



The world's childhood
cancer experts

Guidance on Platelet Transfusion for Patients With Hypoproliferative Thrombocytopenia

COG Supportive Care Endorsed Guidelines

Click [here](#) to see all the COG Supportive Care Endorsed Guidelines.

DISCLAIMER

For Informational Purposes Only: The information and contents offered in or in connection with the *Children's Oncology Group Supportive Care Endorsed Guidelines* (the "Guidelines") is provided only for informational purposes to children affected by cancer, their families and their health care providers. The Guidelines are not intended to substitute for medical advice, medical care, diagnosis or treatment obtained from doctors or other healthcare providers.

While the Children's Oncology Group tries to provide accurate and up-to-date information, the information in the Guidelines may be or may become out of date or incomplete. The information and guidelines may not conform to current standard of care, state-of-the art, or best practices for a particular disease, condition, or treatment. Some information in the Guidelines may be intended to be used by clinical researchers in special clinical settings or situations that may not apply to you, your child or your patient.

Special Notice to cancer patients and their parents and legal guardians: The Children's Oncology Group is a research organization and does not provide individualized medical care or treatment.

The Guidelines are not intended to replace the independent clinical judgment, medical advice, screening, health counseling, or other intervention performed by your or your child's doctor or other healthcare provider. Please do not rely on this information exclusively and seek the care of a doctor or other medical professional if you have any questions regarding the Guidelines or a specific medical condition, disease, diagnosis or symptom.

Please contact "911" or your emergency services for any health emergency!

Special Notice to physicians and other healthcare providers: This document is aimed specifically at members of the Children's Oncology Group or Member affiliates who have agreed to collaborate with the Children's Oncology Group in accordance with the relevant procedures and policies for study conduct and membership participation. Requirements and restrictions applicable to recipients of U.S. governmental funds or restrictions governing certain private donations may apply to the use and distribution of the Guidelines and the information contained herein.

The Guidelines are not intended to replace your independent clinical judgment, medical advice, or to exclude other legitimate criteria for screening, health counseling, or intervention for specific complications of childhood cancer treatment. The Guidelines provided are not intended as a sole source of guidance in the evaluation of childhood cancer patients. Nor are the Guidelines intended to exclude other reasonable alternative care. Specific patient care decisions are the prerogative of the patient, family and healthcare provider.

Warranty or Liability Assumed by Children's Oncology Group and Related Parties: While the Children's Oncology Group has tried to assure that the Guidelines are accurate and complete as of the date of publication, no warranty or representation, express or implied, is intended to be made in or with the Guidelines. No liability is assumed by the Children's Oncology Group or any affiliated party or member thereof for damage resulting from the use, review, or access of the Guidelines.

The “Guidance for Platelet Transfusion for Patients with Hypoproliferative Thrombocytopenia” was endorsed by the COG Supportive Care Guideline Committee in April 2016.

The source guideline is published (Nahirniak S, Slichter SJ, Tanael S, et al. Transfusion Medicine Reviews 2015; 29; 3-13. doi.org/10.1016/j.tmr.2014.11.004) and is available at: [http://www.tmreviews.com/article/S0887-7963\(14\)00095-9/pdf](http://www.tmreviews.com/article/S0887-7963(14)00095-9/pdf)

The purpose of this guideline is to to develop an evidence-based clinical practice guideline to assist hematologists, oncologists, and transfusion medicine specialists in optimizing platelet transfusion therapy for patients with hypoproliferative thrombocytopenia.

The recommendations of the endorsed guideline are presented below.

Summary of Recommendations for Platelet Transfusion for Patients with Hypoproliferative Thrombocytopenia

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence*
Should patients with hypoproliferative thrombocytopenia receive prophylactic platelet transfusions?	
<ul style="list-style-type: none"> Prophylactic platelet transfusion should be given to patients with hypoproliferative thrombocytopenia. 	Strong recommendation, Moderate level evidence
What platelet transfusion threshold should be used?	
<ul style="list-style-type: none"> A threshold of less than or equal to $10 \times 10^9/L$ should be used for prophylactic platelet transfusion for patients with hypoproliferative thrombocytopenia. 	Strong recommendation, Weak level evidence
<ul style="list-style-type: none"> Patients with hypoproliferative thrombocytopenia with clinically significant bleeding attributed to thrombocytopenia should probably receive platelet transfusions even if the platelet count is above $10 \times 10^9/L$. 	Weak recommendation, Very weak level of evidence
What platelet dose should be used?	
<ul style="list-style-type: none"> Low- or standard-dose platelet transfusion (i.e., $1.1 \times 10^{11}/m^2$ or $2.2 \times 10^{11}/m^2$, respectively), as opposed to high-dose platelet transfusion ($4.4 \times 10^{11}/m^2$), should be given to hospitalized patients with hypoproliferative thrombocytopenia who require prophylactic platelet transfusion. Conversion to platelet units can be performed using estimates of 50×10^9 per unit of whole blood derived, random-donor platelet products or 300×10^9 per unit apheresis or buffy coat pooled products. 	Strong recommendation, High level of evidence

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence*
<p>Implementation tips from the COG Supportive Care Guideline Committee:</p> <p>1) In general, platelets that are collected via apheresis have a higher concentration (plt/mL) than pooled units collected as the platelet portion from whole blood donation. However, there is significant variability in platelet concentration within each type of platelet product (whole blood donation vs. apheresis collection) and between centers. The platelet doses recommended above can be converted to approximate platelet dose volumes after consultation with local transfusion medicine specialists.</p> <p>2) For larger children or adolescents who require prophylactic platelet transfusion, the dose of transfused platelets should not exceed the usual adult dose.</p>	
<p>Should patients receive ABO-matched platelets?</p>	
<ul style="list-style-type: none"> Platelet concentrates that are ABO identical should probably be used in patients with hypoproliferative thrombocytopenia, if available. 	<p>Weak recommendation, Weak level of evidence</p>
<p>Do patients who are negative for the RhD antigen require Rh immunoglobulin if they receive RhD-positive platelets?</p>	
<ul style="list-style-type: none"> Female children and females of child-bearing age/potential, with hypoproliferative thrombocytopenia, who are RhD negative should probably receive Rh immunoglobulin before, immediately after, or within 72 hours of receiving an RhD-positive platelet component (unless antibody testing demonstrates the persistence of anti-D from a previous dose of Rh immunoglobulin) 	<p>Weak recommendation, Very weak level of evidence</p>
<ul style="list-style-type: none"> Males and females who are not of child-bearing age/potential, with hypoproliferative thrombocytopenia, who are RhD negative and are transfused with RhD-positive platelet components probably do not require Rh immunoglobulin. 	<p>Weak recommendation, Very weak level of evidence</p>
<p>Should patients receive HLA/HPA-selected or crossmatch-selected platelets?</p>	
<ul style="list-style-type: none"> Patients with hypoproliferative thrombocytopenia who are refractory to platelet transfusions and have class I HLA antibodies should probably receive class I HLA-selected or crossmatch-selected platelet transfusion to increase the platelet count. 	<p>Weak recommendation, Weak level of evidence</p>
<ul style="list-style-type: none"> Patients with hypoproliferative thrombocytopenia who are refractory to platelet transfusions and have HPA antibodies should probably receive HPA-selected or crossmatch-selected platelet transfusion to increase the platelet count. 	<p>Weak recommendation, Very weak level of evidence</p>
<ul style="list-style-type: none"> Patients with hypoproliferative thrombocytopenia who are refractory to platelet transfusions solely due to nonimmune factors should probably not receive HLA-selected or crossmatch-selected platelets. 	<p>Weak recommendation, Weak level of evidence</p>

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence*
<ul style="list-style-type: none"> Patients with hypoproliferative thrombocytopenia who are not refractory to platelet transfusion should probably not receive HLA-selected, HPA-selected, or crossmatch-selected platelets. 	<p>HLA and crossmatch selection: Weak recommendation, Weak level of evidence</p> <p>HPA-selection: Weak recommendation, Very weak level of evidence</p>
<p>Should patients receive apheresis-derived platelets instead of whole blood-derived platelets?</p>	
<ul style="list-style-type: none"> When leuko-reduced platelet products are available, WBD platelets (from buffy coat or PRP methods) should be used as equivalent products to apheresis platelets. 	<p>Strong recommendation, Moderate level of evidence</p>

*as applied to recommendations for pediatric patients

Appendix 1: GRADE

Strength of Recommendations:

Strong Recommendation	When using GRADE, panels make strong recommendations when they are confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects.
Weak Recommendation	Weak recommendations indicate that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects, but the panel is less confident.

Strength of Recommendations Determinants:

Factor	Comment
Balance between desirable and undesirable effects	The larger the difference between the desirable and undesirable effects, the higher the likelihood that a strong recommendation is warranted. The narrower the gradient, the higher the likelihood that a weak recommendation is warranted
Quality of evidence	The higher the quality of evidence, the higher the likelihood that a strong recommendation is warranted
Values and preferences	The more values and preferences vary, or the greater the uncertainty in values and preferences, the higher the likelihood that a weak recommendation is warranted
Costs (resource allocation)	The higher the costs of an intervention—that is, the greater the resources consumed—the lower the likelihood that a strong recommendation is warranted

Quality of Evidence

High Quality	Further research is very unlikely to change our confidence in the estimate of effect
Moderate Quality	Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate
Low Quality	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate
Very Low Quality	Any estimate of effect is very uncertain

Guyatt, G.H., et al., *GRADE: an emerging consensus on rating quality of evidence and strength of recommendations*. BMJ, 2008; 336: 924-926.

Guyatt, G.H., et al., *GRADE: going from evidence to recommendations*. BMJ, 2008; 336: 1049-1051.