

# Anticoagulation & INR Testing

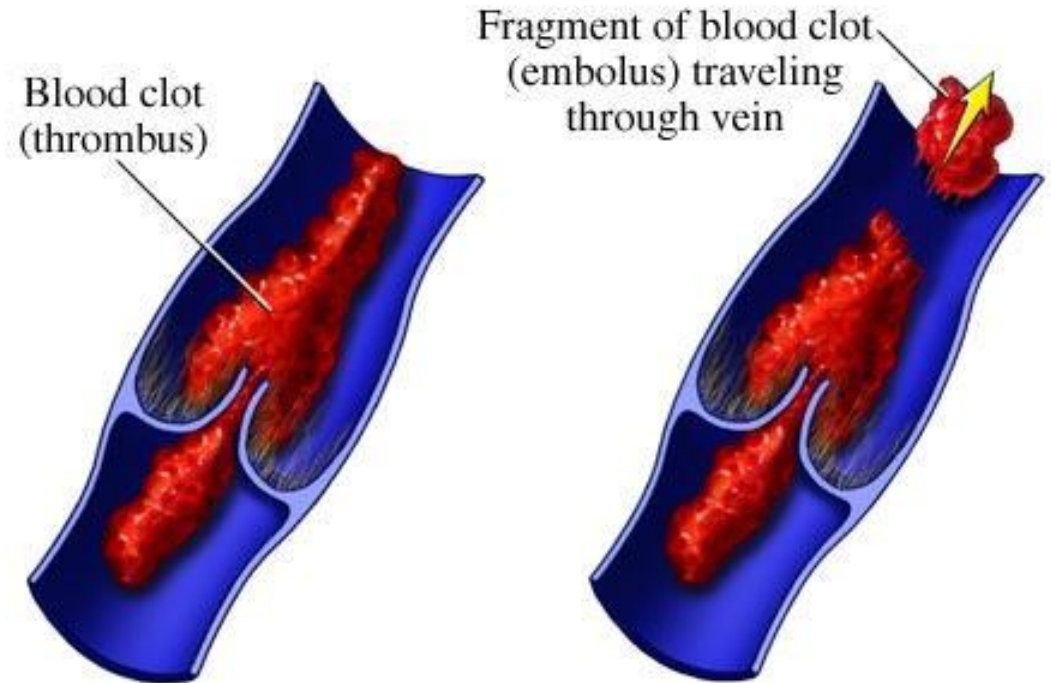
A Review



# Embolus

A blood clot, air bubble, piece of fatty deposit, or other object which has been carried in the bloodstream to lodge in a vessel and cause an embolism.

- Heart: Heart Attack
- Lung: Pulmonary Embolism
- Brain: Stroke



# warfarin

Coumadin/Jantoven

## Use:

prevention/treatment of  
thrombosis/embolism



# Warfarin (Coumadin/Jantoven)

- Water soluble and completely absorbed after oral administration.
- Half life of 36-42 hours.
- Strongly protein-bound, primarily to albumin.

# Drug Use & Warfarin

- Altered platelet function (ex. aspirin).
- GI injury (ex. NSAID's).
- Altered Vitamin K synthesis in the GI tract (ex. antibiotics).
- Alterations in warfarin metabolism (ex. Amiodarone).
- Interference with vitamin K metabolism (ex. Acetaminophen).

# Antibiotics & Warfarin

- Often within the first three days of antibiotic use there is a risk of over-anticoagulation.
- Amoxicillin, Clarithromycin, Norfloxacin, Trimethoprim-sulfamethoxazole may cause increased anticoagulation.

# Aspirin & Warfarin

Risk of GI bleed is much higher in patient taking low dose aspirin and warfarin as compared to warfarin alone.

# Food & Warfarin

- Cranberry juice may cause elevated INR by affecting the metabolism of Coumadin.
- Cranberry juice has salicylic acid which may increase the INR by displacing warfarin from the albumin sites.
- Any foods high in vitamin K-dark green leafy vegetables and cashews can interfere with warfarin.



# Alcohol & Warfarin

- Acute alcohol ingestion decreases the metabolism of Coumadin and increases the PT/INR.
- Chronic daily use of alcohol increases metabolism of warfarin and decreases the PT/INR.

# CoaguChek XS from Roche



# Proper use of CoaguChek XS Machine

Chip



Chip code and strip  
code must match.

Strips



# Proper use of CoaguChek XS Machine

Strips can be stored  
and used until their  
expiration date.



# Proper use of CoaguChek XS Machine

- Strips must be used within 10 minutes after removal from container for accuracy.
- Container cap should be put back on tightly immediately after removing a test strip.
- CoaguChek XS machine needs to be cleaned with alcohol prep pad 70% daily or if visibly soiled



# Proper use of CoaguChek XS Machine

Test strips & meter can  
only be used within  
certain temperatures.

65°-90°F (18°-32°C)

<85% noncondensing  
humidity



# Critical INR Procedure

## Procedure for abnormal results

- 1. The acceptable CoaguChek XS linearity range is 0.8 to 8.0.
- 2. Critical INR result >5 as established by Grand View Health Medical Staff Director
- (0.8 – 2.8 if patient is taking heparin or low molecular weight heparin in conjunction with Warfarin)
- 3. **If the result exceeds 5:**
- a) Follow target Coumadin parameter ranges and established Medical Practice guidelines with reference to bleeding.
- b) An action must be taken to protect the patient, i.e.,
  - the patient is instructed to stop Coumadin for 24 hours (or more),
  - revisit is scheduled, and
  - INR rechecked.
- c) Contact the physician per Medical Practice guidelines.

# When not to use the CoaguChek XS.

- With patients being treated with any direct thrombin inhibitors (Hirudin, Lepirudin, Bivalirudin, Argatroban and Dabigatran Etexilate).
- With patients with a hematocrit range outside 25%-55% range.
- With patients that have anti-phospholipid antibodies (APA's) such as Lupus.



# DOCUMENTATION OF RESULTS

- The standards do not require a log sheet to be maintained for waived tests. The organization is required to be able to correlate the quality control results with the individual test results. Examples of typical correlated information would include the following:
  - client identifier
  - date of testing
  - test kit lot number
  - test result, QC lot numbers
  - QC results
  - testing personnel identifier
- Logs are useful for compiling this information in one comprehensive document. Alternatively, the organization may choose to document this information in the client chart or utilize a combination of document sources to correlate the information. For example, an organization performing occult blood testing elects to document the date of testing, client result, QC result and testing personnel initials in the client chart. A separate inventory log is maintained to track the lot of reagents and test cards in use at the time of testing. Performance of initial QC for the lot, when required by the organization's policy, could also be documented on the inventory log prior to releasing the kit for general use.
- <https://www.jointcommission.org/standards/standard-faqs/laboratory/waived-testing-wt/000001721/>

# Documentation

## QC and Cleaning

### Log Sheet

Grand View Health  
CoaguChek XS Log Sheet  
Test Results Log • Quality Control Check • Meter Cleaning

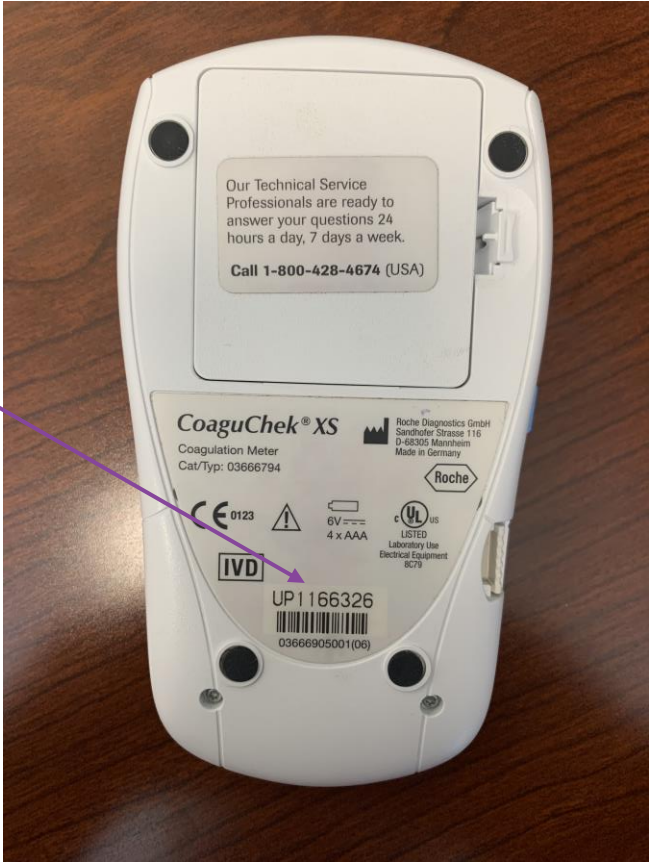
Clinician Name: \_\_\_\_\_

Machine ID #: \_\_\_\_\_

Patient Medical Record # (in demographics)	Date of Birth	Test Strip Code	Quality Controls (OK?)	Test Result	Cleaned Disinfected Exterior (✓)	Cleaned Disinfected Test Strip Guide (✓)	Date / Time	Initials

Reference Range INR 2.0 to 3.0 for DVT or Systemic Embolism; INR 2.5 to 3.5 for Artificial Valve  
Acceptable Reportable Range 0.8-4 (If patient **not** taking heparin or LMWH such as Lovenox) must contact physician, action taken to protect patient, i.e. withhold Coumadin, schedule INR recheck.  
Acceptable Reportable Range 0.8-2.8 (If patient is taking heparin or LMWH such as Lovenox) must complete venipuncture if over 2.8.  
Do not use CoaguChek XS with patients being treated with any direct thrombin inhibitors (Hirudin, Lepirudin, Bivalirudin, Argatroban, and Dabigatran Etxilate).

### CoaguChek XS



# Documentation

According to The Joint Commission, the following sentence must be in all charts of patients that have us complete INR for them.

REFERENCE RANGE INR 2.0 TO 3.0 FOR DVT OR SYSTEMIC EMBOLISM; INR 2.5 TO 3.5 FOR ARTIFICIAL VALVE.

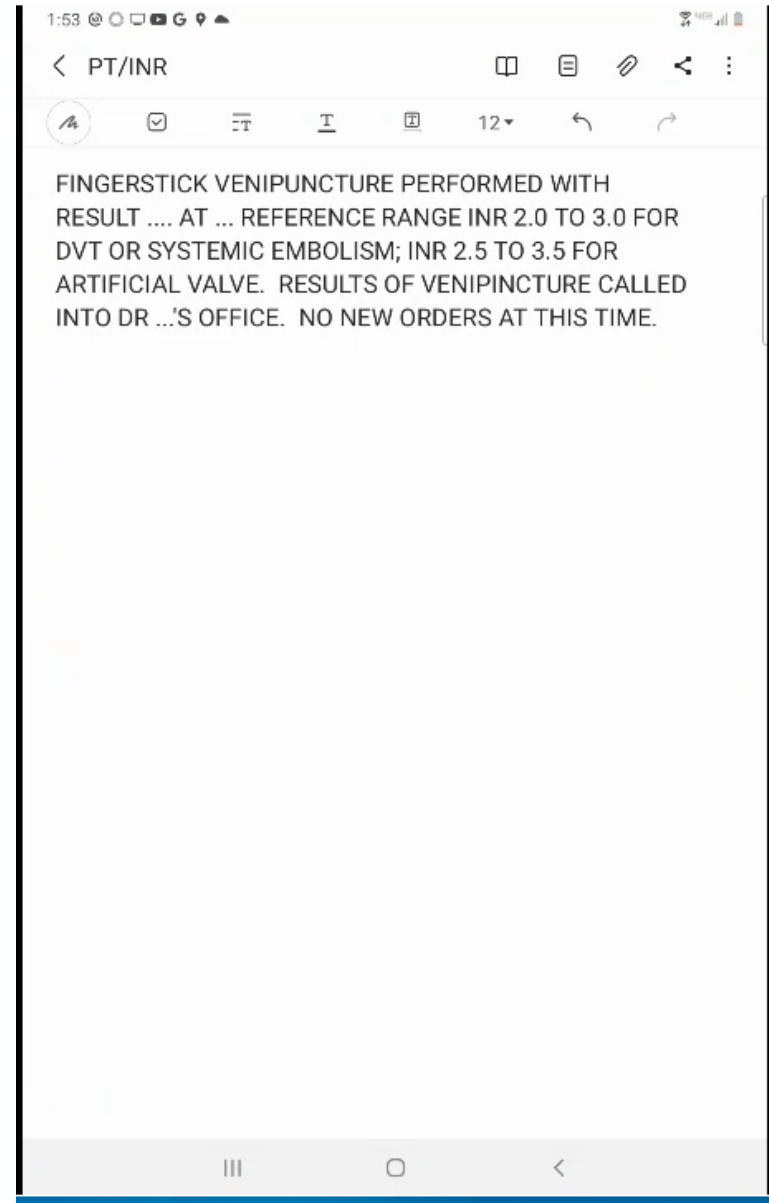
Pathways – Orders

Interventions

Narrative Note

# Documentation

Use of a template insures that proper documentation is completed and the required sentence is in the chart.



# Grand View Health Responsibility

There is a delicate balance between too much and not enough anticoagulation. It is our responsibility to instruct our patients on signs and symptoms of over-anticoagulation to report.

# Questions?

Please review the CoaguChek XS system User Manual or the CoaguChek test strip package insert or contact POCT 215-453-4317



# Thank You!

**GVH** GRAND VIEW HEALTH