REFERENCES
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Anonymous  1981  Instructions for determining the susceptibility or resistance of mosquito larvae to insecticides WHO/VBC/81–807.


Ansari MA, Sharma VP, Razdan RK and Mittal PK  1990  Evaluation of certain mosquito repellents marketed in India. Ibid., 27: 57–64.


[212]


Ansari MA and Razdan RK 2000 Operational feasibility and deltamethrin impregnated hessian curtains in comparison to HCH indoor residual spraying to control malaria in selected villages of district Ghaziabad (U.P.), India. Indian J Malaria., 37: 1–10.


Level and dynamics of malaria transmission and morbidity in an equatorial area of South Cameroon. Tropical Medicine and International Health. 7: 249–256


Malaria vectors and transmission dynamics in coastal south-western Cameroon. Malaria Journal. 6: 5.


Inhibition of murine malaria (Plasmodium chabaudi) in vivo by recombinant interferon-γ or tumor necrosis factor, and its enhancement by butylated hydroxyanisole. J. Immunol., 139: 3493.

Gel diffusion determination on feeding behaviour pattern of Anophelines in Orrisa states, India. WHO/Mal; 87: 1041.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Title</th>
<th>Journal</th>
</tr>
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<td>Draper CC</td>
<td>1979</td>
<td>Some epidemiological uses of immunodiagnostic kits in malaria immunodiagnostic techniques in malaria: The reaction of the third meeting of the scientific group on the immunology of malaria, held under the auspices of UNDP/WHO, Panama; 155–162.</td>
<td></td>
</tr>
</tbody>
</table>

[216]


Donato Torre, Filippo Speranza, Massimo Giola, Alberto Matteelli, Roberto Tambini, and Gilberto Biendi 2002 Role of Th1 and Th2 Cytokines in Immune Response to Uncomplicated P. falciparum Malaria. Clinical and Diagnostic Laboratory Immunology. 9: 348–351.


[217]


Knowledge, attitudes and practices of expatriates towards malaria chemoprophylaxis and personal protection measures on a mine in Mali. *Travel Med Infect Dis.*, 5: 40–43.

A catalogue of the mosquito of the world (Diptera: Culicidae) 2nd edition. (The Thomas Say Foundation, Maryland).


Ayke KE, Burges R, Cisssoko Y, Sangare L, Dao M, Diarra I, Kane A, Harley R, Plowe CV, Dabumbo OK and Sztein MB 2004 Serum levels of the proinflammatory cytokines interleukin-1 beta (IL-1beta), IL-6, IL-8, IL-10, tumor necrosis factor alpha and IL-12 (p70) in Malian children with severe Plasmodium falciparum malaria and matched uncomplicated malaria or healthy controls. Infect Immun. 72: 5630–5637.

Manson P 1877 “The mosquito found to be the nurse”. Chinese Customs Med Rep., 2:1.


Rao TR 1984 The Anophelines of India. Malaria Research Centre (ICMR), New Delhi.


Bioenvironmental control of malaria in a tribal area of Mandla district, Madhya Pradesh, India. *Indian J Malarial.*, **26**: 103–120.


Role of migratory population in keeping up endemicity of malaria in metropolitan cities of India. *J Com Dis.*, **22**: 86–91.


Anopheline fauna of Ajodhya hills, district Purulia. West Bengal. *Indian J Malariol.*, **32**: 54–58


Seasonality of indoor resting anophelines in stone quarry area of District Allahabad, UP. *Indian J Malariol.*, **34**: 132–139


Insecticidal resistance and vector control. Tech. Re. Ser., 443: 45–79.


The role of T cell in immunity to malaria. *Prog Allergy.*, 41: 215–252.


WHO Report.


*  Not referred directly
INDICES
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Various entomological, malarialometric indices and terms used in the study are:

Malariometric Indices:

1. Annual Blood Smear Examination Rate (ABER)
   This reflects the efficiency and adequacy of case detection mechanism. A minimum ABER of 10.0 per cent per year was fixed and it should not be less than 1.0 percent per month during the transmission period. It is calculated by:
   Number of blood smear examined in a year X 100 / Total population

2. Annual Parasite Incidence (API)
   It is very important to assess the quantum of malaria in a place at a given year. This also reflects the adequacy of case detection mechanism and depends on the ABER. It is calculated by the following formula:
   Number of blood smear positive for malaria parasite in a year X 100 / Total population
   Like wise Monthly Parasite Incidence (MPI) can be calculated by the same way which helps to assess the quantum of malaria in a given month.

3. Annual *falciparum* Incidence (AfI)
   It is the proportion of total *P. falciparum* infection in the total population under study. It is calculated by:
   Number of blood smear positive for *P. falciparum* in a year X 100 / Total population

4. Child Parasite Rate (CPR)
   This is the measurement if the internal transmission in a community at a given time. It is determined by the number of malaria cases among the children of the age group 2 to 9 years. It is calculated by:
   Number of children found positive for malaria parasite X 100 / Total number of children examined during the blood survey

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5. Infant Parasite Rate (IPR)
This is an important index which is capable of giving information regarding transmission season and actual quantum of malaria transmission during a year. It is determined by number of malaria cases in the age group of 0 to 2 years and calculated by:
Number of infants found positive for malaria parasite X 100 / Total no of infants examined during the blood survey

6. Slide Positivity Rate (SPR)
It provides the information of parasitic load in the community. It can also indicate the progress of the ongoing control programme. It is calculated by:
Total number of blood smears found positive for malaria parasite X 100 / Total number of blood smears examined

7. Slide falciparum Rate (SfR)
Provides the information regarding the preponderance of Plasmodium falciparum infection in an area. It is calculated by:
Total number of blood smears found positive for P. falciparum X 100 / Total number of blood smears examined

8. Plasmodium falciparum Percentage (Pf %)
The relative proportion of P. falciparum infection and identifies the trends of P. falciparum incidence in relation to total case load of malaria parasite in the community. It is calculated by:
Total number of blood smears found positive for P. falciparum X 100 / Total number of blood smears positive for malaria parasite

9. Slide Gametocyte Rate (SGR)
This is the load of parasites (P. falciparum) prevalent in the community at a given time and the transmission potency. This gives the information of treatment delay and failure of conventional drug. It can be calculated by:
Total number of blood smears found positive for P. falciparum gametocyte X 100 / Total number of blood smears positive for P. falciparum

10. Corrected Percent Mortality
Per cent observed mortality — Per cent control mortality X 100 / 100 — Per cent control mortality
11. DALYS– Disability Adjusted Life Years
The annual number of lost life years due to each disease X A multiple of per capita income = A rough estimate of the aggregate economic loss

12. Morbidity Rate
This proportion of the number of cases of malaria in a unit time in the population they occur. It is closely related if not identical to the incidence of malaria (API) and usually expressed with regard to 1000 population.

13. Mortality Rate
Number of deaths from malaria in 1000 population in one year.

14. Abbott’s Formula = Per cent test mortality – Per cent control mortality X 100 / 100 – Per cent control mortality

15. me L⁻¹ x equivalent weight = ppm
16. ppm = μg mL⁻¹ = mg L⁻¹

Entomological Indices:
1. Vector density
Density of mosquito has a direct impact on the transmission of malaria. Total mosquito prevalent at a given time in a place in relation to human population is not possible to calculate. Therefore the average number of adult female Anopheles of a defined species, caught sheltering in human habitations are considered as the density of the species.

2. Man hour density
Number of adult mosquito collected by one person in one hour at a given place.

3. Biting rate
Number of mosquitoes collected while biting on man in one hour. This reflects man–vector contact.

4. Sporozoite rate
Number of female mosquitoes found sporozoite positive in the salivary gland per standard collection per unit time.

5. Oocyst rate
Number of female mosquitoes found positive with oocyst on the stomach wall per standard collection per unit of time.
6. **Inoculation rate**

It is the relative proportion of the human population receiving an infective bite in unit of time.

7. **Parous rate**

Parous rate is the relative proportion of parous females collected in a given sample. Parous females are those, which has oviposited at least once. Parity status is graded as 1 Parous (1P) – Females those have oviposited once, 2 Parous (2P) – Females those have oviposited twice, likewise 3P, 4P and others are graded.

8. **Anthropophilic index**

The proportion of freshly fed females whose midgut (stomach) contains human blood is the (human blood index or) anthropophilic index.

9. **Vectorial capacity**

It is a convenient way of expressing the malaria transmission risk, or in other words, the receptivity to malaria of a defined area.

**Terms Used:**

1. **Incubation period**

The time between the infection and the first appearance of clinical signs, of which fever is the most common.

2. **Endemic**

Malaria is described to be endemic when there is constant incidence of cases over a period of many successive years.

3. **Endemicity**

The term refers to the amount or severity of malaria in an area or community. Any precise information on the degree of endemicity must be based on quantititative and statistical concepts.

Endemicity of an area is expressed in the following measurements:

1. **Hypoendemic malaria**

In an area where parasite rate in children of 2–9 years is less than 10.0 per cent (may be higher during some part of the year) or spleen rate in children of 2–9 years is 0 to 10.0 per cent.
II Mesoendemic malaria
In an area where parasite rate in children of 2–9 years is less then 11 to 50.0 per cent.

III Hyperendemic malaria
In an area where parasite rate in children of 2–9 years is constantly over 50.0 per cent or spleen rate in children of 2–9 years is constantly over 50.0 per cent, adult spleen rate is also high.

IV Holoendemic malaria
In an area where parasite rate in children of 2–9 years is constantly over 75.0 per cent or spleen rate in children of 2–9 years is constantly over 75.0 per cent, adult spleen rate may be low, with high tolerance (immunity).

4. Epidemic
Epidemic malaria is a term, which indicates periodic or occasional sharp increase in the amount of malaria cases in a given indigenous community.

5. Latency period
The period during which the malaria infection is not evidenced clinically by any symptoms.

6. Recrudescence
Repeated manifestation of the infection after a period of latency following the primary attack.

7. Relapse
Renewed occurrence of clinical symptoms and/or parasitaemia after a time considerably greater than the intervals between periodic paroxysms of the primary infection.

8. Resistance
Ability in a population of insects to tolerate dosages of an insecticide which would prove lethal to the majority of individual in a normal population of the same species, developed as a result of selection pressure by the insecticides.

9. Spleen rate
The proportion (expressed as percentage) of enlargement of spleens in a sample of the population.