Restaurant-associated typhoid fever outbreak, Taiwan, 2015

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Background
Indigenous typhoid fever is rare in Taiwan. In March and November 2015, three indigenous typhoid fever cases emerged in Longtan District and the *Salmonella enterica* serovar Typhi isolates shared a common pulsed-field gel electrophoresis (PFGE) pattern, SIX.001.

Methods
All cases were interviewed using a standard investigation form to trace common sources of infection. Active case finding surveys were conducted among the contacts. Stool specimens were collected from households of cases and food handlers of implicated restaurants for isolation of pathogens. Bacterial isolates were characterized using PFGE and multilocus variable number tandem repeat analysis (MLVA). The genotypic patterns were compared with those in the Salmonella DNA Fingerprint database constructed by Taiwan Centers for Disease Control.

Results
Three cases were all female aged 21 to 39. Epidemiological investigation revealed two restaurants as the suspected sources of infection. Stool cultures from two asymptomatic food handlers of restaurant A yielded *S.* Typhi, who had stool specimens tested negative in the first investigation in March, 2015. The PFGE profiles of isolates from the two employees were indistinguishable from the isolates from the three cases and matched the isolates from two cases emerged in November 2012, who also resided in Longtan District and admitted patronizing the restaurant A before onset. No further cases occurred after the closure of the implicated restaurant. By MLVA, isolates associated with the outbreak can be discerned from other SIX.001 isolates which were frequently recovered from Indonesian migrant workers in Taiwan.

Conclusions

The source of infection for this outbreak was successfully traced and molecular subtyping of bacterial isolates was helpful for outbreak investigation. Repeated epidemiological and laboratory investigation should be considered because chronic typhoid carriers could excrete the organism intermittently.

Keywords: outbreaks, molecular epidemiology, typhoid fever, pulsed-field gel electrophoresis