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Analysis of Knowledge Mapping Hotspots on Public Health Emergencies

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Abstract: *To collect and analyze the research literature in the field of public health emergencies at home and abroad, in order to understand the research situation of public health emergencies in foreign countries, obtain the relevant experience of dealing with public health emergencies, and provide reference and inspiration for the relevant practice and research in China. Methods by using the methods of knowledge map visualization and literature analysis, the knowledge map was formed and visualized analysis was carried out. Conclusion the research content of foreign literature is relatively comprehensive and specific, showing diversified and specific characteristics, while the research content of Chinese literature is relatively simple. From the perspective of research focus, foreign research focuses on the construction of legal system, institutional system, material security system and education and training related to public health emergencies. Domestic research mainly focuses on strengthening the government's leading position in response to public health emergencies and the prediction and early warning mechanism, but the research content in the prediction and early warning of public health emergencies is not comprehensive.*

Keywords: *Public Health Emergencies; Knowledge Map; Cite Space*

1. Introduction

With the continuous changes in the social environment and the rapid development of the national economy, the quality of people's lives has gradually improved, and the resulting public health incidents have also continued to develop.

Public health emergencies refer to major infectious disease outbreaks, mass diseases of unknown origin, major food and occupational poisonings, and other emergency events that seriously affect public health that occur or may cause serious damage to public health, which is sudden, complex, destructive and unpredictable. In recent years, public health emergencies at home and abroad have occurred frequently, causing major losses of life and property. Such as SARS, "melamine", H1N1 influenza, hand, foot and mouth disease and other incidents. Public health emergencies not only test our country's ability to respond and manage in this regard, but also expose the problems that my country has in dealing with public health emergencies. At the end of 2019, a new type of coronavirus pneumonia outbreak began in Wuhan, my country. As of February 23, 2020, more than 77,000 people have been infected and more than 2,400 people have died. During the outbreak of the epidemic, the Party Central Committee and the State Council attached great importance to it, and General Secretary XiJinping issued important instructions calling for putting people's life safety and health first, and we must attach great importance to prevention and control. This article attempts to research and analyze the literature on public health emergencies at home and abroad, to find research hotspots in related fields at home and abroad through Citespace knowledge map, and to analyze the operable solutions proposed by relevant domestic and foreign documents, which will help us The governance of public health incidents provides reference and inspiration.

2. Sample selection

Perform advanced search on CNKI. Select "All" in the document classification list, and set the search condition to "Subject=Emergency Public Health Incident Management". In order to improve the accuracy of analysis of relevant documents, set the document source category when searching. It is a "core journal", the retrieval time is set from 2000 to 2020, a total of 1183 documents were retrieved, and the number of articles published by related authors was statistically analyzed. Analyze all the retrieved documents one by one, delete documents that are inconsistent with the management of public

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health emergencies, and delete 384 documents closely related to the subject terms, and analyze the distribution of keywords in the literature. In the selection of foreign literature samples, choose the core Web of Science database (web of science includes SSCI and SCI databases) with certain advantages in the quality and scope of the literature, and use TS (topic) = ("Public health emergency") or TS=("Infectious disease prevention") or TS=("Infectious disease management") or TS=("Infectious disease management") or TS=("Infectious disease control") or TS=("Public health prevention and control ") or TS=("Infectious disease control") or TS=("Infection management") is the search type, the retrieval time is 2000~2020, a total of 1582 documents were retrieved, and finally according to the journals in the field of public health emergency management The impact factors and the research content of the thesis, the key literature manually selected for hot spot analysis is 1,247.

3. Analysis of research hotspots on public health emergencies at home and abroad

In order to analyze the domestic literature related to the management of public health emergencies, this paper uses Citespace software to draw a key word knowledge map for relevant research in the management of public health emergencies at home and abroad, and set the Time Slicing in Citespace to 2000~2020 , Note types is set to Keyword, Selection Criteria is set to T50, the knowledge map of public health emergencies research hotspots at home and abroad is shown in Figure 1, and the high-frequency key to the literature research hotspots of public health emergencies governance at home and abroad For statistical analysis of words, see Table 1. The node and font size in the figure reflect the frequency of keyword appearance. The larger the node and font size, the higher the frequency of the keyword in the research literature of the related field and the greater the influence. The connecting lines between nodes represent the common occurrence of keywords. The thicker the connecting lines, the higher the frequency of common occurrences. The size of the keywords and the size of the nodes in the figure objectively reflects the research enthusiasm in different periods. The centrality in Table 1 reflects the importance of the keyword node. The greater the centrality value, the more important the keyword node is.

From the chart, it can be found that the literature on the management of public health emergencies abroad is Infection disease control, infection, transmission, outbreak, epidemioiogy, Infections disease, Public health, surveillance, disease, Influenza, etc. according to the frequency of occurrence of keywords. This reflects According to the research hotspots of foreign literature in this field, the top three rankings according to the centrality are infection (0.30), transmission (0.18), and infections disease (0.16), indicating that these three keyword nodes have high importance. The frequency of occurrence of keywords in the domestic literature related to the management of public health emergencies is in order of public health emergencies, public health, emergencies, emergency management, student health services, public emergencies, public health emergencies, and life changes. Incidents, public health incidents, emergency response capabilities. This reflects the research hotspots in related fields in China. In terms of centrality, the top three are public health emergencies (0.69), public health (0.60), and emergencies (0.23), indicating that these three keyword nodes have relatively high research hotspots in this field.

Table 1 High-frequency subject terms of research on public health emergencies at home and abroad

Serial number	High-frequency keywords abroad			Domestic high-frequency keywords		
	Frequency of occurrence	Centrality	Key words	Frequency of occurrence	Centrality	Key words
1	81	0.15	Infection disease control	152	0.69	Public health emergency
2	40	0.30	infection	48	0.60	Public health
3	35	0.18	transmission	17	0.23	Emergencies
4	35	0.10	outbreak	14	0.19	Emergency management
5	32	0.15	epidemioiogy	14	0.13	Student Health Service
6	29	0.16	Infections disease	12	0.16	Public emergency
7	29	0.14	Public health	12	0.19	Public health emergency
8	28	0.13	surveillance	11	0.00	Life change event
9	24	0.11	disease	11	0.02	Public health event
10	20	0.13	Influenza	10	0.15	Emergency capability

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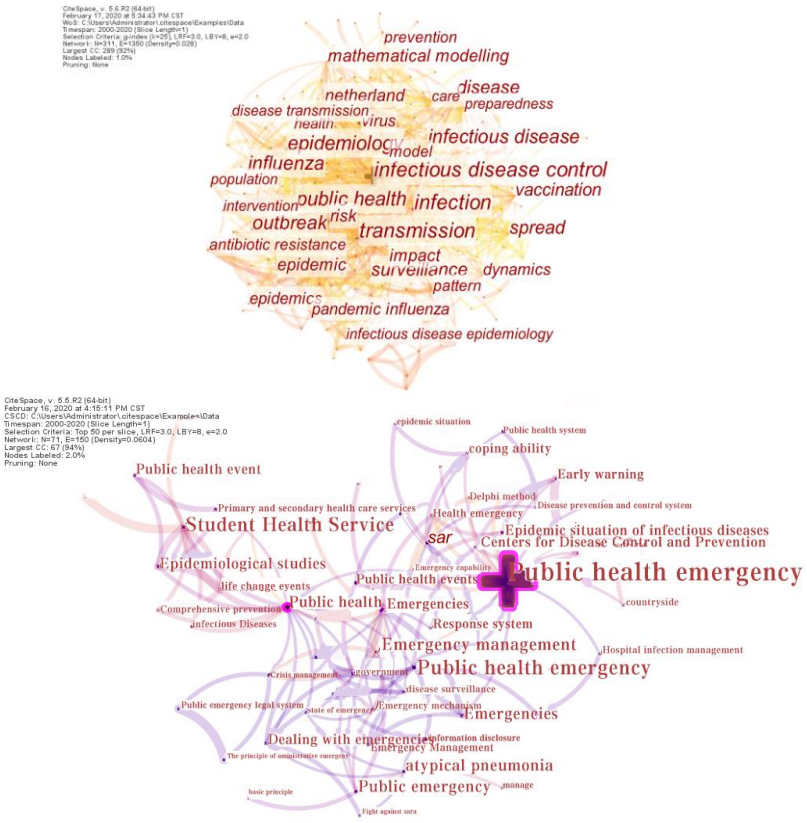

Figure 1 The hotspot knowledge map of public health emergencies at home and abroad (foreign and domestic)

In the generated timeline view, the horizontal axis represents time, and time gradually increases from left to right; the vertical axis represents clusters, which are arranged in order of size from top to bottom. The node represents the keyword, and the size of the node represents the importance of the keyword. By comparing the number of cluster points, we can understand the important role of the cluster in the research field. It can be seen from the figure that the label word of cluster 0 is "immune response". Major public health incidents occur from time to time throughout the entire time frame. The plague, dengue fever in the early stage, and influenza and SARS in the later stage have caused heavy casualties. The foreign research at this stage mainly revolves around how to cure these infectious diseases. Research on the immune response of major infectious diseases has made certain achievements at this stage. T lymphocytes, B lymphocytes, K lymphocytes, NK lymphocytes and other related functions and theories have been perfected and matured at this stage, and will be used for the next infectious diseases. The prevention and control work laid the foundation. The label word of cluster 1 is "mathematical modelling". The mathematical model is applied to the prevention and control of infectious diseases. The incidence and transmission data of infectious diseases are mathematically modeled, which greatly improves the accuracy of predicting infectious diseases. The control of related epidemics provides theoretical support. The label word of cluster 2 is "infectious disease", which can be obtained in combination with Table 1. The frequency of occurrence is 29 and the centrality is 0.16. It is a high-frequency keyword that appears in the research on the management of public health emergencies, and has a high centrality. . It can be concluded that the study of infectious diseases is the key content of the research on the management of public health emergencies. The label word of cluster 3 is bacteria. The relevant literature has studied the public health emergencies caused by bacteria, viruses, etc., and put forward scientific sterilization methods to provide theoretical guidance for controlling public health emergencies from the source. The label word of cluster 4 is "epidemiology", and the content of epidemiology is highly overlapped with the management of public health emergencies, especially in the prevention, control and treatment of infectious diseases, which improves the science of management of public health emergencies Sexuality and normativeness. The label word of cluster label 5 is "vaccination". The United Kingdom and the United States began to promote rubella vaccines in the late 1960s and early 1970s, and countries around the world began to use them one after another. The popularization of rubella vaccine has effectively prevented and controlled rubella pain, greatly reduced the incidence, and achieved excellent preventive effects. The label word of cluster 6 is

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"disease". The occurrence of public health emergencies is often accompanied by related diseases. Therefore, the research on the management methods of public health emergencies is inseparable from the research on diseases. The label word of cluster 7 is "infectious disease control". It can be seen from Table 1 that the frequency of occurrence of infectious disease control is 81 times, the centrality is 0.15, the frequency of occurrence is the first of all keywords, and the centrality is at the forefront of all keywords. It can be seen that infectious disease control is a study of public health emergencies. The central issue of governance. The label word of cluster 8 is "hiv persistence". The prevention and treatment of AIDS has always been a worldwide medical problem, and it has not been overcome so far. The research on AIDS treatment has been committed at home and abroad. At present, the main treatment for AIDS is the use of cocktail therapy. In a new study, researchers from the Scripps Research Institute and other research institutions in the United States have successfully verified the principle of an advanced HIV vaccine strategy. This method may also effectively protect people from other deadly infectious diseases, but there is still a long way to go before the actual research and production of vaccines and their application to the prevention and treatment of AIDS, as shown in Figure 2.

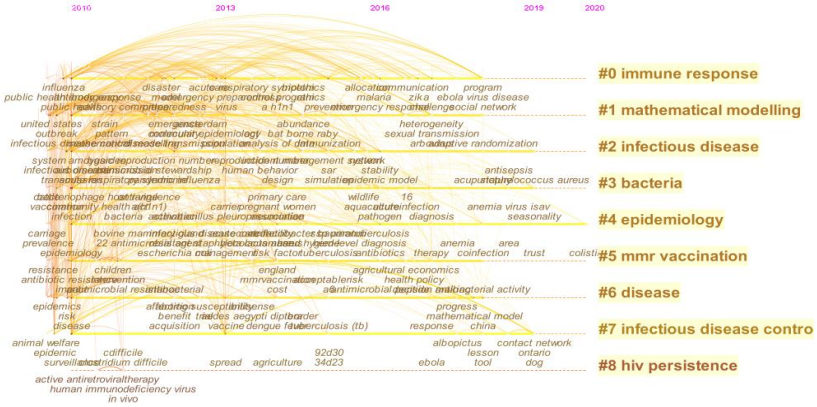

Figure 2 Keyword co-occurrence network map (timeline view)

4. Insufficient management of domestic public health emergencies

4.1 Lack of awareness of public safety management and insufficient emergency legal system

Local leaders blindly pursue political achievements and fail to pay enough attention to public health emergencies. Governments and social organizations have insufficient experience in responding to public emergencies, and the society as a whole is not sufficiently prepared for public emergencies. Secondly, my country has not yet formed a relatively complete legal system for responding to sudden public health situations. It is impossible to clarify personal rights, responsibilities and obligations when a public health emergency occurs. The absence of clear penalties for those involved in underreporting, concealing, or concealing the epidemic cannot form a deterrent. Failure to severely penalize behaviors that disrupt market order during public health emergencies has left room for illegal businesses to hoard.

4.2 Lack of effective dynamic monitoring and early warning system

The early warning system is an important component of the management of public health emergencies. A scientific and effective early warning system is the key to identifying public health emergencies. Otherwise, the epidemic will be easily ignored or even ignored by the government, social organizations, and the public. The governance of health incidents is very unfavorable. Compared with the relatively complete early warning systems and detection systems in developed countries, my country's early warning and detection capabilities for public health emergencies appear to be insufficient. For example, in the early stage of the new type of coronary pneumonia, local government officials lacked adequate information on the epidemic. Accurate understanding and understanding have led people to underestimate the spread of the virus, and the concealment and underreporting of test results has promoted the further spread of the epidemic, which is extremely detrimental to the management of such public health emergencies.

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4.3 Insufficient investment in emergency resources and waste coexist

Compared with developed countries, the legal system for the management of public health emergencies in my country is immature, with insufficient financial investment and untimely provision of resources. On the one hand, there is a waste of resources for over-investment in some areas. On the other hand, where resources need to be invested, sufficient resource support is not available, resource allocation is unreasonable, and resource utilization efficiency cannot be fully utilized. Existing systems still have a lot of room for systemicity, comprehensiveness and availability. After the outbreak of the new type of coronavirus pneumonia, Wuhan, especially the local medical system, has experienced a shortage of protective equipment. Although materials were donated from all over the country later, the structural shortage of protective equipment still exists, which poses a huge threat to the lives and health of medical workers and brings great inconvenience to the control of the epidemic. In addition, the local government's emergency plan for public health emergencies is not highly practical, and effective material guarantees are obtained at the initial stage of the incident.

5. Experience in the management of public health emergencies abroad and its enlightenment to my country

Big data and new media play an important role in the emergency management of public health emergencies. Big data processing and new media are new directions for responding to public health emergencies. Through cluster analysis, high-speed transmission, feature analysis, etc., processing huge public health event-related data can provide scientific guidance for public health emergencies. The new media refers to the use of digital and network technologies to disseminate information related to public health emergencies through the Internet, mobile phones, televisions, satellites and other electronic communication devices to users and related personnel. The application of big data has improved the accuracy of emergency prediction, improved the early warning system of the public health emergency system, and improved the effectiveness of information exchange and communication, the accuracy of public opinion, and the transparency of information. At the same time, we have noticed that the application of new media may bring about information leakage and network rumors. The privacy leakage and rumors of related media should be strictly controlled, and a special privacy protection mechanism and a rumors dispelling mechanism should be established in a special period to ensure that it is sent. The security and reliability of the message.

Performance evaluation is an effective way to manage public health emergencies. The United States is the first country in the world to evaluate emergency response capabilities. It has incorporated training on emergency response to public health emergencies into the emergency response capability assessment procedures. With reference to the existing experience of developed countries, health departments at all levels in my country should follow the standards of the Ministry of Health of the State Council to conduct process evaluation and effect evaluation for a series of emergency preparations such as emergency training for public health emergencies, and conduct regular preparations. Quality assessment and inspection can not only promote the effect of training and improve the quality, but also mobilize the enthusiasm of relevant personnel, and can also continuously discover negligence and make up for loopholes in the process.

6. Conclusion

In recent years, the state has given strong support to public health in terms of policies and funds, which has alleviated the backward situation of public health to a certain extent. At the same time, the corresponding technology also provides help to deal with public health events.

References

[1] Liu Junxiu, Zhang Hui, Hu Guoqing, Huang Jianshi. Progress in the evaluation of health institutions' ability to respond to public health emergencies [J].Chinese Journal of Preventive Medicine, 2008, 9(7).

[2] Li Wei. Research on the impact of public health surveillance on the prevention and control of infectious diseases [J]. Rural health in China, 2016,(04).

[3] Huo Fei, Xu Na, Liu Changna, Wang Fengshan. Application of microblog and other new media information monitoring in the prevention and control of major infectious diseases[J]. Occupation and

ISSN 2616-7433 Vol. 3, Issue 3: 35-40, DOI: 10.25236/FSST.2021.030305

health, 2014, 30(03).
[4] Zou Ling, Ren Jianping. The emergency mechanism of foreign public health emergencies and its enlightenment[J]. Journal of Hangzhou Normal University (Medical Edition), 2006,(05).