

Research on Problems and Suggestions in Handling Food Safety Incidents at Grassroots CDCs

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Abstract: With the development of economy and society and the improvement of quality of life, people are paying more and more attention to food safety issues. Technological advancements have made the food supply chain more hidden and complex, resulting in food safety incidents occurring more frequently. Food safety accidents can cause harm to human health, causing problems such as poisoning and gastrointestinal discomfort, and even endanger life safety. In order to reduce food safety accidents and eliminate food safety hazards, disease control agencies at all levels in our country must increase health publicity and accident handling efforts, thereby building a solid barrier for people's dietary health. This article mainly elaborates on the problems and corresponding solutions to food safety incidents handled by grassroots CDCs, providing some useful reference for my country to achieve strong food safety control.

Keywords: Grassroots CDC; Food safety accidents; Problems; Suggestions; Equipment

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1. Introduction

The report of the 20th National Congress of the Communist Party of China listed food safety work in the section of "promoting the modernization of national security systems and capabilities, and resolutely safeguarding national security and social stability" for special deployment. Emergency response to food safety accidents is an important part of the food safety strategy. Grassroots CDCs play a key role in investigating the causes of food safety incidents and providing targeted regulatory recommendations. After a food safety accident occurs, grassroots disease control centers can systematically investigate the cause of the accident according to the requirements of the emergency plan, reduce the losses caused by the accident, and ensure the safety of people's lives and property. Grassroots CDCs can reduce the risk of food safety accidents, reduce public concerns about food safety issues, enhance confidence in food safety, safeguard public health and promote long-term social stability. The ability to handle food safety incidents can reflect the comprehensive emergency response capabilities and professional level of grassroots CDCs.

2. Overview of food safety incidents

Food safety accidents refer to food-borne diseases, food contamination, etc. that originate from food and are harmful or

potentially harmful to human health. Therefore, the Centers for Disease Control and Prevention should promote effective supervision of food safety by providing a series of targeted measures and suggestions ^[1].

3. Problems in handling food safety incidents by grassroots disease control centers

3.1. Insufficient quality of professional talents

At this stage, people have higher and higher requirements for food quality, and the demand for various types of food has increased significantly. In this context, the pace of food safety production in my country has gradually accelerated, and regional governments have increased financial and policy support, introduced relevant food safety protection systems, and attached great importance to the establishment and improvement of disease prevention and control systems. However, food safety supervision follows the principle of “people follow the rules” ^[2]. After the health department no longer assumes the responsibility of food safety supervision, the market supervision and management department lacks the normative aspects of food safety supervision due to personnel professionalism and other reasons. The staffing of some grassroots disease control centers is far from sufficient, resulting in fewer personnel with certain abilities to investigate and handle food safety accidents, an imperfect talent structure, and a lack of young people. In addition, after a food safety incident of a certain scale occurs, the personnel temporarily assigned by the Centers for Disease Control and Prevention to participate in food safety investigation and handling lack professional capabilities, making it difficult to detect food safety problems in a timely manner and conduct professional analysis, which affects the timely investigation and handling of the accident and the identification of the cause.

3.2. Food safety testing equipment and instruments have low standards

In recent years, my country has successively introduced some food safety protection policies to clarify the responsibilities of various departments and implement strategies related to food safety management. Among them, there are clear regulations on the parameters and standards of food safety testing instruments and equipment. It is easier to implement these regulations in economically developed areas, but it is more difficult to implement them in economically underdeveloped areas. For example, some county-level CDCs have limited funding guarantees and are difficult to equip with large-scale testing equipment such as liquid chromatography analyzers and ion chromatography. The shortage of these equipment means that it is difficult for CDCs to achieve accurate detection of food safety. For example, pesticide residues such as methamidophos and acephate in food are difficult to detect through conventional equipment, which leaves greater food safety risks. In addition, some grassroots disease control centers do not strictly follow the standards when testing microbial components in food. There is a gap between the actual testing and the prescribed testing standards. As a result, some pathogenic bacteria that can easily cause food safety problems can only be isolated, but it is difficult to identify the content of the pathogenic bacteria. For example, *Bacillus cereus*, which is commonly seen in food safety accidents, needs to reach a certain amount of contamination. Conventional equipment can only identify it but it is difficult to accurately analyze the content.

3.3. Insufficient coordination of food safety investigation mechanisms

Public health incidents caused by food safety issues occur from time to time, such as mass food poisoning incidents such as diarrhea after customers eat in various restaurants. Relevant departments such as market supervision and management, agriculture and rural affairs, and health and health will jointly carry out investigation and disposal, and carry out traceability, investigation and evidence collection, epidemiological investigation, hygienic treatment, etc. of the incident, which involves coordination among multiple departments. Due to the different management and cooperation efforts of food safety supervision and administration departments in various places, disease control agencies often have difficulties in conducting epidemiological investigations and handling. In addition, after a food safety incident occurs, it is often difficult for grassroots disease control and prevention centers to independently complete testing and identification, and medical institutions are required to cooperate in sample retention and investigation. If there is a problem in a certain department,

unit or link during this process, it is often difficult for the grassroots CDC to obtain the food testing samples that caused the poisoning and the biological samples of the poisoned persons at the first time. Sometimes the units involved provide food residues or inventory samples, resulting in inaccurate food safety testing data and some negative impacts on epidemiological inspections caused by food safety problems ^[3].

3.4. Food safety accident investigation regulations need to be improved

At present, my country's food safety accident regulatory framework mainly includes those applicable to the entire industry, such as the "Emergency Response Law", "Public Health Emergency Regulations", and "National Public Emergency Emergency Plan", and those applicable to the food industry, such as the "Food Safety Law of the People's Republic of China", "Regulations on the Implementation of the Food Safety Law of the People's Republic of China", "National Food Safety Accident Emergency Plan", etc. Among them, the "Food Safety Law of the People's Republic of China" stipulates that "in the event of a food safety accident, the disease prevention and control agency at or above the county level shall conduct sanitary treatment of the accident site and conduct an epidemiological investigation of factors related to the accident. Relevant departments shall provide assistance". However, there are no clear provisions on how to carry out sanitary treatment and which departments will provide assistance. In addition, it is not clear which departments are responsible for the laboratory testing necessary for epidemiological investigations. From the actual situation, it is difficult for some grassroots disease control centers, especially in remote areas, to adopt unified testing standards. It may be difficult to obtain accurate testing data due to staff's professional abilities or limited testing equipment.

4. Suggestions for grassroots CDCs in handling food safety incidents

4.1. Improve the professional quality of grassroots CDC personnel

Efficient and orderly handling of food safety incidents requires staff to have professional food safety knowledge and rich experience in food safety investigations. Therefore, the Centers for Disease Control and Prevention should focus on improving the quality of relevant personnel. It can select professionals with knowledge of food safety and clinical epidemiology to form a high-quality talent team and continuously optimize the team structure. It is necessary to regularly organize and carry out professional skills training related to food safety accident investigation, so that they can understand the latest laws, regulations and standards for food safety accident investigation, and enhance their professional ability and adaptability. The training needs to include food safety theoretical knowledge, accident handling procedures and emergency response mechanisms, etc. to enrich the training content ^[4]. Practical drills, desktop deductions and other activities should be carried out regularly to allow professionals to familiarize themselves with and master the process steps of food safety accident investigation and detection to avoid errors. In order to ensure the effect of improving professional capabilities, grassroots disease control and prevention centers must conduct effect evaluations through skills tests and other methods in order to promptly discover and adjust training and drill plans and plans to meet the learning needs of professionals as much as possible.

In addition, grassroots CDCs can also use both internal and external training to improve the quality of professionals. In addition to conducting internal training on topics such as epidemiological investigation and laboratory technology based on the actual situation of professionals, we can also establish cooperation with universities and scientific research institutions to help employees supplement cutting-edge professional knowledge. On-the-job training courses such as online learning platforms and webinars can also be arranged for professionals, allowing employees to learn anytime and anywhere, breaking through the time and space constraints of knowledge learning. Grassroots disease control and prevention centers should attach great importance to cultivating the practical ability of professionals, allowing employees to apply the knowledge they have learned into practice through on-site investigations and other activities, and comprehensively improve professional abilities. Courses in other fields such as public health and environmental protection can also be arranged for employees to strengthen the connection between this knowledge and food safety and allow employees to achieve cross-field learning ^[5].

4.2. Timely update testing equipment and technology

Grassroots disease control and prevention centers should pay attention to advanced food safety testing equipment and technologies and introduce them when funding conditions permit. This equipment mainly includes food safety standard testing instruments and rapid testing equipment to improve the accuracy and automation level of testing and provide more scientific and accurate data for food safety analysis. Grassroots disease control and prevention centers should perform regular maintenance, maintenance and repair of these equipment and instruments, and ensure reasonable storage and maintenance when not in use to extend the service life of the equipment. It is necessary to cultivate professional equipment operators and update equipment operation skills in a timely manner to ensure that the equipment can be used standardized and well maintained. It is necessary to establish a complete quality control system to carefully evaluate testing equipment and methods to ensure the accuracy of the equipment and the reliability of the testing data. Attention should be paid to updating and maintaining network resources, improving detection capabilities consistent with food safety technical support points, and ensuring that food safety testing and early warning and other matters can be carried out in an orderly manner. Grassroots CDCs can also establish professional network platforms based on their own actual conditions, integrate network resources, give full play to their respective advantages, and establish a mechanism that is in line with the good work of CDCs in the new era.

4.3. Establish a complete food safety accident investigation and coordination mechanism

To obtain accurate food safety incident investigation data, the Centers for Disease Control and Prevention must establish a collaborative and joint mechanism with other departments. For example, regular joint meetings should be held to scientifically divide and clarify the responsibilities between different departments, and an emergency response mechanism for food safety accidents should be formulated to ensure that immediate action can be taken after an accident occurs, to reduce the damage caused to the human body by food safety accidents and to carry out responsibility investigation and traceability work, and to promptly report the progress and results of accident investigations. Each department has established an information communication and coordination mechanism to reduce communication costs between departments and shorten accident investigation time. At the same time, the health department must conscientiously perform coordination and guarantee work to ensure that disease control personnel can rush to the scene as soon as possible after a food safety incident occurs to conduct sampling, investigation and analysis, and ensure that accident investigation work is more scientific and accurate. The Centers for Disease Control and Prevention should establish an early warning response system that can respond quickly, rehearse the handling process after an accident occurs in advance, familiarize themselves with accident response strategies, and improve the accident handling capabilities of staff. The Centers for Disease Control and Prevention needs to use information technologies such as big data and cloud computing to identify and monitor food safety risks. Once an abnormality occurs, it will issue a timely alert so that staff can take corresponding actions.

The Centers for Disease Control and Prevention should not only assume the responsibility for handling food safety accidents, but also do a good job in publicity and prevention of food safety accidents. Therefore, the Centers for Disease Control and Prevention must conscientiously fulfill its responsibilities, improve its handling capabilities, and exert its coordination and communication functions with other departments to ensure the smooth progress of food safety accident investigations. It is necessary to improve the coordination mechanism of different departments through coordination with the health administrative departments based on their own actual conditions. What needs to be made clear is that the units involved in food safety accidents must closely cooperate with the investigation work, obey the organization and inquiries of relevant departments, and allow relevant departments to explore the truth of the accident. Each investigation link requires the cooperation of various departments, so the functions of different departments must be scientifically divided to ensure that the investigation work can be carried out in an orderly manner to obtain true and accurate information and data.

4.4. Improve laws and regulations related to food safety accident investigation

In order to ensure that my country's food safety accident investigation work is legally based and emphasize the compliance

of its investigation process, relevant departments must continuously improve the Food Safety Accident Investigation Act and establish and improve mechanisms for large and medium-sized accident investigation reports, incident site investigations, and epidemiological investigations. Relevant departments should comprehensively evaluate the current situation of food safety accident investigation and handling, and compare it with current laws to fill the legal gaps^[6]. It is necessary to provide standardized operating guidelines and specifications for the epidemiological investigation steps, on-site disposal, and judgment basis of food safety accidents, so that grassroots disease control personnel must strictly follow the standards during investigation operations to ensure that the investigation work develops in the direction of legalization, standardization, and process.

5. Conclusion

Food safety is related to the physical health of each of us, and is also related to the stability and harmonious development of the economy and society, so the whole society must attach great importance to it. Grassroots CDCs play an important role in handling food safety incidents. They should not only focus on in-depth investigation and research on epidemiology, but also do a good job in preventing and publicizing food safety risks. Grassroots CDCs can adopt diversified strategies to improve the professionalism of their staff, enhance their comprehensive handling capabilities for food safety incidents, achieve strong traceability, and minimize the impact of food safety incidents.

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Disclosure statement

The author declares no conflict of interest.

References

- [1] Zhang L, Ma Y, Huang J, 2021, Problems and Countermeasures in the Centers for Disease Control and Prevention's Handling of Food Safety Incidents. Food Safety Guide, 2021(23): 34 + 36.
- [2] Zhang S, Meng F, 2023, Research on Problems and Suggestions in Handling Food Safety Accidents by Grassroots Disease Control Centers. Chinese Science and Technology Journal Database (Citation Edition) Medicine and Health, 2023(01): 07–09.
- [3] Cui L, 2023, Analysis of Problems and Suggestions in Handling Food Safety Incidents by the Centers for Disease Control and Prevention. Chinese Science and Technology Journal Database (Full-text Version) Social Sciences, 2023(11): 103–106.
- [4] Cui L, 2023, Problems and Countermeasures in the Centers for Disease Control and Prevention's Handling of Food Safety Incidents. Chinese Science and Technology Journal Database (Full-text Version) Social Sciences, 2023(10): 109–112.
- [5] Zhu Z, 2022, Discussion on the Epidemiological Investigation and Handling of Food Safety Accidents in Primary Disease Control Institutions. Primary Medicine Forum, 26(13): 136–138.
- [6] Wang F, 2020, Current Situation of Brain Drain in Grassroots CDCs, Related Influencing Factors and Strategic Analysis. Chinese Medical Sciences, 10(24): 241–244.

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