

# RECORDING AND REPORTING MICROSCOPY RESULTS

## MALARIA MICROSCOPY STANDARD OPERATING PROCEDURE – MM-SOP-06B

### 1. PURPOSE AND SCOPE

To describe the procedure for proper recording and reporting of the results of microscopic examination of blood films for malaria diagnosis

This procedure is to be modified only with the approval of the national coordinator for quality assurance of malaria microscopy. All procedures specified herein are mandatory for all malaria microscopists working in national reference laboratories, in hospital laboratories or in basic health laboratories in health facilities performing malaria microscopy.

### 2. BACKGROUND

Proper recording and reporting of the results of microscopy examination of blood films is very important for the clinical management of malaria patients and for the reliability of malaria surveillance data, which are the basis for monitoring, evaluating and planning programme interventions.

### 3. SUPPLIES, MATERIALS AND EQUIPMENT

- laboratory register (or malaria microscopy registry),
- patient result form,
- pen and pencil and
- handheld calculator (for estimating parasite density).

### 4. PROCEDURE

- After microscopic examination according to MM-SOPs 08 and 09, the results should be recorded and reported.
- Record all malaria species and stages observed during microscopic examination of the blood films.
- When counting on the thick film is completed, if the patient's actual white cell count is not available, calculate the parasite density from an estimated white cell count of 8000/ $\mu$ L, as follows:

$$\text{Parasites}/\mu\text{L blood} = \frac{\text{Number of asexual parasites counted} \times 8000 \text{ white cells}/\mu\text{L}}{\text{No. of white cells counted}}$$

#### **Example 1:**

*Plasmodium falciparum* trophozoites counted = 155  
White cells counted relative to parasites = 208

Parasite count:

$$\frac{155 \times 8000}{208} = 5962 \text{ parasites}/\mu\text{L blood}$$

Report as: *P. falciparum* trophozoites = 5962 p/ $\mu$ L blood

**Example 2:**

*P. vivax* trophozoites counted = 88

White cells counted relative to parasites = 505

Actual white cell count of patient = 6500

Parasite count:  $\frac{88 \times 6500}{505} = 1133$  parasites/ $\mu$ L blood

Report as: *P. vivax* trophozoites = 1133 parasites/ $\mu$ L blood

In mixed infections or infections by more than one species, count all the species together (sexual and asexual stages), and express the results as in example 3.

**Example 3:**

*P. falciparum* gametocytes + *P. vivax* trophozoites

= 360 parasites (all stages) counted in 202 white cells

Report as:

*P. falciparum* gametocytes + *P. vivax* trophozoites

= 14 257 parasites/ $\mu$ L blood

Also report the presence of:

- Gametocytes. Gametocytes of *P. falciparum* are counted separately, but they are still included in the general parasite count. It is rarely possible to separate the gametocytes of *P. vivax* or *P. malariae* from asexual parasites with sufficient accuracy to justify a gametocyte count.
- Schizonts, as they might be an indication of disease severity.
- Record in the microscopy section of the laboratory register the patient identification number, the date and time of examination and parasite species, stages and count if performed. The reporting should be uniform. For example:
  - *P. vivax* trophozoites seen.
  - *P. falciparum* trophozoites seen; count, 42 000 parasites/ $\mu$ L.
  - *P. falciparum* gametocytes seen.
  - No malaria parasites seen. This phrase should be used rather than "Negative".

## 5. PROCEDURE NOTES

When there are approximately more than 100 parasites seen in each of the fields of the thick film, parasites are counted on the thin film, for greater accuracy. In this case, the parasite count is estimated with the formulae shown in MM-SOP-09: Counting malaria parasites.

## 6. RELATED SOPs

MM-SOP-06a: Labelling malaria blood films

MM-SOP 08: Microscopy examination of thick and thin blood films for identification of malaria parasites

MM-SOP-09: Counting malaria parasites

## 7. REFERENCES

WHO. Basic malaria microscopy. Part I. Learner's guide. Second edition. Geneva: 2010.

WHO. National malaria slide bank standard operating procedures. Geneva (in preparation).

## 8. DOCUMENT HISTORY

<b>Date (mmm/yyyy)</b>	<b>Version</b>	<b>Comments</b>	<b>Responsible person (First name, last name)</b>
Jan 2016	1	Reviewed and finalized by experts, edited and formatted	Glenda Gonzales, Technical Officer, WPRO