REVIEW ARTICLE

Human Resource Management in the Healthcare Setting During COVID-19 Pandemic: Policy Recommendations, Implementation Challenges, and the Way Forward

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ABSTRACT

The Coronavirus disease 2019 (COVID-19) pandemic has caused a worldwide human resource crisis in the healthcare setting due to the continuous and overwhelming demand of the workforce. Failure in managing the human resource will negatively affect the clinical management, prevention, and control of the pandemic; while a well-planned human resource policy can ensure sustainable and sufficient skilful workers to meet the demand. This article presents policies that are recommended by the World Health Organization (WHO) and other significant studies in addressing the issues faced by many countries during this COVID-19 pandemic. As with all policies, there are various challenges in the implementation of policies related to COVID-19. Therefore, this article also discusses the challenges in the implementation of these policies. This article ends with the proposal for the way forward in human resource management during a pandemic, should another pandemic hit the world.

Keywords: Human resource, COVID-19, Healthcare, Policy, Management

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INTRODUCTION

Human resource is an essential element in management because the basis of management is getting things done through people. The Coronavirus disease 2019 (COVID-19) pandemic has given rise to a global human resource crisis, especially among healthcare workers. This crisis was mainly contributed by the sharp increase in the number of patients in a very short time. For example, from 22 January 2020 until 20 June 2021, there were 179 million positive COVID-19 cases reported worldwide, with 3.9 million deaths (1), in contrast to the number of healthcare workers. For example, there is an estimate of only 13.2 million medical doctors, 28.4 million nurses, 1 million medical and pathology laboratory technicians, and 3.3 million community health workers (2) responsible for COVID and non-COVID-19 patients globally. There is an extraordinary increase in the volume and acuity of demand on the healthcare workers while simultaneously reducing their availability. The demand surge for human resources in the already understaffed healthcare industry became more overwhelming (3,4).

While most of these COVID-19 cases needed hospitalisation and clinical care, all cases required public health intervention such as health education, health promotion, contact tracing, laboratory testing, case investigation, case diagnosis, treatment, quarantine in low-risk treatment centres, home surveillance, enforcement, surveillance, and most recently is mass vaccination. All these activities are resource-intensive, particularly human resource, because many of these activities can not be carried out by machines or artificial intelligence. At the same time, the healthcare workers involved in managing these COVID-19 cases, either in the hospital setting or public health setting, were exposed to the virus and were infected. Some of these workers succumbed to the disease, while many had to be put off work while recovering.

With the high demand and limited supply of healthcare workers, effective human resource policies are needed to sustain the workforce required to manage the pandemic and at the same time deliver essential healthcare services (3). Effective human resource management will enable responsive health systems, improve healthcare

quality, justify resource use, and reduce the workers' burden (5). Many countries have implemented a variety of human resource policies in battling the pandemic (6). However, due to the complicated nature of human resource management, several countries have failed to meet human resource needs during the pandemic due to many challenges (7).

This article aims to present policies that are recommended by World Health Organization (WHO) in addressing the issues faced by many countries during this COVID-19 pandemic. This article will also discuss the challenges in the implementation of these policies. This article ends with the proposal for the way forward in human resource management during a pandemic, should another pandemic hit the world.

HUMAN RESOURCE MANAGEMENT POLICY RECOMMENDATIONS

The recommendations of human resource policy in the healthcare sector revolve around five aspects as recommended by WHO. These are on increasing the capacity of the healthcare workers, means of strategic deployment, support, protection and optimisation of the healthcare workforce, and also strengthening of the health system (3).

Capacity of Healthcare Workers

Capacity means the number of healthcare workers to carry out the appropriate tasks effectively, efficiently, and sustainably (8,9). To ensure sufficient capacity, a needs assessment must be conducted and include the source of workers, the required areas, and a comprehensive database (3,5,10). The needs assessment and deployment strategies need to consider the requirement at every level of care, possible surges of cases or deaths, contact tracing, and mass vaccination campaigns. The planning must be done for short-term, medium-term, long-term, and contingency (3,7,10–12). This is particularly important to countries with limited resources to balance the needs and the required funding.

Examples of policies to increase the capacity of human resources include voluntarily recalling retired staff or those on leave or inactive (5,7,10,13–15); fast-track training of new staff members (7,16); and facilitating the recruitment of foreign healthcare workers such as nurses and doctors, into the country (17). Another approach to increase healthcare workers' capacity is by hiring new healthcare workers (15,18). For example, Malaysia had recruited 8,000 healthcare workers, including assistant medical officers, laboratory technicians, and nurses, for the Ministry of Health (MOH) in 2020 and another 3,500 in 2021 for COVID-19 management (19). Some countries like the United States, India, and Croatia also mobilise their medical and nursing students for a short term to help out the COVID-19 management (5,7,10,15,20).

Strategic Deployment

Deployment means "the transfer of a person from one position to another" (21). Strategic redeployment must be carried out based on the needs of priority health services (3,20). Human resource allocation must be balanced between clinical and non-clinical settings, as well as between COVID-19 management and existing essential health services. Clinical care for patients during the COVID-19 pandemic is crucial. Still, there are also public health roles that healthcare workers have to carry out, such as population screening for COVID-19, diagnostic testing in laboratories, field investigations and contact tracing, management of quarantine and low-risk treatment centres, and following-up of home-managed positive cases (10,22). In addition to clinical and public health settings, a country should also have national emergency medical teams or volunteer banks to be utilised during a crisis. If there is a rise in mortality, the policy also needs to consider human resources for safe burial (3). The deployment plan should include workers from the public health sector, private health sector, non-health sectors, volunteers, and retirees (3,10,14,20). For non-clinical tasks, volunteers from the community can also be mobilised. They can be empowered to do health promotion and health education in their community and support the risk communication. They also can conduct community surveillance, contact tracing, outreach, and assist healthcare workers in many other tasks (3,20). The health system recommendation in response to COVID-19 is to train, repurpose, and mobilise healthcare workers according to priority services (23). If there is an inability to cope, help from regional or international emergency medical teams should be requested (3). Although redeployment of healthcare workers during this pandemic is at times inevitable, policies in the redeployment of healthcare workers need to be thoroughly discussed at the management level as there are ethical issues and issues related to the well-being of the affected staff members (24,25). The deployment strategies must be assessed early and frequently (10).

Support and Protection of Healthcare Workforce

To meet the continuous human resource needs, the healthcare workers need to be supported and protected from risks that come with COVID-19 management. Being the frontliners in the COVID-19 pandemic, they have a very high risk of infection (7,20). If they contract the infection, their duties will be suspended, and the workforce will diminish (10,26). Therefore, infection prevention and control measures are crucial to ensure that healthcare workers are protected from an infection not only in the workplace but also in the household and community (3). Standard preventive measures such as cough and sneeze etiquette, hand hygiene, and physical distancing must be reinforced. They need to be supplied with adequate and appropriate required materials such as personal protective equipment (PPE), soap, alcohol-based hand sanitiser, and disinfectants. They must also be trained regularly on proper usage of the materials.

Compliance levels need to be monitored, and standard precautions for all patients need to be implemented (3,20). These policies must be evidence-based to ensure maximum protection of the healthcare workers, for example, the policy on the type of masks to be worn (surgical masks versus N95 masks) (27) as well as reasonable working hours and working environment of the healthcare workers (28).

Healthcare workers who have a high risk of contracting COVID-19 disease - for example, due to comorbidities - need to be reshuffled to tasks with lower exposure risk or be in charge of virtual consultation or telemedicine (3,5). This technology should be strengthened to reduce healthcare workers' exposure time, unnecessary hospital admission, and human resource requirement, especially in rural areas. Home-care for mild COVID-19 can also be allowed for the same reason (4,5,20). During the COVID-19 pandemic, studies have reported that healthcare workers experienced fatigue, burnout, depression, anxiety, and stress. They also have a higher risk for stigmatisation, violence, discrimination, harassment, and attacks (3,10,20). These problems can lead to accidents and suicides (20). A study in China among healthcare workers in primary care facilities found that burnout was higher among public health service providers (58.06 per cent) compared to clinical care providers (47.55 per cent) (29). To ensure occupational health and safety, policymakers and managers are recommended to conduct a regular assessment and medical surveillance, implement supportive interventions, close supervision, continuous encouragement and motivational interventions, protective interventions, and educational and training interventions for healthcare workers' mental health well-being (3,10,20,29,30).

For moderate and severe symptoms such as depression, anxiety and psychological distress experienced among frontline healthcare workers, mental health professional plays essential roles. Hotline and telehealth services such as mobile apps, online resources, virtual peer support, and virtual visit with a mental health professional can be utilised to provide mental health care (5,31). Coping strategies using religious activities can also be suggested (20). The buddy system is a good option to monitor stress, provide support, and emphasise safety measures compliance (5). The mental health outcome of healthcare workers involved in COVID-19 needs to be monitored over time, and their mental health needs should be prioritised (18,31). Workload and working hours need to be properly planned and monitored to ensure adequate rest and breaks (3,5). For example, in Jodhpur, India, there are three eight-hour duration shifts (4). Safe return to work protocols should also be extended to the healthcare workers infected with COVID-19 and undergoing isolation (3,5,14). Public education and security measures also need to be taken to reduce stigmatisation and discrimination as well as prevent any violence, harassment, or attacks on the workers. The incidents must be reported, and legal actions should be taken against the perpetrator (3,5). Proper communication channels need to be established to accommodate communication between healthcare workers and superiors for peer support and enable sharing of information and feedback on any issues in the health facilities (3,5,32).

Other than that, the healthcare workers need to be ensured regular and timely remuneration. Monetary and non-monetary incentives are encouraged, and compensation must be given accordingly (3,18). Workers should also be allowed days off for quarantine, paid sick leave, and insured for occupational risk (3,5). Lack of remuneration and incentives can lead to demotivation and the resignation of workers (20). For example, in Malaysia, COVID-19 frontliners were given a special allowance (33,34). Healthcare workers who have children or elderly persons at home should also be provided care support. Their family should be protected from any harm such as violence, stigmatisation, and infection due to COVID-19 (18,20). The workers can be provided accommodation closer to the health facilities to reduce commuting accidents and risks to the household and the community. In addition, they should have specific areas in-facility to allow rest during work and before commuting. As many female workers have additional care responsibilities, household tasks assistance can be provided to help them focus on delivering health services (3,5,14,26,35). Their gender-specific needs should also be catered to. For example, feminine hygiene products, as well as workload and shift flexibility, should be provided for menstruating workers to allow them to maintain menstrual hygiene while using PPE (3). They should also be accommodated for breastfeeding.

Healthcare workers should be tested as needed and undergo an adequate duration of quarantine or isolation. Furthermore, sick workers should not continue working as it will cause a higher mortality rate and worsen health services due to laboratories and hospital closures (20). Workers with multiple employment must be given special consideration as they may have longer total working hours and higher exposure or infective risk (5). For example, workers who work in multiple facilities such as non-governmental organisations or private facilities and at the same time also volunteer at a government facility.

Optimisation of Healthcare Workforce

Healthcare worker skills and knowledge can be enhanced by competency building. During the pandemic, competencies among healthcare workers can be built through education and training (3), and the training and supervision of healthcare workers should be continuous (15). Furthermore, education and training can be conducted via virtual platforms to expedite skills and

knowledge updates (3,5). For example, India has started orientation and training sessions for healthcare workers before initiating the vaccination program. Besides providing training sessions, training material was made accessible to the health staff through an online portal (36). Adequate staff with proper training are necessary to achieve successful COVID-19 vaccine introduction (20). National governments and international organisations also need to work together in providing training and planning strategies. In Uzbekistan, the training materials for the healthcare workers were developed by WHO Country Office in collaboration with the local specialists, using the country's COVID-19 National Guidelines (37).

Healthcare workers' roles and responsibilities need to be optimised and shared to overcome the shortage of workers with specific skills (3,5,38). For example, the same worker requires to do both administrative and clinical tasks. Regulatory bodies' credentialing or licensing processes need to be accelerated to increase the human resource capacity (3,5), especially for fresh graduates' intake for house officer, nurse, assistant medical officer, and pharmacist positions. They should be allowed to work anywhere within the country. Soft skills should also be emphasised to ensure effective communication between workers, patients, caregivers, and families (3).

Health System Strengthening

Public-private partnership and intersectoral collaboration must be encouraged (18). To strengthen the health system, there must be governance in place to ensure smooth intersectoral collaboration and appropriate resources distribution (3,10). Strong governance, leadership, and political will must be present to ensure the rapid adoption and successful implementation of the human resource policy. The partnership should not be confined to the health sectors. Non-health sectors such as education, finance, defense, and other related authorities must also play their roles to contribute to human resource in implementing the prevention and control measures to battle this pandemic. A representative from each sector must be elected to plan, make a consensus, and coordinate all work processes for their sector. Public health activities must be coordinated within the health sector, from the national to the subnational and local levels. Adoption of the made decision and work processes must be uniform and regular communication must be conducted. Decision-making or policy-making should not be influenced by factors such as gender or ethnicity (3). Non-health sectors that can be involved in the collaboration include but are not limited to the Ministry of Education (for training and continuous education), Ministry of Finance (to allocate and distribute resources accordingly), Ministry of Defense (to coordinate military healthcare workers deployment and work processes), Ministry of Foreign Affairs (to coordinate movement restriction measures), Public Service Department (to increase and mobilise new healthcare workers), public authorities (for clean water, hygiene, and sanitation), non-government organisation (to coordinate volunteers' deployment and work processes), private sectors (to coordinate work processes and resource distribution), and media industry (for health education, health promotion, and risk communication) (3,5,10).

The burden of healthcare services and resources can be shared with private sectors (public-private partnerships) (20). Private health facilities can treat non-COVID-19 cases, mild or uncomplicated COVID-19, and private laboratories can run some COVID-19 testings. For example, in Malaysia, MOH collaborated with the Ministry of Defense during the pandemic in setting up field hospitals (39). Since January 2021, private hospitals in Malaysia had started receiving COVID-19 cases from public hospitals (40). Until 16 June 2021, MOH collaborated with 112 private hospitals with 1,274 beds and 128 intensive care unit beds to treat COVID-19 patients (39).

POLICY IMPLEMENTATION CHALLENGES

Despite the recommendations, undeniably, there are many challenges in implementation. With the SARS-CoV-2 virus being a novel virus, it is difficult to predict its course and the consequent resource requirements or plan the allocation (10,32). On top of that, many of the recommendations require higher health expenditures which pose a challenge in some countries, especially developing countries with an existing overburdened healthcare system (4,41). As pandemic consumes far greater monetary resources than before, healthcare financing problems are causing more distress for healthcare providers and consumers. The insufficient healthcare workers, health equipment and healthcare services capacities are accentuated (10).

It is challenging to increase the capacity and competency of healthcare workforce if there is low financing of health services. Some countries spend lower domestic general government health expenditure per capita, which directly contributes to fewer skilled healthcare workers. For instance, India spends far lower health expenditures than the Maldives and the United States of America. With the existing shortage of skilled healthcare workforce, reducing numbers due to COVID-19 due to occupational exposure, the remaining healthcare workers are required to multitask in managing overwhelming COVID-19 cases while at the same time delivering other healthcare services (20). In Malaysia, many doctors are quitting due to burnout in managing COVID-19 (42). Other than that, government health facilities have difficulties in attracting/retaining doctors due to lesser salaries, job security, vertical growth, and quality of life (20). Alarmingly, it was estimated that by 2030, there would be about 18 million deficit of healthcare workers globally (43). This deficit needs to be addressed early to avoid catastrophic consequences to healthcare services

delivery in the future as it is difficult to acquire a rapid increase in workers' capacity (7). Competency building will also be difficult if the healthcare workers cannot be sent for training due to a lack of funding.

In a paper by Mukherjee et al. (2020), the authors emphasised on the challenge in containing the pandemic spread in India due to inadequate deployment strategies. Despite a growing number of healthcare workers in the country, they remain chronically insufficient and are irrationally distributed with a higher concentration of doctors in the urban region (20). Strategic deployment is easier said than done, which requires experience and detailed planning, which is not something easily attainable during a crisis. Deployment is complex to be managed, especially if it has a rapid turnover. For instance, the mobilisation/deployment of the workforces from the National Institutes of Health of MOH Malaysia for COVID-19 management are done every week (10). It requires continuous coordination, which can be taxing in the long run. Balancing the human resource needs between clinical and public health settings which are dynamic and everchanging due to the nature of pandemic, is not simply executed. To create a volunteer bank or a registry of workers, screening and contacting the workers for their qualifications, skills, and competencies are also time-consuming and labour intensive (5,10).

Due to limited workforce and financial constraints, COVID-19 positive healthcare workers are forced to work despite not completing sufficient quarantine duration, and COVID-19 testings for them are not made widely available. They are only reserved for certain groups of workers. Subsequently, the healthcare services are further disrupted due to the closure of laboratories and hospitals (20). Other than that, some countries had obstacles securing enough PPEs and other necessities to protect the healthcare workers from infection (14,26). Some facilities have enough access to PPEs but ration them inappropriately in fear of future shortages, whereby disposable items like gowns and masks are reused, posing safety concerns (26). There is also moral distress revolving around limited resources that are prioritised and channelled towards COVID-19 management (7,26). With the high occupational risk/hazard, if the compensation offered to these workers are not high enough, it will lead to resignation (32). There is also an increasing number of infected healthcare workers (10). All these problems lead to a vicious cycle of inadequate human and financial resources (14). Even with enough resources, it is challenging to control the spread of this virus among healthcare workers as many of them are not compliant with the preventive measures in the workplace (32).

With long working hours and a high patient load, healthcare workers are inevitably exposed to physical exhaustion, increased risk of mental health issues and moral injury in dealing COVID-19 pandemic (3,14,44). Healthcare workers are overburdened with responsibilities and stress, which cause mental health decline (15,37). They also have a constant fear of contracting and transmitting the disease to their family and friends, and have been living away for a long time for that reason, exacerbating further distress (14,26). Some of them with comorbidities had no choice other than to continue working. Uncertainty and the novel nature of COVID-19 also superadded fear and anxiety on the workers (26). It's challenging to implement effective measures which can ensure mental well-being among healthcare workers (45) and avoid possible errors caused by fatigue, burnout, and stress (3,14). Possibly due to workforce and financial constraints too, some health facilities do not offer any specific mental health support for COVID-19 to the healthcare workers and rely on the existing employee assistance programmes instead. Employer support is crucial as it is a factor leading to the resignation of healthcare workers in the United States (26). Other obstacles in providing mental support to healthcare workers and may hinder healthcare workers from obtaining mental support include feeling embarrassed to receive mental health support or privacy concerns (46). The pandemic had accentuated the problems with gender inequalities (41). As female healthcare workers form about 70 per cent of the total health workforce (47), the inequalities must be acknowledged, and their needs are accommodated (41). The inability to balance between professional and personal responsibilities is very well related to psychosocial distress (26).

Despite the improvement of the disease early warning system through international cooperation (40) and the advantages of health information systems, big data analytics (BDA), artificial intelligence (AI), and telemedicine (32), competency building during a crisis is difficult as training healthcare workers to be proficient and transition from one setting to another requires time. For example, some prefer to use Microsoft Excel to record the deployment master list (10) as it is easier to learn compared to other advanced softwares. Many healthcare workers reported that they were not provided sufficient training and mainly depended on self-learning as changes in information, policy and work processes during this pandemic are rapid and frequent (26). Even with the current latest technology, the prediction of future COVID-19 trajectories can still be perplexing (32). Many countries also failed to fulfil human resource requirements during this pandemic as they were too concerned about infrastructure readiness instead of human resource availability to operate the medical equipment (7).

THE WAY FORWARD

Although at present it seems that most public health activities require human intervention, it may be time to

explore the potential adoption of new technology such as BDA, AI, and telemedicine. The use of these technologies may be an efficient and effective complement in the current work processes. Their use can protect healthcare workers in terms of reducing their work burden and risk, and assist in better resource allocation planning (10,38).

For example, health promotion and education can be made faster and easier as most people nowadays have a mobile phone. The latest information can be broadcast widely in various languages using Short Message Service (SMS), social media, and messaging applications. Singapore had used BDA and AI to provide updated information to their citizens through WhatsApp (39). Human resource requirements for contact tracing, quarantine compliance, and movement control can be reduced by using geofencing technology like in Taiwan (40,41) and automated contact tracing applications for COVID-19 like COVID-19 Smart Management System in South Korea (40,42) and Health Code application in China (40,43).

Health information systems also need to be enhanced to ensure standardised, integrated, and updated data on human resources. The systems can generate a registry or database of workers with their related information such as qualification, skills, and competencies and capture/monitor information required for resource management, including harassment, mortality, isolation, and quarantine reports (3,5,10). The systems can also help track achievement indicators and generate analysis to improve the current policy and future decision-making (3,5) by incorporating BDA and AI. There should be continuous training to improve healthcare workers' technical proficiency (1).

CONCLUSION

Human resource management in the healthcare setting, particularly public health, must be strengthened to establish resilient healthcare systems. In a nutshell, the current policy recommendations are that countries with sporadic or no COVID-19 transmission can concentrate on preparedness, planning, procurement, employment, resource allocation, establishing procedures and protocols, and training. In contrast, countries with community or cluster transmission should concentrate on mitigating measures, including redeployment of workers to areas with high COVID-19 transmission and strengthening public-private partnerships. As with all policies, there are various challenges in the implementation of policies related to COVID-19. Therefore, these human resource policies should be tailored according to each country's resources and COVID-19 situation. Solving these challenges mainly relies on early preparation in addition to frequent revision of human resource planning. Most importantly, the national budget for healthcare workers should be enhanced as it is the root of most challenges. The COVID-19 pandemic crisis should be a learning point for human resource preparedness. Preparedness policy must be set in place, as reactive policy will cause a delay in response during a crisis. Any implemented policy must be monitored and evaluated to ensure effectiveness and continuous improvement. Lastly, in the age of advanced technology, it is now the opportune time to consider BDA and AI to help strategise the use of human resource in the time of this pandemic and future ones.

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