

*Invited Commentary*

**Key findings regarding COVID 19 in Bangladesh and wider and their implications**

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COVID-19 was first identified in Wuhan, China, in December 2019<sup>1-4</sup>, and by mid-August 2021, there were over 208 million confirmed cases worldwide with more than 4.3 million deaths giving a case fatality ratio of 2.1%<sup>5</sup>. There have also been appreciable unintended consequences of COVID-19 as a result of lockdown and other measures<sup>4</sup>. These include a rise in non-communicable diseases (NCDs), reduced number of vaccinations among children due to lockdown and other measures as well as fear attending clinics, and economic hardship with implications for rising domestic violence and child labour especially in low- and middle-income countries (LMICs)<sup>6-11</sup>. There have also been consequences regarding the education of students and healthcare professionals following closure of universities and other restrictions as well as for ongoing research activities<sup>12-15</sup>.

Many of the unintended consequences were as a result of necessary preventative measures to reduce the spread of COVID-19. These included early lockdown measures and closure of borders in the absence of effective vaccines and treatments certainly initially, with preventative measures shown to reduce morbidity and mortality from COVID-19<sup>4,16-20</sup>. However, there are concerns that the distribution of effective preventative measures including protective equipment and vaccines has

been disproportionate between countries<sup>20</sup>, which has implications for all countries especially with the rising number of new variants. The lack of protective equipment for frontline health workers also has implications for their health and that of their families when they necessarily treat patients with COVID-19. This necessitates a greater focus on utilitarianism among all key stakeholder groups in this and future pandemics going forward<sup>21</sup>.

Consequently, there is a need to consolidate recent findings to provide future direction to all key stakeholder groups. This includes assessing the preparedness of countries to deal with the pandemic, with considerable differences in the nature and extent of early lockdown and other preventive measures among a number of African and Asian countries versus for instance Western European countries and the USA, and the subsequent implications on morbidity and mortality rates certainly initially<sup>18,22-24</sup>. As a result, the objective of this invited summary is to consolidate key findings from this 2021 Special Issue on COVID-19 published in the Bangladesh Journal of Medical Sciences, and subsequently contextualise these to provide future direction.

One of the key areas of concern arising from the pandemic has been the level of misinformation.

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This includes potential treatments such as hydroxychloroquine and remdesivir, with the initial hype surrounding hydroxychloroquine resulting in shortages, price rises and deaths<sup>4,25-28</sup>. Hossain *et al.* discuss potential ways forward to enhance public awareness and good behaviour regarding the COVID-19 pandemic, which incorporates potential ways to reduce rising prevalence rates, morbidity and mortality. Possible initiatives include addressing key concerns initially such as a lack of protective equipment and proper training among healthcare professions as well as lack of testing facilities<sup>29</sup>. The scale up of testing has been a key issue among many African and Asian countries in the early stages of the pandemic, with new approaches being developed to meet identified needs<sup>18,22,23,30,31</sup>. This is now changing.

Sarmis *et al.* in their paper discuss potential ways to provide a better understanding of the likelihood of predicting which patients actually have COVID-19 on admission to emergency rooms, impacting on subsequent care pathways<sup>32</sup>, with Afrin *et al.* assessing the potential for D-Dimer and serum ferritin levels as reliable biomarkers to assess disease severity<sup>33</sup>. Alongside this, Haq *et al.* have looked to develop kits to improve home testing of antibodies against COVID-19 with a high specificity (96%)<sup>34</sup>. This offers the potential for such kits to be widely used to determine antibody levels among the population at large in Bangladesh; consequently, to better understand the possibilities of herd immunity<sup>34</sup>. This is important as there have been concerns with forecasting the potential rise in cases and their subsequent impact on morbidity and mortality. Improving forecasting has appreciable implications for health planners, with Saxena *et al.* in their paper discussing possible statistical approaches to improve this in the current and future pandemics<sup>35</sup>. Improved planning includes dedicated COVID-19 wards as well as re-organising emergency trauma intensive care units (ICUs) to deal with an increasing number of patients with severe COVID-19. Amir *et al.* in their paper discuss the challenges and strategies for converting an emergency and trauma ICU into a COVID-19 ICU in a LMIC tertiary hospital to provide future direction<sup>36</sup>. Hardcastle *et al.* also discuss management issues with dealing with trauma resuscitation in a leading LMIC during the pandemic to again help with future planning<sup>37</sup>.

Sartelli subsequently discusses key measures in hospital to prevent and control infections to improve the care of patients with COVID-19. These

include encouraging regular hand and addressing environmental hygiene, identification and isolation of patients with COVID-19, surveillance and antibiotic stewardship<sup>38</sup>. Antibiotic stewardship programmes are especially important given the extent of inappropriate prescribing of antibiotics for patients with COVID-19 in Bangladesh and wider, with only a small minority of patients actually having bacterial or fungal co-infections<sup>39-43</sup>. This also includes high prescribing rates for antibiotics among children with COVID-19 in hospitals in Bangladesh despite guidelines advocating more prudent use<sup>44,45</sup>. Additional concerns among children in hospital include the high use of parenteral antibiotics with very limited switching to oral antibiotics, negatively impacting on costs and length of stay<sup>45</sup>. Encouragingly though, Nusrat *et al.* found very limited prescribing of antimalarials, antivirals and antiparasitic medicines in their recent pilot study among children in hospital with COVID-19 despite the initial hype<sup>45</sup>. The monitoring of neurological symptoms in patients with COVID-19, including potential clotting disorders, is also becoming increasingly important in patients with COVID-19 as more is known about the clinical manifestations arising from this virus<sup>46,47</sup>.

The instigation of large multi-arm studies, including the World Health Organisation (WHO) Solidarity Trial and the UK Recovery Trial, have shown the value of instigating such large evidence-based studies to rapidly provide future guidance and address concerns with misinformation<sup>4,28,41,48,49</sup>. The same philosophy can be applied to research into potential long-term effects of treating patients with COVID-19 with medicines such as immunosuppressants. This includes the emergence of mucormycosis in patients with COVID-19. Greater collaboration is needed to research mucormycosis further, including potential treatments, with most publications to date being case reports rather than a co-ordinated research effort<sup>50</sup>.

However, social media has been positive with alleviating concerns with personnel and funding to address the challenges faced particularly by low-income countries with addressing the pandemic. Encouragingly in their paper, Rashid *et al.* found that the likes, reach, and shares of Facebook and other posts, significantly correlated with the number and extent of donations during the initial phases of the IMAM Response and Relief Teams (IMARET) under the Islamic Medical Association of Malaysia<sup>51</sup>. This has important implications for the future. Social media and other activities can also help

dispel concerns with the vaccines developed for COVID-19<sup>52-54</sup>. This includes addressing key issues among the public embracing for instance vaccine hesitancy, which is important for containing the virus and reducing future morbidity and mortality<sup>55-57</sup>.

There are concerns with COVID-19 in both obese and undernourished patients, with co-morbidities with diabetes known to increase mortality in patients with COVID-19<sup>58,59</sup>. Akter *et al.* in their paper stress that there needs to be adequate management of these patients to limit the susceptibility and severity of COVID-19 including potential modification of treatment where pertinent<sup>59</sup>. Prompt glucocorticoid adjustments are also required in patients with COVID-19 suffering from adrenal insufficiency<sup>59</sup>.

Mental health has also been a key issue arising from the pandemic that needs to be adequately addressed. In their article, Opanasenko *et al.* discuss further the mental health impact of gender-based violence and factors contributing to it, as well as specific COVID-19 stressors and populations particularly at risk from mental health or violence consequences<sup>60</sup>. Hassnain *et al.* also discuss the impact of COVID-19 and its consequences on medical students as a result of preventative and other measures<sup>61</sup>. This builds on findings with students across countries<sup>62-64</sup>. Overall, concerns with the mental health of the population have been a particular focus as a result of the current pandemic, increasing awareness that mental health services have typically been underfunded among many countries including many LMICs<sup>9,65-68</sup>. Stressors identified by Opanasenko *et al.* include confinement, social and economic disruption, closure of schools and child care facilities as well as health anxiety<sup>60</sup>. Tarsuslu *et al.* also highlight increasing stress among especially mothers and the parent-child relationship arising from lockdown measures<sup>69</sup>. The authors emphasise that there should be increased psychosocial support especially for mothers during pandemics to help address these concerns and challenges<sup>69</sup>.

As mentioned, the instigation of lockdown and other measures has impacted on health sciences research. Rafat and Khan in their article discuss potential ways forward including Thesis Mentorship Programmes (TMP). The majority of residents surveyed as part of their research were satisfied with the support offered by TMP by key members of the department, helping them to continue with research projects despite the many challenges<sup>70</sup>. Yusof, Islam and Ashiq *et al.* in their respective papers discuss the many challenges to

higher education including physician and pharmacy education as a result of the pandemic, with both educators and students struggling initially to adapt to new online learning approaches<sup>15,71,72</sup>. There can also be concerns regarding ways to adequately address the many challenges associated with practical training and experiments among healthcare students<sup>15</sup>. However, there can also be opportunities from online approaches including greater flexibility and more opportunities for educators to regularly check on student understanding and progress<sup>72</sup>. Yousuf and Salam as well as Islam in their respective papers subsequently discuss potential ways to address these challenges and conclude that careful planning and good co-ordination in teaching delivery, with the aid of online educational technologies and tutorials to address the many challenges, can enhance successful online learning<sup>72,73</sup>, with similar examples seen on other countries<sup>74</sup>. However, this requires familiarisation and proper training of current software technologies<sup>72,73</sup>.

Improved planning as well as the continued development and launch of effective vaccines and treatments are essential to prevent successive waves of COVID-19, with for instance the second wave seen to have a devastating effect among different states in India<sup>75</sup>. Improved surveillance of emerging strains can also enhance future preventative measures including the development of new vaccines where pertinent<sup>76</sup>.

In conclusion, we have seen the COVID-19 pandemic appreciably increase morbidity and mortality worldwide. However, ongoing research into effective vaccines and treatments, as well as improved processes in hospitals, will help to reduce future morbidity and mortality. A number of challenges still need to be addressed given the unintended consequences arising from managing the pandemic. These include effective ways to address the training of healthcare professionals as well as addressing concerns with rising rates of NCDs including the mental health of the population. This special issue of the Bangladesh Journal of Medical Science discusses and reviews many of these key issues providing direction for the future.

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