

Measures to Combat Malaria in Princely State of Mysore

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Abstract: Princely state of Mysore in India was under the British colonial rule during 1881 to 1947. This historical research article aims to document the role of Princely Mysore State in campaigning against the outbreak of Malaria. The Methodology adopted is the historical perspective. Modus operandi adopted by the Princely Mysore state to counter the deadly epidemic is also highlighted. There has been a remarkable progress in the prevention, control and eradication and adapted vigorous measures in eradicate the disease. The article also deals with the large sums of money spent by the State, the epidemic disease regulation passed, a separate intensive health campaign formed, health camps, special officers appointed, a laboratory, separate hospitals established and various precautionary measures adopted. Infection diseases still remain among the leading causes of death worldwide. New findings show similarities among H1 N1. Dengue and Malaria.

Introduction: Malaria is an Arthropod – borne infections and protozoan disease, caused by infection with parasites of the genus Plasmodium and transmitted to man by female Anopheles mosquito. It is estimated that every 30 seconds a child dies of Malaria today, Malaria is attracting more attention as a serious global problem because currently no vaccine. In Mysore state Malaria struck and spread over the state very frequently, the plantation and paddy laborers were effected by Malaria due to unhealthy weather conditions, increasing rains, poor sanitary facilities.¹ In 1897 the British Doctor Ronald Ross reported his remarkable discovery in India and he was awarded the Nobel Prize for Medicine in 1902, “20 August 1897, known as the mosquito day the day he made his discovery.”²

Keywords: Malaria, protozoan, Arthropod, female Anopheles mosquito

Malaria appearance in Mysore: First made its appearance during 1920, and spread with increasing virulence in every direction of the state. Severity of the epidemic reached its height in the first year of the outbreak.

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² WHO (2008), World Malaria Report 2008

Preventive measures: Public health department of Mysore played an important role in disease prevention, and it involved with several health activities. There was serious shortage of medical personal and medical facilities in India and especially in Mysore State. To provide more medical facilities and in protect the people both in rural and urban areas the princely state of Mysore adopted certain measures to prevent the disease.

The state was divided into Urban, Rural, City and District health units each being placed under an assistant commissioner, who was assisted by a medical officer of the grade of an assistant surgeon.³ Under the auspices of the international Health Division of the **Rockefeller Foundation of America**, a health survey of the State with special reference to Malaria was undertaken in 1927 and for this purpose the services of **Dr. Sweet** of the same Foundation were obtained.⁴ The formation of a separate **committee of Health campaign** to overcome such diseases, special health officers were appointed, a laboratory was provided.⁵

Special act: to protect the people of the state government passed Mysore Epidemic Diseases Act, II in the year 1897.⁶ Government adopted vigorous measures to check the spread of the disease by making provision for the treatment of the disease in special hospitals.

Curative Measures: Special Hospitals: The permanent hospitals were established in the state called **Epidemic Disease Hospitals** at Bangalore in 1891, in 1898 at KGF and Mysore in 1926 working throughout the year to treat patients, Five buildings were constructed with accommodation for 66 patients. Roof of Mangalore tiles, corrugated iron and bamboo tatty sides. **Temporary hospitals and health camps** were established whenever there was an outbreak.

A Chemical laboratory was founded in 1895 at Bangalore to give laboratory support in order to investigate the outbreak of the epidemic diseases for Chemical analyses and experiments. Blood and spleen examinations were done. **The collection of rainfall, temperature and vital statistics data was also continued.**

³ Mysore Gazett, Government Press Bangalore, vol – III Page no 1454

⁴ Rao Sham M, Modern Mysore, Vol VI p 418

⁵ Rao Sham M, Modern Mysore, Vol – II Bangalore p 233

⁶ ibid

Special Relief: Chemical disinfection was carried out generally and disinfection by desiccations was introduced as an experimental measure. Arrangements were made for the **distribution of Multi Vitamin tablets. The 30 medical unit with the special officers** of medical were deputed to tour frequently in the affected areas to take immediate action in case of outbreak of epidemics.⁷ **Neem leaves fumigation was undertaken** in the infected localities as a further measure of control.⁸ **Four medical graduates of the state were deputed** for training in sanitation to America. As a result of the spleen survey conducted by Dr Sweet.

Malaria experimental stations three in number were established one at Nagenhalli in the Mysore taluk the second at Mudigere and the third at Hiriyur during the year 1920. **A Rural Health Unit also was established at Mandya**, as an experimental measure. For the purpose of determining the staff, equipment and budget get necessary for organizing Health Units in all the taluks eventually.

The Leagues of Nations Malaria Commission who visited the state in December 1929 at the invitation of the Durbar studied the malaria control work at the experimental stations at Nagenhalli and Mudigere and the anti malarial work in the Bangalore city and expressed their appreciation of the manner in which the problem was being studied. The Rockefeller Foundation lent in 1930 the services of Mr. J.J. Sweet, the Consultant in Health Department.

A Board of Health was created to advise the Government one of the main features of the scheme of reorganization was the constitution of Bureau of Epidemiology and Communicable diseases.⁹ Bureau of Malariology was constituted in the Health Department. This bureau undertook institutional studies and research in Malaria. It directs and supervises the execution of preventive and control measures of Malaria. It also started training the staff and look to regular supply of material and technical equipment. This bureau was in close co-operation with the Rockefeller Foundation of America. It organized a malaria research station at Sakleshpur.¹⁰

Mosquito control work was started at Nagenhalli and Mudigere by using **'Paris-green' on all the anopheles breeding areas** within a radius of a mile from the center of the town were regularly treated at weekly intervals with Paris green diluted to a one percent mixture with dust

⁷ Administrative Reports of Mysore State, Divisional Archives, Mysore 1940, p-21

⁸ Administrative Reports of Mysore State, Divisional Archives, Mysore 1940, p-142

⁹ Rao Sham M, Modern Mysore, Vol -IV p-447

¹⁰ Rao Hayavadan C, Mysore Gezetteer, Vol-IV p-447

or ash or both. The efficacy of the dusting of Paris green was regularly checked by larval catches. Quality spleen and blood examinations were done in the peripheral zone.¹¹

In addition to the use of Paris green, experiments were conducted on **larvicidal fish 'Gambusia' used successfully** for the eradication of anopheline larvae breeding in wells. Actual results showed that the fish compare favorably with Paris green as a larval control measures in wells. It is therefore proposed to gradually introduced them into the entire well and tanks of the state. A malaria survey of Mysore City was made and recommendations for malaria control work in the City were submitted during the year 1934.¹² **Quinine factory was established at Mysore in the year 1930**, intensive treatment with **Plasmoquine and Tataquinine** was recommended as the only possible immediate remedy.

Anti-Malaria operations were continued during the year 1932 in Bangalore and Mysore. Paris green was applied to open sheets of water and Gambusia fish in the ease of wells. After an initial year of observation, an experiment in the use small weekly dozes of **plasmoquine** compound was tried in Marikanave Village. Measures were adopted to check the spread of the disease by the systematic administration of **free distribution of quinine to school children** was started.

Pits and hollows were all drained to prevent stagnation of water and breeding of mosquitoes. Removal of rank vegetation and destruction of cactus was also undertaken. In the Civil and Military Station, oiling pools and ponds carried out anti-malarial work systematically and in addition draw wells were stocked with larvicidal fish supplied by the **Health Department of the State.**¹³

The superintendent, bureau of Epidemilogy and communicable Diseases, undertook a Special spleen survey of the State and of the 1717 children he examined 67 showed enlarged spleens of various sizes, the spleen rate being 3-9 against 11-7 in 1930. Malaria survey if the under mentioned towns or rural areas of the state were done during the year 1932 and recommendations made for controlling the disease:

A sample prepared at the **Government Industrial and Testing Laboratory** was found quite satisfactory, by the use of Gambusia (larvicidal fish). All the tanks wells in the Irwin Canal area were also stocked with Gambusia. Quinine was distributed free to patients suffering from

¹¹ Vital Statistics and Medical Services, MARS, 1930, p-63

¹² Progress of Sanitation MAR, 1934 p-136

¹³ Progress of Sanitation MAR, 1934 p-140

malaria in this area and a spleen survey was made of 57 villages. Special malaria surveys and Malaria control work and general mosquito control operations were continued in villages. Five thousand two hundred and fifty four wells were re-shocked with Gambusia fish.

Prof Buxton of the Landon school of Tropical Medicine and **Mr. Dyer**, sanitary Engineer of the Rockefeller Foundation, visited **Mysore, Mandya, Nagenahalli and Hiriya** in the course of their malaria tour.

Fortnightly conferences were started and twenty one conferences held on the anti-malaria operations. Engineering methods, such as cement plastering and stone riveting of the sides and bed of the rivers undertaken.¹⁴ Anti-malaria engineering works such as canalization of water courses with cement-plastering, stone-revetment started in 1937.¹⁵ Malaria control continued to receive, the close attention of the department more than Rs 2.35 lakhs being spent on anti-malaria work in various areas of the state. The Scheme of Anti-malaria measures in the extended area, comprising of 314 villages was sanctioned.¹⁶

In 1945 Pyrethrum-spraying for the prevention of malaria was found to yield very satisfactory results. A total quantity 319 gallons of pyrethrum was prepared in the Public Health Institute and an extent of **150 areas of land was planted with pyrethrum by the Forest Department.** The scheme was introduced for the control of malaria in a group of 198 villages and to cover 314 villages at a cost of about Rs 198000 per annum. Government has sanctioned a further sum of Rs 15 lakhs for carrying out the second stage of the scheme which involves canalizing 61 valleys and depleting 58 tanks in the area.¹⁷

Bureau of Malariology: the department of malariology was created in the **Medical Colleges and Lectures in Malariology** were given to the students Mysore, and Bangalore.

Health Units:

In addition to the Krishnarajasagar Health Committee that was functioning three more committees. The Sakrebile Project Committee the Marconahalli and Nugu Committees were constitutes. A systematic bi annual spleen survey of all villages within the health unit areas was arranged during the year 1947.¹⁸ Malaria control works were continued in Maralvadi, Banavar, Taverekere, Tiptur, Kanagal, Thippagondanahalli, Princess Krishnajammanni Sanatorium,

¹⁴ Vital Statistics and Medical Services, MAR, 1938 p-152 and 153

¹⁵ Administration Report of Mysore, 1940, p -154 Divisional Archives Mysore

¹⁶ Administration Report of Mysore, 1940, p -21 Divisional Archives Mysore

¹⁷ Administration Report of Mysore, 1945, p -142-145 Divisional Archives Mysore

¹⁸ Administration Report of Mysore, 1947, p -142 Divisional Archives Mysore

Jog, Sakleshpur, Koppa, Anandapuram, Sorab, Heggadadevankote, Mudigere, Mandya, Bhadravathi, Belur and other places and in Bangalore and Mysore cities. The schemes for Dugganahalli, Sowlanga and health units of Kadur District were sanctioned.¹⁹

An itinerant dispensary: with one Sub Assistant Surgeon and 4 compounders were working in Malaria affected villages in the remote areas.²⁰

Bureau of health Education: was established in the year **1930**. The primary function is to provide scientific knowledge to people about health problems and to bring about changes in life styles and risk factors of disease and create awareness of health need problems through a programme of public health information. Propaganda by means of lectures on malaria was carried on in Kannada, Tulu and Tamil, the lectures being invariably given with the aid of moving picture films. An epidemic of fever in some villages of Kolar Taluk situated along the over flow channels connecting the Polar series of tanks was investigated in June 1930. The staff of the unit visited 97 villages of the Periyapatna taluk.²¹ Organized a large number of cinema shows. 5000 copies of leaflets, booklets, posters were distributed and all prepared by the Department and were warning diseases.²²

Conclusion: There was a marked decrease in the incidence of Malaria with this rapid implementation of above modern system of measures at the princely state of mysore. The challenges faced and the strategies adopted to counter the health menace of Malaria explain the welfare measures undertaken by the rulers of Princely State of Mysore.

¹⁹ Administration Report of Mysore, 1947, p - 145 Divisional Archives Mysore

²⁰ Mysore Information Bulletin, June 1939