
AI translation · View original & related papers at
chinaxiv.org/items/chinaxiv-202304.00157

Library Information Services in Response to Public Health Emergencies: A Case Study of COVID-19 Information Services (Postprint)

Authors: Cao Haixia

Date: 2023-04-01T00:00:00+00:00

Abstract

[Purpose/Significance] This section outlines the theoretical framework for libraries' response to public health emergencies, reviews and investigates current practices across different types of libraries both domestically and internationally in addressing such emergencies, aiming to provide reference experiences for more domestic libraries to develop emergency information services in the future. [Method/Process] Employing web-based investigation, literature review, and comparative analysis, this study systematically examines and analyzes the information service practices of libraries in the United States, United Kingdom, and Singapore, alongside domestic medical libraries and provincial public libraries, in response to the COVID-19 pandemic and previous public health emergencies, thereby summarizing replicable experiences from both domestic and international contexts. [Results/Conclusion] Large-scale libraries should establish and improve emergency management contingency plans and response mechanisms, fully leverage their information integration capabilities to provide timely information services for users at different levels, and utilize multimedia technologies for reporting and disseminating public health emergency information.

Full Text

Research on Library Information Services for Public Health Emergencies: A Case Study of COVID-19 Information Services

Cao Haixia

Institute of Medical Information/Library, Chinese Academy of Medical Sciences,
Beijing 100005

Abstract:

[Purpose/Significance] This paper outlines the theoretical foundations for library responses to public health emergencies, reviewing and investigating current practices among different types of libraries both domestically and internationally, with the aim of providing reference experience for more domestic libraries to develop emergency information services in the future. [Method/Process] Through network research, literature review, and comparative analysis, this study systematically examines and analyzes the information service practices of American, British, and Singaporean libraries, as well as domestic medical libraries and provincial public libraries, in response to the current COVID-19 pandemic and previous public health emergencies, summarizing replicable experiences from home and abroad. [Result/Conclusion] Large libraries should establish and improve emergency management incident plans and response mechanisms, fully leverage their information integration role to provide timely information services for users at different levels, and utilize multimedia technology for public health emergency information dissemination.

Keywords: public health emergency; medical library; public library

1. Background and Theoretical Basis

At the end of 2019, the COVID-19 pandemic erupted suddenly, reaching a more severe level in early 2020. This represented another major test for the Chinese people, especially those in Hubei (particularly Wuhan), following the SARS outbreak in 2003. On February 14, 2020, President Xi Jinping emphasized at the 12th meeting of the Central Committee for Comprehensively Deepening Reform: “We must study and strengthen epidemic prevention and control work, innovate and improve major epidemic prevention and control measures from an institutional and mechanistic perspective, improve the national public health emergency management system, and enhance our capacity and level to respond to major public health emergencies” [1]. Libraries (including public libraries and medical libraries), which bear the responsibility of improving citizens’ information literacy and disseminating scientific knowledge, should play an indispensable social role in public health emergencies [2].

Previous research on libraries’ responses to public health emergencies includes representative studies such as: Fu Ping’s summary of American public libraries’ responses to COVID-19 through network research [2]; Zhang Jing’s systematic review of the National Library of Medicine’s (NLM) disaster emergency information services and their implications [3]; the NLM Disaster Library Roles Project, which demonstrates librarians’ compelling activities (both expected and unusual) during and after disasters [4]; L. McGuire’s exploration of how biomedical librarians at the University of Minnesota continued providing educational programs during a pandemic influenza outbreak [5]; and L. Zach’s discussion of public libraries’ basic information services during pandemics (such as the 2009

H1N1 outbreak, bioterrorism threats, or natural disasters) [6]. Wang Xiaojuan and Wu Luohua elaborated on the meaning and characteristics of public health emergencies and proposed suggestions for emergency medical information services in preventive medicine libraries [7]. Wei Yongli et al. explored the current situation, crises, and countermeasures for libraries' public health emergency responses, attempting to construct an emergency response mechanism [8].

The mission and responsibility of libraries to serve public health have deep historical roots. In the early 20th century, the social progress movement inspired public health workers to combat disease at unprecedented levels. From the late 19th century to the late 1930s, American public libraries formally allied with public health institutions to fight contemporary public health issues. During this period, public libraries as educational institutions were considered to have a social mission of civic enlightenment [11]. In 1987, public health educator L. Lewin listed reasons for public libraries to provide health information services in a speech to the American Library Association, arguing that American public libraries are trusted institutions with little competition in providing access to health information [12]. For specialized libraries, the responsibility to provide health information services is even more imperative. Professor E. Martin of Harvard Medical School's Countway Library stated: "Social justice and social responsibility are core values of the medical profession. Diversity, inclusion, and social justice are important issues for medical libraries now and in the future... Through the lens of social justice, medical librarians who practice their professional values can potentially make significant contributions to changing public health" [13].

Establishing a scientifically sound health information emergency service system to provide corresponding emergency information services to the public during "extraordinary times" is extremely necessary [7]. Foreign public health experts have summarized ten influenza A pandemics that occurred over the past 300 years, noting that public health emergencies have the following characteristics: (1) pandemics are unpredictable; (2) viruses initially tend to spread among small groups, followed by more severe infection trends; (3) although countries with vaccine production capabilities (Australia, Canada, the Netherlands, Switzerland, the UK, the US, etc.) may develop vaccines within a certain timeframe, we still do not know what impact any potential vaccine will have on the next pandemic [5]. After the SARS outbreak in 2003, China clearly defined public health emergencies as "sudden occurrences that cause or may cause serious harm to public health, including major infectious disease outbreaks, unexplained diseases in groups, major food poisoning, occupational poisoning, and other events affecting public health" [9]. In 2007, the Chinese government promulgated the "Emergency Response Law of the People's Republic of China," further strengthening legislation on preventing and eliminating hazards caused by public health emergencies and effectively safeguarding public health and life safety [10].

2. International Library Practices in Public Health Emergency Information Services

Based on current research, international library practices in public health emergency information services fall into several categories: (1) establishment of dedicated emergency information management and service departments at the national level, such as the NLM's Disaster Information Management Research Center (DIMRC); (2) provision of public health and clinical medical information service systems under national universal healthcare systems, such as the UK's National Health Service (NHS), which simultaneously provides public health emergency information services; and (3) relatively sound emergency information service systems within national governance frameworks, supplemented by library-provided information services that can meet users' public health emergency information needs to a certain extent, as seen in Singapore.

2.1 United States 2.1.1 NLM's Dedicated Department (DIMRC) for Health Information Resource Management and Emergency Information Services

The development and 普及 of American medical libraries are noteworthy, including extensive medical library networks that play important roles in improving community public health literacy and providing emergency information services. Taking NLM as an example, it has long provided disaster health information, training, and tools, and encourages greater awareness of information management and access to health information resources as key components of disaster medicine and public health information. In essence, NLM has expanded beyond conventional library services to occupy a position in government health decision-making, emergency information reserves, and emergency rescue, making utmost efforts for public health security. To better manage disaster health information and services, NLM established the Disaster Information Management Research Center (DIMRC) in 2008, endowing it with the mission of emergency health information services: "to develop and provide access to health information resources and technology for disaster preparedness, response, and recovery by connecting people with quality disaster health information and fostering a culture of community disaster resilience" [14]. In recent years, DIMRC has achieved good results in various emergency/disaster preparedness efforts. In the case of COVID-19, NLM and DIMRC provided numerous relevant popular science and professional information, particularly prominent in providing cutting-edge research information, including GenBank sequence data for the novel coronavirus (COVID-19), clinical trials related to the novel coronavirus (ClinicalTrials.gov), public health emergency literature and information (Disaster Lit), and journal articles related to the novel coronavirus (PubMed) [15].

2.1.2 US Public Libraries' Contributions to Public Health Emergency Services

Although emergency information services are not a priority for most public li-

braries, some excel at providing risk-related information to users during crises, including risk warnings and even links to emergency preparedness and response resources. In response to COVID-19, some state and regional public libraries in the US adopted online services to provide library information, such as prominently featuring coronavirus information sections on their homepages and providing links to COVID-19 information resources to disseminate authoritative and reliable knowledge, offer public health education, and alleviate unnecessary panic and anxiety [2]. In January 2011, the Federal Emergency Management Agency (FEMA) announced that under FEMA's Public Assistance Program, libraries would be included in the list of public facilities eligible for temporary relocation during major disasters and emergencies, signifying government and societal recognition of libraries' potential to provide essential community services related to public health and safety [14]. However, public libraries often need more preparation in disaster information training to enable staff to respond to users' information needs during emergencies. US public libraries also frequently collaborate with NLM on resource development and service projects to advance related health management initiatives. Literature research shows that US public libraries are adept at using various social media and software to publicize epidemic resources. A survey of 50 public library system websites during the H1N1 outbreak found that 82% had Facebook accounts and 76% used Twitter to communicate with users [6].

US experience demonstrates that establishing dedicated health information resource management or emergency information service departments (such as NLM's DIMRC) not only provides extensive health information resources to the public in daily life but also enables timely institutional and systematic responses when emergencies occur, allowing organizations to do their utmost to provide relevant services according to established regulations. Additionally, cooperation and coordination between public libraries and NLM can enable community emergency information services at appropriate times.

2.2 United Kingdom 2.2.1 Overview of UK Library Health and Emergency Information Services

The UK government has always attached importance to library health information services, formulating a series of policies and systems to support their sound operation [16]. Public Health England (PHE) plays a crucial role in ensuring national health, delivering medical information and public health information to patients through NHS libraries and health knowledge/library service departments (The Knowledge and Library Service, KLS), working together to transform the UK's healthcare knowledge environment [17] and ultimately achieve excellent healthcare and health improvement. As medical advances, health needs, and society develop, NHS library services face increasing pressure and widespread public concern about health and well-being. The UK has formulated strategic plans such as the "Knowledge for Healthcare: NHS Library and Knowledge Service Development Framework 2015-2020," which includes content

related to public health services [18].

2.2.2 Responses of NHS Libraries and the British Library to COVID-19

Since the outbreak of COVID-19, which quickly spread to many countries worldwide, NHS libraries and the British Library have implemented relevant measures to address the pandemic's development in the UK. Key responses include: (1) NHS libraries promptly released pandemic-related information, including popular science, research, and government agency information. Popular science information included detailed listings of COVID-19-related common knowledge questions of public concern. The NHS website also featured information for health professionals [19], primarily integrating practical guidelines for clinicians. The NHS library website simultaneously published two important UK government documents—the “Coronavirus Action Plan” and “Information on Coronavirus and the UK Situation”—enabling the public to understand government response measures firsthand. As the pandemic evolved, NHS libraries timely updated relevant dynamic information; for example, in late April 2020, the NHS website launched a second response from NHS leaders and experts on COVID-19 development to inform the public of detailed developments. (2) The British Library timely released authoritative travel information and pandemic updates to ensure the safety of visitors and users. In the early stages of the pandemic, while maintaining normal operations, the British Library posted important pandemic reminders on its website to ensure traveler safety, including directing visitors to the NHS website for the latest guidance on virus transmission risks. In May 2020, based on European pandemic developments, the British Library decided to temporarily close and suspend all public activities to ensure the safety and health of its users and all staff, focusing on online services [20].

UK library emergency information services demonstrate a relatively developed public health and clinical medical information service system that can timely and effectively provide authoritative and extensive public health emergency information services to the public or clinicians, offering scientific guidance and standardized instructions.

2.3 Singapore Singapore has a relatively sound emergency information service mechanism. Its measures for this pandemic are concentrated in: the Singapore Ministry of Health's continuous and strict monitoring of the East Asian epidemic effectively preventing widespread transmission in Singapore, with timely acquisition and monitoring of epidemic information being a key link in Singapore's public health event management process. Since the COVID-19 outbreak, the Singapore Ministry of Health has activated relevant plans to contain virus transmission. As a major information institution, libraries' vigorous cooperation with government departments is also an important manifestation of Singapore's series of health defense measures.

Singapore does not have an independent national medical library, but the Na-

tional University of Singapore Medical Library performs this function. As the oldest specialized library, its origins can be traced back to 1905, serving not only university students and faculty but also hospital doctors, health service personnel, government agency staff, and researchers [21]. For COVID-19, the National University of Singapore did not directly release pandemic information through the library but instead, under the support of the Ministry of Health's policies and library resources and services, released relevant policies and information through the university's dedicated emergency management department—the Office of Safety, Health and Environment [22]. For public libraries, given the latest developments in COVID-19, the National Library of Singapore postponed/canceled some activities until further notice. Additionally, to protect readers' safety, the National Library, National Archives, and all public libraries are currently closed, primarily providing online services, with specific reopening times to be announced separately. Notably, the National Library of Singapore has always emphasized the construction of characteristic collections. During this pandemic, it collected from the public on its homepage photos, videos, personal anti-epidemic stories, posters, diaries, blogs, and other materials related to the pandemic to record this special historical period [23].

Overall, through effective information release and early warning mechanisms across various departments (including libraries), Singapore can relatively accurately grasp the pandemic's development and potential transmission paths within the country, providing accurate information support for crisis management and actively and timely responding to the Ministry of Health's emergency status requirements for pandemic handling [24].

3. Domestic Library Practices in Public Health Emergency Information Services

Compared with foreign libraries' relatively professional emergency event management mechanisms and departments, China's library system has not yet established formal disaster emergency information service departments. However, due to the completeness of domestic library information technology and various data resources in the big data environment in recent years, some libraries and information institutions have made commendable measures to respond to public health emergencies within limited timeframes. Taking the COVID-19 information service as an example, this paper briefly introduces the information resource construction and service methods of specialized libraries—the Institute of Medical Information/Library of the Chinese Academy of Medical Sciences (hereinafter referred to as “our library”)—and various provincial public libraries during the pandemic, hoping to promote and facilitate relevant measures for domestic libraries to respond to public health emergency information services.

3.1 Institute of Medical Information/Library of the Chinese Academy of Medical Sciences 3.1.1 Integrating Multi-Departmental Informa-

tion to Provide Professional Information Navigation Services

Our library, as a national-level medical information research center and medical information resource guarantee and service center, undertakes important national medical library tasks. After the full outbreak of COVID-19, our library collected information on designated medical treatment hospitals and fever clinics for novel coronavirus pneumonia from official websites of health commissions in 31 provinces, municipalities, and autonomous regions nationwide, and jointly annotated the institutions' locations with map identification, enabling users to find the nearest designated treatment hospitals and fever clinics to facilitate joint epidemic prevention and health management [25]. This fully demonstrates the characteristics and functions of national-level medical library intelligence collection, providing precise and efficient information services for users in epidemic areas at critical moments.

3.1.2 Launching Emergency Literature Information Services to Support Epidemic Prevention Research

In the era of explosive information resources, selecting and pushing information resources that meet users' needs within limited time is particularly important from the user's perspective. Facing the literature information needs of scientific research, as the NSTL National Medical Literature Information Guarantee Center and a specialized medical library, our library organized literature related to respiratory infectious viruses based on collection resources and network resources. NSTL coordinated experts to select thematic literature resources and launched the "Novel Pneumonia Emergency Literature Information Column" through the NSTL website, providing epidemic information services to the public and popularizing scientific knowledge, while offering free full-text services to researchers in mainland China to support research [26]. Our library also launched the "Novel Coronavirus (COVID-19) Pneumonia Prevention and Control Knowledge Service Platform," which integrates relevant academic information on COVID-19 released by authoritative institutions at home and abroad (covering news reports, academic papers, professional guidelines, policies and regulations, research reports, popular science knowledge, and special intelligence). Through a one-stop information retrieval platform, it uses data analysis and visualization technology to display pandemic development trends multi-dimensionally [27]. Additionally, relying on NSTL's key field information portal website and WeChat public account, our library launched the "Novel Coronavirus Pneumonia Prevention and Control Scientific Literature Monitoring Bulletin," selecting thematic scientific literature on COVID-19 in bulletin form to facilitate timely, rapid, and accurate access to research progress and developments for scientific and management personnel nationwide.

Overall, as a specialized library, especially a medical library, our library's role in providing research support and professional guidance information services during this pandemic is self-evident, whether through "epidemic-related hospital information navigation services," the "Novel Pneumonia Emergency Literature Information Column," the "Novel Coronavirus (COVID-19) Pneumonia Pre-

vention and Control Knowledge Service Platform,” or the “Novel Coronavirus Pneumonia Prevention and Control Scientific Literature Monitoring Bulletin.” Medical libraries can often provide more professional and in-depth services during public health emergencies due to their professional resource support, mature staff, and service models. In summary, the resource support and information services provided by specialized libraries are often irreplaceable by public libraries or other libraries. Notably, as a new service form of traditional libraries, WeChat public accounts can effectively facilitate the dissemination and diffusion of academic information, helping scholars quickly obtain relevant academic information and accelerating the spread of academic exchange knowledge to a certain extent.

3.2 Domestic Public Libraries Taking the “Novel Coronavirus Pneumonia Epidemic” as an example, the author used network research methods to investigate the emergency information services of 31 provincial public libraries in mainland China (since the Tibet Autonomous Region Library website could not be accessed, the actual number of libraries surveyed was 30). Due to epidemic prevention and control needs, these public libraries’ physical buildings were closed successively from late January to early February 2020, but all provided information services during the pandemic through online service forms to varying degrees. The services mainly fell into three categories: (1) **Professional database resource services:** 21 public libraries (70% of those surveyed) directly provided epidemic-related professional database resources on their homepages or through WeChat push, enabling users to remotely log in with reader cards or freely access “COVID-19” related research information without login, facilitating researchers’ professional access to epidemic information resources. (2) **Authoritative public science knowledge:** 100% of surveyed libraries republished epidemic-related popular science knowledge released by authoritative institutions, or produced their own online open courses, or public welfare films to promote authoritative epidemic-related scientific knowledge. (3) **Reading promotion services during the epidemic:** 93% of surveyed objects carried out reading promotion services to soothe people’s souls and provide spiritual sustenance. Additionally, regarding library information release channels, the survey found that 100% of mainland provincial libraries currently use multimedia methods such as Weibo/WeChat for epidemic information services. Some public libraries also provided in-depth information services related to the epidemic (such as “fragrance of books against the epidemic,” online lectures, knowledge competitions, etc.). The overall information service situation is shown in .

Given the current stage of stable epidemic prevention and control in China, various provincial public libraries have been gradually preparing for reopening since May 2020, striving to normalize library services while maintaining regular epidemic prevention and control. Overall, compared with specialized libraries, public libraries’ professional information services were somewhat weakened during this public health emergency, but due to their different functions and positioning, public libraries undertook more functions of popular science knowledge

dissemination and reading promotion services, providing psychological healing for the general public during the crisis. It should be emphasized that, like foreign public libraries using Facebook and Twitter for publicity, domestic libraries have been enthusiastic adopters of technology and social media tools. During this pandemic, 100% of domestic provincial libraries used WeChat or Weibo to access and utilize library epidemic resources, with new social media and tools assisting public library extension services during this special period.

4. Reflections and Recommendations

4.1 Large Libraries, Especially Specialized Libraries, Should Establish and Improve Emergency Management Incident Plans and Response Mechanisms China's public crisis management suffers from many problems, such as conceptual deficiencies with generally weak crisis preparation awareness; institutional defects with insufficient emergency management organizational construction; legal gaps with imperfect crisis preparation laws and regulations; social absence with the public detached from crisis preparation; and educational deficiencies with crisis preparation training becoming formalistic [28]. These reasons also explain why China's specialized libraries have not yet established disaster information management research centers like NLM's DIMRC. Additionally, some Chinese libraries have rarely or never received specialized training on what to do during crises, or when crises strike, individuals are overwhelmed or need to focus on protecting themselves and their families. Although the government can release relevant public health epidemic information to the public through television, the internet, and other media during crises, libraries have professional staff and information resources. If they can establish and improve emergency management incident plans and response mechanisms, plan ahead, obtain support and guidance from external institutions, and have rules and laws to follow, they can provide more efficient and effective information services during crises and play a broader service role in community emergencies.

4.2 Fully Leverage Libraries' Information Integration Role to Provide Timely Information Services for Different Audiences Specialized libraries/institutions (such as the Institute of Medical Information/Library of the Chinese Academy of Medical Sciences, the Documentation and Information Center of the Chinese Academy of Sciences, and NSTL), especially medical libraries, should provide more professional and timely literature materials in public health emergency information services to support researchers' literature needs. Libraries' information resource professionalism is unquestionable, and trained information specialists can play a greater role in integrating these resources: (1) Provide emergency event decision-making consulting services for government departments, such as the epidemic designated hospital information and various prevention and control policies provided by our library. (2) Provide research information support services for public emergencies. Scientific research

requires literature support, especially after disaster events when researchers need to build on previous experience to develop solutions. Libraries' active participation in literature information retrieval, information compilation, analysis and research, and establishment of thematic databases for emergency events can fully leverage libraries' literature resource advantages and disciplinary support advantages, providing fast and effective information guarantees for scientific research and a solid information foundation for achieving research progress.

In addition to providing psychological comfort to the public during and after disasters through reading promotion activities, public libraries also provide corresponding public health event science knowledge. With network development, various health information is redundant and noisy everywhere. Library-integrated resources, filtered multiple times, are more accurate and effective. Furthermore, specialized and public libraries actively negotiate with suppliers to increase access to relevant electronic publications after disasters.

4.3 Fully Utilize Multimedia Technology for Public Health Emergency Information Dissemination Libraries have available technology that can not only provide links to emergency preparedness and response resources but also deliver real-time alerts through smartphone applications and other social media tools. Whether using Facebook and Twitter commonly employed by foreign libraries or WeChat, Weibo, and QQ widely used domestically, these are important channels for libraries to disseminate health information to the public through social media. Both specialized medical libraries and public libraries need to further research how libraries can best collaborate with other organizations using social media tools to meet public information needs during crises and actively participate in community emergency planning and response activities. Librarians should be more proactive in this field, understanding the information tools, applications, and other resources needed by emergency/disaster workers. Additionally, libraries must identify and clarify the roles of librarians and (multimedia institution) journalists. For example, librarians can assist in many information management activities before, during, and after disasters, including helping collect data from multimedia institutions, enhancing database maintenance, identifying and disseminating disaster-related information, and using social media for rapid communication and situational awareness.

Emergency management, including public health emergency management, is an indispensable part of everyone's daily life. Information access and management are key components of this process and should be integrated into daily decision-making, not just called upon when disasters occur. Although libraries as information institutions do not actually treat patients, investigate disease outbreaks, clean up toxic spills, or conduct clinical trials, they create innovative and powerful information systems and services that can assist all these activities. Access to reliable and timely information is crucial for handling natural and man-made emergencies and disasters. Libraries and librarians should become part of the critical infrastructure for emergency event management to help find

information before, during, and after disasters, thereby facilitating the smooth progress of all disaster phases (preparedness, response, and recovery).

References

- [1] Xi Jinping: Improve the Major Epidemic Prevention and Control System and Mechanism, Perfect the National Public Health Emergency Management System [N]. People's Daily, 2020-02-15(1).
- [2] Fu Ping. How American Libraries Responded to the COVID-19 Outbreak [J]. Library Journal, 2020, 39(3): 24-31.
- [3] Zhang Jing. Disaster Emergency Information Services of the U.S. National Library of Medicine and Their Implications [J]. Library and Information Service, 2016, 60(7): 72-77.
- [4] Featherstone R, Lyon B, Ruffin B. Library roles in disaster response: an oral history project by the National Library of Medicine [J]. Journal of the Medical Library Association, 2008, 96(4): 343-349.
- [5] McGuire L. Planning for a pandemic influenza outbreak: roles for librarian liaisons in emergency delivery of educational programs [J]. Medical reference services quarterly, 2007, 26(4): 1-13.
- [6] Zach L. What do I do in an emergency? the role of public libraries in providing information during times of crisis [J]. Science & technology libraries, 2011, 30(4): 404-413.
- [7] Wang Xiaojuan, Wu Luohua. Discussion on Emergency Medical Information Services of Preventive Medicine Libraries in Public Health Emergencies [J]. Journal of Medical Informatics, 2011, 32(11): 70-72.
- [8] Wei Yongli, Wei Hancui, Luo Yanping. Exploration of Constructing Emergency Response Mechanisms for Libraries in Public Health Emergencies [J]. Library and Information Service, 2015, 59(S1): 1-2, 8.
- [9] State Council Order No. 376: Regulations on Public Health Emergency Response [EB/OL]. [2020-02-15]. <https://baike.baidu.com/item/突发公共卫生事件应急条例/23167285?fr=aladdin>.
- [10] Wang Shuaibo, Ji Yongli, Li Wandong. Advantages and Actions of Medical Universities in Social Public Health Emergencies—Taking H1N1 Influenza in Our University as an Example [J]. China Science and Technology Information, 2012(11): 199, 204.
- [11] Ellen R. From social hygiene to consumer health: libraries, health information, and the American public from the late nineteenth century to the 1980s [J]. Library & information history, 2012, 28(3): 202-219.

- [12] Lukenbill WB. HIV-AIDS information and the American library community: an overview of responses to the HIV-AIDS health crisis [C/OL]. [2020-01-15]. <https://files.eric.ed.gov/fulltext/ED415868.pdf>.
- [13] Martin E. Social justice and the medical librarian [J]. *Journal of the Medical Library Association*, 2019, 107(3): 291-303.
- [14] Love C, Arnesen S, Phillips S, et al. National library of medicine disaster information management research center: achieving the vision, 2010-2013 [J]. *Information services & use*, 2014, 34(1/2): 149-170.
- [15] NLM Overview [EB/OL]. [2020-05-26]. <https://www.nlm.nih.gov/>.
- [16] Wang Peilin. Health Information Services Drive the Future Development of Public Libraries—Analysis and Implications Based on UK NHS Library Quality Assessment Standards [J]. *Library and Information Knowledge*, 2018(2): 32-39.
- [17] Case H, Howard N. Patient and public information delivery through NHS library and knowledge services: how knowledge for healthcare changed the landscape [J]. *Health information & libraries journal*, 2017, 34(3): 183-186.
- [18] NHS Long Term Plan [EB/OL]. [2020-03-15]. <https://www.longtermplan.nhs.uk/>.
- [19] Coronavirus guidance for clinicians [EB/OL]. [2020-05-27]. <https://www.england.nhs.uk/coronavirus/>.
- [20] News: coronavirus [EB/OL]. [2020-05-26]. <https://www.bl.uk/news/2020/march/coronavirus>.
- [21] Overview of National University of Singapore Medical Library [EB/OL]. [2020-05-26]. <https://libportal.nus.edu.sg/frontend/ms/medical-library/about-medical-library>.
- [22] Emergency Management Department of National University of Singapore [EB/OL]. [2020-05-26]. <https://emergency.nus.edu.sg/>.
- [23] National Library of Singapore Notice [EB/OL]. [2020-05-26]. <https://www.nlb.gov.sg/>.
- [24] Early Warning Mechanism for Public Crisis Management [EB/OL]. [2020-05-26]. <https://www.docin.com/p-1900147663.html>.
- [25] Announcement on Providing Navigation Services for Designated Hospitals and Fever Clinics for Novel Coronavirus Pneumonia [EB/OL]. [2020-05-26]. <http://www.imicams.ac.cn/publish/default/tzgg/content/2020020311083619327.htm>.
- [26] NSTL COVID-19 Emergency Literature Information Column [EB/OL]. [2020-05-26]. <https://www.nstl.gov.cn/index.html>.
- [27] Novel Coronavirus Pneumonia (COVID-19) Prevention and Control Knowledge Service Platform [EB/OL]. [2020-05-26]. <http://2019ncov.imicams.ac.cn/index.html>.
- [28] Zhuo Lizhu. *Crisis Management: Public Crisis Prevention and Response Strategies in the New Situation* [M]. Beijing: Central Party School Press, 2011.

Author Profile: Cao Haixia (ORCID: 0000-0002-4616-8154), Associate Research Librarian, Ph.D. Candidate, E-mail: caohaixiazi@126.com.

Received Date: 2020-02-15 **Revised Date:** 2020-04-22 **Page Range:** 49-55
Responsible Editor: Yi Fei

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv — Machine translation. Verify with original.