

Review Article

## ADVANCEMENT, COLLABORATION AND EFFECTIVE COMBAT IN LOW RESOURCE SETTING: PUBLIC HEALTH OVERVIEW AFTER ONE YEAR OF THE CORONA VIRUS PANDEMIC IN BANGLADESH

Afroz T<sup>1</sup>, Arman K. A<sup>2</sup>, Khurshid N<sup>3</sup>, Rahman S<sup>4</sup>

### ABSTRACT

**Background:** Current Coronavirus pandemic causing millions of deaths and unfathomable damage of nations worldwide, especially in health sector. Bangladesh is dealing with the biggest catastrophic public health event of the history in a courageous and effective way. An evidence based narrative review has been undergone to scientifically describe Bangladesh government's measures to encounter the Corona pandemic, so far. The aim of this study is to document the collaborative action of different ministries of Bangladesh government during this pandemic to understand the in-depth steps of the healthcare provision and disaster preparedness of the public-private-international association in a low-resource setting.

**Methods:** A literature review over five months has been conducted to write down the evidential narration of the activities against the pandemic damage in Bangladesh. Keyword and result based literatures and current media reports searched has been done.

**Selection criteria:** Both online and offline reports, descriptive articles, governmental portal and ministerial websites were reviewed. The description is reported specifically based on the documents directed by government to fight against COVID-19 from the beginning of the pandemic till the writing period.

**Findings and discussion:** In spite of the resource constraints, government of Bangladesh has been able to limit the damage in an optimal level. The inter- and- inter ministerial functional proposition and collaboration in national and international stakeholders initiated and sustained by the government strengthen the shield against the Coronavirus invasion.

**Conclusion:** The sufferings brought by the pandemic knows no bound. The pandemic damage and ruin are unspeakable and undeniable at the same time. It is time to observe the positivity and critically appreciate the efforts taken by the current governmental authority to make a constructive remark for present situation, and be prepare for future building of the nation.

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1. PRP, Icdrr,b, Mohakhali, Dhaka-1212, Mob: +8801812165022, Email dr.tamannaafroz@gmail.com
2. Registrar, Medical Oncology, Evercare Hospital, Dhaka-1229, Email: drkaziarman@gmail.com, Mob: +8801738300005
3. Registrar, Evercare Hospital Dhaka, Dhaka-1229, Email: naritadb24@yahoo.com, Mob: +8801797090548
4. Head of the Department, Occupational and Environmental Health (OEH), National Institute of Preventive and Social Medicine (NIPSOM), Mohakhali, Dhaka-1212, Mob: +8801712080139, Email: rahmanshafiur1971@gmail.com

\* **Correspondence:** Dr. Tamanna Afroz, Email- dr.tamannaafroz@gmail.com

### INTRODUCTION

The outbreak of Corona virus was declared in January 2020. It spread worldwide with all features of pandemic and was detected in Bangladesh at a time with other parts of the world. Like other countries,

both developed and non-developed, Bangladeshi health system was not ready for the COVID-19 aka Corona virus. The detection of the virus, infection control, prevention of spread, treatment and eventual death started in the usual course of pandemic.

Fortunately, the rate of infection and death in Bangladesh is lower than India or other overpopulated countries, considering the nature of transmission and contractability of COVID-19. Although the situation is worse during the second wave of the pandemic in 2021. However, government is catering the measures against pandemic at a highest grade within the resource limitation; health care delivery agents e.g., health care professionals, testing services, testing methods, treatment facilities, treatment provision scope, training, allocation of funds, research, surveillance, implementation of preventive measures and emergency preparedness for the COVID-19. After one year, it is an opportunity to look at the bigger picture to find out how the situation is going on with the room to learning and improve the healthcare with

a chance to reflect on the public health sector in a low resource setting.

### Corona virus severity in a nutshell

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is highly contagious. When an infected person coughs, sneezes or talks, respiratory droplets are generated and transmitted into the air, and then can be inhaled by anyone nearby. Additionally, a person who touches something with the virus on it and then touches his or her mouth, eyes or nose can become infected. This virus has exact similarity as Influenza Virus causing Flu pandemic during 1918 [1].



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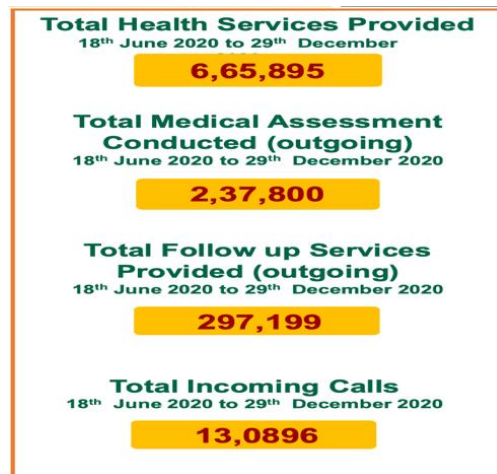
Figure 1: Digital health info on 08/02/2021 (www.corona.gov.bd).

According to website ‘Corona info’ by the Government of Bangladesh, total number of death by the virus infection is 7819 and the total number of infection is 524000 (CSSEGISandData/) till the beginning of January [2]. The coronavirus positivity rate is below 7-8% in Bangladesh, which was as high as 12% on certain point of time during the year 2020.

In this one-year, public health sector went through a huge advancement by adapting international guidelines and translating that into local care setup. National modification and adaptation of universal guidelines for pandemic is the first line preventive steps to fight against this microscopic virus. From testing to detection to prevention, the advancement is remarkable through newly developed testing facilities, such as gene techniques till district level, corona tracking and tracing, the involvement of health care professionals into corona wards in government as well as non-government health centers, outreaching of testing and treatment services till door to door, for instance COVID-19 telehealth center found everywhere in the country. Also, opening up towards online care and Corona app is the additional advancement during this pandemic.

Total number of laboratories for testing of SARS-CoV-2 is now 118 in the country.

Total number of patients took telemedicine services- 2603, with total number of assessments conducted by doctors- 1004, follow-up of services- 1175, incoming call- 424 (COVID-19 telehealth center daily report, 29<sup>th</sup> December 2020), while the total number of persons who get this service is 665895 [3].



**Figure 2: Digital healthcare scenario (Source: Directorate General of health services, DGHS, Ministry of health and family welfare, MoH&FW).**

The definition of pandemic explains the mass damage and destruction in community regarding health and wellbeing on a universal level. This kind of grave situation comes with greater challenge. Historically proven that a collective approach is needed to limit the death and sufferings.

The WHO International Health Regulations (IHR) Emergency Committee for the COVID-19 convened on 22 and 23 January emphasized that “it is expected that further international exportation of cases may appear in any country. Thus, all countries should be prepared for containment, including active surveillance, early detection, isolation, and case management, contact tracing and prevention of onward spread of COVID-19 infection, and to share full data with WHO” [4]. From the beginning, the local and international collaboration was established here in Bangladesh. Within local steps- multidisciplinary and inter ministry connection was maintained with proper planning and co-ordination from July 2020 [5]. The Health ministry welcomed all international collaborative initiatives with appropriate attention and received the health care options as necessary to prevent the lethal COVID-19. Along MoH&FW, there is public health support from both international and national NGOs helped in testing site, treating facilities, preventing (such as supply of PPE etc.), training of professionals, research to improve healthcare, establishing COVID center. This mass co-ordination brought significant improvement to combat COVID-19 effectively [5].

The implementation of the “Digital Bangladesh 2021” vision launched by the country in 2009, the entire health sector (including national, sub-national and grassroots community health workforce) is digitally connected to robust national databases [6]. This pre-improved digitalization of the health infrastructure is a milestone in a developing country, namely Bangladesh, which eventually helped in combat of Corona pandemic [7][8].

Corona virus affected us both internally and externally. Internally, COVID-19 infection has increased the disease burden in community enormously by compromising the immunity of human body. Externally, personal, familial and social limitation has been vastly paralyzed by the pandemic. According to WHO guideline vital steps to control corona virus are: a) prompt detection of infectious Corona infected patients, b) airborne precautions, and

c) the treatment of people who have suspected or confirmed the disease [9]. Since there is no treatment has been established for the COVID-19 patients yet other than symptomatic, it is mandatory to follow the preventive measures. Initially government followed the WHO suggested worldwide lockdown in the country. To implement this huge task, clustered connecting actions through different ministries and governmental officials was done to hinder the spread and transmission of the Corona virus. Evidently, these measures are limiting to physical movements, adopting new habits and ceasing social interactions [10] [11]. This leads to, everyone in general to be adoptive towards these preventive measures, which limits peoples’ daily life in many ways bringing physical less mobility, mental health crisis, disrupting communication, financial cripple and social turmoil etc. [12]. The pandemic situation is highly challenging for every country, nonetheless Bangladesh is included. However, the country showed brave and efficient strategic preparedness towards the emergency as well as long term pandemic management all over the country, even hard to reach areas [5].

In June, the country made a visionary plan of activities in response towards the noxious Corona virus invasion, which was started under a national plan through committees from national to grassroot level that is upazila. This multisectoral involvement was from the ministry; United Nations agencies, NGOs, INGOs, and other development partners. The plan was based on a “pillar-based multi-sectoral coordination mechanism” (Corona Single Plan, June 2020) [5]. The outcome was expected to develop immediate complete ability to manage patients, to sustain essential services and to reduce social impact of Corona pandemic on mass level. There would be iterative process of review and adjustment for the effective financial and manpower allocation, was suggested in the plan by taking into account of updated international guideline including WHO [5]. According to the most recent data, it is evidential that Bangladesh government has managed the Corona virus infections in population effectively and there is less infection counted per day in recent days [13] [14].

If we look back, the objectives of “single plan suggested in June 2020 was:

1. To establish, strengthen and maintain surveillance capacity nationwide for the detection, reporting, and monitoring and COVID-19 cases, including requisite laboratory capacity;
2. To slow the rate of community transmission and prevent amplification events;

3. To prevent transmission and enhance infection prevention and control in health care settings;
4. To identify, isolate and care for patients early and effectively;
5. To ensure continuation of essential health and nutrition services;
6. To communicate critical risks, disease information, and best practices to the communities and counter misinformation.” [5]

As evidenced above, these goals are highly achieved on optimal level, considering the resources and the challenges imposed by the pandemic.

Although, coronavirus positivity rate is below 7-8% in Bangladesh, it is mandatory to prevent Corona virus invasion in our daily life. However, this infection rate went up to 60% during the beginning of 2021 with second wave of the viral attack. Proven fact is, the vaccination is the key to bring back the usual virus free lived life for everyone, as prevention is the best

management in this regard. The newly developed Corona vaccine regulated in collaboration of COVAX (generated by WHO and member countries) is tested in many countries and allowed in Bangladesh for mass inoculation from this January [15]. This vaccine is allegedly protective against SARS-CoV-2 [16]. Bangladesh is one of the countries to import Corona vaccine and making it available for public from all parts of the society.

For long term public health improvement and capacity building of the nation, research is mandatory, where documentation, data storing, and epidemiological assessment would be possible. Bangladesh Medical Research Council (BMRC) along with other research institute, such as National Institute of Preventive and Social Medicine (NIPSOM), ICDDR,b, Brac, TB & Leprosy department of MoH&FW, has concentrated their research wing on Corona pandemic [17]. Their recommended research area is focused on Corona related topic and prioritized on their respective websites.

**Figure 3: Screenshot from the website of Bangladesh Medical Research Council (BMRC). (Source- <https://www.bmrcbd.org/>)**

No success is without limitation and controversial debate. There are two repeatedly mentioned pitfalls by media and other experts-

- Experts believe the actual death figure could be higher as government statistics include only coronavirus-related deaths that occurred in hospitals.
- Observers also say that the authorities have made limited effort to create enough public awareness about the long-term impact of the virus. [18]

During any crisis situation, government has to take many decisions depending on the grade of severity of the emergent hazard. Current pandemic has proven that many developed countries are non-efficient to tackle Corona virus. In United States of America, the healthcare system has totally failed to respond to Corona virus pandemic with very high number of deaths and infected persons. This also applies to many rich countries, such as Brazil. Our neighboring country India failed to manage the pandemic. Historically many vital political dilemmas arise during pandemic, for example during Spanish flu pandemic in 1918. Fortunately, healthcare delivery in collaboration with involved ministries in Bangladesh is dealing with the Corona pandemic courageously. Firstly, there was countrywide lockdown, mass health awareness, mass preventive behavior development (e.g. using mask

everywhere as government regulation), As a result of good governance, in spite of low resource setting, Bangladesh is optimizing the capacity of fighting the pandemic significantly through technological advancement, multisectoral coordination, adequate health facilities, proper healthcare delivery management, preparedness and timely ‘all in one’ engagement of various stakeholders.

Frontline Associated organizations in combat of Corona Pandemic:

1. Ministry of Health and Family Welfare (MoH&FW)- Central stakeholder for decision making and implementation for pandemic control and management: both short term and long term;
2. Directorate General of Health Services (DGHS)- Central stakeholder for decision making and implementation for pandemic control and management: both short term and long term;
3. Institute of Epidemiology, Disease Control and Research (IEDCR)- early detection of cases, epidemiological measures, testing initiation, statistical documentation, disease control programs, planning, training of health care professional, collaboration and engagement with MoH&FW and other stakeholders;

4. Post and Telecommunications Division of Bangladesh Government (PTD);
5. National Telecommunication Monitoring Center (NTMC) - Central active agent for 'www.coronaifo.gov.bd', website.corona.gov.bd, www.shastobatayon.gov.bd.
6. Cabinet Division of Bangladesh Government- Umbrella agent of Corona pandemic management body;
7. ICT department of PTD- Central active agent for 'www.coronaifo.gov.bd', website.corona.gov.bd, www.shastobatayon.gov.bd.;
8. A2i of PTD (Multidivisional and associated effort of NGOs & INGOs);
9. Ministry of Finance (MF)- Budgeting, emergency allocation of resource and prioritization of pandemic situation;
10. Ministry of Planning division- Planning and addressing the single plan action for pandemic;
11. Ministry of Defense- Employing structural support for lockdown implementation;
12. Ministry of Public Administration, Home Affairs and Law, Justice and Parliamentary Affairs- Attachment of decision making, resource allocation, top level guidance regarding pandemic control and management among other hierarchical collaboration and coordination;
13. Ministry of Primary and mass Education- Participatory actions, including lockdown, examination regulation and closedown & maintenance of pandemic preventive measures;
14. Ministry of Foreign affairs- liaison maintenance and authorized communication;
15. Ministry of Expatriates' Welfare and Overseas Employments- Expatriates welfare initiatives due to pandemic, includes listing, corona awareness, quarantine surveillance etc.;
16. Ministry of Disaster Management and Relief – Planning, preparedness and support against public health crisis;
17. Ministry of Social Welfare- By taking direct financial and subsidiary for the grassroots population during the Corona pandemic;
18. Collaborative efforts of other ministries including Ministry of Employment, Ministry of Agriculture, Food, Ministry of Cultural affairs, Ministry of Children and Women affair, Ministry of Civil Aviation and Tourism among others;

19. International and National Non-Government Organizations (INGOs & NGOs), such as World Health Organization (WHO), United Nations Development Program (UNDP) etc.

On personal level, for reducing Corona virus sufferings for mass population, we ceased our natural personal movements and put many different social boundaries [19] [20]. This included many modern-day technological adaptations from ministerial work to buying groceries. On a community level, we learn to live a new life as a coping mechanism to survive against the COVID-19. On the governmental level, all possible form of national steps is taken after accepting limitations of resource and manpower. This compromised situation brought innovative personal, professional and social life, which is important to redesign the future days for the citizen of Bangladesh.

### **CONCLUSION**

Pandemic is a worldwide catastrophic phenomenon, which is inevitable to uproot in one attempt. We need to understand and document the current world order and make a rational strategic and programmatic assessment of the impact of the pandemic on macro to micro level of the society. This can give us the opportunity to accommodate and appreciate the balance between the budget constraint environmental and pandemic management of Bangladesh government with its long term and short-term achievement during Corona pandemic. Hopefully, governmental initiative would be effective in management of ongoing second wave of corona virus invasion as well and reduce the public health damage to a greater extent.

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