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# Prevalence of Iron Deficiency in Patients with Inherited Bleeding Disorders

Thomas Cochran MD, Brian Lee PhD MPH, Shannon Carpenter MD MS

## Children's Mercy Kansas City

### Background

- **Iron deficiency** is an important but frequently overlooked problem in children with **inherited bleeding disorders**
- **Chronic blood loss** commonly leads to iron deficiency and ultimately anemia
- Children with bleeding disorders have a **greater propensity for blood loss** and therefore **may have a higher prevalence of iron deficiency** compared to the general pediatric population
- **Few studies** have assessed the prevalence of iron deficiency in children with **inherited bleeding disorders**
- Prior epidemiologic analysis of iron deficiency **is primarily focused on adolescent females**

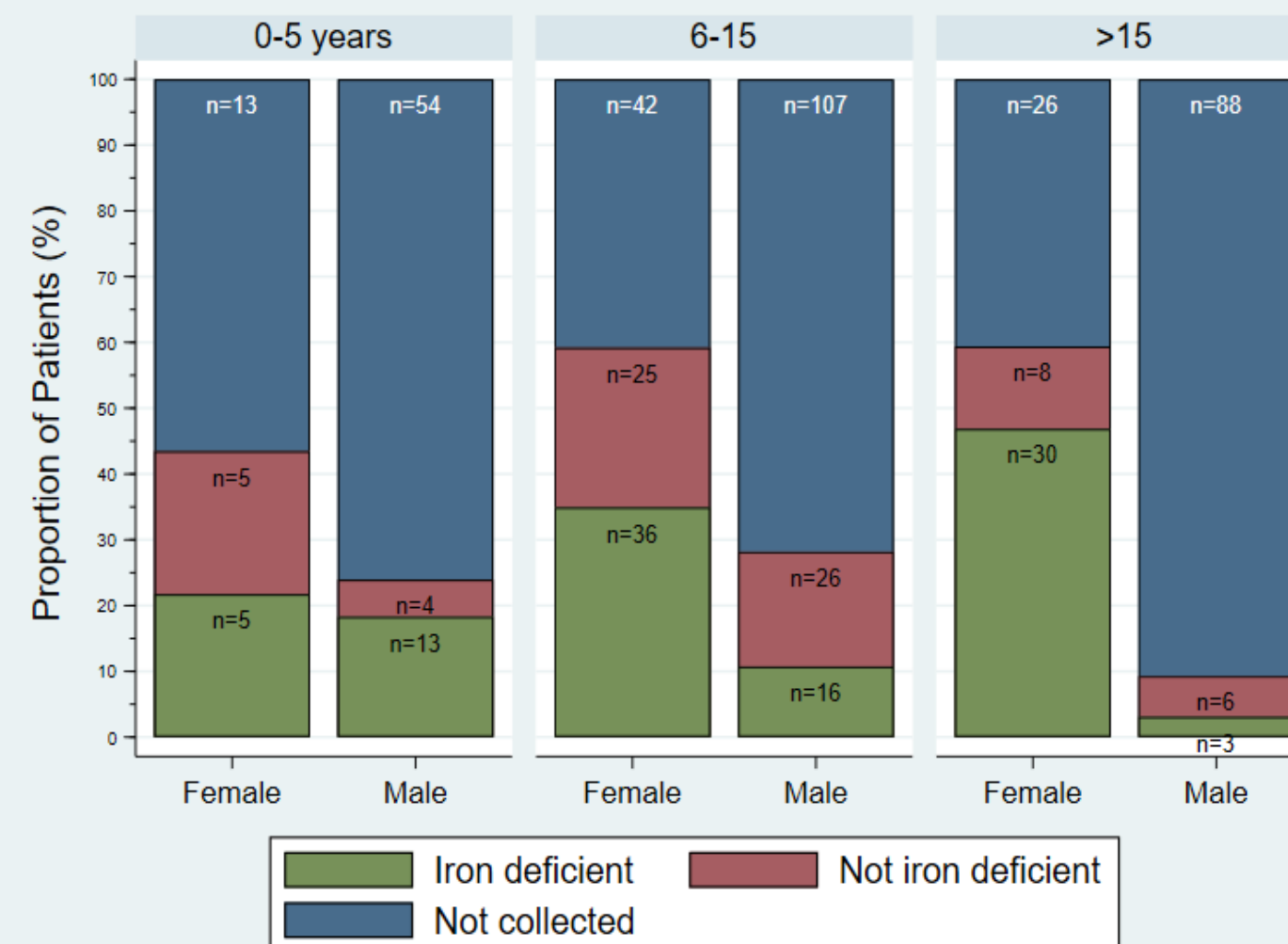
### Methods

- We performed a **retrospective analysis** of children with any inherited bleeding disorder seen at Children's Mercy Hemophilia Treatment Center between 2010 and 2020
- **Iron deficiency defined** using recently updated ferritin thresholds outlined by the **National Health and Nutrition Examination Surveys**
- Children were categorized as iron deficient if ferritin was below threshold at any visit during the reviewed time period
- **Lowest hemoglobin** and concomitant **iron deficiency risk factors** were included in the analysis

### Objective

- Identify the **prevalence of iron deficiency** in children with an **inherited bleeding disorder**

### Proportion of bleeding disorder patients with iron deficiency stratified by age and sex



### Results

- **507** children with inherited bleeding disorders were included in this analysis
- **20%** of children included in this study were iron deficient
  - Most iron deficient children were **female (69%)** and aged **6 to 15 years (51%)**
  - Only **21%** of males had ferritin levels measured and **10%** of males were identified as iron deficient
- **43%** of patients were **anemic** at one point during the reviewed time period
  - **44%** of males were found to be anemic
- Only **4%** of iron deficient patients had **other iron deficiency risk factors**
  - The most common concomitant iron deficiency risk factors were inflammatory bowel disease and nutritional deficiency

### Conclusion

- Iron deficiency is **more prevalent** in this cohort of **children with inherited bleeding disorders** compared to the **10% prevalence** in the **general pediatric population**
- The **high prevalence of anemia in males** with inherited bleeding disorders suggests they are at comparable risk for iron deficiency
- Considering **79% of males did not have a ferritin level collected**, it is possible that the **prevalence of iron deficiency in males is higher** than this report suggests