

Original Article

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## **Spatial distribution of cutaneous anthrax in western Iran from 2009 to 2016: Geographic information system mapping for predicting risk of anthrax outbreaks**

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**ABSTRACT Objective:** To explore the spatial accumulation of diseases and their aggravating factors are essential in all public health. This study attempts to use geographic information system (GIS) to provide more information about the incidence and future of anthrax.

**Methods:** Patients were diagnosed with anthrax in Kurdistan Province from 2009 to 2016. Data was then exported into ArcGIS software version 9 and the required layers for years and areas were added. Final map for each year was drawn up, pointing out the hot spots and predicting its future pattern.

**Results:** Most cases were reported in females (57 cases, 54.80%), and the lower body limbs were most affected (63 cases, 60.57%). The highest numbers of incidences were related to the cities of Marivan, Saqez and Divandareh, with more concentration in the central parts of the province, rather than borderline areas. The highest percentage of the probable incidence of the disease was in Sanandaj (57.74%) with a potential susceptible area of 1 729.12 km<sup>2</sup> and then in Saqez (54.36%) with a potential area of 2 422.4 km<sup>2</sup>.

**Conclusions:** A vast area of Kurdistan Province is high risk for new cases of anthrax. Therefore, it is important to scale up the surveillance system in the province.

**KEYWORDS:** Spatial distribution; Cutaneous anthrax; Geographic Information System