

Preventing Gastrointestinal Bleeds While Taking Dual Antiplatelet Therapy (DAPT)

Proton Pump Inhibitors (PPI) for Gastrointestinal Bleed Prophylaxis

When managing a patient on DAPT, prescribers may encounter difficulty when trying to control the risk of lower gastrointestinal bleeds (LGIB) and upper gastrointestinal bleeds (UGIB) associated with DAPT. In some situations, co-prescription of a PPI may be appropriate to manage the risk of gastrointestinal bleeds.

The guidance, best practices, and guidelines (referred to as “best practices”) provided to you are presented for your consideration and assessment only. They were selected from among best practices published by various associations and organizations or discussed in studies and articles on the subject. Please assess whether the described best practices are appropriate for you. There are no requirements that you use the best practices, and the best practices are not required for any Highmark program or initiative. Please note that the successful implementation of any program or initiative depends upon many factors and variables. Therefore, Highmark makes no representation with respect to the described best practices and whether the practices will positively impact your reimbursement, value-based payment or performance under a Highmark program or initiative.

The best practices are not intended to situate Highmark as a provider of medical services or dictate the diagnosis, care or treatment of patients. Your medical judgment remains independent with respect to all medically necessary care to your patients.

The information provided is general information only and not intended to address specific circumstances; and the provision of such information does not constitute endorsement of any specific third-party vendor.

This information is issued on behalf of Highmark Blue Shield and its affiliated Blue companies, which are independent licensees of the Blue Cross Blue Shield Association. Highmark Inc. d/b/a Highmark Blue Shield and certain of its affiliated Blue companies serve Blue Shield members in 21 counties in central Pennsylvania and 13 counties in northeastern New York. As a partner in joint operating agreements, Highmark Blue Shield also provides services in conjunction with a separate health plan in southeastern Pennsylvania. Highmark Inc. or certain of its affiliated Blue companies also serve Blue Cross Blue Shield members in 29 counties in western Pennsylvania, 13 counties in northeastern Pennsylvania, the state of West Virginia plus Washington County, Ohio, the state of Delaware and 8 counties in western New York. All references to Highmark in this document are references to Highmark Inc. d/b/a Highmark Blue Shield and/or to one or more of its affiliated Blue companies.

REVIEW OF DUAL ANTIPLATELET THERAPY AND ASSOCIATED RISKS

DAPT is the use of aspirin and a P2Y₁₂ receptor inhibitor (clopidogrel, prasugrel, or ticagrelor).¹ Duration of DAPT therapy varies by indication. The ischemic benefit and bleed risk should be assessed for every patient to ensure that DAPT is still appropriate. Drug regimens must be assessed for duration and appropriateness of therapy for every patient before initiating or continuing therapy.

The following table has been adapted from the 2016 ACC/AHA Guideline Focused Update on Duration of Dual Antiplatelet Therapy in Patients With Coronary Artery Disease²

INDICATION	DURATION OF DAPT
BARE METAL STENT PLACEMENT	AT LEAST 1 MONTH
DRUG ELUTING STENT PLACEMENT	AT LEAST 6 MONTHS
CORONARY ARTERY BYPASS GRAFT	AT LEAST 12 MONTHS
NON-ST-ELEVATION ACUTE CORONARY SYNDROME	AT LEAST 12 MONTHS
ST-ELEVATION MYOCARDIAL INFARCTION	AT LEAST 12 MONTHS

DAPT increases the risk of both Upper GI Bleed and Lower GI Bleed

Aspirin, even low dose, decreases mucus production along the GI tract. P2Y₁₂ receptor inhibitors may promote bleeding in patients experiencing ulcers, hemorrhoids, diverticulosis, and other types of GI bleeds.

See Appendix 1. for the ACC DAPT Risk calculator, a tool for clinicians to weigh ischemic vs bleed risk for patients³.

ROLE OF PPIs FOR PREVENTION OF GI BLEEDS

The following individuals may benefit from PPI use during DAPT⁴

- Anyone with a history of gastrointestinal bleeding
OR
- Patients with multiple risk factors (2 or more of the following) for GI bleeds
 - Advanced age (>65 years)
 - Concomitant use of warfarin, steroids, and/or nonsteroidal anti-inflammatory drugs
 - Current *H. pylori* infection

PPIs do not reduce the risk of LGIB. The risk of LGIB should be weighed against the cardiovascular benefits in patients who have a history of LGIB.

PPI DURATION, ADMINISTRATION AND DISCONTINUATION

For patients receiving DAPT, who are at an increased risk of bleed, there are no specific dosing guidelines for PPI dosing and duration. Some general recommendations are below.

- PPIs should be used only for the duration of the DAPT and if the patient's bleeding risk continues to be high.
 - **Patient risk factors should be continuously re-evaluated to ensure appropriateness of PPI use. If risk factors are no longer present, discontinuation of the PPI may be appropriate.**
- Administration of PPI should be separated from P2Y₁₂ receptor inhibitor administration by at least 2 hours¹.
 - The plasma half-life of both drugs is less than 2 hours, so the risk of potential drug interactions will be minimized by separating the administration.
- Lansoprazole⁵ and esomeprazole⁶ are FDA approved for the primary prevention of nonsteroidal anti-inflammatory drugs (NSAIDs) (including aspirin)-induced ulcers in patients who are at an increased risk of GI bleeds.
 - This group includes patients taking DAPT (aspirin with a P2Y₁₂ receptor inhibitor).
- A drug-drug interaction exists between omeprazole/esomeprazole and clopidogrel, avoid this medication combination⁷.
 - Consider pantoprazole as an alternative therapy⁸

Appendix 1. American College of Cardiology's DAPT Risk Calculator³

Link to website: <https://tools.acc.org/daptriskapp/#!/content/calculator/>

The *American College of Cardiology's* DAPT Risk Calculator is a tool used to assess the risk of bleeding for a patient compared to their ischemic risk.

The tool was created using patients who:

- Completed 12 months of DAPT
- Did not have any major bleeding or ischemic events
- Were not on chronic anticoagulation

The tool is recommended by the ACC to be used for guidance for DAPT, not as a recommendation for or against any medical treatment.

Using the calculator

The calculator will first ask you to input certain patient characteristics:

- Age
- Medical history
 - Diabetes mellitus
 - Prior myocardial infarction or percutaneous coronary intervention
 - Hypertension
 - Peripheral arterial disease
 - Cigarette smoking within the last two years
 - History of congestive heart failure or left ventricular ejection fraction of <30%
 - Renal insufficiency
- Procedure characteristics
 - Myocardial infarction at presentation
 - Stent diameter <3mm
 - Stenting of vein graft

After inputting the characteristics, the tool will then show results:

- Assigns patients a score from -2 through 9, representing the benefit-to-risk ratio of utilizing DAPT
 - -2 shows a higher bleeding risk.
 - **Lower scores suggest an unfavorable benefit/risk ratio.**
 - 9 shows a higher ischemic risk.
 - **Higher scores suggest a more favorable benefit/risk ratio of prolonged DAPT use.**
- Risk of the following events if DAPT is continued or if DAPT is discontinued
 - Stent thrombosis/myocardial infarction
 - Major adverse cardiovascular & cerebrovascular events (MACCE)
 - Moderate to severe bleeding based on GUSTO criteria
- The change in risk if DAPT is continued at 12-30 months minus discontinued treatment at 12-30 months

REFERENCES

1. Hlatky, M. A., Antman, E. M., Bhatt, D. L., Bjorkman, D. J., Clark, C. B., Furberg, C. D., Johnson, D. A., Kahi, C. J., Laine, L., Mahaffey, K. W., Quigley, E. M., Scheiman, J., Sperling, L. S., & Tomaselli, G. F. (2010). ACCF/ACG/AHA 2010 expert consensus document on the concomitant use of proton pump inhibitors and thienopyridines: A focused update of the ACCF/ACG/AHA 2008 expert consensus document on reducing the gastrointestinal risks of antiplatelet therapy and NSAID use. *Circulation*, 122(24), 2619–2633. <https://doi.org/10.1161/cir.0b013e318202f701>
2. ACCF/AHA/SCAI guideline for percutaneous coronary intervention, 2011 ACCF/AHA guideline for Coronary Artery Bypass Graft Surgery, 2012 ACC/AHA/ACP/AATS/PCNA/SCAI/STS guideline for the diagnosis and management of patients with stable ischemic heart disease, 2013 ACCF/AHA guideline for the management of ST-Elevation Myocardial Infarction, 2014 AHA/ACC guideline for the management of patients with non–st-elevation acute coronary syndromes, and 2014 ACC/AHA guideline on Perioperative Cardiovascular Evaluation and management of patients undergoing noncardiac surgery. *Circulation*. 2016;134(10):123-155. doi:10.1161/cir.0000000000000404
3. American College of Cardiology. (n.d.). *American College of Cardiology DAPT Risk Calculator*. DAPT Risk Calculator. Retrieved September 1, 2022, from https://tools.acc.org/DAPTTriskapp/?_ga=2.262543948.1990407185.1662042287-729396000.1658337933#!/content/calculator/
4. Abraham NS, Hlatky MA, Antman EM, et al. ACCF/ACG/AHA 2010 Expert Consensus Document on the concomitant use of proton pump inhibitors and thienopyridines: a focused update of the ACCF/ACG/AHA 2008 expert consensus document on reducing the gastrointestinal risks of antiplatelet therapy and NSAID use: a report of the American College of Cardiology Foundation Task Force on Expert Consensus Documents. *Circulation*. 2010;122(24):2619-2633.
5. Lansoprazole. Lexi-Drugs. Lexi-Comp Online. Hudson, OH: Lexi-Comp; 2015. Accessed August 18, 2023.
6. Esomeprazole. Lexi-Drugs. Lexi-Comp Online. Hudson, OH: Lexi-Comp; 2015. Accessed August 18, 2023.
7. Omeprazole. Lexi-Drugs. Lexi-Comp Online. Hudson, OH: Lexi-Comp; 2015. Accessed August 18, 2023.
8. Pantoprazole. Lexi-Drugs. Lexi-Comp Online. Hudson, OH: Lexi-Comp; 2015. Accessed August 18, 2023.