

Recommendations of the Conference on Anopheline Biology and Malaria Eradication

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Under the auspices of the U.S. Army Medical Research and Development Command and the Armed Forces Pest Control Board, a Conference on Anopheline Biology and Malaria Eradication was held at the Walter Reed Army Institute of Research, Washington, D.C., from 21 through 23 May 1969. The scope of the meeting was to delineate the present status of the biology and control of malaria vectors and to discuss areas for further study which may assist in the eradication of malaria.

Following the presentation of a series of working papers and discussion, a temporary committee was established by the moderator, Col. R. M. Altman, to formulate a series of recommendations on future work on the control and eradication of anopheline vectors of malaria that would reflect the views of the participants of the conference. The committee consisted of: Dr. B. deMeillon (Chairman), Dr. G. Davidson, Lt. Col. B. F. Eldridge, Dr. J. Hamon, Prof. J. B. Kitzmiller, Dr. H. F. Schoof, and Dr. C. N. Smith.

RECOMMENDATIONS

The recommendations of the committee were discussed by the participants, and after discussion the following statement was prepared which was unanimously adopted.

"Concerning the difficulties that are being experienced at present in the control and eradication of malaria over the greater part of its distribution, this Conference recommends that:

1. Research should be conducted on establishing the identity of vectors by classical taxonomy and newer means such as cytotaxonomy (especially of the adult female) and cross-breeding experiments. Rapid methods of using these techniques should soon be developed for application in the field. The role of secondary vectors should be more accurately delineated and methods devised to assess their importance. All vectors with large areas of distribution should be examined for local differences in physiology, ecology, and behavior which may effect their vectorial importance.
2. Improved methods should be developed for entomological assessment of control operations by means of better sampling of vector populations both quantitatively and qualitatively. The Conference was impressed by recent developments in the use of light traps as a sampling method for vector populations and recommends its intensive evaluation in the tropics.
3. In the study of vector behavior full considera-

tion should be given to the behavior of the human host and his environment.

4. Since low-cost residual insecticides still represent the main line of attack in malaria control and eradication, it is recommended that: (a) the search for new insecticides and formulations be continued, (b) the usefulness of other methods of insecticide application, particularly larvicides and ultra-low-volume adulticides be evaluated, and (c) exploration be made of the feasibility of using integrated control measures that involve different techniques of insecticide applications alone, in combination with drug therapy, or other methods.
5. The search for and application of newer methods of control such as the use of genetic manipulation, insect pathogens, antimetabolites, and insect hormones is to be encouraged.
6. With the proposed application of the newer methods of control cited above, a much more detailed knowledge of vector physiology, behavior, ecology, population dynamics, genetics, and mass production techniques will be required. For example, very little is known about the behavior of male mosquitoes and this factor has relevance in the field of genetic control.
7. Research should be directed toward the development of repellents or feeding deterrents that will provide protection against anopheline bites for several days. Such repellents will probably not be found among compounds related to present repellents or without additional information on the physiology of the interaction between repellent, mosquito, and host.
8. The current rapid accumulation of many kinds of data requires sophisticated quantitative treatment. If these data are to be used in control operations, new approaches are necessary. It is recommended that increased recognition be given to the value of computer modeling and simulation for the training of medical entomologists, as an aid in conducting anopheline research and in formulating strategies for anopheline control. To further this recommendation it is urged that teams be formed in which workers with field and laboratory experience actively collaborate with workers trained in computer techniques and systems analysis to construct realistic models of the dynamics of malaria transmission under various circumstances related to the vector, to the host, and to the environment."

These recommendations represent the personal opinions of the listed participants and do not reflect the opinion or policy of the parent organization of any individual nor of the sponsoring agencies.

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