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EPIDEMIOLOGICAL DATA FOR BRUCELLOSIS IN GREECE

(MANDATORY NOTIFICATION SYSTEM)

Key points

- Brucellosis notification rate in Greece remains one of the highest among EU countries.
- Based on data for the period 2005-2009:
 - The mean annual notification rate of the disease was 2.2/100,000 population.
 - The mean annual notification rate among males was twice higher than that of females.
 - A seasonal pattern was apparent: the mean annual notification rate increased during April, May and June.
 - Contact with farm animals (65%) and consumption of not properly treated dairy products (59%) were the most frequently reported risk factors.

Brucellosis is caused by the *Brucella* genus bacteria, which are transmitted through direct contact with infected animals (mainly sheep, goats, cattle and swine) or via consumption of not properly treated dairy products (i.e. immature, “fresh” cheese) [1]. The disease’s notification rate in Greece is among the highest in Europe. Other countries with high rates include Italy, Portugal and Spain [2].

Time trend

The temporal distribution of brucellosis notification rate for the decade 2000-2009 is presented in Figure 1. The mean annual notification rate of brucellosis during 2005-2009, in Greece, was 2.2 cases per 100,000 population (mean number of cases per year: 246, total number of cases 2005-2009: 1,229). Rates decreased during 2000-2004, whereas they ranged between 1.0 and 3.1/100,000 population in the following years. The increased notification rate in 2008 (3.1/100,000 population) was mainly due to a large brucellosis outbreak in the island of Thassos (n=104 cases), associated with the consumption of not properly treated local dairy products.

Age and gender distribution

The mean annual notification rate among males (13.7/100,000 population) during 2005-2009 was twice higher than that of females. Of all reported cases, 68% were males, with the

median age of all cases being 44 years (range: 1-89 years). The disease had the lowest mean annual notification rate in the age group 0-4 years old (Figure 2).

Seasonality

The disease showed a marked seasonal trend, with the notification rate for the period 2005-2009 increasing in late spring-early summer, reaching a peak in May and June and decreasing during autumn and winter (Figure 3).

Geographical distribution

Figure 4 presents the mean annual notification rate (per 100,000 population) per district of patient's residence. The highest rate was reported in the region of Thessalia (9.6/100,000) and in Eastern Macedonia & Thraki (7.8/100,000), while the lowest was recorded in the regions of Southern Aegean (0.3/100,000) and Crete (0.4/100,000).

Risk factors

During the period 2005-2009, 65% (683/1044) of the notified cases with available relevant information reported contact with farm animals and 59% (585/998) reported consumption of not properly treated dairy products. Of all cases, 62% (653/1053) belonged to a high risk profession, whereas 45% (474/1053) worked in farming (Figure 5).

Conclusions

Brucellosis notification rate in Greece remains one of the highest in Europe. Specifically, during the period 2005-2009, the annual notification rates of brucellosis in the country were among the highest reported by the EU and the EEA/EFTA countries (1.3/100,000 population in Greece in 2007 compared with the mean European rate of 0.1/100,000 in the same year)[2].

The majority of the cases reported contact with farm animals and a high risk profession (i.e. animal holding worker, breeder, farmer, butcher, veterinarian), suggesting that brucellosis remains an occupational disease in Greece. However, small outbreaks in the general population, associated with local consumption of not properly treated dairy products out may occur.

The seasonal trend in Greece may reflect an increased occupational exposure during parturitions of sheep and goats. Furthermore, during this period, an increased number of herds graze in common grounds, elevating the risk of transmission of the pathogen among these animals.

Coordinated cooperation between Veterinary and Public Health Services is deemed of paramount importance to effectively control the disease in both humans and animals.

References

1. Heymann DL. Control of Communicable Diseases Manual. Washington DC: American Public Health Association; 2008.

2. European Centre for Disease Prevention and Control: Annual Epidemiological Report on Communicable Diseases in Europe 2009. Stockholm, European Centre for Disease Prevention and Control, 2009.

Available from:

http://www.ecdc.europa.eu/en/publications/Publications/0910_SUR_Annual_Epidemiological_Report_on_Communicable_Diseases_in_Europe.pdf

Figure 1. Time trend of brucellosis notification rate, Greece, 2000-2009

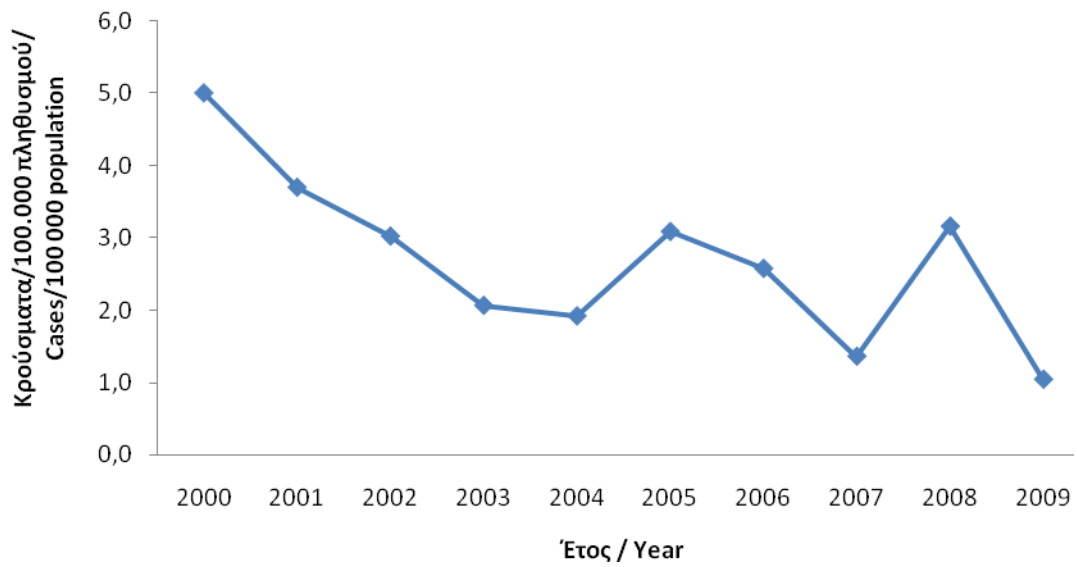


Figure 2. Mean annual notification rate (cases/100,000 population) of brucellosis by gender and age group, Greece, 2005-2009

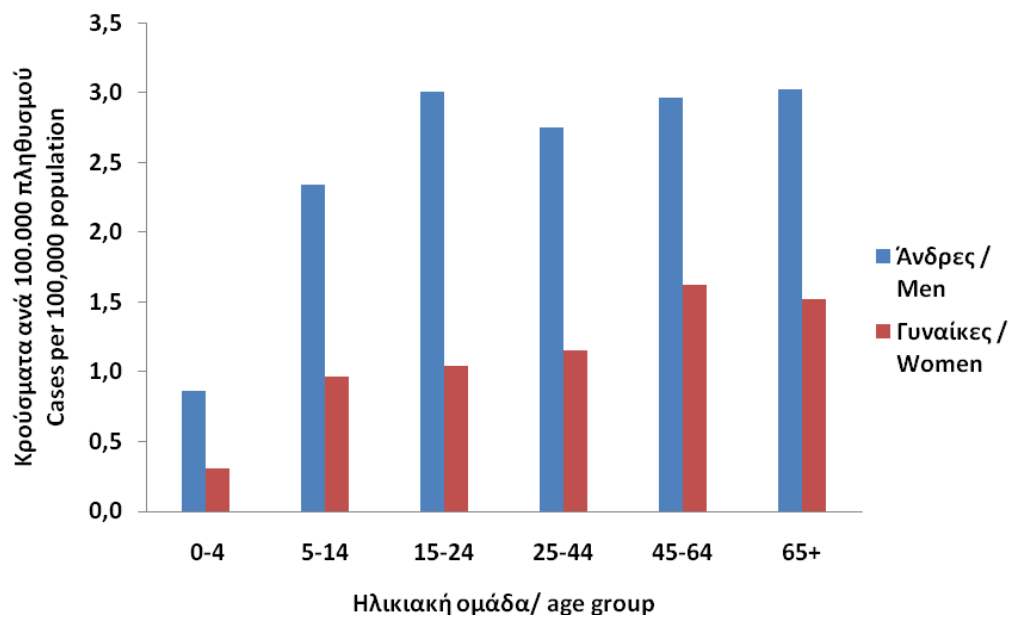


Figure 3. Mean annual notification rate (cases/100,000 population) of brucellosis by month of disease onset, Greece, 2005-2009

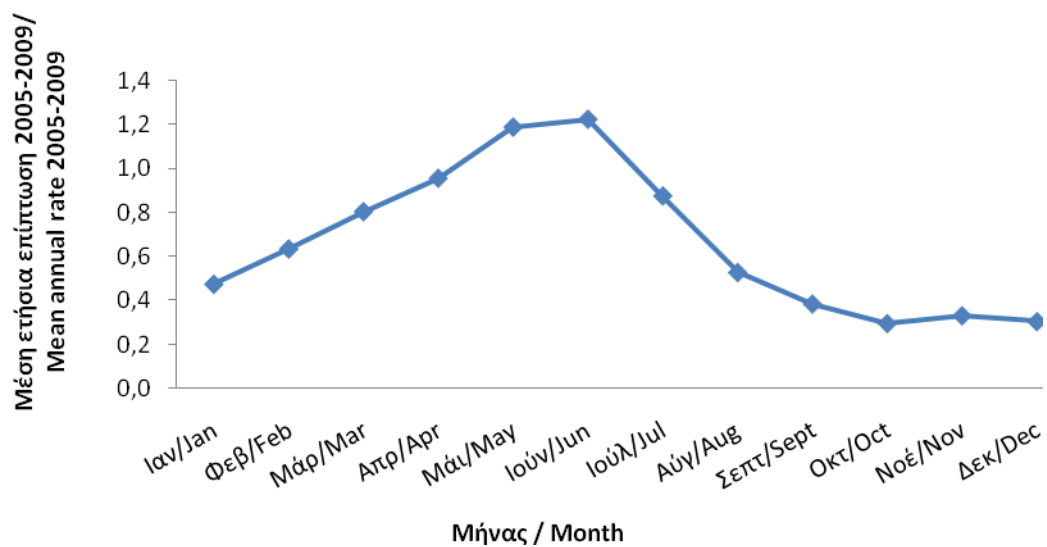


Figure 4. Mean annual notification rate (cases/100,000 population) of brucellosis by district of patient's residence, Greece, 2005-2009

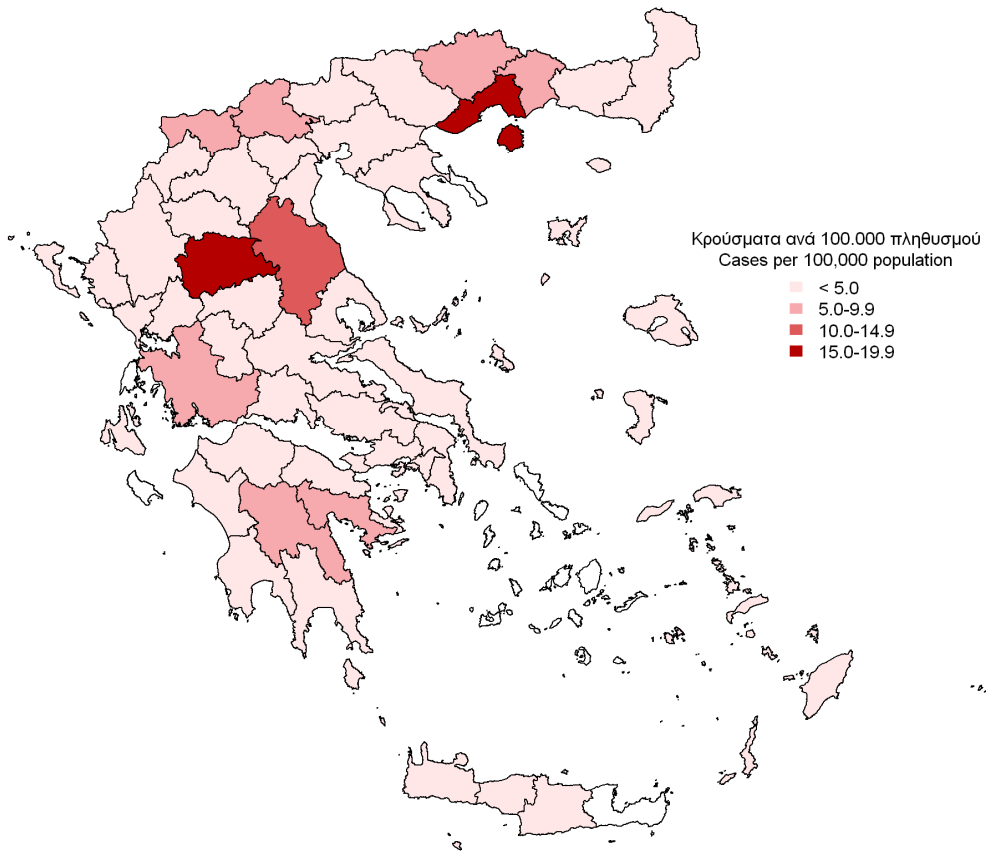
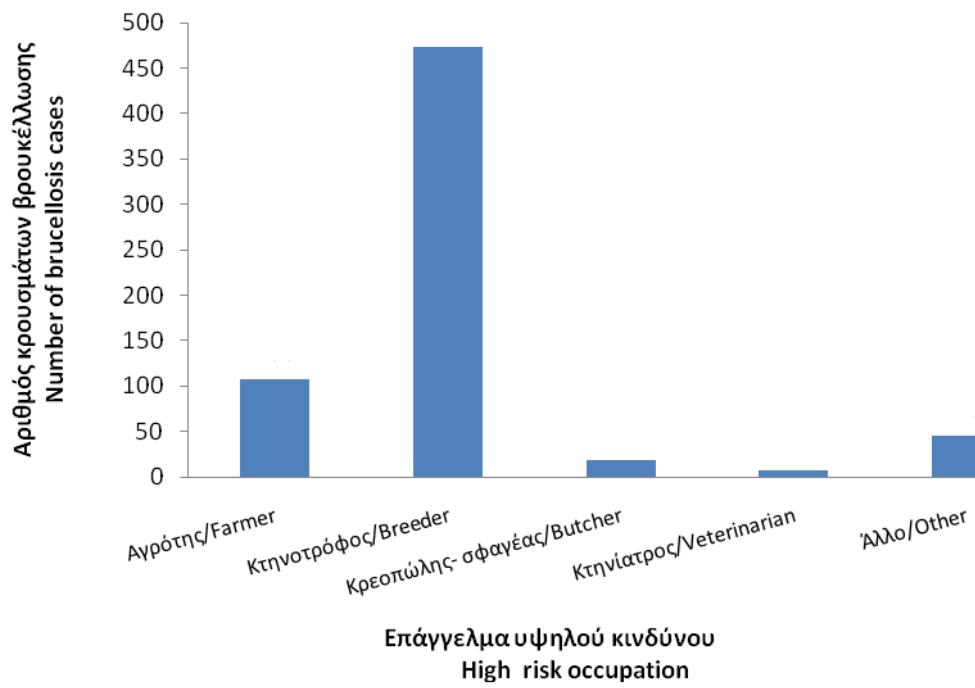


Figure 5. Cases distribution by high risk occupational group, Greece, 2005-2009*



*information regarding high risk occupation is not available for all cases

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