



Rx PLA: The PLA Medical System's Role in China's Efforts to Fight COVID-19

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Abstract

Established on September 13, 2016, the PLA's Joint Logistics Support Force (JLSF) oversees a variety of logistics functions, including PLA hospitals and medical services. Less than four years after its establishment, the JLSF faced its first real test in January 2020 when Xi Jinping called on the PLA to assist civilian efforts to control the initial COVID-19 outbreak in Wuhan. In the two years since, PLA medical institutions and personnel have played a key role in China's efforts to respond to the COVID-19 pandemic, both domestically and internationally. In this paper, we examine the PLA's response to the COVID-19 pandemic to derive broad observations about the PLA's role in responding to a public health emergency and insights about the PLA medical system's capabilities.

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Executive Summary

The medical institutions and personnel of the Chinese People's Liberation Army (PLA) have played a key role in the People's Republic of China's (PRC's) efforts to respond to the COVID-19 pandemic, both domestically and internationally. In this paper, we examine the PLA's response to the COVID-19 pandemic in order to derive insights about the PLA medical system's capabilities.

Observations about the PLA's role in responding to COVID-19

The PLA's efforts to combat the pandemic were part of a larger, civilian-led response.

- Beijing's response to the situation in Wuhan was led by the State Council Joint Prevention and Control Mechanism and the Central Leading Small Group for Responding to the Novel Coronavirus Epidemic, both of which are civilian coordinating bodies established under the State Council.
- PLA medical personnel made up a small fraction of the total number of medical professionals sent to Wuhan. Based on PRC official documents and authoritative PRC media reporting, the more than 4,000 PLA personnel sent to Wuhan constituted as little as 10 percent of the total number of medical workers mobilized to respond to the public health emergency.

The PLA's response to the initial outbreak of COVID-19 in Wuhan and the subsequent global pandemic fell into four main lines of effort (LOEs):

- ***LOE 1: Sending personnel and supplies to Wuhan (January - April 2020).*** The PLA sent 4,000 PLA medical personnel and more than 150 tons of medical supplies and equipment to Wuhan via PLA Air Force (PLAAF) transport aircraft and high-speed rail.
- ***LOE 2: Developing a vaccine (beginning in January 2020).*** A team of medical researchers led by PLA Major General Chen Wei arrived in Wuhan on January 26, 2020, to begin developing a vaccine. In July 2020, the team became one of the first in the world to publish results in a peer-reviewed journal that showed a coronavirus vaccine to be safe and capable of eliciting an immune response.

- **LOE 3: Providing aid and medical support to other countries (beginning in March 2020).** The PLA's first batch of donated COVID-19 related aid was delivered to Iran in March 2020. In the following 11 months, the PLA provided aid to more than 50 countries. This aid included materials such as masks, ventilators, test kits, and personal protective equipment (PPE), as well as the dispatch of teams of PLA medical personnel.
- **LOE 4: Providing vaccines to other countries (February – November 2021).** Between early February and late November 2021, the PLA donated vaccines to at least 25 countries throughout the Indo-Pacific, Africa, the Middle East, and Europe.

The PLA's response to COVID-19 featured several examples of "military-civil fusion," including the following:

- **Procurement:** The PLA's Joint Logistics Support Force (JLSF) called on domestic suppliers to expand production and work with the customs and the transport sectors to speed up the import and transportation of necessary PPE and medical materials.
- **Transportation:** The PLA coordinated with civilian rail departments to transport military personnel and supplies to Wuhan via high-speed rail. This effort consisted of 18 train trips on February 2, 13, and 17, 2020. The trains collected over 1,200 medical personnel and over 100 tons of medical materials at 22 locations and transported them to Wuhan.
- **Vaccine development:** The team of medical researchers led by PLA Major General Chen Wei included civilians from government agencies, universities, and the Tianjin-based pharmaceutical company CanSino Biologics. The vaccine that they developed—Ad5-nCoV—was ultimately produced by CanSino Biologics.

Insights about the PLA medical system's capabilities

The PLA has medical professionals with diverse capabilities and types of experience.

- In the COVID context, medical professionals include frontline responders with experience fighting previous pandemics, researchers and technicians skilled in vaccine development, and medical experts capable of providing remote training and telemedicine services.
- However, it is unclear how many and what types of experienced medical personnel are in the PLA. PRC writings have refrained from citing specific numbers or percentages tied to medical professionals' capabilities or specializations.

The PLA has the capability to quickly deploy large numbers of medical professionals and supplies to distant locations within China.

- The first PLA personnel and supplies arrived in Wuhan only a few days after PRC leadership publicly acknowledged the outbreak.
- By the end of March, 4,000 PLA medical personnel and hundreds of tons of medical supplies and equipment had flowed into Wuhan from all over China.

The PLA has the capability to deliver teams of personnel, supplies, and vaccines to countries all over the world.

- The PLA provided COVID-19 aid—including teams of medical experts, PPE, and vaccines—to more than 50 countries around the world.
- Perhaps one of the most noteworthy aspects of the PLA's provision of aid to other countries is that it was frequently delivered by PLAAF aircraft. PLAAF transport aircraft delivered aid to at least 20 countries in the Indo-Pacific, Middle East, and Africa.

Several aspects of the PLA's response demonstrated "jointness."

- The response was led and implemented by joint organizations; it involved medical personnel from each of the PLA's services and forces; and it relied on PLAAF aircraft to transport personnel and supplies provided by other services.

A few PRC media reports and journal articles by PLA subject matter experts criticized aspects of the PLA's response to the pandemic. They identified the following weaknesses:

- Information sharing was poor.
- The communications infrastructure was lacking.
- PPE reserves were insufficient.
- There was a lack of counseling services for frontline responders.

A conflict scenario could test the PLA's medical system in ways that the pandemic did not.

- The PLA's response to the pandemic suggests that it has capabilities—infection control, quarantine, etc.—that would be relevant to handling nuclear, chemical, and biological attacks.
- However, an armed conflict would almost certainly require other capabilities, such as the ability to manage and treat combat casualties.
- Moreover, a conflict, especially one fought on exterior lines of communication, would pose operational challenges that were not experienced during COVID-19. For instance, competing priorities for airlift could result in the postponement or denial of JLSF requests for PLAAF transport aircraft.

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1. Introduction

Established on September 13, 2016, the PLA's Joint Logistics Support Force (JLSF) oversees a variety of logistics functions, including PLA hospitals and medical services.¹ Less than four years after its establishment, the JLSF faced its first real test in January 2020 when Xi Jinping called on the PLA to assist civilian efforts to control the initial COVID-19 outbreak in Wuhan. In the two years since then, PLA medical institutions and personnel have played a key role in China's efforts to respond to the COVID-19 pandemic, both domestically and internationally.

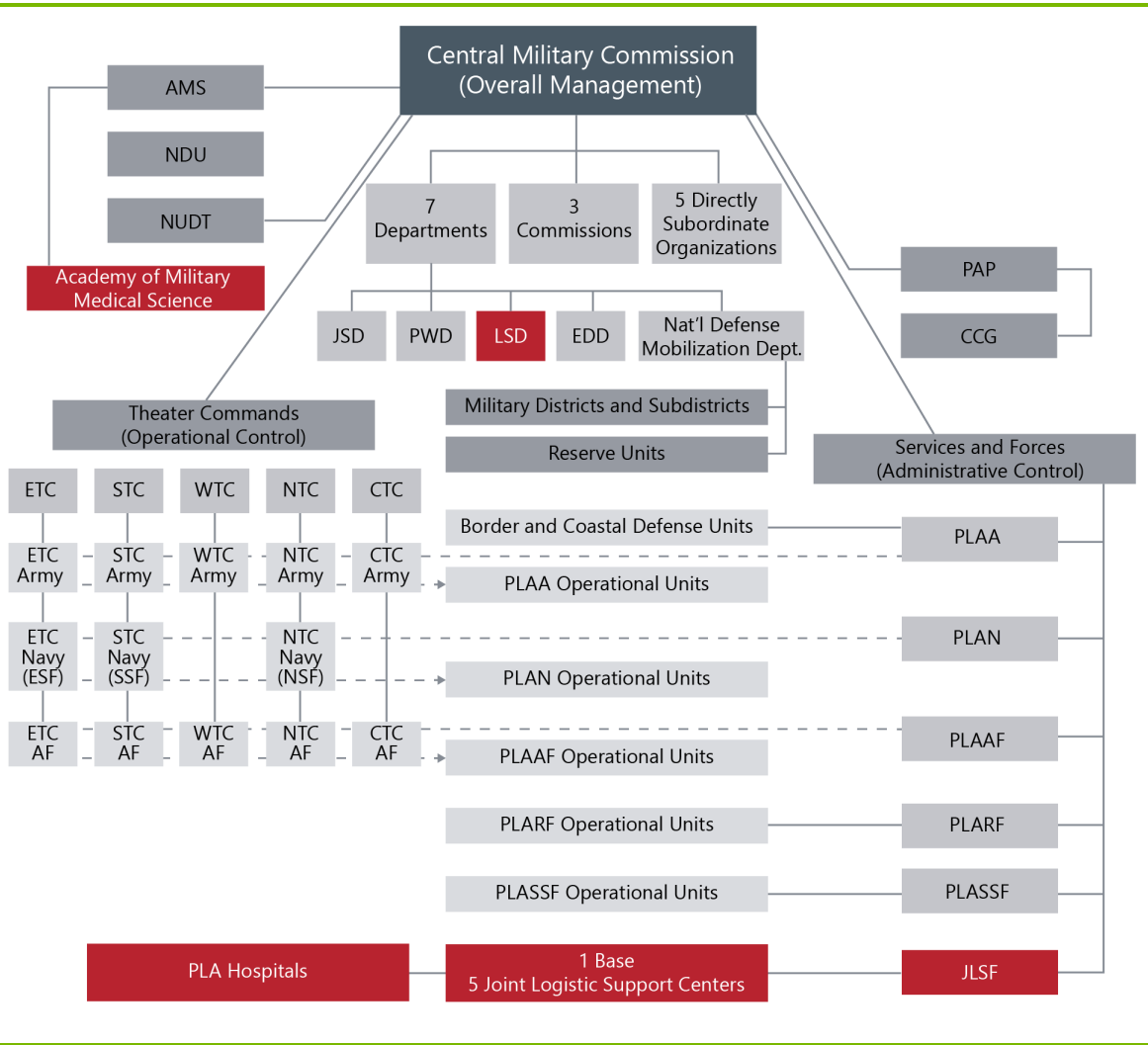
In this paper, we examine the PLA's response to the COVID-19 pandemic in order to derive broad observations about the PLA's role in responding to a public health emergency and insights about the PLA medical system's capabilities. Over the course of this analysis, we compiled a chronology of major developments in the PLA's response to COVID-19 from January 2020 through December 2021, including its efforts to send personnel and supplies to Wuhan, its participation in China's COVID-19 relief efforts overseas, and its involvement in vaccine development. Appendix A includes the chronology of China's relief efforts, and Appendix B shows the countries to which it sent personnel and supplies. Data sources for this study include English- and Chinese-language PRC media reporting, Chinese-language journal articles, the official website of the PRC Ministry of National Defense (MND), PRC embassy websites in countries that received PRC aid, and news media reporting from outside of China.

1.1 The PLA medical system

Beginning in late 2015, the Chinese People's Liberation Army (PLA) embarked on a series of sweeping organizational and institutional reforms aimed at making it a more modern, joint, and capable military. These reforms included the creation of an integrated joint logistics system. Key institutions in this system include the Central Military Commission (CMC) Logistic Support Department (LSD), which is the PLA's central organization responsible for logistics management (including resource management and regulatory activities), and the newly established JLSF, which is tasked with combat service support and sustainment activities.² As noted above, the JLSF oversees the PLA's hospitals and medical services.

Figure 1 shows the key organizations involved in the PLA's response to COVID-19 and where they sit in the PLA's overall organizational structure.

Figure 1. Organizations involved in the PLA's response to COVID-19



Source: Adapted from United States Department of Defense, Defense Intelligence Agency, *Directory of PRC Military Personalities*, Washington, DC, 2021.

1.2 Placing the PLA's response into context

When examining the PLA's response to COVID-19, two important pieces of context should be kept in mind:

- The PLA's efforts to combat the pandemic were part of a larger, civilian-led response.
- PLA medical personnel constituted a small fraction of the total number of medical professionals sent to Wuhan.

Based on precedent and law, the CCP Central Committee and PRC State Council are the lead entities responsible for guiding and implementing, respectively, China's response to national public health emergencies; China's armed forces play a supporting role.³ Beijing's response to the situation in Wuhan was led by the following civilian coordinating bodies established under the State Council:⁴

- ***State Council Joint Prevention and Control Mechanism (国务院联防联控机制)***. On January 20, the newly established "State Council Joint Prevention and Control Mechanism" held a teleconference to "make overall arrangements" for the country's response.⁵
- ***Central Leading Small Group for Responding to the Novel Coronavirus Epidemic (中央应对新型冠状病毒感染肺炎疫情工作领导小组)***. On January 26, state media identified PRC premier Li Keqiang (also the second-ranked member in CCP leadership) as head of the newly established "Central Leading Small Group for Responding to the Novel Coronavirus Epidemic."⁶ The group's membership included other ministerial-level leaders of CCP and State Council bodies but did not include any PLA leaders or Xi Jinping (who serves as chairman of the CMC).⁷

PLA medical personnel constituted a small fraction of the total number of medical professionals sent to Wuhan. Based on PRC official documents and authoritative PRC media reporting, the more than 4,000 PLA personnel sent to Wuhan constituted as little as 10 percent of the total number of medical workers mobilized to respond to the public health emergency in Wuhan. According to a State Council white paper, China had sent "42,600 medical workers and more than 965 public health workers" to Wuhan by March 8, 2020.⁸ Nevertheless, PRC officials and media have highlighted the importance of the PLA's contributions to the fight against COVID-19. For example, Du Wenjun, a professor at PLA Army Service Academy, argues that the PLA played an "incalculable" role in fighting the pandemic and that its experiences would provide a useful "template" for future medical mobilization.⁹ The presence of uniformed PLA personnel in Wuhan may also have played a role in maintaining "social stability" during a time of "chaotic crisis," as faculty from Guangdong University of Finance & Economics suggest.¹⁰

2. The PLA's Lines of Effort Against COVID-19

The PLA's response to the initial outbreak of COVID-19 in Wuhan and the subsequent global pandemic can be divided into four main lines of effort (LOEs):

- LOE 1: Sending personnel and supplies to Wuhan (January – April 2020)
- LOE 2: Developing a vaccine (beginning in January 2020)
- LOE 3: Providing aid and medical support to other countries (beginning in March 2020)
- LOE 4: Providing vaccines to other countries (February – November 2021)

2.1. LOE 1: Sending personnel and supplies to Wuhan

The first PLA personnel and supplies arrived in Wuhan just a few days after PRC leadership publicly acknowledged the COVID-19 outbreak in the city. (Figure 2 shows one such group of personnel.) By the end of March, the PLA had sent over 4,000 medical personnel to Wuhan, along with 400,000 medical masks, 8,000 protective suits, and other medical equipment.

Evidence suggests that central PRC leadership was aware of the new illness spreading throughout Wuhan by 30 December 2019. However, rather than taking action to warn the public and contain the virus, Beijing's initial response to the outbreak was to suppress information about the unfolding situation in the city.¹¹ On January 20, 2020, the PRC leadership finally broke its silence and

Figure 2. PLA medical university personnel depart on PLAAF aircraft for Wuhan



On the evening of January 24, 2020, 150 medical personnel from PLA Army Medical University assembled at Jiangbei International Airport in Chongqing, where they departed on a PLA Air Force Il-76 bound for Wuhan. Source: "PLA Medical Team to Support Hubei Arrives in Wuhan" (解放军支援湖北医疗队抵达武汉), Xinhua (新华网), Jan. 25, 2020, http://www.xinhuanet.com/politics/2020-01/25/c_1125500731.htm.

Xi Jinping himself called for “resolute efforts” to stop the virus’s spread.¹² According to authoritative PRC media reporting, the PLA responded almost immediately. The next day, on January 21, 2020, the PLA Central Theater Command General Hospital—located in Wuhan’s Wuchang District—reportedly sent a 40-member medical team to assist Wuhan Pulmonary Hospital in neighboring Qiaokou District.¹³ Just a few days later, on January 24, the first PLA medical personnel and supplies from other parts of China arrived in Wuhan.¹⁴

In the weeks that followed, PLA personnel and supplies flowed into Wuhan from all over China. Their arrival can be divided into three waves (shown in Figure 3):

- **First wave (January 24-26, 2020):** On January 24, 450 medical personnel from the PLA Army, Navy, and Air Force medical universities arrived on three Il-76 military transport aircraft sent from Shanghai, Chongqing, and Xi’an.¹⁵ On January 26, a train arrived from Shenyang, Liaoning Province, and Heze, Shandong Province, loaded with emergency medical supplies allocated by the PLA. The supplies included 10,000 sets of class-C protective clothing and 3,760 bottles of ethyl alcohol.¹⁶
- **Second wave (February 2, 2020):** On February 2, eight PLAAF Il-76 aircraft arrived, carrying 795 PLA personnel and 58 tons of supplies, sent from Shenyang, Lanzhou, Guangzhou, and Nanjing. Another 155 PLA medical staff arrived via high-speed rail.¹⁷
- **Third wave (February 13-17, 2020):** On February 13, 1,400 PLA medics and medical supplies from seven cities—Urumqi, Shenyang, Xining, Tianjin, Zhangjiakou, Chengdu, and Chongqing—arrived on 11 PLAAF transport aircraft (six Y-20s, three Il-76s, and two Y-9s).¹⁸ The PRC MND stated that this was the first “civilian-related” deployment of China’s Y-20 heavy-lift transport aircraft.¹⁹ On February 17, an additional 1,200 military medics arrived (200 on eight PLAAF aircraft and 1,000 via rail).²⁰

According to a PRC MND spokesperson, by the end of March, the PLA had sent over 4,000 medical personnel to Wuhan, along with 400,000 medical masks, 8,000 protective suits, and other medical equipment. At the national level, nearly 3,000 beds had been set up by 63 military hospitals designated to treat COVID-19 patients, with over 10,000 military medics working at the “front line” in their respective areas of responsibility.²¹ Of note, aside from the 4,000 personnel who had been sent to Wuhan, it is unclear where the rest of the 10,000 “frontline” medical personnel mentioned by the MND spokesperson were located. We did not observe reports of PLA medical personnel being dispatched to fight COVID-19 anywhere other than Wuhan. It is possible that the other “frontline” medics were working in their routine duty locations, including Wuhan.

At the end of March 2020, a PRC MND spokesman stated that “the more than 4,000 military medical personnel assisting Wuhan are still in position to help the city fight the virus, save lives, and press ahead with scientific research.”²² Just a couple of weeks later, on April 16,

Xinhua reported that the PLA medical teams had completed their missions in Wuhan and had left the city via chartered flight and rail.²³

Figure 3. Three waves of PLA personnel and supplies into Wuhan



Source: CNA.

2.2 LOE 2: Developing a vaccine

A team of medical researchers led by PLA Major General Chen Wei (shown in Figure 4) arrived in Wuhan on January 26, 2020, to begin developing a vaccine. Less than two months later, their vaccine was approved for clinical trials in China. In late June, the CMC approved the use of the vaccine among military personnel.

The PLA's second major line of effort in response to the COVID-19 pandemic focused on the development of a vaccine. On January 26, less than a week after Xi's call for a nationwide effort to fight the outbreak in Wuhan, a military medical team led by Major General Chen Wei—a researcher from the Academy of Military Medical Science's (AMS's) Institute of Biotechnology known for her work developing a drug to fight SARS in 2002-2003 and a vaccine for Ebola in 2014—arrived in Wuhan for the purpose of developing therapeutic drugs and a vaccine.²⁴ Major General Chen's team included collaborators from government agencies, universities, and the Tianjin-based pharmaceutical company CanSino Biologics. In July 2020, the team became one of the first in the world to publish results in a peer-reviewed journal that showed a coronavirus vaccine (Ad5-nCoV) to be safe and capable of eliciting an immune response.²⁵

Key events in the PLA's participation in efforts to develop a vaccine include the following:

- **January 26, 2020:** A team led by Major General Chen Wei arrived in Wuhan for the purpose of developing therapeutic drugs and a vaccine.²⁶
- **March 16, 2020:** The single-shot Ad5-nCoV vaccine developed by Major General Chen's team was approved for clinical trials in China.²⁷
- **April 12, 2020:** Ad5-nCoV entered the second phase of clinical trials.²⁸
- **May 22, 2020:** Major General Chen's team published results from phase-I clinical in *The Lancet*, a peer-reviewed journal.²⁹
- **July 20, 2020:** Major General Chen's team published the results of phase-II clinical trials in *The Lancet*, showing a COVID vaccine to be safe and capable of eliciting an immune response.³⁰
- **June 25, 2020:** China's Central Military Commission approves the use of the Ad5-nCoV vaccine among military personnel.³¹
- **August 13, 2020:** PRC state media reports that the Ad5-nCoV vaccine has entered the third phase of international clinical trials.³²
- **December 23, 2021:** The results of the Ad5-nCoV vaccine's Phase III trials are published in *The Lancet*, showing the vaccine to be 57.5% effective against

symptomatic COVID-19 and 91.7% against severe disease four weeks or longer after one dose.³³

It bears noting that, despite its rapid development, the Ad5-nCoV vaccine has not received widespread approval outside of China. According to *VisaGuide.World*, as of October 2021, only 10 countries allowed entry to travelers who had been vaccinated with the CanSinoBio vaccine (Argentina, Chile, China, Ecuador, Greece, Hungary, Kyrgyzstan, Malaysia, Mexico, Pakistan).³⁴ Moreover, as of January 31, 2022, the vaccine had not yet been approved for use by the World Health Organization.³⁵

Figure 4. Xi Jinping presents Chen Wei national award



On September 8, 2020, Xi Jinping presented Major General Chen Wei with a medal and the honorary title “The People’s Hero.” Source: “Chen Wei, military medical scientist marching toward vaccine,” Xinhua, Sept. 9, 2020, http://eng.mod.gov.cn/news/2020-09/09/content_4870957.htm.

2.3 LOE 3: Providing aid and medical support to other countries

In March 2020, the PLA began delivering COVID-19 related aid to other countries. In the following 11 months, the PLA donated aid to more than 50 countries around the world.

The PLA’s third major line of effort in response to the global COVID-19 pandemic was to provide aid to other countries fighting outbreaks of the virus. This aid included the delivery of COVID-19 relief materials, such as ventilators, test kits, masks, and other personal protective equipment (PPE), as well as the sharing of expertise through the dispatch of teams of PLA medical personnel and telemedicine exchanges.

By early March, China’s official daily count of new cases dropped into the single digits, and on March 10, 2020, Xi Jinping visited Wuhan in an apparent declaration of victory over the outbreak in the city. Shortly thereafter, the PLA began to transition the focus of its COVID-19 related efforts overseas. On March 19, Iran became the first country to receive COVID-19 relief supplies donated by China’s armed forces, when it received protective clothing, nucleic acid

testing kits, and medical masks from the PLA.³⁶ Less than a week later, a team of PLA medical professionals bearing supplies and equipment—including nucleic acid testing kits and protective gowns—arrived in Cambodia on PLAAF aircraft.³⁷ In the months that followed, the PLA provided COVID-19 aid to more than 50 countries around the world (listed in Table 2).

Table 1. Countries that received COVID-19 relief materials (not including vaccines) from the PLA, Mar 2020 – Feb 2021

Countries that COVID-19 received non-vaccine relief materials (masks, ventilators, test kits, and personal protective equipment) from the PLA		
Afghanistan	Ethiopia	Philippines
Angola	Gabon	Republic of Congo
Argentina	Guinea	Russia
Bangladesh	Hungary	Rwanda
Bangladesh	Indonesia	Saudi Arabia
Bangladesh	Iran	Serbia
Belarus	Laos	Sierra Leone
Bolivia	Lebanon	Sri Lanka
Bulgaria	Mauritania	Sudan
Cambodia	Mongolia	Tanzania
Cameroon	Morocco	Thailand
Cuba	Mozambique	Trinidad and Tobago
Democratic Republic of Congo	Myanmar	Tunisia
East Timor	Nepal	Venezuela
Ecuador	North Macedonia	Vietnam
Egypt	Pakistan	Zambia
Equatorial Guinea	Peru	Zimbabwe

Source: CNA.

2.4 LOE 4: Providing vaccines to other countries

Between early February and late November 2021, the PLA donated vaccines to at least 25 countries throughout the Indo-Pacific, Africa, the Middle East, and Europe.

The PLA’s fourth major line of effort in response to the global COVID-19 pandemic was the donation of vaccines to countries around the world. In February 2021, the PLA’s focus appeared to shift almost entirely from deliveries of medical supplies such as test kits, masks, and other PPE to “vaccine diplomacy.”

Pakistan was the first country to receive donated vaccines from both the PRC government and the PLA.³⁸ On February 7, a ceremony was held at the Nur Khan Airbase near Islamabad to mark the handover of COVID-19 vaccines donated by the PLA to Pakistan’s armed forces.³⁹ Previously, on February 1, a batch of COVID-19 vaccines donated by the Chinese government had arrived in Pakistan.⁴⁰

Also on February 7, the Cambodian government received its first batch of COVID-19 vaccines from China, which arrived on a PLAAF Y-20.⁴¹ (See Figure 5.) According to a report by China’s official overseas television broadcaster CGTN, which was posted to the PRC MND’s website, the delivery included doses donated by the PLA.⁴² PRC media noted that the Cambodian military was among the first group of foreign armed forces to receive COVID-19 vaccine aid from the PLA.⁴³

Based on our review of authoritative PRC media reporting—particularly the PRC MND’s official website—the PLA donated vaccines to at least 25 countries throughout the Indo-Pacific, Africa, the Middle East, and Europe (listed in Table 3).

Figure 5. Y-20 delivering vaccines to Cambodia



Source: Mao Pengfei and Gao Bingnan, “News Report – ‘Friends Must Help Each Other When They’re In Trouble’ – Chronicling the Delivery of Chinese Vaccines to Cambodia” (通讯:“挚友难时必相助”——记中国疫苗运抵柬埔寨), Xinhua, Feb. 8, 2021, http://www.xinhuanet.com/2021-02/08/c_1127080043.htm.

Table 2. Countries that received vaccines from the PLA, Feb – Nov 2021

Countries that received vaccines from the PLA		
Cambodia	Tunisia	Philippines
Pakistan	Egypt	Sudan
Myanmar	Republic of Congo	Gabon
Laos	Equatorial Guinea Sierra	Mauritania
Lebanon	Leone	Guinea
Vietnam	Zimbabwe	Sri Lanka
Mongolia	Serbia	Bangladesh
Ethiopia	Hungary	
Mozambique	North Macedonia	

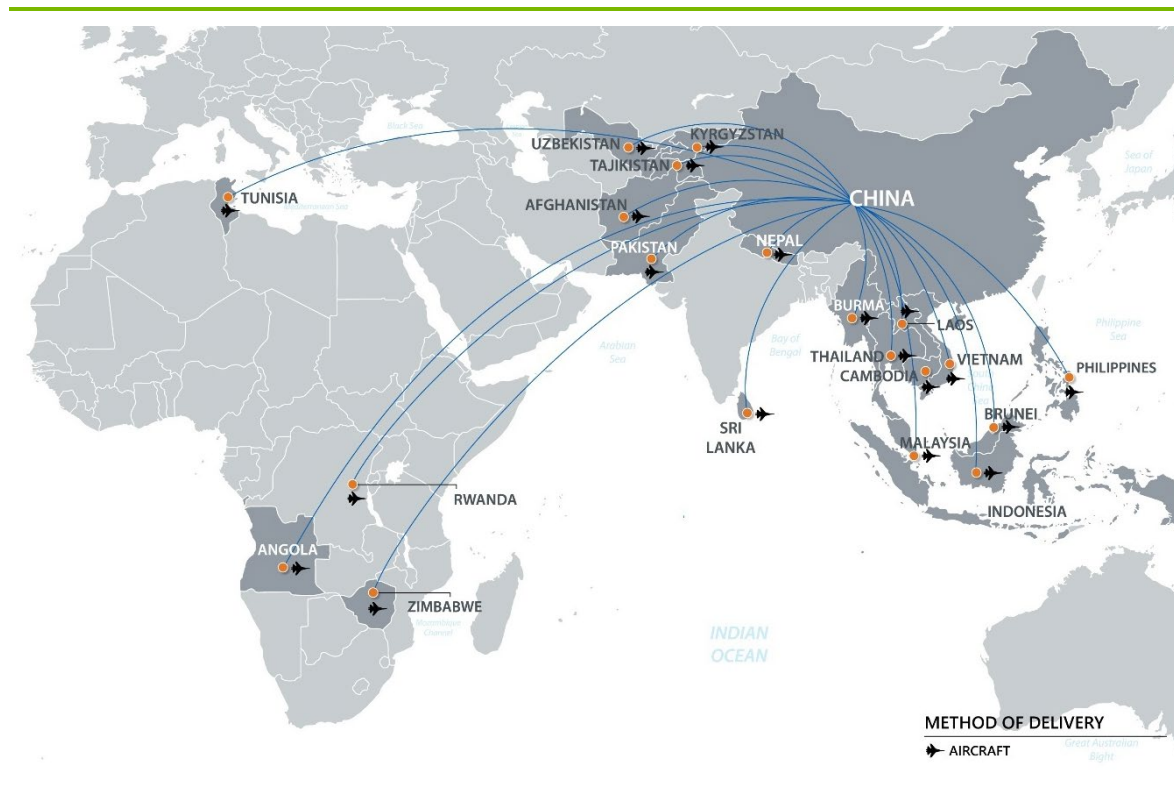
Source: CNA.

3. Expansion of the PLAAF's Overseas Operational Experience

Perhaps one of the most noteworthy aspects of the PLA's provision of aid to other countries is the fact that it was frequently delivered by PLAAF transport aircraft. Based on our review of authoritative PRC media reporting—particularly the PRC MND's official website—PLAAF transport aircraft delivered aid to at least 20 countries in the Indo-Pacific, Middle East, and Africa (see Figure 6).

The PLAAF assets that made these deliveries included Il-76, Y-9, and Y-20 transport aircraft. According to a PRC MND spokesperson, a Y-20's delivery of medical supplies and a team of PLA medical experts to Pakistan on April 24, 2020, marked the first overseas mission of the indigenously developed large transport aircraft.⁴⁴

Figure 6. Countries to which PLAAF aircraft delivered COVID-19 aid*



Source: CNA.

*The lines on the map do not indicate actual flight paths.

To put the PLAAF's overseas deliveries of COVID-19 aid into perspective, less than a decade ago, it was relatively uncommon for PLAAF aircraft to operate outside China's borders. Indeed, the PLAAF's participation in the evacuation of PRC citizens from Libya in 2011 marked the farthest a PLAAF transport aircraft had traveled and China's first use of long-range military transport aircraft to rescue PRC citizens from a foreign conflict zone.⁴⁵ The active role that the PLAAF played in delivering aid and PLA medical teams to so many countries likely provided it with valuable operational experience in operating, landing, and refueling on a variety of foreign airfields.

Because the PLA largely lacks overseas military infrastructure, a key question we considered was whether aid-bearing PLAAF aircraft stopped to refuel, and if so, where. However, details of PLAAF flights to foreign countries were largely absent from PRC media reporting, and we did not observe explicit mention of any stopover points or refueling at destination countries. Depending on PLAAF aircraft's airfield of departure, some roundtrip flights might have been short enough that they did not require refueling (e.g., Cambodia) or they might have refueled at airports in countries where they delivered aid. However, when PLAAF aircraft delivered aid to African countries, they would have needed to refuel en route. Fully loaded PLAAF heavy transport aircraft have a limited range of around 4,000 km (see Table 4) and all the African countries that received aid via Chinese military aircraft are more than 4,000 km from China's westernmost border. Media reports did not mention aid-bearing PLAAF aircraft stopping over at China's sole overseas military base in Djibouti, and indeed that base's runway—only 400 meters long—is apparently too short to be used by heavy transport aircraft.⁴⁶

Table 3. Estimated flight ranges of PLAAF aircraft models used in overseas deliveries of aid

Aircraft model	Max range with max/heavy payload	Max range with minimal/no payload
Y-20	3,704 km (66-ton payload) ^a	5,200 km (51-ton payload)
Il-76	4,000 km (60-ton payload)	9,700 km (no payload)
Y-9	2,200 km (15-ton payload)	5,200 km (no payload)

Source: Janes ("XAC Y-20 Kunpeng," Dec. 16, 2021; "Ilyushin Il-76," Sept. 13, 2021; "Aircraft - Fixed-Wing - Military - SAC Y-9," last updated Mar. 22, 2021.

^a The PLA's official English-language website posted one article with a significantly higher estimate. According to the article, the Y-20 could carry a payload of around 60 tons as far as 7,800 km. See "Y-20 cargo plane-Type 15 tank combination enhances Chinese military capability," *China Military Online*, Apr. 8, 2020, http://eng.chinamil.com.cn/view/2020-04/08/content_9787469.htm.

4. The “Jointness” of the PLA’s Response

A key goal of the Chinese military’s recent reforms was to transform the PLA into a more modern, joint fighting force. Therefore, one thing we looked for when examining the PLA medical system’s response to COVID-19 was evidence that it involved elements of multiple services and/or forces of the PLA. Several aspects of the response did appear joint:

- ***It was led and implemented by joint organizations.*** The Chinese armed forces established a “joint prevention and control work” mechanism for coordinating the military response to COVID-19. It was led by the CMC LSD and included the JLSF, People’s Armed Police, and Academy of Military Sciences.⁴⁷ In addition, the LSD set up a “three-joint” work mechanism (joint requirements, acquisition, and transportation) to accelerate the delivery of necessary materials to frontline medical workers.⁴⁸
- ***Medical personnel from each of the PLA’s services and forces were deployed to Wuhan.*** By mid February, the PLA had sent over 4,000 military medics from across China to support counter-epidemic operations in Wuhan. These personnel came from medical institutions affiliated with the PLA Army, Navy, Air Force, Rocket Force, Strategic Support Force, JLSF, and People’s Armed Police Force.⁴⁹
- ***PLA Air Force aircraft were used to transport military personnel and supplies from multiple services and forces.*** The majority of the more than 4,000 military medics (over 2,600), as well as at least 58 tons of medical supplies, were transported to Wuhan on 30 PLAAF aircraft flights (Il-76s, Y-20s, and Y-9s).⁵⁰

There is evidence suggesting that there were limits to the “jointness” that the PLA demonstrated in response to COVID-19. For instance, the military medics who were sent to Wuhan were divided into teams along service lines. The first group of 450 PLA medics that deployed to Wuhan consisted of three teams of personnel from the PLA Army, Navy, and Air Force medical universities. Each team was sent to support a different civilian hospital—the Army Medical University team to Jinyintan Hospital, the Navy team to Hankou Hospital, and the Wuchang team to Wuchang Hospital.⁵¹ These personnel, as well as PLA medics later deployed to Wuhan, would eventually staff the newly built Huoshenshan Hospital, which the PLA began administering on February 2, 2020. It is unclear to what degree personnel from different services or forces interacted within the hospital.⁵²

Examples of “military-civil fusion” in the PLA response to COVID-19

The PRC’s strategy of “military-civil fusion” (MCF; 军民融合) seeks to enhance China’s national strength by ensuring that new innovations simultaneously advance the country’s economic and military development.⁵³ Although the concept of integrating the civilian and military sectors dates to the PRC’s founding, it has taken on increased importance over the last decade. In 2015, the CCP Central Committee elevated the MCF Development Strategy to a national-level strategy aimed at linking the PRC’s national development and security strategies to build an “integrated national strategic system and capabilities.”⁵⁴ Examples of military-civil fusion were evident in the following aspects of the PLA’s response to COVID-19:

- ***Acquiring critical supplies:*** The JLSF, in its efforts to secure materials urgently required in the fight against COVID-19, asked unidentified suppliers to expand production as soon as possible and work with customs and the transport sector to speed up the import and transportation of anti-epidemic and medical materials.⁵⁵
- ***Transporting personnel and supplies:*** According to a PRC MND spokesperson, the PLA coordinated with civilian rail departments to transport military personnel and supplies to Wuhan via high-speed rail. This effort consisted of 18 train trips on February 2, 13, and 17, 2020. The trains collected 1,200+ medical personnel and 100+ tons of medical materials at 22 locations and transported them to Wuhan.⁵⁶
- ***Developing a vaccine:*** The team of medical researchers led by Major General Chen Wei included civilians from government agencies, universities, and the Tianjin-based pharmaceutical company CanSino Biologics.⁵⁷ The vaccine that they developed—Ad5-nCoV—was ultimately produced by CanSino Biologics.

One account of lessons learned from the pandemic—written by Li Pingjun, a professor at the PLA Army Service Academy—stresses the importance of MCF and suggests that China’s military could not have handled COVID without civilian assistance. According to Li:

The [Chinese] military’s experience in executing past non-war military operations has proven that, when facing situations in which rescue support forces are diverse, support targets are varied, and subordinate relations are complex, it is impossible to complete massive and arduous rescue and epidemic-prevention tasks by relying solely on the military’s rescue forces. Only by establishing scientific and efficient organizational command systems and vertically interconnected and mutually cooperative mechanisms can we achieve the objectives of unified command, unified coordination, and the highly effective use of military and civilian resources. Only then can we deploy superior epidemic-prevention forces to the areas where they are most needed, give full play to their emergency epidemic-prevention capability, and tap their emergency epidemic-prevention potential.⁵⁸

5. Key role of the PLA General Hospital

The PLA General Hospital—also known as the 301 Hospital—in Beijing played an important role in the PLA’s response to COVID-19. The PLA General Hospital’s contributions to the Chinese military’s efforts to fight the pandemic included the following:

- ***Treating COVID-19 patients.*** On January 21, 2020—the day after Xi’s initial call to action—the Fifth Medical Center of the PLA General Hospital was designated one of three municipal-level medical institutions in Beijing to treat novel coronavirus patients.⁵⁹
- ***Educating medical personnel throughout China during the early stages of the epidemic.*** Zhang Meikui, director of the PLA General Hospital’s Telemedicine Center, reported that between January 21 and January 30, 2020, the hospital provided epidemic prevention and control training to over 20,000 doctors and nurses from over 100 hospitals.⁶⁰ It is unclear whether these were all PLA personnel.
- ***Telemedicine support.*** In early February 2020, the PLA General Hospital launched 5G teleconsultation services with Huoshenshan Hospital to battle the novel coronavirus pneumonia outbreak.⁶¹ Huoshenshan is a 1,000+ bed hospital in Wuhan that was completed just before the outbreak and was turned over to the PLA to administer during the epidemic. The hospital was staffed by 1,400 military medics.⁶²
- ***COVID-19 testing.*** Also in early February 2020, PRC media reported that the Fifth Medical Center of the PLA General Hospital had become the first Beijing-based military hospital to receive approval from local authorities to serve as a COVID-19 nucleic acid testing unit.⁶³ A month later, PRC media reported that the Fifth Medical Center had been approved by the PLA LSD and Beijing Municipal Health Commission to serve as the PLA’s first laboratory for COVID-19 diagnosis and confirmation.⁶⁴
- ***International engagement.*** Officials from the PLA General Hospital held video conferences with counterparts in other countries, including Pakistan and Indonesia, to share their experiences fighting COVID-19.⁶⁵

The high-profile role that the PLA General Hospital played in the Chinese military’s initial response to the COVID-19 epidemic is in line with its status as China’s top military hospital and premier military medical research institution.

6. PRC Assessments of the PLA's Response to COVID-19

PRC writings offered assessments of the PLA's response to COVID-19. For the most part, these assessments were positive and highlighted perceived strengths. However, some authors identified weaknesses and areas for improvement in the PLA's response to the pandemic. This section presents views from PRC media reports and PLA-affiliated subject matter experts regarding what China's military did well in its counter-pandemic performance and what areas require improvement.

6.1. PRC writings praise the PLA's speed and professionalism in COVID-19 response

PRC media reporting and writings by PLA subject matter experts frequently praised the Chinese military's response to COVID-19, both domestically and internationally. They identified the following strengths:

- **Quick response time.** PRC media highlighted the speed at which the first wave of PLA personnel and supplies reached Wuhan. ⁶⁶ Reports noted how PLA medics "immediately" began work in their assigned hospitals upon arrival.⁶⁷
- **Highly qualified medics sent to the front line.** PRC media reporting claimed that a large (but unspecified) proportion of PLA medics sent to Wuhan had previous experience responding to epidemics, including SARS and Ebola.⁶⁸
- **Development of a COVID-19 vaccine in record time.** Various PRC media reports documented Major General Chen Wei's "major achievements" in developing a COVID-19 vaccine.⁶⁹ Media reporting emphasized milestones in the vaccine's development and ignored foreign criticism of the vaccine's limited effectiveness.⁷⁰
- **Scale and complexity of airlift operations.** PRC media emphasized the scale and complexity of domestic airlift operations that sent PLA medics and supplies to Wuhan.⁷¹ Reports also highlighted the deployment of PLAAF aircraft to deliver PLA experts and PPE to various countries.⁷²
- **Effective use of telemedicine.** Media reports lauded the PLA General Hospital's "telemedicine information network," which enabled the hospital's experts to train 20,000 doctors and nurses and provide telemedicine services to patients in Wuhan.⁷³

According to the *PLA Daily*, this exemplified how the hospital's recent reforms had "withstood the test of combat."⁷⁴

- **Valuable experience for the PLA.** Professor Du Wenjun of the PLA Army Service Academy claimed that the experience of COVID-19 provided the PLA with a "template" for future wartime health service mobilization.⁷⁵

6.2 PLA authors indicate weaknesses in civil-military coordination, psychological services

Several PRC media reports and journal articles by PLA subject matter experts criticized aspects of the PLA's response to the pandemic. They identified the following weaknesses:

- **Poor information-sharing.** *China Defense News* reported that parties involved in the domestic response to the pandemic used nonintegrated big data technologies that functioned as "isolated islands."⁷⁶
- **Lack of a communications infrastructure.** Song Yuanjun, the leader of a People's Armed Police unit in Heilongjiang, also called for a better communications infrastructure linking military and civilian entities at the provincial, municipal, and county levels.⁷⁷
- **Insufficient PPE reserves.** Li Pingjun, a professor at the PLA Army Service Academy, attributed the "painful lesson" of Chinese PPE shortages in early 2020 to poor standardization and implementation of material reserve requirements by military and civilian stakeholders.⁷⁸ *China Defense News* noted the material reserve problem while also calling on China to increase its industrial mobilization capability.⁷⁹
- **Lack of counseling services for frontline responders.** Professor Li Pingjun asserted that the PLA lacks robust psychological counseling services for emergency responders, particularly in units at the division level and below.⁸⁰ (Of note, ad hoc "anti-pandemic psychological service hotlines" were set up at seven PLA academic institutions in February 2020, possibly to address this deficiency.)⁸¹

At the time of writing, detailed self-assessments of the PLA's strengths and weaknesses in responding to the pandemic are only beginning to appear in publications such as Chinese scholarly journals. Future PRC writings may provide additional detail on observed shortcomings in the PLA's response and suggest reforms to better prepare the PLA's medical system for the next emergency or conflict.

7. Insights about the PLA medical system's capabilities

Our examination of the PLA's response to the COVID-19 pandemic suggests the following about the PLA medical system's capabilities:

- ***The PLA has medical professionals with diverse capabilities and types of experience.*** This includes frontline responders with experience fighting previous pandemics, researchers and technicians skilled in vaccine development, and medical experts capable of providing remote training and telemedicine services.
 - However, it is unclear how many and what types of experienced medical personnel are in the PLA. PRC writings refrained from citing specific numbers or percentages tied to medical professionals' capabilities or specializations. Among the 4,000 medical personnel deployed to Wuhan, it is unclear how many were doctors or medics.
- ***The PLA has the capability to quickly deploy large numbers of medical professionals and supplies to distant locations within China.*** The first PLA personnel and supplies arrived in Wuhan only a few days after PRC leadership publicly acknowledged the outbreak. By the end of March, 4,000 PLA medical personnel and tons of medical supplies and equipment had flowed into Wuhan from all over China via PLAAF transport aircraft, high-speed rail, and other modes of transportation.
- ***The PLA has the capability to deliver teams of personnel, supplies, and vaccines to countries all over the world.*** The PLA provided COVID-19 aid—including teams of medical experts, PPE, and vaccines—to more than 50 countries around the world.
- ***The PLAAF is expanding its overseas operational experience.*** Perhaps one of the most noteworthy aspects of the PLA's provision of aid to other countries is the fact that it was frequently delivered by PLAAF transport aircraft. PLAAF transport aircraft delivered aid to at least 20 countries in the Indo-Pacific, the Middle East, and Africa.
- ***Several aspects of the PLA's response demonstrated "jointness."*** The response was led and implemented by joint organizations; it involved medical personnel from each of the PLA's services and forces; and it relied on PLAAF aircraft to transport personnel and supplies provided by other services.
- ***A conflict scenario, especially one fought on exterior lines of communication, could test the PLA's medical system in ways the pandemic did not.*** The PLA's response to the pandemic suggests that it has capabilities—infection control, quarantine, etc.—that would be relevant to handling nuclear, chemical, and biological attacks. However, an

armed conflict would likely require other capabilities, such as the ability to manage and treat combat casualties. Moreover, a conflict would pose other challenges. For instance, competing priorities for airlift could result in the postponement or denial of JLSF requests for PLAAF transport aircraft.

Appendix A: Timeline of PLA Response to COVID-19, Dec. 2019 – Dec. 2021

December 2019

Late December 2019 – 19 January 2020: Beijing initially responds to the novel coronavirus outbreak in Wuhan by suppressing information about the unfolding situation. Corresponding government actions include silencing whistleblowing doctors, keeping information about the virus from the World Health Organization, and tightening censorship of epidemic-related content on Chinese social media.⁸²

January 2020

20 January: PRC leadership breaks silence on the coronavirus outbreak and portrays responding to the virus as the government's most pressing task. Xi Jinping calls for "resolute efforts" to stop the virus's spread. Outbound traffic from Wuhan is closed.⁸³

21 January:

- With the approval of "higher authorities," the PLA Central Theater Command General Hospital—located in Wuhan's Wuchang District—"urgently" forms a 40-member medical team that departs to provide assistance at Wuhan Pulmonary Hospital in neighboring Qiaokou District.⁸⁴
- The Fifth Medical Center of the PLA General Hospital is designated one of three municipal-level medical institutions in Beijing to treat novel coronavirus patients.⁸⁵

22 January: The PLA Joint Logistics Support Force (JLSF)—the PLA organization responsible for providing joint logistics across the armed forces and headquartered in Wuhan—holds a video teleconference to implement guidance provided by Xi Jinping in an epidemic-related meeting held two days earlier.⁸⁶

24 January:

- *PLA Daily* reports that the CMC Logistic Support Department—in implementing the spirit of Xi Jinping's important instructions and requirements from the CMC—has taken the lead in organizing military professional medical forces to conduct "joint prevention and control work" in response to the public health emergency of the novel coronavirus.⁸⁷ The military joint prevention and control work mechanism consists of the CMC, JLSF, People's Armed Police, and Academy of Military Sciences.⁸⁸

- The first troops deployed from outside of Wuhan in response to the epidemic are 450 medical personnel from the Army, Navy, and Air Force medical universities, who arrive in Wuhan on three Il-76 military transport aircraft sent from Shanghai, Chongqing, and Xi'an, respectively.⁸⁹ The military medical support team consists of “many” individuals with prior experience battling the SARS and Ebola outbreaks.⁹⁰ The 450 personnel are sent to work in “three designated hospitals in Wuhan” (Jinyintan, Hankou, and Wuchang).⁹¹

26 January:

- The military medical personnel from the PLA Army, Navy, and Air Force medical universities begin “full-scale treatment work” in the hospitals of Jinyintan, Hankou, and Wuchang, respectively.⁹²
- A train loaded with the first batch of emergency medical supplies allocated by the Chinese military—sent from Shenyang, Liaoning Province, and Heze, Shandong Province—arrives at the Hankou railway station in Wuhan. These emergency medical supplies include 10,000 sets of class-C protective clothing and 3,760 bottles of ethyl alcohol.⁹³
- The PLA Central Theater Command General Hospital converts its internal medicine inpatient department into an inpatient ward with over 500 beds for receiving novel coronavirus patients.⁹⁴ The same day, it forms a 22-member medical team of doctors and nurses to support Wuhan’s No. 7 Hospital, also located in Wuhan’s Wuchang District.⁹⁵
- PRC media identify Major General Chen Jingyuan—head of the CMC Logistic Support Department’s Health Bureau—as director of the PLA’s “Joint Prevention and Control Work Mechanism Office.” Liu Yang, head of the Health Bureau’s Medical Management Office, says that hospitals throughout the PLA have drafted detailed plans to support local governments’ prevention and control work.⁹⁶
- A military medical force led by Major General Chen Wei—an academician at the Academy of Military Medical Science of the Academy of Military Sciences known for her work developing a drug to fight SARS in 2002-2003 and a vaccine for Ebola in 2014—arrives in Wuhan for the purpose of developing therapeutic drugs and vaccines.⁹⁷

28 January: A new coronavirus nucleic acid detection kit jointly developed by the Academy of Military Medical Science and a local company receives emergency approval from the National Medical Products Administration.⁹⁸

29 January:

- *PLA Daily* reports that the CMC Logistic Support Department has established a “three-joint” work mechanism (joint requirements, acquisition, and transportation) to accelerate the delivery of urgently needed epidemic prevention and control materials (e.g., medical masks, latex gloves).⁹⁹
- Xi Jinping publishes an instruction commending the PLA for their efforts to date in responding to the epidemic and urging them to make all-out efforts going forward.¹⁰⁰

30 January:

- Zhang Meikui, director of the PLA General Hospital’s Telemedicine Center, states that since 21 January the hospital has provided epidemic prevention and control training to over 20,000 doctors and nurses from over 100 hospitals.¹⁰¹
- A tent-type mobile testing laboratory of the Academy of Military Sciences begins operations in Wuhan, getting involved in nucleic acid detection and emergency scientific research on related vaccine development.¹⁰² The lab “soon” achieves the ability to test 1,000 people per day.¹⁰³

31 January: Xinhua reports that the CMC has issued a circular calling on Party organizations and members at all levels in the military to resolutely implement Xi Jinping’s order to win the fight against the coronavirus outbreak.¹⁰⁴

February 2020

2 February: A second group of medical professionals from hospitals subordinate to the JLSF—this group consisting of 950 personnel—departs for Wuhan to assist in the “battle against coronavirus.”¹⁰⁵ Of those military medical staff, 795 arrived via eight PLA Air Force Il-76 transport aircraft (these aircraft also carried 58 tons of supplies).¹⁰⁶ The eight Il-76s had picked up the personnel and supplies earlier that day in Shenyang, Lanzhou, Guangzhou, and Nanjing before arriving in Wuhan.¹⁰⁷ The remaining medical staff in the second group arrived in Wuhan via high-speed rail.¹⁰⁸

2 February: The newly constructed Huoshenshan Hospital in Wuhan is officially turned over to the PLA during a signing ceremony between Wuhan mayor Zhou Xianwang and JLSF deputy commander Major General Bai Zhongbin. Senior Colonel Zhang Sibing, who was named head of Huoshenshan Hospital and previously served as director of the PLA General Hospital’s Health Service Department, says they will implement Xi Jinping’s requirements of “centralizing patients, experts, resources, and treatment.”¹⁰⁹

3 February: 1,400 Chinese military medical workers begin administering the 1,000-bed Huoshenshan Hospital. The medical workers consist of the PLA’s first group of 450 personnel

sent to support Wuhan's fight against the epidemic (from the PLA Army, Navy, and Air Force medical universities) and the second group of 950 personnel from JLSF-affiliated hospitals. Additionally, 15 experts selected from the PLA Disease Prevention and Control Center and the Academy of Military Medical Science arrive to provide guidance at the hospital.¹¹⁰

4 February:

- The JLSF issues its first full-scale mobilization order since the force's establishment in September 2016. Per the directive, all personnel must follow Xi Jinping's instructions on the military's counter-epidemic endeavors and carry out their tasks, such as curing infected civilians and providing logistics services.¹¹¹
- The 1,400 Chinese military medics at Huoshenshan Hospital receive their first group of patients.¹¹²

5 February: JLSF issues a statement on its efforts to purchase materials badly needed in the fight against the ongoing novel coronavirus epidemic. Those efforts included requesting that suppliers start to expand production as soon as possible and work with customs and the transport sector to speed up the import and transportation of anti-epidemic or medical materials.¹¹³

9 February:

- Beijing-based PLA General Hospital launches 5G teleconsultation services with Huoshenshan Hospital to battle the novel coronavirus pneumonia outbreak.¹¹⁴
- PLA media report that the Fifth Medical Center of the PLA General Hospital "recently" became the first Beijing-based military hospital to receive approval from local authorities to serve as a novel coronavirus nucleic acid testing unit.¹¹⁵

12 February: PLA Central Theater Command dispatches two Z-8 transport helicopters to deliver badly needed medical drugs and materials from Wuhan to Xiangyang and Yichang, prefecture-level cities in Hubei Province. The supplies are delivered at the request of the epidemic prevention and control headquarters of Hubei Province. Reportedly, such transport tasks would be conducted twice a week with two sorties per time until the end of traffic restrictions in Wuhan.¹¹⁶

13 February: A third group of medical professionals affiliated with China's armed forces (this group numbering 2,600 personnel) begins to depart for Wuhan to treat patients at Taikang Tongji Hospital (in Hanyang District) and the Guanggu Branch of the Hubei Maternal and Child Health Care Hospital (in the Donghu New Technology Development Zone).¹¹⁷ On 13 February, 1,400 medics (the first part of the group) and medical supplies from seven cities—Urumqi, Shenyang, Xining, Tianjin, Zhangjiakou, Chengdu, and Chongqing—are sent to Wuhan on 11 PLAAF transport aircraft (six Y-20s, three Il-76s, and two Y-9s), which land at Wuhan's Tianhe

International Airport.¹¹⁸ The PRC MND states that this marked the first “civilian-related” deployment of China’s Y-20 heavy-lift transport aircraft.¹¹⁹

15 February: PLA garrison in Jiangxi Province holds a blood drive to assist the anti-epidemic fight in Hubei Province. As of 15 February, the blood drive has seen 1,600 officers and soldiers across the province donate about 377,100 milliliters of blood.¹²⁰

17 February: The remaining 1,200 military medics from the third group of military medical professionals sent to help contain the virus arrive in Wuhan, following the group’s other 1,400 personnel who had arrived on 13 Feb.¹²¹ Around 200 of the personnel arriving on 17 February are transported on eight PLAAF aircraft, which include Y-20s, while the remaining 1,000 are sent via rail.¹²² At this point, the PLA has sent over 4,000 medical personnel from outside Wuhan to support the city’s fight against the epidemic.¹²³

21 February: PLA media release information on “anti-epidemic psychological service hotlines” that have been set up at seven academic institutions of China’s armed forces: National Defense University, National University of Defense Technology, Army Medical University, Navy Medical University, Air Force Medical University, People’s Armed Police Force Engineering University, and People’s Armed Police Force Officers Academy.¹²⁴

26 February: PLA media announce that the JLSF has provided free life insurance for the military medical personnel fighting on the front line of COVID-19 prevention and control, including for active-duty officers and soldiers, civilian personnel, and workers employed by the military.¹²⁵

March 2020

1 March: PRC media report that the clinical laboratory medical center of the PLA General Hospital’s Fifth Medical Center was “recently” approved by the PLA Logistic Support Department and Beijing Municipal Health Commission to serve as the PLA’s first laboratory for COVID-19 diagnosis and confirmation.¹²⁶

2 March: At a State Council press conference, Major General Chen Jingyuan, head of the Health Bureau of the CMC Logistic Support Department, provides updates on the PLA’s COVID-19 prevention and control efforts in Wuhan. According to Chen, as of Sunday, 1 March, the three medical facilities in Wuhan currently under the military’s management—Huoshenshan Hospital, Taikang Tongji Hospital, and the Guanggu Branch of Hubei Maternity and Child Health Care Hospital—had treated 3,467 patients in critical condition, 689 of whom had been discharged after recovering. Chen states that military medical workers had seen 4,450 patients, of which 1,000 had been discharged after recovering, and that no military medics have been infected by novel coronavirus. Chen says the Chinese armed forces have allocated 400,000 medical masks, 8,000 protective suits, and other medical equipment to Wuhan. According to

Chen, the PLA Air Force has used its transport aircraft to conduct 30 flights to move medics and medical necessities from across the nation to Wuhan.¹²⁷ Chen says that at the national level, nearly 3,000 beds have been set up by 63 military hospitals designated to treat COVID-19 patients, with over 10,000 military medics working at the front line.¹²⁸

3 March:

- PRC media report that the clinical laboratory medical center of the Fifth Medical Center of the PLA General Hospital has been approved by the PLA Logistic Support Department and Beijing Municipal Health Commission as the PLA's first laboratory for COVID-19 diagnosis and confirmation.¹²⁹
- PLA media report that a research team led by Major General Chen Wei has achieved a "major breakthrough" in developing a vaccine for COVID-19.¹³⁰

4 March: The PLA Army Medical University's "anti-epidemic psychological service hotlines" have provided over 400 consultations to officers and enlisted personnel since their establishment. Over 95 percent of the consultations are rated "satisfactory."¹³¹

5 March: The JLSF presents second- and third-class merit citations to 36 "frontline" doctors and nurses from the Central Theater Command General Hospital and Huoshenshan Hospital.¹³²

8 March: PLA media reports that, to date, over 40,000 medical workers (military and civilian) from throughout the country have gone to support the fight against COVID-19 in Hubei Province. "The majority" of the medical workers are women.¹³³

11 March: The 19th Medical Assistance Team from the PLA Eastern Theater Command General Hospital in Nanjing departs for a routine six-month medical assistance mission at the People's Hospital of Amdo County, Tibet. On this mission, the team members carry 5,000 protective masks with them and will contribute to the prevention and control of COVID-19 in Tibet.¹³⁴

16 March: The subunit vaccine against COVID-19 created by experts from the Academy of Military Medical Science is approved for clinical trials.¹³⁵

19 March: Protective clothing, nucleic acid testing kits, and medical masks donated by the PLA arrive in Iran, making Iran the first country to receive COVID-19 relief supplies provided by China's armed forces.¹³⁶ On 26 March, in response to a question on why Iran was the first country to receive pandemic-related aid from the PLA, a PRC MND spokesperson says that since the outbreak of COVID-19, Iran has provided China with strong support and assistance, including the supply of surgical masks, and that recently the situation in Iran has been getting worse.¹³⁷

24 March: Medical professionals dispatched by the Chinese military, carrying supplies and equipment, arrive in Cambodia to offer assistance fighting the pandemic.¹³⁸ COVID-19

prevention and control materials, including nucleic acid testing kits and protective gowns, are delivered to the Cambodian military by PLAAF aircraft.¹³⁹

26 March: A PRC MND spokesperson provides updates on China's domestic response to COVID-19. According to the spokesperson, as of March 26, the 63 military hospitals designated to treat COVID-19 patients have provided nearly 3,000 beds with more than 10,000 medical personnel working on the front line. The spokesperson states that the Wuhan-based Huoshenshan Hospital, Taikang Tongji Hospital, and Optics Valley Branch of Maternity and Child Hospital of Hubei Province have received and treated 6,871 COVID-19 patients, with 5,519 cured. The spokesperson notes that the designated hospitals of the PLA and military medical teams to Hubei have received and treated 7,415 COVID-19 patients, with 5,962 cured, and that, at the moment, the more than 4,000 military medical personnel assisting Wuhan are still in position to help the city fight the virus, save lives, and press ahead with scientific research.¹⁴⁰

April 2020

6 April: Health officials from the PLA General Hospital share their experiences fighting COVID-19 with Pakistani peers in a video conference. This is the first time that the Chinese military has organized a teleconference with a foreign counterpart focused on sharing experiences of fighting COVID-19.¹⁴¹

12 April: The COVID-19 vaccine developed by a team led by Major General Chen Wei enters the second phase of clinical trials.¹⁴²

24 April: A six-person team of PLA medical personnel arrives at Myanmar's Yangon International Airport via Y-9 military transport aircraft.¹⁴³ The Chinese medics bring with them "medical supplies and 10 kinds of protective equipment."¹⁴⁴

24 April: A 10-member PLA medical team arrives in Pakistan via Y-20 aircraft to help treat and prevent the spread of COVID-19.¹⁴⁵ The team provides protective clothing, medical masks, and other materials.¹⁴⁶

24 April: A PLA military medical team aboard PLAAF aircraft lands in Laos.¹⁴⁷ The team assists with virus detection and confirmation, disinfection and infection control, epidemiological investigation and personnel protection, clinical diagnosis, and treatment training. The team provides protective clothing, medical masks, and other materials.¹⁴⁸

28 April: The PLA sends COVID-19 prevention and control materials, including medical masks and protective gowns, to the Lebanese military.¹⁴⁹

28 April: The PLA sends prevention and control materials to the Vietnamese military. These materials, including nucleic acid testing kits and body temperature monitoring equipment, are delivered through a border port between the two countries.¹⁵⁰

30 April: PRC MND spokesperson Wu Qian states that “the Chinese military has donated anti-epidemic supplies or sent medical teams to countries including Iran, Pakistan, Myanmar and Vietnam.” Wu confirms that the Y-20 flight of medical supplies and Chinese expert teams to Pakistan marked the Y-20’s first overseas mission.¹⁵¹ Wu states that the PLA has shared experiences fighting COVID-19 through video conferences with counterparts from Pakistan, Singapore, and Russia.¹⁵² Wu says that military medics dispatched to Hubei Province have successfully completed their missions to treat COVID-19 patients and that none of the medics are infected. According to Wu, three hospitals supported by military medics provided 2,856 beds and admitted 7,198 patients from 24 January to 16 April.¹⁵³

30 April: A team of PLA medical personnel helps Myanmar’s military build a laboratory for testing COVID-19. They help their Myanmar counterparts install laboratory equipment and related materials, which were donated by the Chinese side, and provide operational guidance of the equipment at the laboratory at the No. 1 Defence Services General Hospital in Mingaladon township, Yangon.¹⁵⁴

May 2020

4 May: The PLA and the China Foundation for Peace and Development continue to provide Myanmar with assistance and medical equipment. On 4 May, the Chinese military medical team that arrived on April 24 delivers medical equipment and accessories to Myanmar’s military hospital.¹⁵⁵ The PLA medical team also helps install the equipment and provides operational guidance. China’s state-run Xinhua News Agency reports that Bai Chong, the head of the Chinese military medical team to Myanmar, says that the PLA will continue to cooperate with Myanmar’s military hospital to help establish COVID-19 testing, diagnosis, and clinical treatment procedures.¹⁵⁶

7 May: PLA medical experts provide training to 40 Myanmar military medical staff members on infection control management of COVID-19. This training will be applied at the COVID-19 treatment center (Phaung Gyi) in Yangon.¹⁵⁷

8 May: The PLA and South Africa’s military hold a video conference focused on their experiences fighting COVID-19. The PLA is represented by seven military medical experts and officers from the Health Bureau of the CMC Logistic Support Department.¹⁵⁸

12-13 May: The PLA dispatches PLAFAF aircraft to send donations of COVID-19 prevention and control supplies—including protective clothing, surgical masks, and IR forehead thermometers—to the armed forces of 12 countries: Indonesia, the Philippines, Malaysia,

Brunei, Thailand, Pakistan, Nepal, Afghanistan, Sri Lanka, Uzbekistan, Kyrgyzstan, and Tajikistan.¹⁵⁹

- **12 May:** At the request of the Thai military, on 12 May, a PLA Air Force aircraft transports medical supplies to Thailand. The donations include ventilators, test kits, medical masks, and PPE.¹⁶⁰
- **12 May:** The Chinese MND donates medical supplies to the Indonesian Ministry of Defense.¹⁶¹ The supplies arrive on a PLAAF aircraft and include medical masks, respirators, goggles, and other PPE.¹⁶² On the same day, more than 30 military medical experts from the Health Bureau of the CMC Logistic Support Department, the General Hospital of the People's Liberation Army, the Indonesia Armed Forces Surgeon General's Office, and other Indonesian hospitals hold a video conference focused on controlling and preventing the spread of COVID-19.¹⁶³
- **12 May:** A PLA flight delivers 10,000 sets of PPE to the Myanmar military.¹⁶⁴ The team of PLA medical experts who had previously arrived in Yangon to share their experiences fighting COVID return to the PRC on the PLA flight.
- **12 May:** The PLA provides medical supplies to the Afghan armed forces to fight COVID-19.¹⁶⁵

22 May:

- Four PLA doctors are presented with awards by Cambodian deputy prime minister and defense minister Gen. Tea Banh for their completion of a “two-month mission in helping the kingdom fight COVID-19.” At the ceremony, Banh expresses thanks to the PLA for sending military medical experts and for providing epidemic control materials, medical masks, and testing kits.¹⁶⁶
- The research team led by Major General Chen Wei publishes results from phase-I clinical trials of their recombinant novel coronavirus vaccine in *The Lancet*, a peer-reviewed journal.¹⁶⁷

22, 24 May: PLA sends anti-pandemic supplies, including face masks and protective gear, to Russia, Mongolia, and East Timor.¹⁶⁸

28 May: PLA donates medical supplies, including surgical face masks, goggles, and protective clothing, to the Lebanese army.¹⁶⁹

June 2020

2-5 June: The PLA uses transportation means, including PLAAF aircraft, to deliver COVID-19 prevention and control supplies (including protective clothing and surgical face masks) to the

armed forces of 20 countries: Ethiopia, Mozambique, Tunisia, Angola, Egypt, Morocco, Tanzania, Republic of Congo, Democratic Republic of Congo, Equatorial Guinea, Sierra Leone, Zimbabwe, Zambia, Cameroon, Rwanda, Argentina, Laos, Cambodia, Saudi Arabia, and Bangladesh.¹⁷⁰

- **2 June:** A second batch of medical supplies provided by the PRC MND to its counterpart in Laos is handed over at the Wattay International Airport, Vientiane. The supplies, which include ventilators and monitors, are delivered via PLAAF aircraft (Y-9, based on photo).¹⁷¹
- **3 June:** A Bangladesh Air Force C-130J transport aircraft departs for China, picks up medical aid provided by the PLA, and returns to Dhaka.¹⁷²
- **3 June:** A PLAAF aircraft (Il-76, based on photos) delivers counter-epidemic PPE and medical materials to Tunisia.¹⁷³
- **3 June:** A PLAAF aircraft (Il-76 with tail number 21042, based on photo) delivers counter-pandemic materials to Kigali, the capital of Rwanda.¹⁷⁴
- **4 June:** The PLAAF delivers counter-epidemic materials at the Angolan Air Force's base in Luanda, the capital of Angola.¹⁷⁵
- **4 June:** 62,000 masks and over 19,000 pieces of personal protective equipment and medical supplies are delivered by PLAAF aircraft (Il-76, based on photo) to the Zimbabwe Defense Forces at Manyame Air Base.¹⁷⁶

13 June: The PLA delivers COVID-19 prevention and control supplies (including protective clothing and surgical masks) by rail and sea transportation to the armed forces of six countries: Belarus, Serbia, Hungary, Bulgaria, North Macedonia, and Trinidad and Tobago.¹⁷⁷

16 June: The armed forces of China and Kuwait hold a video conference to exchange experiences on combating COVID-19. The conference is hosted by the Health Bureau of the CMC Logistic Support Department and attended by military officials and experts from the Kuwait Army's Medical Services Authority and Jaber Al-Ahmad Armed Forces Hospital.¹⁷⁸

25 June: China's Central Military Commission approves the use of the COVID-19 vaccine candidate developed by the Academy of Military Science and CanSino Biologics among military personnel.¹⁷⁹

25 June-2 July: The PLA sends COVID-19 prevention and control supplies (including protection clothing and surgical masks) to five countries: Bolivia, Cuba, Ecuador, Peru, and Venezuela.¹⁸⁰

July 2020

7-8 July: Chinese military representatives attend video conferences of ASEAN Defense Senior Officials' Meeting Plus (ADSOM Plus) and ASEAN Regional Forum Security Policy Conference (ASPC), where they exchange ideas on militaries' participation in the fight against COVID-19 and other topics.¹⁸¹

9-10 July: PLA National Defense University hosts the 3rd International Defense Forum, the theme of which is "Global Anti-pandemic Fight and International Security Cooperation." The forum is attended in a hybrid manner (online/in person) by foreign senior military officers, experts, and scholars from 84 countries.¹⁸²

20 July: The team led by Major General Chen Wei becomes one of first in world to publish results in a peer-reviewed journal (*The Lancet*) showing a COVID vaccine to be safe and capable of eliciting an immune response.¹⁸³ The published results pertain to the phase-II clinical trials of the team's vaccine.¹⁸⁴

August 2020

13 August: PRC state media report that the recombinant COVID-19 vaccine developed by Major General Chen Wei's team has entered the third phase of international clinical trials.¹⁸⁵

September 2020

No noteworthy relevant media reporting observed during this month.

October 2020

No noteworthy relevant media reporting observed during this month.

November 2020

11-13 November: COVID-19 epidemic prevention and control is among the topics addressed during US-China Disaster Management Exchange 2020, a three-day video seminar on humanitarian assistance and disaster relief.¹⁸⁶

December 2020

22 December: The COVID-19 Nucleic Acid Testing Lab in Bukavu, Democratic Republic of the Congo (DRC), is officially handed over to the Chinese peacekeeping medical contingent to the

DRC for use and management. This is the first time that Chinese medical peacekeepers to the DRC undertake a UN nucleic acid testing task.¹⁸⁷

31 December: A PRC MND spokesperson announces that to date, the PLA has provided anti-epidemic supplies to the militaries of 50 countries; sent experts to the militaries of four countries; and held video conferences with the militaries of 18 countries and international organizations, to share their experience in epidemic prevention and control.¹⁸⁸

January 2021

28 January: A PRC MND spokesperson states that in response to recent outbreaks of COVID-19 throughout China, the PLA has deployed an unspecified number of active-service troops, civilian personnel, and militia personnel to support local pandemic prevention tasks, such as quarantine and nucleic acid tests.¹⁸⁹

February 2021

7 February:

- A handover ceremony of COVID-19 vaccines donated by the PLA to Pakistan's armed forces is held at the Nur Khan Airbase near Islamabad, making Pakistan the first foreign military to receive COVID-19 vaccine aid from the Chinese military.¹⁹⁰ Previously, on 1 February, a batch of Chinese COVID-19 vaccines from the Chinese government was donated to Pakistan, the first batch of vaccines donated by the Chinese government to another country.¹⁹¹
- The Cambodian government receives its first batch of COVID-19 vaccines donated by the Chinese government. The vaccines arrive by PLAAF Y-20 (tail number 11151, based on photo).¹⁹² Some of the doses are donations from the PLA.¹⁹³ PRC media note that the Cambodian military is among the first group of foreign armed forces to receive COVID-19 vaccine aid from the PLA.¹⁹⁴

22 February: The PLA delivers a batch of COVID-19 vaccines to the Mongolian military.¹⁹⁵

28 February: The PLA delivers a batch of COVID-19 vaccines to the Philippine military.¹⁹⁶ The vaccines arrive in the Philippines at Villamor Airbase on a PLAAF Y-20 aircraft.¹⁹⁷

March 2021

25 March: COVID-19 vaccines donated by the PLA are delivered to the militaries of three African countries: Republic of the Congo, Equatorial Guinea, and Tunisia.¹⁹⁸

26 March: COVID-19 vaccines donated by the PLA are delivered to the military of Sierra Leone.¹⁹⁹

27 March: COVID-19 vaccines donated by the PLA are delivered to the military of Sudan.²⁰⁰

31 March: COVID-19 vaccines donated by the PLA are delivered to the military of Laos.²⁰¹

31 March: A second batch of COVID-19 vaccines donated by the PLA is delivered to the Cambodian military.²⁰²

April 2021

4 April: COVID-19 vaccines donated by the PLA are delivered to the military of Lebanon.²⁰³

29 April: A PRC MND spokesperson states that while the COVID-19 pandemic is generally under control in China, the country is still facing pressure from imported cases and sporadic rebound of indigenous cases. Therefore, the PLA is carrying out effective and orderly vaccination based on the overall national arrangement.²⁰⁴

May 2021

6 May: A second batch of COVID-19 vaccines donated by the PLA is delivered to the Pakistani military.²⁰⁵

8 May: COVID-19 vaccines donated by the PLA are delivered to the military of Hungary.²⁰⁶

9 May: COVID-19 vaccines donated by the PLA are delivered to the military of Gabon.²⁰⁷

13 May: COVID-19 vaccines donated by the PLA are delivered to the military of Ethiopia.²⁰⁸

15 May: COVID-19 vaccines donated by the PLA are delivered to the military of North Macedonia.²⁰⁹

17 May: COVID-19 vaccines donated by the PLA are delivered to the military of Zimbabwe.²¹⁰

19 May: COVID-19 vaccines donated by the PLA are delivered to the military of Serbia.²¹¹

29 May: COVID-19 vaccines donated by the PLA are delivered to the military of Mauritania.²¹²

31 May: COVID-19 vaccines donated by the PLA are delivered to the military of Guinea.²¹³

June 2021

3 June: COVID-19 vaccines donated by the PLA are delivered to the military of Mozambique.²¹⁴

August 2021

19 August: COVID-19 vaccines donated by the PLA are delivered to the military of Ethiopia.²¹⁵

22 August: COVID-19 vaccines donated by the PLA are delivered to the military of Myanmar.²¹⁶

23 August: COVID-19 vaccines donated by the PLA are delivered to the military of Laos.²¹⁷

23 August: COVID-19 vaccines donated by the PLA are delivered to the military of Cambodia.²¹⁸

23 August: COVID-19 vaccines donated by the PLA are delivered to the military of Vietnam via Y-20 aircraft.²¹⁹

28 August: COVID-19 vaccines donated by the PLA are delivered to the military of Sri Lanka.²²⁰

29 August: COVID-19 vaccines donated by the PLA are delivered to the military of Bangladesh.²²¹

September 2021

1 September: COVID-19 vaccines donated by the PLA are delivered to the military of Egypt.²²²

October 2021

28 October: A PRC MND spokesperson states that since February 2021, the PLA has provided 36 batches of vaccine assistance to the militaries of 28 countries.²²³

November 2021

4 November: The PLA Academy of Military Sciences hosts China-Africa Peace and Security Forum Video Conference on Military Medicine, the theme of which is “strengthening medical cooperation to fight the pandemic together.” The conference invites representatives from the militaries of 19 African countries to share experiences fighting the virus and to discuss how to jointly defeat the pandemic.²²⁴

5 November: COVID-19 vaccines and epidemic prevention supplies provided by the PLA are delivered to the military of Nepal.²²⁵

23 November: PLA delivers a batch of COVID-19 epidemic prevention and control materials to the Lao military.²²⁶

23 November: PLA delivers a batch of COVID-19 epidemic prevention and control materials to the Cambodian military.²²⁷

28 November: PLA delivers a batch of COVID-19 epidemic prevention and control materials to the Bangladeshi military.²²⁸

December 2021

6-12 December: PLA sends a medical detachment of 84 personnel to Vietnam to participate in “Peace Rescue 2021,” the first combined medical exercise between China and Vietnam.²²⁹ The exercise aims to promote the two sides’ exchange and cooperation in fighting the COVID-19 pandemic and enhance their capabilities for combined rescue and disaster reduction.²³⁰

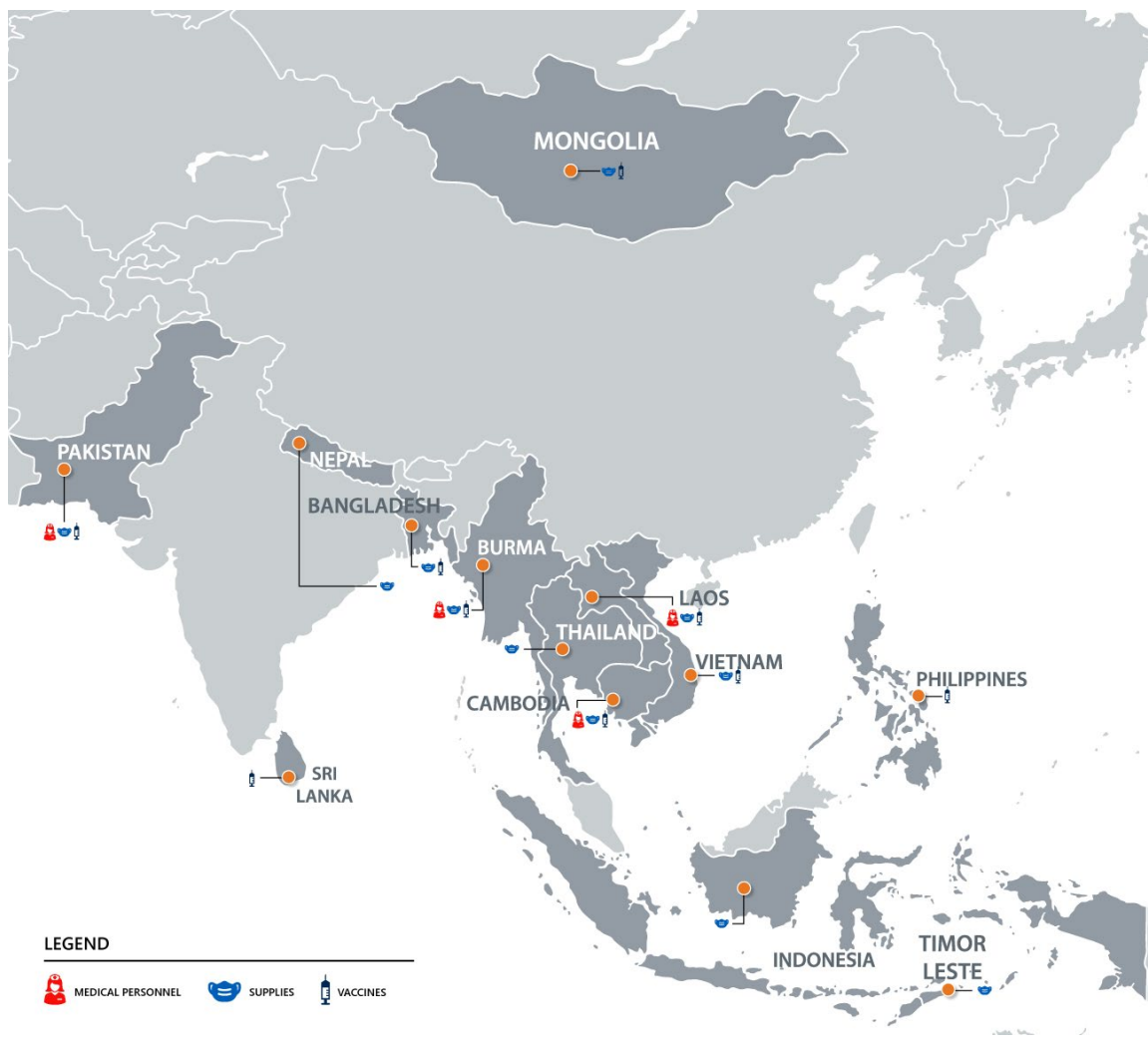
8 December: A batch of COVID-19 epidemic prevention and control materials provided by the PLA is delivered to the Myanmar military.²³¹

14-15 December: PLA Naval Medical University hosts a virtual naval medicine seminar focused on COVID-19 pandemic prevention and four other topics as part of the 2021 Western Pacific Naval Symposium.²³²

Appendix B: Maps of PLA Aid to Other Countries

Figures 8-11 show countries to which the PLA provided COVID-19 related aid, including materials such as masks and test kits, vaccines, and teams of medical personnel.

Figure 7. PLA COVID-19 relief to countries in the Indo-Pacific



Source: CNA.

Figure 8. PLA COVID-19 relief to countries in Africa and the Middle East



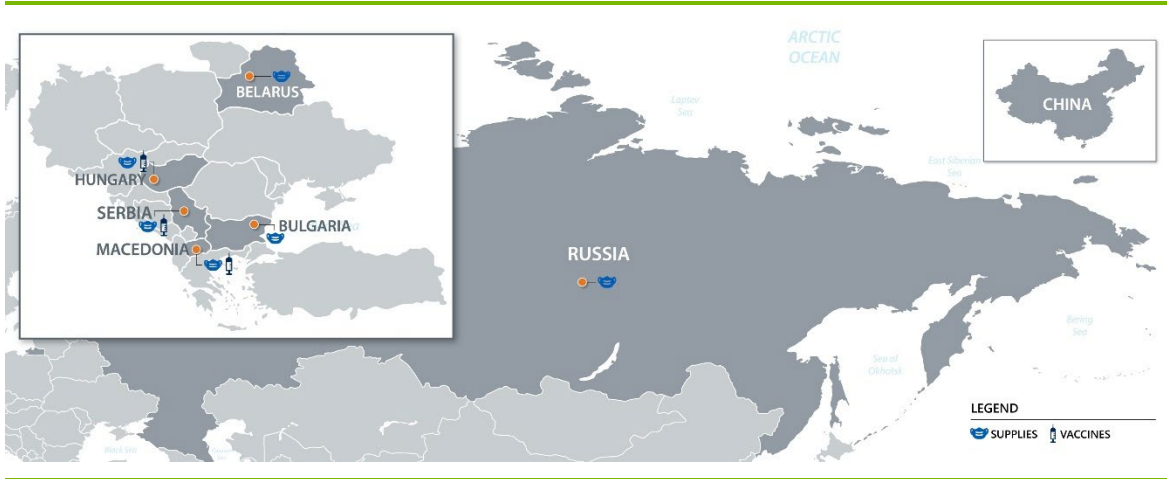
Source: CNA.

Figure 9. PLA COVID-19 relief to countries in South America



Source: CNA.

Figure 10. PLA COVID-19 relief to countries in Europe



Source: CNA.

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Abbreviations

CCP	Chinese Communist Party
CMC	Central Military Commission
JLSF	Joint Logistics Support Force (PLA)
LOE	Line of Effort
LSD	Logistic Support Department
MND	Ministry of National Defense
PLA	People's Liberation Army
PLAAF	People's Liberation Army Air Force
PPE	Personal Protective Equipment
PRC	People's Republic of China

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