SENIOR CARE CONSULTANT GROUP

SAMPLE FOR LTC FACILITIES

ANTICOAGULATION GUIDELINES 2017

INDICATION INR

Orthopedic
- Total Hip and Knee Arthroplasty 1.8-2.5
- Hip Fracture 1.8-2.5

Cardiology
- Atrial Fibrillation 2.0-3.0
- Cardiomyopathy 2.0-3.0
- Myocardial Infarction 2.0-3.0
- Bioprosthetic Heart Valve 2.0-3.0
- Mechanical Valve Replacement 2.5-3.5

Treatment of Venous Thrombosis
- Deep Vein Thrombosis 2.0-3.0
- Pulmonary Embolism 2.0-3.0

INITIAL DOSE OF WARFARIN

Orthopedic for INR range of 1.8-2.5:
- Men: 5 mg (7.5 mg if <60 yo or >240 lbs), less if on interacting drugs
- Women: 5 mg (2.5 mg if >80 yo or interacting medications)

All other indications for INR ranges 2.0-3.5:
- Men: 5 mg - 7.5 mg (2.5 mg if >80 yo)
- Women: 5 mg - 7.5 mg (2.5 mg if >80 yo)

Consider using larger initial doses in non-ortho patients to assure therapeutic INR within 3-4 days, especially if patient is younger, heavier and has no interacting medications

Consider using smaller initial doses (i.e. 2.5 mg) in certain patients based on indication, age, sex, interacting medications/disease, nutritional status, etc.

SECOND DOSE OF WARFARIN

- Give same dose as day before if <0.2 increase in INR
  Day 1 INR 0.99 5 mg
  Day 2 INR 1.13 5 mg

If INR increases >0.2 after the first dose, consider decreasing the dose by 25-50% (may indicate patient sensitive to warfarin)

THIRD/ENSUING DOSES OF WARFARIN
- If after two days of the same dose and <0.3 increase in INR, then increase dose
  - Day 1 INR 1.00 5 mg
  - Day 2 INR 1.13 5 mg
  - Day 3 INR 1.21 7.5 mg

- If after two days of the same dose and 0.3-0.5 increase in INR, give same dose
  - Day 1 INR 0.97 5 mg
  - Day 2 INR 1.03 5 mg
  - Day 3 INR 1.35 5 mg

- If >0.5, but <1.5 increase in INR after two days, decrease dose by 25-75%*
  - Day 1 INR 0.87 5 mg
  - Day 2 INR 1.12 5 mg
  - Day 3 INR 1.70 2.5 mg

WHEN TO HOLD WARFARIN
- Consider holding if >1.5 increase in INR in 1 day even if INR does not meet criteria for hold

Orthopedic for INR range 1.8-2.5
- >2.5-2.9 Decrease dose by 25-75%
- >3.0 Hold

Cardiology and Other Patients with INR 2-3
- >3-3.9 Decrease dose by 25-75%
- >4.0 Hold

Cardiology for INR range of 2.5-3.5
- >3.5-4.5 Decrease dose by 25-75%
- >4.6 Hold

DISCHARGE ORDERS

Recommendations should include appropriate interval to follow-up INR, which usually should not exceed 1 week, and ideally should be 2-3 days for patients initiated in the facility.
**DRUG INTERACTIONS**

**Increase INR**
- Alcohol
- Amiodarone*
- Argatroban (see argatroban reference sheet)
- Azole antifungals
- Cimetidine
- Corticosteroids
- Macrolides (rarely azithromycin)
- Metronidazole*
- Omeprazole
- Phenytoin (initially)
- Propafenone*
- Rofecoxib
- Tamoxifen*
- Thyroid
- TMP/SMX*

*Strong warfarin potentiation

Possibly/Rarely Increase INR (In most cases, should not require initial dose adjustment)
- Acetaminophen (> 2275mg/wk)
- Allopurinol
- Celecoxib
- Glyburide
- HMG CoA Reductase Inhibitors
- Propoxyphene
- Quinidine
- Ranitidine
- SSRIs (fluoxetine>paroxetine>sertraline)
- Tetracyclines
- Vitamin E (> 300 IU/day)
- Zafirlukast
- Zileuton

Decrease INR
- Methimazole, PTU
- Barbitalates
- Phenytoin (> 1 week)
- Carbamazepine
- Rifampin
- Nutritional supplements (i.e. Boost, Ensure)

**Impair absorption (decrease INR)**
- Calcium supplements
- Cholestyramine
- Fiber supplements
- Sucralfate
- Tube feeding-do not hold tube feeding

**Herbals that can increase INR**
- Angelica Root
- Garlic
- Capsicum
- Ginko
- Carnitine
- Loricace Root
- Celery
- Papaya Extract
- Chamomile
- Papain
- Danshen Root
- Red Clover
- Dong Quai
- Sweet Clover
- Silvia Root
- Wintergreen oil

**Herbals that can decrease INR**
- Avocado
- Green Tea
- Co-enzyme Q10
- Psyllium
- Ginseng
- Rosehip

**Herbals that can increase bleeding**
- Clove
- Meadowsweet
- Feverfew
- Policosoal
- Ginger
- Turmeric

4Herbal list is not all-inclusive.
4Most available herbal info is based on in-vitro data, animal studies, or case reports. Definitive cause-and-effect relationships have not been established. The INR should be closely monitored when any herbal is initiated or discontinued.

**DISEASE-STATE INR EFFECTS**
- CHF
- Diarrhea
- Hyperthyroidism
- Infection/Fever
- Liver disease
- Malnutrition
- Pain
- Chronic alcoholism
- Edema
- Hypothyroidism
- Tobacco use

**VITAMIN K1 PROTOCOL**

**Standard Reversal:** No active bleeding and no surgery planned within 24 hours
1. Hold warfarin
2. INR q 6h
3. If initial INR and subsequent INR is:
   - INR > 10: Vitamin K1 10 mg IV
   - INR > 5 but ≤ 10: Vitamin K1 5 mg IV
   - INR > 1.5 but < 5: Vitamin K1 2 mg IV
   - INR ≤ 1.5: Discontinue protocol
4. Consider use of fresh frozen plasma for rapid reversal

- The intramuscular route of vitamin K administration should be avoided due to the possibility of hematoma formation and dermatological reactions.
- There is concern of anaphylaxis with the intravenous route. If chosen, dilute and administer slowly over 30 minutes to minimize anaphylactic reactions.
- Use of high doses of vitamin K (>10mg) may cause prolonged (up to 1 week) warfarin resistance.

**Rapid Reversal:** INR > 10 or active bleeding or surgery/procedure within 24 hours
1. Hold warfarin
2. INR q 6h
3. If initial INR and subsequent INR is:
   - INR > 10: Vitamin K1 10 mg IV
   - INR > 5 but ≤ 10: Vitamin K1 5 mg IV
   - INR > 1.5 but < 5: Vitamin K1 2 mg IV
   - INR ≤ 1.5: Discontinue protocol
4. Consider use of fresh frozen plasma for rapid reversal