Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Wang L-D, Chen H-G, Guo J-G, et al. A strategy to control transmission of *Schistosoma japonicum* in China. N Engl J Med 2009;360:121-8.

Materials for Supplementary Appendix

Additional background on the study area

Poyang Lake, with an area of 4350 km^2 in flooding season and 3500 km^2 in dry season, is the largest freshwater lake in China. It is located along the mid-to-lower reaches of the Yangtze River in the southeastern province of Jiangxi. The 12 counties surrounding the lake constitute one of the major endemic sites of schistosomiasis in the country. Within these 12 counties, the Ministry of Health has classified 123 villages with human infection rates of 10% or more as stratum I villages, 217 villages with human infection rates of 5% or more but less than 10% as stratum II villages, and 293 villages with human infection rates of 1% or more but less than 5% as stratum III villages.

The study was carried out in four endemic villages around Poyang Lake. Aiguo and Xinhe village of Jinxian County, historically classified as stratum I and stratum II villages, respectively, were selected as intervention villages. Ximiao and Zhuxi village of Xingzhi county, historically classified as stratum II villages, served as control villages that did not implement the new interventions. These villages were

selected because they had similar transmission ecology (lake water height, flooding patterns), water contact patterns, cattle/human numbers, herding practices, and sanitation facilities. In addition, they have been part of the national schistosomiasis surveillance network; thus their public health staffs have experience carrying out infection surveys. Aiguo and Xinhe are relatively isolated from other endemic villages. This permitted us to study the impact of interventions without significant influences from other transmission sources.

In 2005, there were 1,005 households and 4,512 registered residents in the two intervention villages, and 680 households and 2,907 registered residents in the two control villages. The annual per capita income was 2,400 RMB (roughly equivalent to 300 US$), most of it from crops (such as peanut, soybean, and rapseed) supplemented by fishing. Villagers primarily come into contact with the infected water through daily activities such as fishing, cultivating crops, cutting weeds, washing clothes, and swimming. Cattle are the only domestic animals in the grasslands. There were approximately 2,100 animals grazing year-round in the grasslands next to the intervention villages.

Additional information on existing interventions to control sources of *S. japonicum* infection

Prior to this study, there were activities to control *S. japonicum* infection in both the intervention and control villages; these continued during the study period. First, at the end of the transmission season of each year (usually November or December), all village residents were given praziquantel (40 mg/kg) and all cattle were given praziquantel (20 mg/kg). Second, primary school children were educated about the disease, and through them information was passed on to their family members. Third, health education information was presented on billboards set up along the main roads in the villages and at entrance to ferries and docks. The focus of the message was on avoidance of snail-infested areas and associated lake water because of the risk of infection.

Additional information on assessing the extent of human infection with *S. japonicum*.

Following the transmission season of each year (usually October or November), we carried out an annual survey of human *S. japonicum* infection in both intervention and control villages. In Aiguo, Ximiao and Zhuxi, we started the annual survey in 2002; in Xinhe, we started in 2004. In these villages, households

are grouped into smaller clusters of 80-150 houses separated by 0.5-1.5 km; each cluster containing 400-1,000 villagers. A team visited each village and selected one cluster of households for the survey. Selection was not determined by whether the residents had a higher or lower risk of *S. japonicum* infection. The same cluster was surveyed each year. During the survey, the team went from house-to-house and collected stool samples from the first 300-350 residents aged five to 65 years identified; sometimes a higher number of residents were included in the survey. Depending on the size of the cluster, from 50-100% of the residents were included in the annual survey. Some residents were retested in different years.

Additional information on assessing the extent of snail infection with *S. japonicum*.

Oncomelania snails on the Niuzhou and Liuling grasslands were systematically sampled prior to the start of the transmission season in April of 2005, 2006 and 2007 (see Figure 2 in article). Sampling was carried out in an area where most of the farming and cattle grazing took place — the area most frequently used by villagers (See Figure 1 in article). The first group of sampling sites was 50 meters apart along the

lakeshore. Moving inland from the lakeshore, additional groups of sampling sites separated from the first group by multiples of 10 meters were selected. At each site, all the snails within an area of 0.1 m^2 were collected, crushed and examined by microscopy. The percentage of snails infected with *S. japonicum* and the proportion of sampling sites with infected snails were calculated. The same area of grassland was used in all studies.

Additional information on assessing the infectivity of lake water.

The extent to which cercariaes of *S. japonicum* infest the lake water was assessed using exposure tests with mice during the height of the transmission season in August of 2005, 2006 and 2007 (see Figure 2 in article). The tests were conducted at the same locations in Nuizhou and Liuling grasslands. The sites overlapped with the areas used in the snail infection study but were underwater during the height of the flooding season (see Figure 1 in article). These areas are characterized by heavy fishing and boating activities, thus are areas where most infection would be expected to take place. The mice were exposed to lake water using the sentinel mice technique for 1.5 hrs each time, twice a day, for three consecutive days.

The mice were sacrificed 40 days after exposure and checked for the presence of adult worms of *S. japonicum* in their mesenteric veins.