EDITORIAL

CHALLENGES OF STARTING DIAGNOSIS OF COVID-19 IN BANGLADESH

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Coronavirus disease 2019 (COVID-19) is the official name given by the World Health Organization (WHO) to the disease caused by SARS-CoV-2, the new coronavirus that surfaced in Wuhan, China in 2019 and spread around the globe. By March 2020, COVID-19 was so widespread that the WHO characterized it as a global pandemic, a disease outbreak that covers a wide geographic area and affects an exceptionally high proportion of people.

People who have been infected with COVID-19 respond in different ways. Some report mild symptoms or no symptoms at all others experience severe symptoms, are hospitalized, and even die from the disease. COVID-19 is being diagnosed by next generation sequencing, real-time RT-PCR, cell culture, and electron microscopy in human clinical specimens all over the world[1]. There are currently several NAAT (Nucleic Acid Amplification Test) multiplex tests available commercially to identify pathogenic species in respiratory specimens in clinical virology laboratories[2-4]. The preferred method for the diagnosis of COVID-19 is the real-time reverse transcription-polymerase chain reaction (RT-PCR), which uses a nasopharyngeal swab or sputum sample sequencing[2].

Experts criticized the lack of tests carried out in this country with more than 160 million inhabitants. Newspaper and social media continued reporting further deaths of COVID-19 symptoms than the deaths reported due to COVID-19. Certain deaths in COVID-19 isolation centers, while some were denied treatment in the districts, but no tests were carried out to confirm infection. Earlier, only the Institute of Epidemiology, Disease Control and Research (IEDCR) had operated COVID-19 testing in Bangladesh[6]. It was stated by Dr. ASM Alamgir, principal scientific officer of IEDCR that nasal and throat swab samples were taken from the patient at first, sample collectors were then sent from Dhaka who are experienced in collecting respiratory samples, and then the samples were processed via real-time RT-PCR, a laboratory technique for in vitro qualitative detection of COVID-19, which were only available at the IEDCR in Bangladesh[7]. The US Centers for Disease Control and Prevention suggests using a laboratory of BSL-3 (Biosafety Level-3) when dealing with live viruses. In Bangladesh, two BSL-3 laboratories are labeled, one at ICDDR,B and the other at IEDCR[5]. COVID-19 testing was centralized for a long time only in the IEDCR, in the capital Dhaka, although symptomatic patients were reported all over the country[5]. The Directorate General of Health Services (DGHS), previously, had not allowed private laboratories to conduct COVID-19 tests because they might be more interested in doing business than assisting in the crisis[6]. At first, COVID-19 research facilities were in Dhaka alone, and there was no intention to extend them outside capital due to lack of qualified staff. The former regional adviser of WHO, Muzaherul Huq, by the end of March advised to equip the large hospitals and institutions in the country, such as Bangabandhu

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Sheikh Mujib Medical University Hospital, Combined Military Hospital, ICDDR,B, Dhaka Medical College Hospital, Chattogram Medical College Hospital, Khulna Medical College Hospital, Rajshahi Medical College Hospital, Shere- Bangla Medical College Hospital, Bogura Medical College Hospital and Rangpur Medical College Hospital to test COVID-19 in Bangladesh[6].

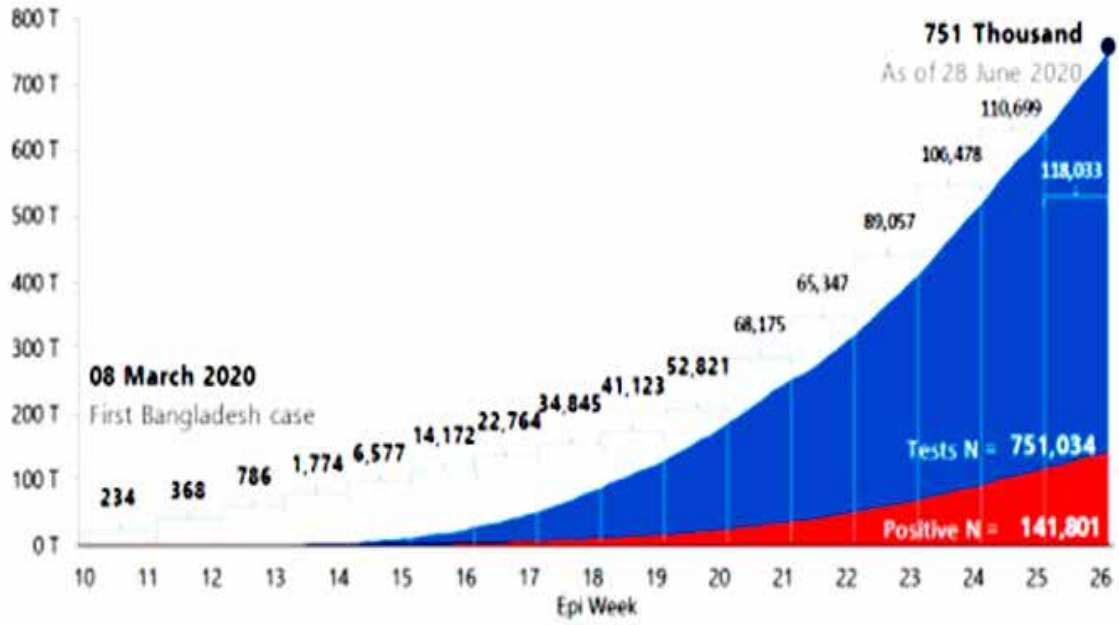
In Bangladesh, the number of COVID-19 testing laboratories have only risen over time and approximately 4,410 tests per million people have been carried out till June 29, 2020 that are still not enough. By June 29, 2020, a total of 751,034 COVID-19 tests were conducted by 67 laboratories, with a total positive rate of 22.5% in Bangladesh (36 laboratories in Dhaka and 32 laboratories in other divisions of the country). Laboratories inside Dhaka city tested 63.1% of all the samples of COVID-19 whereas 37.9% of the samples were tested from laboratories outside Dhaka[8].

Gonoshasthaya Kendra, a Bangladeshi private hospital, had reported to develop Rapid Dot Blot, by a technical team of Gonoshasthaya-RNA Biotech Limited, a low priced testing kit that could analyze samples to detect Covid-19 as quickly as in 15 minutes on March 18, 2020, at a cost of Tk 2 crore. The kit developed by Gonoshasthaya-RNA Biotech Limited in Bangladesh was similar to one developed by scientists in China in January 2020, as the COVID-19 outbreak escalated in Hubei province in China. The kit uses the Rapid Dot Blot technique to identify positive cases of COVID-19 within 15 minutes and searches for antibodies that are produced in the body, in response to infection with the virus and would approximately cost less than $ 3 dollar. As the rapid test is based on the presence of appropriate antibodies in the blood, factors such as duration of the test, existing infections, a person's immune system, cross-reaction with certain antigens may lead to false results. RT-PCR, under normal circumstances, is the only 'gold standard' test for COVID-19 detection but the current situation is far from normal, and so, countries like Bangladesh suffer from intense COVID-19 test kit crisis, a rapid dot blot test could be given a fair chance[6].

In Bangladesh, On May 27, 2020, The Designated Reference Institute for Chemical Measurements (DRICM) developed viral transport media or VTM kits and reported that the chemical materials used in VTM kits are easy to collect, transport and preserve. They had supplied 5,000 kits to the Directorate General of Health Services or DGHS. The collection includes pipeline, nasal and nasopharyngeal swabs and oropharyngeal swabs. They also possess a tongue holder for easy oropharyngeal swab collections and can store samples for three days at a temperature of 4 degrees Celsius. The kits are hoped to reduce the risk of infection and contamination of samples among health workers. Such kits could also save the money used for importing swabs and tubes from Bangladesh[6].

Figure shows the cumulative number of weekly COVID-19 conducted tests and positive rates; from March 08, 2020 to June 29, 2020, Bangladesh.

Source: WHO-Bangladesh situation report-198; Permission ID: 350039



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