

EDITORIAL

MALARIA CONTROL IN THE AMERICAS¹

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The Inter-American Symposium on Malaria Research, sponsored jointly by the Pan American Health Organization and the Government of El Salvador, was held in San Salvador on 1-4 November 1971 to consider questions relating to control and eradication of the disease in the Americas. The following address was presented at the opening session by Dr. Abraham Horwitz, Director of the Pan American Sanitary Bureau.

I want to thank you, Mr. Minister, for sponsoring this meeting, for the warm welcome you and your staff have given us, and for the facilities you have placed at our disposal. Your presence here today symbolizes the significance your Government attaches to malaria eradication because of its importance for health, well-being, productivity, and economic development. The present status of this problem in the Americas and in other parts of the world is such that the full support of each Head of State is needed to ensure the continuity of organized efforts and progressively to reduce the harmful effects of this disease. For in the last analysis such decisions are political, and the greater their social consequences the higher the level at which they must be taken.

This symposium is very timely and we wish to express our thanks to the Center for Disease Control of the United States Public Health Service for its initiative and for the presence of such distinguished experts.

The progress made in the past decade in reducing mortality and morbidity and in reclaiming vast areas for production and land settlement is beyond question. It is not possible to measure—what for us is essential—the change in the attitudes of people from a pessimistic view of life as mere existence, to one which justifies their fight for a better lot. But progress may also be reflected in the identification of obstacles and in the search for solutions consistent with new conditions.

This also holds true for the evolution of malaria in the Americas. Where it has not been possible to eliminate it, it has nevertheless been possible to determine accurately the factors that keep it active, and in many instances the most effective methods of dealing with them. Equally noteworthy has been the success in identifying areas where malaria transmission persists in spite of systematic efforts using all known resources. In those areas it is obviously necessary to thoroughly investigate the dynamics of the process in order to pinpoint the conditioning factors.

But it is not enough to analyze the data: their significance must be verified on the spot, and the causes and circumstances of the persistence of foci must be

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studied. Malaria has become primarily a rural disease, and to control it successfully or understand its complexities, professional and auxiliary personnel must be present "in situ."

Critics who insist that the advent of DDT gave rise to a sense of security and a complacent attitude disregard the remarkable efforts in basic and operations research. They overlook the complexity of malaria which involves the constant interaction of three living organisms, each governed by its own dynamics that vary with differing ecological conditions. We now know quite well how often man upsets the balance of nature, not always for his own good. Any successful interference with the chain of events set in motion by a malaria outbreak has always given rise to optimism. It is therefore not surprising that the mass production of insecticides should have led to visions of final results and to excessive claims. Indeed, in the face of so much poverty and suffering, it would have been astonishing had the prudent, the wise, or the farsighted prevailed in their attempts to curb an enthusiasm as reasonable as it was humane—the more so since experience and demonstrations seemed to assure the success anticipated.

We have repeatedly maintained that in the Americas we have passed the stage at which the suspension or curtailment of antimalaria activities could be justified by any argument. What remains to be done, although more complicated, is less than what has already been achieved, even though the cost may be greater. But the main point is that we are certain that no government fully alive to the consequences would take measures that would restore malaria incidence and mortality to what they were 10 years ago. In seven American states, in which the progress of malaria programs is unsatisfactory in terms of eradication, deaths due to malaria declined by 95.3 per cent between 1955 and 1968, and thus 41,000 deaths were prevented in 1968 alone.

When cost-benefit methods are used to measure the impact of those programs in terms of health and economic development, there are in some ways even firmer grounds for standing fast and continuing to use the accepted techniques. I should add that cost-benefit methods have not yet been sufficiently tested on problems that are predominantly social. Without questioning the advisability of exploring methods intended to measure the production of capital and consumer goods, we suggest that we not generalize—especially in the health field—as to means of determining the order of priority and the magnitude of resources. On the other hand, microeconomic studies such as those made in Paraguay can provide more specific criteria for determining the real benefits to family and community income arising from the prevention of malaria. Also, sociological research is needed on the change in outlook of people when fear and depression induced by the disease disappear.

For these reasons, we call upon the political authorities to decide to invest that which is needed and to have the faith in organized research that the history of science shows to be justified. As a matter of fact, the purpose of this meeting is to demonstrate what is being done to resolve the problems that are holding up the eradication of malaria, that scourge of society and the economy. Distinguished authorities in many fields will report to us on investigations designed to enable us to interrupt the chain of infection, be it with respect to the parasite, the vector, or man, not as separate entities, but in their own environment and within their natural interrelations.

Viewed as a whole, such research shows the reach of man's creative imagination when spurred to prevail over nature for the common good. It therefore follows that in areas where transmission continues despite the use of insecticides, according to recommended requirements and procedures, it will be necessary to employ any

means that experience has shown to be useful and to increase their effectiveness with measures that research has proved both useful and safe for human beings.

Another dimension was added to the problem in recent years by the outcry against the impairment of natural beauty, the destruction of animal species we wish to preserve, the indiscriminate pollution of water, air and soil, and the consequent effects on the health and welfare of individuals and communities. A veritable syndrome of collective anxiety has developed, accompanied by visions of the future which science has not always been able to substantiate. This is the natural reaction of men in our time who often create crises in order to change given conditions without first pondering other simultaneous or subsequent consequences that may well be even more serious. This kind of thinking applies to malaria eradication and its immediate future. Some Governments have prohibited the use of DDT and other insecticides, and there is even talk of halting its production. Overzealous champions of the environment argue that insecticides can cause cancer and genetic changes and deform embryos. Although such things have occurred in some laboratory animals, it must be emphasized that they were the results of experiments with massive doses of insecticide, administered by the oral or parenteral route. But there would appear to be little evidence of similar effects on larger animals exposed to small amounts of such chemical substances for long periods under natural conditions.

The dilemma facing nations with a high incidence of malaria and a largely agricultural economy is to try to weigh the immediate consequences of discontinuing the use of DDT against the long-term, presumably harmful, effects that have not been precisely determined. I am sure that you will take up this question during your discussions. The World Health Organization favors continuation of present efforts, in accordance with the new strategy approved by its governing bodies, and of stimulation of research.

I am among those who are convinced that the world talents who have undertaken to unravel the remaining mysteries of the dynamics of malaria are going to provide us with new methods of eliminating it, or at least of reducing it to a minor health problem. We must understand the forces conditioning cellular and humoral immunity, whether species- or strain-specific. We must understand better the mechanisms underlying the immune state, the true role of antibodies for whose identification more sensitive methods than those presently available will be tried. From all this will come a vaccine that will complement malaria control measures by raising the capacity of the host to resist the parasite.

New drugs producing a true radical cure will become available. As in other fields of therapeutics, these drugs will, we trust, have lasting effects, be easy to use, and be free of harmful effects.

Genetics will provide us with the means to reduce mosquito populations, and thus their actual or potential capacity to spread the disease. It is to be hoped that experiments with sterilized males, as well as with predators and parasites, will be successful, and that these methods will be less expensive than pesticides, safer in terms of ecology, and have longer-lasting effects.

We should not neglect the conventional methods of sanitary engineering wherever their use is warranted nor, in general, the regulation of water-courses or the modification of their chemical, physical, or biological composition.

In seeking sources of investment funds, we should take into account development projects planned for malarious areas. Today it is essential for ministries of health to play an active part in the government agencies that formulate economic plans and make decisions about the allocation of manpower, money, and materials. We must create an awareness of the unfavorable effects of malaria on productivity and production. Ministries of health should encourage the inclusion of

activities for the prevention and treatment of diseases into all programs of industrialization, agricultural development, irrigation, social welfare, and the like. If they fail to do so, it would not be surprising if some of their present functions were to be transferred to other ministries or to independent government agencies. That would be regrettable, because in the developing nations it is the public health services that reach furthest into urban and rural areas. They are more in touch with families and communities, enlisting local cooperation and encouraging positive attitudes to overcome the negative effects of the environment. If they shirk their responsibilities they will unwittingly harm the underprivileged in our societies.

With all these considerations in mind, we feel that it is right and proper to continue our efforts to control malaria, applying creatively what technology and experience recommend in each ecological setting. The investment of essential resources depends on the decision-making power of the Governments. This symposium therefore addresses itself to the Governments, because it will show what research has already achieved and what may be expected in the near future. The work of international organizations is also dependent on the Governments. We are certain that the World Health Organization in the Americas and the Pan American Health Organization will continue to serve the Governments, convinced as they are that national interests must take precedence over the institutional. Furthermore, to yield in the present circumstances is not only to overlook the possibility of losing what has been gained so far but, above all, to condemn millions of human beings to living out their lives in depression and uncertainty due to malaria. For that reason we again express our thanks to the Government of El Salvador for sponsoring this symposium, and to the Center for Disease Control of the United States Public Health Service for its outstanding contributions to science and for enabling us to share the experiences of distinguished experts in malariology and other related disciplines.