**Explore the role of social media in the promotion of COVID-19 vaccination in the Chinese mainland government, health and health commissions and hospitals**

CHEN Cang1, ZHANG Yifan2, LIU Guijun3, BAI Jie4

Department of communication, Hong Kong Baptist university

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Dr. ZHANG Xinzhi

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**Abstract**

This study took the top 100 hospitals in the "2019 Chinese Hospital Ranking" released by the Institute of Hospital Management of Fudan University as a sample, and screened out Weibo accounts that have operations related to the COVID-19 vaccine and selected these hospitals The official Weibo of the city government and the official Weibo of the Health Commission analyzed the roles and differences of these three types of accounts in the use of social media after the mass vaccination program in China began. Through content analysis methods, we observed the willingness, frequency, expression method and content strategy of these three types of Weibo accounts to use Weibo after the start of the vaccination plan. At the same time, it analyzes the different styles of accounts of different institutions to study the differences in the strategies of different public institutions using social media in major public health incidents. This article finds that local government agencies, health commissions, and hospitals have clear positions in social media, take on different roles, use different methods, and have different focuses.

*Keywords: P*ublic institutions, Public health events, Social Media, Weibo

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# Introduction

As the public regards vaccines as the most powerful weapon in the COVID-19 pandemic, the provision and vaccination of vaccines has attracted widespread attention. With the start of China's COVID-19 vaccine mass vaccination plan, the provision of this public product as a major public health event has become the focus of publicity and promotion by government agencies and health departments at all levels. As social media is a highly valued publicity tool in the current reform of China's administrative system, the frequency of use of Weibo by relevant departments and the importance of Chengdu have greatly increased. As the unit responsible for public health affairs and the manager of the hospital, as well as the direct organizer of vaccine provision, the local health committee is also very important for the use of Weibo. As a direct provider of medical and health services, the use of Weibo by hospitals is also known as an important part of its brand promotion and public services. It is necessary to study the roles of the three types of related institutions in the use of social media and whether there are differences in the relationship and interaction between related operations in order to improve the social media strategies of public institutions.

# Literature review

Since this article is based on social media research on the role of government agencies and hospitals in public health events, this study reviews existing research from three aspects: government agencies, hospitals, and crisis and social media.

## Government agencies and social media

The current research on government in social media mainly focuses on the level of tools and means, and proposes and develops three dimensions of social media in government: tools, goals and topics (Criado, JI, Sandoval-Almazan, R., & Gil-Garcia , J. R, 2013). On the other hand, the government can improve the transparency of social media in the government. The government can continuously improve the tools and policies used to manage its use and develop governance processes that incorporate social media in various forms (Bertot, JC, Jaeger, PT, Munson, S ., & Glaisyer, T., 2010). For government agencies in major public incidents, they can interpret the meaning and consequences of the incident by tracking changes in content and public sentiment (Kavanaugh, AL, Fox, EA, Sheetz, SD, Yang, S., Li, LT, Shoemaker, DJ, ... & Xie, L., 2012).

## Hospital and social media

At the hospital and social media level, the main focus is on the use of social media in hospitals as a tool for promotion and brand image building. In the current medical system, for example, increased market transparency, increased competition among health care providers, investment and, in the case of limited budgets, increasing the number of private and public hospitals are the most important changes in the medical market. The service brand is a commitment to future satisfaction and service. The company creates a strong brand through uniqueness, performance, information consistency, and emotional consumers (Berry, 2000; Berry and Seltman, 2008.) In order to adapt to changes in the medical industry, hospitals also need to enhance brand influence and expand competition force. (Omid Khosravizadeh, Soudabeh Vatankhah (Mohammadreza Maleki, 2017). On the other hand, healthcare is a highly personalized service, just as the brand of a product contains psychosocial attributes, services and healthcare brands, it can bring The unique meaning of consumers. From the hospital as a non-profit organization, from the perspective of the organization, maintaining a "charity brand" to win public recognition and effectively convey a set of values ​​to the public is also conducive to achieving a benign relationship with the service target Interaction (Hankinson, 2002; Sargeant et al., 2008).

## Crisis and social media

Finally, there is social media in a crisis scenario. Social media as a crisis management tool is mostly studied in public relations scenarios. Dialogues and responses show the importance of social media in disseminating information about crises (Austin, LL, & Jin, Y. (Eds.). , 2018). Explore the impact of crisis response strategies and their interaction with previous brand attitudes (Jahng, M. R., & Hong, S., 2017). At the same time, research on social media in crisis also focuses on the discussion of social media strategies, social media communication methods, and the importance of analyzing the public's existing emotions in social media crisis communication.

In summary, there are many studies on the use of social media by government agencies and public health agencies in crisis events, but there are fewer studies on the differences in the use of social media strategies by different agencies, so it is necessary to supplement the discussion in this field.

# Research Questions

Operation of official government accounts, health commission accounts and hospital accounts.

Whether there are differences in the publishing form and style of different types of accounts on Weibo.

Whether there are differences between different types of accounts in their interactions with the public.

Whether there are differences in Weibo content strategies for different types of accounts.

# Research Methods and Sample Collection

## Selection of Target Account

This research targets social media on Weibo. In order to make the sample representative, this study selected the official Weibo accounts of the top 100 hospitals in the ``2019 Chinese Hospital Rankings'' released by the Institute of Hospital Management of Fudan University, and screened the accounts with relevant content. At the same time, select the official government accounts of the cities where these hospitals are located and the accounts of the Health Commission.

## Selection of Time Frame

This study aims to explore the differences in social media strategies used by the three institutions after the start of China's COVID-19 vaccine mass vaccination plan. Therefore, the selection of the study period starts from January 15, 2021, and the selection range is from January 15 to May 1, 20201.

## Sampling Method

In order to ensure the randomness and representativeness of the sample, this study adopts the sampling method of American communication scholar Michael Singertree (Michael Singertree, 2000), combining the week and the month.

## Selection of Analysis Unit

The Weibo content of the official Weibo mentioned above introduces the epidemic in the selected period, including text, pictures, audio and video, and external links. For the collected samples, each blog post is considered a unit of analysis.

**Category construction**

The categories analyzed in this study are based on the purpose and needs of the study, and are established on the basis of reference to existing related research. References include Johan Ninan, Stewart Clegg, Ashwin Mahalingam (2019), Suchita Bali and Charles H. Bélanger (2018), Maureen Taylor, Michael L. Kent (2010). The analysis categories constructed in this study mainly include:

### *Follow the official Weibo account.*

### *Weibo sending frequency*

Once a week, 2-3 times a week, 4 times a week, 5-6 times a week, 6 times a week or more

### *Use of entertainment elements*

Video, picture, emoji

### *Content object of Weibo content*

**N**ews about COVID-19 vaccination and vaccination, information related to vaccination, content of interaction with the public, actions of the institution itself

### *Whether to forward Weibo of other accounts, and the type of source Weibo account*

### *Whether to mention other accounts, and the type of Weibo account mentioned*

### *Whether to get a comment*

### *Whether to reply to comments*

### *Weibo content subject*

News about vaccinations and vaccinations

Information related to vaccination

Encourage public participation and interaction

Actions on oneself

# Research Result

First, only 21 of the top 100 hospitals have continuously operating official Weibo accounts. And these accounts are located in a very concentrated area, half of which are in Beijing, Shanghai, and Guangzhou, and secondly concentrated in cities with abundant medical resources such as Sichuan and Xi'an.

**Table 1**

*Follows of the official Weibo account*

|  |  |
| --- | --- |
| **Government Weibo account** | **Number of followers** |
| 中国-长沙 | 31913 |
| 西安发布 | 1510000 |
| 天津发布 | 2630000 |
| 上海发布 | 9480000 |
| 山东发布 | 3140000 |
| 北京发布 | 8700000 |
| 广州市政府新闻办 | 1080000 |
| 重庆发布 | 1890000 |
| 成都发布 | 10530000 |
| 精彩河南 | 6160000 |

|  |  |
| --- | --- |
| **Local Health Commission Weibo account** | **Number of followers** |
| Chongqing Health Commission | 6838 |
| Henan Health Commission | 136983 |
| Chengdu Health Commission | 1964585 |
| Guangzhou Health Commission | 330386 |
| Shandong Health Commission | 80478 |
| Shanghai Health Commission | 857115 |
| Tianjin Health Commission | 187285 |
| Beijing Health Commission | 5134005 |
| Xian Health Commission | 7562 |
| Changsha Health Commission | 1372044 |

|  |  |
| --- | --- |
| **Hospital Weibo account** | **Number of followers** |
| Huashan Hospital Affiliated to Fudan University | 2440000 |
| Peking *Union* *Medical* *College* *Hospital* | 1040000 |
| Sichuan Provincial People's Hospital | 851704 |
| Peking University Cancer Hospital | 844767 |
| Xiangya Hospital of Central South University | 600000 |
| West China Hospital of Sichuan University | 480000 |
| Beijing Friendship Hospital | 474093 |
| Beijing Jishuitan Hospital | 167293 |
| West China Second Hospital of Sichuan University | 82814 |
| Beijing Chaoyang Hospital | 78405 |
| Guangzhou Women and Children's Medical Center | 52546 |
| Peking University Third Hospital | 50000 |
| The First Affiliated Hospital of Xi'an Jiaotong University | 24786 |
| The Second Xiangya Hospital of Central South University | 14734 |
| Henan Provincial People's Hospital | 13150 |
| Ruijin Hospital, Shanghai Jiaotong University School of Medicine | 10000 |
| Children's Hospital of Chongqing Medical University | 7774 |
| The Second Affiliated Hospital of Xi'an Jiaotong University | 4159 |
| Tianjin Medical University General Hospital | 3026 |
| Shandong Provincial Hospital | 2822 |

The number of followers of Government Weibo, except China-Changsha, of which is only a little bit more than 30000, that of the others are more than one million. Chengdu has more than 10 million followers, and Shanghai ranks second, with over 9 million. But we found that the number of followers of the microblogs of the Local Health Commission varies from thousands to millions. And the number of Weibo followers of more than one million only accounts for one-third of our sample size. Chongqing Health Commission has the least followers which are only 6838. Among the 20 hospitals we selected, there are two with more than one million followers, Huashan Hospital Affiliated to Fudan University and Peking Union Medical College Hospital, four with less than ten thousand followers, and others ranging from tens of thousands to hundreds of thousands, with uneven distribution.

**Table 2**

*Contact Details*

|  |  |  |
| --- | --- | --- |
| Content form | Quantity | Percentage |
| Government | 9 | 90 |
| Local Health Commission | 3 | 33.3 |
| Hospital | 17 | 81.0 |

From the contact details, we found that 90% of Government Weibo contain detailed contact information or official website address in the profile. People need a way to communicate with their government. More than 80% of hospitals have contact information in their Weibo profiles. It is convenient for the masses to consult the hospital, and also provides a channel for the masses to feedback. However, only one-third of the local health authorities indicated their contact information.

**Table 3**

*The frequency of sending Weibo*

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency of Weibo** | **Government** | **Health Commission** | **Hospital** |
| Once a week | 1 | 0 | 4 |
| 2-3 times a week | 2 | 0 | 1 |
| 4 times a week | 2 | 0 | 0 |
| 5-6 times a week | 1 | 0 | 4 |
| More than 6 times a week | 4 | 10 | 12 |
| **Total** | 10 | 10 | 20 |

On the frequency of microblogging, we found that only 40% of Government Weibo post more than six a week. It reflects the problems of lack of information and slow update of some government microblogs. The Local Health Commissions had the highest frequency, all more than six times a week. The timely update and release of microblogs by the health commission are conducive to the guidance of various departments in important events such as the epidemic period. And about 60% of the hospitals have a high frequency of microblogging. The high frequency of microblogging shows that the hospital is actively responding to the national health policy and publishing the important measures of the hospital.

**Table 4**

*Entertainment elements*

|  |  |  |
| --- | --- | --- |
| Content form | Quantity | Percentage |
| Government Official Account | | |
| Use video | 38 | 21.1 |
| Insert picture | 127 | 70.6 |
| Use emoji | 0 | 0 |
| Local Health Commission Account | | |
| Use video | 15 | 9.2 |
| Insert picture | 46 | 28.2 |
| Use emoji | 86 | 52.8 |
| Hospital Account | | |
| Use video | 22 | 32.8 |
| Insert picture | 43 | 64.2 |
| Use emoji | 10 | 14.9 |

From the perspective of Weibo content’s style, most of government official accounts, local health commission accountss and hospital accounts use pictures to enrich Weibo content. government official Account have the most percentage of picture insertion rates. Among them, pictures are not only cartoon images or live report pictures. And it is worth noting that in the data shows on the frequency of emoji, government official accounts do not use emoji on Weibo in the contents of vaccination. By contrast with other two types of accounts, hospital accounts have higher frequency videos,pictures,emoji using.

**Table 5**

*Weibo format-1*

|  |  |  |
| --- | --- | --- |
| Content form | Quantity | Percentage |
| Government Official Account | | |
| Whether to forward other accounts | 1 | 0.6 |
| Whether to mention other accounts | 43 | 23.9 |
| Local Health Commission Account | | |
| Whether to forward other accounts | 24 | 14.7 |
| Whether to mention other accounts | 4 | 2.5 |
| Hospital Account | | |
| Whether to forward other accounts | 18 | 26.9 |
| Whether to mention other accounts | 15 | 22.4 |

In terms of mentioning or being mentioned on Weibo, local health commission accounts and hospital accounts have more forwarding actions than local health commission accounts, but when mentioned to actions of other accounts, ogovernment official accounts will do more. In addition, although the local government accounts have almost no forwarding actions, they directly copied the content of the message source during the publishing process of Weibo content, eliminating the need for forwarding actions. In such accounts of Local Health Commission, other accounts are rarely mentioned, because they are often news makers and publish some original content.

**Table 6**

*Weibo format-2*

|  |  |  |
| --- | --- | --- |
| Account types forwarded | Quantity | Percentage |
| Government Official Account | | |
| Account of the same type as itself | 0 | 0 |
| News Agency | 0 | 0 |
| Official government account | 0 | 0 |
| Local Health Commission | 1 | 0.6 |
| other | 0 | 0 |
| Local Health Commission Account | | |
| Account of the same type as itself | 3 | 1.8 |
| News Agency | 13 | 8.0 |
| Official government account | 9 | 5.5 |
| Local Health Commission | 0 | 0 |
| other | 1 | 0.6 |
| Hospital Account | | |
| Account of the same type as itself | 1 | 1.5 |
| News Agency | 7 | 4.3 |
| Official government account | 1 | 1.5 |
| Local Health Commission | 7 | 4.3 |
| other | 2 | 3.0 |

Excluding the discussion of government official Account, without secondary editing, the frequency of the local health commission accounts's forwarding the content of news organizations are higher. hospital accounts will forward news from various sources, among which news agencies and local medical departments have almost the same frequency, the two actions of the hospital account are very balanced.

**Table 7**

*Weibo format-3*

|  |  |  |
| --- | --- | --- |
| Account types mentioned | Quantity | Percentage |
| Government Official Account | | |
| Account of the same type as itself | 5 | 2.8 |
| News Agency | 27 | 15 |
| Official government account | 11 | 6.1 |
| Local Health Commission | 7 | 3.9 |
| other | 3 | 1.7 |
| Local Health Commission Account | | |
| Account of the same type as itself | 3 | 1.8 |
| News Agency | 1 | 0.6 |
| Official government account | 0 | 0 |
| Local Health Commission | 0 | 0 |
| other | 1 | 0.6 |
| Hospital Account | | |
| Account of the same type as itself | 7 | 10.4 |
| News Agency | 2 | 3.0 |
| Official government account | 6 | 9.0 |
| Local Health Commission | 8 | 11.9 |
| other | 1 | 1.5 |

For accounts mentioned actions, these figures are different.government official accounts will mention News agency more frequency, while local health commission accountss are not the same.hospital accounts are highly mention the accounts of the same type as itself and also local health commison. But as for the local health commission accounts, things are different that they hardly ever do mentioned actions.

**Table 8**

*Whether to use # tag*

|  |  |  |  |
| --- | --- | --- | --- |
| Content form | Government Official Account | Local Health Commission Account | Hospital Account |
| Whether to use #tag | 154 | 83 | 37 |
| Percentage | 85.6 | 50.9 | 55.2 |

The # tag in the Weibo content indicates a topic. This topic can be original or an existing topic. The topic reflects the major content of Weibo, which can make the key points clear at a glance and can also trigger public discussion. Through the analysis of the microblogs related to the three types of accounts, it is found that in these cities, the government issued the most microblogs using # tag, accounting for 85.6%, while the local health commission issued the least microblog using # tag, accounting for only 50.9 %. Although there are more microblog using # tag posted by hospitals than the local health commission, only 55.2%.

**Table 9**

*Interaction with the public*

|  |  |  |
| --- | --- | --- |
| Content form | Quantity | Percentage |
| Government Official Account | | |
| Whether to get a comment | 80 | 44.4 |
| Whether to reply to comments | 18 | 10.0 |
| Local Health Commission Account | | |
| Whether to get a comment | 54 | 33.1 |
| Whether to reply to comments | 4 | 2.4 |
| Hospital Account | | |
| Whether to get a comment | 35 | 52.2 |
| Whether to reply to comments | 4 | 6.0 |

Interaction is one of the attributes of social media. User comments express Weibo's is stimulating user discussion and attention, and response represents a feedback of the Weibo account to the public's concern, and also represents an emphasis on user comments. By comparison, it is found that the hospital’s Weibo accounted for the most comments, reaching 52.2%, while the local Health Commission’s number of comments was the lowest, only 33.1%. The number of government Weibo comments was slightly higher than that of the local Health Commission, accounting for 44.4%. This shows that among the microblogs about the covid-19 vaccine, the hospital's microblog can attract users' attention and interest most, so they are willing to express their opinions on this microblog. Regarding whether to respond to comments, it can be seen that the response rates of the three types of accounts are very low. The highest is the government microblog, which accounts for only 10%, followed by the hospital microblog, which accounts for 6%, and the local Health Commission is even lower , Only 2.4% response rate. This shows that the public's discussion of the covid-19 vaccine has not attracted the attention of account itself. Weibo as an information propaganda tool is far greater than the maintenance of relations with the public.

**Table 10**

*Weibo content*

|  |  |  |
| --- | --- | --- |
| Content | Quantity | Percentage |
| Government Official Account | | |
| News about vaccinations and vaccinations | 101 | 56.1 |
| Information related to vaccination | 76 | 42.2 |
| Encourage public participation and interaction | 12 | 6.7 |
| Actions on oneself | 17 | 9.4 |
| Local Health Commission Account | | |
| News about vaccinations and vaccinations | 60 | 36.8 |
| Information related to vaccination | 101 | 62.0 |
| Encourage public participation and interaction | 1 | 0.6 |
| Actions on oneself | 0 | 0 |
| Hospital Account | | |
| News about vaccinations and vaccinations | 27 | 40.3 |
| Information related to vaccination | 43 | 64.2 |
| Encourage public participation and interaction | 14 | 20.9 |
| Actions on oneself | 28 | 41.8 |

Regarding the microblog content level, the government official accounts, local health committees, and hospital accounts pay attention to different aspects of the microblog content, which is first manifested in the content objects. It can be seen from the results that most of the official government accounts focus on news about vaccines and vaccination, accounting for more than half, followed by information about vaccines and vaccination, including some precautions, vaccination guidelines, etc., and fewer of them are designed to encourage The content of the public's interaction with the account and information about themselves. Government accounts are mostly news release agencies of local governments, and their content focuses on seriousness and practicality. From the point of view of the local health committees, useful information about vaccines and vaccinations accounted for the most, at 62%, followed by news content, which had no interactive content or self-behavior broadcast. The content of the hospital’s account shows a different focus. The focus of the content is more diverse. The most content is also information about vaccines, accounting for 64.2%, but next is information about itself, including some related initiatives, voluntary services, etc. . Compared with the government and the Health Commission, there is more content that encourages the public to interact with each other, and the number of different content gaps is smaller.

**Table 11**

*Weibo Topic*

|  |  |  |
| --- | --- | --- |
| Topics | Quantity | Percentage |
| Government Official Account | | |
| Call for the public to be vaccinated | 82 | 45.6 |
| Discussion on the issue of vaccines in this life | 18 | 10 |
| Medical discussion about vaccines | 41 | 22.8 |
| A specific group or individual story | 6 | 3.3 |
| Emotional expression | 7 | 3.9 |
| Knowledge or skills about vaccinations | 46 | 25.6 |
| Local Health Commission Account | | |
| Call for the public to be vaccinated | 11 | 6.7 |
| Discussion on the issue of vaccines in this life | 90 | 55.2 |
| Medical discussion about vaccines | 39 | 23.9 |
| A specific group or individual story | 1 | 0.6 |
| Emotional expression | 0 | 0 |
| Knowledge or skills about vaccinations | 22 | 13.5 |
| Hospital Account | | |
| Call for the public to be vaccinated | 7 | 10.4 |
| Discussion on the issue of vaccines in this life | 13 | 19.4 |
| Medical discussion about vaccines | 10 | 14.9 |
| A specific group or individual story | 15 | 22.4 |
| Emotional expression | 4 | 6.0 |
| Knowledge or skills about vaccinations | 19 | 28.4 |

On the other hand, from the subject level of Weibo content, different types of accounts also show different characteristics, which are quite different. First, the most official government account is about calling on the public to vaccinate, accounting for 45.6%, followed by knowledge and skills about vaccination, accounting for 25.6%, and medical discussions on vaccines, accounting for 22.8%. The government mainly calls on the public to vaccinate, and at the same time cooperate with corresponding knowledge and vaccination precautions. The narrative and emotional performance of the group or individual are the least. For local health, the most published content is the discussion on secondary issues of vaccines and vaccination, accounting for 55.2%, followed by medical discussions. Unlike government accounts, the Health Commission account does not call the public on vaccination issues, but The same point is that there is less content for narrative and emotional expression. From the perspective of hospital accounts, the most content is about vaccination knowledge and skills, followed by related storytelling and discussion of secondary issues, accounting for 22.4% and 19.4% respectively, which are significantly different from the previous two types of accounts. . The hospital account pays more attention to the discussion of the vaccine itself.

# Discussion

**Differences in Weibo account operation.**

We can see that the number of followers of Government Weibo is the largest. The reason may be that many people want to pay close attention to the government's developments in time, such as what laws to enact. The existence of government microblogs provides a convenient way for the masses to feedback problems. Media credibility is an internal force that the news media itself has and is also a measure of media authority, credibility, and social influence. A large number of microblog followers reflects the media credibility established by the government in the hearts of the public. The more followers the Government Weibo has, the more favorable the government will timely spread the development of the event to the public in case of major events. There is a big difference between the number of followers of the Local Health Commission and Hospital Weibo. The number of Weibo followers in provinces is larger than that in prefecture-level cities. There is a certain relationship between the number of followers and the popularity of hospitals. The number of fans can reflect the business model and popularity of the hospital. For example, Huashan Hospital Affiliated with Fudan University, which has the biggest number of followers in the sample, is a very well-known hospital, and its dermatology department is popular, which is full of people every day.

As an emerging government public service platform, government new media has great influence in government information disclosure, important public opinion guidance, and government image building. Stating contact information can help hospitals better receive suggestions from the public and is conducive to the improvement and promotion of the hospital. The local health commission is a working department of the local people's government, which is responsible for the supervision and implementation of relevant health laws and regulations. Perhaps because it belongs to the subdivision of the government departments, it is not mature enough in the new media operation. It is not perfect for all aspects of information, and the contact information can only be inquired on the official website, not published on Weibo. To facilitate people's feedback on medical and health issues to the upper-level government, the local health commission should add contact information in contact details.

The convenience of microblog communication makes any information once released, it is likely to be a large number of forwarding. So, government agencies need to grasp the discretion when releasing information to avoid irreparable losses. We suggest the government innovate the working concept, pay attention to the guidance of public opinion, strengthen the training of public servants, improve the application ability of microblog, and bring more information to the public through microblog. To Local Health Commissions, as diseases are spreading fast and widely, it is necessary for them to release relevant measures in time to prevent the spread of the epidemic. They also have to guide the public on how to prevent epidemics, refute rumors in time and etc. As an authoritative health department, these Local Health Committees make full use of the advantages of the new media platform to widely publicize the health and health cause and provide the public with the health and health services they need. A large number of microblog updates are conducive to deepening the public’s understanding of the hospitals and is conducive to expanding the influence of them.

**The forms and styles of Weibo of different types of accounts are quite different.** Taking into account the audience’s acceptance, pictures could processed more abundantly, including posters and professional terms. The text explanation, or the necessary knowledge of vaccination, have played a detailed role in enhancing the perception of the audience in the promotion of vaccines, allowing people to obtain useful information from pictures more intuitively.In today's Internet communication, the same emoji may be interpreted differently by different people. In order to ensure the seriousness of the government's content, these kind of accounts choose to avoid this usage.

**Weibo of different types of accounts differs greatly in the choice of content posting methods.**

The forwarding and mentioned actions may be related to the position of the account itself. Government accounts are more strict with regard to the source of news, because they are responsible for the authenticity of information and social responsibility, and the mentioned accounts play a role in clearly indicating the source of information and verifying the authenticity of the news.

Because of the reasons mentioned above, government agencies will mention news agency accounts more frequently, while local medical departments rarely do the mentioned actions. A certain degree of seriousness is required when disseminating medical information, but seriousness does not mean being superior, and more interactive adjustments can be made. The use of forwarding and mentioning methods can increase the popularity of multi-directional communication on the Internet, increase the amount of reading, and thus affect the development of the platform. Different platform accounts have different audience characteristics, which are also reflected in the data.

Topic is the most important kind of interest homepage in Weibo. Weibo users can enter the topic page and post microblogs to participate in the discussion. At the same time, the topic page will automatically include related microblogs containing the topic word. At the same time, the topic is also to distinguish it from other microblogs, reflecting a kind of uniqueness and recognition. In the microblogs related to covid-19 vaccine, although the number of these three types of media with # tag is above medium or above, there are still many microblogs that do not have topics, which means that these microblogs will disappear over time and will not increase the exposure and reading volume through the topic homepage. To increase the propaganda and influence of Weibo, it is best to bring eye-catching and discussion topic tags, so as to maximize the propaganda effect of Weibo.

**Different types of accounts pay different attention to interaction with the public.**

Regarding the Weibo of the covid-19 vaccine, from the amount of comments, the public is interested in discussing it, but the extremely low response rate also reflects that the official account of these three types of accounts does not pay attention to the relationship management with the followings, nor does it take advantage of this opportunity to close the distance with the public. As official accounts, these three types of accounts have great credibility and authority. Although fewer replies can create a serious image of the organizations, they have distanced themselves from the masses to a certain extent. In the long run, they have an impact on the image of the organization. Weibo has narrowed the distance between the public power and the masses, they should make better use of this platform and focus on interaction with people to establish a positive brand image.

**Different types of Weibo accounts have a clear positioning of themselves, conform to their own functions and goals, and are quite different.**

From the content analysis results, it can be seen that the content and theme of the official government account are more serious and practical. At the same time, the theme is more from a macro perspective, standing in the position of managers and service providers, calling on the public to vaccinate, which is in line with the functions of government agencies. And goals. As the direct management agency of health affairs and the management agency of hospitals, the National Health Commission has a similar focus to the government, but it is closer to the specific medical and health fields, and the tendencies of the content released are more obvious. As a direct provider of medical affairs, hospitals are more concerned with the medical field than government agencies and health commissions. At the same time, they are richer in content and more inclined to serve their own institutions as propaganda tools. They will use narratives and the provision of their own services as content. However, the official government account and the Health and Health Commission will not focus on the release of their own initiatives, and the hospital will not call on the public for vaccination as the main goal due to the number of fans and functions.

**Different types of accounts show different content diversity.**

The content diversity of official government accounts and the Weibo account of the Health and Health Commission is relatively poor, and the Weibo content of hospital accounts is relatively diverse. Judging from the results, the contents of government accounts, including those of the Health and Health Commission, are relatively serious and concentrated, and are not distributed among various contents and topics. Hospital accounts have more themes and objects of interest, and the distribution of various contents is generally more even than the other two types of accounts. At the same time, government agency accounts do not focus on encouraging the public to interact with them, and at the same time seldom release information on their own initiatives. The content of the hospital account hopes to encourage the public to interact with it on Weibo, and at the same time it is more relaxed with the content, and more use of narrative. The account of the Health Commission is positioned between the official government account and the hospital account, but the content tends to be more obvious. Therefore, it can be seen that different types of accounts pay different attention to diversity in content selection, and the account operation modes adopted by the nature and functions of the organization are also different.

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# 8d1007cd42018fd7aa54d80b649bc74Appendix A． Hospital name in Chinese and English

# Appendix B． Codebook

