PRIMARY HEALTH CARE: THE BASIS FOR MALARIA CONTROL IN HUBEI, CHINA

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Abstract. By 1992 malaria morbidity in Hubei, China had decreased steadily to its lowest level since 1970. Much of this achievment was through an integration of the primary health services with malaria control activities. However, in some areas malaria has been unstable due to weaknesses in the three tier health network. This has particularly been at the township and village level. The future of village doctors and appropriate measures of malaria control at the village level are threatened by the change to a market economy. As part of the provincial health program, primary care services need to be improved in service provision, service organization and service quality.

INTRODUCTION

Hubei Province is situated in the central part of China, along the middle reaches of the Chang Jiang (Yangtze River). It enjoys a moderate climate with an average annual rainfall of 800-1,600 mm. The population is 54 million (Census, 1991).

Malaria was widespread in Hubei previously. In 1973, out of 78 counties and cities, 46 had a morbidity of more than 1%. After nearly 20 years of malaria control, the morbidity had decreased to 1.34 per ten thousand by 1992 (Fig 1). In 1991 293,565 persons were treated and given repeat radical treatment during the non-transmission season (Xu *et al,* 1994) and 524,320 persons received prophylactic drugs. Residual spraying of insecticides or impregnation of bednets covered an area containing 710,000 residents. The accomplishment of such a great deal of work would not have been possible without the active participation of the community. Since 80% of the population live in rural areas in Hubei, the rural primary health care services played a significant role in malaria control. This paper reviews the recent information about malaria control and the three tier health care network in Hubei, highlighting the role of the village doctor.

RURAL HEALTH SERVICES

Many malaria control activities can be, and should be carried out in the context of primary health care, depending on the degree of development of its supporting structure (WHO, 1986; Moir, 1986; Malaria Research Group, 1992; Anonymous, 1983). The government has attached great importance to the rural health service. One of the objectives of local authorities is to implement primary health care, improve rural health conditions and upgrade the health of farmers so as to achieve the strategic goal of Health For All by the Year 2000, set by WHO. With initiatives from the state, collectives and community, and through the combined efforts of health professionals and part-time workers, the rural health services have been considerably developed.

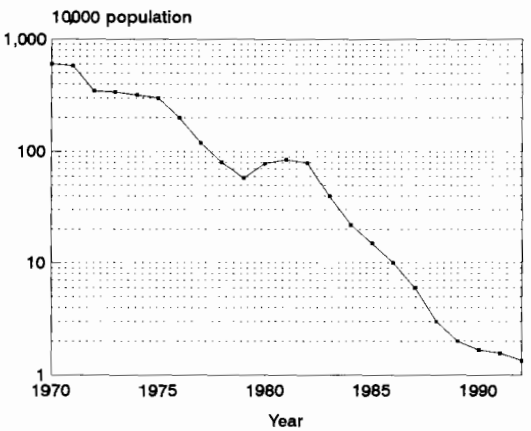

Fig 1–Malaria in Hubei 1970-1992.

The rural health services work on a voluntary basis for rural populations. They have adopted various practices, such as health insurance, cooperative medical services and contractual services for prevention or child immunization.

The health network has three levels, county, township and village. The health services in township and village level are the main force in primary health care, performing the actual function of medical care, community health and disease prevention. They are also responsible for implementing malaria control measures. Village doctors and health units are the base of the network. The village doctor, similar to village health workers (VHW) in some developing countries, such as the Gambia (Greenwood *et al,* 1990; Menon, 1991; Kan, 1990), carries out much of the organization, propagation and practice of malaria control.

Participation in malaria control by village doctors differs from area to area and is summarized as follows:

– collecting blood slides from fever cases, making a diagnosis and giving presumptive/radical treatment according to the technical schemes adopted by provincial institutes.

– taking part in anti-relapse therapy and prophylactic remedy.

– organizing and participating in mosquito control, including proper training, technical guidance and supervision (DDT residual spraying and impregnation of bednets with deltamethrin).

– reporting cases and other epidemiologic information.

– contributing with others to health education and promotional activities.

Tables 1 and 2 show the health services and malaria control measures conducted in eight townships, Jianghan plain, Hubei, from 1986 to 1990 (Malaria Research Group, 1992).

Table 1

Health services in eight townships.

No. of villages	No. of houses	Total population	No. health units		No. personnel	
			town	village	town	village
137	54,315	238,212	8	177	797	376

Table 2

Malaria control measures in the eight townships, 1986-1990.

Year	No. exam	No. treated	Anti-relapse treat	Mass drug admin	Residual spraying	
					indoor	outdoor*
1986	59,991	278	440	1,495	19,125	40,513
1987	54,440	132	480	4,365	128,746	225,056
1988	48,716	60	342	357	na	na
1989	40,180	44	224	749	na	na
1990	35,225	21	112	385	11,500	15,490

*Outdoor: includes cow shed and pigsty

PRESENT STATUS

In 1992, about 43.13 million people in Hubei lived in areas free of malaria or where the morbidity was less than 1 per ten thousand (including endemic areas freed from the disease), 8.58 million people lived in areas with a morbidity of 1-4 per ten thousand, 1.2 million people lived in areas with a morbidity of 5-9 per ten thousand, and 1.09 million people lived in areas with a morbidity of 10 per ten thousand and above (Fig 2).

As mentioned above, malaria morbidity decreased steadily to its lowest level in 1992. Although great success has been achieved, there are some problems which hinder the progress of malaria control. These are a more mobile population and shortage of insecticides. More relevant are problems in the primary health care network with a decline in the number and quality of personnel in disease control, particularly in malaria. In some areas, there is competition between the older more experienced, but less educated doctors and younger inexperienced, but better educated doctors. Staff changes create difficulties in training and improvement of performance. Also some village doctors concentrate on curative treatment and neglect prevention, encouraged by selling medicines to patients, brought on by the change in economic policy. This policy change has put more money in the private sector, with a reduction in the public sector, with consequent reduced support to health services.

While administratively all malaria control programs are a part of the health service, there remain some ill-defined areas concerning the line of command, the areas of responsibility and the degree of supervision. In China, medical and public health services belong to different departments of the health administration.

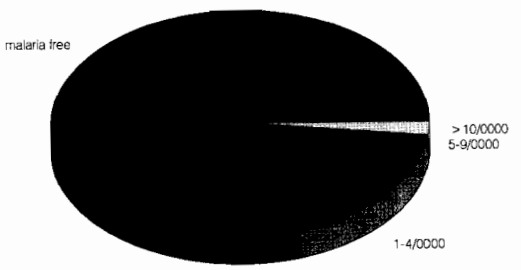

Fig 2–Malaria morbidity in Hubei 1992.

These problems have had an impact on malaria control activities as an example shows. The morbidity had decreased to 0.14% in Qianchang township, Jinshan county, before 1987. However, in 1987, this increased to 1.16% and in 1988 to 9.34%. Investigation showed that malaria control measures had not been implemented by village doctors, including case detection and mobile population management. After strengthening supervision and guidelines to village doctors, as well as combined methods of mosquito control, with the elimination of the source of infection, the incidence decreased to 0.87% in 1989 and 0.44% in 1990 (Su *et al,* 1990).

DISCUSSION

Malaria morbidity has decreased steadily, to its lowest level since 1970, through malaria control activities, integrated with the primary health services. Several factors have contributed to the village doctors' achievements in Hubei.

Stable health systems for disease control have been in existence from 1970, especially the rural, three level health network. A village unit provides health care for a population of about 1,400 people and a village doctor for about 600-700 (Table 1). Different from some developing countries, village doctors in China receive certification by formal examination, to the level of health school graduates (Kan 1990; Greenwood *et al,* 1990; Garner *et al,* 1990). Village doctors play a significant role in malaria control (Table 2). They not only work in units, but also provide mobile medical services and visit the villager's home. They detect cases, take blood slides of febrile patients and ensure the drug is really swallowed in treatment and mass drug administrations. This is particularly important in the malaria transmission season. In 1980-1987, among the 396 positive slides taken by village doctors, 171 cases (accounting for 43.2%) were misdiagnosed as other diseases by clinic doctors (Li, 1991).

Malaria control benefits greatly from community participation and health education. Village doctors through the village head, call a meeting to explain

the measures of malaria control and to request participation from all villagers. Various health education materials such as flip charts, posters and broadcasts are used.

The target adopted by Hubei Public Health Bureau is to reduce the malaria morbidity of all counties to less than 1 per ten thousand by 1995. However, some problems exist in the primary health care network, as mentioned above. In some rural parts of Hubei, malaria is still one of the important diseases and the incidence is unstable, with outbreaks in some places where *Anopheles anthropophagus* is the chief vector (Xu *et al,* 1994). In order to realize the target, the role of the village doctor in primary health care needs to be fully highlighted. Malaria control must be part of the provincial health program and be given the emphasis it requires.

Several policies for village doctors have been launched by health authorities to solve the impact created by socio-economic changes since 1985 (Kan, 1990). There is a need for improvement in service provision, service organization and service quality. In service provision it is essential for village doctors to secure community involvement, epidemiological information and undertake control measures. They need effective guidance, evaluation and supervision. A prize could be awarded to village doctors who provide an excellent preventive service.

In-service organization health care is evolving, with many innovative approaches in management, evaluation and collaboration (Nitayerumphong, 1990). Because of insufficient resources in Hubei, the health and related services require careful planning and provision in a collaborative manner. The Public Health Bureau needs to administer health services to the community as a whole and to use reliable indices to evaluate and analyze professional collaboration in primary health care. Collaborative efforts in malaria control have been shown to be a good way, especially in epidemic areas where *An. anthropophagus* is the major vector (Xu *et al,* 1994).

The increase of malaria morbidity in some epidemic areas is because of poor quality in the limited health services. Training courses are held every year for personnel of various levels. This must continue with a balance of courses on malaria diagnosis, spraying and impregnation techniques. Supervision by higher level staff varies markedly between counties. Garner *et al* (1990) reported that managerial weaknesses at provincial and local level contributed to poor functioning at some centres. Present experience indicates that many problems of malaria control are within the system of primary health care and can be rapidly solved by good planning of field activities, staff members and personnel at every level.

In recent years, considerable interest has been focused on prevention and the association of primary care and public health (Ashton, 1990; Kickbusch, 1986). A more detailed study of malaria control through primary health care is required and support by local government, as well as operational programs, needs to be given further consideration. Hubei is carrying out a reform of the health field, based on an analysis of the present situation and utilization of health resources. Preventive service and rural health manpower have been identified as the two most important factors for a relatively long period of time to come.

ACKNOWLEDGEMENTS

We wish to thank the British Council for funding an Academic link with China Scheme under which this collaborative research has been possible. Dr Webber is a member of the Tropical Disease Control Program, funded by the Overseas Development Administration of the British Government, whose assistance is gratefully acknowledged.

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