The strategy needed to tackle clonorchiasis in China

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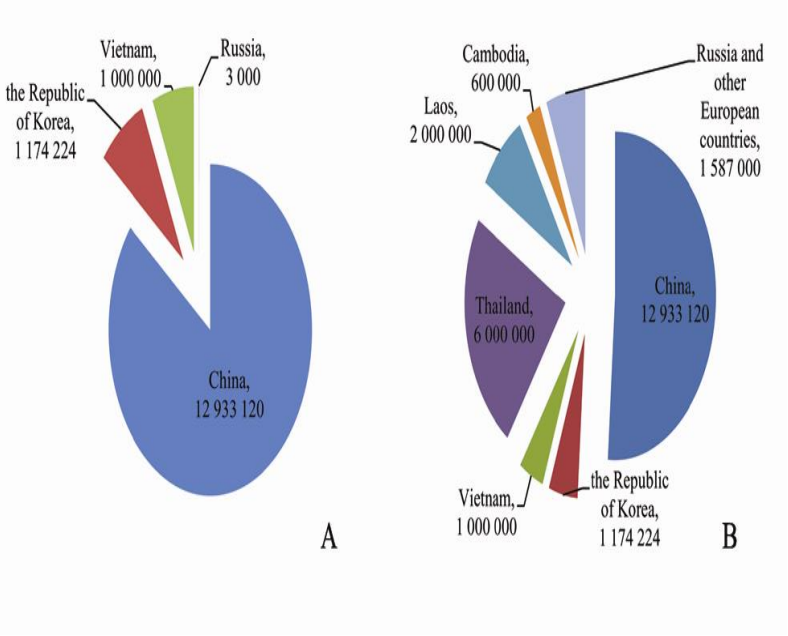
June 16th, 2014

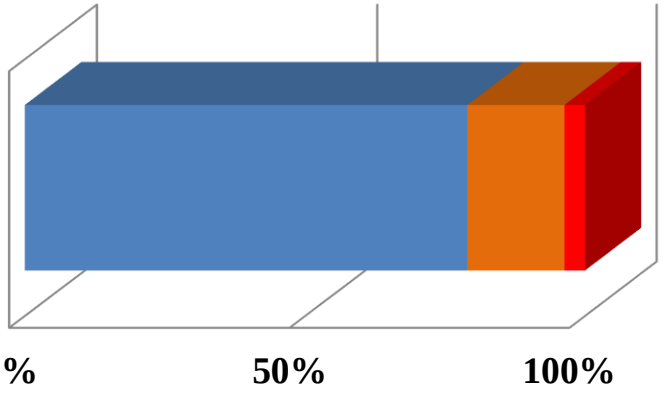
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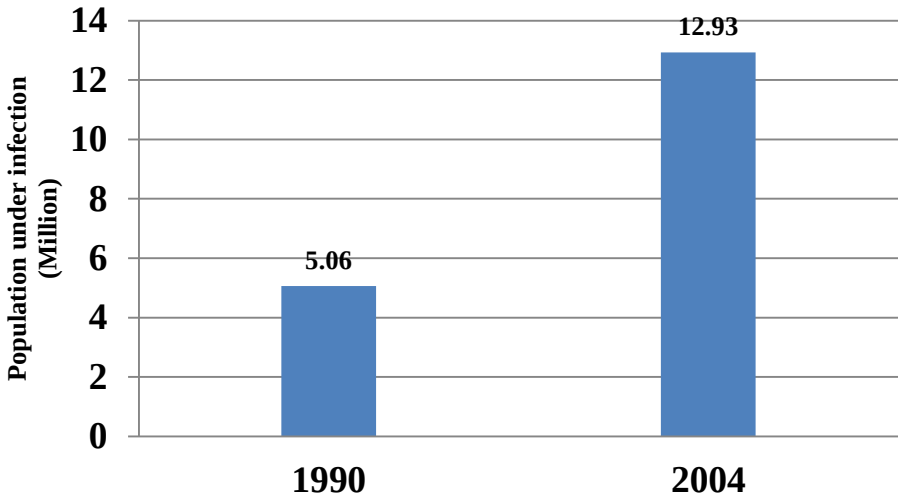
- ***Clonorchiasis* in China: An important public health problem**

➢ **High disease burden caused by high population under infection and infection intensity**

➢ **Increasing trend**







Cited from: Cited from: Qian MB, *et al*. Infect Dis Poverty. 2012
Qian MB, *et al*. Infect Dis Poverty. 2013

Unavailable of national control strategy

- **The need of national control strategy for clonorchiasis**

  Example from schistosomiasis in China

- **Some pilots for clonorchiasis, but no national control strategy**

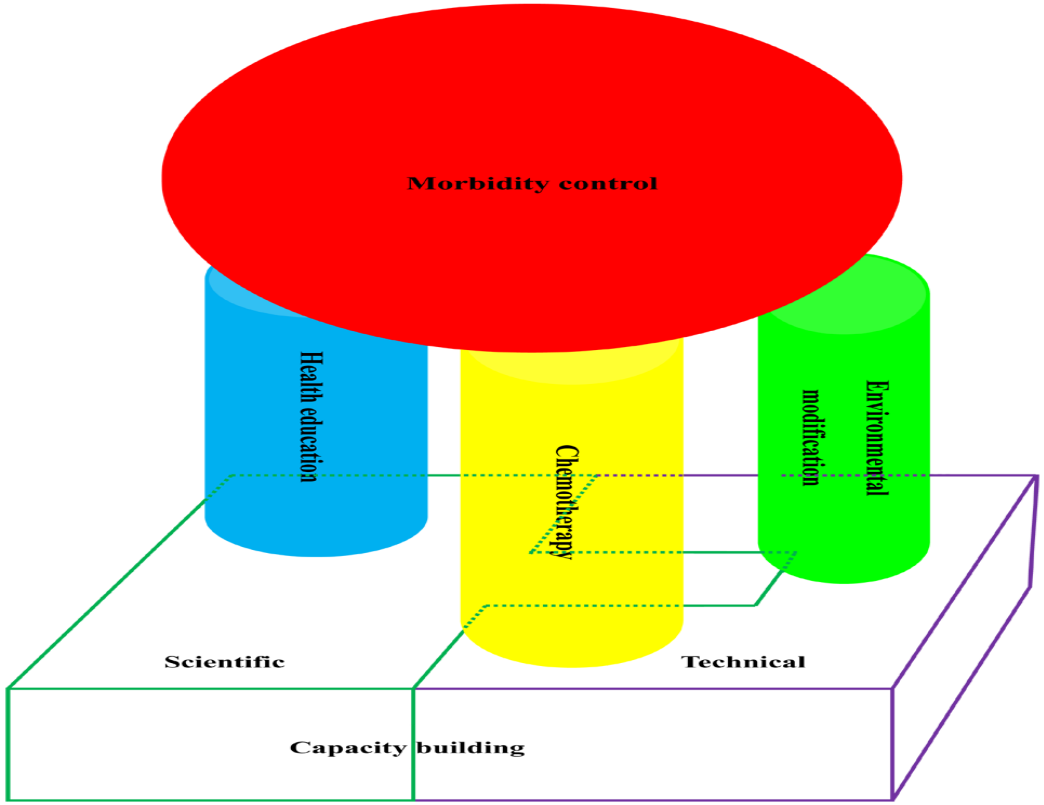
  Major measurements in pilots (providing the foundation for national control strategy):

  Chemotherapy, health education, capacity building

2. Proposed strategy:

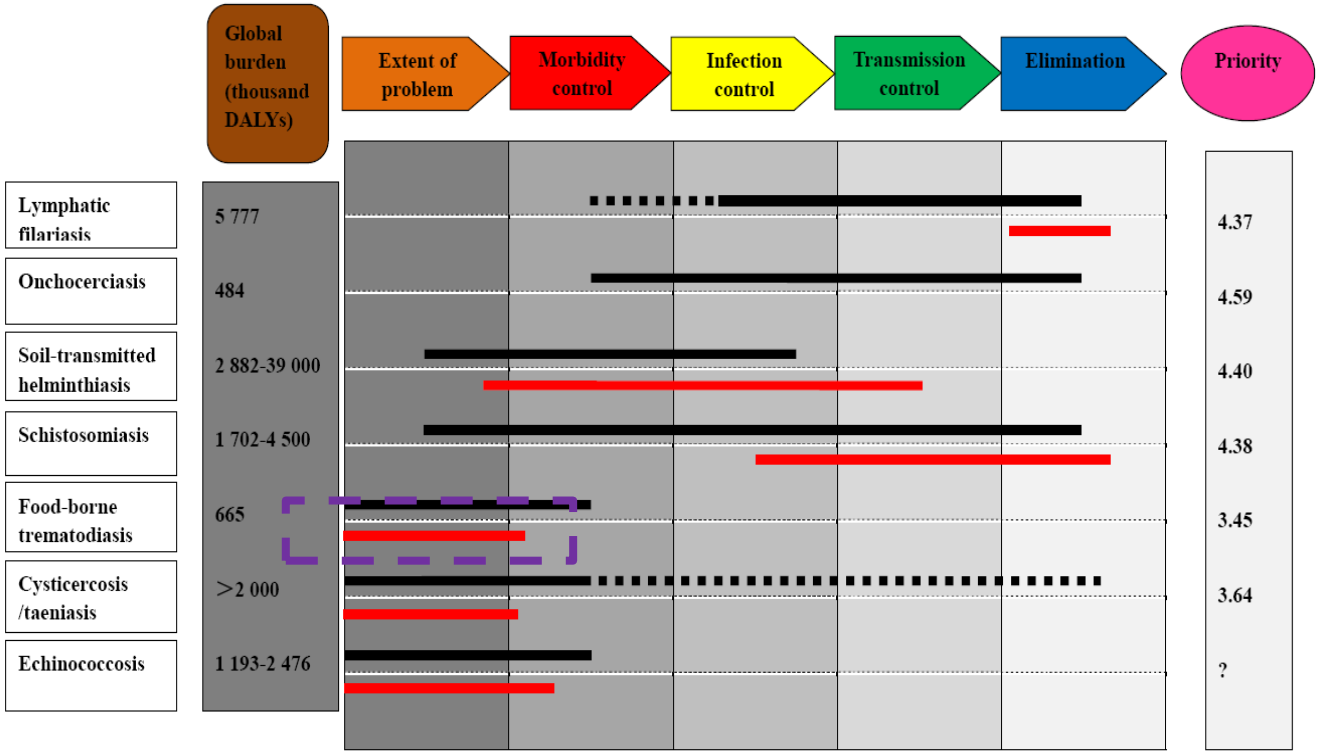
A comprehensive control strategy is argued here

a. Morbidity control as target
b. Chemotherapy as major intervention
c. Health education as important supplement
d. Environmental modification as assistance
e. Capacity building as base



a. Morbidity control as target

- **Determined by the stage in control of clonorchiasis in China**



Cited from: Qian MB, *et al*. Chin J Parasitol Parasit Dis. 2013
Adapted from: Utzinger J. PLoS Negl Trop Dis. 2012

➢ Due to high disease burden

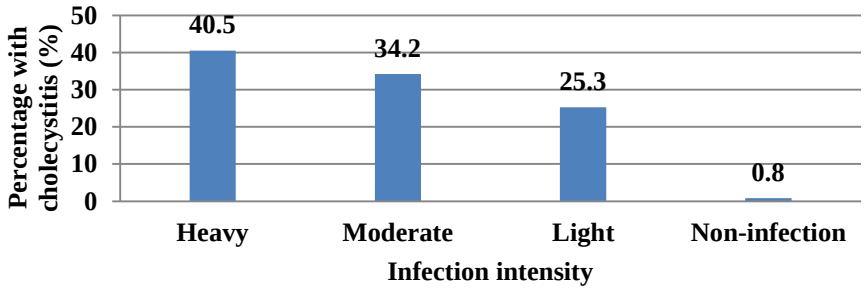
- ☐ High population under infection
- ☐ High infection intensity

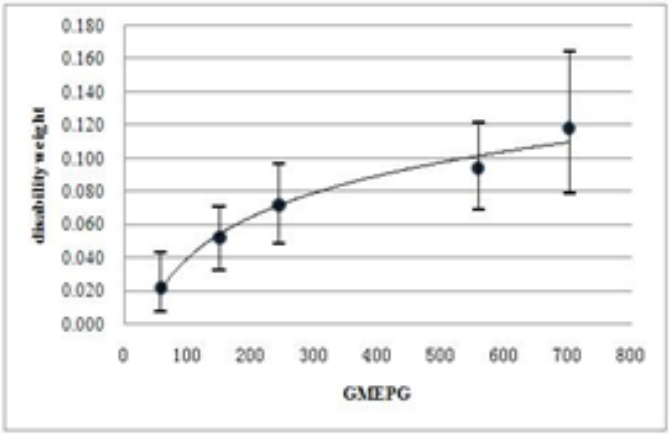
Case study:

✓**The incidence of cholecystitis in hyper focus: 40.5%, 34.2%, 25.3% and 0.8% in heavy, moderate, light and non-infection**

✓ **Relationship between infection intensity and CCA: proved in *Opisthorchis viverrini* (homologous to *C. sinensis)***

✓**A logarithmic equation between the disability weight and geometric mean of eggs per gram of feces (GMEPG)**





Grouping	Percent			PORs	
	Examined	Cases	Prevalence	Crude	Adjusted for
Egg count					age/sex/district
0	410	1	0.24	1.00	1.00
1–1,500	753	3	0.40	1.63	1.67 (0.2–16.3)
1,501–6,000	477	4	0.84	3.41	3.23 (0.4–29.5)
>6000	167	7	4.19	17.81[3]	14.08[2] (1.67–118.6)

Cited from:

Chen ZZ, *et al*. Chinese Journal of Parasitic Disease Control. 1997

Qian MB, *et al*. PLoS Negl Trop Dis. 2011

Haswell-Elkins MR, *et al*. Int J Cancer. 1994

b. Chemotherapy as major intervention

- Long survival of adult worms, usually more than 10 years
- Decreasing prevalence and infection intensity in short time to control morbidity
- Availability of drugs for chemotherapy:

- **Praziquantel**

  25 mg/kg, 3 times daily for 1 or 2 consecutive days:

  moderate cure rate and high egg reduction rate

  Shortage: side effects, with a percentage over 50%

- **Albendazole**

  5-7 days treatment:

  Similar to PZQ in efficacy but lower side effects

  Shortage: long treatment

- **Potential new drug, tribendimidine**

  Larger trials to prove the efficacy

c. Health education as important supplement

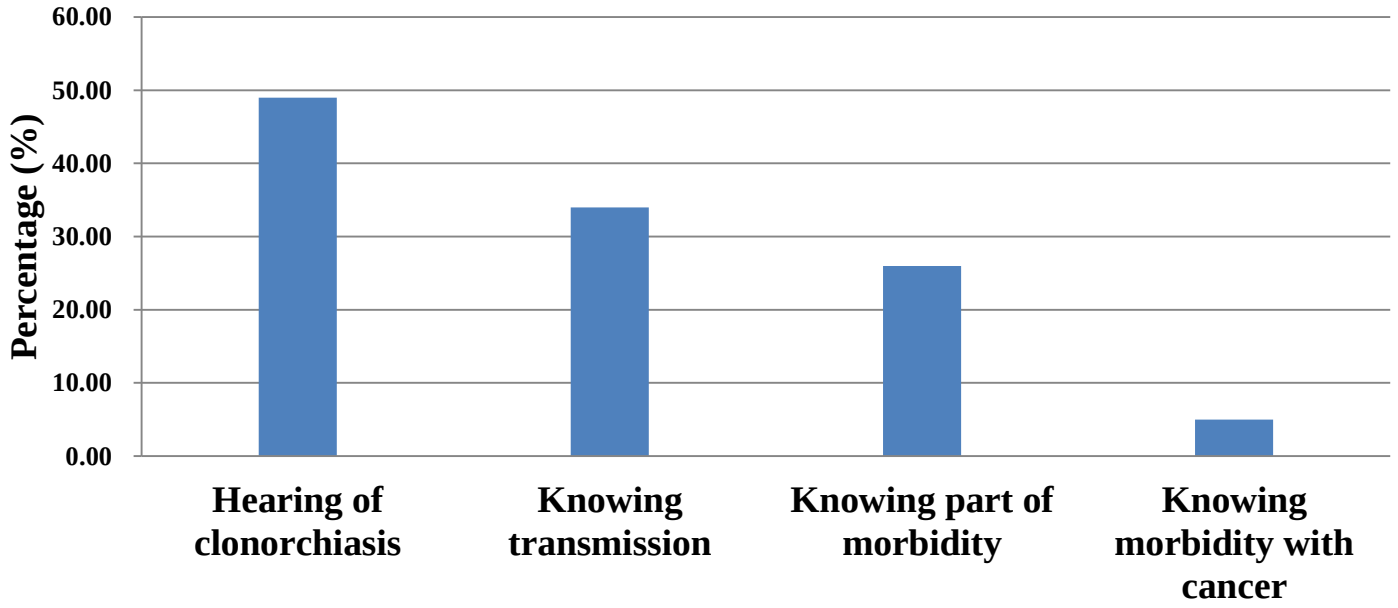
➢ Roles of health education

- ☐ **To increase compliance in treatment: side effects**
- ☐ **To increase knowledge and change raw-fish-eating habit:**
- ☐ **To wipe out misunderstanding:**

Killing the worms by condiments including hot pepper, garlic, vinegar and especially wine

Fish in bigger rivers are clear without infection

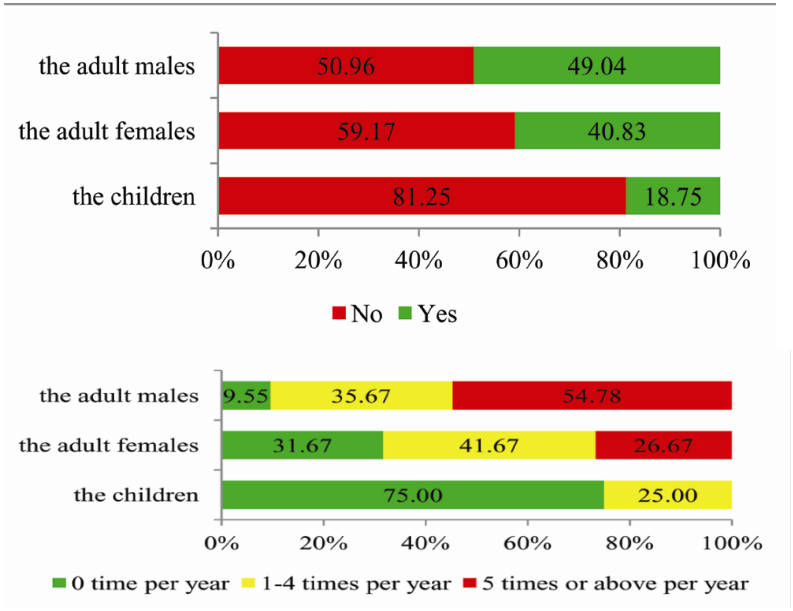
Finally, to consolidate the achievements in chemotherapy



Cited from: Qian MB, *et al*. Unpublished

➢ Feasibility of health education

- ☐ **Overall, low knowledge especially on the morbidity**
- ☐ **Imbalance in different population:**
  - ✓ Adult Female: low raw-fish-eating habit and little knowledge
  - ✓ Children: low raw-fish-eating habit and little knowledge, important in the long run
  - ✓ Adult male: high raw-fish-eating habit and more knowledge, key population, hospital-based health education
- ☐ **New media: television** other than traditional approaches





Cited from: Qian MB, *et al*. Parasit Vectors. 2013

d. Environmental modification as assistance

- **Importance of environmental modification**
- **Partial feasibility: to establish sanitary lavatory in combination with the activities for constructing new villages and establishing hygiene towns**
- **Why partial:**

✓ **Incomplete coverage of sanitary lavatory due to economic development**

✓ **Difficult to control feces contamination from human beings and animal reservoirs in big water bodies including rivers, lakes and water reservoirs**

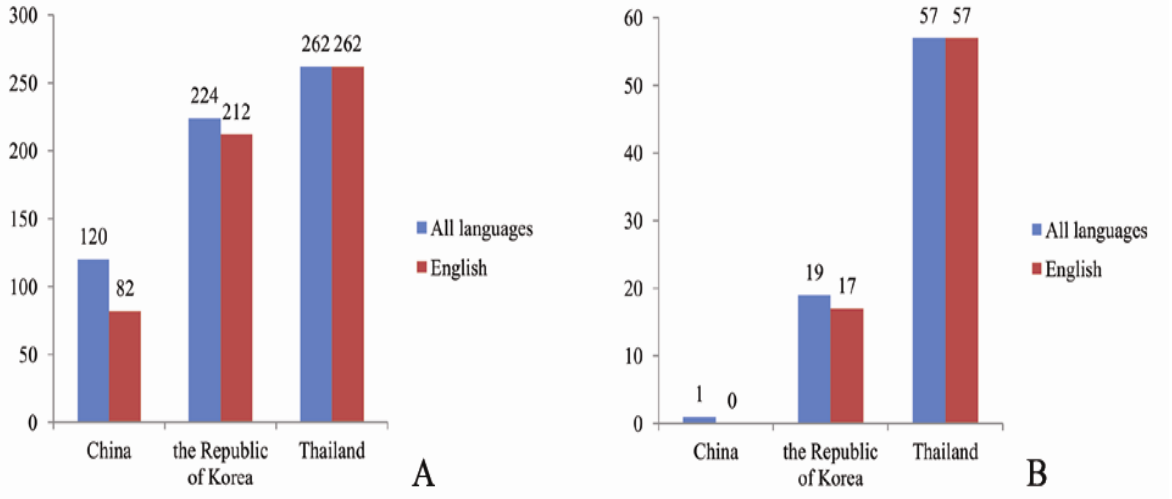
✓ **Circulation of fish in wide scope due to aquaculture and transportation**



Cited from: Qian MB, *et al*. Unpublished

e. Capacity building as base

➢ Low level in research on clonorchiasis in China



Cited from: Qian MB, *et al*. Infect Dis Poverty. 2013

A: Papers on liver flukes (clonorchiasis and opisthorchiasis) in Pubmed

B: Papers on liver flukes (clonorchiasis and opisthorchiasis) and CCA in Pubmed

Key researches:

- **Basic biology**
- **Social ecology including social, economic and cultural determinants**
- **New diagnostic tests, such serological methods especially in *C. sinensis*-related cholangiocarcinoma**
- **New drug developments, such as tribendimidine**
- **Sustainable intervention strategies**

➢ In needs of technical promotion in basic level

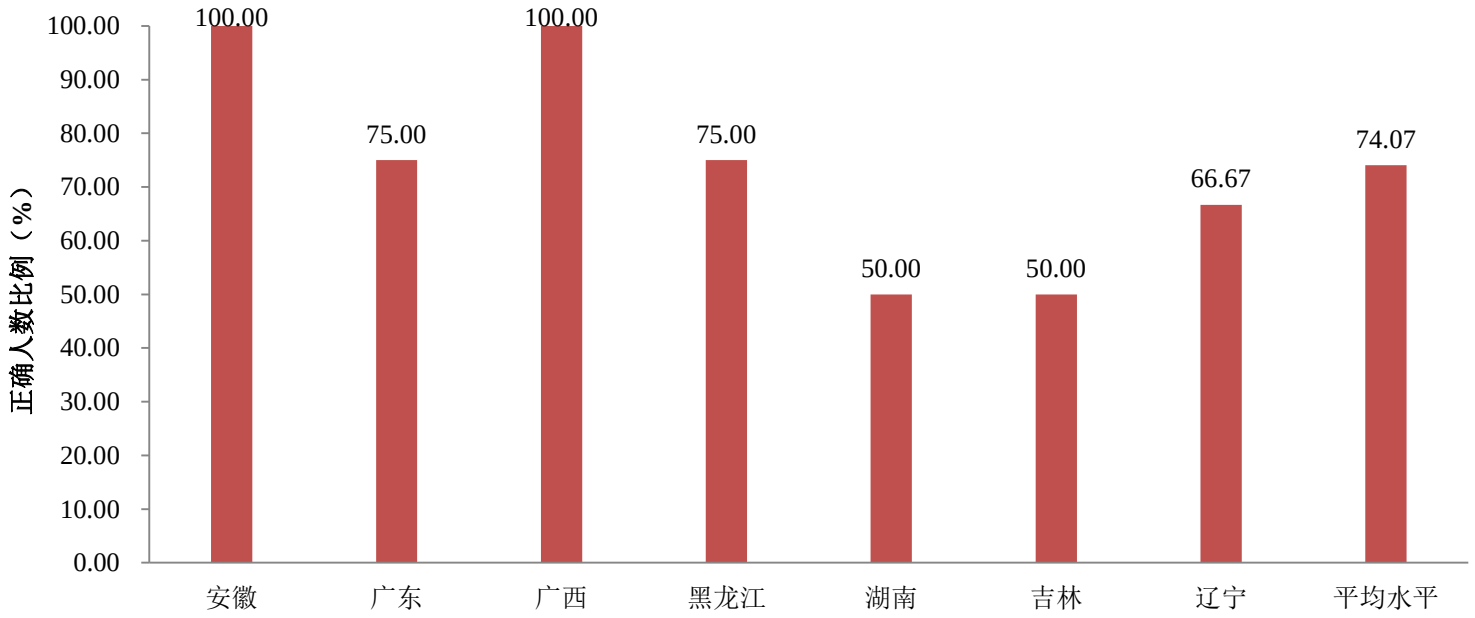
- **Low knowledge in medical workers**
- **Low capacity in diagnosis, even in some distinguished hospitals**

Reasons: low level of STHs and no schistosomiasis in northeast

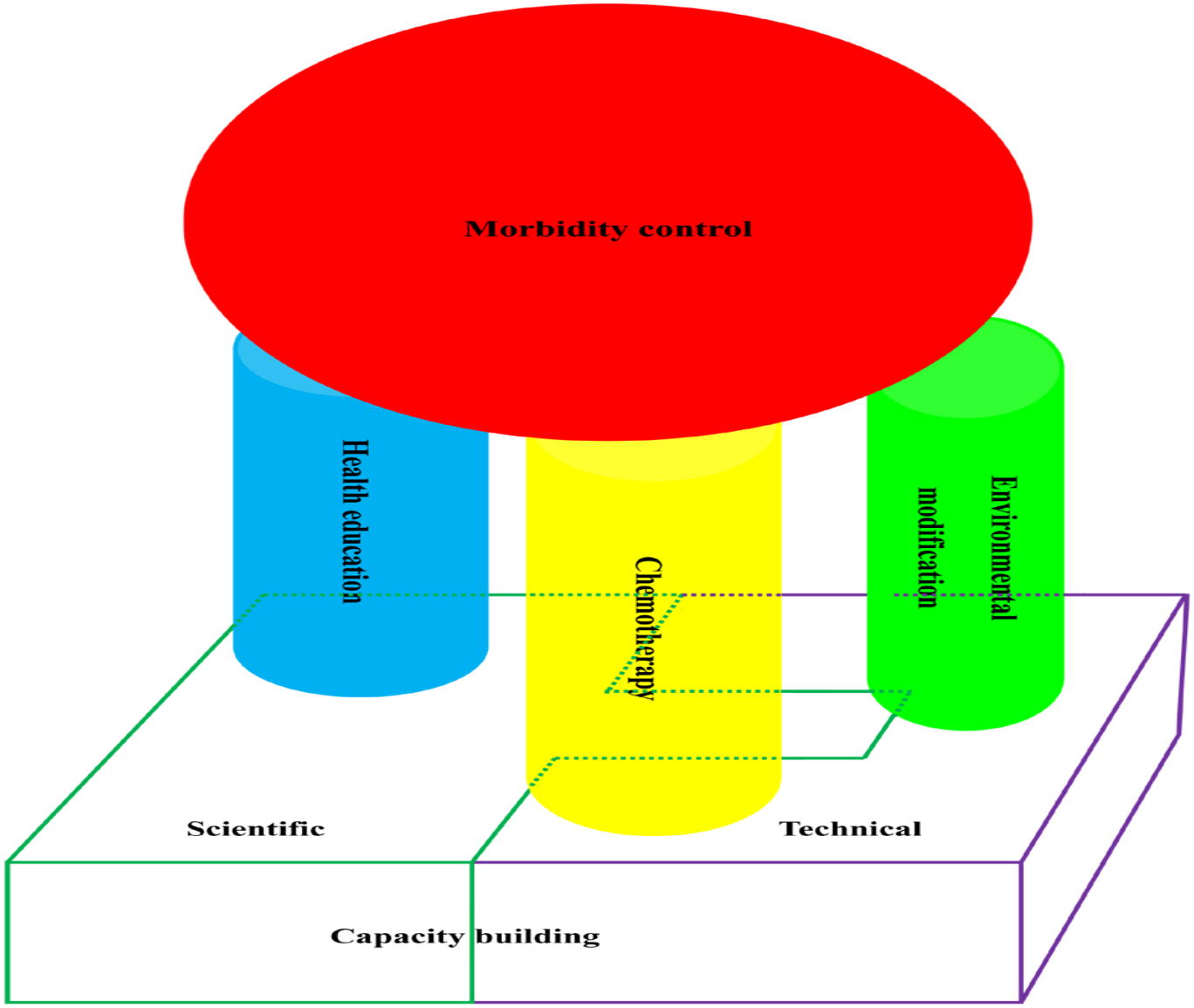
low level of STHs and eradication of schistosomiasis in southeast

Good examples:

National technique competitions for parasitic disease diagnosis have been held since 2010 in China. However, high quality trainings should receive high priority in hospitals.



Cited from: Zhang L, *et al*. Chin J Parasitol Parasit Dis. 2012


Morbidity control
Health education
Chemotherapy
Environmental modification
Scientific
Technical
Capacity building



THANK YOU!