
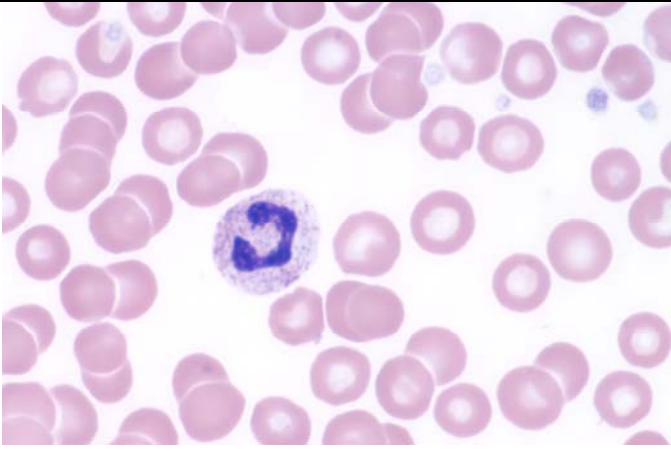
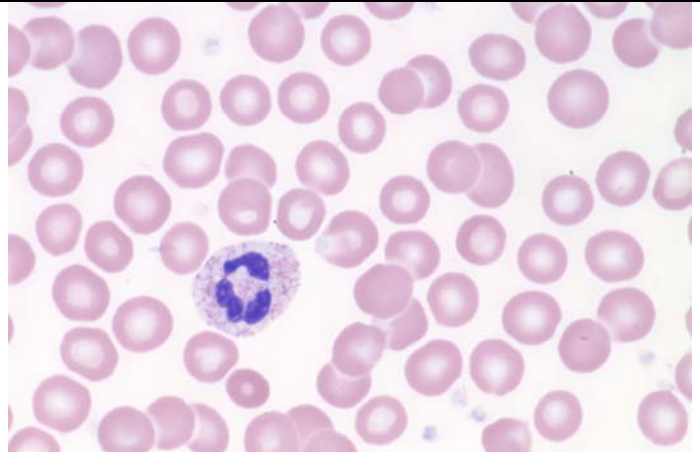


**NEW YORK STATE CYTOHEMATOLOGY PROFICIENCY TEST PROGRAM**  
**Class Slide - November 2015**

Results from this proficiency test event are available at:  
<http://www.wadsworth.org/chemheme>

SLIDE 011	<b>DIAGNOSIS:</b> Asymptomatic		
Available data:  66 year-old female	WBC ( $10^9/L$ )	7.0	
	RBC ( $10^{12}/L$ )	4.71	
	Hemoglobin (g/dL)	13.7	
	Hematocrit (%)	42.3	
	MCV (fL)	89.8	
	MCH (pg)	29.1	
	MCHC (g/dL)	32.4	
	RDW (%)	14.7	
	Platelet count ( $10^9/L$ )	273	
			

Slide 011 was prepared from the peripheral blood obtained from a 66 year-old asymptomatic female. The complete blood cell count was unremarkable. The images shown above, taken from the case, display normocytic, normochromic red blood cells and segmented neutrophils. Nineteen percent (66) of the participants reported the presence of toxic granulation. Toxic granules are best described as similar in appearance to the primary granules of promyelocytes; larger and darker than the granules observed in a mature segmented neutrophil. The presence of cells in the peripheral blood demonstrating “toxic” granules indicates the early release of the neutrophils from the bone marrow in response to, most often, infection.

The segmented neutrophils in the images above are characteristic of the neutrophils present in this case, the cytoplasmic granules are not consistent with the large, dark granules associated with toxic granulation. Eighty-one percent (287) of participants correctly reported “absent” for toxic granulation, participants that reported the presence of toxic granulation should review the case.

**Slide: 011**

<u>Cell Classification or Finding</u>	<u>Expected Range</u>	<u>Participant Median</u>	<u>Participant Range</u>
Blast cell not classified	0 - 0	0	0 - 0
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 0	0	0 - 0
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 3	0	0 - 3
Segmented neutrophil	30 - 49	40	29 - 50
*[Total neutrophils]	31 - 50	40	30 - 51
Eosinophil	0 - 6	3	0 - 6
Basophil	0 - 2	0	0 - 2
Lymphocyte	31 - 55	46	30 - 56
Atypical lymphocyte	0 - 9	2	0 - 10
Monocyte	2-13	8	2- 14
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

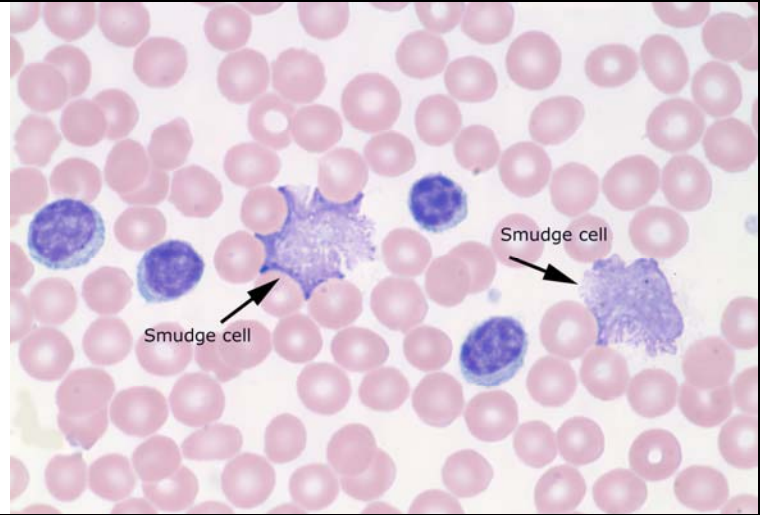
**Erythrocyte Morphology**

<u>Expected Result</u>	<u>Participant Results</u>				
Anisocytosis	None	None ( 69%)	Slight ( 24%)	Moderate ( 1%)	Marked ( 0%)
Poikilocytosis	None	None ( 84%)	Slight ( 8%)	Moderate ( 0%)	Marked ( 0%)
Macrocytosis	None	None ( 88%)	Slight ( 7%)	Moderate ( 1%)	Marked ( 0%)
Microcytosis	None	None ( 90%)	Slight ( 5%)	Moderate ( 0%)	Marked ( 0%)
Hypochromia	None	None ( 93%)	Slight ( 7%)	Moderate ( 0%)	Marked ( 0%)
Polychromasia	None	None ( 97%)	Slight ( 3%)	Moderate ( 0%)	Marked ( 0%)

**Cell Classification or Finding**

<u>Expected Result</u>	<u>Participant Results</u>	
Reduced number of platelets	Absent	Absent( 99%) Present( 1%)
Increased number of platelets	Absent	Absent( 93%) Present( 7%)
Phagocytosis of platelet(s)	Absent	Absent(100%) Present( 0%)
Bizarre or irregular platelets	Absent	Absent( 99%) Present( 1%)
Clumped platelets	Absent	Absent( 98%) Present( 2%)
Giant platelets	Absent	Absent( 69%) Present( 31%)
Platelet satellitosis	Absent	Absent(100%) Present( 0%)
Auer rods	Absent	Absent(100%) Present( 0%)
Dohle bodies	Absent	Absent( 99%) Present( 1%)
Hypersegmentation	Absent	Absent( 99%) Present( 1%)
Pelger Huet anomaly	Absent	Absent(100%) Present( 0%)
Smudge / Basket cells	Absent	Absent( 95%) Present( 5%)
Toxic granulation	Absent	Absent( 81%) Present( 19%)
Acanthocytes	Absent	Absent(100%) Present( 0%)
Basophilic stippling	Absent	Absent( 96%) Present( 4%)
Blister cells (pre keratocytes)	Absent	Absent(100%) Present( 0%)
Cabot rings	Absent	Absent(100%) Present( 0%)
Echinocytes (crenated/burr cells)	Absent	Absent( 98%) Present( 2%)
Elliptocytes (ovalocytes)	Absent	Absent( 97%) Present( 3%)
Howell-Jolly bodies	Absent	Absent(100%) Present( 0%)
Pappenheimer bodies	Absent	Absent(100%) Present( 0%)
Red cell agglutinates	Absent	Absent(100%) Present( 0%)
Rouleaux	Absent	Absent( 97%) Present( 3%)
Schistocytes	Absent	Absent( 99%) Present( 1%)
Schuffner's granules	Absent	Absent(100%) Present( 0%)
Sickle cells (drepanocytes)	Absent	Absent(100%) Present( 0%)
Spherocytes	Absent	Absent( 98%) Present( 2%)
Stomatocytes	Absent	Absent(100%) Present( 0%)
Target cells (codocytes)	Absent	Absent(100%) Present( 0%)
Tear drop cells (dacrocytes)	Absent	Absent( 98%) Present( 2%)
Bacteria	Absent	Absent(100%) Present( 0%)
Fungi/yeast	Absent	Absent(100%) Present( 0%)
Malaria/Babesiosis	Absent	Absent( 99%) Present( 1%)
Stain precipitate	Absent	Absent( 95%) Present( 5%)
Phagocytosis of red cell(s)	Absent	Absent(100%) Present( 0%)

SLIDE 012	<b>DIAGNOSIS:</b> Unknown	
Available data: 66 year-old male	WBC ( $10^9/L$ )	62.7
	RBC ( $10^{12}/L$ )	4.58
	Hemoglobin (g/dL)	14.3
	Hematocrit (%)	42.9
	MCV (fL)	93.7
	MCH (pg)	31.2
	MCHC (g/dL)	33.3
	RDW (%)	13.0
	Platelet count ( $10^9/L$ )	115



Slide 012 was prepared from the peripheral blood obtained from a 66 year-old male. The lymphocytes present in this case (median lymphocyte count of 83), as shown in the image above, are supportive of the working diagnosis of chronic lymphocytic leukemia (CLL). The platelet count in this case was decreased (115,000) as correctly identified by 240 participants. A reduced number of platelets is often a common finding in CLL where the increased presence of lymphocytes in the bone marrow adversely affects normal platelet production. Smudge cells (image) are a common finding in CLL as 97% (341) of participants concurred.

**Slide: 012**

<u>Cell Classification or Finding</u>	<u>Expected Range</u>	<u>Participant Median</u>	<u>Participant Range</u>
Blast cell not classified	0 - 5	0	0 - 6
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 5	0	0 - 14
Monoblast/Promonocyte	0 - 0	0	0 - 0
*[Lymphoblasts+Blasts not classif.]	0 - 5	0	0 - 19
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 0	0	0 - 0
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 1	0	0 - 1
Segmented neutrophil	2 - 13	8	2 - 14
*[Total neutrophils]	3 - 13	8	3 - 14
Eosinophil	0 - 2	0	0 - 2
Basophil	0 - 1	0	0 - 1
Lymphocyte	70 - 94	83	0 - 94
Atypical lymphocyte	0 - 15	2	0 - 56
Monocyte	0 - 4	1	0 - 4
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

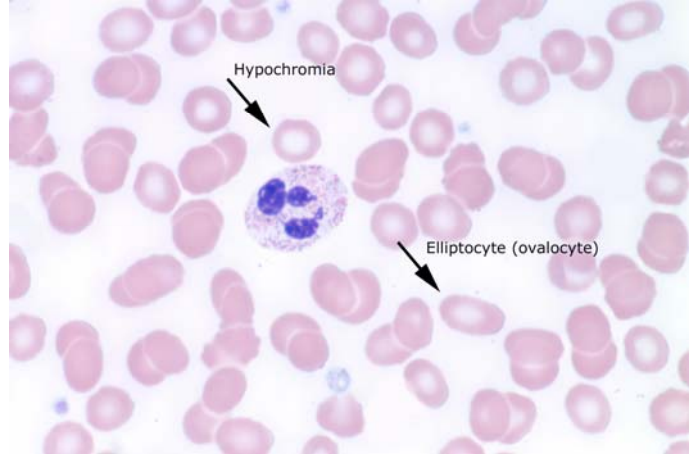
**Erythrocyte Morphology**

<u>Expected Result</u>	<u>Participant Results</u>
Anisocytosis	None ( 79%) Slight ( 14%) Moderate ( 1%) Marked( 0%)
Poikilocytosis	None ( 89%) Slight ( 3%) Moderate ( 0%) Marked( 0%)
Macrocytosis	None ( 83%) Slight ( 12%) Moderate ( 1%) Marked( 0%)
Microcytosis	None ( 93%) Slight ( 2%) Moderate ( 0%) Marked( 0%)
Hypochromia	None ( 98%) Slight ( 2%) Moderate ( 0%) Marked( 0%)
Polychromasia	None ( 97%) Slight ( 3%) Moderate ( 0%) Marked( 0%)

**Cell Classification or Finding**

<u>Expected Result</u>	<u>Participant Results</u>
Reduced number of platelets	Present Absent( 32%) Present( 68%)
Increased number of platelets	Absent Absent(100%) Present( 0%)
Phagocytosis of platelet(s)	Absent Absent(100%) Present( 0%)
Bizarre or irregular platelets	Absent Absent(100%) Present( 0%)
Clumped platelets	Absent Absent(100%) Present( 0%)
Giant platelets	Absent Absent( 94%) Present( 6%)
Platelet satellitosis	Absent Absent(100%) Present( 0%)
Auer rods	Absent Absent(100%) Present( 0%)
Dohle bodies	Absent Absent(100%) Present( 0%)
Hypersegmentation	Absent Absent(100%) Present( 0%)
Pelger Huet anomaly	Absent Absent(100%) Present( 0%)
Smudge / Basket cells	Present Absent( 3%) Present( 97%)
Toxic granulation	Absent Absent( 97%) Present( 3%)
Acanthocytes	Absent Absent( 99%) Present( 1%)
Basophilic stippling	Absent Absent( 99%) Present( 1%)
Blister cells (pre keratocytes)	Absent Absent(100%) Present( 0%)
Cabot rings	Absent Absent(100%) Present( 0%)
Echinocytes (crenated/burr cells)	Absent Absent( 97%) Present( 3%)
Elliptocytes (ovalocytes)	Absent Absent( 97%) Present( 3%)
Howell-Jolly bodies	Absent Absent(100%) Present( 0%)
Pappenheimer bodies	Absent Absent(100%) Present( 0%)
Red cell agglutinates	Absent Absent(100%) Present( 0%)
Rouleaux	Absent Absent(100%) Present( 0%)
Schistocytes	Absent Absent( 99%) Present( 1%)
Schuffner's granules	Absent Absent(100%) Present( 0%)
Sickle cells (drepanocytes)	Absent Absent(100%) Present( 0%)
Spherocytes	Absent Absent( 98%) Present( 2%)
Stomatocytes	Absent Absent(100%) Present( 0%)
Target cells (codocytes)	Absent Absent(100%) Present( 0%)
Tear drop cells (dacrocytes)	Absent Absent( 99%) Present( 1%)
Bacteria	Absent Absent(100%) Present( 0%)
Fungi/yeast	Absent Absent(100%) Present( 0%)
Malaria/Babesiosis	Absent Absent(100%) Present( 0%)
Stain precipitate	Absent Absent( 99%) Present( 1%)
Phagocytosis of red cell(s)	Absent Absent(100%) Present( 0%)

SLIDE 013	<b>DIAGNOSIS:</b> Unknown	
84 year-old male <i>Available data:</i>	WBC ( $10^9/L$ )	4.6
	RBC ( $10^{12}/L$ )	4.07
	Hemoglobin (g/dL)	11.7
	Hematocrit (%)	37.3
	MCV (fL)	91.6
	MCH (pg)	28.7
	MCHC (g/dL)	31.4
	RDW (%)	14.3
	Platelet count ( $10^9/L$ )	137



Slide 013 was prepared from the peripheral blood obtained from an 84 year-old male. There was no diagnosis at the time of specimen collection. The clinically significant findings reported by participants included elliptocytes (image), giant platelets, hypochromia (image) and poikilocytosis. Thirty-eight percent of the participants did not report the presence of giant platelets which may be attributed to laboratory specific protocols for classification. The International Council for Standardization in Hematology (ICSH) recently published guidelines for consistent reporting of peripheral blood cell morphological features. The ICSH recommendations for the standardization of nomenclature and grading of peripheral blood cell morphological features can be found on the ICSH website (<http://icsh.org/guidelines/>). The guideline defines a normal platelet as measuring 1.5 - 3 $\mu$ m in diameter, a large platelet as measuring 3-7 $\mu$ m in diameter (roughly the diameter of a normal sized red blood cell) and a giant platelet as measuring 10-20 $\mu$ m in diameter (larger than a normal sized red blood cell).

**Slide: 013**

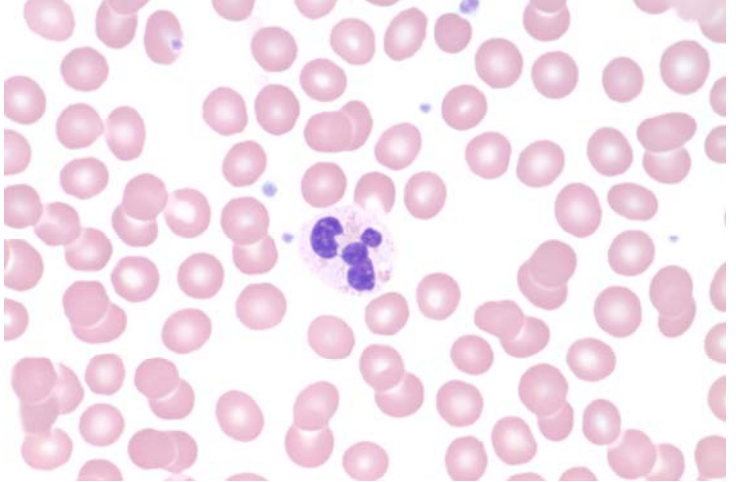
<u>Cell Classification or Finding</u>	<u>Expected Range</u>	<u>Participant Median</u>	<u>Participant Range</u>
Blast cell not classified	0 - 0	0	0 - 0
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Sezary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 0	0	0 - 0
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 2	0	0 - 2
Segmented neutrophil	52 - 69	60	50 - 69
*[Total neutrophils]	52 - 69	61	51 - 70
Eosinophil	1 - 8	5	1 - 8
Basophil	0 - 2	0	0 - 2
Lymphocyte	18 - 34	26	17 - 35
Atypical lymphocyte	0 - 5	0	0 - 5
Monocyte	0 - 11	7	0 - 12
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

**Erythrocyte Morphology**

<u>Expected Result</u>	<u>Participant Results</u>		
Anisocytosis	Slight	None ( 41%)	Slight ( 46%) Moderate ( 8%) Marked( 0%)
Poikilocytosis	Slight	None ( 27%)	Slight ( 48%) Moderate ( 17%) Marked( 1%)
Macrocytosis	None	None ( 84%)	Slight ( 10%) Moderate ( 1%) Marked( 0%)
Microcytosis	None	None ( 83%)	Slight ( 11%) Moderate ( 1%) Marked( 0%)
Hypochromia	None	None ( 49%)	Slight ( 41%) Moderate ( 10%) Marked( 1%)
Polychromasia	None	None ( 89%)	Slight ( 11%) Moderate ( 0%) Marked( 0%)

**Cell Classification or Finding**

<u>Expected Result</u>	<u>Participant Results</u>	
Reduced number of platelets	Present	Absent( 76%) Present( 24%)
Increased number of platelets	Absent	Absent( 98%) Present( 2%)
Phagocytosis of platelet(s)	Absent	Absent(100%) Present( 0%)
Bizarre or irregular platelets	Absent	Absent( 97%) Present( 3%)
Clumped platelets	Absent	Absent( 99%) Present( 1%)
Giant platelets	Present	Absent( 38%) Present( 62%)
Platelet satellitosis	Absent	Absent(100%) Present( 0%)
Auer rods	Absent	Absent(100%) Present( 0%)
Dohle bodies	Absent	Absent( 99%) Present( 1%)
Hypersegmentation	Absent	Absent( 97%) Present( 3%)
Pelger Huet anomaly	Absent	Absent(100%) Present( 0%)
Smudge / Basket cells	Absent	Absent( 99%) Present( 1%)
Toxic granulation	Absent	Absent( 98%) Present( 2%)
Acanthocytes	Absent	Absent( 63%) Present( 37%)
Basophilic stippling	Absent	Absent( 96%) Present( 4%)
Blister cells (pre keratocytes)	Absent	Absent(100%) Present( 0%)
Cabot rings	Absent	Absent(100%) Present( 0%)
Echinocytes (crenated/burr cells)	Absent	Absent( 58%) Present( 42%)
Elliptocytes (ovalocytes)	Present	Absent( 20%) Present( 80%)
Howell-Jolly bodies	Absent	Absent(100%) Present( 0%)
Pappenheimer bodies	Absent	Absent(100%) Present( 0%)
Red cell agglutinates	Absent	Absent(100%) Present( 0%)
Rouleaux	Absent	Absent( 89%) Present( 11%)
Schistocytes	Absent	Absent( 75%) Present( 25%)
Schuffner's granules	Absent	Absent(100%) Present( 0%)
Sickle cells (drepanocytes)	Absent	Absent(100%) Present( 0%)
Spherocytes	Absent	Absent( 99%) Present( 1%)
Stomatocytes	Absent	Absent(100%) Present( 0%)
Target cells (codocytes)	Absent	Absent(100%) Present( 0%)
Tear drop cells (dacrocytes)	Absent	Absent( 96%) Present( 4%)
Bacteria	Absent	Absent(100%) Present( 0%)
Fungi/yeast	Absent	Absent(100%) Present( 0%)
Malaria/Babesiosis	Absent	Absent( 99%) Present( 1%)
Stain precipitate	Absent	Absent( 94%) Present( 6%)
Phagocytosis of red cell(s)	Absent	Absent(100%) Present( 0%)

SLIDE 014	<b>DIAGNOSIS:</b> Asymptomatic		
<i>Available data:</i>  51 year-old female	WBC ( $10^9/L$ )	5.5	
	RBC ( $10^{12}/L$ )	4.27	
	Hemoglobin (g/dL)	13.1	
	Hematocrit (%)	38.8	
	MCV (fL)	90.9	
	MCH (pg)	30.6	
	MCHC (g/dL)	33.7	
	RDW (%)	14.0	
	Platelet count ( $10^9/L$ )	235	

Slide 014 was prepared from the peripheral blood obtained from a 51 year-old asymptomatic female. No clinically significant findings, as expected, were reported by the majority of participants.

**Slide: 014**

<u>Cell Classification or Finding</u>	<u>Expected Range</u>	<u>Participant Median</u>	<u>Participant Range</u>
Blast cell not classified	0 - 0	0	0 - 0
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Szary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 0	0	0 - 0
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 5	0	0 - 6
Segmented neutrophil	48 - 64	56	47 - 65
*[Total neutrophils]	49 - 65	57	49 - 66
Eosinophil	0 - 5	2	0 - 5
Basophil	0 - 2	0	0 - 2
Lymphocyte	23 - 42	33	22 - 43
Atypical lymphocyte	0 - 6	1	0 - 7
Monocyte	0 - 8	5	0 - 8
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

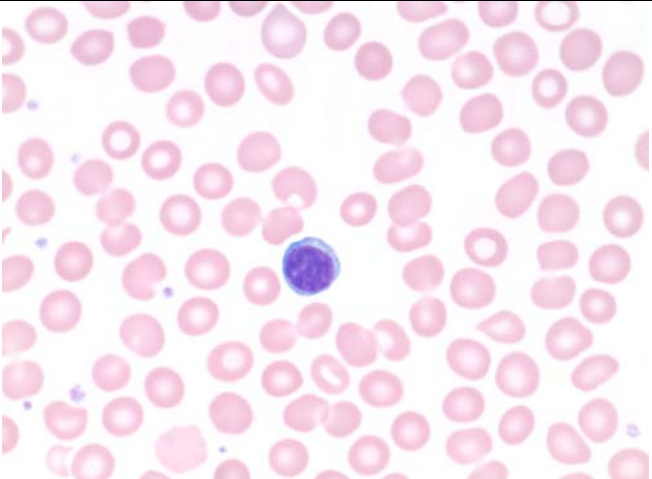
**Erythrocyte Morphology**

<u>Expected Result</u>	<u>Participant Results</u>				
Anisocytosis	None	None ( 66%)	Slight ( 27%)	Moderate ( 1%)	Marked( 0%)
Poikilocytosis	None	None ( 80%)	Slight ( 12%)	Moderate ( 0%)	Marked( 0%)
Macrocytosis	None	None ( 84%)	Slight ( 9%)	Moderate ( 1%)	Marked( 0%)
Microcytosis	None	None ( 87%)	Slight ( 8%)	Moderate ( 1%)	Marked( 0%)
Hypochromia	None	None ( 92%)	Slight ( 7%)	Moderate ( 1%)	Marked( 0%)
Polychromasia	None	None ( 99%)	Slight ( 1%)	Moderate ( 0%)	Marked( 0%)

**Cell Classification or Finding**

<u>Expected Result</u>	<u>Participant Results</u>		
Reduced number of platelets	Absent	Absent(100%)	Present( 0%)
Increased number of platelets	Absent	Absent( 87%)	Present( 13%)
Phagocytosis of platelet(s)	Absent	Absent(100%)	Present( 0%)
Bizarre or irregular platelets	Absent	Absent(100%)	Present( 0%)
Clumped platelets	Absent	Absent(100%)	Present( 0%)
Giant platelets	Absent	Absent( 73%)	Present( 27%)
Platelet satellitosis	Absent	Absent(100%)	Present( 0%)
Auer rods	Absent	Absent(100%)	Present( 0%)
Dohle bodies	Absent	Absent(100%)	Present( 0%)
Hypersegmentation	Absent	Absent( 98%)	Present( 2%)
Pelger Huet anomaly	Absent	Absent( 99%)	Present( 1%)
Smudge / Basket cells	Absent	Absent( 96%)	Present( 4%)
Toxic granulation	Absent	Absent( 98%)	Present( 2%)
Acanthocytes	Absent	Absent(100%)	Present( 0%)
Basophilic stippling	Absent	Absent( 99%)	Present( 1%)
Blister cells (pre keratocytes)	Absent	Absent(100%)	Present( 0%)
Cabot rings	Absent	Absent(100%)	Present( 0%)
Echinocytes (crenated/burr cells)	Absent	Absent( 98%)	Present( 2%)
Elliptocytes (ovalocytes)	Absent	Absent( 82%)	Present( 18%)
Howell-Jolly bodies	Absent	Absent(100%)	Present( 0%)
Pappenheimer bodies	Absent	Absent(100%)	Present( 0%)
Red cell agglutinates	Absent	Absent(100%)	Present( 0%)
Rouleaux	Absent	Absent( 95%)	Present( 5%)
Schistocytes	Absent	Absent( 98%)	Present( 2%)
Schuffner's granules	Absent	Absent(100%)	Present( 0%)
Sickle cells (drepanocytes)	Absent	Absent(100%)	Present( 0%)
Spherocytes	Absent	Absent( 99%)	Present( 1%)
Stomatocytes	Absent	Absent(100%)	Present( 0%)
Target cells (codocytes)	Absent	Absent( 99%)	Present( 1%)
Tear drop cells (dacrocytes)	Absent	Absent( 97%)	Present( 3%)
Bacteria	Absent	Absent(100%)	Present( 0%)
Fungi/yeast	Absent	Absent(100%)	Present( 0%)
Malaria/Babesiosis	Absent	Absent(100%)	Present( 0%)
Stain precipitate	Absent	Absent( 98%)	Present( 2%)
Phagocytosis of red cell(s)	Absent	Absent(100%)	Present( 0%)



SLIDE 015	<b>DIAGNOSIS:</b> Asymptomatic		
<i>Available data:</i>  56 year-old female	WBC ( $10^9/L$ )	5.2	
	RBC ( $10^{12}/L$ )	4.63	
	Hemoglobin (g/dL)	14.8	
	Hematocrit (%)	43.4	
	MCV (fL)	93.7	
	MCH (pg)	31.9	
	MCHC (g/dL)	34.1	
	RDW (%)	13.9	
	Platelet count ( $10^9/L$ )	238	

Slide 015 was prepared from the peripheral blood obtained from a 56 year-old asymptomatic female. The majority of participants found no clinically significant reportable findings. A few participants reported abnormal findings in this case including smudge cells, echinocytes, elliptocytes, rouleaux and stomatocytes. Those participants should review the case and document corrective action.

**Slide: 015**

<u>Cell Classification or Finding</u>	<u>Expected Range</u>	<u>Participant Median</u>	<u>Participant Range</u>
Blast cell not classified	0 - 0	0	0 - 0
Myeloblast/Promyelocyte	0 - 0	0	0 - 0
Lymphoblast/Prolymphocyte	0 - 0	0	0 - 0
Monoblast/Promonocyte	0 - 0	0	0 - 0
Erythroblast	0 - 0	0	0 - 0
Lymphoma/Szary cell	0 - 0	0	0 - 0
Hairy cell	0 - 0	0	0 - 0
Myelocyte	0 - 0	0	0 - 0
Metamyelocyte	0 - 0	0	0 - 0
Band neutrophil	0 - 3	0	0 - 3
Segmented neutrophil	29 - 45	37	27 - 46
*[Total neutrophils]	30 - 46	38	29 - 46
Eosinophil	0 - 4	2	0 - 4
Basophil	0 - 2	0	0 - 2
Lymphocyte	33 - 60	48	31 - 60
Atypical lymphocyte	0 - 16	4	0 - 18
Monocyte	1 - 12	7	1 - 13
Plasma cell	0 - 0	0	0 - 0
NRBC / 100 WBC	0 - 0	0	0 - 0

**Erythrocyte Morphology**

<u>Expected Result</u>	<u>Participant Results</u>				
Anisocytosis	None	None ( 74%)	Slight ( 20%)	Moderate ( 0%)	Marked( 0%)
Poikilocytosis	None	None ( 80%)	Slight ( 12%)	Moderate ( 0%)	Marked( 0%)
Macrocytosis	None	None ( 88%)	Slight ( 7%)	Moderate ( 0%)	Marked( 0%)
Microcytosis	None	None ( 91%)	Slight ( 4%)	Moderate ( 0%)	Marked( 0%)
Hypochromia	None	None ( 97%)	Slight ( 3%)	Moderate ( 0%)	Marked( 0%)
Polychromasia	None	None ( 98%)	Slight ( 2%)	Moderate ( 0%)	Marked( 0%)

**Cell Classification or Finding**

<u>Expected Result</u>	<u>Participant Results</u>	
Reduced number of platelets	Absent	Absent( 99%) Present( 1%)
Increased number of platelets	Absent	Absent( 93%) Present( 7%)
Phagocytosis of platelet(s)	Absent	Absent(100%) Present( 0%)
Bizarre or irregular platelets	Absent	Absent(100%) Present( 0%)
Clumped platelets	Absent	Absent(100%) Present( 0%)
Giant platelets	Absent	Absent( 91%) Present( 9%)
Platelet satellitosis	Absent	Absent(100%) Present( 0%)
Auer rods	Absent	Absent(100%) Present( 0%)
Dohle bodies	Absent	Absent(100%) Present( 0%)
Hypersegmentation	Absent	Absent( 99%) Present( 1%)
Pelger Huet anomaly	Absent	Absent(100%) Present( 0%)
Smudge / Basket cells	Absent	Absent( 95%) Present( 5%)
Toxic granulation	Absent	Absent( 97%) Present( 3%)
Acanthocytes	Absent	Absent( 99%) Present( 1%)
Basophilic stippling	Absent	Absent(100%) Present( 0%)
Blister cells (pre keratocytes)	Absent	Absent(100%) Present( 0%)
Cabot rings	Absent	Absent(100%) Present( 0%)
Echinocytes (crenated/burr cells)	Absent	Absent( 95%) Present( 5%)
Elliptocytes (ovalocytes)	Absent	Absent( 88%) Present( 12%)
Howell-Jolly bodies	Absent	Absent(100%) Present( 0%)
Pappenheimer bodies	Absent	Absent(100%) Present( 0%)
Red cell agglutinates	Absent	Absent(100%) Present( 0%)
Rouleaux	Absent	Absent( 97%) Present( 3%)
Schistocytes	Absent	Absent( 98%) Present( 2%)
Schuffner's granules	Absent	Absent(100%) Present( 0%)
Sickle cells (drepanocytes)	Absent	Absent(100%) Present( 0%)
Spherocytes	Absent	Absent( 99%) Present( 1%)
Stomatocytes	Absent	Absent( 98%) Present( 2%)
Target cells (codocytes)	Absent	Absent(100%) Present( 0%)
Tear drop cells (dacrocytes)	Absent	Absent( 99%) Present( 1%)
Bacteria	Absent	Absent(100%) Present( 0%)
Fungi/yeast	Absent	Absent(100%) Present( 0%)
Malaria/Babesiosis	Absent	Absent(100%) Present( 0%)
Stain precipitate	Absent	Absent(100%) Present( 0%)
Phagocytosis of red cell(s)	Absent	Absent(100%) Present( 0%)