



RAPID RISK ASSESSMENT

Unusual increase in reported cases of paratyphoid A fever among travellers returning from Cambodia

4 September 2013

Main conclusions and recommendations

- Since March 2013, 34 cases of paratyphoid A fever have been reported among travellers returning from Cambodia, including 30 among EU travellers. This represents a significant increase in reported cases from 2012 where only two cases imported from Cambodia were reported in the EU/EEA. Cases occurred over several months with a recent increase in August which suggests a common persistent source. Additional cases might occur if this source of contamination persists. However, spread within the EU through secondary transmission is expected to be limited.
- Clinicians in travel clinics and in infectious diseases hospitals should be alerted about the increase in the number of *S. paratyphi* A infections among travellers returning from Cambodia.
- Travellers returning from a tropical country with fever should seek medical attention as soon as possible.
- Travellers to South-East Asia should apply preventive measures including good personal and food hygiene.

Source and date of request

ECDC internal decision, 30 August 2013.

Public health issue

Unusual increase in the number of paratyphoid A infections in EU travellers returning from Cambodia since March 2013 with a possible persistent common source.

Consulted experts

External experts:

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- The Netherlands (National Institute for Public Health and the Environment – RIVM) - Ingrid Friesema
- Norway (Norwegian Institute of Public Health) - Lin Thorstensen Brandal
- The United Kingdom (Public Health England – PHE) - Ian Fisher
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ECDC acknowledges the valuable contributions from the above-mentioned experts and institutions. Opinions expressed by individual experts do not necessarily represent the opinion of their institutions.

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Disease background information

Paratyphoid A fever is a systemic disease caused by the bacteria *Salmonella* Paratyphi A. Humans can carry the bacteria in the gut for a significant period of time (chronic carriers), and can transmit the bacteria to other persons (either directly or via food or water contamination). After an incubation period of one to two weeks, a disease characterised by high fever, malaise, cough, rash and enlarged spleen can develop. Diarrhoea may be present during the course of the illness [1].

Patients may continue shedding the bacteria (carriers) following acute or mild illness. The case-fatality ratio can be reduced to less than one percent with rapid and adequate antibiotic treatment [2].

Ingestion of contaminated food or water is the most common mode of transmission. In Asia and Africa, raw shellfish from sewage contaminated waters, raw fruit and vegetables fertilised by night soil and eaten raw are important vehicles [3].

There is no effective vaccine available against paratyphoid A infection. Good food handling practices and personal hygiene are the only prevention measures [4].

According to The European Surveillance System (TESSy), in 2012, 336 cases of paratyphoid A fever were reported in the EU. Among the 211 cases for which information on probable country of infection is available, 191 (91%) were imported cases from outside the EU/EEA, the majority of which (75%) came from India and Pakistan. Only two cases among travellers returning from Cambodia were reported in 2012 in the EU, both of them by Germany.

Event background information

Since January 2013, France has observed an unusual increase in the number of cases of paratyphoid A fever among travellers returning from Cambodia. Between 1 January and 30 August, 20 cases were identified, among which eight were confirmed in August. Ill persons ranged in age from 4 to 66 years with a median age of 42 years, 65% were female and 70% were hospitalised. All 20 isolates are fully susceptible to all tested antimicrobial agents, including sensitivity to quinolones. No sequencing is routinely performed in France.

From 2006 to 2012, France had seen an annual number of one or two cases among travellers returning from Cambodia. On 28 August 2013, France sent out an alert through the European epidemic intelligence information system for food- and waterborne diseases (EPIS-FWD) to inform other EU/EEA Member States about the event and asking whether any country had seen a similar increase in the number of imported paratyphoid A cases. Germany, the Netherlands, New Zealand, Norway and the United Kingdom reported having identified recent cases of *S. Paratyphi* infection among travellers returning from Cambodia. As a result, France posted a message in the early warning response system (EWRS) on 29 August 2013.

The National Reference Centre in Germany investigated 14 isolates of *S. Paratyphi* A between March and June 2013. Different phage types were identified. Only one isolate (phage type 1a), received in March, was from a traveller returning from Cambodia. The isolate was fully susceptible to all tested antimicrobial agents. In addition, the infectious disease case notification system recorded five cases of paratyphoid (all caused by *S. Paratyphi* A) in travellers returning from Cambodia in 2013 (three men, two women, ages 30–48), with the most recent case falling ill in May. In previous years, Germany counted two *S. Paratyphi* A cases in 2012 and three in 2004 among travellers returning from Cambodia.

In 2013, the Netherlands report three cases (two men, one woman; 42, 63 and 68 years old) with dates of illness in March and April and with a travel history to Cambodia. Of these three cases, one had been in Singapore and one in Vietnam. All three isolates were fully susceptible to all antimicrobial agents tested: ampicillin, cefotaxime, ceftazidime, chloramphenicol, ciprofloxacin, colistin, florfenicol, gentamicin, kanamycin, nalidixic acid, sulfamethoxazole, streptomycin, tetracycline and trimethoprim. One isolate was resistant to sulfamethoxazole but no additional resistance was found. Besides the three cases returning from Cambodia, the Netherlands identified eight additional cases of paratyphoid A in 2013, all of which were travel-related (seven from Asia and one from Africa). This number of cases is within the expected baseline range.

In Norway, a 23 years old woman with a *S. Paratyphi A* infection who had been travelling to Cambodia was reported in April 2013. The isolate was fully susceptible to all tested antimicrobial agents: ampicillin, ciprofloxacin, tetracycline, chloramphenicol, nalidixic acid, trimethoprim, sulfamethoxazole and cefpodoxime. In addition, nine other patients have been reported with *S. paratyphoid A* infection during 2013. Among them, four travelled in Asia (one to Myanmar, one to Bangladesh and two to India) and the travel history for the remaining five cases is unknown. Norway had no cases of *S. paratyphoid A* infection with travel history to Cambodia in 2011 and 2102.

In New Zealand, 13 cases of *S. Paratyphi A* infection have been confirmed since 1 January 2013. Four had recently travelled to Cambodia, six to India, two to Vietnam and one to Bangladesh. Three of the four cases who had recently travelled to Cambodia were confirmed in May 2013.

England (UK) reports one case of *S. Paratyphi A* PT 2 (no R type) associated with travel to Cambodia (no other countries of travel reported). The 19 years old woman had onset of symptoms on 23 April 2013. She travelled independently to four different destinations in Cambodia (Kampong Cham, Kep, Kampot, Siem Reap) between 5 and 15 April 2013. This is the first case of paratyphoid A from Cambodia reported in England, Wales and Northern Ireland since 2004.

Table 1. Summary of reported paratyphoid A cases returning from Cambodia in 2013 (EPIS-FWD and EWRS, as of 3 September 2013)

Country	Number of cases of paratyphoid fever	Period of reporting in 2013	Antibiotic resistance profile
France	20	January to August	20 isolates fully susceptible to all tested antimicrobial agents
Germany	5	January to May	1 isolate fully susceptible to all tested antimicrobial agents; No information available for the other strains
the Netherlands	3	March and April	3 isolates fully susceptible to all tested antimicrobial agents
Norway	1	April	1 isolate fully susceptible to all tested antimicrobial agents
New Zealand	4	May to August	No information available
England, UK	1	April	No information available
Total cases	34	January to August	25 isolates fully susceptible to all tested antimicrobial agents

Austria, Czech Republic, Cyprus, Denmark, Estonia, Finland, Greece, Ireland, Latvia, Lithuania, Malta, Scotland (UK), Slovenia and Sweden report no case of paratyphoid A infection among travellers returning from Cambodia in 2013.

Investigation is on-going in France to identify a potential common source or mode of contamination in Cambodia. Fourteen cases have been interviewed and no common exposure has yet been identified. The questionnaire, in French, focuses on travel itinerary and place of stay. It was shared through EPIS-FWD and, upon request, ECDC could assist for the translation into other EU languages as interviewing cases reported by other Member States could support the investigation.

There is no information available indicating that there is a recent increase in the number of *S. Paratyphi A* cases or outbreaks in Cambodia in 2013.

ECDC threat assessment for the EU

S. Paratyphi A cases associated with travel to Cambodia are not unexpected in the EU as several cases have been reported to TESSy in the past. However, the increase in the number of cases in 2013 is significant and may reflect a change in the epidemiology of the disease in Cambodia or, most likely, an exposure to a persistent common source of infection possibly related to a place (restaurant) visited by tourists in Cambodia. Only France and New Zealand report recent cases with onset in July and August.

The high percentage of hospitalisation could be explained by the high fever caused by the disease for which patients are likely to seek medical attention upon returning from a tropical country.

According to the French laboratory, such a strain which is fully susceptible to all tested antimicrobial agents is unusual and could suggest a link among cases. Additional information on the susceptibility profile of *S. Paratyphi* A among travellers returning from Asia and particularly from Cambodia would be useful to confirm how unusual such a profile is. If verified, this finding would support the hypothesis of a common persistent source in Cambodia, such as a food handler shedding the bacteria and working in a restaurant visited by tourists.

Despite the lack of information available about the recent number of EU/EEA citizens travelling to Cambodia, and the fact that we cannot exclude that the possibility that the number of travellers has increased, this event is unusual as very few cases of paratyphoid A imported from Cambodia were reported in 2012 in the EU/EEA.

Further subtyping of the isolates might strengthen the hypothesis that the cases are linked to a common source.

Secondary transmission within the EU/EEA upon return is possible. However, large outbreaks following introduction of the disease by a traveller is unlikely within the EU/EEA.

Conclusions and recommendations

Since January 2013, 34 cases of paratyphoid A fever have been reported among travellers returning from Cambodia, including 30 among EU travellers. This represents a significant increase in reported cases as only two cases imported from Cambodia were reported in the EU/EEA in 2012. Cases occurred over several months with a recent increase in August which suggests a common persistent source. Additional cases might occur if this source of contamination persists. However, spread within the EU through secondary transmission is expected to be limited.

Clinicians in travel clinics and in infectious diseases hospitals should be alerted about the increase in the number of *S. Paratyphi* A infections among travellers returning from Cambodia.

Travellers returning from a tropical country with fever should seek medical attention as soon as possible.

Travellers to South-East Asia should apply preventive measures including good personal and food hygiene.

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