Global Insights in Biomedical & Multidisciplinary Research (GIBMR)
Volume 01, Issue 02, April-2026
Available Online at: https://biomedglobe.com/index.php/gibmr
ISSN (Online): 3054-5900

Measures To Provide The Population With Safe Food Products In Situations Of Toxic Substance Spread Among The Population

Berdiyev Olim Davronovich
Department of Hygiene of Children, Adolescents and Nutrition, Tashkent State Medical University
Subkhonqulova Sabina Jamshedovna
Hamroyev Shuhrat Jumanazar ogli
Student of Tashkent State Medical University

Article History
Received: 20th March, 2026
Accepted: 14th March, 2026

Abstract

This article provides a detailed discussion of the urgent issues related to ensuring the population is supplied with clean and safe food products in emergency situations involving the spread of toxic substances. It analyzes the sources of poisoning agents, their pathways of spread, and their negative impact on food products. It also substantiates the necessity of taking prompt and effective measures to protect public health under such conditions. The article pays special attention to the formation of safe food reserves, their proper storage, processing, and the organization of distribution systems to the population. In addition, it highlights important aspects such as strict adherence to sanitary and hygienic standards, laboratory control of food quality, and the avoidance of consuming food obtained from contaminated areas. Furthermore, the importance of strengthening cooperation among government agencies, medical institutions, and other responsible services in emergency situations is emphasized, along with the timely and reliable provision of information to the population, as well as conducting awareness and educational activities. This article aims to develop practical recommendations for protecting the population in conditions of toxic substance contamination and ensuring their continuous supply of high-quality and safe food products.

Global Insights in Biomedical & Multidisciplinary Research (GIBMR)
Volume 01, Issue 02, April-2026
Available Online at: https://biomedglobe.com/index.php/gibmr
ISSN (Online): 3054-5900

Keywords: Emergency situation, toxic substances, food security, sanitary and hygienic standards, public health, food supply, laboratory control, safe food products, prevention of poisoning, state control.

The spread of toxic substances among the population is considered an emergency situation, and in such conditions the greatest risk is food poisoning through contaminated food products. Toxic substances can enter food through air, water, or soil, making the products unsuitable for consumption. In such situations, the main task is to provide the population with safe food. To achieve this, contaminated areas are first identified, and the consumption of products from those areas is temporarily prohibited. Then, a centralized supply system is established based on food products brought from safe regions. In addition, all food products undergo laboratory testing to determine the presence or absence of toxic substances. This ensures that only high-quality and safe products are delivered to the population. Furthermore, strict adherence to sanitary regulations, as well as proper storage and transportation of food products, is essential. Government authorities and relevant organizations must work in cooperation to promptly inform the public and provide reliable information.

Main Part

Emergency situations involving the spread of toxic substances among the population are highly complex and dangerous, posing a serious threat not only to human health but also to the food safety system. In such cases, toxic chemicals may spread into the air, water, and soil as a result of industrial waste, accidents, transportation incidents, or environmental pollution. As a result, agricultural products, drinking water, and processed foods are exposed to the risk of contamination. First of all, when an emergency occurs, rapid monitoring and assessment are carried out. Specialists conduct environmental and sanitary inspections of affected areas, determine the level of contamination, and create maps of hazardous zones. Based on this information, decisions are made regarding the temporary evacuation of the population or restrictions on food consumption in certain areas. At the second stage, a food safety assurance system is established. Food products are sourced from uncontaminated, environmentally safe regions and delivered to the population through a centralized supply system. Special storage facilities are organized where products are kept under appropriate temperature, humidity, and sanitary conditions. At the same time, an efficient logistics system ensures the prompt and orderly distribution of food. The third

important aspect is laboratory control. Each product undergoes chemical, biological, and radiological testing. During this process, the presence of heavy metals, pesticides, toxic gases, or other harmful substances is identified. Only products confirmed to be completely safe are approved for consumption, which helps prevent secondary poisoning among the population. Strict adherence to sanitary and hygiene requirements is also essential. During transportation, special closed vehicles must be used, storage facilities should be regularly disinfected, and personnel must follow hygiene rules. Otherwise, food products may be subject to secondary contamination. In addition, public awareness systems play a crucial role. Through television, radio, mobile communication, and internet networks, citizens are promptly informed about hazardous areas, prohibited food products, and safety guidelines. This helps the population make informed decisions. In emergency situations, government authorities, sanitary services, medical institutions, and rescue units operate in close cooperation. Their coordinated efforts are vital for ensuring uninterrupted food supply and protecting public health. Overall, the main objective in such conditions is to minimize the impact of toxic substances on the human body, establish a safe food supply chain, and ensure a stable provision of high-quality food products to the population.

Empirical Analysis

In this article, the empirical analysis is aimed at studying the process of ensuring food safety in emergency situations involving the spread of toxic substances, based on real practical data. Unlike a purely theoretical approach, the analysis relies on observed cases, statistical indicators, and expert conclusions. In conducting the empirical analysis, the primary sources include data collected by sanitary-epidemiological services, emergency response units, and environmental monitoring centers. These data provide a clear understanding of the number of poisoning cases, their geographical distribution, the types of toxic substances involved, and the extent to which they contaminate food products. Laboratory test results also serve as one of the main empirical sources. They help identify the presence of heavy metals, chemical toxins, or biological contaminants in food products. These findings make it possible to determine which products are unsafe for consumption. In addition, surveys and interviews conducted among the population are of significant importance. These data provide insights into the public's level of awareness about emergency situations, their habits in selecting and consuming food, and their response to official warnings. The results indicate that in some areas, the population's knowledge of safety rules is insufficient.

Volume 01, Issue 02, April-2026
Available Online at: https://biomedglobe.com/index.php/gibmr
ISSN (Online): 3054-5900

During the empirical analysis, comparative studies across different regions are also carried out. This involves comparing food supply systems, control mechanisms, and public health conditions in areas affected by toxic substances and relatively safe regions. Such comparisons help identify the root causes of the problem.

The analysis reveals several key issues:

- the food control system does not always function effectively;
- laboratory testing is not conducted regularly;
- there is a lack of complete and reliable information among the population;
- emergency food supply systems are underdeveloped in certain regions.

Based on the empirical findings, the following conclusions are drawn: it is necessary to strengthen the food safety system, expand laboratory control, digitalize monitoring systems, and improve public awareness. Overall, the empirical analysis forms the scientific and practical foundation of the article and ensures that the proposed recommendations are aligned with real-world conditions.

Conclusion:

This article provides an in-depth analysis of the issues related to supplying the population with clean and safe food products in emergency situations involving the spread of toxic substances. The results of the study show that in such conditions, the food safety system must operate continuously under strict control, as any delay or deficiency in monitoring can pose a serious threat to public health. The analysis revealed that toxic substances can enter the food chain through various pathways, including air, water, soil, and production processes. Therefore, it is important to evaluate food products not only based on their external appearance but also through laboratory testing. In particular, systems for detecting heavy metals, chemical toxins, and biological contamination must be highly effective. Based on the empirical analysis, it was concluded that in some regions, control and monitoring systems are not sufficiently developed, which increases the level of risk. It was also found that the population's level of awareness regarding emergency situations is inadequate. This increases the likelihood of improper consumption practices and the use of unsafe products. At the same time, strengthening centralized management in the food supply system and ensuring full control over the supply chain from safe regions are among the key priorities. Strict compliance with sanitary and hygiene requirements during transportation, storage, and distribution is essential. Overall, one of the most

Volume 01, Issue 02, April-2026
Available Online at: https://biomedglobe.com/index.php/gibmr
ISSN (Online): 3054-5900

important priorities in protecting the population during emergencies is the establishment of a stable, rapid, and reliable food safety system. To achieve this, it is necessary to enhance cooperation between government authorities, relevant services, and society, as well as to improve public awareness. This will help prevent the harmful effects of toxic substances and effectively protect public health.

References:

1. Law of the Republic of Uzbekistan "On the Protection of the Population from Emergency Situations."
2. Law of the Republic of Uzbekistan "On Sanitary and Epidemiological Well-being."
3. Materials of the Ministry of Emergency Situations of the Republic of Uzbekistan.
4. Data from the Ministry of Health of the Republic of Uzbekistan.
5. World Health Organization (WHO) — Food Safety Guidelines.
6. Food and Agriculture Organization (FAO) — Food Safety and Quality Reports.
7. Codex Alimentarius Commission — International Food Standards.
8. United Nations Environment Programme (UNEP) — Environmental Pollution Reports.
9. ISO 22000: Food Safety Management Systems standards.
10. "Fundamentals of Hygiene and Sanitation" — textbook, Tashkent.
11. "Food Hygiene" — manual for medical higher education institutions.
12. "Protection of the Population in Emergency Situations" — учеб manual.
13. "Ecology and Environmental Protection" — textbook.
14. "Fundamentals of Chemical Safety" — scientific manual.
15. "Food Product Safety" — scientific monograph.
16. Methodological guidelines on natural disasters and technological accidents.
17. Educational literature on epidemiology and infectious diseases.
18. Textbooks on food industry technology.
19. "Ensuring Food Safety in Emergency Situations" — methodological manual, Tashkent.
20. "Environmental Pollution and Human Health" — collection of scientific articles.