



# 5 SURE-FIRE METHODS

## Improving the Safety of Anticoagulation Therapy

Anticoagulation therapy involves high-risk medications that frequently cause serious adverse events due to several factors, including the following<sup>1,2</sup>:

- Complex dosing caused by narrow therapeutic ranges and drug-drug or drug-food interactions
- Inconsistent patient adherence to monitoring, dietary, and safety expectations
- Inadequate patient evaluation or monitoring by health care providers



*Anticoagulants are a high-risk medication and require careful attention to ensure patient safety.*

For example, if a primary care provider treats a patient who takes warfarin for bronchitis and prescribes an antibiotic without also ordering more frequent monitoring of the patient's international normalized ratio (INR), then the patient will be more likely to experience an adverse event. Or if a physician is not aware that a patient with a recent deep vein thrombosis on enoxaparin enjoys horseback riding, he will not be able to specifically educate the patient about special precautions to take while on blood thinners.

“In the case of anticoagulants, the risks are very serious, from clotting and its complications (including death) to uncontrolled bleeding and its complications (including death),” says Jane Schetter, RN, senior Continuous Survey Readiness (CSR) consultant at Joint Commission Resources.

Due to the complexity and high risks involved with anticoagulation therapy, The Joint Commission created National Patient Safety Goal (NPSG) Requirement **NPSG.03.05.01**, which requires accredited hospitals, critical access hospitals, ambulatory health care organizations, and nursing care centers to reduce the likelihood of patient harm associated with the use of anticoagulation therapy. (See “Related Requirements on page 3.) “The National Patient Safety Goal on anticoagulation safety requires a standardized approach to dosing anticoagulation medications, as well as developing policies that define a standardize approach to monitoring,” says Jeannell Mansur, PharmD, practice leader, medication safety, Joint Commission Resources.

Mansur and Schetter offer the following five strategies to help organizations and health care providers improve compliance with NPSG.03.05.01:

- 1 Standardize processes related to anticoagulation therapy.** By standardizing the processes involved with anticoagulant therapy—obtaining patient history and medication reconciliation; prescribing based on nationally recognized

# Related Requirements

**NPSG.03.05.01** Reduce the likelihood of patient harm associated with the use of anticoagulant therapy.

**Note:** *This requirement applies only to hospitals that provide anticoagulant therapy and/or long-term anticoagulation prophylaxis (for example, atrial fibrillation) where the clinical expectation is that the patient's laboratory values for coagulation will remain outside normal values. This requirement does not apply to routine situations in which short-term prophylactic anticoagulation is used for venous thrombo-embolism prevention (for example, related to procedures or hospitalization) and the clinical expectation is that the patient's laboratory values for coagulation will remain within, or close to, normal values.*

## Elements of Performance for NPSG.03.05.01

1. Use only oral unit-dose products, prefilled syringes, or premixed infusion bags when these types of products are available.  
**Note:** *For pediatric patients, prefilled syringe products should be used only if specifically designed for children.*
2. Use approved protocols for the initiation and maintenance of anticoagulant therapy.
3. Before starting a patient on warfarin, assess the patient's baseline coagulation status; for all patients receiving warfarin therapy, use a current International Normalized Ratio (INR) to adjust this therapy. The

baseline status and current INR are documented in the medical record.

**Note:** *The patient's baseline coagulation status can be assessed in a number of ways, including through a laboratory test or by identifying risk factors such as age, weight, bleeding tendency, and genetic factors.*

4. Use authoritative resources to manage potential food and drug interactions for patients receiving warfarin.
5. When heparin is administered intravenously and continuously, use programmable pumps in order to provide consistent and accurate dosing.
6. A written policy addresses baseline and ongoing laboratory tests that are required for anticoagulants.
7. Provide education regarding anticoagulant therapy to prescribers, staff, patients, and families. Patient/family education includes the following:
  - The importance of follow-up monitoring
  - Compliance
  - Drug-food interactions
  - The potential for adverse drug reactions and interactions
8. Evaluate anticoagulation safety practices, take action to improve practices, and measure the effectiveness of those actions in a time frame determined by the organization.

guidelines; administering anticoagulants with programmable pumps, unit-dose products, prefilled syringes, or premixed infusion bags; monitoring schedules; and educating patients and healthcare providers—organizations will comply with nearly every element of performance (EP) under NPSG.03.05.01. “Standardization is a fundamental concept that is very tightly integrated with safety,” says Mansur. “Standardization adopts a best-practice process and extends its use, without variance, to avoid degradation of a well-planned process.”

Some health care organizations help improve the standardization of anticoagulation therapy by using pharmacist- or nurse-run anticoagulation clinics or consulting pharmacists to dose and monitor anticoagulation therapy.<sup>3,4</sup> Physicians in ambulatory health care settings can standardize their processes with e-prescribing software that has drug interaction checking or medication reconciliation assistance.<sup>2</sup>

“In addition to using standardized dosing guidelines, other possible standardizing processes could include multidisciplinary rounds for inpatients as well as multidisciplinary team meetings for outpatients, standard questions to ask practitioners to evaluate the appropriateness of a specific anticoagulation therapy

during rounds, or specific questions to ask patients to ensure patient-specific education and evaluate potential patient safety issues related to eating habits, changes in activities of daily living, or current medications,” says Schetter.

**2 Access the experts.** Experts, such as pharmacists and dietitians, can help create or revise protocols related to anticoagulation therapy, can provide customized patient education, and can be an authoritative resource to manage potential food and drug interaction in patients receiving warfarin (see EP 4). “Pharmacists should be part of a team that determines standardization as well as review of medication histories and medication lists because they may be most up-to-date on the literature of potential drug-drug interactions,” says Schetter. “In addition, a dietitian may be the most up-to-date on food-drug interactions.”

Research shows that when pharmacists educated patients about anticoagulation therapy, patients retained the information better, and 73% of patients had an INR in the therapeutic range with 44 adverse events; however, the control group of patients who did not receive pharmacist education had only 53%

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of patients in the therapeutic range and 56 adverse events.<sup>1</sup> A hospital that allowed physicians to consult pharmacists to dose and monitor anticoagulation therapy, found that bleeding and thrombotic reactions decreased from a monthly average of 11.52 events per 1,000 anticoagulant doses dispensed to 0.07 events per 1,000 anticoagulant doses dispensed.<sup>3</sup>

“I’d suggest working with a pharmacist who can identify dosing, monitoring, and education protocols and develop a standardized process in collaboration with physicians and other health care providers that can be implemented within any setting,” says Mansur. “Often, ambulatory settings don’t have pharmacists within the organization but could benefit from using pharmacists from a local hospital to advise them on how to put these processes in place.”

**3 Use independent double checks with programmable infusion pumps.** EP 5 requires organizations to use programmable pumps when continuously administering intravenous heparin. “Smart pumps are not necessary but they may be helpful,” says Schetter. “However, smart pumps are only selectively smart, so the organization should still have processes in place for independent double checks because heparin is a high-risk drug.”

When performing a double check, one nurse needs to hang the medication and confirm that the pump is programmed correctly and then ask a second nurse to independently double-check that the pump is programmed correctly and that the medication hanging is labeled properly. “Many hospitals have nurses administer a preapproved heparin dosing protocol, which requires them to adjust the dose of heparin according to PTT values,” says Mansur. “This should also include an independent double check where one nurse checks another’s adherence to the protocol.”

**4 Provide focused patient particularly, especially when patients are managed in ambulatory settings.** EP 7 requires organizations to provide education about anticoagulation therapy to patients and families, prescribers, and other health care providers. “It is critical that patients understand their role in preventing and recognizing complications and ensuring a successful therapeutic course,” says Mansur.

To ensure that patients understand how to take anticoagulants safely, they need customized information that they can act on.<sup>5</sup> “I think the best approach is using the health histories, including diet and medication histories, to personalize the education

for the patient. Even if this is taking generic education materials and highlighting information that applies specifically to the patient,” says Schetter.

When health care providers care for patients receiving anticoagulants in the hospital or nursing care center, they have much more control of the patient’s compliance with dietary restrictions, safety precautions, and monitoring frequency. But more often than not, Mansur explains that patients are managed at home on anticoagulation therapies. “Patients need to know what might interfere with good regulation of these medications,” says Mansur. “Even with low molecular weight heparins, patients require training on how to give themselves injections.”

Another way to keep patients involved in anticoagulation therapy is to use health portals or personal health records sponsored by the health care organization.<sup>2</sup> In some health portals, patients can access education resources as well as their current medication list and previous laboratory values, including INR blood levels.

**5 Continually evaluate anticoagulation safety practices.** EP 8 requires health care organizations to evaluate anticoagulation practices and take steps to improve safety. According to Schetter and Mansur, some health care providers or organizations may want to conduct surveillance for outcome indicators or complications with anticoagulation therapy, including the incidence of thrombosis or hemorrhage, INR levels greater than 3, administration of vitamin K, and mortality. “As one looks at the outcomes, there needs to be an examination of processes that should have led to patient-specific therapy such as medical history and physical (including medication and diet history), review of activities of daily living that could put the patient at risk, documentation of why a provider deviated from dosing guidelines, patient’s compliance with taking medications, monitoring frequency, and documentation of signs and symptoms of potential complications,” says Schetter. “The evaluation needs to include both outcomes and processes. The processes need to be looked at with every outcome not met so that the aggregate data might help guide what needs to change in the anticoagulation therapy program.” **TS**

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## References

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2. Long AL, et al. Characteristics of ambulatory anticoagulant adverse drug events: A descriptive study. *Thromb J.* 2010 Feb 18;8(5):1–8.