

## LETTER TO THE EDITOR

### SCRUB TYPHUS RAPIDLY INCREASED IN GUANGZHOU, SOUTHERN CHINA, 2007–2012

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To the Editor

Scrub typhus is an infectious disease caused by *Orientia tsutsugamushi*, which has significant prevalence in eastern and Southeast Asia, such as Japan, Taiwan, Korea, and China<sup>1</sup>. Scrub typhus is a public health issue in Asia, where one billion people may be at risk from the disease<sup>7</sup>. In Guangzhou, the biggest city in south China, located in the southern subtropical region, scrub typhus is becoming the most common rickettsial disease and public health authorities are concerned about its increased incidence.

Since 1995, the Guangzhou government has legislated for the inclusion of scrub typhus into a local reportable disease inventory. This means that like the other national reportable diseases, physicians who diagnose suspected or confirmed scrub typhus cases must report these cases to Guangzhou Centers for Disease Control and Prevention (GZCDC) through the National Notifiable Disease Report System (NNDRS). For a patient's illness to meet the case definition for scrub typhus, the clinical signs (fever and maculopapular rash, eschar) must be present and samples must be taken for laboratory confirmation (4-fold rise in antibody titer, antigen detected in blood, or genetic material detected by PCR).

From 2007 to 2012, a total of 3,674 confirmed cases were reported in Guangzhou, of which 49.89% were male patients and 50.11% were female patients. Eleven cases (four males and seven females) died, yielding a fatality rate of 0.30%. The greatest number of cases was in the age group 50-59 years, which accounted for 23.65% of total cases reported. Of particular note, the proportion of patients aged 40-49 years and 60-69 years was 19.59% and 15.24% respectively in 2007, which significantly increased to 22.73% and 20.49% respectively in 2012. Furthermore, there were 158 boys (4.30%) and 92 girls (2.50%) < 10 years of age. In 2012, a total of 1,252 cases were reported, which is 4.4 times the number reported in 2007 (282 cases). Monthly changes in the number of cases showed that the epidemic period was from May to October, 86.25% of all cases being reported during this period. From Figure 1 we can see that the cases reported began to increase in May before sustaining the active and peaking in June, and again in the fall, with a September peak. By occupation, the largest number of patients were farmers, which accounted for 51.42% (1889) of total cases. Compared to the other occupations, the proportion of housewife/househusband from 2007 to 2012 was 6.03% (17/265), 11.53% (49/425), 10.18% (51/501), 9.27% (52/561), 10.87% (71/653), 15.42% (193/1252), respectively, showing a significant increase trend ( $\chi^2 = 14.23, p = 0.00$ ).

Similar to other studies<sup>5</sup>, our data showed that farmers were still considered a high-risk group, accounting for more than 50% of total cases reported. However, since our results implied that the same or even more attention should be given to housewives/househusbands, since they have become the second-largest infected occupational group in Guangzhou, a trend that appears to have increased over the years. This may be due to housewives/househusbands not having a fixed daily work schedule, and their duties doing some housework such as cleaning room, going to the market, cooking and taking care of infants; and therefore, they have more leisure time to do outdoor activities such as climbing the hill, hiking and taking walks in the park, and are, as a result, more likely to be exposed to infected mites. In a scrub typhus outbreak in Guangzhou in 2012, 12 patients were diagnosed, all of whom had a history of long-time spending time in the same park for leisure. We also successfully captured the *tsutsugamushi* in this park's grassland. With the implementation of national health campaigns promoted by the Chinese government, this issue may yet become more and more serious, necessitating the specific targeting of housewives/househusbands for health educating.

Inconsistent with other regions in Asia<sup>4,6</sup>, there were two incidence peaks of scrub typhus in Guangzhou: a large peak in June and a small peak in September. We also found that patients aged 50-59 years were the primary incidence population, and this is consistent with a previous report<sup>3</sup>. However, our study revealed that the proportion of the 40-49 and 60-69 age groups increased significantly over the last six years. The noticeable percentage patients (6.8%) were the children (age < 10 years), which is much higher than the previous report<sup>2</sup>. This suggested that the population infected by scrub typhus in Guangzhou is increasing.

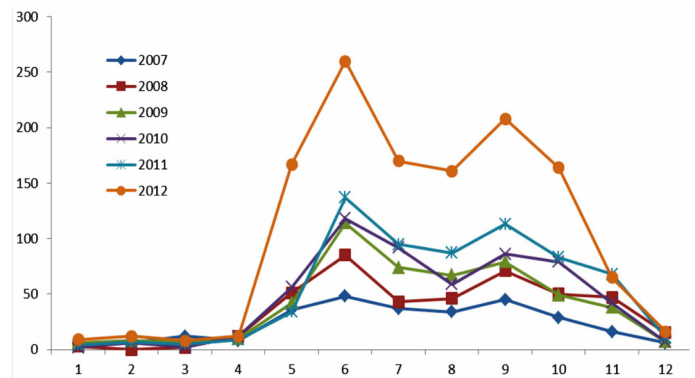


Fig. 1 - Monthly occurrence of scrub typhus cases in Guangzhou, South China, 2007-2012.

Taken together, we report the rapid increase of scrub typhus in Guangzhou, Southern China, and the proportion of cases identified as housewife/househusband becoming heavier, as well as the infection age groups becoming wider than before. This information may be useful in establishing strategies for prevention, surveillance, and management in China and in other regions or countries where scrub typhus is endemic.

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