

## Editorial



# Lessons Learned From The Prevailing COVID-19 Pandemic

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The lungs are the organs most commonly affected by COVID-19. The principal complications of COVID-19 include pneumonia, ARDS (Adult Respiratory Distress Syndrome), MODS (Multi-Organ Dysfunction Syndrome), MSOF (Multi-System Organ Failure), septic shock, cardiac failure, renal failure, DIC (Disseminated Intravascular Coagulation), Stroke (CVAs -Cerebro-Vascular Accidents), different forms of thrombo-embolic complications and death etc. Sepsis and Cytokine storms may cause hemolysis, hemorrhage, DIC etc. and complications thereof. That is say that no human organ or tissue is immune to its attack directly or indirectly.<sup>1</sup> In accordance to the Worldometer's Live Update on COVID-19 data, as on Dec 06, 2021, COVID-19 is affecting 222 countries and territories and worldwide total COVID-19 documented total cases are 266,326,934 and total deaths are 5,274,252.<sup>2</sup> Bangladesh documented 15, 77,720 cases with total deaths 28,005 just on the 6th Dec, 2021.<sup>3</sup> From the original Wuhan variant of coronavirus, several other more infective and more spreading mutant variants with variable virulence have been isolated so far that include the alpha variant, the beta variant, the gamma variant, the delta variant, the delta plus variant and the more recent omicron variant. Several other more variants with variable pathologies may emerge in the days to come. It has been tragically costing millions of lives while also taking a severe toll on human life style, societies, economies, education, trade, commerce and recreation. To have protection from future pandemics or similar disasters and health emergencies, it has been the central theme of getting lessons. We are to accumulate and share our knowledge and lessons to prevent its further spread and its detrimental effects globally. The COVID-19 pandemic has taught us a myriad of lessons. These lessons have utmost potentials to improve patient care and health care delivery systems in coming days. It is quite impossible to predict definitely which pandemic-like disaster will attack next and what implications and impacts the humans will face. The lessons we have learned are not exhaustive. They provide a glimpse of our needs for the benefit of all. It is a challenge for the global leaders and heads to control and stop the COVID-19 pandemic.<sup>4</sup>

Some countries like Sweden initially attempted to depend on herd immunity by natural infections. Some other countries attempted mitigation or suppression. But these attempts had almost nil effects on stopping its spread. Many countries attempted to contain the spread through various NPIs (Non-Pharmaceutical Interventions), like enforcement of lockdowns of variable intensity etc. But all these were found inadequate as in the United States and India, or delayed as in Russia, France and the UK. Enforcement of lockdowns could

have reduced rapid spread of infections in many regions, but failed to limit its massive spread as a whole. The most effective success of NPIs was confirmed only in China. The WHO-China Joint Mission on COVID-19 revealed that China followed to contain the pandemic were exploitation in three main stages. The first stage focused primarily on preventing measures from being spread from Wuhan in association with closing wet markets and hastened surveillance to detect the zoonotic origin. The second stage targeted on controlling the effects of the pandemic through medical service, entrusting avant-garde diagnostics aids for rapid detection, isolation of infected humans, critically reducing the speed of outbreak by restricting the movement of people, forbidding from mass gatherings, detecting and quarantining contacts, enforced border non-movement etc. Lastly, in the third stage the target shifted to containing isolated plus sporadic cases. In this last stage there was an essential attempt to attain a dynamic balance between successful disease containment and expected social and financial growth. The successful realization of these approaches made China the first most successful nation in terms of COVID-19 control. Subsequently, China had many waves of outbreak because of imported cases. For control and suppression targets, lock-down of the regions and cities, household lock-down, isolation plus quarantine policies were there the three most significant factors for achievement of the success. Even thereafter, China had experienced no significant recurrent outbreaks despite the cold climate. Such mitigation strategies led them to achieve public health goals, simultaneously keeping the society vigilant, alert, functioning, active, financially sound and strong. Following the lessons derived from China, the best global integration is meant for curtailing transmission (like restricting from social gatherings, universal mask use, frequent hand washing with use of hand sanitizers and prompt detection of new cases and spread that is contact tracing) along with enforced restriction on international tours and travels.<sup>1</sup>

While there remain many unknowns and uncertainties regarding the control of future pandemics, based on what we have learnt from SARS-CoV-2, we can deduce the following recommendations: 1. Adequate future preparation and planning can tackle unpredictable future pandemics and disasters better. Rapid detection of the causative new pathogen, genome sequencing, highlighting the principal epidemiological variables related to the outbreak, spread and transmission are very much needed for the global management of the future pandemic. Scientists, participating people and policy makers are to act in unison in an integrated linked chain to achieve the goal through rapid implementation of objectives. 2. Medical

equipment for oxygenation support like oxygen masks, respirators, ECMO (Extra-Corporeal Membrane Oxygenation) and even PPE (Personal Protection Equipment like disposable water-proof gowns, face masks, gloves) etc. are to be made immediately and adequately available. Creative solutions are to be addressed in advance in accordance to the varied clinical syndromes of the unpredictable next pandemic. 3. Rapid implementation of mitigating and control strategies are to be considered essential in to prevent transformation of local epidemics into global pandemics. 4. Scientific activities are to be kept updated and dynamic to identify the probable reservoirs, intermediate hosts, the live-animal markets that import and maintain the culprit pathogens.<sup>5</sup> Internationalization of genome and genome sequencing are very much needed for developing vaccines within the best possible earliest and shortest time.<sup>6</sup> Enforcement of NPIs like social awareness, lock-down, staying at home, sealing of borders, suspension of tours and travels etc. are to be implemented soon if urgently indicated.<sup>7</sup> Global online scientific conferences are to be arranged, as soon as possible.<sup>8</sup> Values like equity, solidarity and collaboration need to be centralized to resilience. It is as if no one is safe unless everyone is safe.<sup>9</sup> Active support and enforcing local and regional preparedness and building capacity to respond to emergencies should be the priorities through visionary, science-driven, large-scale flagship research initiatives.<sup>5</sup>

We shall have to remain always prepared in hospitals for unwanted unpredictable rise in service demands in natural disasters like a large casualty. We may have to go with doubling or tripling intensive care unit (ICU) beds, arranging adequate space for the incoming all patients, more recovery rooms, full-fledged field hospitals with all equipment, staffing and other facilities. We may have to cancel all elective surgeries and to discharge stable patients without delay. We shall have to arrange “just in time” training for the clinicians, the nurses and other auxiliary staff. The regional health and local hospital authorities should have clean-cut plans and policies to handle emergency situations. It may need to recruit and train more physicians, nurses and other health care staff. The hospitals should have a clear Line of Sight using call bells, windows, glass doors, communication and video devices, minimizing health staff entries into the patients’ rooms etc., still ensuring concrete and complete care of the patients. We need to remain alert for arranging clean air by minimizing air changes in patient rooms, with more frequent air changes in isolation rooms, lowering transmission of COVID-19 by installing high-efficiency particulate air filters and UV lights, lowering aerosolized transmission by electronic (bipolar ionization) filtration and high fresh air exchange, ensuring the best possible quality air in hospitals, waiting rooms and other common areas, entrusting emotional support to health workers like Frontline superhuman heroes for their extra-ordinary courage, energy, despite the probability of transmitting the disease to their family members. We should have stress management and resilience training especially in permanent easy-to-access mental and spiritual health centers. We are to continue wearing masks in the hospitals even if COVID-19 disappears apparently. Wearing masks along with

maintaining social distances and accurate hand washing dramatically lower air-borne and particle-borne COVID-19, as it spreads through respiratory droplets (like influenza) or aerosolized spread (like measles). We are to use Hi-Tech communication technology like electronic tablets, smartphones or other video aids to communicate with Friends, Families, Dear, Near and Far ones to restrict physical visits. We are to allow only minimal caches of excess supplies and minimum consolidated supply chains to curtail and cut expenses. We are to lower the loads of unusual physical documentation (hard copies), using multiple electronic medical records that should be continued even after the pandemic to allow health workers to have more time with patients and to get protected from exhaustion. Irrespective of racial, ethnic, cultural and literal identity, universal primary health care is to be provided to all concerned along with dissemination of antiracism, equity, plus involvement of all persons in regular patient care, recruitment practices and policies, organized partnership with community-based agencies and other ways to solve any problem. Counselling and psychosocial support are here much worthwhile. “Pandemic fatigue crisis” is affected by the cultural, social, structural and legislature factors. Physical activities and relaxation techniques are valuable tools to keep one calm and to protect one’s health. The WHO recommends 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical exercise and activity per week, or a combination of both of these two. Or in another way exercising physically 10–15 times or more, rest for 30–60 seconds, and repeating it up to 5 times. Not to exercise heavily if one has a fever, cough and dyspnea. Staying home to have optimum rest and seeking medical attention are of paramount importance. Walking or cycling along with physical distancing plus washing and cleaning hands are advised by and for health experts to keep oneself physically and mentally strong against COVID-19. Well-balanced diet makes healthier with stronger immune systems and reduced risks of illnesses and infections. Fresh and unprocessed foods every day gives one the needed vitamins, minerals, dietary fiber, protein and antioxidants. Drinking enough water, avoiding carbohydrates, lipids, oils and salt significantly reduce the risk of getting overweight, obesity, heart diseases, strokes, diabetes and certain types of cancer etc. The WHO recommends that ideally less than 5% of total energy intake for adults should come from free sugars (about 6 teaspoons) during quarantine. Canned vegetables like mushrooms, spinach, peas, tomatoes, green beans etc. have a longer shelf-life, that can ensure a sufficient intake of vegetables during COVID-19 quarantine. Such tuberous and root vegetables as carrots, turnips and beets as well as vegetables like cabbage, broccoli and cauliflower are relatively nonperishable. Garlic, ginger and onions are also of great options. These are to be preserved at home, as they can be used to add flavor to a variety of food items. A corticosteroid (like synthetic dexamethasone) is one of the most commonly therapeutically used medicine for complicated COVID-19. It is generally safe. It presents a favorable benefit-risk profile, especially in patients with severe pneumonia, but the benefit is less significant in patients with non-severe pneumonia. As it is being prescribed for a short-term treatment protocol, even at high doses, steroids are

not associated with serious side effects. Steroid induced hyperglycemia is usually temporary. Standard recommendations to prevent its spread also includes using a flexed elbow or disposable tissue while coughing or sneezing; avoiding close contact with COVID-19 and suspected COVID-19 patients who have fever and cough etc. Smoking and e-cigarettes are to be strongly prohibited as they substantially increase the risks of adverse health outcomes in COVID-19 patients. Coronaviruses die very quickly when exposed to the UV light and sunlight. Like all other enveloped viruses, COVID-19 virus survives longest when the temperature is at room temperature or lower and when the relative humidity is low (<50%). COVID-19 virus is killed at temperatures similar to that for other known viruses and bacteria found in food. People are not known to get infected with COVID-19 virus from food. Asymptomatic people like infected ones can transmit COVID-19. To prevent infection, one is to avoid touching surfaces, especially in public settings like health institutes, hospitals, clinics and in other facilities, in case COVID-19 patients have touched them. These potentially infected surfaces are to be cleaned regularly with ideal disinfectants.<sup>6</sup> Documented side effects to COVID-19 vaccines are minor. The vaccines are successfully lowering down infections, but the variants are still knocking awkward from its primary one of Wuhan to the current omicron one through thousands of known and unknown variants due to unusual high mutations at RBD (Receptor Binding Domain), at adjacent to furin cleavage site, nsp6 deletion and at nucleocapsid sites of the causative RNA virus. Hence, we are to remain always vigilant to fight whole-heartedly with it to remove its persistent threat. Vaccination alone can't prevent and halt COVID-19. All other preventive measures must be followed. Tele-medicine and tele-health have got a new normal place. The COVID-19 pandemic has distinctly caused dramatic rise of e-learning remotely on digital platforms. Online teaching and learning showed higher retention of information. But some students are there without uninterrupted internet access and technology. Through proper use of video capabilities, this problem can be solved. The pandemic has taught us that the e-learning technology can play a role in critical situations. The FSBs (Financial Stability Boards) in different countries of the world amidst the market turmoil underscored the needs to strengthen the market, the institutional and the operational resilience in the non-bank financial intermediation.<sup>4,7</sup>

We believe that the lessons we are still learning from the pandemic would improve global health care and hospital care delivery systems in day-to-day circumstances and in future urgencies and needs. The Covid-19 pandemic had uncovered the mistakes and terrible realities amongst the global heads. At this time of global COVID-19 threat, we are to have responsible politicians around the world for multilateral cooperation to entrust and achieve national and multinational goals complimenting and complementing one another. The COVID-19 pandemic had revealed a vast ocean of kindness and benevolence in our communities around the globe irrespective of caste, color, creed, religion, social and economic status. These lessons from the COVID-19 pandemic

should keep the world leaders and heads always unified for successful handling the current and the future calamities.<sup>1</sup>

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**ABM Moniruddin**  
Professor of Surgery  
Member of the editorial board