

# Research on the Current Situation and Management Strategies of Emergency Response Capacity of Cdc's in Public Health Emergencies

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**ABSTRACT.** Public health emergencies have a wide range of hazards and complex causes, which seriously threaten the safety of people's lives and property. How to prevent public health emergencies and how to manage and control them are the key tasks of CDCs, and the two questions are also challenging the emergency response capabilities of CDCs. Based on this, the article analyzes the current situation of emergency response capacity of CDCs in public health emergencies, and puts forward some basic management strategies in combination with reality, hoping to provide meaningful reference for improving emergency response capacity of CDCs and strengthening the preventive management of public health emergencies.

**KEYWORDS:** Public health emergencies, Cdc's, Emergency response capabilities, Management strategies

## 1. Introduction

Public health emergencies refer to public health incidents that occur suddenly and cause or may cause serious impacts on public health, including influenza, tuberculosis, AIDS and other major infectious diseases, food-borne diseases, unexplained diseases, acute occupational poisoning, etc. Once a public health emergency occurs, it will cause serious harm to public health and social stability. In particular, the progress of the society and the convenience of transportation objectively promoted the spread of infectious diseases, such as the outbreak of atypical pneumonia in 2003 and the outbreak of new H1N1 influenza virus in 2009 [1]. As important parts of the disease prevention and control process, the resolution and prevention of emergencies are particularly essential. Due to the particularity and wide range of hazards of public emergency, it will cause extremely serious consequences, which must be paid much attention to. Therefore, this paper takes Fuxin City as an example to analyze the basic situation of the city's CDCs, to evaluate their ability to deal with public health emergencies, and to figure out problems existing in the process of system construction and development of Fuxin's CDCs. The problems are illustrated as follows [2].

## 2. Materials and Methods

### 2.1 General Information

The observed objects of the research and investigation includes a city-level CDC, 5 district-level CDCs and 2 county-level CDCs, a total of 8 CDCs.

### 2.2 Research Content

The content of this research is based on the following aspects, including the basic situation of emergency response, the construction of emergency personnel team, on-site emergency sampling and protective equipment, as well as emergency training drills. There are 6 aspects including on-site handling capability and emergency detection capability [3].

### 2.3 Research Methods

For the evaluation criteria of the state of disease control, refer to the "Questionnaire for Emergency Response of

CDCs” and “Performance Assessment Standards for CDCs at the Provincial, Municipal, and County Levels” issued by the National CDC of China, The methods of research and investigation are: reviewing the files of the investigated agencies, on-site examinations, on-site sampling equipment and personal protective equipment, blind sample testing and assessment, emergency drills, etc., in-depth investigation of the current situation of the construction of various CDCs, and to evaluate their emergency response capabilities. A total of 8 CDCs participate in this research. The data should be recorded in detail during the survey, and then someone will conduct sample review to ensure that the recorded data is true and accurate [4].

### **3. Situation of Emergency Response Capabilities of Cdc's**

#### ***3.1 The Basic Situation of Emergency Response***

Through documents review and on-site investigations, 8 CDCs have established emergency leading groups for public health emergencies, of which 1 municipal CDC and 2 county CDCs set up corresponding emergency departments, with special person in charge, and set up a professional emergency team and expert database. Among them, there are five district-level CDCs that have staffs from other departments working as emergency response team members for public health emergencies. In terms of emergency plans and system construction, the 8 CDCs have further improved their work in line with the actual situation, formulated various emergency plans for public health emergencies, and clarified a number of institutional mechanisms such as the information notification system and the material transfer system [5]. And measures like on-site handling technical specifications and emergency response systems are introduced to standardize emergency response procedures.

#### ***3.2 Construction of Emergency Personnel Team***

Through the review of personnel files and on-site investigations of emergency drills, the construction of emergency response personnel team of most CDCs in this city is relatively good. There are 8 emergency response teams in this city and 55 professional emergency teams. In recent years, the emergency teams at the city, county, and district levels have been adjusted to different extents. Overall, the emergency teams at the city and county levels are relatively stable, and district-level emergency teams are relatively weak, and the number of team members has decreased in the past two years. Besides, most members in emergency response teams are elders, and the heir technical titles are relatively low, so there is a shortage of professional and technical personnel with senior titles [6]. while in city-level CDCs, the number of emergency teams for disease control is significantly higher than that of the county and district levels, but there is no significant difference in average age.

#### ***3.3 Emergency Response Training and Drills***

In recent years, Fuxin City has gradually focused on emergency rescue knowledge and on-site epidemiological training. Agencies at all levels regularly provide on-site epidemiological training for staff every year. From 2010 to 2019, a total of 1,000 More than one person participated in emergency training and emergency drills. The results were more satisfactory. The emergency drills were more comprehensive and covered a variety of public health emergencies, such as disaster prevention and prevention, chemical pollution leakage, and infectious disease control. According to the survey, in the past three years, the CDCs above the municipal level have exercised at least 4 times a year, and the CDCs at the district and county level have averaged 2 drills per year, including desktop exercises and on-site simulation drills. The scores of various levels of disease control emergency drills are shown in Table 1. There is no significant difference in the scores of various levels of disease control emergency drills ( $P = 0.061$ ).

#### ***3.4 Situation of on-Site Emergency Sampling and Protective Equipment***

At present, compared with district-level disease control agencies, municipal and county-level disease control agencies have more complete sampling equipment. Municipal disease control devices include major infections such as influenza, plague, cholera, and anthrax. The sampling capacity of the disease can cope with common public health emergencies that are common in the region. Municipal and county-level disease control emergency sampling and protective equipment are higher in number than district-level disease control, with significant differences ( $P = 0.027$ ,  $P = 0.034$ ), and it is necessary to strengthen the input of emergency sampling and personal protective equipment.

#### ***3.5 On-Site Disposal Capacity***

After analyzing the on-site disposal capacity of the disease control agency in Fuxin City, it can be found that its on-site disposal capacity and level have increased year by year. Among the public health emergencies, cluster epidemics and outbreaks that have occurred, the main ones are influenza, chickenpox, hand, foot and mouth disease, occupational poisoning and water pollution. Every time a public health emergency, cluster epidemic or outbreak occurs, city-level disease control and county-level disease control have dispatched emergency team members to conduct flow control and testing.

### ***3.6 Emergency Inspection and Detection Capabilities***

At present, municipal-level disease control has the ability to rapidly detect nucleic acids for major infectious diseases such as highly pathogenic avian influenza viruses, epidemic hemorrhagic fever, cholera, and anthrax. However, due to the lack of urban-level disease control After the laboratory quality system certification, it is impossible to carry out the biosafety level II and above inspections, lacking the inspection and detection capabilities of the above-mentioned major infectious diseases. The disease control testing items at all levels are shown in Table 1, and the district-level disease control testing items are significantly lower than the city-level disease control.

## **4. Disease Control Agencies Respond to Problems in Public Health Emergencies**

### ***4.1 New Types of Infectious Diseases Are Constantly Emerging***

Nowadays, not only the probability of occurrence of emergencies has changed, but also the types of occurrence are more complicated. New types of infectious diseases, mainly viral diseases, have brought great challenges to the work of disease control agencies. In addition, anthrax and major unexplained diseases are all direct factors leading to emergencies. Of course, no Exclude natural disasters and various poisoning incidents. This type of public health emergency is an unprecedented challenge for disease control agencies. Because of the lack of experience in handling new infectious diseases, the prevention and control work of the city 's disease control agencies is facing many obstacles, coupled with the lack of human and material factors, it is extremely difficult to respond to and handle public emergencies, whether it is an epidemic report or on-site disposal And monitoring, there are certain deficiencies.

### ***4.2 Weakness in Emergency Response Capacity of District-Level Disease Control Institutions***

Fuxin City's district-level disease control emergency ability is significantly lower than that of cities and counties: First of all, in terms of hardware, whether it is human, material or financial resources, Fuxin city-level disease control agencies are inadequate 80% of regions lack financial support and guarantees. At the same time, most disease control agencies have the problem that the on-site testing equipment is too old and backward, and lack of reagents, it is difficult to quickly complete the project testing. The existing staff has low overall professional skills and qualities, and lacks high-quality applied talents.

### ***4.3 The Testing and Testing Capabilities Need to Be Improved***

Emergency testing projects that can be carried out by county and district laboratories are often limited to primary testing capabilities such as traditional bacterial enrichment culture, temporary storage and transportation of viral fluids, and rapid screening of colloidal gold. Public health emergencies caused by new viruses will not be detected. At the same time, because district-level disease control does not have relatively independent laboratory hardware and related personnel conditions, it cannot carry out the detection of major infectious diseases.

### ***4.4 The Emergency Scientific Research Capacity Needs to Be Improved***

The lack of scientific research awareness and the problem of poor scientific research capacity are always the direct factors that restrict the development and construction of the disease control agency in Fuxin City. We can use the inverted triangle to describe the scientific research capabilities of Fuxin City at the city, district and county levels. Simply put, city-level CDCs can independently undertake and independently complete scientific research projects at this level, while CDCs at county and district levels can only undertake a small part of the responsibility, unable to independently complete scientific research projects, and lack scientific research capabilities. According to the survey, less than 10% of the disease control personnel actually participated in the city-level scientific research projects. This is because the lack of high-quality and high-level scientific research personnel in Fuxin City, coupled with the experimental conditions and lack of facilities, together with many factors, many scientific research projects cannot be

carried out smoothly, and the handling of public health emergencies in the region has also been affected to a certain extent.

## **5. Countermeasures and Suggestions**

### ***5.1 Strengthen the Government's Management Functions***

First of all, it is necessary to start with the government to further improve the ability to deal with emergencies, actively clarify the functions of various departments, and implement management work to the point. This is an important measure for the implementation of the Emergency Response Law and an effective way to improve the emergency response level and scientific and technological level of the disease control agencies in Fuxin City. Therefore, whether it is a municipal government or a county-level government, it should increase its support for public health, provide certain support in funds and policies, and cooperate with disease control agencies to establish a modern health resource allocation indicator system to ensure its practicality. Feasible, and optimize and reorganize health resources in key areas to create favorable conditions for disease prevention and control.

### ***5.2 Coordinated Development of Emergency Capacity in Cities, Counties and Districts***

Starting from the two directions of hardware facilities and software, providing necessary training for the staff of disease control agencies. Improve the professional awareness and technical level of the staff of disease control agencies, and truly combine theory with practice. The public health emergencies experienced in this city are all four-level public health emergencies. Theoretically, they should be handled by the counties and districts under their jurisdiction. However, due to the weak disease control, flow control and detection capabilities of the corresponding counties, especially the mining district Disease control, emergency response capacity is weaker, unable to complete emergency work, often need to seek help from superior disease control, so the coordinated development of emergency response capabilities of different disease control agencies in cities, counties and districts is particularly important.

### ***5.3 Strengthen the on-Site Handling Capacity of Emergencies***

For disease control agencies, the most important content is on-site handling capacity. Whether it is a city-level disease control agency or a district-level or county-level disease control agency, it should be aware of the importance of on-site treatment capabilities and continue to strengthen it as a core task. Not only to establish a correct ideology, but also to provide adequate funds and equipment. Strengthen the emergency training of staff in daily work, select backbones with strong professional skills, train them to become comprehensive health emergency personnel, and improve their professional level and emergency capabilities.

### ***5.4 Supplement and Strengthen Emergency Inspection and Detection Capabilities***

For major infectious diseases, the detection of pathogens is essential for epidemic research and judgment. Inspection and testing, on-site investigations and case-control investigations are the three pillars of emergency treatment. Among them, inspection and detection are the key links, which have a great influence on the emergency treatment capacity of disease control. At present, there is a shortage of laboratory inspection personnel in disease control institutions. Compared with working in disease control, medical inspection professional technicians are more inclined to work in clinical medical institutions, resulting in the introduction of new employees of hospital inspection professional technology for several years. For disease control at the district and county levels, there is a serious shortage of inspectors. In some districts, there are no full-time inspectors, and other departments have part-time inspectors. The above problems have led to a weakening tendency of CDC in emergency inspection and detection capabilities.

## **6. Conclusion**

Analyze the status of public health emergency response capacity and propose emergency management countermeasures, which is of great significance to improve the emergency response capacity of public health emergencies. According to the CDC emergency response capacity of public health emergencies, the corresponding management countermeasures are proposed to improve its emergency response capabilities. Disease prevention and control agencies' public health emergency response capabilities need to be further improved. It is recommended to further strengthen personnel training, implement security mechanisms, reserve talent teams and organize relevant personnel training resistance models.

## References

- [1] Wang Rongmei, Shi Nianke, Zhao Yue. Application of simulation teaching of medical and nursing cooperation in nursing in operating room. *Chinese Journal of Nursing*, Vol.50, No.3, pp.336-339, 2015.
- [2] Deng Rui. Analysis of the effect of surgical nursing cooperation path in improving the professional quality of young nurses in the operating room. *Contemporary Medicine*, Vol.23, No.30, pp. 181-183, 2017.
- [3] Peng Chunxia. Analysis on the importance of nurses 'professional qualities in modern nursing work. *China Practical Medicine*, Vol.7, No.34, pp. 255-256, 2012.
- [4] Liang Xiuqin, Liu Ruifang. Investigation and research on the factors influencing the core competence of nurses 'professional literacy. *Inner Mongolia Medical Journal*, Vol.48, No.3, pp. 330-331, 2016.
- [5] Li Zekai, You Liming, SallyWC. Reliability and validity of the Chinese version of the Career Success Scale in the measurement of medical staff in Grade A hospitals. *Chinese Journal of Nursing*, Vol.48, No.9, pp.828 -830, 2013.
- [6] Li Zekai, Chen Yanya, You Liming. Analysis of the status quo and influencing factors of nurses 'career success. *Journal of Nursing Science*, Vol.32, No.6, pp. 64-67, 2017.