

access to care, screening strategies, continuum of care, preventive measures for high-risk populations, improving liver health literacy on the prevention of new infections and reinfections, liver disease management, outcome evaluation of policy and interventions, and innovation, research, and development.

I strongly believe that the Taiwanese experience of the control of hepatitis C can be shared by other countries where infection is equally prevalent and the socioeconomic status is similar.

Ding-Shinn Chen
chends@ntu.edu.tw

Department of Internal Medicine, National Taiwan University College of Medicine, Taipei City, Taiwan; Hepatitis Research Center, National Taiwan University Hospital, Taipei City, Taiwan; Genomics Research Center, Academia Sinica, Taipei City, Taiwan

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Ceftriaxone-resistant *Salmonella* Typhi in a traveller returning from a mass gathering in Iraq

The large outbreak of ceftriaxone-resistant *Salmonella enterica* serovar Typhi in Hyderabad, Pakistan, reported by Farah Naz Qamar and colleagues¹ highlights the substantial public health risk associated with a contaminated water supply in the absence of adequate vaccination. Public Health England has increased surveillance on returning travellers from Pakistan presenting

with enteric fever, using whole-genome sequencing to type the strains from confirmed cases. Since the first imported case associated with this outbreak strain reported in September, 2017, we have seen 13 further cases from Pakistan.²

A 45-year-old resident of London, UK, who attended the Arba'een pilgrimage in Iraq in October, 2018, presented in January, 2019, with short diarrhoeal illness followed by daily fevers, night sweats, and weight loss. Further investigations identified *S* Typhi in blood cultures. The strain was phenotypically an extended-spectrum β lactamase (ESBL) producer and resistant to quinolones. Whole-genome sequencing confirmed presence of the resistance genes *bla*_{CTX-M-15}, *aac*(6')-Iy, and the 83:S-F mutation in the *gyrA* quinolone resistance-determining region. The individual was successfully treated with oral azithromycin. Phylogenetic analysis showed that the strain was indistinguishable from another imported case of *S* Typhi, in which the individual presented in January, 2019, after a trip to Al Diwaniyah, Iraq. The second individual was successfully treated with oral co-trimoxazole.

When compared with the Public Health England database of *S* Typhi genomes collected through routine surveillance of English cases (n=1250 as of Feb 1, 2019, Bioproject, PRJNA248792), The two strains cluster within the H58 haplotype of which the recent outbreak in Pakistan is a member.³ The phylogeny reveals the Iraqi isolates are more closely related to an ESBL-negative strain recovered from an imported case from India in 2017. This finding suggests introduction of the Indian strain into Iraq and probable acquisition of the ESBL genotype in situ (appendix). Two Iraqi strains from 2019 are distinct from a previously described ESBL-producing, quinolone and azithromycin-resistant strain from Iraq.⁴ Although these ESBL strains are less resistant than the extensively

drug-resistant strain from Pakistan, they highlight the escalating problem of multidrug resistance in Asia.

Mass gatherings including pilgrimages have long been a public health concern.⁵ In 2018, over 15 million pilgrims from across the globe took part in the Arba'een pilgrimage, many travelling overland from India and Pakistan. Improved public health measures, including better sanitation and vaccination are essential for preventing ongoing transmission.

We declare no competing interests.

*Gauri Godbole, Naina McCann, Stephen Morris Jones, Timothy J Dallman, Michael Brown
gauri.godbole@phe.gov.uk

Infection Division, Hospital for Tropical Diseases, London, UK (GG, SMJ, MB); Clinical Research Department, London School of Hygiene and Tropical Medicine, London, UK (GG, NM, SMJ, MB); and Gastrointestinal Bacteria Reference Unit, National Infection Service, Public Health England, London NW9 5EQ, UK (GG, TJD)

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Advanced immunodiagnostic tests for paediatric tuberculosis

We read with interest the Article by Hilary Whitworth and colleagues,¹ comparing the accuracy of commercially available interferon- γ release assays (IGRAs) with second-generation IGRAs incorporating novel antigens.¹

See Online for appendix