

Malaria Situation and Plan for Elimination in China

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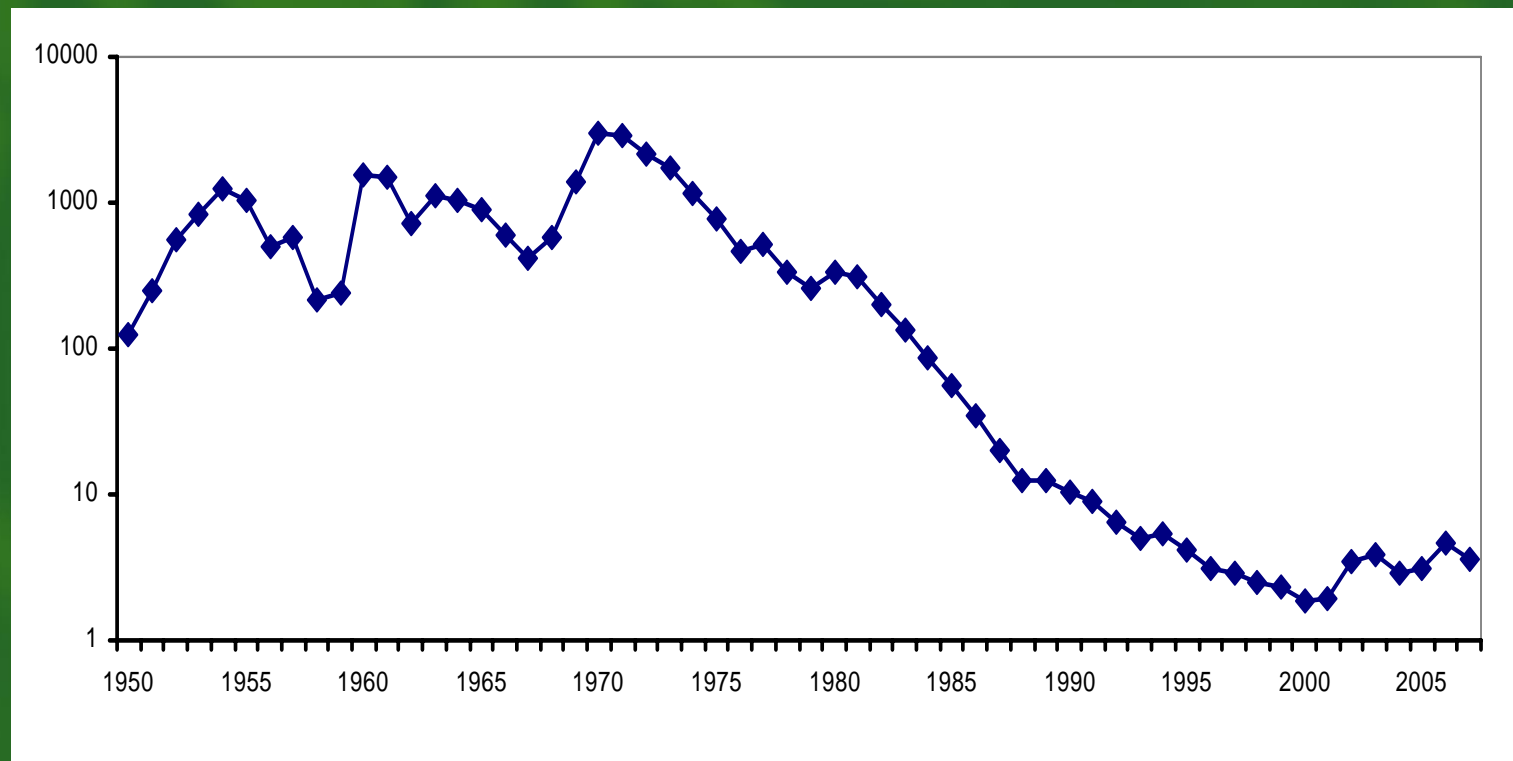
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Current Situation

- ❖ The annual incidence rates of malaria were 3.07, 4.62, 3.57 and 3.38 per one hundred thousand from 2005 to 2008, respectively.

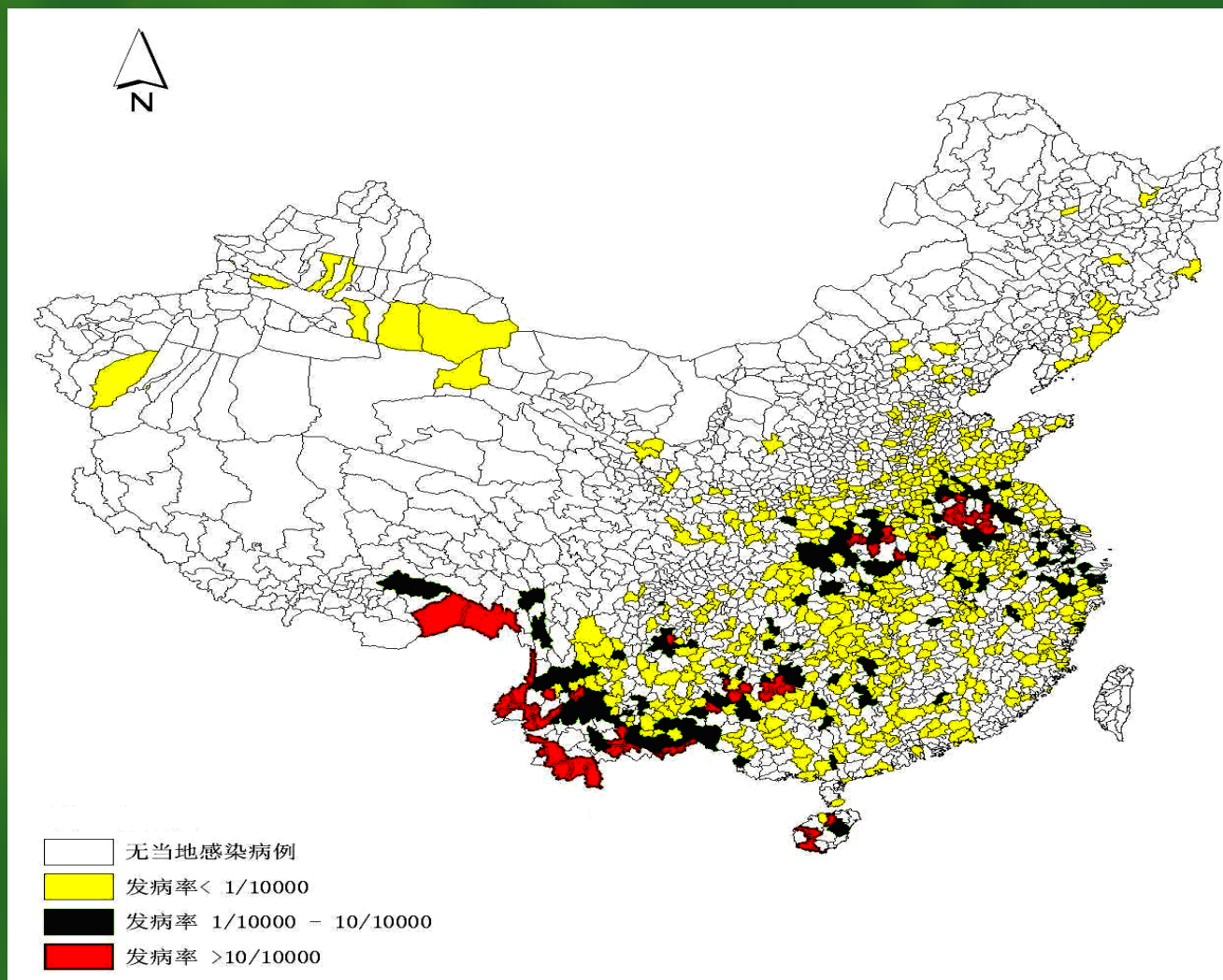
The Annual Incidence Rate of Malaria (1950 – 2008)





Area Stratifications

- ❖ The annual incidence rates of malaria in 2986 counties (cities, districts) nationwide from 2006 to 2008
 1. Malaria free :1563 (52.34%)
 2. Incidence $< 1/$ ten thousand :1019 (34.13%)
 3. Incidence $1/$ ten thousand to $10/$ ten thousand : 294 (9.85%)
 4. Incidence $> 10/$ ten thousand :110(3.68%)



Vivax malaria in China



- ❖ *Plasmodium vivax* is the predominant species in China, all the malaria areas have *vivax* transmission.
- ❖ Only Yunnan and Hainan provinces have *falciparum* malaria transmission locally, even in these two provinces the proportion of *vivax* malaria is also up to 80%.

Vivax malaria in China

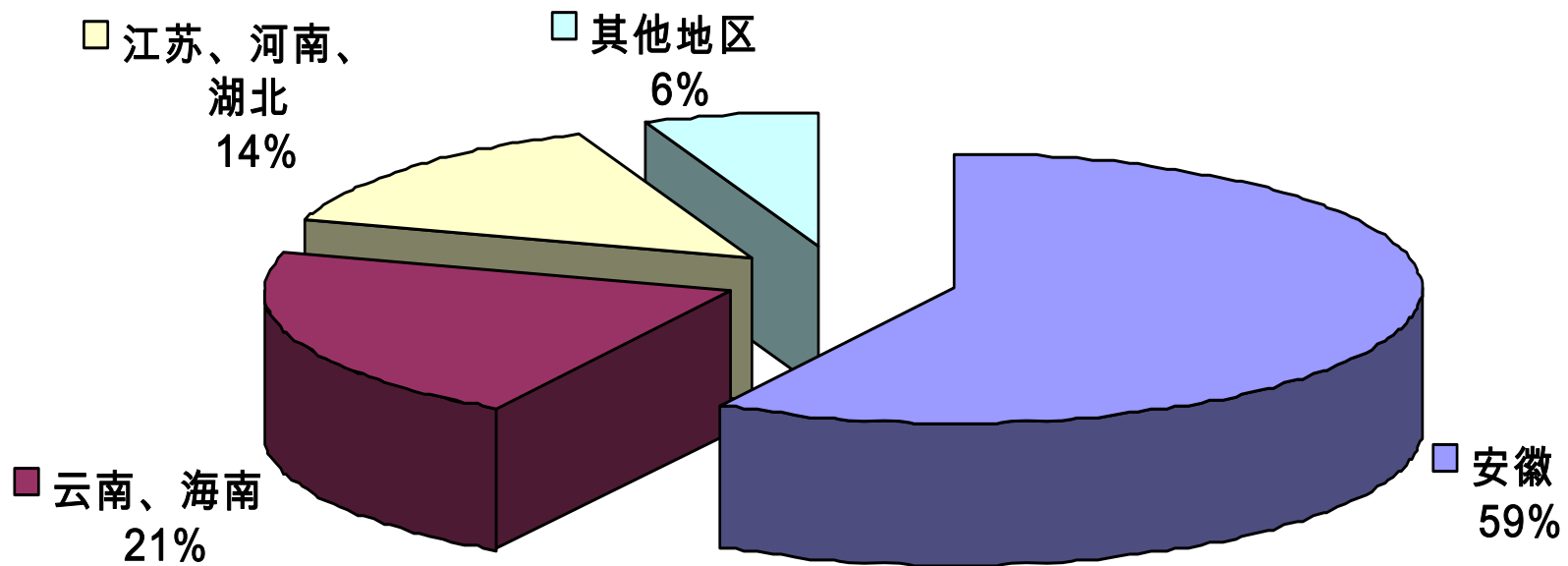


❖ In 2008

26868 malaria cases reported

95% Vivax malaria

50% vivax cases in Anhui Province



Distribution of Malaria Cases in 2007

***Vivax* malaria in China**



- ❖ In recent years the re-emergence and epidemic of *vivax* malaria is the crucial problem in China especially in central provinces.
- ❖ The reasons are complicated, besides the existence of *Plasmodium vivax* with long incubation period, vectors play vary important roles in malaria transmission.

Main vectors transmitting *vivax* malaria in China



- ❖ Currently 4 species of mosquitoes are the major transmitting vectors in China, they are:
 - Anopheles sinensis*
 - Anopheles anthropophagus (lesteri)*
 - Anopheles minimus*
 - Anopheles dirus*



Geographical distribution of different vectors in China

- ❖ *An. anthropophagus* and *An. sinensis* are the major transmitting vectors in the central provinces
- ❖ while *An. minimus* and *An. dirus* are key malaria vectors in Yunnan and Hainan provinces.

Entomological factors affecting *vivax* malaria transmission



- ❖ Different malaria vectors distributing in the similar areas made vector control measures more difficult and less effective.
- ❖ *An. sinensis* is still a very important vector transmitting *vivax* malaria in central provinces because of its extensive distribution and big population (...)

Entomological factors affecting *vivax* malaria transmission



- ❖ Change of ecological environment and global warming made northward spread of *An. Anthropophagus*,
- ❖ Changes in feeding and resting behavior make some measures such as indoor residual spray less effective in some areas.

The Support from Global Fund



- * Three rounds (R1, R5 and R6) of malaria program of The Global Fund to fight AIDS, Tuberculosis and Malaria were successfully applied, more than US\$62 million funds were gained .
- * Now the application of R9 GF malaria program is under preparation.



R1

- ❖ **Malaria Control in High Transmission Regions of China**
- ❖ Duration: Apr 1, 2003-Mar 31, 2008
- ❖ Targeting population: 9,300,000 individuals
- ❖ Areas: 25 bordering counties of Yunnan Province, 10 *Pf* transmission mountainous counties of Hainan province, and 1 or 2 pilot counties in 8 Province in central part of China, respectively



R5

- ❖ Roll back re-emerging malaria in central province and reduce the burden of malaria in resource poor areas of central and southern China
- ❖ Duration: Oct 1, 2006-Sept 30, 2011
- ❖ Priorities: Prevention, diagnosis and treatment, surveillance and emergency response
- ❖ Targeting population: 63,800,000 individuals in 121 counties in Yunnan, Hainan, Anhui, Henan, Hubei and Jiangsu provinces respectively
- ❖ Measures: ACT, RDT, LLIN



R6

- ❖ **Malaria Control across China-Myanmar Border Areas**
- ❖ Duration: Jul 1, 2007-Jun 30, 2012
- ❖ Targeting area: 12 counties in 5 China-Myanmar bordering cities of Yunnan Province and 4 special regions of Myanmar bordering with the 12 counties

R6 Malaria Control across China-Myanmar Border Areas



- ❖ Objective:
- ❖ to improve the malaria treatment for migrant workers of Yunnan province who work in Myanmar,
- ❖ to improve the availability and quality of treatment to Chinese worker in Myanmar and local citizen of Myanmar,
- ❖ and to establish cross border malaria surveillance, information exchange and joint control mechanism so as to reduce the disease burden of malaria in China-Myanmar border areas.



Influence of GF program

- ❖ Filling the gap of financial shortage and equipment needs in targeting areas.
- ❖ Enhance the program management ability of malaria control and prevention sectors at all levels in targeting areas
- ❖ improve the self-protection awareness of local people
- ❖ effectively roll back the epidemic of malaria



The final report of R1 shows that in Yunnan province, the estimated incidence of malaria survey in R1 covered area of decreased from the base line of 195/10000 in 2002 to that of 65.88/10000, which dropped **66.22%**. In Hainan province, the estimated incidence of malaria survey and *Pf* survey decreased from 385/10000 and 9.06/10000 in 2002 to that of 31.13/10000 and 0.4/10000 respectively, which dropped **91.91%** and **95.58%**.

Malaria Elimination in China



- ❖ **Background**
- ❖ **1. Malaria has been controlled and incidence rate decreased**
- ❖ **2. The scope of population in risk was smaller**
- ❖ **3. Falciparum malaria locally was limited in bordering areas in Yunnan and central parts of Hainan provinces**
- ❖ **4. Regulations, standards or creteriss and laws for malaria control issued**
- ❖ **5. Rich experiences for malaria control has gained**



Malaria Elimination in China

- ❖ Rational
- ❖ 1 . Examples has been set up
Small pox, filariasis
- 2 . Roll-back malaria in Mekong River has been implemented and R1, R5, R6 were successfully applied and implemented. They provided financial and technical support to malaria control in China

Malaria Elimination in China



- ❖ 3 The obtained experiences in long term malaria control has set up a strong basis for malaria elimination as a target in China



Major Constraints

- ❖ 1. Malaria situation is not stable in some areas, esp. in bordering areas
- ❖ 2 . The capacity of professional health worker in root level is needed to be strengthened in some areas
- ❖ 3 . Community-based net for malaria control and surveillance is weak



Major Constraints

- ❖ 4. Lack of innovated techniques for control and surveillance such as easily - used and sensitive methods for surveillance , rapid diagnosis methods.
- ❖ 5 . The import of infection resource will exist for a long time.



The Activities for Malaria Elimination

1. To formulate the national implementation details for malaria elimination.
2. To formulate the national assessment methods for malaria elimination.
3. To build up the National Group for providing technology support for malaria elimination, responsible for the technical guidance , evaluation and acceptance.



The Activities for Malaria Elimination

4. To assess the status of malaria elimination in 2 or 3 counties (cities, districts) to explore the experience. □
5. To assess the status of malaria elimination in provinces, autonomous regions and municipalities of the area one by one, and then, carry out the spot check after meeting the standards.
6. To issue to WHO after meeting the standards.



Targets in Stages

- ❖ (1) In 2010, 95% of endemic counties meet the malaria control standards, 50% of endemic counties meet the basically eliminated standards . All other provinces except Yunnan province meet the creteria for elimination of falcipurum malaria .



Targets in Stages

- ❖ (2) In 2010, all endemic counties meet the malaria control standards, 90% of endemic counties meet the basically eliminated standards . 50% of endemic counties meet the creteria for malari elimination. Yunnan province meet the creteria for elimination of falcipurum malaria .



Targets in Stages

- ❖ (3) In 2020, all endemic counties meet the criteria for malaria elimination

Activities after the ACTMalaria Training (2007-2008)



- ❖ *In vitro* testing of *P.f* sensitivity to anti-malarial drugs
- ❖ Held in Phnom Penh, Cambodia, March 2007
- ❖ 2 participants from China.
- ❖ work in the Institutes, join the Mekong-River project

Activities after the ACTMalaria Training (2007-2008)



- ❖ Pharmaceutical management and quantification for malaria
- ❖ Held in Vietnam, 2007
- ❖ 4 participants from China
- ❖ 3 in the Office for GF, 1 in MOH

Activities after the ACTMalaria Training (2007-2008)



- ❖ Management of vector control program
- ❖ Held in Siem Reap, Cambodia
- ❖ August 2008
- ❖ 2 participants from China

Vector Survey in Tibet



Activities after the ACTMalaria Training (2007-2008)



- ❖ Strengthening Training in Malaria Microscopy and Quality Assessment
- ❖ September, Philippines
- ❖ 2 from China



the First National Knowledge and Skills Competition on Malaria Microscopy held at Wuxi ,Jiangsu Province, October 27-30 , 2008. 58 participants from 17 provinces attended the competition.





Thank you! 谢谢!

