TRAINING UPDATE

Lab Location:	GEC, SGMC & WAH	**Date Distributed:**	2/8/2019
Department:	Core	**Due Date:**	2/28/2019

Explanation:

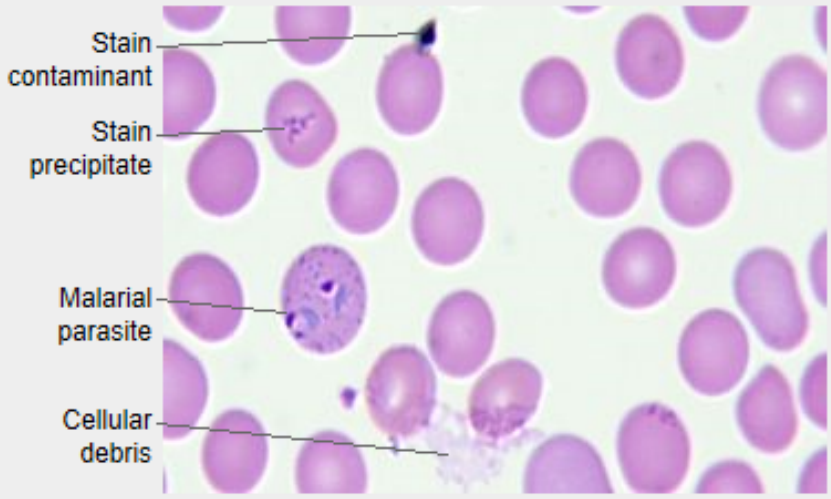
There have been 2 recent RQIs for malaria:

1. In one incident, the thin smear was erroneously reported as negative. Investigation revealed the unit was pressing for a result, so the tech rushed and did not scan the required 300 fields. The impact to the patient was a delay in treatment for several hours
2. In the second, the tech reported as positive, when in fact the patient was negative. The tech indicated ring-forms were seen but none were seen when the slide was re-read. Possibly something else was seen that could be falsely identified as rings.

This update is intended to

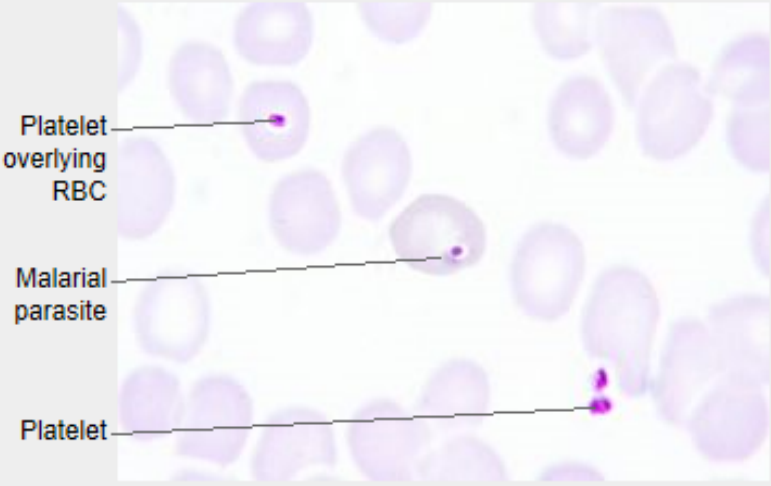
- call attention to tricky situations that may be confused with malaria
- remind staff that the SOP MUST always be followed (review the required number of fields)

Review the slides that follow and document your compliance with this training update by taking the quiz in the MTS system.



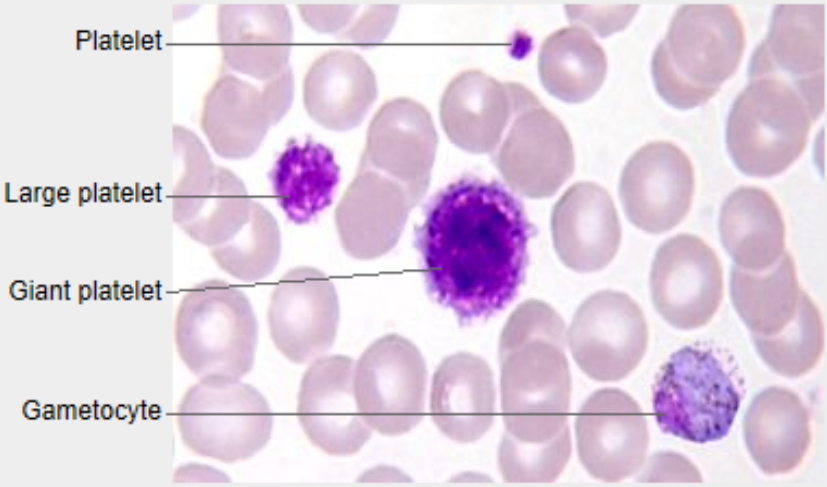
Wright's stain (1000X)

Artifacts present in blood films may be mistaken for parasites and result in inappropriate or unnecessary treatment of the patient.
These artifacts are usually of two types: (i) cellular elements, such as platelets and cellular debris, and (ii) contaminants from the staining process, such as yeast cells, bacteria, stain precipitate, or cellulose fibers, which may mimic intracellular or extracellular parasites.
It is important to adhere to strict morphologic criteria when performing microscopic examinations.



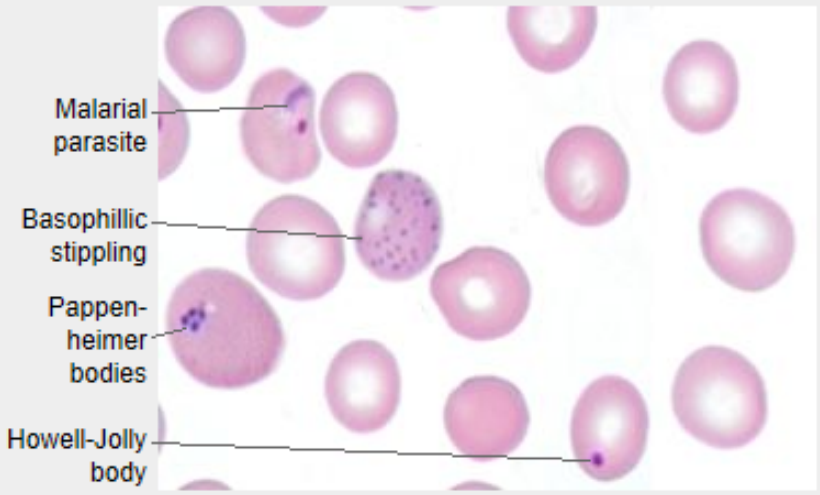
Giemsa stain (1000X)

Platelets may mimic malarial parasites when superimposed on erythrocytes. Malarial parasites are usually in the same plane of focus as the red blood cell and display blue cytoplasm. Platelets may be in a slightly different plane of focus and are surrounded by a clear halo.



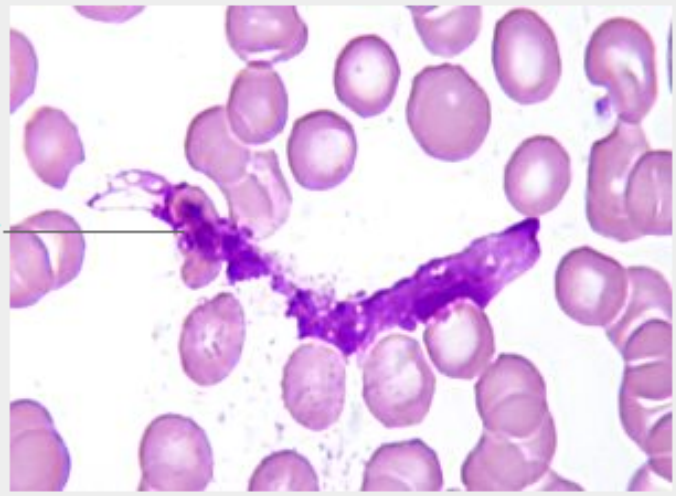
Giemsa stain (1000X)

Large or giant platelets may be confused with gametocytes.



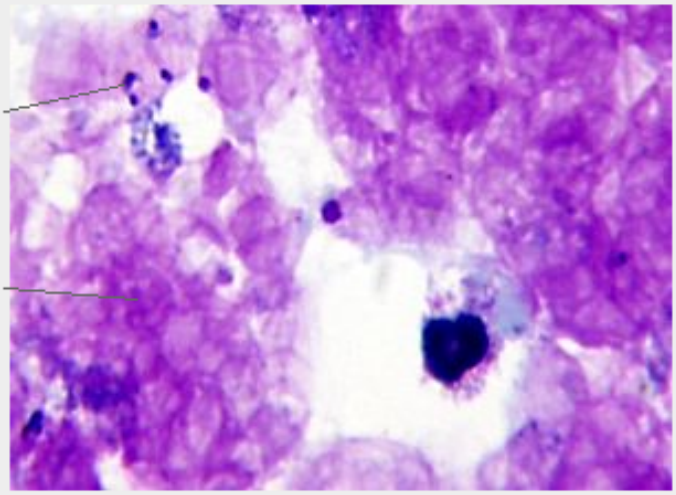
Wright's stain (1000X)

Red blood cell inclusions such as Howell-Jolly and Pappenheimer bodies, and basophilic stippling may be mistaken for intracellular parasites and Schüffner's stippling, respectively.



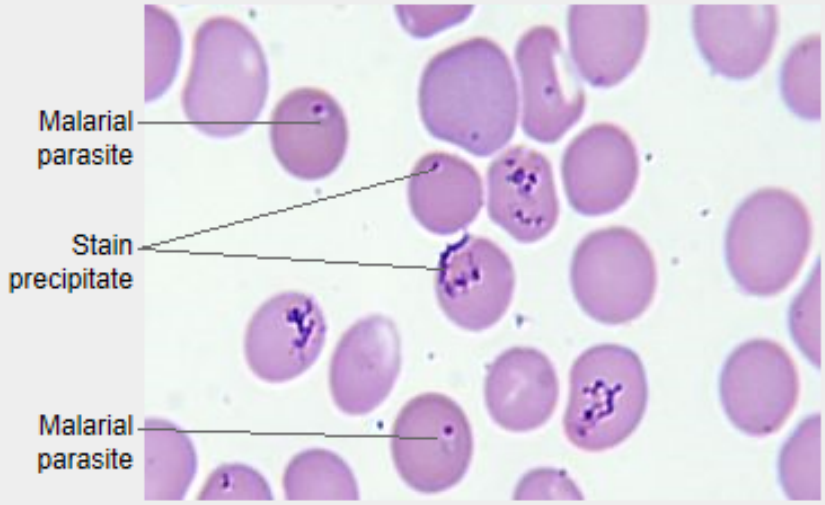
Giemsa stain (1000X)

Cellular debris may resemble extracellular blood parasites such as trypanosomes or microfilariae.



Thick blood film (Giemsa stain 1000X)

Red blood cell stroma may be present on improperly made thick blood films and interfere with detection of blood parasites.



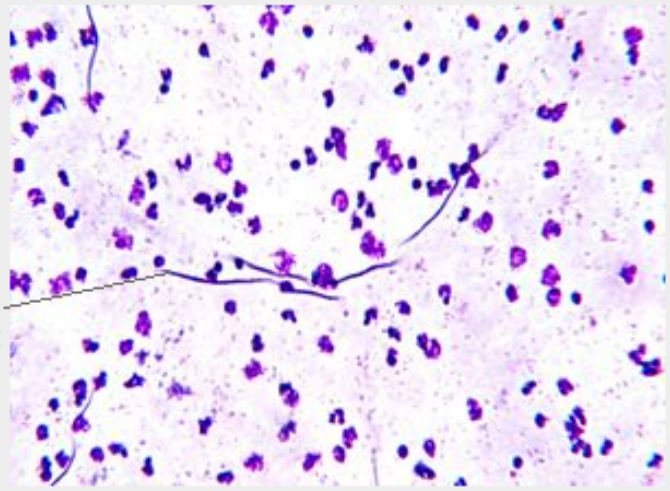
Wright's stain (1000X)

Stain precipitate may mimic malarial parasites when superimposed on erythrocytes. Malarial parasites are usually in the same plane of focus as the red blood cell, while stain precipitate is usually in a slightly different plane of focus.

100X 400X 1000X

Giemsa stain

Fibers may mimic microfilariae on blood films. Note the lack of internal structures at 1000X.



100X 1000X Giemsa stain (1000X)

100X 1000X Giemsa stain (1000X)

Shrinkage artifact may mimic microfilariae when viewed at low power (100X). Excess protein on thick blood films may shrink during drying and stain darkly. When viewed under oil immersion (1000X) internal structures typical of microfilariae are lacking.