



## Department of Epidemiological Surveillance and Intervention

### EPIDEMIOLOGICAL DATA OF

### ENTEROHAEMORRHAGIC *E. COLI* INFECTION (EHEC), GREECE, 2004-2017

### (MANDATORY NOTIFICATION SYSTEM)

#### Main points

- Enterohaemorrhagic *E. coli* infection (EHEC) is a mandatory notifiable disease with low notification rate in Greece.
- For the 2004-2017 period:
  - Fifteen cases were reported
  - No EHEC outbreak was recorded

*Escherichia coli* is a Gram-negative, rod-shaped bacterium that belongs to the Enterobacteriaceae family. The terms “Enterohaemorrhagic *E. coli* (EHEC)”, “*Shiga*-toxin-producing *E. coli* (STEC)” and “*Vero*-toxin-producing *E. coli* (VTEC)” have all been used to describe a group of strains which have the ability to produce toxins similar to the one produced by *Shigella dysenteriae* (*Shiga*-toxin). An important characteristic of this serogroup is its inability to ferment sorbitol. There have been identified about 200 different serotypes of EHEC, out of which more than 100 have been implicated with the occurrence of disease in humans. Apart from the O157:H7 serovar, which is considered the most clinically important, other serovars such as O26, O103, O91, O145, O146 and O128 can produce toxins and cause similar clinical conditions [1,2]. Similarly, the serotype that has been implicated for the majority of outbreaks worldwide is the O157:H7 [3,4], however, there have been outbreaks caused by different serotypes, like the O104:H4 serotype that was the causative agent of the recent large outbreak in Germany and the neighboring countries in May 2011 [5-7]. The

EHEC infection can cause severe bloody diarrhoea and abdominal cramps. Sometimes, diarrhoea can be non-haemorrhagic or the infection can be subclinical. In some cases, especially in children below 5 years old and in the elderly, becoming infected can lead to Haemolytic Uraemic Syndrome (HUS), a complication characterized by red cells destruction and probable renal failure [1]. The disease was introduced in the mandatory notification system in Greece in 2004. In 2008, the European EHEC's case definition changed and the laboratory criteria were updated by the European Commission [8].

### Time trend

The mean annual notification rate of EHEC infection for the period 2004-2017 was 0.1 cases per 1,000,000 population (in total 15 cases were reported). The distribution of the reported cases per year for the period 2004-2017 is presented in **Table 1**.

### Conclusion

According to the latest data published by the European Centre for Disease Prevention and Control (ECDC) the mean annual notification rate in EU and EEA/EFTA (European Economic Area European Free Trade Association) countries, in 2016, was 18.1 cases per 1,000,000 population [9]. When interpreting the difference from the notification rate in Greece, the surveillance systems' probable under-reporting along with the fact that the laboratory capacity of the disease varies between countries, should be taken into account.

### References

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[7] Wadl M, Rieck T, Nachtnebel M, on behalf of the HUS surveillance and laboratory team. Enhanced surveillance during a large outbreak of bloody diarrhoea and haemolytic uraemic syndrome caused by Shiga toxin/verotoxin-producing *Escherichia coli* in Germany, May to June 2011. Euro Surveill 2011, 16(24):pii=19893. Διαθέσιμο από: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19893>

[8] European Centre for Disease Prevention and Control: Case definitions for EU surveillance. Διαθέσιμο από: [http://www.ecdc.europa.eu/en/activities/surveillance/strategies\\_principles/Pages/case\\_definitions.aspx](http://www.ecdc.europa.eu/en/activities/surveillance/strategies_principles/Pages/case_definitions.aspx)

[9] European Centre for Disease Prevention and Control. Surveillance Atlas of Infectious Diseases. Verotoxigenic *Escherichia coli* infection. Data by Country and Year. Current time period: 2016 Διαθέσιμο από: <http://ecdc.europa.eu/en/data-tools/atlas/Pages/atlas.aspx>

**Table 1.** Frequency distribution of notified cases of Enterohaemorrhagic *E. coli* (EHEC) infection in Greece, Mandatory Notification System, 2004-2017.

Year*	Number of reported cases
2004	2
2005	0
2006	1
2007	1
2008	0
2009	0
2010	1
2011	1
2012	0
2013	2
2014	1
2015	1
2016	2
2017	3
<b>Total</b>	<b>15</b>

\*A new case definition has been used since 2009

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