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Rapidly organize redeployed medical staff in coronavirus disease 2019 pandemic: what we should do

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The coronavirus disease 2019 (COVID-19) pandemic has become a global health crisis.[1,2] Healthcare workers play key roles during the pandemic, but a serious shortage of personnel may occur at peak times. In order to control the rapid spreading of an outbreak, adequate staffing is needed to manage infected patients and to prevent infections of surrounding patients, staff members, as well as the local community.[3] Although there are multiple modes for the organization and deployment of medical staff to deal with the rapidly increasing population of COVID-19 patients, successful experiences from Wuhan, China may prove helpful as a model for effectively dealing with this urgent situation.[4]

First, the Central and Local Government Played a Powerful Role in the Immediate Reaction to the COVID-19 Outbreak

Based on the strong coordination of the Chinese medical system, an outstanding response was taken to combat this public health emergency. This involved a massive redeployment of healthcare professionals throughout the country to support the fight against COVID-19 in Wuhan. By March 4, 2020, approximately 43,000 medical staff from different regions across the country were assigned to different hospitals in Hubei province, working in the frontline of the outbreak and treating patients with COVID-19.[5]

The mobilization and transfer of medical staff is entirely led by the government. The Chinese government has set up a general anti-epidemic headquarters in Wuhan. Due to the increased number of patients during the outbreak period, the general anti-epidemic headquarters decided the numbers of medical workers to be mobilized, the amount of medical equipment to be carried with, as well as the types of hospitals to be arranged. Medical staff from other provinces took over the management of patients in local hospitals of Wuhan city and Hubei province. For example, on the New Year's Eve, the first batch of Shanghai experts who rushed to Wuhan Jinyintan hospital for support, set out within 4 h after receiving the assignment of the hospital. They arrived in Wuhan at midnight and received the training of prevention and control of hospital infection the next day. On the third day, a new intensive care unit ward was set up for COVID-19 patients. Almost every interim medical team with more than 100 members was rapidly organized within 1 or 2 days, including determining the personnel list, preparing medical materials, and gathering medical staff to leave for Wuhan. This kind of organization with high efficiency significantly saves time and is suitable for gathering a large number of medical staff to participate in the treatment of patients during the peak period of the outbreak.

Second, Sufficiently Personal Protective Equipment (PPE) is Required for Optimally Combating Against COVID-19

Healthcare workers have been shown to be at personal risk of infection during highly virulent outbreaks. Governments and hospitals took responsibility for supplying PPE for medical staff teams, which assured that all teams participating in managing COVID-19 patients were well protected from virus contracting and spreading.

The governments and hospitals attached great importance to preventing infection of medical staff in the frontline fighting the epidemic. The aim of hospital infection prevention and control is "zero infection." To achieve this goal, several measurements have been taken. First, strengthen the training of medical staff. Because the medical

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staff participating in the rescue come from different professional departments, mainly from the infectious disease department, respiratory department and critical care medicine department, most of whom had no experience in the prevention and control of infectious diseases. Therefore, pre-job training is very important.[6] After arriving in Wuhan, we organized special training on how to put on and take off protective clothing. Second, ensure the frontline medical supplies such as PPE. In the stage of the outbreak, the shortage of medical protection supplies is a serious problem that every country and region will face, as it was in Wuhan.[7] The governments and hospitals tried their best to cover the demand of the medical staff in the frontline. Third, keep continuous supervision of the prevention of hospital infection. During the work, hospital prevention and control personnel supervised the medical process, and medical personnel supervised and reminded each other in the process of putting on and taking off PPE.

With such efforts, all the medical staff supporting Wuhan have been evacuated safely in April. The nucleic acid and antibody tests proved that the goal of "zero infection" has been achieved.

Third, Medical Teams Require Sufficient Size and Resiliency to Combat Against COVID-19

Each redeployed medical team contained approximately 130 to 140 members to independently manage a single department in Wuhan hospitals. The Chinese authorities assigned for each medical team an administrative leader who was responsible for the supplies, daily life, and the safety of team members. In the meantime, senior physicians were responsible for overseeing medical care. In addition, hospital infection experts were responsible for supervising the personal protection of all team members.

Almost all medical teams were temporarily established. The medical staff of each medical team came from different hospitals and departments, and most of them were complete strangers to each other. How to work as a team with tacit understanding in a short period of time required the excellent leadership and coordination ability of the team leaders. Leaders of medical teams redeployed to Wuhan all have rich management experience to soon understand the expertise of their team members and assign them to the right job. There were also exchanges and mutual help between different medical teams, such as mutual support of protective materials, case discussion, and exchange of treatment experience.[8]

Fourth, Communication is a Key Element for Optimizing the Effectiveness of the Medical Team

Frontline medical staff in Wuhan had numerous difficulties, including missing their family, worrying about becoming infected, and potential shortages of protective equipment. Psychological experts have provided counseling to those requiring additional support during this highly stressful time.

We have done a survey of 450 medical staff (unpublished). The results showed that more than 90% of medical staff were willing to participate in the support of Wuhan to fight against the epidemic. However, at the same time, more than 80% of them were worried mainly about being infected, and 30% had sleep disorders. The medical team regularly held meetings, and psychological experts were responsible for the psychological consultation of the medical staff. They have printed special books and performed psychological service hotline to help relieve the pressure of the medical staff.[9]

Fifth, Shift Length Must be Minimized as Much as Possible

Wearing PPE for an extended period of time can lead to excessive fatigue. As such, each nurse's shift was limited to 4 to 6 h (with 4 h encouraged). Special logistics teams were enabled to assist with day to day needs of the medical staff.

During caring for patients with COVID-19, medical staff wearing PPE sweated a lot, which makes them easy to be fatigued. Therefore, it is necessary to shorten the continuous working time of medical staff, which can help to protect the health of medical staff, ensure the work efficiency, and improve the quality of medical work at the same time.[10]

Sixth, Fully Affirm and Acknowledge the Efforts of the Medical Staff Working in the Frontline of the Epidemic

Media reported a lot about the hard work of the medical staff in the frontline, and expressed appreciation and admiration to them. The behavior of the medical staff also let more and more people realize that Chinese doctors and nurses were brave and mentally strong.

Local governments and hospitals also cared about the frontline medical workers by paying bonuses and taking care of their families. After the medical staff finished their support work in Wuhan, they all had vacation time to have a rest.

Due to the coordinated response of the Chinese medical system to this unprecedented public health emergency, we wined the fight against COVID-19. Scientific deployment of medical staff should be an important part for coping with the pandemic. There is an urgent need for researches regarding how to resolve the shortage and properly redeployment of medical staff during the pandemic in the future.

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Conflicts of interest

None.

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