HealthPartners/GHI

Subject Erythrocyte Sedimentation Rate	Attachments ☐ Yes ☒ No
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APPROVAL(S) Laboratory Medical Director	

Sedimentation Rate
Clinic Lab Procedure (Pages 1-3)
Computer Test (Page 4)

I. PURPOSE/PRINCIPLE

The ESR is a common laboratory test used to indicate patient conditions such as acute tissue damage, chronic infection and chronic inflammation. The ESR test measures the rate that erythrocytes settle in human plasma over a specified time period. ESR results are reported in millimeters that the plasma-erythrocyte interface falls in a designated perpendicular tube of anticoagulated whole blood per hour. The ESR-10 Manual Rack is designed to accurately measure the sedimentation rate of erythrocytes in 30 minutes using 1.2 ml ESR Vacuum Tubes. The ESR-10 Manual Rack allows the user to report the result obtained directly from the measuring scale supplied with the rack. Results are reported as mm/hr Westergren Method by using the QuickMode conversion for measuring ESR in only 30 minutes.

II. POLICY

Laboratory Staff will follow the approved techniques outlined in this procedure.

Specimen:

1. 1.2 ml drawn directly into the Streck ESR-Vacuum Tube tube **or** 1.2 ml minimum EDTA whole blood.
2. Samples are stable for 24 hours. Untested specimens should be refrigerated and brought to room temperature if held overnight before testing.
3. Grossly hemolyzed and clotted samples are not acceptable.

Reagents/Materials:

1. Streck ESR-10 Manual Rack
2. Streck 1.2 ml ESR-Vacuum Tube, contains 3.2% buffered tri-sodium citrate additive. Stable until labeled expiration date at 18-30°C.

Quality Control:

1. Streck ESR-CHEX assayed bi-level controls
    a. Each kit contains 6 vials each of Level 1 and Level 2 control material.
    b. Control material contains stabilized human red blood cells in a buffered, preservative medium.
    c. Unopened vials are stable until labeled expiration date when stored at 2-10°C.
    d. Opened vials are stable throughout the open-vial dating, as indicated on the assay sheet when stored at Room Temperature (18-30°C) or at 2-10°C.
    e. Equilibrate the control to room temperature if necessary. Mix vials through inversion and by vigorously rolling upright between palms until the red cells are completely suspended. Continue to mix for an additional 90 seconds. Transfer control material into ESR-Vacuum Tube immediately after mixing and fill tube to the line indicated. Analyze control in same manner as patient samples described in Procedure section.
    f. Both levels of controls should be run monthly and with lot# changes of ESR tubes.

*Note: If controls samples are not transferred into ESR tubes within one minute of mixing, the vials must be remixed or the samples and the remaining product in the vial may be invalidated due to change in constitution.

III. PROCEDURES

1. Direct Draw Method:
   Draw the patient using a ESR-Vacuum Tube. The proper amount of blood will be drawn into the tube automatically. The ideal fill line is indicated on the tube. Under-filling tubes will affect the final dilution.

   Transfer Method:
   Blood samples drawn into an EDTA tube may be transferred into the ESR tube. Samples must be thoroughly mixed and be at room temperature before transferring. Using a transfer pipette, fill the ESR tube to the fill line indicated.

2. Once drawn or transferred, mix the tube by thoroughly inverting ESR-Vacuum Tube 6-8 times. The air bubble in the tube must reach the opposite end between each inversion.

3. Check that the bubble is in the center of the circle on the front of ESR-10 rack indicating that the rack is level. Adjust if necessary.

4. Place the ESR-Vacuum Tube in any free position with the stopper in the upright position. Each tube position is marked with a red circle numbered 1 through 10. If there are multiple specimens being tested, record position and set-up time on Streck ESR worksheet.

5. Align the tube so that the bottom of the liquid meniscus is in line with the zero position on the measuring scale. NOTE: Do not adjust the position of the tube in the rack by pulling on the stopper.

6. Set timer for 30 minutes. Allow the sample to settle in an undisturbed, vertical position for 30 minutes.

7. At 30 +/- 1 minute, record the numerical value at the top of the column of sedimented erythrocytes. It is acceptable to move the measuring scale by hand to better align the meniscus and read the top of sedimented erythrocytes.

Reference Ranges:

Male	0 – 15 mm/Hour
Female	0 - 20 mm/Hour

Assay linearity is 0 - 68. Values greater than 68 should be reported as >68. At provider request specimen may be sent to CL for testing by alternate method which is linear to 140.

PROCEDURE NOTES

1) The ESR test is sensitive to temperature, tube angle and vibration. It is important to place the stand on a level surface where there is no draft. Avoid placing the stand next to windows, centrifuges, air-vents, etc.

REFERENCES

Streck ESR-10 Manual Rack package insert, Streck, December 2005
Streck ESR-Vacuum Tube package insert, Streck, November 2004
Streck ESR-Chex Conntrol package insert, Streck, November 2005

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IV. DEFINITIONS

V. COMPLIANCE

Failure to comply with this policy or the procedures may result in disciplinary action, up to and including termination.

VI. ATTACHMENTS

VII. OTHER RESOURCES

VIII. ENDORSEMENT

Laboratory Administration

Computer Order and Result Entry

SEDIMENTATION RATE

Order Code: ESR-W

RESULTING

WORKSHEET:

Function MEM Worksheet HM2_ _ (Heme Misc 2)

RESPONSE:

Enter number directly.

Assay linearity is 0 - 68. Values greater than 68 should be reported as >68. Computer will flag result as abnormal.

At provider request specimen may be sent to CL for testing by alternate method which is linear to 140.

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