

COVID -19 Pandemic: Challenges to health care system of Pakistan

Policy Review

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1. Background and Introduction

Coronaviruses are a large group of viruses which circulate among animals and birds, but infect humans. The COVID-19 is closely related to two other viral infections that include Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). The SARS and MERS first emerged in world in 2003 and 2012 respectively (Gulland 2020). However, the spectrum of coronavirus disease is broad this time with about 80% cases of mild infection, 14% severe illness, and 6% critical (ERS resource centre 2020).

The COVID-19 pandemic has posed big challenges to health care system globally. In affected countries, access to Personal Protection Equipment (PPE) was a key concern at the outset of the pandemic. Many countries have developed and extensive health care systems. Nevertheless, they are faced with shortage of PPE in this situation of pandemic. The worldwide health care systems can work for months at maximum capacity, but ventilators, wards and medical staff cannot be manufactured urgently or cannot be occupied for longer period of time (Lancet 2020).

China spends almost 5.6% of Gross Domestic Product (GDP) on health care system (Fang 2020) and the government provides all the basic health facilities to its masses free of cost. As the COVID-19 outbreak in Wuhan, the provincial government launched training programmes for all the medical staff. They were also provided hand hygiene, PPE and safe waste disposal during the training. As the situation exacerbated in Wuhan, all the medical resources were distributed among intensive care units (ICUs) and emergency departments, which were set up at provincial level (Wang 2020). Yet, there were dire shortages at times, that's why they had to reuse some of the protective wear (Wee 2020).

The US despite the world's biggest economy, has failed to provide PPE to its medical staff, which resulted in increased number of cases. The staff was forced to use trash bags for gowns, scarves for masks and reuse other medical equipment to reduce the risk of coronavirus (Lopez 2020). Also, the health care workers are running out of the lifesaving equipment, including shortage of N95 masks (Ali 2020) as well as other resources

South Korea began with slow drip of cases to abrupt dramatic escalation but later on cases declined dramatically. The reason behind is the indiscriminate testing and keeping every suspected carrier in quarantine. Despite having highly regulated and efficient health care system, the Koreans had to face shortages of doctors and nurses to treat sick patients. They were also faced with the shortages of masks and beds in hospitals. They managed this problem by specifying beds for the most needed patients and by creating extra space with the help of bigger companies (Yoon 2020).

Most of the developed countries have very strong health care system but the increase number of coronavirus patients has put their health care system under strain. In Italy, number of cases is increasing on daily basis. In Lombardy area of Italy, has reserved 80% care beds for the treatment of coronavirus patients. The sudden increase in cases has caused shortage of medical equipment, including masks, PPE and ventilators for the people suffering from respiratory illness. In this situation, Italy sought medical help from China. Later, China sent specialist doctors and medical equipment, which included 10,000 ventilators, two million face masks and 20,000 protective suits (Wood 2020).

The situation in Pakistan is no different, as our health care system is overburdened with increase in COVID-19 patients mainly because of PPEs, lack of testing kits, insufficient funds disbursement and lack of required equipment. . According to a recent report from National institute of health (NIH), there are 57 functional labs having 16414 testing capacity per day, a total of 23,557 beds available in quarantine,

2,942 beds for isolation purpose, and 35 designated COVID-19 tertiary care hospitals¹. For a country of 220 million population, this is a drop in the ocean. Till date, the total number of confirmed cases are 22,550 with 526 deaths (*ibid*).

2. Scope and Objectives

The health care system of Pakistan was never built even on paper for an emergency response. Our hospitals were not well designed and equipped; even staff have not been trained to deal with such type of emergencies. The contingency plan was never been the part of our health care system and no efforts have ever been made to revamp it in accordance with the modern-day requirements. The ground realities show that our health system is too weak to deal with this pandemic (Ebrahim, 2020).

According to the Economic Survey of Pakistan (2018-19), the number of registered doctors and nurses is 22,595 and 108,474 respectively. The number of patients per doctor is 963 and the population per hospital bed is 1608. Pakistan spends only 3.29% of its GDP on health care system whereas smaller countries (like Nepal) spend almost 6% of its GDP on health. The sudden increase in coronavirus patients has put countries health care system under great strain.

Although the Government of Pakistan has shown considerable commitment towards making the right efforts to fight the pandemic, it remains to counter many challenges of existing healthcare system to fight the disease as well as to prepare for future.

Hence, this study aims to:

1. assess the risks associated with insufficient health care systems in Pakistan by exploring the on-ground situation and mechanisms in hospitals.
2. identify the challenges and risks associated with non-availability of resources including necessary healthcare equipment and facilities, lack of motivation and incentives, and other factors that may lead to the spread of disease even faster, and increase in death rate
3. provide evidence-based information to the policy makers about the real situation of the health care and quarantine facilities
4. suggest appropriate actions to ensure that the needs of medical practitioners and affected patients are met in fight against the disease.

3. Methodology

- A rapid survey has been conducted (April 9-14) based on a questionnaire developed by using comprehensive medical care checklist that needs to be met unconditionally (Table 1). The list of questions embeds all of the necessary components guided by World Health Organization (WHO), to explore the current patterns of health care systems and the risks and challenges being faced by the doctors and healthcare professionals. The reflections have been gathered from 60 respondents based in the hospitals and quarantine facilities of Islamabad, Lahore, Karachi, and Multan.
- A focus group discussion was held with national and international experts and stakeholders in an online dialogue series organized by SDPI on April 20. A detailed checklist regarding medical system along with related questions was discussed

¹ <http://covid.gov.pk/stats/pakistan>

Table 1: Comprehensive medical care checklist and questions

	Comprehensive Medical care Checklist	Link to objectives of the study
1	COVID-19 planning incorporated into disaster planning and exercises for the hospital	1
2	A copy of the hospital COVID-19 preparedness plan is available at the facility and accessible by staff?	1
3	A plan to monitor and track COVID-19 for identifying, monitoring and reporting COVID-19 among hospitalized patients, volunteers, and staff (e.g., weekly or daily number of patients and staff with COVID-19).	1
4	A person has been assigned responsibility for communications with staff, patients, and their families regarding the status and impact of COVID-19 in the facility.	1
5	A person has been assigned responsibility for communications with public health authorities (i.e., case reporting, status updates) during a COVID-19 outbreak.	1
6	Key public health points of contact for communication during a COVID-19 outbreak have been identified in your hospital?	1
7	Estimates have been made of the quantities of essential patient care materials and equipment (e.g., intravenous pumps and ventilators, pharmaceuticals) and personal protective equipment (e.g., facemasks, respirators, gowns, gloves, eye protection, and hand hygiene products), that would be needed.	2
8	Availability of required Personal Protective Equipment's (PPEs) (e.g. facemask, gowns, gloves, eye protection & hand hygiene products) for the staff designated to handle Corona patients.	2
9	The facility has a contingency plan, that includes engaging their health department and healthcare coalition when they experience (or anticipate experiencing) supply shortages.	2
10	The hospital has a process for triage (e.g., initial patient evaluation) and admission of patients during an outbreak of COVID-19 such as post visual alerts (signs, posters) at entrances, facemasks, sanitizers, gloves etc.	2
11	Quarantine and isolated facilities for the admission of patients with possible COVID-19 has been determined.	1,2
12	The facility has a process to conduct symptom and temperature checks prior to the start of any shift of asymptomatic, exposed HCP that are not work restricted.	1,2
13	The hospital has a respiratory protection program that includes medical evaluation, training, and fit testing of employees.	1,2
14	The hospital has plans to provide education and training to HCP, patients, and family members of patients to help them understand the implications of, and basic prevention and control measures for, COVID-19.	1,2
15	The facility/hospital has a process for auditing adherence to recommended hand hygiene practices by health care personnel (HCP).	1,2

16	Any Plans to increase physical bed capacity (staffed beds), including the equipment, trained personnel and pharmaceuticals needed to treat a patient with COVID-19 (e.g., ventilators, oxygen).	1,2
17	Plans for initiating and expanding use of call centers and telemedicine to be able to serve patients without face to face contact. These plans include communicating with patients about how to access the call line or telemedicine services.	1,2,3
18	A contingency plan has been developed for managing an increased need for post mortem care and disposition of deceased patients.	1,2,3
19	Any further comments on the foreign aid of medical care equipment and funds? Is your hospital/facility getting the required resources to fulfill the needs?	1,2
20	Are the medical practitioners and supporting staff motivated to help the serious patients fighting COVID 19?	1,2,3
21	Are there incentives for the healthcare professionals fighting this pandemic?	1,2,3

4. Results and Analysis

The responses of the questions have been discussed under the eight broader categories:

4.1 Planning and decision-making

The data shows that the planning and decision-making related to COVID-19 has been incorporated in different provincial and federal policies. A majority of respondents (82%) depicts that COVID-19 planning and preparedness has incorporated into hospital and disaster planning, supported by the fact that it has been declared as an emergency as a part of national disaster response plan 2019. It is evident that the existing policy frameworks of federal and provincial governments are committed to making arrangements and plans regarding this pandemic (Iqbal 2020).

4.2 Preparedness plan - development and implementation

The Ministry of National Health Services, Regulations and Coordination has devised a national action plan based on the principles of strengthening preparedness, response and implementation at governance, capacities and financial level (National Action Plan 2020). The results of the survey also justify the existence and availability of preparedness plan in the hospital facilities (71% respondents from hospitals show that they have access to preparedness plan of COVID-19 outbreak). The primary health care doctors and nurses are teamed up to screen and swab countless patients following rapidly changing guidelines. This shows compliance to WHO guidelines, who have formed emergency response teams to review the hospitals' readiness for coronavirus and for additional support if required (World Health Organization 2020).

4.3 Communication regarding status and impact of COVID-19

The results of the study indicate that the hospitals and health facilities have been assigned responsibilities to communicate effectively regarding the status and impact of the disease on patients and their family members. 80% respondents agreed to this arrangement in their healthcare facilities, including information about increased number of patients along with the serious and recovered patients. 78% respondents said that different persons in hospitals are communicating with public health authorities to provide update about

the cases of coronavirus during this outbreak. Moreover, 83% respondents said that hospitals have identified public health points to contact during this pandemic.

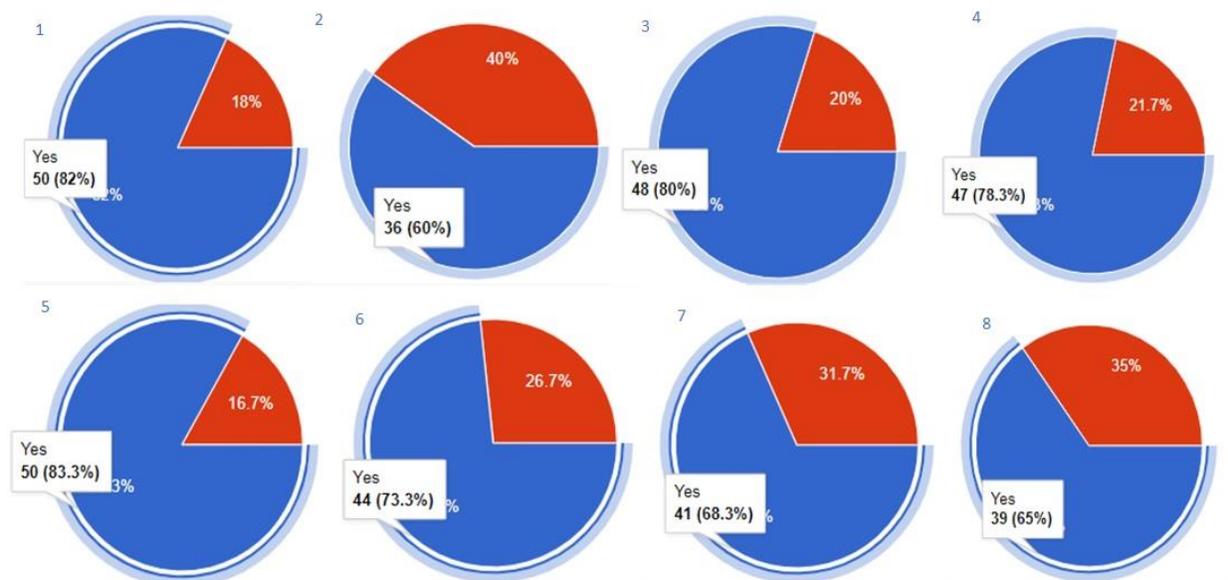


Figure 1: Responses to the preparedness of healthcare mechanisms and hospitals, development and implementation, exploring the on-ground situation and mechanisms in hospitals (1st objective, with reference to section 4.1-4.3)

4.4 Consumables and durables of medical supplies and equipment

The medical supplies and equipment are inadequate to cater for the current requirement. The survey related to medical supplies and personal protective equipment has shown low percentage comparatively to other challenges. Only 60 % respondents depict that they have personal protective equipment and medical care facilities, which include masks, gloves, eye protectors, hand hygiene and protective suits to handle coronavirus patients. Additionally, the hospitals have not made contingency plans efficiently to fulfil the shortage of medical supplies. This challenge has also been taken up by other studies. Health care resources are insufficient to fulfil usual requirements. The medical professionals faced shortage of basic equipment in time of normalcy. In this pandemic, when health care system is facing rise in the number of patients, the shortage of medical equipment has increased manifold. Owing to lack of PPE several doctors have been infected by their patients. The doctors and paramedics are also facing shortage of screening and testing kits to test the suspected cases (Shekhani 2020). 50.8% of the respondents have indicated lack of respiratory protection program that includes medical evaluation, training, and fit testing of employees.

Speaking at an online policy dialogue organized by Sustainable Development Policy Institute, Illango Patchamuthu, the World Bank Country Director for Pakistan, said:

“The World Bank is revamping its support to Pakistan with \$200 million fund, \$150 million covers immediate response of purchasing the medical equipment and \$50 million covers the relief through Ehsaas cash transfer to help poor families.” (Amin 2020).

4.5 Identification and management of patients

The results of this study highlights that a majority of the Corona patients (who were sent back home after treatment) are being identified and monitored regularly on daily basis. According to another finding, the hospitals categorize patients according to their conditions so that the critical patients are supported on priority; Difficulty lies in the identification of patients, as our tracking and testing capacity is limited (Altaf 2020). Moreover, majority respondents (75%) confirmed the online support of doctors and healthcare workers through telecommunication services, messages, and calls. There are a number of networks and platforms that have volunteered their telehealth services to the vulnerable communities and individuals who have developed symptoms for Coronavirus (Pakistani Telecom 2020).

4.6 Occupational health

About prior checking of temperature and other symptoms before the start of hospital shift, almost 80% respondents supported this practice, which depicts that hospitals have adopted pre testing of staff before their duties, practicing obsessive levels of hand hygiene to minimize the risk of getting the virus and taking it back home to their families.

Majority respondents (81.7%) said that medical practitioners and support staff are motivated to treat serious patients of the COVID-19. The findings of this study also contradicted with the finding of another study on the same subject conducted in Sindh wherein 50 doctors were asked about their willingness to serve Corona patients, but not a single one gave his/ her nod (Ebrahim 2020).

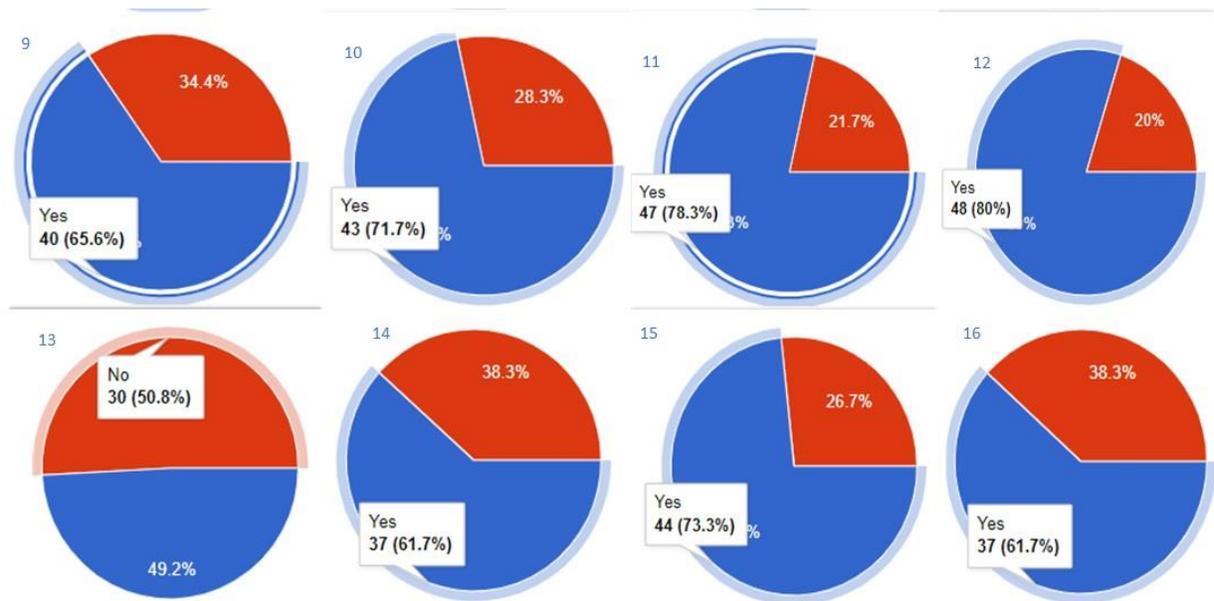


Figure 2: Responses to availability of medical consumables and equipment, concerns of paramedic staff including occupational health, and patient management (objective 2, with reference to section 4.4-4.6)

4.7 Education and training

According to our survey results, 60% of the respondents highlighted that they have been imparted intensive trainings. A team of National Institute of Health (2020) has imparted training to medical staff of Combined Military Hospital (CMH), Rawalpindi on how to control and prevent coronavirus. A study

highlights Pakistan don't have training programmes for its medical and laboratory staff and quarantine experts are also not available (Ali 2020). However, special programmes on awareness raising and strengthening of surveillance are being conducted to ensure better healthcare services.

4.8 Healthcare facilities and surge capacity

The results clearly imply that appropriate steps in terms of quarantine and isolation facilities have been taken in the hospitals. Isolation wards have been set up for the patients of mild symptoms and quarantine areas were set up for the suspected patients. According to NDMA report, 8,718 beds are available in quarantine and 2,058 beds are available in isolation wards (Ebrahim 2020). The data on the increased capacity of beds, ventilators, respiratory protective tools programmes and other equipment shows less percentage (50% and 60%) relative to other challenges. The tertiary hospitals are facing shortage of ventilators and respiratory equipment to shift critical patients safely. There have been number of donations from China (35-tons of medical supplies to help Pakistan combat COVID-19), however, “the access and provision to the necessary equipment still remains unfold and untouched”, according to a respondent of the survey. According to the news, the government has planned to provide modern equipment (Yusufzai 2020), yet remains to be seen.

The government has announced enhanced salary packages for the medical staff serving Corona patients. The government has also announced enhanced incentives for the specialist doctors. These measures were confirmed by 80% of the respondents.

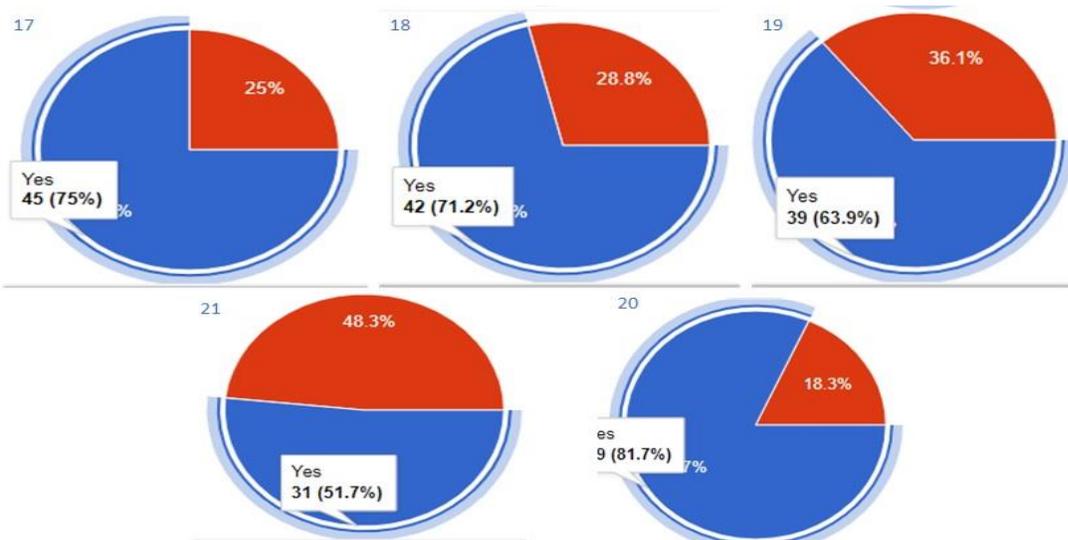


Figure 3: Responses to healthcare surge capacities and facilities (Objective 1,2,3, with reference to section 4.7-4.8).

Figure 1 Responses to the checklist

5. Conclusion and Policy Recommendations

The study undertakes responses from the major urban cities of Pakistan which has shown to have better management and implementation plans of dealing with COVID 19. However, it doesn't attempt to ignore

the relevance to the challenges being faced by undermined facilities in relatively small districts and rural areas, facing difficulties in terms of medical supplies and proper implementation of healthcare mechanisms for both patients and doctors. These issues were further highlighted by experts from Multan and Indus Hospital Karachi, mentioning their challenges and dire need to improve the healthcare system of Pakistan. Hence, based on both the analysis of the survey and the expert consultation, following recommendations are made to control this pandemic and prepare our healthcare systems for future unprecedented crisis:

a) Fight the outbreak with data

- The more information available on the patients of age groups suffering from pre-conditions, the more decisive actions and efforts can be made to ensure provision of medical supplies to high risk groups, if more information is available about patients regarding their age-wise preconditions
- One of the key elements to provide good medical and healthcare is quick diagnostic systems to diagnose and monitor the scale and spread of disease. This would require data of medical records and information which could be linked to the national health insurance databases.
- Considering the challenge of good quality healthcare data in Pakistan, private sector and companies can provide innovative solutions to improve data collection and management of healthcare systems.
- Regional cooperation to allow data standards to be developed in effort to shape global health efforts. This would allow easy flow of data from healthcare facilities to public and across borders for jointly fight against the diseases.
- Use of digital technologies and leveraging artificial intelligence (AI) to allow processing of huge amount of data from public health organizations, population databases and transport records, such as automated disease surveillance platforms to track and recognize the spread of disease globally through a combination of machine learning and natural language processing (Hamade 2020).

b) Incentive schemes and motivational mechanisms

- Providing relative compensations for over time and more fiscal incentives and insurance schemes may help boosting up moral and motivation of healthcare workers dealing with the affected people since they are most vulnerable to be caught up by the virus.
- Motivating mechanisms should be creating a positive and enabling environment to talk positively towards the patients and the vulnerable, not to fear, instead, emphasizing the importance of effective prevention measures to fight against it.
- “According to the Federal Minister for Science and Technology Fawad Chaudhry on Thursday during an online talk on the ‘Role of Ministry of Science and Technology amid Covid-19’, organized by the Sustainable Development Policy Institute (SDPI), highlighted that soon there will be announcement of the inclusion of doctors and paramedical staff in the government’s Shuhada package (martyrs package) in case they contract the virus and lose their life while treating COVID-19 patients”.

c) Transparency of information: Myths vs. Reality

- Until today, there is no concrete evidence to call the virus not to be a naturally occurring one. Although, there is an existence of a major laboratory in Wuhan city of China which researches on Coronaviruses, however, none of the study has proved to show it being genetically engineered for the warfare. With similar notations, the virus is being swiftly spreading around the world, creating a breeding ground for rumors and misinformation that is creating fear, panic and threat to

human lives. Hence, it's imperative to separate true from false and concentrate on taking precautionary measures and actions guided by the Government and WHO guidelines.

- Regarding health, there are myths about drinking hot water, lemon, vinegar, oil and many more items which could eliminate the virus inside your body. Similarly, preliminary data suggests the short-term benefits of chloroquine and hydroxychloroquine as possible treatments for COVID-19, but hasn't been validated as yet. Moreover, the concept of so-called "super-spreaders" — patients who typically infect far more people than the standard transmission rates is again a myth and not a reality. This clearly shows that there are appropriate measures to be taken for transparency of information and evidence-based analysis of current scenario including the clear picture of healthcare facilities. There is a dire need to make people aware of the myths and realities about COVID-19 through the right lens so that the right prevention measures are taken and the right strategies are put into place for present and post-COVID care. This could be done using tele-messages and notification boards, online courses, webinars and expert talks, tailored from authenticated sources.

d) Role of Research, Science and Technology

- The government should provide ease of doing business for the local companies and manufacturers to invest in innovative testing kits, which are significantly quicker than the regular nasal swabs and take 24 hours to process. This stands true for the engineers who could invest their time and capability in developing respiratory tools and equipment, which could be a win-win situation for the people and the country, rather than spending millions to buy from others or rely on foreign aid. This again remains controversial as the findings of the study depict non-availability of those aids to the targeted medical facilities.
- Role of researchers, academia, think tanks, incubators and entrepreneurs can play a significant part to produce evidence findings to decision makers for measures to be taken in a right direction.
- Funds and grants to develop new technologies in terms of biometric authentication systems and facial recognition systems can have the added benefit of reducing contact with shared surfaces and scanners. Artificial Intelligence (AI) models and technologies with Cloud enabled connectivity could be employed in monitoring and testing equipment, to allow data flows into the system for tracking purpose.
- While Corona virus may not be caused by changing climate, climate change is likely to lead to an uptick in future epidemics caused by viruses and other pathogens. The science can be studied for the assessment of health adaptation mechanisms in context of human-animal-environment interface which could help to analyze whether Pakistan's health system able to cope with these climate-sensitive health risks or not.

e) Role of private sector and public-private partnerships

- COVID-19 has clearly demonstrated the economic cost of remaining on the defensive during an infectious disease outbreak and highlighted the importance of investing in identifying the next pandemic before it emerges. Ultimately, this will rely on cross-sector collaboration and the ability to coalesce private sector innovation into policy through cooperation and a steady flow of information (Hamade 2020).
- Many professionals with a range of expertise who are active in different sectors, such as public health, animal health, plant health and the environment, should join forces to support One Health approaches. To effectively detect, respond to, and prevent outbreaks of zoonoses and food safety problems, epidemiological data and laboratory information should be shared across sectors. Government officials, private sector, researchers and workers across sectors at the local, national,

regional and global levels should implement joint responses to health threats (World Health Organization 2017).

- Establishment of physical and mental health centers and public education can be promoted to combat the crisis.

f) “crisis standards of care” in healthcare systems

- Crucial to start addressing some of the most challenging questions doctors and nurses will face during the pandemic as early as possible is the plan to triage cases once demand outstrips supply - referred to as "crisis standards of care" in healthcare systems. “Multi-principal strategy to allocate critical care to adult patients during a public health emergency”- urge hospitals to preserve ICU beds and ventilators by substituting, conserving and reusing supplies when possible. Clinical guidelines must consider factors on “If a hospital has more critically ill patients than it can manage, who gets an intensive care bed and who doesn’t? Who gets a ventilator?”, and develop a priority score system based on principles of i) “save the most lives”, ii) “save the most life years” , including prognosis for short term survival and long-term survival such as; to consider the state of a patient’s organs and whether they have a chronic illness or condition, Pregnant patients and first responders will be given a priority score, In the event of a tie, the youngest patient would likely get the ICU bed or ventilator.

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