

EVIDENCE REPOSITORIES

This evidence repository is a collection of best available resources and evidence collated by a knowledge synthesis team at Alberta Research for Health Evidence ([ARCHE](#)) and the clinical content team.

The knowledge synthesis team utilizes a pyramid-shaped framework, built upon the [“4S” hierarchy of evidence model](#), to provide detailed evidence appropriate to meet stakeholders’ needs. They search a combination of databases (Cochrane Library, PubMed, TRIP Database) and web-based search engines (Google, Google Scholar) to locate evidence for the knowledge pyramids. Publication types sought in the initial topic searches are organized into five levels that determine the order in which resources are presented:

- (1) Bottom Line Recommendations
- (2) Clinical Practice Guidelines and Pathways
- (3) Overviews and Summaries of Systematic Reviews
- (4) Systematic Reviews
- (5) Key Studies

Where applicable resources for families and parents are also listed.

The knowledge synthesis team collaborates with the clinical content team to select the most relevant guidelines, reviews, and key studies, which can be found below. This evidence repository is not intended to be an exhaustive list of resources for a topic, but rather a curated list of current, evidence-based resources, based on expert consensus of relevance and usability for a general emergency department setting. Every effort is made to identify resources that are open access (i.e. publicly available, free of charge, not requiring a subscription).

More information about the creation of our evidence repositories can be found [here](#).

CONTENT TEAM

Thank you to the following clinical content experts and Knowledge Synthesis team who led the development of this evidence repository.

Mathew Speckert, MEd, MD, FRCPC *Children’s Hospital of Eastern Ontario* ([CHEO](#))

Habeeb Alsaeed, MD, FRCPC, *Children’s Hospital of Eastern Ontario* ([CHEO](#))

Graham Chamberlain, MD, FRCPC, [Belleville General Hospital](#)

Elaine Leung, MD, FRCPC, *Children’s Hospital of Eastern Ontario* ([CHEO](#))

Liza Bialy, BSc, MPH, *Knowledge Synthesis Project Coordinator, Alberta Research Centre for Health Evidence, Department of Pediatrics, University of Alberta*

Sarah Elliott, PhD, *Assistant Director, Alberta Research Centre for Health Evidence, Department of Pediatrics, University of Alberta*



Clinical Practice Guidelines and Pathways

1. O'Brien SH, Badawy SM, Rotz SJ, et al. [The ASH-ASPHO choosing wisely campaign: 5 hematologic tests and treatments to question](#). Blood Adv. 2022;6(2):679-85.
2. Numan S, Kaluza K. [Systematic review of guidelines for the diagnosis and treatment of iron deficiency anemia using intravenous iron across multiple indications](#). Curr Med Res Opin. 2020;36(11):1769-82.
3. Mattiello V, Schmutz M, Hengartner H, et al. [Diagnosis and management of iron deficiency in children with or without anemia: Consensus recommendations of the SPOG pediatric hematology working group](#). Eur J Pediatr. 2020;179(4):527-45.
4. Province of British Columbia. [Iron deficiency – Diagnosis and management](#). 2019.
5. Doctor A, Cholette JM, Remy KE, et al. [Recommendations on RBC transfusion in general critically ill children based on hemoglobin and/or physiologic thresholds from the pediatric critical care transfusion and anemia expertise initiative](#). Pediatr Crit Care Med. 2018;19(9S Suppl 1):S98-s113.
6. Kemper AR, Fan T, Grossman DC, Phipps MG. [Gaps in evidence regarding iron deficiency anemia in pregnant women and young children: Summary of us preventive services task force recommendations](#). Am J Clin Nutr. 2017;106(Suppl 6):1555s-8s.
7. World Health Organization. [Who guideline on use of ferritin concentrations to assess iron status in individuals and populations](#). 2016.
8. Siu AL. [Screening for iron deficiency anemia in young children: USPSTF recommendation statement](#). Pediatrics. 2015;136(4):746-52.

Systematic Reviews

1. Moscheo C, Licciardello M, Samperi P, et al. [New insights into iron deficiency anemia in children: A practical review](#). Metabolites. 2022;12(4).
2. Gedfie S, Getawa S, Melku M. [Prevalence and associated factors of iron deficiency and iron deficiency anemia among under-5 children: A systematic review and meta-analysis](#). Glob Pediatr Health. 2022;9:2333794x221110860.
3. Aksan A, Zepp F, Anand S, Stein J. [Intravenous ferric carboxymaltose for the management of iron deficiency and iron deficiency anaemia in children and adolescents: A review](#). Eur J Pediatr. 2022;181(11):3781-93.
4. Shah AA, Donovan K, Seeley C, et al. [Risk of infection associated with administration of intravenous iron: A systematic review and meta-analysis](#). JAMA Netw Open. 2021;4(11):e2133935.
5. Mohd Rosli RR, Norhayati MN, Ismail SB. [Effectiveness of iron polymaltose complex in treatment and prevention of iron deficiency anemia in children: A systematic review and meta-analysis](#). PeerJ. 2021;9:e10527.
6. Gordon M, Sinopoulou V, Iheozor-Ejiofor Z, et al. [Interventions for treating iron deficiency anaemia in inflammatory bowel disease](#). Cochrane Database Syst Rev. 2021;1(1):Cd013529.
7. Lim W, Afif W, Knowles S, et al. [Canadian expert consensus: Management of hypersensitivity reactions to intravenous iron in adults](#). Vox Sang. 2019;114(4):363-73.



IRON DEFICIENCY ANEMIA

- Mantadakis E. [Advances in pediatric intravenous iron therapy](#). *Pediatr Blood Cancer*. 2016;63(1):11-6.
- Auerbach M, Deloughery T. [Single-dose intravenous iron for iron deficiency: A new paradigm](#). *Hematology Am Soc Hematol Educ Program*. 2016;2016(1):57-66.
- Auerbach M, Adamson JW. [How we diagnose and treat iron deficiency anemia](#). *Am J Hematol*. 2016;91(1):31-8.
- Peyrin-Biroulet L, Williet N, Cacoub P. [Guidelines on the diagnosis and treatment of iron deficiency across indications: A systematic review](#). *Am J Clin Nutr*. 2015;102(6):1585-94.
- McDonagh MS, Blazina I, Dana T, et al. [Screening and routine supplementation for iron deficiency anemia: A systematic review](#). *Pediatrics*. 2015;135(4):723-33.
- Avni T, Bieber A, Grossman A, et al. [The safety of intravenous iron preparations: Systematic review and meta-analysis](#). *Mayo Clin Proc*. 2015;90(1):12-23.
- Powers JM, Buchanan GR. [Diagnosis and management of iron deficiency anemia](#). *Hematol Oncol Clin North Am*. 2014;28(4):729-45, vi-vii.
- De Andrade Cairo RC, Rodrigues Silva L, Carneiro Bustani N, Ferreira Marques CD. [Iron deficiency anemia in adolescents: A literature review](#). *Nutr Hosp*. 2014;29(6):1240-9.

Key Studies

- Speckert M, Ramic L, Mitsakakis N, et al. [Severe iron deficiency anemia in the paediatric emergency department: A retrospective study](#). *Paediatr Child Health*. 2023;28(1):30-6.
- Orhan MF, Büyükavci M. [Intravenous iron therapy for children with iron deficiency anemia](#). *J Pediatr Hematol Oncol*. 2023;45(1):e56-e9.
- McEvoy MT, Stuckert AJ, Castellanos MI, et al. [Management of nutritional iron deficiency anemia for young children in the emergency department](#). *Pediatr Blood Cancer*. 2023;70(3):e30181.
- Panagopoulou P, Alexiadou S, Ntoumpara M, et al. [Safety of ferric carboxymaltose in children: Report of a case series from Greece and review of the literature](#). *Paediatr Drugs*. 2022;24(2):137-46.
- Baig AMM, Batool S, Aslam T, et al. [Efficacy and safety of intravenous iron in children with iron deficiency anaemia poorly compliant to oral iron therapy](#). *J Ayub Med Coll Abbottabad*. 2022;34(2):317-20.
- van den Akker M, Chielens L, Lopes L, et al. [Thrombocytopenia in severe iron deficiency anemia in children](#). *Health Sci Rep*. 2021;4(3):e351.
- Boucher AA, Bedel A, Jones S, et al. [A retrospective study of the safety and efficacy of low molecular weight iron dextran for children with iron deficiency anemia](#). *Pediatr Blood Cancer*. 2021;68(7):e29024.
- Stoffel NU, Zeder C, Brittenham GM, et al. [Iron absorption from supplements is greater with alternate day than with consecutive day dosing in iron-deficient anemic women](#). *Haematologica*. 2020;105(5):1232-9.



IRON DEFICIENCY ANEMIA

9. Russo G, Guardabasso V, Romano F, et al. [Monitoring oral iron therapy in children with iron deficiency anemia: An observational, prospective, multicenter study of AIEOP patients](#) (Associazione Italiana Emato-oncologia Pediatrica). *Ann Hematol.* 2020;99(3):413-20.
10. Powers JM, Nagel M, Raphael JL, et al. [Barriers to and facilitators of iron therapy in children with iron deficiency anemia.](#) *J Pediatr.* 2020;219:202-8.
11. Kaundal R, Bhatia P, Jain A, et al. [Randomized controlled trial of twice-daily versus alternate-day oral iron therapy in the treatment of iron-deficiency anemia.](#) *Ann Hematol.* 2020;99(1):57-63.
12. Sabe R, Vatsayan A, Mahran A, et al. [Safety and efficacy of intravenous iron sucrose for iron-deficiency anemia in children and adolescents with inflammatory bowel disease.](#) *Glob Pediatr Health.* 2019;6:2333794x19870981.
13. Patil P, Geevarghese P, Khaire P, et al. [Comparison of therapeutic efficacy of ferrous ascorbate and iron polymaltose complex in iron deficiency anemia in children: A randomized controlled trial.](#) *Indian J Pediatr.* 2019;86(12):1112-7.
14. Maiti D, Acharya S, Basu S. [Recognizing missed opportunities to diagnose and treat iron deficiency anemia: A study based on prevalence of anemia among children in a teaching hospital.](#) *J Family Med Prim Care.* 2019;8(3):899-903.
15. Jang HN, Yoon HS, Lee EH. [Prospective case control study of iron deficiency and the risk of febrile seizures in children in South Korea.](#) *BMC Pediatr.* 2019;19(1):309.
16. Vossoughi S, Perez G, Whitaker BI, et al. [Analysis of pediatric adverse reactions to transfusions.](#) *Transfusion.* 2018;58(1):60-9.
17. Stein RE, Plantz K, Maxwell EC, et al. [Intravenous iron sucrose for treatment of iron deficiency anemia in pediatric inflammatory bowel disease.](#) *J Pediatr Gastroenterol Nutr.* 2018;66(2):e51-e5.
18. Boucher AA, Pfeiffer A, Bedel A, et al. [Utilization trends and safety of intravenous iron replacement in pediatric specialty care: A large retrospective cohort study.](#) *Pediatr Blood Cancer.* 2018;65(6):e26995.
19. Tan MLN, Windscheif PM, Thornton G, et al. [Retrospective review of effectiveness and safety of intravenous ferric carboxymaltose given to children with iron deficiency anaemia in one UK tertiary centre.](#) *Eur J Pediatr.* 2017;176(10):1419-23.
20. Powers JM, Shamoun M, McCavit TL, et al. [Intravenous ferric carboxymaltose in children with iron deficiency anemia who respond poorly to oral iron.](#) *J Pediatr.* 2017;180:212-6.
21. Powers JM, Buchanan GR, Adix L, et al. [Effect of low-dose ferrous sulfate vs iron polysaccharide complex on hemoglobin concentration in young children with nutritional iron-deficiency anemia: A randomized clinical trial.](#) *JAMA.* 2017;317(22):2297-304.
22. Okam MM, Koch TA, Tran MH. [Iron supplementation, response in iron-deficiency anemia: Analysis of five trials.](#) *Am J Med.* 2017;130(8):991.e1-e8.
23. Kaneva K, Chow E, Rosenfield CG, Kelly MJ. [Intravenous iron sucrose for children with iron deficiency anemia.](#) *J Pediatr Hematol Oncol.* 2017;39(5):e259-e62.
24. Cooke AG, McCavit TL, Buchanan GR, Powers JM. [Iron deficiency anemia in adolescents who present with heavy menstrual bleeding.](#) *J Pediatr Adolesc Gynecol.* 2017;30(2):247-50.



IRON DEFICIENCY ANEMIA

25. Carvalho FSG, de Medeiros IA, Antunes H. [Prevalence of iron deficiency anemia and iron deficiency in a pediatric population with inflammatory bowel disease](#). Scand J Gastroenterol. 2017;52(10):1099-103.
26. Powers JM, Daniel CL, McCavit TL, Buchanan GR. [Deficiencies in the management of iron deficiency anemia during childhood](#). Pediatr Blood Cancer. 2016;63(4):743-5.
27. Mantadakis E, Tsouvala E, Xanthopoulou V, Chatzimichael A. [Intravenous iron sucrose for children with iron deficiency anemia: A single institution study](#). World J Pediatr. 2016;12(1):109-13.
28. Joo EY, Kim KY, Kim DH, et al. [Iron deficiency anemia in infants and toddlers](#). Blood Res. 2016;51(4):268-73.
29. Oakley FD, Woods M, Arnold S, Young PP. [Transfusion reactions in pediatric compared with adult patients: A look at rate, reaction type, and associated products](#). Transfusion. 2015;55(3):563-70.
30. Crary SE, Hall K, Buchanan GR. [Intravenous iron sucrose for children with iron deficiency failing to respond to oral iron therapy](#). Pediatr Blood Cancer. 2011;56(4):615-9.
31. Abdullah K ZS, Parkin P, Grenier D. [Iron-deficiency anemia in children. Canadian Pediatric Society Surveillance Program](#). 2011.
32. Huang SC, Yang YJ, Cheng CN, et al. [The etiology and treatment outcome of iron deficiency and iron deficiency anemia in children](#). J Pediatr Hematol Oncol. 2010;32(4):282-5.
33. Baker RD, Greer FR. [Diagnosis and prevention of iron deficiency and iron-deficiency anemia in infants and young children \(0-3 years of age\)](#). Pediatrics. 2010;126(5):1040-50.
34. Pinsk V, Levy J, Moser A, et al. [Efficacy and safety of intravenous iron sucrose therapy in a group of children with iron deficiency anemia](#). Isr Med Assoc J. 2008;10(5):335-8.
35. Berard R, Matsui D, Lynch T. [Screening for iron deficiency anemia in at risk children in the pediatric emergency department: A survey of Canadian pediatric emergency department physicians](#). Pediatr Emerg Care. 2007;23(5):281-4.
36. Pusic MV, Dawyduk BJ, Mitchell D. [Opportunistic screening for iron-deficiency in 6-36 month old children presenting to the paediatric emergency department](#). BMC Pediatr. 2005;5:42.
37. Zlotkin S, Arthur P, Antwi KY, Yeung G. [Randomized, controlled trial of single versus 3-times-daily ferrous sulfate drops for treatment of anemia](#). Pediatrics. 2001;108(3):613-6.