SHORT COMMUNICATION

Personal Protective Equipment: Strategizing the armour of the knight battling COVID-19

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The first coronavirus disease 2019(Covid-19) in Malaysia was first detected on the 25th of January 2020. Numbers remained low until March where local clusters began to sprout.[1] This rapid rise was alarming to the Ministry of Health Malaysia (MOH) and Movement Control Order (MCO) was declared on the 18th of March 2020 to flatten the curve[2]. As Malaysia enters her fourth phase of MCO, she has over six thousand cases of COVID-19 with over a hundred fatalities. Efforts within the MCO entails social distancing, increasing testing capacity and isolation. This combination of measures led to Malaysia being recognised to have one of the lowest death rate and highest recovery rate exceeding 50% of total cases.[3]

In times of war against Covid-19, Personal Protective Equipment (PPE) are regarded as the armour that protect the healthcare personnel from the infection. The lack of it gave rise to a pseudo-panic when demand surpass supply.[4] In Malaysia, an outbreak of influenza preceding this pandemic worsened matter. Considering the challenges globally, acquiring PPE in Malaysia was difficult at its beginning. Therefore, the authors described the roles of the task force team in a tertiary referral centre (also a COVID-19 admitting hospital) and strategies employed to meet the PPE rush.

Hospital procurement department toed out of routine as depending on regular suppliers was futile. Hospitals with larger numbers of COVID-19 patients were prioritised. Non-medical grade PPEs were supplied with price hikes due to popular demand. A PPE team was put together sourcing suppliers from the medical and pharmaceutical industry. The team networked with Non-Governmental Organisations (NGOs) who caught whiff of PPE shortage, and generously donated to hospitals in need.

Allocation and distribution of the PPE were hot issues during the crisis. Limited supply needed a controlled and priority distribution. COVID-19 exposure risks were identified, and department allocation were based on patient numbers and exposure. The emergency department, intensive care, COVID-19 wards, and operation theatres were prioritised. This is where accountability been counted. Department heads were responsible for the apt usage of PPE as requests were fulfilled on a weekly basis to ensure lean and adequate protection to the frontliners. Number of doctors attending to the patient were reduced to the minimum in order to save on PPE usage.

Many healthcare workers were anxious of the level of protection required. This led to the increase demand of PPE at the start of the crisis as many demanded full protections regardless of exposure risks. The passing of weeks saw a reduction in PPE demand as staff were better informed of adequate protection. This was possible with continuous education and clear hospital-based guidelines and educations on proper PPE requirement and usage (Figure 1).[5,6]

Judicious use of PPE is constantly emphasised to all healthcare workers. In the event of severe shortages, the hospital adapted the 'Rational use of PPE and consideration during severe shortages' guidelines. These stipulate which PPEs can be reused and conserved. Many new innovations by intellectuals were aimed to reduce the PPE usage. Amongst them were the aerosol box to reduce aerosol exposure during intubation and 3D printed makeshift face shields. Food delivery robots were used in the Covid19 wards reduced exposure of healthcare workers, indirectly saving the use of PPEs. Disposable head gears with a hook at the occipital region to ease the wearing of mask with loop bands were made. This would increase

compliance of the surgical mask alongside with increasing comfort by offloading the pressure on the ears.

Healthcare hierarchy and subspecialty boundaries were eluded. In the endeavour to obtain PPE, below are several recommendations to ensure continuity in its supply chain. (1) A special task force on PPE which overlooks the above matters should be formed, working closely with the procurement department; (2) The quality and standard of PPE should be established as many available products in the market may be suboptimal; (3) PPE, without proper fitting serves little to no purpose. A fitting test and education on usage ensures better PPE compliance; (4) Effective PPE distribution chain ensures the safety of the frontliners. We therefore suggest one individual per department is made charge for daily updates on PPE numbers and (5) Innovate without compromising safety. Innovations at infantile stages should be with caution.

In conclusion, when a general goes to war, he assembles his team for strategy and ploy to minimise its fallen soldiers. In these unchartered times and war on COVID-19 that we have never experienced before, the need for PPEs require a special task force to ensure its adequate and timely supply in order to protect its frontliners.

Figure 1 Hospital based guidelines on donning and doffing PPE, improving compliance among healthcare workers. Adapted from COVID-19 Control Room, Hospital Canselor Tuanku Muhriz (HCTM), The National University of Malaysia (UKM)[5]

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