SCIENCE SET
OPEN ACCESS PUBLISHERS

Research Article

Journal of Clinical Epidemiology and Public Health

Risk Assessment of Tularemia Occurrence in Shirak Region 1996-2022

Andryan Armine Avetis

National Health, Information Analytic Center, Ministry of Health of the Republic of Armenia

***Corresponding author:** Andryan Armine Avetis, National Health, Information Analytic Center, Ministry of Health of the Republic of Armenia, Russsia.

Submitted: 06 Feb 2022 **Accepted:** 09 Feb 2022 **Published:** 01 Mar 2023

Citation: *Andryan Armine Avetis (2023). National Health, Information Analytic Center, Ministry of Health of the Republic of Armenia. J of Clini Epi & Public Health, 1(1), 01-03.*

Tularemia is mainly spread in the landscapes of Northernone hemisphere's temperature climatic zone. Natural breeding ground of Tularemia is confirmed also in the area of Republic of Armenia /90%/.

To form the areas of epozootic risk according to the prevalence and density of main carrier and distribution areas of the transmitter, for the assessment of the occurance risk of the special dangerous infections.

We have made current and looking-back epidemiological analysis of the deseases with tularemia during 1996-2022 in Shirak region. We use /GIS/ geographical informatioprogramnal system's Arc View GIS and Qvantum GIS computer options.

Shirak region is included in the geography of Transcaucasion highland plague, tularemia and other special dangerous infections' active natural hotbeds. Gyumri's hotbed's geographical location, climatic conditions and the specific landscape type create favourable conditions for rodents' – ordinary field mouse's and main transmitter's - icsodic tick's survival and repreduction. From 327 types of rodents existing in the area of Republic of Armenia, more than 17 types meet in the area of Gumri's hotbed, in connection with these rodents' ecology there are near 20 types of icsodic and more than 40 gamazic ticks.

Figure 1: Study region, Shirak marz

Shirak region, in this respect, is considered to be risky area, as epizotia's frequency is high. In the hotbed density o5 years – during last f the main holder: ordinary field mouse varied 12-317 in 10000m2 and density of the main transmitter varied 17-130 example bloodsucker arthropoda – in 10000m^2. Now, from 273580 persons 168500 person living in Shirak Mar's hotbed-the most risky area of the infection , form a high risk rating, which are mostly rural. We have formed areas of epizootic risk taking into account epizootical informational data, to assess the occurence risk of special dangerous infections according to the prevalence and density of main bearer and distribution of the transmitter.

The epidemiological and epizootic situation in ntural breeding ground of Gumry's mezohotbed is under control. Here, last time, epizootia of tularemia was recorded in 1989 in Shirak region's areas of Akhuryan, Amasia, Artik, Ashotsk, and a case of tularemia within people last time was recorded in Amasia's Jradzor village. Tularemia's last and single flash was recorded in 1954 in Gyumry's /Leninakan/ meat plant, 270 workers were infected with tularemia because of the ticks on the cattles brought fromTurkey.

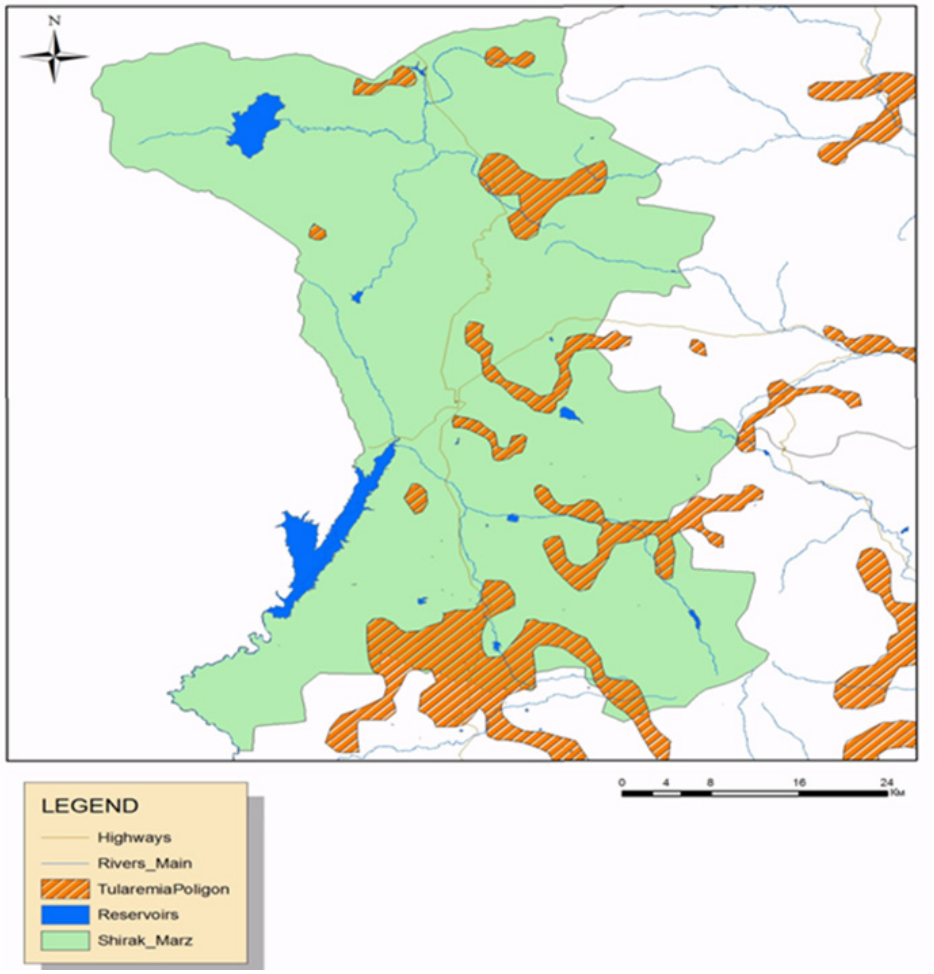

Figure 2: Epizootic areas of tularemia in Shirak region

Mapping of the geographical prevalence of the data is one of the best expressions of situational analysis. In case of goal-oriented organization of antiepidemical measures, it is possible to avoid epidemical complications. New methods and models refine the system of epidemiological control.

It is necessary to make detailed analysis of epidemical process taking into account etiological characteristics of infectional deseases. One of the most important factors of elimination of the consequences of epidemics is the early prevision of epidemical situation and beforehand organization of preventive measures [1-17].

References

1. Barnes S, Peck A (1994) Mapping the future of health care: GIS applications in Health care analysis.// Geographic Information Systems 4: 31-33.
2. Bregvadze TZ, Tabagai SI (2001) Geographic international systems for Public Health and Epidemiology. CDC // Morbid. Mortal. Wkly Rep 48: 1009-1012
3. Charke KC, Osieeb JR, Sherry JM, Meert JP, Larsson RW (1991) The use of remote sensing and geographic information systems in UHICEF's dracunculiasis (Guinea worm) Eradication effort. // Prew Vet. Med 11: 229-235.
4. Chentsov SV, Krivshich DV (1998) An Information System "Public Health - The Environment" // Geoinformation Systems (GIS) and GIS- technologies 8: 460.

5. Clarke KC, Osleeb JR, Sherry JM, Meert JP, Larsson RW (1991) The use of remote sensing and Geographic Information Systems. // Geographic Information Systems in UNICEF's dracunculiasis (Guinea worm) eradication effort. Prew Vet. Med 11: 229-235.
6. Clarke KC (1995) Analytical and computer cartography.// Englewood Cliffs Prentice-Hall 88.
7. Dangendorf F, Herbst S, Reintjes R, Kistemann T (1992) Spatial patterns of diarrhoeal illnesses with regard to water supply structures – a GIS analysis. // International Journal of Hygiene and Environmental Health 205: 183-191.
8. Goodchild MF (1992) Geographic information science. // International Journal of Geographic Information Systems 6: 56.
9. Jones J, Lerdthusnee K, Nigro J, Kiang R (2004) Use of GIS to assess relative risk in different Vaccines for Enteric Disease. // Conference Papers 452.
10. Green C, Krause D, Wylie J (2006) A real-time GIS for surveillance Spatial analysis of campylobacter infection in the Canadian province of Manitoba // International Journal of Health Geographics 447-449.
11. Kelly T, McKee, Timothy M, Pamela R, Jenkins J, et al. (2000) Glass Application of a Geographic Information System to the Tracking and Control of an Outbreak of Shigellosis. // Clinical Infectious Diseases, America 31: 728-733.
12. Kistemann T, Zimmer S, Vagsholm I, AnderssonY GIS-supported investigation of human EHEC and cattle VTEC O157 infect. // Epidemiology and Infection 225-227.
13. Lebel G, Rivest S, Douville-Fradet M (2005) The Integrated System for Public Health Monitoring of West Nile Virus (ISPHM-WNV): a real-time GIS for surveillance and decision-making. // Int J Health Geogr 4: 21.
14. Tempalski BJ (1994) The case of Guinea worm:GIS as a tool for the analysis of disease control policy. Geographic international Systems 4: 32-38.
15. Weisdorf D, Snover D, Haake R, Miller J (1990) Acute upper gastrointestinal graft-versus-host disease: clinical significance to Grade Including Upper GIS //, Bloodjournal.
16. Kristen SK, Wilpen LG (2006) GIS tutorial for Health // ESRI press.
17. Laura Lang GIS for Health organizations // ESRI Press 2006.