

# Pediatric Neutropenia Navigator: An Approach to Interpret ANC

This guide helps to rule out medical emergencies in children and adolescents with low ANC and provides suggestions on how to target neutropenia workups to be as narrow and complete as possible.



"Red flag"  
symptoms?

## MEDICAL EMERGENCIES

ANC < 500



Fever or signs  
of infection

EMERGENCY DEPARTMENT



Concern for  
leukemia?

## URGENT REFERRALS TO HEMATOLOGY/ONCOLOGY

Other cytopenias

B symptoms

Blasts

Concerning physical  
exam findings (bruising,  
lymphadenopathy, etc.)

URGENT REFERRAL

NO

NO



Investigate according to  
clinical symptoms and  
patient information

## INVESTIGATIONS

Recent acute  
viral infection?

CONSIDER: Respiratory viral panel, *Streptococcus*  
throat swab, repeat ANC in 2–4 weeks

Frequent infections /  
concern for immunodeficiency

CONSIDER: Immunoglobulins, lymphocyte  
subset panel, immunology evaluation

New medication?

CONSIDER: Obtain a detailed history, stop  
offending agent and repeat ANC in 2–4 weeks

Restricted diet /  
concern for malabsorption

CONSIDER: Vitamin B12, folate, copper, zinc

Concern for  
bone marrow failure?

CONSIDER: Physical exam, review  
growth charts, bone marrow biopsy

# Pediatric Neutropenia Navigator: Recognizing DANC

Duffy null-associated neutrophil count (DANC) is a common and normal variant, associated with the Duffy null blood group phenotype, that results in lower circulating ANC.

If all other etiologies are reassuring, repeat ANC with concurrent Duffy testing to evaluate for DANC.



Normal ANC varies by age for pediatrics<sup>1,2</sup>



Preliminary data show that the lower limit of normal for ANC in pediatric patients is 500–1000 cells per  $\mu\text{L}$ . Some cases as low as 100 cells per  $\mu\text{L}$  have been reported in children <5 years old, although this is not typical<sup>1</sup>



People with the Duffy null phenotype tend to have an ANC up to 2× lower than people who have the Duffy antigen expressed<sup>3</sup>



Specific Duffy null intervals have been published in 2026

**Remember:** People with the Duffy null phenotype can also have other causes of low ANC. Be sure to first consider other etiologies (especially in emergencies).

**Abbreviations:** ANC, absolute neutrophil count; DANC, Duffy null-associated neutrophil count; LDH, lactate dehydrogenase.

**References:** 1. Merz LE, et al. Blood Adv. 2023;7(15):4182–4185; 2. Ortiz MV, et al. J Pediatr Hematol Oncol. 2016;38(3):e140–143; 3. Merz LE, et al. JAMA. 2023;329(23):2088–2089.

