaxis Clinical Pathway*

Practice Recommendations

In the absence of a clinical practice guideline that fully addresses the management of iron infusion reactions in pediatric and adolescent patients, guidance from the pediatric hematology literature was used, in conjunction with the expert consensus of the Clinical Pathway Committee, to inform the assessment, acute management, and referral guidance in this pathway.[1-8]

Additional Questions Posed by the Clinical Pathway Committee

No additional clinical questions were posed for this review.

Measures

- Number of severe reactions documented and treated
- If a reaction occurs, length of stay in clinic

Value Implications

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

- Decreased risk of overtreatment (i.e., treatment for severe/anaphylactic reaction when treatment for CARPA is more appropriate)
- Decreased length of stay in clinic
- Decreased unwarranted variation in care

Organizational Barriers and Facilitators

Potential Barriers

- Variability of acceptable level of risk among providers
- Variability in experience among clinicians

Potential Facilitators

- Collaborative engagement during clinical pathway development

Bias Awareness

Our goal is to recognize the social determinants of health and minimize healthcare disparities, while acknowledging that our unconscious biases can contribute to these disparities.

Order Sets/Panels

- There are no associated order sets or order panels associated with this clinical pathway

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Educational Materials

Educational tools were developed by hematology

- PT EDU I.V. IRON INFUSION
  - Intended to be customized to the individual patient
  - Found in Epic Education process
  - Available in English and Spanish

Clinical Pathway Preparation

This pathway was prepared by the EBP Department in collaboration with the IV Iron Infusion Reaction Clinical Pathway Committee, composed of content experts at Children's Mercy.

IV Iron Infusion Reaction Clinical Pathway Committee Members and Representation

- Maggie Williams, MSN, CPNP-PC, CPHON | Hematology/Oncology/BMT | Committee Co-Chair
- Kellie Kirkland, RN, MSN, CPNP | Hematology/Oncology/BMT | Committee Co-Chair
- Lauren Amos, MD, MS | Hematology/Oncology/BMT | Committee Member
- Abbey Elsbernd, MD | Hematology-Oncology Fellow | Committee Member

EBP Committee Members

- Todd Glenski, MD, MSHA, FASA | Anesthesiology, Evidence Based Practice
- Andrea Melanson, OTD, OTR/L | Evidence Based Practice

Clinical Pathway Development Funding

The development of this clinical pathway was underwritten by the following departments/divisions: Hematology-Oncology and Evidence Based Practice.

Conflict of Interest

The contributors to the IV Iron Infusion Reaction 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 IV Iron Infusion Reaction 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
Hematology-Oncology	October 2026
Evidence Based Practice	November 2026

Version History

Date		Comments
December 2026	Version one:	Developed an algorithm, synopsis, and educational handouts for patients and their families

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Date for Next Review

- December 2030

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
  - Community clinics affiliated with CM received announcements via "Progress Notes"
- Care measurements may be assessed and shared with appropriate care teams to determine if changes need to occur.
- Pathways are reviewed every 4 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, care options are provided in the supporting documents and in the order set(s) and/or order panel(s) that accompany the clinical pathway.

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References

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