

## PT/INR Point of Care Testing with CoaguChek XS

### Equipment:

- CoaguChek XS device
- Non-sterile gloves
- Wax paper
- Hand Sanitizer
- 2 x 2 non-sterile gauze or cotton ball
- Lancet
- Alcohol swabs
- Test strip
- Band-Aid
- Sharps container

### Directions:

1. Sign out CoaguChek XS meter.
2. Check expiration date on bottle of strips prior to leaving office to make sure the test strips have not expired.
3. Monitor and test strips must be at room temperature prior to the test (between 59-90 degrees F).
4. Adhere to Standard Precautions, explain procedure to patient/caregiver and assemble supplies.
5. Ask patient to warm hands (wash in warm water, rub hands briskly) to increase circulation.
6. Position patient next to a flat hard surface.
7. Place a piece of wax paper on the hard surface.
8. Take CoaguChek XS meter out of zippered container.
9. Assemble supplies on wax paper (CoaguChek XS meter, hand sanitizer, gloves, 2 alcohol wipes, band aid, lancet, 2x2 gauze or cotton ball, sharps container, bottle of test strips).
10. Wash hands with hand sanitizer.
11. Put on gloves.
12. Clean the patient's finger with alcohol pad and allow to air dry.
13. Take one test strip out of bottle of test strips and tightly recap bottle of test strips. Test strip starts to oxidize once it is taken out of bottle and is only usable for 10 minutes.
14. Insert test strip into the CoaguChek XS meter. This will turn on the meter.
15. The CoaguChek XS meter will perform a quality control and temperature check. Once it has performed these checks, a code number will flash on the screen. This is the number of the code chip in the meter. Check to make sure the code number on the bottle matches the code number flashing on the meter. If they match, push the "M" button to "match the code."
16. After approximately 15-30 seconds the meter will beep and go into a 180 second (3-minute) countdown.
17. Twist and pull the pink top off the lancet. Hold the lancet between the thumb and forefinger.
18. Grasp the patient's finger firmly with the other hand, place the lancet on the patient's finger and prick the finger with the lancet.

19. Drop the lancet into the sharps container.
20. Allow a drop of blood to form (you will need the size of a lady bug).
21. Once the finger is pricked, you have 15 seconds to apply the drop of blood to the test strip.
22. Absorb the blood drop with the test strip. The meter can be held in the clinician's hand and brought to the patient's finger in order to obtain the blood specimen. The meter will beep when an adequate amount of blood has been applied to the strip.
23. Place the 2x2 gauze on the puncture site and ask the patient to place firm pressure on the puncture site until the bleeding stops.
24. Gently place the meter on a flat surface. Avoid touching, moving, disturbing or removing the test strip while the meter is testing the blood sample.
25. The meter will display the INR result. To view the PT result push the blue button on the side of the meter.
26. Record the PT/INR result.
27. If the meter indicates an error, refer to the error codes for meaning and resolution. You can also call the 1-800 phone number on the back of the machine for technical assistance 24 hours a day and 7 days a week.
28. Remove the used test strip.
29. Turn the meter off by pushing the button with the circle.
30. Clean the outside of the meter with an alcohol pad.
31. Place the CoaguChek XS meter back in its zippered case.
32. Fill in the patient information on the paper "In Ratio Prothrombin Time Monitoring System Test Log" that is inside the zippered case and place it back in the case when completed.
33. Do not leave the test strips/meter in your car overnight. Heat and cold can destroy the test strips and each strip is approximately \$5.00.
34. Return the meter to the office.

## **Point of Care PT/INR Testing CoaguChek by Roche**

### **Support Line: 1-800-428-4674**

#### **Features:**

- Provides highly accurate PT/INR readings at point of care
- Self-diagnostic check with each test ensures accuracy
- Portable – tester can bring the meter to the patient’s finger, simplifying use

#### **Tips:**

- Keep machine at room temperature. Don’t expose to extreme temperatures (hot or cold) for prolonged period.
- Always keep meter and strips in convenient carry case.
- Ensure strips are kept in container with stopper tightly closed to prevent damage to strips.
- Keep strips and strip container dry. Never open the container or remove or handle a strip with wet hands.
- Strip must be used within 10 minutes of removal from container.
- Code chip must match strips – check with each test.
- Wait until the 180 second count-down begins before performing the finger-stick.
- Use spring-loaded lancet for patient comfort and to ensure adequate blood drop.
- Always sample from side of finger for better blood flow.
- Never milk finger. Do not wipe away first blood drop.
- Always apply blood to strip within 15 seconds of finger-stick.
- Unit will beep when enough blood has been applied to the strip.
- Never add blood to sample once test has begun.
- If you must retest due to an error, use patient’s other hand unless medically contraindicated. If you must use the same hand, use a different finger.
- For patients taking Lovenox or heparin, test at least 3 hours after dose injection.
- Clean surface as needed with a 70% alcohol prep pad with unit powered off.
- Once per week, clean the test strip guide: Turn the unit off, remove blue cover, and cleanse the cover with a 70% alcohol prep pad. To clean interior of test strip guide, dampen a cotton swab with a 70% alcohol prep pad and cleanse area for one minute. Let air dry before replacing blue cover.
- Equipment is under warranty – report problems with your meter immediately to Facilities to get a replacement meter
- Be aware of your strip expiration date – located on strip container. Notify your manager if you have a large quantity of strips on hand that are due to expire shortly. Your manager may distribute the strips to other clinicians so that they can be used in time to avoid expiration.
- Out of range readings: If the result is less than 0.8 or greater than 8, the display will read “<0.8” or “>8.0”. Always repeat the test once with a new test strip and a new finger-stick from a different finger. If the result is still outside of parameters, draw a venous sample for processing at a traditional lab. Assess the patient for symptoms and notify the MD that the reading is outside of parameters, and

- request a stat lab if indicated. Follow up with the lab and/or MD to remain informed about the result and any further orders or follow up.
- Result displayed with a “c” in the lower right corner of the display window indicates that the patient’s hematocrit (Hct) is either too high or too low and may be interfering with test result. Repeat the test using a new test strip and blood from a new finger-stick and a different finger. Avoid milking the finger. If the “c” continues to display, notify the MD that the patient’s Hct level may be abnormal and may be interfering with the point of care INR test. Recommend a venous sample be taken for INR testing at a traditional lab. Recommend that the Hct also be tested. Follow up with the MD and/or lab to remain informed about the results and any further orders or follow up.

## **Error Readings**

### **Error: Test Strip**

- Display: Test strip along the bottom edge of the display window
- Meaning: a) An old test strip was retained in the meter from the previous test; b) the meter timed out before you were able to apply the blood sample; c) the test strip is unusable; or d) the test strip is not a CoaguChek XS test strip
- Solution: Remove the test strip

### **Error: Meter Temperature**

- Display: Thermometer icon in the lower right hand corner of the display window
- Meaning: The meter is either too hot or too cold to measure correctly
- Solution: Power off the meter and allow to return to room temperature (between 59F and 90F)

### **Error: Battery**

- Display: Battery icon in the lower left corner of the display window
- Meaning: The battery level is too low to operate the meter
- Solution: Replace the batteries

### **Error: Test Strip Guide Cover**

- Display: Guide cover picture in the top center of the display window
- Meaning: The guide cover is not properly closed
- Solution: Fully close the guide cover

### **Error: Code Chip**

- Display: “Code” appears in the upper left of the display window
- Meaning: The Code Chip is missing, not properly inserted, or damaged
- Solution: Check to see if you have the correct code chip for your container of strips. Ensure it is properly inserted in the meter. If the code chip is damaged, contact the office to see if we have any replacement chips with that code number available. If no replacement chip is available, you will need to turn in your strips and get a new supply with new code chip

**Error: Code 3**

- Meaning: Test strip has expired
- Solution: Check the strip container and confirm the expiration date of the strips. If it appears the strip has not yet expired, check the meter's date setting. If the date setting is incorrect, set the correct date. If this action does not resolve the issue, the strips may not be used and you must turn in the remaining strips and obtain a new container of strips and code chip

**Error: Code 4**

- Meaning: Test strip is unusable
- Solution: Power off the meter, remove the strip, and then turn the machine back on. Reinsert the strip. If the error continues to display, discard the strip and use a new one

**Error: Code 5**

- Meaning: Error applying blood to the strip
- Solution: Power off the meter and remove the strip. Repeat the test using a new test strip and blood taken from a new finger-stick from a different finger

**Error: Code 6**

- Meaning: Test strip was touched or moved during the test
- Solution: Power off the meter and remove the strip. Repeat the test using a new test strip and blood taken from a new finger-stick from a different finger. Do not touch or remove the test strip when a test is in progress

**Error: Code 7**

- Meaning: Measurement error caused by the blood sample. May be due to touching or removing the strip while the test is in progress (see also Error Code 6). May also be caused by not applying the blood drop to the test strip within 15 seconds of sticking the fingertip. **In rare cases, error 7 may appear due to a very high INR result (greater than 8).**
- Solution: Power off the meter and remove the strip. Repeat the test using a new test strip and blood taken from a new finger-stick from a different finger. Do not touch or remove the test strip when a test is in progress. A second error 7 reading is rationale for obtaining a venapuncture sample to be tested in a traditional lab setting. Due to the possibility of the patient having a very high INR result, assess the patient for signs and symptoms of bleeding, notify the MD of the need to perform a venapuncture test, and request a stat order. Follow up with the lab and/or MD to remain informed about the result and any further orders and notify the patient/caregiver.

**Error: Code 8**

- Meaning: An error occurred during the internal diagnostic test
- Solution: Power the meter off and remove the batteries. Wait at least one minute before re-inserting the batteries. Reset the date and time and then repeat the test, using blood from a new finger-stick from a different finger

**Error: Code 9**

- Meaning: Internal Error
- Solution: This error indicates possible damage to the meter. Call Roche Technical Service at 1-800-428-4674

**Error: Code 000**

- Meaning: The blood sample was not applied within the 180 second count down
- Solution: Do not apply blood to the strip once the countdown has been exceeded. Power off the meter and remove the test strip. Repeat the test using the same test strip and blood taken from a new finger-stick from a different finger.

**Error: Code QC**

- Display: “QC” appears in the lower center of the display window
- Meaning: The test strip failed the internal quality control check
- Solution: Power off the meter and remove the test strip. Repeat the test using a new test strip and blood taken from a new finger-stick from a different finger.

# Documenting Anticoagulation Management

**Call log- Subject** - enter PT/INR results .  
**Details**- enter who you spoke to, any new orders received, and date next INR is due, orders read back and verified, patient instructed.

**Lab/Test form**- document results in Lab test form in Note-  
**Results tab**- Select PT or PT/INR from dropdown, then enter result in field next to dropdown selection  
**Lab Results form in Patient Profile**-Use to view Hx of Lab results.

**Enter Clinical Order Interventions in 485**  
 1. Capillary blood or Venipuncture Intervention in **Lab/Test folder**.  
 2. Name and Phone number of MD managing anticoag in General folder –**Other folder**- open text intervention.  
 3. Enter new Coumadin orders in med list. Use Order set for non daily orders. DC old Coumadin orders.  
 4. Sign all orders- be sure to select the MD who gave the order when you sign.

**Memo**  
 Add Memo to visit scheduled for date of next INR due.  
 Memo may be added in the **Schedule** screen if appt is assigned to you, or via the **485**, VFO's, Appts, Edit. Check the Labs visit tag also.