Salem Health®
Hospitals & Clinics

Salem Health Referral to Anticoagulation Clinics

Clinical Department Level Policy and Protocol

Applicable Campus	Department Name	Approval Authority
Salem Health and West Valley Hospital	Cardiovascular Service Line - Anticoagulation Clinics	Chief Pharmacy Officer

Effective Date: May 2025	Next Review Date: April 2026 annual review

List Stakeholders Position or Committee	Document Status	Date of Approval
Pharmacy Director, Anticoagulation Clinic	Reviewed	03/2025
SH Assistant Nurse Manager Ambulatory Anticoagulation	Reviewed	03/2025
WVH Anticoagulation Pharmacist	Revised	03/2025
SH Manager, Cardio Clinical Operations	Reviewed	02/2025
Director, Cardiovascular Service Line	Reviewed	01/2025
Pharmacy and Therapeutics Committee	Revised	04/2025
Medical Executive Committee Officers	Reviewed	05/2025
WVH Medical Care Advisory Committee	Reviewed	03/2025
Chief Pharmacy Officer	Reviewed	05/2025
Final Approval Date SH & WVH	**Final Approval**	**05/2025**

Describe briefly the most recent revision made to this policy, procedure, or protocol and why:
Added dosing instructions for all established dosing algorithms when there is an alternating pattern of INRs in range and out of range at the sub-therapeutic end of the range allowing for a weekly dose adjustment.

Policy Content

Salem Health Anticoagulation Clinics utilize a system of care designed to coordinate and optimize the delivery of anticoagulation therapies. Coordination is necessary to:

1. Provide safe and effective anticoagulation management.
2. Minimize anticoagulation associated adverse events and costs.

Management includes warfarin, low molecular weight heparin (LMWH), fondaparinux (injectable factor Xa inhibitor), and vitamin K.

It is the policy of Salem Health Anticoagulation Clinics to provide anticoagulation therapy management services to patients referred by a licensed practitioner. The referring practitioner authorizes the management of anticoagulation therapy for their patient by Anticoagulation Clinic staff, is responsible for ongoing clinical decision-making, and provides oversight of services provided.

Steps/Key Points Procedure

CRITERIA FOR ADMISSION:

Patients must be referred to the Anticoagulation Clinic by a Primary Care Provider or Oregon licensed practitioner acting within the scope of their practice. The referring practitioner and staff must agree on the appropriateness of therapy*. If the referring practitioner and Anticoagulation Clinic staff do not agree on the appropriateness of therapy, the Clinic has the right to decline the management of the patient under consideration.

Clinic staff will assess the patient's current medical conditions, medications, diet, lifestyle, level of understanding and literacy, health beliefs and attitudes, motivation for self-care behavior, and other environmental or behavioral barriers to learning and adherence when therapy is instituted.

*Appropriateness of therapy is determined within the established Standards of Practice (Current CHEST guidelines or other national guidelines on antithrombotic therapy management)

The Anticoagulation Clinic will not manage patients who are unable or unwilling to come into the clinic for treatment, including patients at skilled nursing facilities, patients with home monitors or patients receiving home health. Salem Health Anticoagulation Clinic (SHACC) may provide anticoagulation monitoring for established SHACC patients with Salem Health Medical Group (SHMG) providers. For prolonged home health services, SHACC may transfer anticoagulation monitoring back to the referring SHMG provider.

It is the responsibility of the referring practitioner to provide appropriate diagnosis, INR goal and length of therapy.

1. The patient must be in a STABLE condition (as agreed to by Clinic staff and referring practitioner), requiring warfarin anticoagulation.
2. The patient (or agent thereof) is able to comply with provider and Clinic staff directions.
3. The patient is able to attend appointments as requested by Clinic staff.

- **CHA_2DS_2-VASc Scoring:**
  https://www.mdcalc.com/cha2ds2-vasc-score-atrial-fibrillation-stroke-risk

RISK FACTOR		POINTS
C	Congestive Heart Failure	1
H	Hypertension	1
A	Age >= 75 years	2
D	Diabetes Mellitus	1
S	Prior Stroke/TIA/Thromboembolism	2
V	Vascular Disease (prior MI, PAD	1
A	Age 65-74	1
Sc	Sex category (female)	1

Interpretation:

CHA_2DS_2-VASc Score	Stroke Risk %	CHA_2DS_2-VASc Score	Stroke Risk %
0	0	**5**	6.7
1	1.3	**6**	9.8
2	2.2	**7**	9.6
3	3.2	**8**	12.5
4	4.0	**9**	15.2

Risk	Atrial Fibrillation
High score = 2 or more	CHA_2DS_2-VASc score of 2 or more should start anticoagulant
Moderate score = 1	CHA_2DS_2-VASc score of 1 should strongly consider starting an anticoagulant. Gender alone should not be considered a risk factor.
Low score = 0	CHA_2DS_2-VASc score of 0 should not start an anticoagulant.

OPTIMAL THERAPEUTIC RANGE FOR ORAL ANTICOAGULANTS & WARFARIN DOSING GUIDELINES:

Indication	Target INR (duration)	Induction of Therapy Dosing Guidelines
Atrial Fibrillation		
CHA_2DS_2-VASc score 2 or less	2 - 3 (chronic)	INR Target 2.0-3.0 Low Risk
CHA_2DS_2-VASc score greater than 2	2 - 3 (chronic)	INR Target 2.0-3.0 High Risk
Cardioembolic stroke	2 - 3 (chronic)	INR Target 2.0-3.0 Low Risk
Following embolic event despite anticoagulation	2.5 - 3.5 (chronic)	INR Target 2.5-3.5 High Risk
Thrombotic/embolic event (DVT, PE)		
Provoked	2 - 3 (3-6 months)	INR Target 2.0-3.0 High Risk
Unprovoked	2 - 3 (chronic)	INR Target 2.0-3.0 High Risk
LV Thrombus	2 – 3 (per Provider)	INR Target 2.0-3.0 High Risk
LAA Thrombus	2 – 3 (per Provider)	INR Target 2.0-3.0 High Risk
Valvular Disease		
Aortic Valve Disease	2 - 3 (chronic)	INR Target 2.0-3.0 High Risk
Valve Replacement		
Mechanical On-X Valve (aortic) (after first three months)	1.5-2.0 (chronic)	INR Target 1.5-2.0 Low Risk
Mechanical prosthetic valve (aortic)	2 – 3 (chronic)	INR Target 2.0-3.0 High Risk
Mechanical prosthetic valve (mitral)	2.5 – 3.5 (chronic)	INR Target 2.5-3.5 High Risk
St Jude Medical bileaflet AV	2 – 3 (chronic)	INR Target 2.0-3.0 High Risk
CarboMedics bileaflet AV	2 – 3 (chronic)	INR Target 2.0-3.0 High Risk
Medtronic-Hall tilting disk AV	2 – 3 (chronic)	INR Target 2.0-3.0 High Risk
Tilting disk; or bileaflet MV	2.5 – 3.5 (chronic)	INR Target 2.5-3.5 High Risk
Antiphospholipid Antibody Syndrome[1]	2 – 3 (chronic)	INR Target 2.0-3.0 High Risk
Other hypercoagulability		per referring practitioner

1. Antiphospholipid Antibody (PHLEBOTOMY DRAW ONLY)
   This includes but is not limited to the following:
   - Lupus Anticoagulant
   - Anticardiolipin Antibody
   - Antiphospholipid Syndrome
   - Anticardiolipin Syndrome
   - Lupus Anticoagulant Positive

   If practitioner indicates patient has Lupus without antiphospholipid antibody, POC INR may be used.
2. Any diagnosis not listed above, the Anticoagulation Clinic staff will consult with Medical or Pharmacy Director for induction guidance (high risk versus low risk).
3. For non-standardized INR range, the Anticoagulation Clinic will develop individual dosing guidelines with the referring practitioner. A referring practitioner signature is required.
4. Before starting a patient on warfarin, the patient's baseline coagulation status will be established by the Anticoagulation Clinic. If a patient was started on warfarin prior to the first visit, it is the responsibility of the ordering practitioner to establish a baseline INR.
5. Upon initiation of warfarin therapy, a baseline CBC/Hemogram and CMP will be obtained. The Anticoagulation Clinic may accept in range CBC/Hemogram and CMP lab results from practitioner(s), if resulted within the last month. Abnormal results will be forwarded to the referring provider.
6. 2.5 mg Warfarin tablet strength recommended.
7. Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal dosing guidelines. A referring practitioner or Anticoagulation Clinic Medical Director signature is required for dosing outside of the protocol.

INDUCTION OF ANTICOAGULATION THERAPY **INR TARGET: 1.5 – 2.5** **LOW RISK and High Risk** *Return to Clinic (RTC) frequency is a minimum of TWO times per week*		
Warfarin Visit	**INR**	**Warfarin Dose (daily)**
Day One of Warfarin	Establish baseline INR	2.5 mg* **DAILY** 5 mg** X 2 days, then 2.5 mg if unable to check INR on day 3.
INR Visit 2	Less than 1.7	Continue daily dose
	1.8-2.2	Decrease **DAILY** dose by 1.25 mg
	2.3-3.0	Hold for 2 days, decrease **DAILY** dose by 1.25 mg
	Greater than 3.0	Hold for 3 days, then reduce **DAILY** dose by 50%
INR Visit 3	Less than 1.5	Increase **DAILY** dose by 1.25 mg
	1.5 – 2.5	Continue daily dose
	2.6 – 3.4	Decrease **DAILY** dose by 1.25 mg
	Greater than 3.4	Hold for 2 days, decrease **DAILY** dose by 50%
INR Visit 4	Less than 1.5	Increase **DAILY** dose by 1.25 mg
	1.5-2.5	Continue daily dose
	2.6 – 3.4	Decrease **DAILY** dose by 1.25 mg
	Greater than 3.4	Hold for 2 days, decrease **DAILY** dose by 2.5 mg
INR Visit 5 and beyond	Less than 1.5	Increase **DAILY** dose by 2.5 mg
	1.5-2.5	Continue daily dose
	2.6-3.0	Hold for one day, decrease **WEEKLY** dose by 5%***
	3.1-3.4	Hold for 1 day, decrease **WEEKLY** dose by 10%***
	Greater than 3.4	Hold for 2 days, decrease **WEEKLY** dose by 15%***
VARIABLE (visits 1-4)	Increase greater than 1.0 since last visit	Hold for 1 day, decrease previous day dose by 25%

If induction of therapy was started prior to Visit 1 with the Anticoagulation Clinic:
Days on Warfarin = 3 or less days Start dosing guidelines at Visit 2
Days on Warfarin = more than 3 days Start dosing guidelines at Visit 3

If patient's INR is therapeutic for two consecutive visits with a minimum of 7 days of warfarin therapy, switch to established weekly dose by continuing the average of the last 3 days of warfarin dosing.
For example, if patient has received 5 mg, 5 mg, and 3.75 mg in the last 3 days.
5+5+3.75=13.75 mg. 13.75 divided by 3 =4.58.
4.58 x 7=32.08 mg weekly dose (round to nearest mg based on tablet size).
RTC = within one week.

For INR goals of 1.5 – 1.8, 1.5-2.0, 1.6-2.0 and 1.6-2.2, the Low Risk (INR Target: 1.5-2.5) induction of anticoagulation therapy will be used.

For INR goals of 1.6-2.0 and 1.6-2.2, the Low Risk (INR Target: 1.5-2.5) induction of anticoagulation therapy will be used. Patient's INR must be 1.6 or greater for two consecutive visits before following protocol to switch patient to an established weekly dose.

*2.5 mg = Greater than or equal to 70 years old or HF, liver disease, cancer/chemotherapy, HCT less than 30, or SCr greater than 1.5
**5 mg = Less than 70 years old

***__WEEKLY DOSE__: Add the previous 7 days' doses, then reduce by the specific percentage.
For example, decrease weekly dose by 10%. Patient has had 40 mg in last 7 days. 40 x 90% (10% decrease) =36 mg weekly dose (round to nearest mg based on tablet size)

INDUCTION OF ANTICOAGULATION THERAPY **INR TARGET: 2.0 – 3.0** **LOW RISK** *Return to Clinic (RTC) frequency is a minimum of TWO times per week*		
Warfarin Visit	**INR**	**Warfarin Dose (daily)**
Day One of Warfarin	Establish baseline INR	2.5 mg* **DAILY** 5 mg** X 2 days, then 2.5 mg if unable to check INR on day 3.
INR Visit 2	Less than 1.5	Increase **DAILY** dose by 50%
	1.5 – 1.9	Continue daily dose
	2.0 – 3.0	Hold for 2 days, decrease **DAILY** dose by 25%
	Greater than 3.0	Hold for 3 days, then reduce **DAILY** dose by 50%
INR Visit 3	Less than 1.5	Increase **DAILY** dose by 25%
	1.5 – 3.0	Continue daily dose
	3.1 – 4.0	Hold for 1 day, decrease **DAILY** dose by 10%
	Greater than 4.0	Hold for 2 days, decrease **DAILY** dose by 20%
INR Visit 4 and beyond	Less than 1.5	Increase **DAILY** dose by 15%
	1.5 – 1.9	Increase **DAILY** dose by 10%
	2.0 – 3.0	Continue daily dose
	3.1 – 4.0	Hold for 1 day, decrease **WEEKLY** dose by 10%***
	4.1 – 4.5	Hold for 2 days, decrease **WEEKLY** dose by 15%***
	4.6 – 5.0	Hold for 2 days, decrease **WEEKLY** dose by 20%***
VARIABLE **(visits 1 through 3)**	Increase greater than 1.0 since last visit	Hold for 1 day, decrease previous day dose by 25%

If induction of therapy was started prior to Visit 1 with the Anticoagulation Clinic:
Days on Warfarin = 3 or less days Start dosing guidelines at Visit 2
Days on Warfarin = more than 3 days Start dosing guidelines at Visit 3

If patient's INR is therapeutic for two consecutive visits with a minimum of 7 days of warfarin therapy, switch to established weekly dose by continuing the average of the last 3 days of warfarin dosing.
For example, if patient has received 5 mg, 5 mg, and 3.75 mg in the last 3 days.
5+5+3.75=13.75 mg. 13.75 divided by 3 =4.58.
4.58 x 7=32.08 mg weekly dose (round to nearest mg based on tablet size).
RTC = within one week.

For INR goals of 1.8-2.5, 2.0 – 2.5 or 2.0 – 3.5, the Low Risk (INR Target: 2.0 – 3.0) induction of anticoagulation therapy will be used.

*2.5 mg = Greater than or equal to 70 years old or HF, liver disease, cancer/chemotherapy, HCT less than 30, or SCr greater than 1.5
**5 mg = Less than 70 years old
***__WEEKLY DOSE__: Add the previous 7 days' doses, then reduce by the specific percentage.
For example, decrease weekly dose by 10%. Patient has had 40 mg in last 7 days. 40 x 90% (10% decrease) = 36 mg weekly dose (round to nearest mg based on tablet size)

INDUCTION OF ANTICOAGULATION THERAPY

INR TARGET: 2.0 – 3.0

HIGH RISK

Return to Clinic (RTC) frequency is a minimum of THREE times per week

Warfarin Visit	INR	Warfarin Dose (daily)	LMWH/ injectable factor Xa inhibitor
Day One of Warfarin	Establish baseline INR	5 mg* X 2 days, then 2.5 mg if unable to check INR on day 3 10 mg** X 2 days, then 7.5 mg if unable to check INR on day 3	Start / continue LMWH/ injectable factor Xa inhibitor
INR Visit 2	Less than 1.5	Increase **DAILY** dose by 2.5 mg	Continue LMWH/ injectable factor Xa inhibitor
	1.5 – 1.9	Continue daily dose	
	2.0 – 2.5	Hold for 1 day, decrease **DAILY d**ose by 25%	
	2.6 – 3.0	Hold for 2 days, decrease **DAILY** dose by 30%	
	Greater than 3.0	Hold for 3 days, reduce **DAILY** dose by 40%	
INR Visit 3	Less than 2.0	Increase **DAILY** dose by 2.5 mg	Continue LMWH/ injectable factor Xa inhibitor
	2.0 – 2.6	Continue daily dose	Stop if INR greater than 2 for adequate time****
	2.7 – 3.0	Decrease **WEEKLY** dose by 15%***	
	3.1 – 3.5	Decrease **DAILY** dose by 1.25 mg	
	3.6 – 4.0	Decrease **DAILY** dose by 2.5 mg	
	Greater than 4.0	Hold for 2 days, decrease **DAILY** dose by 20%	
INR Visit 4 and beyond	Less than 1.8	Increase **DAILY** dose by 2.5 mg	Continue LMWH/ injectable factor Xa inhibitor
	1.8 – 1.9	Increase **DAILY** dose by 2.5 mg X 1 day, continue previous dose	
	2.0 – 3.0	Continue daily dose	Stop if INR 2.0 or greater for adequate time ****
	3.1 – 3.5	Decrease **DAILY** dose by 2.5 mg	
	3.6 – 4.0	Hold for 1 day, decrease **WEEKLY** dose by 10%***	
	4.1 – 5.0	Hold for 2 days, decrease **WEEKLY** dose by 20%***	
	5.1 – 6.0	Hold for 3 days, decrease **WEEKLY** dose by 30%***	
VARIABLE (visit 1 through 3)	Increase greater than 1.0 since last visit	Hold for 1 day, decrease previous day dose by 25%	

If induction of therapy was started prior to Visit 1 with the Anticoagulation Clinic:
Days on Warfarin = 3 or less days Start dosing guidelines at Visit 2
Days on Warfarin = more than 3 days Start dosing guidelines at Visit 3

If patient's INR is therapeutic for two consecutive visits with a minimum of 7 days of warfarin therapy, switch to established weekly dose by continuing the average of the last 3 days of warfarin dosing.
For example, if patient has received 5 mg, 5 mg, and 3.75 mg in the last 3 days.
5+5+3.75=13.75 mg. 13.75 divided by 3 =4.58.
4.58 x 7=32.08 mg weekly dose (round to nearest mg based on tablet size).
RTC = within one week.

For INR goals of 1.8 – 2.5, 2.0 – 2.5 or 2.0 – 3.5, the High Risk (INR Target: 2.0 – 3.0) induction of anticoagulation therapy will be used.

*5 mg = Greater than or equal to 70 years old or HF, liver disease, cancer/chemotherapy, HCT less than 30, or SCr greater than 1.5
**10 mg = Less than 70 years old
***__WEEKLY DOSE:__ Add the previous 7 days' doses, then reduce by the specific percentage.
For example, decrease weekly dose by 10%. Patient has had 40 mg in last 7 days. 40 x 90% (10% decrease) = 36 mg weekly dose (round to nearest mg based on tablet size). If patient has had only 6 days of warfarin dosing (due to a skipped or missed dose), add those 6 days, divide by 6 and then multiply by 7 to determine the weekly dose and then reduce by the specific percentage.
****Stop if administered for a minimum of 5 days and INR at or above target for two consecutive visits

INDUCTION OF ANTICOAGULATION THERAPY

INR TARGET: 2.5 – 3.5

HIGH RISK

Return to Clinic (RTC) frequency is a minimum of THREE times per week

Warfarin Visit	INR	Warfarin Dose (daily)	LMWH/injectable factor Xa inhibitor
Day One of Warfarin	Establish baseline INR	5 mg* X 2 days, then 2.5 mg if unable to check INR on day 3 10 mg** X 2 days, then 7.5 mg if unable to check INR on day 3	Start LMWH/ injectable factor Xa inhibitor
INR Visit 2	Less than 1.5	Increase **DAILY** dose by 2.5 mg X 2 days, continue previous day dose	Continue LMWH/ injectable factor Xa inhibitor
	1.5 – 1.9	Continue daily dose	
	2.0 – 2.5	Decrease **DAILY** dose by 2.5 mg	
	2.6 – 3.0	Hold for 1 day, decrease **DAILY** dose by 2.5 mg	
	Greater than 3.0	Hold for 2 days, decrease **DAILY** dose by 2.5 mg	
INR Visit 3 and beyond	Less than 2.3	Increase **DAILY** dose by 2.5 mg	Continue LMWH/ injectable factor Xa inhibitor
	2.3 – 2.4	Increase dose by 2.5 mg by 1 day, continue previous day dose	
	2.5 – 3.5	Continue daily dose	Stop if INR 2.5 or greater for adequate time****
	3.6 – 4.0	Decrease **DAILY** dose by 2.5 mg	
	Greater than 4.0	Hold for 2 days, decrease **DAILY** dose by 2.5 mg	
VARIABLE	Increase greater than 1.0 since last visit	Hold for 1 day, decrease previous day dose by 25%	

If induction of therapy was started prior to Visit 1 with the Anticoagulation Clinic:
Days on Warfarin = 3 or less days Start dosing guidelines at Visit 2
Days on Warfarin = more than 3 days Start dosing guidelines at Visit 3

If patient's INR is therapeutic for two consecutive visits with a minimum of 7 days of warfarin therapy, switch to established weekly dose by continuing the average of the last 3 days of warfarin dosing.
For example, if patient has received 5 mg, 5 mg, and 3.75 mg in the last 3 days.
5+5+3.75=13.75 mg. 13.75 divided by 3 =4.58.
4.58 x 7=32.08 mg weekly dose (round to nearest mg based on tablet size).
RTC = within one week.

For INR goals of 2.5 – 3.0, 2.8 – 3.5, the High Risk (INR Target: 2.5 – 3.5) induction of anticoagulation therapy will be used.

For INR goals of 3.0 – 3.5, 3.0 – 4.0, the High Risk (INR Target: 2.5 – 3.5) induction of anticoagulation therapy will be used. Patient's INR must be 3.0 or greater for two consecutive visits before following protocol to switch patient to an established weekly dose

*5 mg = Greater than or equal to 70 years old or HF, liver disease, cancer/chemotherapy, HCT less than 30, or SCr greater than 1.5
**10 mg = Less than 70 years old
****Stop if administered for a minimum of 5 days and INR at or above target for two consecutive visits

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 1.5 – 1.8			
INR	**Warfarin Today's Dose *** (as % of weekly dose)**	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4 Established weekly dose 2 weeks or less or sub-therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	5% increase	5% increase	Within 2 weeks
0.9 – 1.4 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
1.5 – 1.8	Continue dose	Continue dose	1-6 weeks*
1.9 – 2.4 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
1.9 – 2.4 Established weekly dose 2 weeks or less or supra-therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
2.5 – 2.9	10% decrease	5% decrease	Within 2 weeks
3.0 -3.5	15% decrease	10% decrease	Within 1 week
3.6 – 4.0	20% decrease	20% decrease	Within 1 week
4.1-4.5	25% decrease	25% decrease	Minimum 2 times per week
4.6-5.0	30% decrease	30% decrease	Minimum 2 times per week
5.1 – 6.0 ** (Verified by phlebotomy)	Hold	Hold 1 additional day, 40% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH /injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 1.5 – 2.0			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	5% increase	5% increase	Within 2 weeks
0.9 – 1.4 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
1.5 – 2.0	Continue dose	Continue dose	1-6 weeks*
2.1– 2.4 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
2.1 – 2.4 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
2.5 – 2.9	10% decrease	5% decrease	Within 2 weeks
3.0 – 3.5	10% decrease	10% decrease	Within 1 week
3.6-4.0	20% decrease	20% decrease	Within 1 week
4.1-4.5	25% decrease	25% decrease	Minimum 2 times per week
4.6-5.0	30% decrease	30% decrease	Minimum 2 times per week
5.1 – 6.0 ** (Verified by phlebotomy)	Hold	Hold 1 additional day, 35% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 1.5 – 2.5			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	5% increase	5% increase	Within 2 weeks
0.9 – 1.4 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
1.5 – 2.5	Continue dose	Continue dose	1-6 weeks*
2.6 – 3.0 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
2.6 – 3.0 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
3.1 – 3.5	10% decrease	10% decrease	Within 1 week
3.6-4.0	15% decrease	15% decrease	Within 1 week
4.1-4.5	20% decrease	20% decrease	Minimum 2 times per week
4.6-5.0	25% decrease	25% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	Hold	30% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	Hold	Hold 1 additional day, 40% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 1.6 – 2.0			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.5 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	5% increase	5% increase	Within 2 weeks
0.9 – 1.5 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
1.6 – 2.0	Continue dose	Continue dose	1-6 weeks*
2.1 – 2.4 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
2.1 – 2.4 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
2.5 – 2.9	10% decrease	5% decrease	Within 2 weeks
3.0 – 3.5	10% decrease	10% decrease	Within 1 week
3.6-4.0	20% decrease	20% decrease	Within 1 week
4.1-4.5	25% decrease	25% decrease	Minimum 2 times per week
4.6-5.0	30% decrease	30% decrease	Minimum 2 times per week
5.1 – 6.0 ** (Verified by phlebotomy)	Hold	Hold 1 additional day, 35% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 1.6 – 2.2			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.5 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	5% increase	5% increase	Within 2 weeks
0.9 – 1.5 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
1.6 – 2.2	Continue dose	Continue dose	1-6 weeks*
2.3 – 2.6 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
2.3 – 2.6 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
2.7 – 2.9	10% decrease	5% decrease	Within 2 weeks
3.0 – 3.5	10% decrease	10% decrease	Within 1 week
3.6-4.0	15% decrease	15% decrease	Within 1 week
4.1-4.5	20% decrease	20% decrease	Minimum 2 times per week
4.6-5.0	25% decrease	25% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	Hold	30% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	Hold	Hold 1 additional day, 40% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 1.8 – 2.5			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4	10% increase	5% increase	Within 2 weeks
1.5 – 1.7 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	5% increase	5% increase	Within 2 weeks
1.5 – 1.7 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
1.8 – 2.5	Continue dose	Continue dose	1-6 weeks*
2.6 – 3.0 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
2.6 – 3.0 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
3.1 – 3.5	10% decrease	10% decrease	Within 1 week
3.6-4.0	15% decrease	15% decrease	Within 1 week
4.1-4.5	20% decrease	20% decrease	Minimum 2 times per week
4.6-5.0	25% decrease	25% decrease	Minimum 2 times per week
e 5.1 – 5.5 ** (Verified by phlebotomy)	Hold	30% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	Hold	Hold 1 additional day, 40% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 2.0 – 2.5			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.2	10% increase	10% increase	Minimum 2 times per week
1.3 – 1.5	10% increase	5% increase	Within 1 week
1.6 – 1.9 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	5% increase	5% increase	Within 2 weeks
1.6 – 1.9 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
2.0 – 2.5	Continue dose	Continue dose	1-6 weeks*
2.6 – 3.0 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
2.6 – 3.0 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
3.1 – 3.5	10% decrease	10% decrease	Within 1 week
3.6-4.0	15% decrease	15% decrease	Within 1 week
4.1-4.5	20% decrease	20% decrease	Minimum 2 times per week
4.6-5.0	25% decrease	25% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	Hold	30% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	Hold	35% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 2.0 – 3.0			
INR	**Warfarin Today's Dose (as % of weekly dose) *****	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.1	15% increase	15% increase	Minimum 2 times per week
1.2 – 1.5	15% increase	10% increase	Within 1 week
1.6 – 1.9 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	10% increase	5% increase	Within 2 weeks
1.6 – 1.9 Established more than 2 weeks	10% increase	Continue dose	Resume regular RTC frequency
2.0 – 3.0	Continue dose	Continue dose	1-6 weeks*
3.1 – 3.5 Established more than 2 weeks	10% decrease	Continue dose	Resume regular RTC frequency
3.1 – 3.5 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	10% decrease	5% decrease	Within 2 weeks
3.6 – 4.0	10% decrease	10% decrease	Within 2 weeks
4.1 – 4.5	15% decrease	15% decrease	Within 1 week
4.6 – 5.0	20% decrease	20% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	25% decrease	25% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	30% decrease	30% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 2.0 – 3.5			
INR	**Warfarin Today's Dose (as % of weekly dose) *****	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.1	15% increase	15% increase	Minimum 2 times per week
1.2 – 1.5	15% increase	10% increase	Within 2 weeks
1.6 – 1.9 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	10% increase	5% increase	Within 2 weeks
1.6 – 1.9 Established more than 2 weeks	10% increase	Continue dose	Resume regular RTC frequency
2.0 – 3.5	Continue dose	Continue dose	1-6 weeks*
3.6 – 4.0 Established more than 2 weeks	10% decrease	Continue dose	Resume regular RTC frequency
3.6 – 4.0 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	10% decrease	5% decrease	Within 2 weeks
4.1 – 5.0	15% decrease	10% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	20% decrease	20% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	20% decrease	25% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

*****Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 2.5 – 3.0			
INR	**Warfarin Today's Dose (as % of weekly dose) *****	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4	15% increase	15% increase	Minimum 2 times per week
1.5 – 1.9	15% increase	10% increase	Within 1 week
2.0 – 2.4 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	10% increase	5% increase	Within 2 weeks
2.0 – 2.4 Established more than 2 weeks	10% increase	Continue dose	Resume regular RTC frequency
2.5 – 3.0	Continue dose	Continue dose	1-6 weeks*
3.1 – 3.5 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
3.1 – 3.5 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
3.6 – 4.0	10% decrease	10% decrease	Within 2 weeks
4.1 – 4.5	15% decrease	15% decrease	Within 1 week
4.6 – 5.0	20% decrease	20% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	25% decrease	25% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	30% decrease	30% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 2.5 – 3.5			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4	15% increase	15% increase	Minimum 2 times per week
1.5 – 1.9	15% increase	10% increase	Within 1 week
2.0 – 2.4 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	10% increase	5% increase	Within 2 weeks
2.0 – 2.4 Established more than 2 weeks	10% increase	Continue dose	Resume regular RTC frequency
2.5 – 3.5	Continue dose	Continue dose	1-6 weeks*
3.6 – 4.0 Established more than 2 weeks	10% decrease	Continue dose	Resume regular RTC frequency
3.6 – 4.0 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	10% decrease	5% decrease	Within 2 weeks
4.1 – 4.5	10% decrease	10% decrease	Within 1 week
4.6 – 5.0	15% decrease	15% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	20% decrease	20% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	25% decrease	25%decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

*****Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 2.8 – 3.5			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4	15% increase	15% increase	Minimum 2 times per week
1.5 – 1.9	15% increase	10% increase	Minimum 2 times per week
2.0 – 2.4	10% increase	10% increase	Within 1 week
2.5 – 2.7 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	10% increase	5% increase	Within 2 weeks
2.5 – 2.7 Established more than 2 weeks	10% increase	Continue dose	Resume regular RTC frequency
2.8 – 3.5	Continue dose	Continue dose	1-6 weeks*
3.6 – 4.0 Established more than 2 weeks	10% decrease	Continue dose	Resume regular RTC frequency
3.6 – 4.0 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	10% decrease	5% decrease	Within 2 weeks
4.1 – 4.5	10% decrease	10% decrease	Within 1 week
4.6 – 5.0	15% decrease	10% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	20% decrease	20% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	25% decrease	25% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 3.0 – 3.5			
INR	**Warfarin Today's Dose (as % of weekly dose) *** **	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.4	15% increase	15% increase	Minimum 2 times per week
1.5 – 1.9	15% increase	10% increase	Within 1 week
2.0 – 2.4	10% increase	10% increase	Within 2 weeks
2.5 – 2.9 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits	5% increase	5% increase	Within 2 weeks
2.5 – 2.9 Established more than 2 weeks	5% increase	Continue dose	Resume regular RTC frequency
3.0 – 3.5	Continue dose	Continue dose	1-6 weeks*
3.6 – 4.0 Established more than 2 weeks	5% decrease	Continue dose	Resume regular RTC frequency
3.6 – 4.0 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	5% decrease	5% decrease	Within 2 weeks
4.1 – 4.4	10% decrease	5% decrease	Within 1 week
4.5 – 5.0	10% decrease	10% decrease	Minimum 2 times per week
5.1 – 5.5 ** (Verified by phlebotomy)	20% decrease	20% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	25% decrease	25% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

***Daily reduction may extend to the following day if needed to achieve the reduction**

ESTABLISHED ANTICOAGULATION THERAPY INR TARGET: 3.0 – 4.0			
INR	**Warfarin Today's Dose (as % of weekly dose) *****	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
0.9 – 1.6	15% increase	15% increase	Minimum 2 times per week
1.7 – 2.4	15% increase	10% increase	Within 1 week
2.5 – 2.9 Established weekly dose 2 weeks or less or sub therapeutic trends for two consecutive visits or for alternating subtherapeutic INRs^	10% increase	5% increase	Within 2 weeks
2.5 – 2.9 Established more than 2 weeks	10% increase	Continue dose	Resume regular RTC frequency
3.0 – 4.0	Continue dose	Continue dose	1-6 weeks*
4.1 – 4.5 Established more than 2 weeks	10% decrease	Continue dose	Resume regular RTC frequency
4.1 – 4.5 Established weekly dose 2 weeks or less or supra therapeutic trends for two consecutive visits	10% decrease	5% decrease	Within 2 weeks
4.6 – 5.0	10% decrease	10% decrease	Within 1 week
5.1 – 5.5 ** (Verified by phlebotomy)	20% decrease	20% decrease	Minimum 2 times per week
5.6 – 6.0 ** (Verified by phlebotomy)	25% decrease	25% decrease	Minimum 2 times per week
6.1 or greater (Verified by phlebotomy)	Contact practitioner for updated warfarin order and continue RTC plan		

*For patients who completed induction, the length between visits may be increased by 1 week increments until a maximum of 4 weeks between visits. After maintaining therapeutic INR target for three consecutive months, may increase the length between visits by 1 week increments until a maximum of 6 weeks between visits.

**Anticoagulation Clinic (ACC) will notify referring practitioner of INRs 5.1 – 6.0 with the above dosing plans. If practitioner prefers an alternative dosing plan, the practitioner must contact the ACC and provide orders.

^ If the patient has an alternating pattern of two of the three most recent INRs are sub-therapeutic and other INR is in the lower half of the target range.

2.5 mg tablet strength recommended. Percentage change in dose is rounded up or down to the nearest recommended percent.

Patients with sub therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub therapeutic INR unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor per protocol.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal guidelines. A referring practitioner signature is required for dosing outside of the protocol.

*****Daily reduction may extend to the following day if needed to achieve the reduction.**

ESTABLISHED ANTICOAGULATION THERAPY VARIABLES				
Variable	**INR**	**Warfarin Today's Dose (as % of weekly dose)**	**Weekly Warfarin Dose (as % of weekly dose)**	**Return to Clinic (RTC)**
Missed 1 – 2 full or partial dose within the past 5 days	Less than target	10% increase or 5% increase for INR goals with 0.5 range or less	Continue prescribed dose	2-6 weeks
	Within target range	No change	No change	2-6 weeks
	Greater than target up to 5.0	10% decrease or 5% decrease for INR goals with 0.5 range or less	10% decrease	Within 2 weeks
Missed 1 – 2 full or partial dose within the past 3 days (phone call)	Instruct patient to add previous day's missed dose to today's dose. Resume prescribed dose.			
Missed 3 full or partial dose within the past 5 days	Dose per Established Patient Protocol. Follow variables for elevated or sub therapeutic INR for known reason (see below)			
Extra full or partial dose within the past 5 days	Less than target	10% increase or 5% increase for INR goals with 0.5 range or less	10% increase	Within 2 weeks
	Within target range	No change	No change	2-6 weeks
	Greater than target up to 5.0	10% decrease or 5% decrease for INR goals with 0.5 range or less	Continue prescribed dose	2-6 weeks
Extra 1-2 full or partial dose within the past 3 days (phone call)	Instruct patient to deduct previous day's extra dose from today's dose (or if already taken, deduct from tomorrow's dose). Resume prescribed dose.			
Missed or Extra 1 – 2 full or partial dose within the past 5 days for INR 5.1 or above	Dose per Established Patient Protocol. Follow variables for elevated or sub therapeutic INR for known reason (see below)			
Missed full or partial dose the night before	If INR is less than 50% above the low end of the goal, patient to take the amount of warfarin missed along with their normal dose of warfarin that day.			
Patient taking incorrect dose for 2 weeks or more and INR is in range	Continue "patient reported" weekly dose.			
Elevated INR for known reason that may increase anticoagulant effect	Dose per protocol. Once the situation or medication is complete and the INR is halfway above the low end of the goal or lower, resume the pre situation or pre-medication weekly warfarin dose and recheck INR with one week. If INR in range, resume normal RTC frequency. If INR remains greater than 0.5 above the low end of the goal for 4 weeks or more, continue the current dose and do not resume the pre situation/medication weekly warfarin dose. Examples: increased ETOH use, illness, or short-term medications (2 weeks or less) that can potentiate anticoagulant effects (per Micromedex), pain, stress, etc.			
Sub therapeutic INR for known reason that may decrease anticoagulant effect	Dose per protocol. Once the situation or medication is complete and the INR is halfway below the high end of the goal or above, resume the pre situation or pre-medication weekly warfarin dose and recheck INR with one week. If INR in range, resume normal RTC frequency. If INR remains less than 0.5 below the high end of the goal for 4 weeks or more, continue the current dose and do not resume the pre situation/medication weekly warfarin dose.			

	Examples: short term decreased ETOH use, short term vitamin k intake, short term medications (2 weeks or less) that can inhibit anticoagulant effects (per Lexicomp), missed 3 or more doses, etc.			
Vitamin K or C dietary increase sustained	Less than target	Follow protocol	10% increase	Within 1 week
	Within target range	No change	No change	Within 2 weeks
	Greater than target	Follow protocol	Follow protocol	Within 1 week
Vitamin K or C dietary decrease sustained	Less than target	Follow protocol	Follow protocol	Within 1 week
	Within target range	No change	No change	Within 2 weeks
	Greater than target	Follow protocol	10% decrease	Within 1 week
Medication start amiodarone or carbamazepine	Less than target	Follow protocol	Follow protocol	Weekly X 6 weeks
	Within target range	Follow protocol	Follow protocol	Weekly X 6 weeks
	Greater than target	Follow protocol	Follow protocol	Weekly X 6 weeks
Medication dose change to amiodarone or carbamazepine	Less than target	Follow protocol	Follow protocol	Weekly X 4 weeks
	Within target range	Follow protocol	Follow protocol	Weekly X 4 weeks
	Greater than target	Follow protocol	Follow protocol	Weekly X 4 weeks
Medication start rifampin	Less than target	Double dose	50% increase	Minimum 2 times per week X 3 weeks
	Within target range	Follow protocol	Follow protocol	Minimum 2 times per week X 3 weeks
	Greater than target	Follow protocol	Follow protocol	Minimum 2 times per week X 3 weeks
Medication stop rifampin	Immediately put patient on pre-rifampin dose. Follow established patient protocol. For those patients who were not on an established dose of warfarin prior to starting rifampin, reduce weekly dose by 50% when rifampin discontinued.			Minimum 2 times per week X 3 weeks
Medication start or stop primidone	Less than target	Follow protocol	Follow protocol	Weekly X 3 weeks
	Within target range	Follow protocol	Follow protocol	Weekly X 3 weeks
	Greater than target	Follow protocol	Follow protocol	Weekly X 3 weeks
	If INR has not reverted to baseline, continue weekly 2 additional weeks.			
Daptomycin	Due to potential false INR elevation from daptomycin, patients receiving IV daptomycin must have INR checked at least 20 hours after the last daptomycin dose-for every 24-hour dosing, or 44 hour- for every 48-hour dosing.			
Medication change inhibits or may potentiate anticoagulant effects	Follow protocol			Within 1 week
Patients on antibiotics, antifungals or steroids	Dose per protocol and use INR elevated for known reason as appropriate. Extend RTC frequency if on long term antibiotics (greater than 2 weeks) and INR in range x 2			Minimum 2 times per week while on medication and 3 days after stopping except for Macrobid (nitrofurantoin)
Pre-cardioversion / Pre-Watchman procedure	Follow protocol. If INR is sub-therapeutic anytime during the 4 weekly checks, notify practitioner performing procedure.			Weekly X 4 weeks
Post ablation without LMWH/ injectable factor Xa inhibitor bridge	Follow protocol			Weekly X 2 weeks
Override dosing for established patients	If INR is out of range after implementing a new weekly dose (override), treat this as first "out of range" INR.			

Resumption of pre-situation dose	If INR is out of range, treat this as first "out of range"
Post induction	If patient has established a weekly dose off induction (without override) and INR is out of range within 2 weeks, this is considered first out of range, dose established less than 2 weeks
Post hospital	• At first INR visit post-hospitalization, check INR and dose off the pre-hospital weekly warfarin dose. Pharmacist or RN to evaluate for health or medication changes to determine if pre-hospital dose continues to be appropriate and if not appropriate, obtain order from referring practitioner. • If the first post hospital INR is out of range, consider this as the first out of range for established protocol. • If patient has received more or less warfarin in hospital, use extra dose variable, missed dose variable, INR elevated or sub-therapeutic for known reason, as appropriate • When INR is in range post hospital and on usual dose, recheck INR in one week. If INR remains in range, resume normal return to clinic frequency
Transfer patients	If INR in range at first visit and RTC frequency is verified by practitioner, SHACC may continue RTC frequency. If unable to verify RTC frequency, check INR within 2 weeks and then per clinic protocol If INR out of range at first visit, follow SHACC RTC frequency.
Patients who do not follow recommended RTC	Dose per protocol and RTC frequency per protocol. Example: If patient has been instructed to return to clinic for INR check in 2 weeks, but does not come in for 4 weeks, document "return in 2 weeks, but patient prefers 4 weeks" and schedule patient per preference.
Transition from DOAC to Warfarin or Warfarin to DOAC	Obtain transition order from practitioner
POC and LMWH	If INR is 2.9 or higher on POC and LMWH was given with the last 9 hours for every 12-hour dosing or within the last 18 hours for 24-hour dosing, then obtain phlebotomy INR and dose warfarin per phlebotomy INR.
Head Trauma	Advise patient for ED evaluation for any head trauma within 7 days. Follow standard work for head trauma greater than 7 days.

ANTICOAGULATION THERAPY **Critical INR's** *Applies to induction and established patients*	
Any INR value	Uncontrolled active bleeding: Instruct patient to wait on hospital campus, notify referring practitioner, or consider Urgent Care or ED evaluation if appropriate.
POC **5.1 and greater**	INR to be verified by venous phlebotomy For POC 6.1 or greater, have patient wait on hospital campus for results of venous phlebotomy if patient is greater than 70 years old, history of CVA or history of bleeding.
Phlebotomy **6.1-10.0**	No significant bleeding: Immediately notify referring practitioner, provide dosing recommendation, and consider if oral vitamin k is necessary. Obtain order from practitioner.
Phlebotomy **Greater than 10.0**	No significant bleeding: Immediately notify referring practitioner, consider ED evaluation. Hold warfarin until INR decreases, per referring practitioner order. Consider oral vitamin K 2.5 mg x 1, repeat as needed in 24 hours (practitioner order required)

LOW-MOLECULAR-WEIGHT HEPARIN AND INJECTABLE FACTOR Xa INHIBITOR DOSING GUIDELINES:

1. **Enoxaparin (LOVENOX): Venous Thromboembolism and Bridging**
   a. Full Therapeutic Dosing for creatinine clearance 30 mL/min or greater:

Weight	Enoxaparin dose (subcutaneous) if BMI less than 40	Acute VTE (3 months or less) with BMI between 27 & 40	Enoxaparin dose (subcutaneous) if BMI greater than or equal to 40
24-33 Kg	40 mg every 24 hours	See Table b	N/A
34-46 Kg	60 mg every 24 hours		
47-59 Kg	80 mg every 24 hours		
60-73 Kg	100 mg every 24 hours		
74-89 Kg	120 mg every 24 hours		0.75 mg/kg every 12 hours, round to the nearest syringe size
90-116 Kg	150 mg every 24 hours		
117-133 Kg	200 mg every 24 hours		
Over 133 Kg	1 mg/Kg every 12 hours		0.75 mg/kg every 12 hours, round to a dose achievable with no more than 2 syringes

   b. Full Therapeutic-Dosing Acute VTE (3 months or less) and creatinine clearance 30 mL/ min or greater:

Weight	Enoxaparin dose (subcutaneous) > 27 but less than 40
60-69 Kg	60 mg every 12 hours
70-89 Kg	80 mg every 12 hours
90-109 Kg	100 mg every 12 hours
110-134 Kg	120 mg every 12 hours
135-174 kg	150 mg every 12 hours
Over 174 kg	1 mg/kg every 12 hours, round to a dose achievable with no more than 2 syringes

   c. Full Therapeutic Renal Dosing for creatinine clearance greater than 20 but less than 30 mL/min:

Weight	Renal Enoxaparin dose if BMI less than 40	Renal Enoxaparin dose if BMI greater than or equal to 40
Under 36 Kg	1 mg/Kg every 24 hours	N/A
36-49 Kg	40 mg every 24 hours	
50-69 Kg	60 mg every 24 hours	
70-89 Kg	80 mg every 24 hours	0.75 mg/kg every 24 hours, round to the nearest syringe size achievable with no more than 2 syringes
90-109 Kg	100 mg every 24 hours	
110-135 Kg	120 mg every 24 hours	
136-160 Kg	150 mg every 24 hours	
Over 160 Kg	1 mg/Kg every 24 hours	

d. Prophylactic Dosing:

BMI	Prophylactic Enoxaparin dose
Less than 18.5	30 mg once daily for CrCl 30 mL/min or a greater Do not use if Crcl less than 30 mL/min (recommend heparin)
18.5 to 39.9	40 mg once daily for CrCl 30 mL/min or a greater 30 mg once daily for CrCl 20-29 mL/min
40 or greater	30 mg subcutaneously every 12 hours for CrCl 30 mL/min or a greater 30 mg once daily for CrCl 20-29 mL/min

Notes:

- Baseline BMP or CMP within last 4 weeks (if not already done, order a serum creatinine).
- Do not use if creatinine clearance less than 20 mL/min or on dialysis.
- Cannot use with patients who have history of HIT.
- If patient discharged from hospital on 1 mg/kg every 12 hours and needs more injections, transition patient to dosing as listed above unless 1 mg/kg every 12 hours is specified by referring practitioner (or treating acute VTE with BMI greater than 27 as noted above).
- If patient cannot obtain enoxaparin (due to cost, adverse reaction or preference, etc.), then consider fondaparinux.

2. Fondaparinux (ARIXTRA®) -

a. Full Therapeutic Dosing with creatinine clearance greater than or equal to 30 ml/min:

Weight	Fondaparinux dose
Less than 50 Kg	5 mg subcutaneously every 24 hours
50-100 Kg	7.5 mg subcutaneously every 24 hours
Over 100 Kg	10 mg subcutaneously every 24 hours

b. Prophylactic Dosing with creatinine clearance greater than or equal to 30 ml/min:

Weight	Prophylactic Fondaparinux dose
Less than 50 Kg	2.5 mg subcutaneously every 24 hours
50-150 kg	
Over 150 Kg	

Notes:

- **CONTRAINDICATED** if creatinine clearance less than 30 mL/min
- When using fondaparinux for bridging, last dose must be at least 5 days prior to procedure to ensure full clearance. Therefore, pre-procedure bridging with fondaparinux is generally not recommended due to long elimination half-life.
- Fondaparinux may be used for patients with either active or a history of HIT (with or without thrombosis).
- If patient cannot obtain fondaparinux (due to cost, adverse reaction or preference, etc.), then consider enoxaparin.

III. Length of therapy

A. Induction of Therapy: Continue for a minimum of 5 days (from initiation of warfarin therapy), and until INR at or above the lower end of the INR goal for 2 consecutive days
B. Sub-therapeutic: Continue for a minimum of 4 days and until INR at or above the lower end of the INR goal for 1 day.
C. Procedural Bridging: See below

PERIOPERATIVE MANAGEMENT (WITH OR WITHOUT LMWH/ INJECTABLE FACTOR Xa INHIBITOR BRIDGE):

An order is required from a licensed independent practitioner for interruption of warfarin therapy or to initiate a LMWH/injectable factor Xa inhibitor bridge for a procedure. The Anticoagulation Clinic will review the patient specific variables and type of procedure with the referring practitioner to prepare the bridge plan.

I. INR Goal

A. Verify pre-procedure INR goal with referring practitioner.

II. LMWH/injectable factor Xa inhibitor dose choice for bridge

A. A temporary conversion from oral warfarin to subcutaneous LMWH/injectable factor Xa inhibitor (and back again) for an upcoming invasive procedure or situation that requires temporary reversal of warfarin anticoagulation may be ordered by a licensed independent practitioner.

B. Therapeutic Dose: Previous VTE less than 3 months ago, recurrent DVT, all mechanical valves, CVA, AF with CHA_2DS_2-VASc score greater than 2 and low bleeding risk, hypercoagulable state
Prophylaxis Dose: AF with CHA_2DS_2-VASc score 2 or less

C. If planned admission to hospital, post-op LMWH/injectable factor Xa inhibitor & warfarin dosing to be determined per inpatient pharmacy and referring practitioner.

D. Special situations

1. Myelogram (x-ray visualization or photography of the spinal cord after the injection of a radiopaque substance into the spinal arachnoid space).
    - Refer to Myelogram Patient Care policy and procedure.
2. Neuraxial block, lumbar puncture
    - Last LMWH dose to be administered at minimum 24 hours prior to procedure or last injectable factor Xa inhibitor dose to be administered a minimum of 120 hours prior to procedure.
    - Delay LMWH /injectable factor Xa inhibitor for at least 24 hours postoperatively.
3. Indwelling spinal catheter
    - Patients with indwelling spinal catheters (e.g. Medtronic pump, epidural infusion) are not eligible to receive LMWH/injectable factor Xa inhibitor at the Anticoagulation Clinic.

III. Pre-procedural bridge protocol (Order is required from licensed independent practitioner)

A. **5-day bridge using LMWH/ injectable factor Xa inhibitor:**

a. Procedure date minus 5 days: Last dose of warfarin to be taken 5 days before procedure (e.g. if surgery on Oct. 6th, the last warfarin dose taken on Oct. 1st)

b. Procedure date minus 4 days: No LMWH/ injectable factor Xa inhibitor given on day after last dose of warfarin (INR should remain therapeutic for nearly 48 hours after last warfarin dose)

c. Procedure date minus 3 days: VERIFY INR. Begin LMWH/ injectable factor Xa inhibitor if INR is halfway above low end of INR range or less. **This will be patient's first and last dose of injectable factor Xa inhibitor prior to procedure (last dose must be at least 120 hours prior to procedure). For patients whose first 24-hour LMWH injection is greater than 6 hours later than their scheduled procedure time, LMWH dose will be adjusted in order for patient to begin self-injecting the next day at the correct time to ensure last LMWH is at least 24 hours prior to procedure. For patients self-injecting fondaparinux, no adjustment is needed if first injection started late. Ok to do next injection at the correct time the next day due to the long half-life (unless less than 120 hours prior to procedure, then reach out to surgeon).**

d. Procedure date minus 2 days: Administer LMWH

e. Procedure date minus 1 day: VERIFY INR (If patient self-injects, this INR date may be adjusted).

i. If INR remains elevated, contact referring practitioner (or medical director if unavailable) to determine if vitamin K administration is warranted.

ii. Last dose of enoxaparin not to be less than 24 hours (regardless of dosing schedule, every 12 hours or every 24 hours), prior to surgery time.

iii. Last dose of fondaparinux not be less than 120 hours prior to surgery time.

B. **For procedures (with or without LMWH/ injectable factor Xa inhibitor bridge) where INR goal is greater than 1.5 (usual INR goal is 2-3):**

a. INR goal for procedure 1.6-1.7: Patient will be instructed to hold warfarin for 3 days prior to procedure

b. INR goal for procedure 1.8-1.9: Patient will be instructed to hold warfarin for 2 days prior to procedure.

C. **For procedure (with or without LMWH/ injectable factor Xa inhibitor bridge) where INR goal is greater than 2.0 (usual INR goal is 2.5-3.5):**

a. INR goal for procedure 2.0-2.1: Patient will be instructed to hold warfarin for 3 days prior to procedure.

b. INR goal for procedure 2.2-2.4: patient will be instructed to hold warfarin 2 days prior to procedure.

D. **Considerations**

a.

Circumstance	Length of bridge or number of days holding warfarin for non-bridge procedures
INR needs to be 1.2 or less	7-day bridge or hold warfarin x 6 days for non-bridge procedure unless provider has specific number of days to hold on order.
Clinic closure or holiday	6- or 7-day bridge or hold 5 to 6 days for non-bridge procedure as appropriate

b. If no LMWH/injectable factor Xa inhibitor bridge has been ordered, but INR is to be below usual INR goal, follow above guideline for last dose of warfarin, if specific date of last dose is not indicated on the order.

c. On the backside of the bridge, if the INR is halfway above the lower end of the INR goal and the patient has received 4 or more LMWH/injectable Factor Xa inhibitor doses and the clinic is closed the next day, the patient will be instructed to self-inject the last dose of LMWH/ injectable Factor Xa inhibitor the next day to render the bridge complete.

IV: Other Procedures: Verify INR goal for procedure.

A. Procedures that require an INR adjustment within the patient's usual INR goal: If patient is to remain on warfarin with an adjusted INR goal, which is within their usual INR range, the following dosing plan will be initiated:

<u>Check INR 2 days and 1 day prior to procedure.</u>

On Visit 2 days prior to procedure:

a. If INR is **within recommended range for procedure**, continue usual dose of warfarin and recheck the INR the day prior to procedure.

b. If INR is **within normal INR goal*, but above recommended range for procedure***, give a 5% decrease that day and recheck the INR the day prior to procedure.

c. If INR is **greater than normal INR goal**, dose per protocol and recheck the INR the day prior to procedure.

d. If INR is **below the low end of normal INR goal**, dose per protocol.

On Visit 1 day prior to procedure:

a. If INR is **within recommended range for procedure**, continue usual dose of warfarin and RTC frequency, *unless any dosing adjustments of warfarin have been made*, then check INR within one week of procedure.

b. If INR **is within normal INR goal**, ***but above recommended range for procedure***, give a 5% decrease that day and recheck the INR the morning of procedure if possible and the surgeon will be notified.

c. If INR is **greater than normal INR goal**, give one time reduction per protocol (do not change weekly dose) and recheck INR the morning of procedure if possible and the surgeon will be notified.

d. If INR **drops below the low end of patient's usual INR goal**, patient will be instructed to take a one-time 10% boost (as % of weekly dose) post procedure.

e. **Procedures that do not require warfarin interruption but need INR in range:** The INR will be checked the day prior to procedure. Patient will be instructed to take warfarin per established patient protocol. However, if INR **drops below the low end of patient's usual INR goal**, patient will be instructed to take the one-time boost post procedure.

f. **Procedures that require NO warfarin interruption and no INR checked the day prior to procedure**. It is not necessary for the Anticoagulation clinic to contact practitioners regarding

cataract, tooth filling, and teeth cleaning procedures. It is the responsibility of the patient to notify all health care practitioners that the patient is taking warfarin.

V. SPECIAL POST-PROCEDURE INSTRUCTIONS

A. **If referring provider or surgeon does not specify when to resume warfarin or when the clinic can increase warfarin post procedure**: Resume warfarin day after procedure, if provider does not specify. The Anticoagulation Clinic can check INR after 7 days of warfarin therapy and dose per established protocol until INR in range or above, then return to pre-procedure warfarin dose. If patient is on a LMWH/injectable factor Xa inhibitor bridge, continue LMWH/ injectable factor Xa inhibitor until INR in range or above x 2. For instances where LMWH or injectable factor Xa inhibitor has been given greater than 14 days post procedure, discontinue LMWH/injectable factor Xa inhibitor once INR in range x 1 (with a minimum of 7 days cross coverage)
B. **If procedure is cancelled**: Resume warfarin per missed dose protocol and dose per established protocol until INR in range or above, then return to pre (canceled) procedure warfarin dose. If patient is on a LMWH/ injectable factor Xa inhibitor bridge, continue LMWH/injectable factor Xa inhibitor until INR in range or above x 2. .
C. For patients whose warfarin is increased post-procedure per established patient protocol, the patient will resume their pre-procedural weekly warfarin dose once INR is halfway between the upper and lower goal or above. After the patient is placed on their pre-procedure weekly dose, recheck INR in one week. If next INR is in range, plan to resume normal return to clinic frequency.
D. For patients with special INR goals, follow the same INR range that was used for induction for post procedure protocol dosing.
E. For patients who decline LMWH or injectable factor Xa inhibitors post procedure and are being dosed per Post Procedure Protocol, check INR a minimum of 3 x weekly until INR in range at least x 1, recheck INR in one week, and if next INR in range, consider resuming normal return to clinic frequency. For those patients being dosed per Established Patient Protocol, check INR a minimum of 2 x weekly until INR in range at least x 1, Recheck INR in one week and if next INR in range, consider resuming normal return to clinic frequency.
F. For Post Procedure patients that decline LMWH or injectable factor Xa inhibitors and decline having their INR checked per protocol, if their first post op INR is subtherapeutic, patient will be placed back on their pre-procedure weekly warfarin dose and dosed per Established Patient Protocol.
G. If patient is Post Procedure Day 7 and beyond and is being dosed per Post Procedure Protocol and if INR continues subtherapeutic, may give a 5% weekly increase along with the daily boost. Once INR halfway above the lower end of the goal, resume pre-procedure weekly warfarin dose and recheck INR in one week. If that INR is in range, consider resuming pre-procedure weekly warfarin dose.
H. For Mohs procedures not requiring warfarin adjustment, check INR business day before and fax AVS/results to the dermatology clinic.

POST-PROCEDURAL PROTOCOL

INR TARGET: 1.5 – 2.0

Return to Clinic (RTC) frequency is a minimum of THREE times per week

Warfarin Visit	INR	Warfarin Dose (daily)	LMWH/ injectable factor Xa inhibitor *
Procedure Day* **	N/A	Double pre-procedural daily dose**	NONE
Post-procedure Day 1	N/A	Pre-procedural dose X 1.5 for 1 day, continue pre-procedural dose	Start
Post-procedure Day 2	Less than 1.3	Pre-procedural dose X 1.5 for 1 day, continue pre-procedural dose	Continue
	1.3-1.6	Continue pre-procedural dose	
	1.7 – 2.2	Pre-procedural daily dose X 0.5 for 1 day, continue pre-procedural dose	
	2.3 – 3.0	Hold for 1 day, continue pre-procedural dose	
	Greater than 3.0	Hold for 2 days, continue pre-procedural dose	
Post-procedure Day 3	Less than 1.5	Pre-procedural daily dose X 1.5 for 1 day, continue pre-procedural dose	Continue
	1.5 – 2.0	-Continue Preprocedural dose	
	2.1 – 2.5	Pre-procedural daily dose X 0.5 for 1 day, continue pre-procedural dose	
	Greater than 2.5	Hold for 1 day, continue pre-procedural dose	
Post-procedure Day 4 & beyond	Less than 1.5	Pre-procedural daily dose X 1.5 for 1 day, continue pre-procedural dose	Continue
	1.5 – 2.0	Continue pre-procedural dose	Stop*
	2.1 – 2.5	Pre-procedural daily dose X 0.5 for 1 day, continue pre-procedural dose	
	Greater than 2.5	Hold for 1 day, continue pre-procedural dose	

*LMWH/ injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic** LMWH/ injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target for two consecutive visits and a minimum of 4 days cross coverage of warfarin and LMWH/ injectable factor Xa inhibitor.

Patients may stop **prophylactic doses** of LMWH/ injectable factor Xa inhibitor until INR is within 0.2 of lower end of goal or greater.

Follow this algorithm for INR goals of 1.5 – 1.8 and 1.6 - 2.0.
Once dosing is re-established and LMWH/injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol. If in range, resume pre procedure RTC frequency.

**Pre-procedural daily dose = established weekly dose total mg divided by 7 days.
For example, established weekly dose is 40 mg. Pre procedural daily dose 40 mg divided by 7 = 5.7 mg daily dose

***If warfarin resumption is delayed per practitioner order, dose warfarin beginning with “Procedure Day” and follow post procedure protocol.
For example, if procedure is on Monday and warfarin is to be resumed on Wednesday, Wednesday is considered “Procedure Day + 0”.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal dosing guidelines. A referring practitioner signature is required for dosing outside of the protocol.

POST-PROCEDURAL PROTOCOL

INR TARGET: 1.5 – 2.5

Return to Clinic (RTC) frequency is a minimum of THREE times per week

Warfarin Visit	INR	Warfarin Dose (daily)	LMWH/ injectable factor Xa inhibitor *
Procedure Day* **	N/A	Double pre-procedural daily dose**	NONE
Post-procedure Day 1	N/A	Double pre-procedural dose for 1 day, continue pre-procedural dose	Start
Post-procedure Day 2	Less than 1.4	Pre-procedural dose X 1.5 for 2 days, continue pre-procedural dose	Continue
	1.4 – 1.7	Continue pre-procedural dose	
	1.8 – 2.2	Pre-procedural daily dose X 0.5 for 1 day, continue pre-procedural dose	
	2.3 – 3.0	Hold for 1 day, continue pre-procedural dose	
	Greater than 3.0	Hold for 2 days, continue pre-procedural dose	
Post-procedure Day 3	Less than 1.5	Pre-procedural daily dose X 1.5 for 1 day, continue pre-procedural dose	Continue
	1.5 – 2.5	Continue pre-procedural dose	
	2.6 – 3.0	Pre-procedural daily dose X 0.5 for 1 day, continue pre-procedural dose	
	Greater than 3.0	Hold for 1 day, continue pre-procedural dose	
Post-procedure Day 4 & beyond	Less than 1.5	Pre-procedural daily dose X 1.5 for 1 day, continue pre-procedural dose	Continue
	1.5 – 2.5	Continue pre-procedural dose	Stop*
	2.6 – 3.0	Pre-procedural daily dose X 0.5 for 1 day, continue pre-procedural dose	
	Greater than 3.0	Hold for 1 day, continue pre-procedural dose	

*LMWH/ injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic** LMWH/ injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target for two consecutive visits and a minimum of 4 days cross coverage of warfarin and LMWH/ injectable factor Xa inhibitor.

Patients may stop **prophylactic doses** of LMWH/ injectable factor Xa inhibitor until INR is within 0.2 of lower end of goal or greater.

Follow this algorithm for INR goal of 1.6-2.2.
Once dosing is re-established and LMWH/injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol. If in range, resume pre procedure RTC frequency.

**Pre-procedural daily dose = established weekly dose total mg divided by 7 days.
For example, established weekly dose is 40 mg. Pre procedural daily dose 40 mg divided by 7 = 5.7 mg daily dose

***If warfarin resumption is delayed per practitioner order, dose warfarin beginning with “Procedure Day” and follow post procedure protocol.
For example, if procedure is on Monday and warfarin is to be resumed on Wednesday, Wednesday is considered “Procedure Day + 0”.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal dosing guidelines. A referring practitioner signature is required for dosing outside of the protocol.

POST-PROCEDURAL PROTOCOL **INR TARGET: 2.0 – 2.5** *Return to Clinic (RTC) frequency is a minimum of THREE times per week*			
Warfarin Visit	**INR**	**Warfarin Dose (daily)**	**LMWH/ injectable factor Xa inhibitor ***
Procedure Day* **	N/A	Double pre-procedural daily dose**	NONE
Post-procedure Day 1	N/A	Double pre-procedural dose for 1 day, continue pre-procedural dose	Start
Post-procedure Day 2	Less than 1.4	Double pre-procedural dose for 1 day, continue pre-procedural dose	Continue
	1.4 – 1.7	Pre-procedural dose X 1.5 for 1 day, continue pre-procedural dose	
	1.8 – 2.2	Continue pre-procedural dose	
	2.3 – 2.5	Pre-procedural dose X 0.5 for 1 day, continue pre-procedural dose	
	Greater than 2.5	Hold for 1 day, continue pre-procedural dose	
Post-procedure Day 3	Less than 1.5	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.5 – 2.0	Pre-procedural dose X 1.5 for 1 day	
	2.1 – 2.5	Continue pre-procedural dose	
	2.6 – 3.0	Pre-procedural dose X 0.5 for 1 day, continue pre-procedural dose	
	Greater than 3.0	Hold for 1 day, continue pre-procedural dose	
Post-procedure Day 4 & beyond	Less than 1.5	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.5 – 2.2	Pre-procedural dose x 1.5 for 1 day, continue pre-procedural dose	Stop*
	2.3 – 2.5	Continue pre-procedural dose	
	2.6 – 3.0	Pre-procedural dose X 0.5 for 1 day, continue pre-procedural dose	
	Greater than 3.0	Hold x 1 day, continue pre-procedural dose	

*LMWH/ injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic** LMWH/ injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target for two consecutive visits and a minimum of 4 days cross coverage of warfarin and LMWH/ injectable factor Xa inhibitor.

Patients may stop **prophylactic doses** of LMWH/ injectable factor Xa inhibitor until INR is within 0.2 of lower end of goal or greater.

Once dosing is re-established and LMWH/injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol. If in range, resume pre procedure RTC frequency.

**Pre-procedural daily dose = established weekly dose total mg divided by 7 days.
For example, established weekly dose is 40 mg. Pre procedural daily dose 40 mg divided by 7 = 5.7 mg daily dose

***If warfarin resumption is delayed per practitioner order, dose warfarin beginning with "Procedure Day" and follow post procedure protocol.
For example, if procedure is on Monday and warfarin is to be resumed on Wednesday, Wednesday is considered "Procedure Day + 0".

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal dosing guidelines. A referring practitioner signature is required for dosing outside of the protocol.

POST-PROCEDURAL PROTOCOL

INR TARGET: 2.0 – 3.0

Return to Clinic (RTC) frequency is a minimum of THREE times per week

Warfarin Visit	INR	Warfarin Dose (daily)	LMWH/ injectable factor Xa inhibitor *
Procedure Day* **	N/A	Double pre-procedural daily dose**	NONE
Post-procedure Day 1	N/A	Double pre-procedural daily dose for 1 day, continue pre-procedural dose	Start
Post-procedure Day 2	Less than 1.4	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.4 – 1.6	Pre-procedural daily dose X 1.5 for 2 days, continue pre-procedural dose	
	1.7 – 2.2	Continue pre-procedural dose	
	2.3 – 2.6	Pre-procedural daily dose x 0.5 for one day, continue pre-procedural dose	
	2.7-2.9	Hold for 1 day, continue pre-procedural dose	
	Greater than 2.9	Hold for 2 days, continue pre-procedural dose	
Post-procedure Day 3	Less than 1.6	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.6 – 1.9	Pre-procedural daily dose X 1.5 for 2 days, continue pre-procedural dose	
	2.0 – 2.5	Continue pre-procedural dose	
	2.6 – 3.0	Pre-procedural daily dose x 0.5 for one day, continue pre-procedural dose	
	Greater than 3.0	Hold for 1 day, continue pre-procedural dose	
Post-procedure Day 4 & beyond	Less than 1.6	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.6 – 1.9	Pre-procedural daily dose X 1.5 for 2 days, continue pre-procedural dose	
	1.6 – 1.9	Pre-procedural daily dose X 1.5 for 2 days, continue pre-procedural dose	
	2.0 – 3.0	Continue pre-procedural dose	Stop*
	Greater than 3.0	One time 10% of weekly dose reduction, continue pre-procedural dose	

*LMWH/ injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic** LMWH/ injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target for two consecutive visits and a minimum of 4 days cross coverage of warfarin and LMWH/ injectable factor Xa inhibitor.

Patients may stop **prophylactic doses** of LMWH/ injectable factor Xa inhibitor until INR is within 0.2 of lower end of goal or greater.

Once dosing is re-established and LMWH/ injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol. If in range, resume pre procedure RTC frequency.

**Pre-procedural daily dose = established weekly dose total mg divided by 7 days.
For example, established weekly dose is 40 mg. Pre procedural daily dose 40 mg divided by 7 = 5.7 mg daily dose

***If warfarin resumption is delayed per practitioner order, dose warfarin beginning with “Procedure Day” and follow post procedure protocol.
For example, if procedure is on Monday and warfarin is to be resumed on Wednesday, Wednesday is considered “Procedure Day + 0”.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal dosing guidelines. A referring practitioner signature is required for dosing outside of the protocol.

POST-PROCEDURAL PROTOCOL

INR TARGET: 2.5 – 3.5

Return to Clinic (RTC) frequency is a minimum of THREE times per week

Warfarin Visit	INR	Warfarin Dose (daily)	LMWH/ injectable factor Xa inhibitor *
Procedure Day* **	N/A	Double pre-procedural daily dose**	NONE
Post-procedure Day 1	N/A	Double pre-procedural daily dose for 1 day, continue pre-procedural dose	Start
Post-procedure Day 2	Less than 1.5	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.5 – 2.0	Pre-procedural daily dose X 1.5 for 2 days, continue pre-procedural dose	
	2.1 – 2.4	Continue pre-procedural dose	
	2.5 – 3.0	Hold for 1 day, continue pre-procedural dose	
	Greater than 3.0	Hold for 2 days, continue pre-procedural dose	
Post-procedure Day 3	Less than 1.8	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.8 – 2.1	Pre-procedural daily dose X 1.5 for 2 days, continue pre-procedural dose	
	2.2 – 2.4	Pre-procedural daily dose X 1.5 for 1 days, continue pre-procedural dose	
	2.5-3.5	Continue pre-procedural dose	
	3.6-4.0	One time 10% of weekly dose reduction, continue pre-procedural dose	
	Greater than 4.0	Hold for 1 day, continue pre-procedural dose	
Post-procedure Day 4 & beyond	Less than 1.9	Double pre-procedural daily dose for 2 days, continue pre-procedural dose	Continue
	1.9 – 2.2	Pre-procedural daily dose x 1.5 for 2 days, continue pre-procedural dose	
	2.3 – 2.4	Pre-procedural daily dose x 1.5 for 1 days, continue pre-procedural dose	
	2.5 – 3.5	Continue pre-procedural dose	Stop*
	Greater than 3.5	One time 10% of weekly dose reduction, continue pre-procedural dose	

*LMWH/ injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic** LMWH/ injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target for two consecutive visits and a minimum of 4 days cross coverage of warfarin and LMWH/ injectable factor Xa inhibitor.

Patients may stop **prophylactic doses** of LMWH/ injectable factor Xa inhibitor until INR is within 0.2 of lower end of goal or greater.

Once dosing is re-established and LMWH/ injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol. If in range, resume pre procedure RTC frequency.

**Pre-procedural daily dose = established weekly dose total mg divided by 7 days.
For example, established weekly dose is 40 mg. Pre procedural daily dose 40 mg divided by 7 = 5.7 mg daily dose

***If warfarin resumption is delayed per practitioner order, dose warfarin beginning with “Procedure Day” and follow post procedure protocol.
For example, if procedure is on Monday and warfarin is to be resumed on Wednesday, Wednesday is considered “Procedure Day + 0”.

Patients with unpredictable responses will be assessed on an individual basis and may not fall within normal dosing guidelines. A referring practitioner signature is required for dosing outside of the protocol.

SUBTHERAPEUTIC INR REQUIRING LMWH/INJECTABLE FACTOR XA INHIBITOR **INR TARGET: 1.5 – 2.5** *(West Valley Anticoagulation Clinic ONLY)*			
Warfarin Visit	**INR**	**Warfarin Dose**	**LMWH/injectable factor Xa inhibitor ***
Day 1	0.9-1.4	5% increase x 1 day, then increase weekly dose by 5%	Start
Day 2	N/A	Continue new weekly dose	Continue
Day 3 and on	Less than 1.4	5% increase x 1 day, then increase weekly dose by 5%	Continue
	1.5-2.5	Continue new weekly dose	Stop*
	Greater than 2.5	5% decrease x 1 then continue new weekly dose	

Patients with a sub-therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub-therapeutic INRs unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/injectable factor Xa inhibitor for future sub-therapeutic INRs. If the referring practitioner writes an order for LMWH/injectable factor Xa inhibitor therapy to start whenever the patient's INR is at or lower than a specified number, the following dosing protocol will be initiated.

*LMWH/injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic and prophylactic** LMWH/injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target x 1 and minimum of 4 days cross coverage of warfarin and LMWH/injectable factor Xa inhibitor.

Once LMWH/ injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol.

SUBTHERAPEUTIC INR REQUIRING LMWH/INJECTABLE FACTOR XA INHIBITOR **INR TARGET: 2.0-3.0** *(West Valley Anticoagulation Clinic ONLY)*			
Warfarin Visit	**INR**	**Warfarin Dose**	**LMWH/ injectable factor Xa inhibitor ***
Day 1	Less than 1.2	15% increase x 1 day, then increase weekly dose by 15%	Start
	1.2-1.5	15% increase x 1 day, then increase weekly dose by 10%	
	1.6-1.9	10% increase x 1 day, then increase weekly dose by 5%	
Day 2	N/A	Continue new weekly dose	Continue
Day 3 and on	Less than 1.6	10% increase x 1 day, then increase weekly dose by 10%	Continue
	1.6-1.9	5% increase x 1 day, then increase weekly dose by 5%	
	2.0-3.0	Continue new weekly dose	Stop*
	Greater than 3.0	5% decrease x 1, then continue new weekly dose	

Patients with a sub-therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/injectable factor Xa inhibitor will not be started for sub-therapeutic INRs unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/ injectable factor Xa inhibitor for future sub-therapeutic INRs. If the referring practitioner writes an order for LMWH/ injectable factor Xa inhibitor therapy to start whenever the patient's INR is at or lower than a specified number, the following dosing protocol will be initiated.

*LMWH/ injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic and prophylactic** LMWH/ injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target x 1 and minimum of 4 days cross coverage of warfarin and LMWH/injectable factor Xa inhibitor.

Once LMWH/ injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol.

SUBTHERAPEUTIC INR REQUIRING LMWH/INJECTABLE FACTOR XA INHIBITOR **INR TARGET: 2.5-3.5** *(West Valley Anticoagulation Clinic ONLY)*			
Warfarin Visit	**INR**	**Warfarin Dose**	**LMWH/ injectable factor Xa inhibitor ***
Day 1	Less than 1.5	15% increase x 1 day, then increase weekly dose by 15%	Start
	1.5-1.9	15% increase x 1 day, then increase weekly dose by 10%	
	2.0-2.4	10% increase x 1 day, then increase weekly dose by 5%	
Day 2	N/A	Continue new weekly dose	Continue
Day 3 and on	Less than 1.5	15% increase x 1 day, then increase weekly dose by 15%	Continue
	1.5-1.9	10% increase x 1 day, then increase weekly dose by 5%	
	2.0-2.4	5% increase x 1 day, then increase weekly dose by 5%	
	2.5-3.5	Continue new weekly dose	Stop*
	Greater than 3.5	5% decrease x 1, then continue new weekly dose	

Patients with a sub-therapeutic INR will receive instructions for increasing their warfarin dose per the dosing protocol. LMWH/ injectable factor Xa inhibitor will not be started for sub-therapeutic INRs unless a referring practitioner specifically orders LMWH/injectable factor Xa inhibitor. If the patient's INR is more than 0.5 out of range, the referring practitioner will receive notification with the opportunity to order LMWH/ injectable factor Xa inhibitor for future sub-therapeutic INRs. If the referring practitioner writes an order for LMWH/ injectable factor Xa inhibitor therapy to start whenever the patient's INR is at or lower than a specified number, the following dosing protocol will be initiated.

*LMWH/ injectable factor Xa inhibitor dosing per protocol if ordered by practitioner. Patients may stop **therapeutic and prophylactic** LMWH/ injectable factor Xa inhibitor after patient has achieved therapeutic INR or above target x 1 and minimum of 4 days cross coverage of warfarin and LMWH/injectable factor Xa inhibitor.

Once LMWH/ injectable factor Xa inhibitor stopped, RTC within week and dose per established protocol.

PRESCRIPTION MANAGEMENT:

Clinic staff may call in, fax or send electronically prescriptions to outpatient pharmacies for warfarin, LMWH/injectable factor Xa inhibitor, or Vitamin K, as appropriate, under the referring practitioner.

ADMISSION AND FOLLOW-UP:

The anticoagulation provider should gather the patient's current medical, medication, dietary, and lifestyle history. Resources for such information include the referring practitioner, the practitioner's agent, the patient, or the patient's medical records. Each patient's information will then be entered into the computerized patient tracking system.

Patients will be scheduled for admission, initial assessment, patient education, and anticoagulant management. The patient (or representative) must sign that he/she has received and understands the education material discussed regarding warfarin therapy. Subsequent visits for anticoagulant management will be scheduled.

Patients missing scheduled appointments for anticoagulant management will be contacted by telephone or with a missed appointment letter. A failure to respond within two weeks will prompt a second notice. A third notice will be sent if the patient does not respond within 2 weeks of the missed appointment and the referring practitioner will be notified. Patients who fail to respond, within six weeks of the missed appointment, to three delinquent notices may be discharged from the Anticoagulation Clinic and transferred back to the referring practitioner.

Once a patient has been discharged from the Anticoagulation Clinic for non-compliance, readmission will be up to the discretion of the anticoagulation clinic.

Patients may be transferred back to the referring practitioner if Clinic staff feels threatened by inappropriate behavior.

With each patient visit, the anticoagulation provider should utilize a systematic process for follow-up evaluations focused on patient assessment for potential adverse effects of therapy, recurrent disease, hemorrhagic complications, drug-drug, drug-disease state, and drug-food interactions, lifestyle changes, review of laboratory results, adherence issues, and patient education.

PATIENT EDUCATION:

An educational focus promoting self-care behavior on the part of patients' endeavors to improve therapeutic end points of anticoagulant therapies while reducing anticoagulation associated adverse events and costs. Upon completion of the patient education process, the person taking warfarin (or another anticoagulant) will understand:

- The reason for taking warfarin and how it relates to clot formation
- The name of the drug (generic and trade name)
- How the drug works (interferes with clotting), and the problems caused by too much or too little anticoagulation
- The need for and frequency of blood tests and the target INR
- The importance of adherence, the importance of close monitoring, regular appointments, good follow-up and consequences for non-compliance
- The common signs of bleeding
- Precautionary measures to decrease trauma and bleeding
- The diet, drug, and alcohol use that might cause problems with therapy
- For women, the importance of not becoming pregnant and the need for birth control measure (or abstinence)
- The need to report changes in lifestyle, diet, medications, alcohol intake, disease process, or upcoming procedures in a timely matter.
- The importance of informing the clinic when dental, surgical, invasive procedures, and hospitalization are scheduled or occur unexpectedly
- What to do in case of an emergency
- The specific tablet(s) the patient is taking by color and markings
- The importance of wearing a medic-alert bracelet (and where they may be obtained) or using a wallet card to identify themselves as being on anticoagulation medication.
- What to do for missed doses.

COMMUNICATION, DOCUMENTATION, AND MEDICAL RECORDS:

The database of the patient should include information regarding:

- patient demographics
- indications for anticoagulant therapy
- the desired intensity and expected length of therapy
- the tablet size(s) of warfarin prescribed and used
- other disease states
- laboratory values
- dosage and medication adjustments
- information (allergies) pertinent to the patient's anticoagulation care
- concomitant medications: name, dose, route, and frequency of administration, start and stop dates, whenever possible
- If a patient is going to be out of town for an extended amount of time or is unable to make it to the clinic due to an unplanned emergency, the patient may go to a lab and have their PT/INR drawn. The anticoagulation clinic may write a one- time lab order for a PT/INR to be drawn at an out-of-area lab. The patient will call and tell the anticoagulation staff which lab they are having their labs drawn at. The anticoagulation clinic will check on the lab values and dose the patient. This will only be done for stable, compliant patients and done as an exception, not as a regular visit.

All letters sent to patients and other healthcare providers will be documented in the patient's medical record. Documentation of other communications, including telephone calls, will be incorporated into the Progress Notes/Visits of the Computerized Patient Tracking System. Practitioners will receive faxed copies of the progress note for anticoagulant management on admission, discharge, when the patients INR is out of range, patient is on a bridge, or for any other significant changes as noted by practitioner.

The Anticoagulation Clinic will maintain a process for documenting and tracking Adverse Drug Events (ADE)

DISCHARGING PATIENT FROM SERVICE:

The anticoagulation patient may be discharged from service if:

A. Duration of therapy has been completed
   1. The clinic staff will alert the referring practitioner that the expected length of therapy has been met. If the referring practitioner agrees, the patient will be instructed to discontinue therapy and be discharged from service. The practitioner will receive notification.
   2. Patients with short-term, finite lengths of therapy will be discontinued from therapy and service by the clinic practitioner WITHOUT prior notification to referring practitioner. The referring practitioner will receive a FAX or electronic report. Examples of these situations are THA and TKA patients.

B. Risks of therapy outweigh benefits
   1. Should the patient's condition change so that bleeding complications are a grave risk to the patient, the clinic practitioner will contact the referring practitioner to develop an alternative plan (discontinue warfarin, change to other anticoagulant medication). The clinic practitioner may then carry out the plan and document the plan clearly in the patient's medical record.
   2. Patient non-compliance or inappropriate behavior
   3. See also ADMISSION AND FOLLOW-UP. Patients, who are non-compliant with either taking anticoagulant medications or keeping appointments at the Anticoagulation Clinic, may be discharged from service. If the clinic staff plans to discharge a patient, the referring practitioner will be notified with written documentation. If SHACC has sent in the warfarin prescription on behalf of the referring practitioner, SHACC will notify the pharmacy to discontinue any remaining refills and the referring practitioner will be notified as well.
   4. Patient admitted into home health or to a skilled nursing facility will be discharged from clinic. The referring practitioner will be notified with written documentation. (exception is SHMG providers with SHACC- see page 2)

Definitions
• DOACS: Direct Oral Anticoagulants • APA: Antiphospholipid Antibody • SHACC: Salem Hospital Anticoagulation Clinic • WVH: West Valley Hospital • CHA_2DS_2-VASc: Congestive heart failure, Hypertension, Age, Diabetes, prior Stroke, Vascular disease, Age, Sex • RTC: Return to Clinic • LMWH: Low Molecular Weight Heparin • HIT: Heparin-Induced Thrombocytopenia • CHEST: Official publication of the American College of Chest Physicians • INR: International Normalized Ratio • SCr: Serum Creatinine • CrCl: Creatinine Clearance • HF: Heart Failure • AF: Atrial Fibrillation • DVT: Deep Venous Thrombosis • PE: Pulmonary Embolism • VTE: Venous Thromboembolism • CVA: Cerebral Vascular Accident • CBC: Complete Blood Count • CMP: Comprehensive Metabolic Panel • AVR: Aortic Valve Replacement • MV: Mitral Valve Replacement • LAA: Left Atrial Appendage • LV: Left Ventricle • ADE: Adverse Drug Event • THA: Total Hip Arthroplasty • TKA: Total Knee Arthroplasty • ED: Emergency Department • ETOH: Ethyl Alcohol (alcohol)
Equipment or Supplies
Ambulatory Epic
Form Name and Number or Attachment Name
N/A
Expert Consultants Position
Anticoagulation Clinic Staff, Accreditation Administrator
References (Required for clinical Documents and within the last five years):
1. CHEST 2008; 133(Supp):67S-968S. 2. CHEST 2012;141(2)(Supp) 3. CHEST 2018; 154 (Supp): 1121-1201 4. https://journal.chestnet.org/article/S0012-3692(18)32244-X/fulltext 5. Levine L, Pallme N, Angelotti E, Shiltz D. Analysis of Anti-Xa Concentrations in Patients on Treatment Dose Enoxaparin: A Retrospective Chart Review. Advances in Pharmacology and Pharmacy 1(2): 37-41, 2013 6. Lexi-Comp, Inc. (Lexi-Drugs). Lexi-Comp Inc; Accessed January 21, 2021 7. Thornton K. Bariatric Surgery: Intensive Care Unit Management of the Complicated Postoperative Patient, Waltham, MA. UpToDate Inc. http://www.uptodate.com (Accessed January 21, 2021) (especially Table 1) 8. Spiner S, Inverso S, et al. Safety and efficacy of unfractionated heparin versus enoxaparin in patients who are obese and patients with severe renal impairment - Analysis from the ESSENCE and TIMI 11B studies. Am Heart J 2003; 146(1), 33-41
Related CBT's, Policy, Procedure or Epic Protocol Cross Reference Information – Insert N/A if not applicable
CON1034: Referral to Anticoagulation
Computer Search Words
Anticoagulation
Is there a Regulatory Requirement?
Yes, OAR

Review and Revision History		
History	Review or Revision	Date
Added dosing instructions for all established dosing algorithms when there is an alternating pattern of INRs in range and out of range at the sub-therapeutic end of the range allowing for a weekly dose adjustment.	Revision	05/2025
Corrected grammar and spelling, reduced daily dose for INR goal 2.5-3.0, clarified dosing warfarin when rifampin (or other medications in the same family) is discontinued and patient did not have an established weekly warfarin dose before starting rifampin, updated prophylactic enoxaparin for obese patients with obesity, correction of lmwh timing pre-procedure to ensure last dose is at least 24 hrs prior to procedure, updated instruction for back side of bridge with subtherapeutic INR for post procedure Day 7 & beyond.	Revision	05/2024
90-day due date extension from 03/30/2024 to 06/30/2024.	Revision	04/2023
Revised CHA2DS2-VASc scoring; revised initiation and established algorithms; added dose reduction ability to extend to following day; revised missed/extra dose variable; revised primidone variable dosing; added antifungals to variable dosing; added variable for resumption of pre-situational dosing and post-induction; revised post-hospitalization variable; revised POC and LMWH; revised LMWH dosing guidelines and added dosing for various BMI and CrCl; added do not use LMWH for CrCl less than 20 ml/min or on renal replacement therapy; added rounding of LMWH dose to nearest syringe; revised post-procedural dosing; added post-procedural dosing algorithm for 1.5-2.0 and 2.0-2.5; revised notification to provider of discharge from clinic; added discharge of patient admitted to home health or skilled nursing facility- exception of SHMG providers at SHACC.	Revision	04/2022
Due date extended 90-day to 04/30/2022.	Revision	02/2022
SH – WVH Updated CHA_2DS_2-VASc score, length of therapy for provoked versus unprovoked clots; Joint Commission requirements of CBC and CMP baseline results and tracking of adverse drug events; revised initiation and established dosing (specifically for INR 5.1-6.0), added 1.8-2.5 algorithm and post procedure protocols; added sub-therapeutic INR dosing protocol when LMWH/injectable factor Xa inhibitors is indicated for WVH only; revised dosing of variables, post hospitalization, and transfer patients; revised how to transition from DOACs to warfarin; added head trauma recommendations; revised dosing protocol for procedures requiring an INR adjustment within usual INR range; revised instructions for procedures not requiring warfarin interruption.	Revision	02/2020
SH – WVH No changes, major revision planned in the near future	Review	11/2018
WVH – Updated Hospital name from Salem Health West Valley to West Valley Hospital and logo.	Revision	11/2017
SH & SHWV	Review	03/2016
SH- Added transitions from warfarin to NOACS, updated information regarding diagnosis of APA, induction of therapy, clarified wording and added algorithms for established patient's with variables, added algorithms for procedures requiring no interruption in warfarin but lower goal within normal INR range, alternate dosing algorithms, and changed wording on post procedure protocol section.	Revision	11/2015
SH	Review	12/2014
SH & WVH	Revision	03/2014, 10/2013
SH & WVH	Revision	04/2013
SH	Revision	08/2012
SH	Review	04/2007