



**To: Medical Staff**

**From: Steven J. Eastep, MD**  
**St. Luke's Laboratory Medical Director**

**Date: June 26, 2012**

**Re: Reflexive Testing at St. Luke's Hospital Lab**

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It is the responsibility of the laboratory to inform its medical staff of reflexive testing done in the lab. Reflexive testing is described as: Test done if the initial test is positive or if the initial results fit defined criteria; the follow-up test will be ordered and the appropriate charges initiated. The following list includes the reflexive testing done at St. Luke's Hospital Laboratory:

1. A CBC with an automated differential will require a manual differential if found to be abnormal under predefined laboratory parameters
2. Hematology differentials (first time encounter or new diagnosis) that fit the following criteria will be referred to a hematopathologist. They will decide whether a written report should follow:
  - Markedly abnormal RBC morphology—many target cells, spherocytes, schistocytes, etc.
  - Greater than 3 nucleated RBC's (excluding newborns)
  - If the WBC is less than 1,000/cmm or greater than 30,000/cmm.
  - If immature WBC's are present: promyelocytes or blasts
  - If the number of lymphocytes is greater than 7,500/cmm.
  - If lymphocytes appear suspicious of lymphoblast or lymphoma cells.
  - If the number of platelets is less than 20,000/cmm or greater than 750,000/cmm
  - If the hemoglobin is less than 7 gms or greater than 19 gms.
  - Presence of organisms (i.e. Anaplasmosis, Babesia etc.) or Auer rods.
3. The Coagulation Consultations are performed by Mayo Medical Laboratories and include screening tests of coagulation. If the screening tests are abnormal, appropriate diagnostic coagulation tests will be added and interpreted.
4. If the CKMB is greater than 5 ng/mL, a total CK will be analyzed and the percent CKMB will be calculated.
5. The Pernicious Anemia Cascade is sent to a reference lab and begins with a Vitamin B12 Assay. It may also include: Intrinsic Factor Blocking Antibody, Serum; Methylmalonic Acid, Quantitative; and/or Gastrin, Serum.
6. Iron Binding capacity includes a total Iron and a calculated Transferrin Saturation.
7. Electrophoresis, Protein, serum. If a discrete electrophoretic band is identified, the laboratory will evaluate the serum protein electrophoresis and perform the appropriate test (immunosubtraction or immunofixation), at an additional charge.

8. If a UA is ordered; the microscopic will be done if the protein, nitrate and/or leukocyte esterase is positive; if the blood is greater than trace or if the glucose is greater than 1 g/dL. There is no additional charge for the microscopic. If the nitrate and/or leukocyte esterase is positive and/or if there are more than 10 WBC present in the microscopic exam, a urine culture will be ordered (except in the Emergency Department or Urgent Care unless the patient is admitted from ED/UC within 5 hours). The urine culture will be ordered on cath urines from children under the age of 10.
9. Culture identification: Organisms identified in bacterial and fungal cultures will be identified at additional charges.
10. Antibiotic Sensitivity. Sensitivities will be done on all significant isolates as determined by SLH Microbiology Department. If additional sensitivities are needed, please call ext. 5319.
11. If a Strep Screen is positive, no further testing is done. If a Strep Screen is negative, a throat culture for Strep A is completed and charged unless the physician specifically requested to only do the antigen testing. A throat culture for Strep A is not reflexively added if the patient is seen in ED or Urgent Care.
12. If a Streptozyme is ordered and the Streptozyme Screen is positive, the sample will be titered.
13. If an ASO is ordered, a Steptozyme Screen will be run. If results are positive the sample will be referred to a reference lab for an ASO titer and Anti-Dnase B titer.
14. If the Lyme Disease Antibody is positive, a sample will be sent to a reference lab for Western Blot Confirmation.
15. Treponema antibody tests that are positive will reflex to an RPR. Positive RPR's will be titered.
16. According to CDC guidelines, reactive samples for HCV will be reflexed to a HCV, RNA-PCR Quantitative Assay if s/co ratios are between 1.0 and 10.9.
17. Reactive samples for Hepatitis B Surface Antigen are confirmed with a neutralization procedure.
18. Reactive samples for Human Immunodeficiency Virus 1/0/2 will be confirmed with Western Blot (the western blot is a referred test).
19. When an Antibody screen (indirect coombs) is resulted as positive, an antibody identification and antigen typing will be performed as indicated.
20. Antibodies detected in a type and screen, crossmatch, or antibody screen will be identified to include a direct Coombs test when indicated.
21. If a clinically significant antibody is detected on an inpatient, two units of antigen negative red blood cells will be crossmatched. Exception: Patients with antibodies which required rare red blood cell units:i.e. <5% of all red blood cell units are compatible.
22. If an Rh is ordered on a female patient in ED and the result is negative, a single dose of Rh immune globulin will be ordered.
23. When a Fetal Screen is resulted as positive, a quantitative Hemoglobin F by Flow Cytometry will be performed.
24. If the triglyceride is >400 mg/dl, a calculated LDL cannot be done. SLH will reflex the Lipid Panel to include a direct LDL.
25. If the white blood cell count on Body Fluids is >10 nucleated cells; a differential will be done.
26. If a TSH reflexive test is ordered, a TSH will be done. If the TSH is abnormal a Free T3 and/or a Free T4 will be performed and charged.
27. Ova and Parasite Screen has replaced the traditional Ova and Parasite microscopic examination. This EIA assay will detect Giardia and Cryptosporidium antigens. Positive Cryptosporidium specimens will be forwarded to the Minnesota Department of Health. Stool specimens will be held for two weeks in preservative following the Giardia and Cryptosporidium EIA results to allow conversion to a conventional microscopic examination. This O&P Screen will automatically replace orders for stool O&P microscopic examinations unless overridden by the ordering physician stating Complete O & P.
28. If requested, a quantitative serum hCG will be reflexively added to a positive qualitative serum hCG.

29. Gram stains will be done on the following cultures:
- Bronchial Brushings or Bronchial Washing
  - Body Fluid
  - CSF Fluid
  - Ear/Eye Cultures
  - Sputum Culture
  - Tissue Culture
  - Wound Culture
  - Fungus Culture: KOH
  - AFB Cultures: If the culture is from an inpatient, the AFB direct stain will be read at SLH.
30. When a Streptococcus B PCR test is reported as indeterminate, a Strep B culture will be done.
31. Positive blood cultures in which gram positive cocci in clusters are seen in the initial gram stain will reflex to PCR methodology to determine if the organism is (1) Staph aureus or (2) not Staph aureus. If the organism is Staph aureus it will also be determined if it is methicillin resistant or not methicillin resistant.
32. We provide the option to order HPV HR (High Risk) testing reflexively based on PAP smear results.
33. Flow cytometry for Leukemia/Lymphoma done at Mayo Reference Laboratory will reflex to the appropriate panel based on reference lab findings.
34. If requested, an Epstein Barr panel will be reflexively added to a negative Monospot.

Mayo Medical Laboratories serve as the primary reference laboratory for St. Luke's Laboratory. Most tests will be forwarded to Mayo if not performed on site.