Status Active PolicyStat ID 16867877

Beaumont

Origination	12/1/2021
Last Approved	10/30/2024
Effective	10/30/2024
Last Revised	10/30/2024
Next Review	10/30/2026

Document Contact	Megan Masakowski: Mgr, Division Laboratory
Area	Laboratory-Hematology
Applicability	All Beaumont Hospitals

Criteria For Review of Peripheral Blood and Body Fluid Smears

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

A. The following criteria are established to provide guidance for the review of **peripheral blood and body fluid** smears by medical technologists, residents, fellows, or pathologists. This review should not hold up the reporting of results unless proper cell identification is in question.

B. When leaving a slide for review, ensure case is sent for pathologist review in LIS; include a completed "Smear Review Checklist" (see Attachment A- Smear Review Checklist), instrument print-out, and final LIS report. Print barcoded collection or specimen label and affix to checklist. Track slides to appropriate area. Courier will deliver hematology cases to Royal Oak unless the case is already at Royal Oak lab. Royal Oak staff to place slide and checklist in designated area for Pathologist Review**.** All blood and body fluid specimens should be archived for future retrieval if necessary. Ensure body fluid specimens are in containers that are appropriate for the specimen storage refrigerator. **NOTE: Follow site-specific workflow for body fluids sent for pathologist review.**

C. ***NOTE: Please save smears only on NEW PATIENTS or existing patients with significant clinical change (FIRST TIME ONLY), who do not have a previous pathologist comment or recent bone marrow/path consult on record, unless otherwise noted.***

D. **NOTE:** Veterinary specimens should **not** be sent to Clinical Pathology pathologists for review. If questionable cells are seen on differential, under “Comment” free-text **“Referral of slides to veterinary pathologist for review is suggested if considered clinically necessary.”**

E. **NOTE:** If the order is for a pathologist consult, proceed with processing as a path consult. Do

not add on a path review.

II. ACRONYMS:

A. Chronic Lymphocytic Leukemia (CLL)
B. Chronic Myelogenous Leukemia (CML)
C. Acute Promyelocytic Leukemia (APL)
D. Red Blood Cell (RBC)
E. Mean Corpuscular Volume (MCV)
F. High Power Field (HPF)
G. Platelet (PLT)
H. White Blood Cell (WBC)
I. Complete blood count without differential (CBCND)
J. Complete blood count with differential (CBCWD)
K. Billion per liter (bill/L)
L. Second Review (SECREV)
M. Pathologist Review (Path review)
N. Laboratory Information System (LIS)

III. PROCEDURE:

A. PERIPHERAL BLOOD
    1. Whenever the identification of a cell is in doubt.
    2. Leukoerythroblastic blood picture.
    3. Myelodysplastic changes.
    4. Other significant changes from previous results or pathologist review.
    5. Erythrocyte abnormalities
        a. Any single RBC abnormality that is judged to be 3+.
            i. Target Cells
            ii. Ovalocytes
            iii. Echinocytes**-Inpatient Only**
            iv. Acanthocytes
            v. Tear drops
            vi. Spherocytes
        b. When sickle cells or cells with intraerythrocytic hemoglobin crystals are seen.
        c. Cabot rings (when associated with anemia).

d. MCV > 114.0 fL (patient age >15 days) OR < 59.5 fL

e. Schistocytes > 1/HPF AND PLT delta check OR thrombocytopenia (<100,000).

6. Leukocyte abnormalities

   a. Cases of absolute:

      i. Lymphocytosis > 15.00 10*9/L (not known CLL by morphology or flow) (patient age >1 year)

      ii. Monocytosis > 3.00 10*9/L (patient age > 1 year) and persistent for 3 months

   b. Presence of:

      i. Blast of any type (myeloblast, lymphoblast, megakaryoblast)

      ii. Neutrophils <0.50 10*9/L

      iii. Abnormal leukocyte forms (Pelgeroid neutrophils, Chediak Higashi, abnormal granulation)

      iv. Hairy cells or Sezary cells

      v. Lymphoma cells

      vi. Plasma cells, greater than or equal to 5%

   c. Any suspect Chronic lymphocytic leukemia (CLL) (new cases only)

   d. Any suspect Chronic Myelogenous Leukemia (absolute neutrophilia with left shift, eosinophilia and/or basophilia) or other myeloproliferative disorder (new or with significant change).

   e. WBC > 100 10*9/L.

   f. Parasites / Intracellular bacteria or yeast. Send directly to Microbiology for confirmation, follow site-specific procedure.

   g. NOTES

      i. A differential must be ordered if a case is going to be sent for a Pathologist Review. **Exception: A differential does not have to be added for platelets >1000, MCV <59.5, or MCV >114.0 if only a CBC is ordered.** If abnormalities (i.e. Leukoerythroblastic picture, lymphoma cells, myelodysplastic changes) are seen while reviewing a CBCND (e.g. for a platelet verification), the laboratory personnel should contact their Medical Director/ Technical Director staff for next steps. If deemed clinically relevant, the laboratory staff will contact the treating provider to inform them of such results and request an "ADD on" CBCWD order. (Refer to the system policy *Laboratory Procedure for Canceling Orders and Results on Unacceptable Specimens*) . Before validating results in the middleware, a CBCWD must be ordered in Beaker. From Beaker, add-on a CBCWD to the order. Complete the differential in middleware, and follow the workflow

for ordering a path review and forwarding to pathologist. The slides, instrument and LIS printouts are saved for pathologist review.

7. Platelet abnormalities
    a. Absence of stainable granules (majority must be agranular).
    b. Platelet count greater than 1000 10*9/L.

B. BODY FLUID

1. Cell clumps of any type (EXCEPT those composed of granulocytes, lymphocytes, macrophages / histiocytes).
2. Suspicious cells of any type.
3. Malignant cells.
4. Lymphoma cells
5. Parasites / Intracellular bacteria or yeast. Send directly to Microbiology for confirmation. Follow site-specific procedure.

C. PEDIATRIC HEMATOLOGY/ONCOLOGY PATIENTS

1. New findings on known pediatric hematology patients should be brought to the attention of the pediatric hematologists.

D. PEER REVIEW, STAT CASES AND CRITICAL VALUES

1. Always ensure that a second tech verifies the presence of blasts on the first-time occurrence before sending for Path Review. Use the SECREV field to record this review in Caresphere.
2. If there is uncertainty regarding the cell identification, forward the slide to the pathologist reading out cases that day. Afternoon, midnight and dayshift weekend/ holiday shifts should leave for pathologist review without paging resident on call (unless the unknown cells are greater than or equal to 5%) Refer to the procedure *Cases Requiring Escalated Review by Pathologists*.
3. If a new acute leukemia is suspected on a weekend, afternoon, or midnight shift, ensure that the “Smear Review Checklist” is designated as a STAT case by writing STAT on the top right corner. Contact the on-call pathology resident or fellow. Refer to the procedure Cases Requiring Escalated Review by Pathologists.
    a. **NOTE:** A pathology resident or fellow on-call must be notified when any new acute leukemia case is suspected, with greater than or equal to 5% blasts.
    b. **NOTE:** Suspected APL cases are particularly URGENT (Regardless of percentage, any characteristic APL morphology must be escalated). Ensure that on-call pathology resident or fellow and pathologist, scheduled to review the case, are aware as soon as possible. The attending physician will need to be notified.
4. If a Path Review is required on a STAT specimen, ensure that the path review

checklist is flagged as a STAT (STAT written on checklist).

a. Royal Oak Laboratory: Prior to 5PM, bring these cases directly to the designated pathologist for that day. If that pathologist is not available, seek another pathologist and explain the urgency. Do NOT leave in hematology lab or bone marrow sign-out room for the next day. After 5PM or on weekends, if a pathologist is not available, contact the pathology resident or fellow on call to handle these STAT cases if clinically relevant (i.e. new leukemia).

5. If critical values are present: Make sure a follow-up task has been generated on the order for Client Services to call, or make the critical call per site specific procedure.
6. Any time there is a question, feel free to contact a pathologist, fellow or resident on call for assistance.

E. NOTES:

1. Follow up with pathologist for pending results for prolonged time.

Attachments

Attachment A – Smear Review Checklist 10.10.24.pdf

Attachment B - Path Review Workflow.r02.pdf

Approval Signatures

Step Description	Approver	Date
	Ann Marie Blenc: System Med Dir, Hematopath	10/30/2024
	Hassan Kanaan: OUWB Clinical Faculty	10/29/2024
	Muhammad Arshad: Chief, Pathology	10/29/2024
	Ryan Johnson: OUWB Clinical Faculty	10/29/2024
	Jeremy Powers: Chief, Pathology	10/29/2024
	John Pui: Chief, Pathology	10/28/2024

	Masood Siddiqui: Staff Pathologist	10/28/2024
Policy and Forms Steering Committee Approval (if needed)	Megan Masakowski: Mgr, Division Laboratory	10/28/2024
	Jennifer Yaker: Mgr, Laboratory	10/28/2024
	Kristen DiCicco: Mgr, Laboratory	10/24/2024
	Helga Groat: Supv, Laboratory	10/24/2024
	Udayasree Bartley: Medical Technologist Lead	10/23/2024
	Sharon Cole: Mgr, Laboratory	10/23/2024
	Ashley Beesley: Mgr, Laboratory	10/23/2024
	Katherine Persinger: Mgr, Laboratory	10/23/2024
	Megan Masakowski: Mgr, Division Laboratory	10/23/2024

Applicability

Dearborn, Farmington Hills, Grosse Pointe, Royal Oak, Taylor, Trenton, Troy, Wayne