

Introduction

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I shall open the Conference by discussing 2 questions: (1) why are we having this meeting, and (2) why is it being sponsored by the U. S. Army Medical Research and Development Command and the Department of Defense? Malaria severely reduced the combat effectiveness of the Armed Forces of the United States during World War II, the Korean conflict, and the present operation in Vietnam. In World War II, there were approximately $\frac{1}{2}$ million cases of malaria, which accounted for between 8 and 9 million man-days lost. It has been estimated that during the Korean conflict there were 30,000 cases of malaria with some 300,000 man-days lost. Since 1964 there have been more than 22,000 military cases of malaria that originated in Vietnam. The impact of malaria on military operations is intensified because of the distribution of cases, since the man closest to the combat area most frequently contracts the disease. This is especially serious in the earliest stages of a campaign, because medical treatment facilities are limited, the course of battle is uncertain, and medical treatment and evacuation resources must remain available for combat casualties. In late 1966 and early 1967 the malaria situation was critical in Vietnam, and it was necessary to evacuate malaria patients to hospitals out of the country. The problem was compounded because most of the cases were falciparum malaria, and many were resistant to chloroquine.

The incidence of malaria has remained relatively constant, but there has been a significant reduction in the time required for treatment. The average duration of treatment in 1967 was 25 days, while in 1968 it was approximately 17 days. The pattern of distribution of malaria in Vietnam has been interesting. Most of the cases have been contracted by troops in combat units soon after they were committed to action. The operation in Vietnam is such that battles often last for only a few days. Thus it is obvious that the troops in combat are exposed to a heavily infected, efficient vector population. However, it is important to recognize that the situation in Vietnam does not apply to all military campaigns. In Korea the cases were primarily contracted away from the combat zone. In World War II the pattern of transmission varied greatly depending on the location of the operation.

While the Armed Forces are primarily concerned with the malaria problem in combat theaters we are concerned also with preventing the introduction of malaria into the malaria-free regions of the world, and with assisting with malaria control in the various countries where we have troops deployed.

Moving to the question of why we are having this meeting—despite the efforts of many, malaria eradication has frequently failed. There have been some successful programs in the temperate regions, but the tropics have presented a different situation. These failures have been caused by many factors including: lack of resources and mismanagement of resources; inadequate public health service; divorce of malaria eradication from public health programs; lack of trained personnel; an ill-informed, noncooperative, and occasionally even hostile public; drug resistance or misuse of drugs; improper surveillance methods; habits of different ethnic groups; differences in mosquito vector populations; insecticide resistance; changes in human populations; political and military disruptions; and many other factors. Entomology problems undoubtedly have contributed to the failure of