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The Importance of Reliable Algorithm for Management of Malaria Cases

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ABSTRACT

Malaria is a dangerous and killer disease which kills hundreds of thousands of people annually. Despite of the availability of effective drugs against malaria parasite and sensitive diagnostic methods remain that large number of deaths caused by this disease for many reasons, perhaps the main reason for that is failure to follow correct procedures in dealing with the malaria case according to the correct recommended standards algorithm for management of malaria.

One of the best algorithms for management of malaria that one which prepared by the American CDC, (attached copy is included in these papers)] P.5[despite of that it is full of errors and many of these errors will reflect at malaria patients putting them under more risk may be leads for death.

This topic highlights at the inaccurate information was included in the algorithm for management of malaria which prepared by the CDC and how/why it must be modified and review the modified copy then be evaluated.

Keywords: Malaria parasite, Sensitive diagnostic methods, Standards algorithm, Killer disease, Leads for death

INTRODUCTION

Let us find answers for the following questions:

1. Is early detection and treatment for malaria case the solution? "If the answer is yes, how could we answer the question below?"

2. Why such a huge number of deaths caused by malaria despite the availability of effective treatments and sensitive diagnostics laboratory methods?

I think early detection with correct accurate diagnosis and treatment are one of the factors supplementing the case, but not the solution, so the real solution is in the correct management of the malaria case starting from it was a suspected case ending with the laboratory report that confirms the infection and follows a rigorous process regularly take into account the priorities and criteria also taking into account the importance of the time factor by which, what is available now may become useless after a short time.

Important questions for everyone, especially those in malaria field or those who have dealings with many cases of malaria:

- How many cases were diagnosed early and accurately and were given effective treatment, yet went into pathological complications and ended in death?
- How many cases have been introduced in critical situations and have been cured?

Honestly, I am in the field of malaria since 40 years and had dealt with a lot of malaria cases, where are some of them which were diagnosed early and given effective treatment yet entered in complications ended in death and it might be the cause of death is due to the deterioration of the situation caused by the failure to follow standard quality procedures deal with the cases crafted science and might be to the lack presence of a standard method is rigorous and comprehensive for management of malaria case, or the inability of the user on the absorption and understanding of the conclusion of the scientific rationale for each in relation to malaria deeply and fluently.

To keep it more simple let's assume that the therapist is an expert in all topics relevant as the types of antimalarial drugs, the types of malaria infections, their complications, the most important of pathological symptoms of the disease and the side effects to treatment, but he does not know, for example, the schizogony cycle which occurs in the blood

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(duration for each species)and maybe he knows that, but he didn't has benefit from that information, so how he can to continue a very important and dangerous to the life of the patient case which it may change in ten minutes, turning the case from a stable to a critical situation (a stroke) in other words, infection may multiplies(the percentage of infected erythrocytes from less than 1% up to 30% in minutes), the time impact on the proportion of hemoglobin into the blood? And what effect does that have on the rest of the body's organs? Are these organs will function efficiently with acute anemia and lack the oxygen? They need to perform their normal functions, don't they?

Based on the above which illustrated the importance of having comprehensive and accurate an algorithm for management the case of malaria, we have been reviewing the algorithm which was published by the Centers for Disease Control of the US and put the following amendments:

Item one: Prepare thick and thin blood smears and reading in a few hours* modified to become:

Prepare a thick and thin blood smears and a reading within an hour (regarding to the important for the time factor in cases of malaria).

Item two: From smear: calculate parasitemia and determine species is modified to become:

From smear: calculate parasitemia and determine species & stages (regarding to the important for determination the presence of late trophozoites or/and schizonts stages in falciparum infections which indicate for advanced cases).

Item three: Must add guidelines clarify the meaning of severe malaria case as shown in **Figure 1**.

- **Severe malaria:**

Parasitized RBCs 2% or more.

50,000 - 100,000 parasite/ µl or more.

Presence of schizonts or late trophozoites stages in P.f films.

Figure 1. Indication of severe malaria.

Item four: Monitor parasitemia every 12-24 h modified to become: Monitor parasitemia after one hour of first dose of treatment and prefer every one hour next to each new dose of treatment.

Item five: Suggestion RBCs transfusion

BACKGROUND

Malaria is the most important parasitic disease of man. It is a major cause of anemia in endemic areas, and in areas of higher transmission. Malaria is one of the most common reasons for blood transfusion. Five species of the genus Plasmodium infect humans commonly, and all cause anemia.

Most malaria attributable deaths and severe diseases are caused by plasmodium falciparum. The majority of fatalities occur in the community. The World Health Organization (WHO) has estimated that there were some 228 million cases and 405000 deaths from malaria in 2018. Children aged under 5 years are the most vulnerable group affected by malaria deaths (they accounted for 272000 of all malaria deaths worldwide on 2018 (67%).

Suggestion: RBCs transfusion in the following situations:

- Severe anemia.
- Patients with very high parasite loads (>10%).
- Patients with complications as:
  - Cerebral malaria.
  - Acute respiratory distress syndrome.
  - Renal compromise occurs.

The algorithm for management of malaria is as given in **Figures 2A, 2B and 2C).**

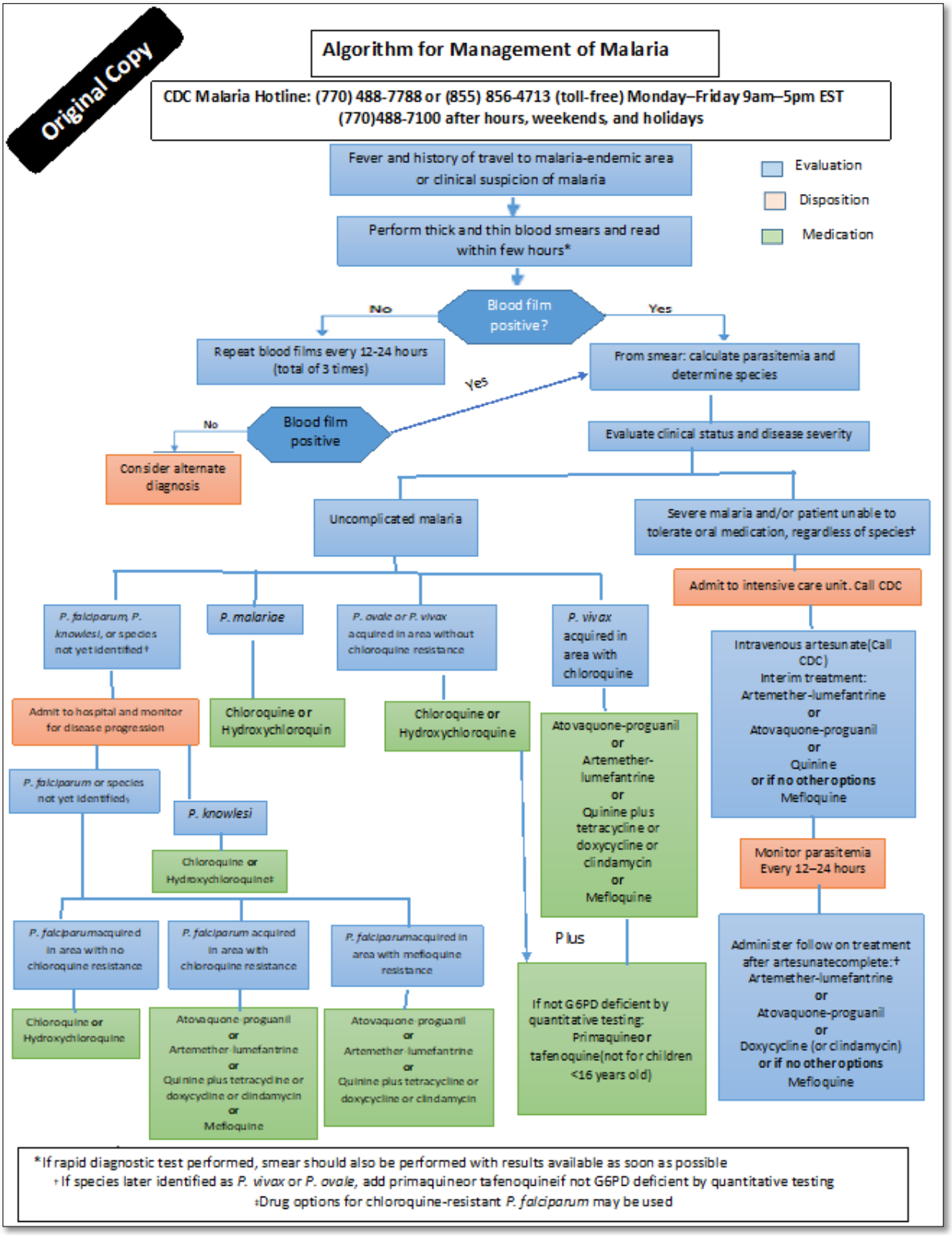

Figure 2A. Original: CDC Algorithm for Management of Malaria.

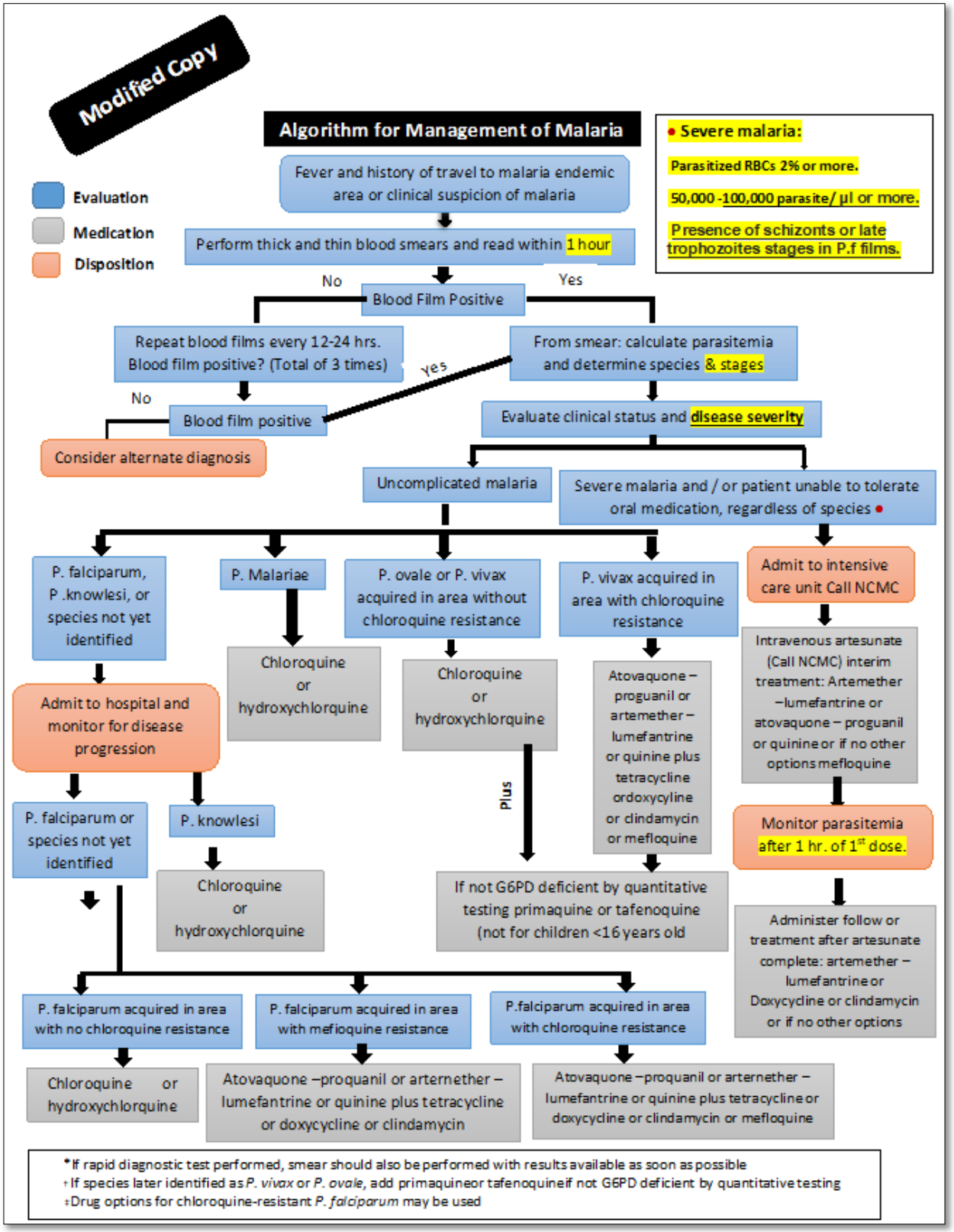

Figure 2B. Modified: CDC Algorithm for Management of Malaria.

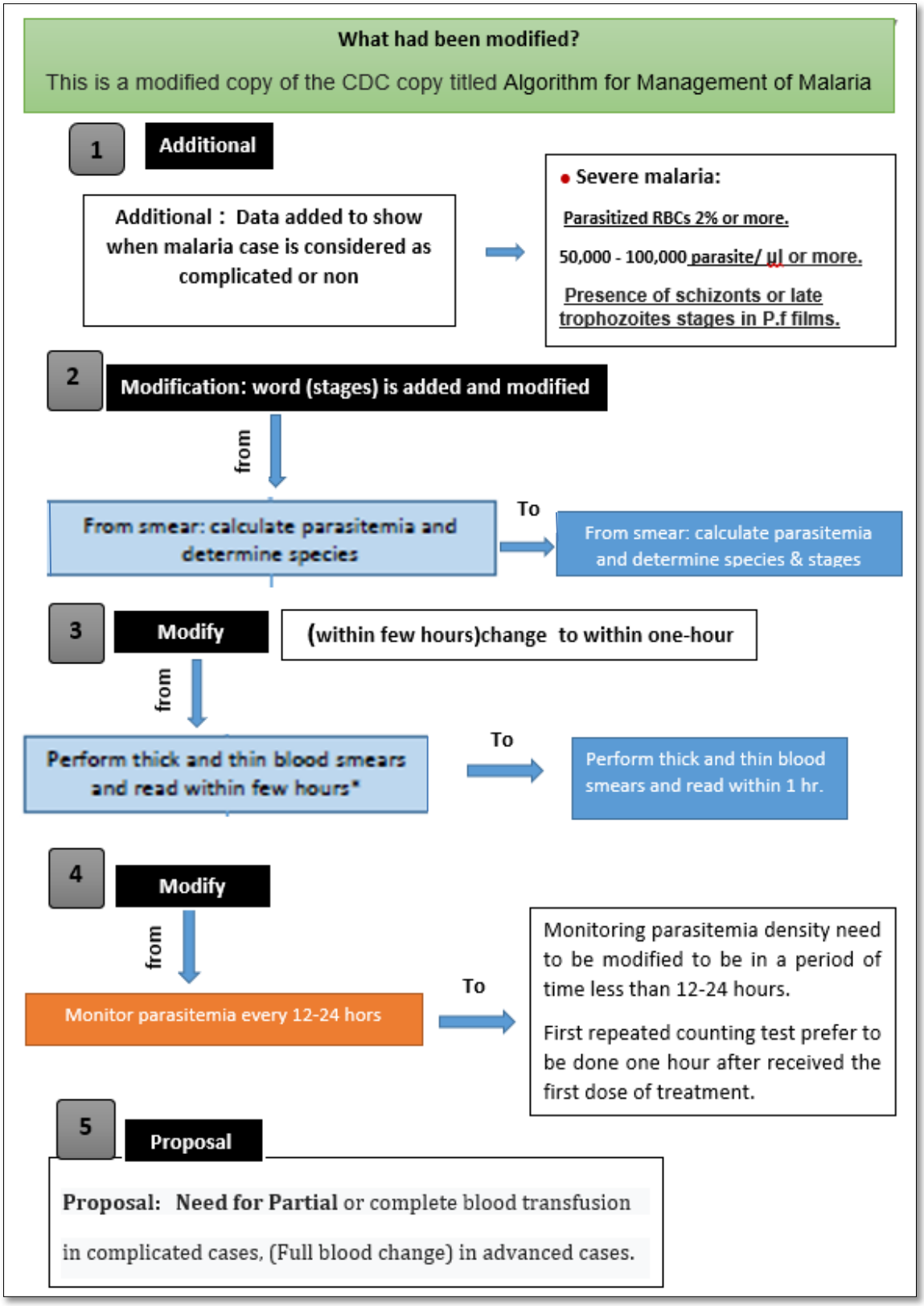

Figure 2C. Modifications made in CDC Algorithm for Management of Malaria.

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