ISSN: 3107-6513

# Practice Change Project: Optimizing Therapeutic Adherence to Anticoagulants by Strengthening Nursing Leadership in the Hospital Setting

Rosemary Davila Gavino C PhT, RN, BSN, MSN DNPs
Dra. Erika Carrasquillo Meléndez PhD, DNP, FNP, MSN, CCRN
School of Nursing, Universidad Ana G. Méndez
San Juan, Puerto Rico
mrs.rdavila@gmail.com

## Abstract:

Oral anticoagulation therapy, including vitamin K antagonists and direct oral anticoagulants, is essential for preventing thromboembolic events in hospitalized patients and during the transition to home. Despite its importance, therapeutic adherence remains suboptimal, particularly after discharge, increasing the risk of preventable complications and readmissions. Nurses, given their central role in patient education, medication reconciliation, and discharge coordination, are positioned to lead interventions that strengthen adherence and promote patient safety.This project evaluated the impact of a structured, nurse-led educational intervention on nursing staff's knowledge, confidence, and educational practices related to anticoagulant management. A quasi-experimental pretest–posttest design without a control group was conducted in a metropolitan hospital in Puerto Rico with a convenience sample of thirty nurses. The intervention consisted of a 60-minute educational session integrating a didactic presentation, guided discussion, and the teach-back method. Significant improvements were observed in postintervention scores ($p < 0.001$), with increased knowledge, enhanced perceptions of nursing leadership, and greater confidence in educating anticoagulated patients. The findings demonstrate that structured educational interventions effectively strengthen clinical nursing leadership and standardize educational practices to improve therapeutic adherence to anticoagulants.

***Keywords— Nursing leadership; Oral anticoagulation; Therapeutic adherence; Patient education; Medication safety; Care transition***

## I. INTRODUCTION

Oral anticoagulation therapy, whether through vitamin K antagonists or direct oral anticoagulants, is an essential intervention for preventing thromboembolic and cerebrovascular events in hospitalized patients and during the transition to home. Despite its proven effectiveness, therapeutic adherence remains a significant challenge in clinical practice. Multiple studies have shown that adherence tends to decline after hospital discharge, particularly among patients with atrial fibrillation, where medication changes and treatment complexity directly affect continuity of therapy. This decline is associated with increased complications, avoidable readmissions, and negative impacts on institutional quality indicators. Internationally, studies in Malaysia have identified important gaps in therapeutic persistence related to access barriers, cost, and insufficient patient education. In Puerto Rico, cardiovascular and cerebrovascular diseases remain leading causes of morbidity and mortality, underscoring the need for strategies that ensure continuity of anticoagulation therapy and promote patient safety. Within this context, nursing plays a critical role. Through active participation in patient education, medication reconciliation, and discharge coordination, nurses are uniquely positioned to lead interventions that improve treatment knowledge, support shared decision-making, and sustain adherence over time. Evidence demonstrates that nurse-led educational programs enhance understanding of anticoagulation regimens, improve time in therapeutic INR range, strengthen patient self-efficacy, and reduce preventable complications. Given this reality, it is essential to develop and implement structured educational interventions that optimize therapeutic adherence and reinforce nursing leadership during the hospital-to-home transition. This article presents the rationale and relevance of a practice-change project aimed at improving anticoagulation adherence through evidence-based, nurse-led educational strategies.

## II. METHODOLOGY

### Study Design

This practice-change project utilized a quantitative, quasi-experimental pretest–posttest design without a control group to evaluate the effectiveness of a structured educational intervention aimed at improving nursing knowledge, leadership perceptions, and educational practices related to therapeutic adherence to oral anticoagulants.

### Setting and Participants

The project was conducted in a metropolitan hospital in Puerto Rico. A convenience sample of 30 registered nurses employed in inpatient clinical units voluntarily participated in the study. Eligible participants included licensed nursing professionals involved in direct patient care and discharge education. Participation was voluntary, and informed consent was obtained prior to data collection.

### Educational Intervention

The intervention consisted of a structured 60-minute educational session focused on therapeutic adherence to

anticoagulants and nursing leadership during the hospital-to-home transition. The session included a PowerPoint presentation, evidence-based clinical content, case discussions, medication safety strategies, and the teach-back method as an educational reinforcement technique. Educational materials and practical guidance related to anticoagulation therapy and patient discharge education were also provided.

Data Collection

Data were collected using a researcher-developed questionnaire administered before and after the educational intervention. The instrument included demographic questions and Likert-scale items designed to assess participants' knowledge, perceptions, confidence, and educational practices regarding anticoagulation management and patient education. Pretest and posttest responses were compared to evaluating changes following the intervention.

Data Analysis

Descriptive statistical analyses were used to summarize demographic characteristics and response distributions. Comparative analyses between pretest and posttest scores were conducted to evaluate the impact of the intervention. Statistical significance was established at $p < 0.05$.

Ethical Considerations

The project complied with ethical principles for research involving human participants. Participation was voluntary, and confidentiality and anonymity were maintained throughout the study. Data were securely stored in password-protected electronic files and locked physical storage. Participants were informed of their right to withdraw from the study at any time without penalty.

## III. LITERATURE REVIEW

Adherence to oral anticoagulation (OAC) declines significantly after hospital discharge. Among patients with atrial fibrillation, the transition from hospital to home represents a critical period, as medication changes directly influence treatment persistence (Pham Nguyen et al., 2020). Studies in Malaysia have identified gaps in adherence and persistence to non–vitamin K antagonist oral anticoagulants (NOACs), highlighting the impact of cost, accessibility, and insufficient patient education (Kubas et al., 2020).

Patient-centered education and simple strategies—such as the teach-back method, reminder plans, and supportive tools—have demonstrated improvements in patient knowledge, adherence, and INR control. In a randomized clinical trial, patients who received structured educational counseling exhibited greater knowledge, improved adherence, and a higher proportion of time within the therapeutic range (Anand et al., 2023). Qualitative studies emphasize that therapeutic agreements strengthen the patient–provider relationship and promote sustained adherence (Coral Arévalo & Rengifo Arias, 2024).

The choice of anticoagulation regimen also influences safety and treatment manageability. In very elderly and low-weight adults, NOACs demonstrated outcomes comparable to or better than vitamin K antagonists, including signals of reduced mortality (Russo et al., 2020). These findings align with the advanced nursing role in medication reconciliation and discharge education.

Despite clinical guidelines, adherence to recommended perioperative management of direct oral anticoagulants remains suboptimal. In a tertiary hospital, many elective procedures did not follow guideline recommendations, resulting in unnecessary delays and cancellations (Terrier et al., 2023). Conversely, an observational study in cystectomy patients found that continuation of oral anticoagulation or bridging with low-molecular-weight heparin did not increase blood loss or transfusion requirements (Furrer et al., 2022).

Retrospective studies confirm that adherence and persistence to NOAC therapy remain challenging, with only two-thirds of patients achieving high adherence during the first year (Kubas et al., 2020). These findings reinforce the need for structured educational interventions and follow-up strategies.

## IV. DISCUSSION

The results of this practice-change project demonstrate that a structured, nurse-led educational intervention significantly improved nurses' knowledge, perceptions, and educational practices related to therapeutic adherence to anticoagulants. These findings align with existing literature emphasizing the critical role of nursing education in optimizing anticoagulation management and ensuring patient safety during care transitions.

Prior research has shown that adherence declines substantially after hospitalization, particularly during the transition of care when medication changes and limited patient understanding contribute to treatment discontinuation (Pham Nguyen et al., 2020). The significant improvement observed in postintervention scores suggests that strengthening nurses' competencies in patient education may help mitigate these risks. The shift from predominantly neutral responses in the pretest to overwhelmingly positive responses in the posttest indicates that the intervention effectively addressed gaps in knowledge and confidence.

The intervention incorporated patient-centered strategies such as the teach-back method and the use of clinical guidelines, which likely contributed to the observed improvements. The unanimous agreement in postintervention items related to guideline use, identification of medication discrepancies, and interdisciplinary coordination supports the notion that educational interventions can strengthen system-level safety practices.

Qualitative studies highlight that therapeutic agreements and strong nurse–patient relationships promote shared

responsibility and long-term adherence (Coral Arévalo & Rengifo Arias, 2024). The enhanced perceptions of leadership observed among participants suggest that the intervention may foster these relational components in clinical practice.

Despite positive results, limitations include the small sample size (n = 30), single-site design, and reliance on self-reported measures. Additionally, the study assessed immediate changes but did not evaluate long-term retention or patient-level outcomes. Future research should address these gaps.

## V. LIMITATIONS OF THE STUDY

This practice change project presents several limitations that should be considered when interpreting the findings. First, the sample size was relatively small (n = 30) and drawn from a single hospital in Puerto Rico, which may limit the generalizability of the results to other clinical settings or nursing populations. Second, the study employed a quasi-experimental pretest–posttest design without a control group, making it difficult to attribute improvements solely to the educational intervention. Third, the outcomes were measured through self-reported questionnaires, which may introduce response bias, particularly in the post-intervention phase. Additionally, the study assessed immediate changes in knowledge and perceptions, but did not evaluate long-term retention or the impact on patient-level outcomes such as adherence, safety events, or readmissions. Future research should address these limitations by incorporating larger and more diverse samples, control groups, objective outcome measures, and longitudinal follow-up.

## VI. RECOMMENDATIONS FOR CLINICAL PRACTICE

### Clinical Practice

- Integrate structured nurse-led education into routine care processes.
- Standardize the use of the teach-back method.
- Strengthen interdisciplinary collaboration among nursing, pharmacy, and medicine.
- Develop digital educational tools such as checklists and decision-support systems.
- Promote clinical leadership among nursing staff.
- Allocate protected time for patient education.

### Institutional Policy and Quality Improvement

- Establish institutional policies defining minimum educational content and documentation requirements.
- Implement ongoing competency-based training.
- Monitor anticoagulation-related safety indicators.

### Future Research

- Assess long-term knowledge retention among nurses.
- Evaluate patient-level outcomes such as bleeding events and readmissions.
- Conduct multisite studies to enhance generalizability.
- Compare alternative educational modalities.
- Explore barriers and facilitators using qualitative methods.
- Analyze cost-effectiveness.
- Investigate patient satisfaction and engagement.

## VII. CONCLUSION

This practice-change project demonstrates that a structured, nurse-led educational intervention can generate significant improvements in knowledge, professional confidence, and clinical practices related to therapeutic adherence to anticoagulants. The project highlights the essential role of nursing leadership in promoting patient safety and enhancing the quality of care during the hospital-to-home transition. These findings provide a foundation for future evidence-based initiatives aimed at optimizing anticoagulation management and strengthening educational practices in clinical settings.

## VIII.CONFLICT OF INTEREST

The author declares no conflict of interest related to the preparation, development, or publication of this manuscript.

## IX .FUNDING

No external funding or institutional financial support was received for this study.

## X. REFERENCES

1. **Al-Ghabeesh S, et al.** Knowledge, attitude, practice, and clinical outcomes related to oral anticoagulants: A scoping review. *Research Square*. 2026. doi:10.21203/rs.3.rs-XXXXX/v1.
2. **Anand S, Avvaru D, Deshpande A, James LA, Patil AS, Patted SV.** Effect of knowledge on medication adherence and International Normalized Ratio (INR) control among patients on oral anticoagulants: A randomized controlled trial. *J Young*

ISSN: **3107-6513**

*Pharm*. 2023;15(1):111–117. doi:10.5530/0975-1505.433.

3. **Coral Arévalo DL, Rengifo Arias DM.** Un acuerdo en la anticoagulación: experiencias de las necesidades durante el uso de esta terapia. *Cultura de los Cuidados*. 2024;28(69):407–418. doi:10.14198/cuid.23264.

4. **da Silva MVB, Pereira NS, Queiroz XSB A, Melo da Silveira MMB, Bezerra SMMS.** Effectiveness of nursing strategies to promote therapeutic adherence to vitamin K antagonists: A systematic review. *J Vasc Nurs*. 2025. doi:10.1016/j.jvn.2025.07.003.

5. **Dsouza JP, Chakrabarty J, Ramachandran P, Guddattu V, Nayak BS, George A.** Effectiveness of a nursing intervention module on adherence, knowledge, quality of life, and complications among patients receiving anticoagulation therapy: A randomized controlled trial protocol. *Patient Prefer Adherence*. 2022;16:1723–1731. doi:10.2147/PPA.S365585.

6. **Furrer MA, Abgottspon J, Huber M, Engel D, Löffel LM, Beilstein CM, et al.** Perioperative continuation of aspirin, oral anticoagulants or bridging with therapeutic low-molecular-weight heparin does not increase intraoperative blood loss and transfusion rate in cystectomy patients: An observational cohort study. *BJU Int*. 2022;129(4):512–523. doi:10.1111/bju.15599.

7. **Kubas MA, Shabaruddin FH, Mazlan-Kepli W, Jagan N, Mohamed S, Nazar NIM, Zin CS.** Assessing adherence and persistence to non–vitamin K antagonist oral anticoagulants among patients with atrial fibrillation in tertiary-care referral centers in Malaysia. *J Pharm Bioallied Sci*. 2020;12(Suppl 1):S781–S786. doi:10.4103/jpbs.JPBS_381_19.

8. **Pham Nguyen TP, Chen Y, Thibault D, Leonard CE, Hennessy S, Willis A.** Impact of hospitalization and medication switching on post-discharge adherence to oral anticoagulants in patients with atrial fibrillation. *Pharmacotherapy*. 2020;40(10):1022–1035. doi:10.1002/phar.2457.

9. **Russo V, Attena E, Di Maio M, Carbone A, Parisi V, Rago A, et al.** Non-vitamin K vs vitamin K oral anticoagulants in patients aged >80 years with atrial fibrillation and low body weight. *Eur J Clin Invest*. 2020;50(11):e13335. doi:10.1111/eci.13335.

10. **Terrier J, Mach A, Fontana P, Bonhomme F, Casini A.** Clinicians' adherence to guidelines for the preoperative management of direct oral anticoagulants in a tertiary hospital: A retrospective study. *BMC Anesthesiol*. 2023;23(1):1–9. doi:10.1186/s12871-023-02276-w.

11. **Wills ME, McEwen M.** *Theoretical Basis for Nursing*. 6th ed. Philadelphia: Wolters Kluwer Health; 2021.