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BAL Cell Count and Differential

Purpose

This procedure provides instructions for performing and resulting of the cell count with differential order on bronchoalveolar lavage (BAL), test mnemonic CC BAL GL.

Scope

This microscopy procedure is intended for trained Clinical Laboratory Scientists (CLS) in the hematology department.

Principle

- BAL is a lavage created by the physician during bronchoscopy. It retrieves secretions that coat the apical surfaces of the bronchial and alveolar epithelium diluted by the saline used to perform the BAL.
- Because it does not exist naturally in the body, it should not be grouped under body fluids in terms of cell differential reference ranges.
- In patients with interstitial lung disease (ILD), accurate interpretation of BAL cellular analysis, including reference range, requires the BAL to be performed correctly and the BAL fluid to be handled and processed properly.

Specimen source and collection

- For specimen source, the selected bronchopulmonary segment is generally indicated on the specimen container and/or electronic test order.
- A minimum volume of 5 mL pooled BAL sample is needed for BAL cellular analysis. The optimal volume is 10-20 mL.
- The BAL fluid should be collected in sterile containers that do not promote cell adherence to container surfaces (e.g., silicone-coated glass, polypropylene, or other plastics designed for suspension tissue culture).

Specimen transport

- BAL can be transported fresh at room temperature within one hour of collection.
- Specimens must be transported on ice if the delivery time exceeds one hour.

Specimen rejection

- Specimens collected for more than 24 hours are not suitable for analyses.
- Follow lab policy on improperly submitted and/or identified specimens.

Specimen processing

- Prompt processing of the BAL fluid or cell suspension, once it reaches the laboratory, provides optimal results.
- Specimens with gross mucus can be strained through loose gauze.
- The specimen should then be centrifuged at an appropriate speed, resuspended, and set up for a cytospin slide to use for the cell differential.

Equipment/s Centrifuge Slide stainer Cytospin centrifuge Microscope

Reagents 22% Bovine Albumin solution and/or Media Wright-Giemsa stain

Materials and Cytology funnel and caps Slides supplies Cytology clips

Safety Precautions

Refer to the safety manual for general safety requirements.

Quality **Control**

Verify that appropriate cell count controls are performed and acceptable. Verify that slide staining by the stainer has been reviewed and deemed acceptable for the day.

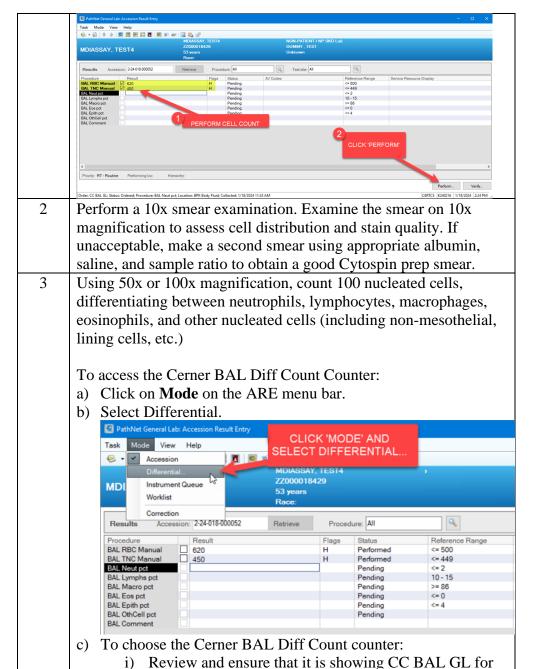
Cytospin slide preparation

- Follow local protocol in properly labeling a slide with unique patient specimen identifiers.
- Add a drop of the bovine albumin to each sample chamber before adding the specimen cell suspension.
- Add no more than eight drops of the specimen cell suspension to the sample chamber.
- Follow instructions on the operation of the cytocentrifuge.
- Air dry or heat fix the slide before staining.

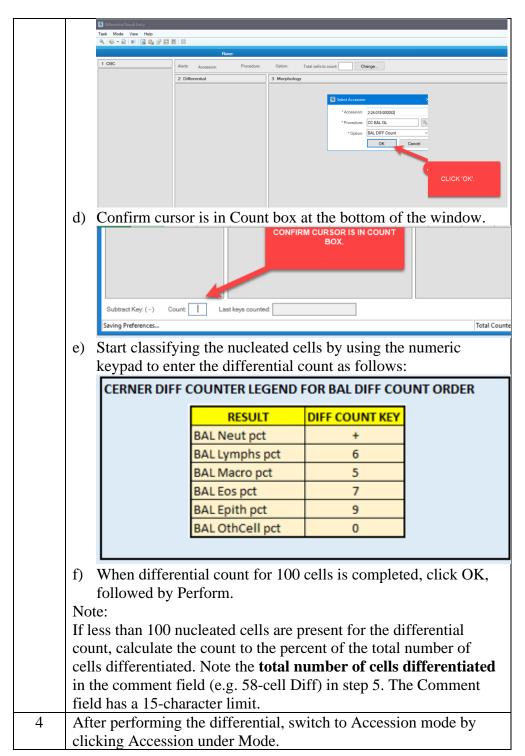
Procedure

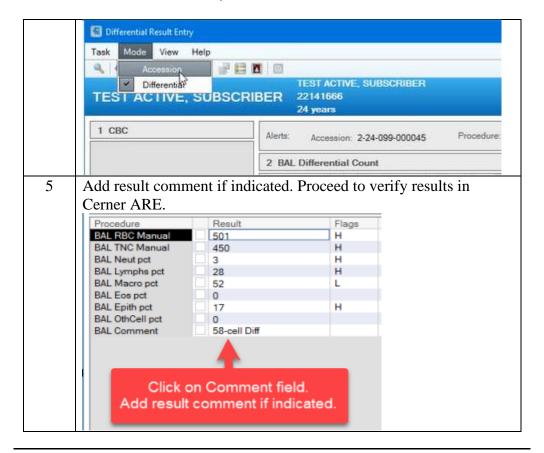
Follow the steps below to perform and result the BAL cell count and differential.

Step	Action
1	Perform a cell count for red blood cells (RBC) and nucleated cells
	(TNC), using manual method.
	Enter results in Cerner ARE, and click Perform.



- Procedure, and that it is BAL Diff Count for Option.
- ii) Click OK.





Reference Range

The following are the reference ranges for the BAL cell count and differential:

Values outside of the reference range will be flagged Abnormal.

Result Component	Range	Displays in Cerner as
	2	2
BAL RBC Manual	Less than 500 cells/mm ³	<=500 cells/mm ³
BAL TNC Manual	Less than 450 cells/mm ³	<=449 cells/mm ³
BAL Neutrophils	Less than 3 %	<=2
BAL Lymphocytes	10-15 %	10-15
BAL Macrophages	Greater than 85%	>=86
BAL Eosinophils	Less than 1 %	<=0
BAL Epithelial Cells	Less than 5%	<=4

For BAL Other Cells, the following Interpretive Comment is in place of Reference Range: The reference interval(s) and other method performance specifications have not been established for this body fluid. The test result must be integrated into the clinical context for interpretation.

A reference link to the published literature source of reference interval range for BAL is available under the BAL Epithelial Cells.

Non-Controlled Documents

The following non-controlled documents support this policy.

Meyer, Keith, et al. American Thoracic Society Documents, An Official American Thoracic Society Clinical Practice Guideline: The Clinical Utility of Bronchoalveolar Lavage Cellular Analysis in Interstitial Lung Disease https://www.thoracic.org/statements/resources/interstitial-lung-disease/clinical-utility-blcaild.pdf, last accessed 4/8/2024

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Signature Manifest

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Hematology Regional Docs

Operations Approval

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Final Approval

Name/Signature	Title	Date	Meaning/Reason
Hedyeh Shafi (I086749)	Pathologist	19 Apr 2024, 01:26:51 PM	Approved