OUR LADY OF THE LAKE REGIONAL MEDICAL CENTER			
Policy Manual:	**Pharmacy**	**Section:**	Patient Care Services
Title:	**Pharmacist-Managed Warfarin Dosing**	**Policy Reference #:**	PH-02-15
		Supersedes #:	
Date of Origination:	12/2011	**Last Date Reviewed:**	11/13/2020
Last Date Revised:	11/13/2020		

PURPOSE: to provide guidelines to members of the pharmacy team for independently dosing warfarin when consulted to do so by physicians at Our Lady of the Lake main campus.

For the purposes of this policy – Our Lady of the Lake Acension Pharmacists are not consulted for Warfarin dosing. Acension Pharmacists may order daily INR levels upon initiation of Warfarin therapy.

POLICY:

I. Pharmacists will monitor all patients receiving warfarin daily.
II. Pharmacists will automatically adjust warfarin doses and order follow-up testing per protocol once a physician has consulted pharmacy to manage therapy.
III. Pharmacists will follow patients initiated on the argatroban order set that have a consult for warfarin dosing. Once the physician specifies, pharmacists will initiate and adjust warfarin.
IV. A member of the pharmacy team will assume the responsibility for assuring the patient's warfarin is dosed on a daily basis.
V. Pharmacists will order baseline and follow-up INR levels as follows:
    a. Daily INR levels will be ordered until two consecutive therapeutic levels are achieved. Once two consecutive therapeutic levels are attained, INR levels will be ordered twice a week.
    b. For the treatment of HIT, INR will be ordered per the 'Algorithm for the Transition of Argatroban to Warfarin'. Once argatroban is stopped, INR will be ordered daily until two consecutive therapeutic levels are attained. Thereafter, INR levels will be ordered twice a week.
VI. Pharmacists will utilize the Pharmacy and Therapeutics Committee-approved warfarin dosing guidelines for this service.
VII. Pharmacists will notify the consulting physician when:
    a. INR levels are > 4 (Exception: when patient is concomitantly on argatroban and warfarin)
    b. Any time clinically significant signs of thrombosis or bleeding are reported
    c. Any time they need further clarification of the clinical status of the patient
VIII. Pharmacists will communicate their assessment and plan to providers via a progress note written within 24 hours of the consult and within 24 hours of any dose change, change in clinical condition, or addition of an interacting medication.
IX. Medical record documentation will include an initial consult note and progress notes. Pharmacists should communicate any major issues to the consulting physician verbally before leaving a note.

X. If a physician writes an order for warfarin on a pharmacist-managed patient without writing an order to resume dosing responsibility, the pharmacist will contact the physician to clarify who is managing the therapy.

XI. Physicians will maintain all ability to order warfarin if desired. However, they should write an order such as "Physician to manage/dose warfarin therapy" to indicate to the pharmacist that they are assuming dosing responsibility if previously delegated to a pharmacist

XII. All patients receiving warfarin therapy will be counseled prior to discharge. The anticoagulation education will address the following:
   a. Compliance with medication administration and INR monitoring
   b. Drug and nutrient interactions
   c. Potential adverse reactions

XIII. Verbal and written information will be disseminated to the patient.

XIV. Pharmacists will review INR levels of all patients receiving warfarin therapy, including those whom pharmacy is not consulted, with the ability to order INR levels when indicated. The prescribing physician will be contacted when:
   a. INR is above 4 (Exception: when patient is concomitantly on argatroban and warfarin)
   b. Anytime clinically significant signs of thrombosis or bleeding are reported
   c. Dose adjustment is recommended

PROCEDURES/PROTOCOLS:

INR Targets by indication[1]

Indication	INR Target	Recommended Duration
Prophylaxis of venous thromboembolism (VTE) in patients undergoing elective hip or knee arthroplasty or hip fracture surgery	2-3	10-35 days
Treatment of first VTE with transient risk factors	2-3	3 months
Unprovoked first VTE	2-3	3 months (minimum)
Recurrent VTE	2-3	Indefinite
Prevention of cardioembolic stroke from atrial fibrillation/atrial flutter	2-3	Indefinite
Acute myocardial infarction to prevent systemic embolism	2-3	Indefinite
Mechanical aortic valve replacement with additional risk factors for VTE, Afib, LV dysfunction	2.5-3.5	Indefinite
Cardioembolic stroke or TIA	2-3	chronic
Bioprosthetic heart valve with atrial fibrillation	2-3	Indefinite
Aortic bileaflet mechanical valve with normal sinus rhythm and normal-sized left atrium	2-3	Indefinite
Mechanical mitral valve replacement	2.5-3.5	Indefinite
Bioprosthetic heart valves after insertion	2-3	3 months
On-X Valve, 3 months after insertion	1.5-2	Indefinite
Antiphospholipid syndrome with no additional risk factors, and response to therapy	2-3	Indefinite
Antiphospholipid syndrome with recurrent thromboembolic disease while INR was 2-3 or other additional risk factors for thromboembolic disease	3-4	Indefinite
Treatment of heparin-induced thrombocytopenia (HIT) with thrombosis	2-3	3 months
Treatment of heparin-induced thrombocytopenia (HIT) without thrombosis	2-3	4 weeks

[1] *Note: if indication is not stated in the medication orders in the patient's medical record, the physician will be contacted to determine the indication and confirm the therapeutic range*

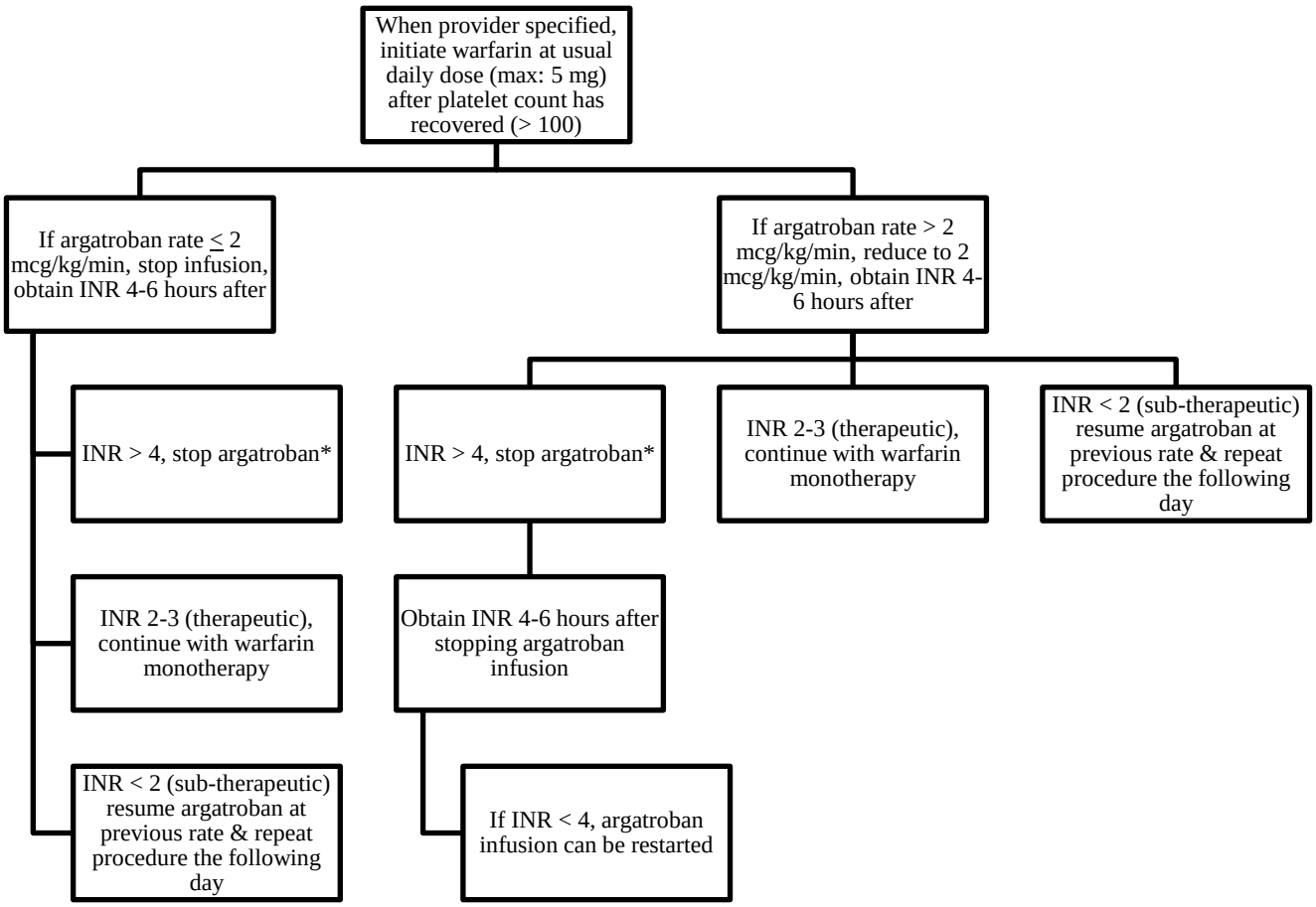
Warfarin Dosing Algorithm[1] **(Target INR 2-3)**

Day	INR	Warfarin Dose (mg)
1		5
2		5
3	<1.5	5 – 7.5
	1.5-1.9	5
	2-3	2.5 - 5
	>3 (if goal is 2 -3)	0
	3 – 3.4 (if goal is 2.5 -3.5)	2.5 - 5
	>3.5 (if goal is 2.5 -3.5)	0
4	<1.5	10
	1.5-1.9	7.5
	2-3	5
	>3(if goal is 2 -3)	0
	3 – 3.4 (if goal is 2.5 -3.5)	2.5 – 5
	>3.5 (if goal is 2.5 -3.5)	0
5	<2	10
	2-3	5
	>3(if goal is 2 -3)	0
	3 – 3.4 (if goal is 2.5 -3.5)	2.5 -5
	>3.5 (if goal is 2.5 -3.5)	0
6	<1.5	12.5
	1.5-1.9	10
	2-3	7.5
	>3(if goal is 2 -3)	0
	3 – 3.4 (if goal is 2.5 -3.5)	2.5-5
	>3.5 (if goal is 2.5 -3.5)	0

[1] *Note: patients who have been receiving warfarin during their hospitalization prior to pharmacy being consulted will be managed based on the nomogram whenever possible. However, clinical judgment will be used to determine the most effective regimen for these patients.*

Refer to the anticoagulation stewardship education document on t-drive for more details.

Algorithm for the Transition of Argatroban to Warfarin



Co-administration of argatroban and warfarin produces a combined effect on the INR
**Minimum of 5 days overlap with argatroban and warfarin*

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