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The application of One Health concept in China and its practice and innovation in cross-sector cooperation

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ABSTRACT

Background: This study explores the opportunities and challenges associated with the One Health concept in China. Taking the practice of multi-sector health collaboration in China as an example, this study analyses the possible obstacles and opportunities.

Methods: From June to August 2023, 30 semi-structured interviews were conducted with experts from the Health Commission, Centre for Disease Control and Prevention, Department of Ecology and Environment, Ministry of Agriculture and Rural Affairs, Department of Transportation, Administration for Market Regulation, and other departments. Qualitative analysis of the interview data was performed using NVivo12.

Results: The One Health concept has universal appeal and application potential, but there are many challenges in practice. First of all, cross-departmental cooperation requires clear departmental responsibilities and coordination strategies, but in reality, it is often due to the overlapping of functions between departments or the lack of effective communication mechanism, resulting in insufficient cooperation. Secondly, the low two-way interaction and the lack of effective information exchange and data sharing mechanisms also limit the full implementation of the One Health concept. In addition, the shortage of professional human resources further exacerbates the problem, and finally, the degree of awareness and emphasis of society on public Health is also a key factor affecting the implementation of the One Health concept.

Conclusion: The concept of One Health has shown great potential and necessity in the collaborative work of multiple departments in China, but there are still significant obstacles in the implementation process of One Health concept in multiple departments. However, to fully realize this concept, more efforts are still needed in the areas of cooperation mechanisms, professional talent training, information exchange and social awareness. Future work should focus on strengthening intersectoral communication and coordination, raising public health awareness, and optimizing relevant policies and strategies to better address global public health challenges.

1. Introduction

The recent increasing attention provided to global zoonotic disease outbreaks demonstrates the importance of multisectoral and multidisciplinary cooperation and coordination, as advocated for by the International Health Regulations (IHR 2005). One Health is defined as a collaborative, multisectoral, and interdisciplinary approach that works at the local, subnational, national, regional, and global levels with the goal of achieving optimal health outcomes by recognising the interconnections between people, animals, plants, and their environments [1]. The One Health approach is now widely recognized in global health security efforts because of its potential to contribute to intervention, prevention, detection, and mitigation related to infectious diseases (including emerging, re-emerging, and endemic), as well as efforts to reduce the spread and impact of non-communicable diseases [2].

Over the past 20 years, the world has experienced outbreaks of severe acute respiratory syndrome (SARS) in 2003, influenza A (H1N1) in 2009, the Ebola virus in 2014–2019, and the novel coronavirus disease (COVID-19), which has spread worldwide. With societal and economic development, convenient transportation accelerates the process of globalisation and makes epidemics spread across borders and regions quickly, making them difficult to control [3–5]. More than 75 % of

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emerging infectious diseases originate in animals [6] and cause an estimated 2.6 billion human cases and 2.7 million deaths annually [7]. The problem of zoonotic diseases has emerged in a more complex and intractable form than seen previously [8]. The frequent occurrence of pandemics has created significant challenges to public health in China and the world. The complexity of host ranges [9] transmission routes [10] and transmission environments [11] have forced people to consider reconstructing the current logic used to solve health problems based on science and technology created during the industrial and life science revolutions, and the starting point of medical research has shifted from disease to health. The narrow thinking which only takes 'human' as the main body will be changed to the holistic thinking of 'human–animal–environment'.

In a relatively short period, Chinese society has undergone changes that developed countries experienced over centuries and has also undergone reconstruction and rejuvenation from the highest levels of criticism of its traditions. China is currently undergoing a rapid and profound transformation that includes changes in its social form and the impact of other inevitable international situations. Changes in society overall are deeply affecting the health of the Chinese people. Health status is a comprehensive indicator, as health is not only a medical issue but also promotes economic development, social harmony, and cultural prosperity and will provide a solid shield for the country's public health security.

Although some progress has been made at the national level through the support of various government agencies, the definition and connotation of One Health remain vague. Neither a unified understanding of the elements nor an appropriate connotation system of One Health has been established. Challenges remain in ensuring effective collaboration and coordination across key sectors at the government level, resulting in a lack of evidence-based strategies to optimize regional One Health practices. At present, the research on One Health has mostly focused on factors such as the concept, background, development history, and contemporary value [12–14]. Literature on the application of specific disease cases is also relatively common [15–17], however, research on the application of the One Health concept in China through the realistic investigations of various departments is scarce. Therefore, to develop a scientific understanding of practice, the scientific connotations of capacity-building for One Health need to be clarified and summarised.

The purpose of this study is to document and summarize major achievements and identify policy and practice gaps through interviews with various departments of the Chinese government to support the development of One Health in China and worldwide. These findings will provide leaders and policymakers with insights into investing time and resources in China and worldwide to establish effective multisectoral coordination mechanisms.

2. Methods and materials

2.1. Material source

The interview outline was based on themes highlighted in the relevant literature on One Health and themes related to multi-department collaboration. The interview outline was reviewed by two social science and medicine professors. Three test interviews were then conducted to test the accuracy and coherence of the questions and the approximate duration of the interviews. The first was conducted with a PhD student, followed by two subsequent test interviews conducted with experts from the Zhejiang Provincial Audit Office and Qinghai Provincial Health Commission to refine the questions and improve the validity of the interview outline (Supplement 1: Interview Outline).

Considering the regional differences in China, this study selects four provinces according to the GDP ranking of Chinese provinces in 2021: Beijing (with a GDP of 4026.96 billion in 2021, ranking 14th among Chinese provinces in North China), Zhejiang (with a GDP of 7351.58 billion in 2021, ranking 4th among Chinese provinces in East China), Hainan (with a GDP of 647.52 billion in 2021, ranking 28th among Chinese provinces in South China), and Qinghai (with a GDP of 334.66 billion in 2021, ranking 30th among Chinese provinces in Northwest China). Experts from government departments related to One Health in each region (Health Commission, Centre for Disease Control and Prevention, Department of Ecology and Environment, Ministry of Agriculture and Rural Affairs, Department of Transportation, Administration for Market Regulation, and other departments) were selected for interviews based on convenience sampling(Table 1).

Thirty semi-structured interviews with experts were conducted between June and August 2023 to gather data on practical experiences and specific background information relevant to One Health within and between departments. Before each interview, the reasons for conducting the research were explained to the participants, who provided informed consent. The entire process was audio recorded, with each interview lasting 30–60 min.

2.2. Methods

NVivo12 was used to encode and analyse the interview data at three levels: open coding, axial coding, and selective coding [18]. This process conformed to Grounded Theory proposed by Strauss and Corbin for

Table 1
Basic information of respondents.

		Number of people (persons)	Proportion (%)
Gender	Male	19	63.33
	Female	11	36.67
Age	25–29 years old	1	3.33
	30–39 years old	5	16.67
	40–49 years old	5	16.67
	50–59 years old	12	40.00
	60 years and above	7	23.33
Working years	1–4 years	1	3.33
	5–9 years	5	16.67
	10–14 years	1	3.33
	15 years and above	23	76.67
Educational level	Bachelor degree	10	33.33
	Master's degree	18	60.00
	Doctoral degree	2	6.67
Institution	Centre for Disease Control and Prevention	4	13.33
	Health Commission	3	10.00
	Ministry of Agriculture and Rural Affairs	3	10.00
	Ministry of Science and Technology	3	10.00
	Department of Ecology and Environment	2	6.67
	Provincial People's Government	2	6.67
	Administration for Market Regulation	1	3.33
	Chinese Medical Association	1	3.33
	Community Service Center	1	3.33
	Customs	1	3.33
	Department of Education	1	3.33
	Department of Finance	1	3.33
	Department of Human Resources and Social Security	1	3.33
	Department of Public Information	1	3.33
	Department of Transportation	1	3.33
	Department of Urban Management And Law Enforcement	1	3.33
	Organization Department	1	3.33
	Patriotic Sanitation Office	1	3.33
	State-owned Assets Supervision and Administration Commission	1	3.33

qualitative research. All interview data were analysed and coded, with the code list being redefined and ordered as topics emerged during the coding process. Finally, everything was reviewed to ensure that the coding system provided consistent and appropriate classification.

2.2.1. Open coding

Open coding is the first-level of coding [19]. In the open coding stage, the researcher read the interview materials word-by-word without any presupposition or bias, defines and condenses the respondent's response content, codes and labels it, and generates initial concepts from the source material. These initial concepts are regrouped and classified to obtain new subcategories. The purpose is to find the same or similar types from the original data, and at the same time to name the types to determine the concept and dimension of the types. Open coding consists of three steps: (1) Conceptualization. Extracting the content of the original data, breaking it into independent sentences, and extracting the coding elements of these sentences, and then transforming the popular language into the refined language to form the preliminary concept; (2) Concept classification. Optimize, analyse and screen concepts, gather concepts of the same category, analyse the relations between words, and form concept clusters belonging to the same category; (3) Categorization. Further abstract and name the concept cluster.

2.2.2. Axial coding

Axial coding is the secondary coding process designed to establish connections between categories [19]. During coding, it is necessary to analyse the differences and connections between the categories and find the 'main axis' between the categories. After determining the main category with a higher degree of generalisation, there is also a level of category; that is, the main category and subcategory. It is the process of finding patterns, connections, and causations that helps to construct relationships between data to deepen our understanding of a subject.

2.2.3. Selective coding

Selective coding is a three-level process to excavate the core category from the main category and establish relationships between the category and the core category. Through selective coding, internal relationships can be elaborated in the form of 'storylines' and theoretical frameworks can be developed [18].

2.3. Theoretical basis for the coding process

Grounded theory is an exploratory qualitative research method that aims to systematically obtain and analyse data to discover or construct theories [20]. Grounded theory method can explore and establish theories from the bottom up, by collecting textual data, finding concepts and categories that can reflect the characteristics of things or phenomena, and then constructing relevant theories through connections between these concepts and categories. This approach allows researchers to understand phenomena more deeply and generate theoretical explanations that are closer to the data. This approach was effective in this study because it allowed the theoretical structure to be extracted from actual practice.

3. Results

3.1. Open coding

This study used open coding to obtain 32 initial concepts and 18 subcategories (Table 2).

3.1.1. Acceptance and application of One Health concept

The interview content and coding process revealed that the concept of One Health was "One Health" is a comprehensive methodology that aims to improve the health of humans, animals and the environment

Table 2
Initial concepts and subcategories formed by open coding.

Subcategory	Initial Concept	Interview Transcript
International environment	International cooperation	Countries are working together to increase understanding and discard stereotypes to face unknown health security challenges.
	Globalization Impact	In the context of globalization, the speed of virus transmission has also been greatly accelerated.
Social condition	Social consciousness	Public awareness also needs to be improved; for example, in public health emergencies.
	Social background	With the increasingly serious problems of global warming and environmental pollution, ecological environment protection has become the top priority of governments and all sectors of society.
Leadership	Political guarantee	But it can only be done with government support.
	Leading department	The National Health Commission led the establishment of a working mechanism for joint prevention and control of the novel coronavirus epidemic, with a total of 32 departments as members.
Incentive mechanism	Incentive mechanism	More financial support or bonuses will be given to medical workers engaged in the fight against the epidemic. Give honorary commendations to those who have made outstanding contributions.
Interaction mechanism	Bidirectional interaction	Each department is focused on its own affairs, operating in a silo
Risk assessment	Risk assessment	There are some things that are wonderful to think about, but may be too much for the resources to actually do. So start with an assessment of your resources against your goals.
Decision mechanism	Planning mechanism	There will be a plan every year.
	Examination and approval mechanism	Form an annual plan for a general audit project, which should be submitted to the local audit committee for approval.
Propagate	Media publicity	Through newspapers, radio, television and other platforms, increase publicity efforts to let the public understand environmental protection knowledge and information.
Joint commitment	Enhance governance capacity	Some sudden infectious diseases are impossible to prevent, and it is very important to improve our health management capacity.
	Concept recognition	This One Health concept is broad in scope and insight, and I believe that government departments will further adopt it and get better and better.
Management and coordination	Cooperative working mechanism	During the SARS period, our country established a joint prevention and control mechanism.
	Coordinate departments	Select representatives from government departments, set up liaison officers, and hold regular liaison meetings to strengthen communication and exchanges.
Communication	Conference	The leading department presided over the coordination meeting,

(*continued on next page*)

Table 2 (*continued*)

Subcategory	Initial Concept	Interview Transcript
		invited the co-organising department to participate.
	Education and training	Classification implementation personnel training to enhance the ability of prevent and control epidemic and respond to emergencies.
Resources	Human resources	There is a shortage of professional personnel, and the State deploys expert support in a timely manner as needed.
	Financial resources	We need to consider how to allocate and use funds related to epidemic prevention and control, and whether they are fully implemented.
	Material resources	Ambulances, wards, therapeutic drugs, testing reagents, sterilizing equipment and protective equipment should be prepared for the outbreak.
	Technical resources	The lack of a strong communication information platform, the first time to pass key information to each relevant department.
Preparedness and response	Emergency plan	Formulate and improve emergency plans and work plans to ensure standardized and effective handling of epidemics when they occur.
	Early warning and forecasting	Usually make plans, early warnings, and predictions.
Joint planning	Scientificity of planning	In terms of deployment, some of the deployment and adjustment of the transport sector lack scientific and continuous.
	Planning continuity	The development of the transportation industry requires long-term planning and continuous policy adjustments.
	Planning comprehensiveness	Many things and details need to be fully planned in the early stage, and various problems cannot be produced until the later implementation stage.
Allocate resources	Allocate resources	Allocate resources reasonably and equitably to various departments.
Departmental responsibility	Responsibility content	Departmental responsibilities should be clearly delineated. A lot of problems in collaboration are that the responsibilities between departments are not clearly demarcated, so everyone shirks responsibility for this matter in the end.
Evaluation mechanism	Quantitative assessment mechanism	For each position, set standards and quantify performance.
Feedback mechanism	Notification feedback	When the novel coronavirus is smooth, everyone pays more attention to it, and now it may be worse.
	Review	After the completion of the annual task or phased task, there is a review process, and there is an evaluation of how the task is performed.

through interdisciplinary collaboration. The interview results show that although the awareness of the concept of "One Health" is different in different countries and departments, the majority of respondents can recognize its practical application in work and have a favorable attitude toward it after understanding the concept. This demonstrates the universal appeal and application potential of the "One Health" concept, especially when addressing global public health issues.

Table 2 shows that there are significant obstacles in the implementation of the One Health concept in various departments in China. First of all, the responsibilities of each department are not clear, and there are often overlapping functions, which makes it difficult to achieve efficient coordination in actual operation. Secondly, the bidirectional interaction is low, there is a lack of systematic interaction mechanism between departments, there are obvious obstacles in the process of information sharing, and the imperfect information platform seriously affects the efficiency of cooperation between departments. In addition, collaborative work mechanisms are still in an imperfect state, and most collaborative work is reactive rather than active. Confusion over the responsibilities of the lead authorities has also become a challenge to collaboration, which makes it difficult to quickly form effective leadership and coordination in responding to public health emergencies. Finally, the shortage of professional human resources further exacerbates the problem, and the shortage of professionals and the lack of relevant training hinders the practical application and implementation of the One Health concept. Therefore, in order to better implement the concept of One Health, it is an urgent task to enhance cross-sectoral cooperation, improve information sharing mechanism and strengthen talent training.

3.1.2. *Current situation of multi-department collaboration*

We have found that multi-departmental collaboration is particularly critical when implementing the One Health concept. This collaboration is reflected in multiple aspects such as cross-sectoral collaboration, emergency response, data sharing and global collaboration. For example, public health emergencies require rapid response and planning, which requires close cooperation and information exchange between different sectors.

3.1.3. *Challenges and opportunities*

Although the concept of "One Health" has been recognized, there are still many challenges in practice. On the one hand, cross-sectoral cooperation requires clear division of responsibilities and coordination strategies, but in reality, it is often insufficient because of overlapping functions or lack of effective communication mechanisms between departments. On the other hand, the lack of effective information exchange and data sharing mechanisms also limits the full implementation of the "One Health" concept.

3.2. *Axial coding*

In axial coding, the 18 subcategories analysed in open coding were regrouped to form 6 main categories (Table 3).

The 18 subcategories are international environment, social condition, leadership, incentive mechanism, interaction mechanism, risk assessment, decision mechanism, propagate, joint commitment, management and coordination, communication, resources, preparedness and response, joint planning, allocate resources, departmental responsibility, evaluation mechanism and feedback mechanism. Through axial coding, the 18 subcategories are sorted into 6 main categories, which are system context, drivers, joint participation, coordination and communication, collaborative actions and evaluation and feedback.

3.3. *Selective coding*

Through an in-depth excavation of the interview records, the hierarchical structure and logic of each category were analysed, and the internal correlation of the main category was summarised. Regarding the concept of ‘One Health’, we linked the relevant areas to form a comprehensive view of the current state of multisectoral collaboration (Table 4).

Table 3
Main categories and category connotations formed by axial coding.

Main Category	Subcategory	Categorical Connotation
System context	International environment	The overall impression, cognition, and evaluation of the country in the world, as well as the political, economic, cultural, health, and other relations between the country and other countries and regions in the world.
	Social condition	Social people or groups generally have ideas on the country or region's social development, people's welfare and population structure, and other aspects of the situation.
Drivers	Leadership	Multi-department coordination should be led by the government with decision-making power. Preferably convened at the highest administrative level, with official support, to ensure that the synergy mechanism has the authority to coordinate and guide the work of various departments.
	Incentive mechanism	Through specific methods and management, mobilize the enthusiasm of personnel.
	Interaction mechanism	The departments are separate and able to perform their duties independently. Through mutual communication and cooperation to complete a task, with two-way interaction.
	Risk assessment	Quantitative assessment of the likely degree of impact or loss caused by an event or project.
Joint participation	Decision mechanism	The participation of various departments in collaborative governance requires advance planning and approval of the plan.
	Propagate	Educate and publicise relevant knowledge to the public through various media.
	Joint commitment	Increase recognition of the One Health concept to achieve a shared commitment to sustainable development.
Coordination and communication	Management and coordination	Establish effective communication and coordination mechanisms or set up relevant departments to promote the coordination of various departments.
	Communication	Various departments share knowledge and communicate through meetings, education, training, and other means.
	Resources	Resources include the quantity and quality of human, financial, material, and technical resources.
Collaborative actions	Preparedness and response	A series of action plans and measures to respond to emergencies.
	Joint planning	Scientific, continuous, and comprehensive aspects of joint planning.
	Allocate resources	Ensuring equitable and sustainable access to resources for all relevant sectors.
	Departmental responsibility	Division and determination of responsibilities and rights of functional departments.
Evaluation and feedback	Evaluation mechanism	Establish a quantitative assessment mechanism to evaluate the department's work results.
	Feedback mechanism	The feedback mechanism is used to adjust and improve cooperative behaviour over time.

Table 4
Core category relationship structure formed by selective coding.

Core Category	**Category Relation Structure**	**Relational Structure Connotation**
Multi-department collaborative mechanism	System context→Drivers, joint participation, coordination and communication, collaborative actions, evaluation and feedback	Multisectoral synergies are initiated and developed in a multilayered context of political, legal, social, economic, and other influences. The system context does not act as a set of starting conditions but acts dynamically on any synergistic link.
	Drivers→Joint participation, coordination and communication→Collaborative actions→Evaluation and feedback	The drivers that arise in the system context facilitate the generation and development of joint participation, coordination and communication, thereby generating and sustaining the capability of joint operational. The emergence of these factors further promotes the realisation of collaborative actions.
	Evaluation and feedback→Drivers, joint participation, coordination and communication, and collaborative actions	Through the evaluation and feedback of collaborative actions, further adjustment and improvement of the drivers, joint participation, coordination and communication, and collaborative actions, and other collaborative links, so as to make the multi-department collaborative status quo mechanism a virtuous cycle and sustainable development.

4. Discussion

"One Health" refers to the health of people, animals and the environment, promoting interdisciplinary and intersectoral cooperation. This concept can guide the implementation of sustainable development at the global, regional, national and local levels [21]. This study conducted 30 semi-structured interviews with experts from Chinese government departments from June to August 2023. Taking into account regional differences in China, experts were selected from relevant government departments in Beijing, which is the political center, Zhejiang Province as the economic hub, and from southern China's Hainan Province and Qinghai Province in the northwest. Based on the Grounded Theory method and considering the current state of multisector collaboration, the concept of One Health and its innovation and development were analysed, and some profound insights were obtained. These insights shed light not only on the application of the One Health concept to public health and intersectoral collaboration, but also on the challenges and opportunities for its implementation. Compared with previous studies, the research on One Health has mostly focused on factors such as the concept, background, development history, and contemporary value [12–14]. Literature on the application of specific disease cases is

also relatively common [15–17], however, research on the application of the One Health concept in China through the realistic investigations of various departments is scarce. Therefore, through interviews with various departments of the Chinese government, this study documents and summarizes major achievements and identifies policy and practice gaps to support the development of One Health in China and worldwide.

This study shows the importance of coordination mechanisms in promoting effective cooperation in the context of infectious disease outbreaks and health emergency response in the process of cross-sectoral collaboration [22]. Through analysis of the interview data, we found that cross-sectoral awareness is increasing, multi-sectoral experts are increasingly aware of the One Health concept, and people in the health, agriculture and environment sectors are aware of the importance of looking at health from a holistic perspective. The concept of One Health is gradually gaining recognition in many sectors. Although this is a relatively new concept and may not yet be known in some government departments, once explained and promoted, most staff will be able to understand its importance, find relevant practice cases in their work, and have a positive attitude towards it. This shows that the concept of One Health has wide applicability and importance and is a crucial development direction in the public health field. However, a gap exists between the recognition of the concept and putting it into practice. Some respondents argued that, while the idea itself is beautiful, making it happen will require significant resources and systemic reform. This means that One Health is not just a proposal at the conceptual level but requires specific strategies and resources to achieve it.

The study shows that although the concept of One Health is recognized, there are still many challenges in practice. In practice, it is often inadequate because of overlapping functions or the lack of effective communication mechanisms between departments. Through the coding analysis of grounded theory, we found that the specific responsibilities of different departments in the implementation of One Health are often vague, and the inter-departmental information system is not intercommunicating. In addition, there are problems such as unequal distribution of resources and lack of systematic training [23]. We find that in the current situation of multi-department collaboration, although collaboration does exist, it is often passive and does not form an effective and systematic mechanism. The existing coordination mechanisms are mostly temporary in nature, lacking a sustainable and systematic interdepartmental collaboration framework, making it difficult to effectively address long-term and multifaceted public health challenges. Therefore, it is necessary to strengthen the cross-departmental cooperation mechanism, formulate clear departmental responsibilities and division of labor plans, clarify the responsibilities of various departments in public Health events and the roles of various departments in the implementation of One Health, and mobilize the enthusiasm of personnel through specific methods and management of incentive mechanism to ensure rapid and coordinated response.

This study shows that monitoring and early warning systems are key to preventing and controlling public health emergencies from the source [24]. However, China's infectious disease monitoring system is limited to notifiable infectious diseases, and the monitoring and early warning abilities for new or unknown infectious diseases remain insufficient. During the outbreak of SARS in 2003, China paid a heavy price with such public health emergencies but also gained valuable experience. A long-term solution is to build a global rapid response, epidemic surveillance, and scientific research systems that integrate human medicine, veterinary medicine, and environmental health. Establishing an effective platform for sharing critical information is the basis of multi-department collaboration. In addition, the degree of social awareness and emphasis on public Health is also a key factor affecting the implementation of the concept of One Health [25]. The concept of One Health was formally put forward as early as 2003 [26], and has developed so far with the efforts of all walks of life around the world, forming a certain scale and achievements [21]. Therefore, on the basis of scientific grasp and understanding, it is very necessary to summarize and clarify the scientific connotation of total health capacity building. And it is necessary to further enhance public health awareness. Promoting the practice of the concept of One Health through social responsibility and welfare can raise awareness of the importance of public health in society. At the same time, formulate and implement relevant policies and plans, strengthen disease management and strategic optimization from the policy level, and ensure that public health measures are scientific and effective.

The study found that there exists a gap between the governance needs of solving major public health issues by applying the One Health concept and the current era's demand for integrating health into all policies. There is an urgent need for governments at all levels and all sectors of society to pay broad attention to and significantly invest in the research and practice of "One Health.". At present, some developed countries have applied it to guide practice, set up government agencies named after One Health, or directly apply it to government practice projects and attach importance to talent training. In China, One Health education has recently started, and no personnel training system has formed, putting the competition for talent at a disadvantage [27]. At present, gaps remain in China's governance needs for major public health problems and the requirements of integrating health into all policies with the application of the One Health concept. All levels of government and society as a whole urgently need to pay attention to and vigorously invest in One Health research and practice. Although some universities and scientific research institutions have established One Health research centres, talent training in the One Health field remains in the exploratory stage. Organically integrating the entire concept into the talent training system is a challenge for One Health researchers. Therefore, in the future, it is necessary to start from the aspects of talent training, theoretical research, strengthening cooperation, promoting practice, etc., to create a One Health education platform led by domestic and foreign experts in related fields. The One Health professional training plan should be formulated, in particular, the concept of One Health should be introduced into the medical education system, One Health courses should be added, the connotation of One Health should be strengthened, and the publicity of One Health concept should be intensified to improve the public's awareness of ecological civilization and health literacy. In addition, strengthening international cooperation on global health governance can promote cross-border communication and resource sharing to address global public health challenges.

5. Conclusion

In general, the concept of One Health has shown great potential and necessity in the multi-department collaboration in China, but there are still significant obstacles in the implementation process of One Health concept. However, to fully realize this concept, more efforts are still needed in the areas of cooperation mechanisms, professional talent training, information exchange and social awareness. Future work should focus on strengthening intersectoral communication and coordination, raising public health awareness, and optimizing relevant policies and strategies to better address global public health challenges. In this way, we can expect the One Health concept to be more widely applied and developed worldwide.

Data availability statement

The raw data supporting the conclusions of this article will bemade available by the authors, without undue reservation.

Ethical approval

This work did not require ethical approval because it is a qualitative study, and did not involve animal or human studies.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

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