An outbreak of a possibly new *Salmonella enterica* subspecies *enterica* serovar with the antigenic formula 11:z41:e,n,z15, Greece, March to May 2016: preliminary results

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case stated developing symptoms before returning to Greece. Figure 2 presents the temporal distribution of cases by week of symptom onset.

**Actions taken**

**Communication of findings to other countries**
The PFGE profile [4] was uploaded to the European Surveillance System (TESSy) operated by the European Centre for Disease Prevention and Control (ECDC) (ECDC_ID: f5f0517b-f809–4d2b-973f-3f9c520b9d77) and an urgent inquiry (UI) was launched via the ECDC’s Epidemic Intelligence Information System (EPIS) (UI-358). According to the ECDC food- and waterborne diseases curators, no isolates with a matching PFGE profile (XbaI.2460) have been reported to TESSy (personal communication, Saara M. Kotila, ECDC, 25 May 2016). Moreover, none of the 15 countries that replied to the UI had identified the new serovar in the past.

Three of the isolates were sent to the World Health Organization (WHO) Collaborating Centre for Reference and Research on *Salmonella* at Pasteur Institute in Paris, France, which is responsible for the validation of new serovars. According to Pasteur Institute, the isolates represent a putative new serotype of *Salmonella enterica* subsp. enterica (personal communication, Francois-Xavier Weill, Pasteur Institute, 26 May 2016).

**Investigation of cases**

Laboratory confirmed cases were interviewed by telephone with a standard trawling questionnaire for investigating salmonellosis cases but no apparent epidemiological link has yet been identified. Cases were geographically scattered, had not travelled inside the country, did not have pets or contact with reptiles, and had not participated in any common activities. Based on the results from the trawling questionnaires, no food item emerged as possible source of the infections. Thus, it was decided to further investigate this salmonellosis cluster by performing an analytical study. Given the highly selective nature of food-borne case reporting and in order to reduce recall bias, a case–case study for the identification of possible risk factors was designed [5-7]. This study included a comparison group of *Salmonella Enteritidis* cases from the Greek Mandatory Notification System (MNS) matched by age (± 1 year), and place of residence. In order to increase the power of the study, the ratio of case–case 1:3 was decided.

A structured web-based trawling questionnaire, containing a long list of possible exposures (food and water consumption, exposures to animals, travel history, activities, etc.) was developed and distributed to all cases (both of unknown *Salmonella* serovar and *Salmonella Enteritidis*).

**Conclusions**

According to some preliminary findings, a new *Salmonella enterica* sub. *enterica* serovar seems to have caused an outbreak in Greece over two months in the first half of 2016, with 10 cases (and one asymptomatic) as of 27 May. Reported cases are mostly children, however this may be influenced by the fact that laboratory tests are performed more frequently in children with gastroenteritis symptoms than in adults with the same symptoms. We cannot be sure about the geographical distribution of cases. The higher number of cases from Attica may be because more isolates are sent to the National Reference Laboratory from this region. Three cases reported relapse of symptoms. Data on the severity of the disease are also gathered and a case–case study is underway. Final results are pending.

We encourage other countries to contact authors in case of identifying isolates of the new serovar of
The possibly new serovar with the antigenic formula 11:z41:en,z15 was confirmed by serotyping isolates from the Veterinary Reference Centre for Salmonella in Chalkis. Saara Kotila at ECDC in Stockholm and Francois-Xavier Weill at Pasteur Institute in Paris provided support.

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**Conflict of interest**

None declared.

**Authors’ contributions**

Georgia Mandilara: conception and design of the work and laboratory investigation;

Kleon Karadimas: laboratory investigation;

Kassiani Mellou: conception and design of the work and epidemiological investigation;

Leonidas Georgalis: epidemiological investigation;

Michalis Polemis: PFGE profiles analysis and interpretation;

Theano Georgakopoulou: coordination of the project;

Alkiviades Vatopoulos: coordination of the project.

**References**


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