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Research On the Construction of Monitoring System for Responding to Major Public Health Emergencies in Border Areas of Yunnan

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Abstract

Background

The special geographical position of Yunnan Province as the key area and frontline of "external prevention and importation", the difficulty and pressure of prevention and control in border areas is high, the prevention and control of the epidemic in Yunnan Province is crucial to the overall situation of the province and even the whole country. Covid-19 exposes alarming gaps in Infectious Disease Surveillance in Border Areas.

Objectives

Infectious disease surveillance is an important tool for early identification and prevention and control of infectious diseases. Regular disease surveillance of emerging infectious diseases is essential to be able to respond to pandemics and control them early through the construction of infectious disease surveillance systems to build stronger and better health systems.

Method

Summarize and sort out the existing monitoring system and problems using a combination of qualitative research methods such as literature methods, group interviews, and expert consultation. Using a combination of typical and stratified

sampling methods, a questionnaire was used to analyze the current status of monitoring and management in border counties in Yunnan Province.

Results

There is no statistical difference in surveillance and prevention between the state and county levels in response to major public health emergencies, and the current surveillance system is difficult for epidemic dissemination, prediction and timely and effective follow-up.

Conclusion

The border areas of Yunnan Province have not established an effective epidemic surveillance system, lack of diversified channels and ways to disseminate epidemic information, difficulty in accurately grasping the progress and changing trends of the epidemic, and risk awareness has not been strengthened and transformed to the detriment of active prevention, control and management of infectious diseases.

Keywords: Epidemic prevention and control; Infectious diseases; Surveillance system; Yunnan border area

Introduction

The so-called epidemic surveillance refers to the method of prevention and control of infectious diseases. After the

occurrence of an infectious disease, epidemic surveillance is carried out mainly through the timely and accurate collection and release of epidemic data and information, so that personnel involved in epidemic prevention and control can grasp the epidemic information in a timely manner, facilitating the accurate formulation of relevant prevention and control measures and guiding the effective implementation of epidemic prevention and control work, and epidemic surveillance plays an important role in the prevention and control of major infectious diseases. An early warning system is an important tool for the early identification and prevention of infectious diseases. A surveillance and early warning system is a timely monitoring and early warning activity for possible risks in the process of occurrence and development of public health emergencies. A perfect monitoring and early warning system can ensure that when a public health emergency occurs, the relevant departments can grasp the situation at the first time and organise the release of information to warn the public and provide guidance on prevention and control, so that control can be carried out at the fastest speed to prevent missing the best time for prevention and control.

The border areas of Yunnan are difficult to carry out timely and effective information tracking due to their special geographical location and high population mobility. The construction of an epidemic surveillance and early warning system is the foundation of the prevention and control system for public health emergencies. Epidemic management emphasises the principle of prevention and should always be ready to be able to respond quickly to an epidemic. As a prerequisite and key to public health emergency management, the construction of a timely and effective scientific monitoring and early warning system is of great significance in maintaining the safety of people's lives.

Discussion

Inaccurate and unstable sources of information

The scientific and accurate risk assessment and evaluation of the epidemic is inadequate. The sources of information obtained from the public are uncertain, for risk research and judgement is basically conducted through the public, and there is uncertainty in the release of information. Therefore, it is difficult to collect complete data and to effectively use multiple sources of data. Data collection does not have access to hospital nucleic acid data as per standing information data requirements, and information systems are not interoperable. The CDC has no administrative authority and requires multi-departmental collaboration to provide data.

Weak information technology construction

Information technology construction is lagging behind and there are problems with information systems. Hospital systems are incompatible, information systems are not particularly well developed, there is a lack of data sharing mechanisms between relevant departments, the utilisation of data is low and interoperability of data cannot be achieved. The information

system has problems with logging in, which affects vaccination. It is hoped that early warning and information sharing can be improved and that the two systems can be combined to form a system integration, including the system for planned immunisation, to achieve interoperability, which will make epidemic management very convenient. In the early stages of epidemic control, the failure to quickly establish sentinel surveillance in a larger area to enhance early detection of cases can easily infect more potential infected persons, and the rapid spread of the epidemic is not conducive to the control of the epidemic. The existing base of fever sentinel clinics is difficult to renovate and difficult to land.

Inadequate number and capacity of professional staff

The number of grassroots staff is insufficient. During an epidemic, medical institutions have to carry out their daily work in addition to responding to the importation of the epidemic. In particular, the city's grassroots township health base is weak and there is still a shortage of staff. The staff to carry out nucleic acid testing is stretched, and while the regular situation can be dealt with, there is a shortage of actual testing staff. As many staff have been drawn to work at the card sites and the basic health checks at the township hospitals are weak, the health centres can no longer guarantee the work available. Not only do they need to be responsible for the day-to-day work of the hospital, but they also need to undertake epidemic prevention and control work, and there is a shortage of staff with many tasks.

Difficulty in completing nucleic acid testing and lack of qualified nucleic acid testers

Nucleic acid testing is too difficult to be carried out by medical institutions and customs, and the high cost of transporting nucleic acid tests makes it impossible to carry out regular control work. And there is a lack of qualified nucleic acid testing staff. The difficulty is that there are not enough staff, not only do fever clinics need to be manned 24 hours a day, but so do pre-screening triage clinics. The infection unit is completely understaffed and no one is willing to be assigned to the infection unit, so staff can only be drawn from the infectious disease unit and the general unit to carry out the work, but there are still not enough staff with intermediate titles.

Recommendations

Improve and optimize the system of epidemic risk research and evaluation

As the basis of epidemic early warning, the existing system of epidemic risk assessment needs to be further improved and optimized in order to improve the accuracy and timeliness of epidemic risk assessment as far as possible. First of all, epidemic risk assessment is highly professional and requires the participation and joint consideration of experts from different fields to avoid misjudgement of epidemic risk due to personal or professional weaknesses. In addition, it is necessary to establish a communication and dialogue mechanism between the

team of risk research experts and the decision makers to ensure that the decision makers can get the opinions from the authoritative research team at the first time, so that they can make timely and accurate risk research and make good monitoring and early warning of the epidemic [4,5].

Make full use of information technology to build a data platform for prevention and control and early warning

Use information technology such as big data to collect data from multiple sources and to share and interoperate regional data. The Ministry of Health will strengthen the communication between the various departments and enhance the use of data to grasp the data on the spread of the epidemic and carry out scientific prevention and control as early as possible. Further integrate the current overall structure of the data platform, realise data exchange between the county, city and provincial platforms, build a data platform model, and improve the response speed and processing efficiency of the monitoring and early warning system. Integrate the information collected by the data platform and realise open sharing of data. [6] To improve the monitoring sensitivity of the early warning system and to establish a unified data standard, the construction of a prevention and control early warning data platform is a long way to go, and the use of information technology can further improve the level of prevention and control and medical care at the border. [7,8]

Strengthen the construction of professional personnel and improve the level of monitoring expertise

Public health investment should be increased to strengthen the construction of professional talent teams in disease control institutions and to improve the ability of disease control and medical institutions to prevent, control and deal with public health emergencies in the shortest possible time to control the epidemic hazard to the lowest level and prevent the further spread and dissemination of the epidemic. The response to this epidemic has highlighted the need to reform the training of health personnel. The quality of public health personnel training should be improved from the talent training end by establishing unified talent training objectives, strengthening students' professional skills and comprehensive quality education, and establishing a corresponding incentive mechanism for talent training to improve the emergency handling capabilities of professionals. It is necessary to strengthen the training of epidemic surveillance skills knowledge for professionals in medical institutions and health-related departments, and relevant training and drills can be conducted for on-site flow transfer and nucleic acid testing to further improve the construction of a professional talent pool that can effectively control epidemics in the bud.

Strengthen the construction of epidemic surveillance systems and improve the effectiveness of monitoring of public health emergencies

Establish feasible and efficient monitoring and evaluation indicators at different stages before, in response to and after an epidemic, strengthen sentinel surveillance of new infectious diseases can improve epidemic surveillance and early warning capabilities, strengthen the sentinel functions of medical institutions, disease prevention and control institutions and other professional institutions, and promote the relocation of prevention and control gates. [9,10] The implementation of dedicated personnel responsible for surveillance work to ensure the quality of monitoring work, and constantly improve the monitoring capacity. A surveillance system should be quickly established in a larger area to strengthen early warning of the epidemic and to be able to detect and isolate other possible cases at an early stage to avoid the emergence of more infected people and increase the pressure and difficulty of prevention and control. More investment should be made in the construction of epidemic surveillance and early warning systems to make epidemic surveillance and early warning a regular prevention and control effort. [11]

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