

BANGLADESH MEDICAL RESEARCH COUNCIL (BMRC)

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Recommendation: Area of Research on COVID-19 in Bangladesh

The COVID-19 pandemic has thrown challenge to health and socio-economic system of Bangladesh as well as the whole world. One of the effective instruments to face the challenge is research and innovation. Research and innovation play increasingly important roles during, after, and in anticipation of public health emergencies. According to WHO, conducting research is linked to “a moral obligation to learn as much as possible, as quickly as possible.” It is important to emphasize that research– implemented as policy and practice – can save lives and needs to be integrated into the response from the beginning.

Bangladesh Medical Research Council (BMRC), as a focal point for health research in Bangladesh has undertaken initiative to facilitate and fund research on COVID-19 pandemic control in Bangladesh. We witnessed an unprecedented enthusiasm among the researchers in Bangladesh, who are keen to investigate the pandemic particularly utilising the existing and new collaboration. Our scientists will not fall behind the scientific community of the globe. To streamline the enthusiasm for an effective outcome, BMRC recommends the following areas for COVID-19 pandemic research.

1. Epidemiological studies

- 1.1.** Characterize the spectrum of disease and indicators of disease severity (case-hospitalization ratio, case-fatality ratio, % with pneumonia, ICU admission, death)
 - 1.1.1. By age
 - 1.1.2. By potentially high-risk populations (e.g. Co-morbid, pregnant women, HCWs, elderly etc.)
- 1.2** Transmission dynamics
 - 1.2.1 Basic and Effective Reproduction number (R_0 , R_t etc)
 - 1.2.2 Incubation period
 - 1.2.3 Serial interval
 - 1.2.4 Secondary infection and clinical attack rate
 - 1.2.5 Role of asymptomatic/subclinical transmission
 - 1.2.6 Duration of infectiousness as measured by viral shedding
- 1.3** Disease burden
 - 1.3.1 Prevalence studies among symptomatic and asymptomatic – population estimates
 - 1.3.2 Seroprevalence studies among symptomatic and asymptomatic
 - 1.3.3 Serological response among symptomatic and asymptomatic
 - 1.3.4 Seroprevalence among special population group like the Slum, ethnic group, ‘Forcibly Displaced Myanmar Nationals (FDMN), different occupational groups

2. Intervention studies (vaccine, treatment options)

- 2.1** Clinical trials of Vaccines and Therapeutics
- 2.2** Evaluation of diagnostics including point of care diagnostics
- 2.3** Evaluate impact of control and mitigation measures. This may include:
 - 2.3.1 Determination and evaluation of the most effective measures to mitigate the health effects of the disease on the general population, and/or specific at-risk groups and/or specific settings such as health-care settings, schools or other work-places
 - 2.3.2 Determination and evaluation of the most effective measures to reduce the acute burden on healthcare providers and others delivering essential support and care, and to mitigate the health effects on health-care providers
 - 2.3.3 Estimation of the effects of social distancing measures and other interventions on transmissibility
 - 2.3.4 Comparative analysis/impact assessment for infection control intervention measures

3. Infection prevention & control including health care workers' protection

- 3.2 Transmission in health-care and community settings
 - 3.2.1 Effectiveness of restriction of movement of healthy exposed and infected persons to prevent secondary transmission - home, congregate settings, geographical restriction vs nothing
 - 3.2.2 Effectiveness of personal protective equipment (PPE), its adaptations in resource-poor/crowded environments and its use in reducing the risk of transmission in health care and community settings
 - 3.2.3 Assessment and mitigation of secondary health impacts of infection control strategies such as lockdowns. For instance, the impact on mental health issues, nutrition status, increased domestic/interpersonal violence, access to water and sanitation facilities.
 - 3.2.4 Role of the environment in transmission of the SARS CoV-2 virus e.g. transmission in informal settlements.
- 3.3 Understand societal, economic, organizational, behavioural and cultural influences on adherence to evidence-based Infection Prevention and Control (IPC) measures. This may include, for instance,
 - 3.3.1 Implementation research relating to use of diagnostic tests for containing the epidemic
 - 3.3.2 Determining how the test-trace-isolate approach can be adapted to be contextually appropriate and effective
 - 3.3.3 Context-sensitive implementation of public health handwashing and sanitation advice in low resource settings
 - 3.3.4 Context sensitive studies into vaccine preparedness and vaccine-related communications and engagement

4. Clinical Studies

- 4.2 Natural history of COVID-19 infection (e.g. Prognostic factors for severe disease and clinical processes, long term outcome)
- 4.3 Interventions that improve clinical outcomes for COVID-19 infected patients (including viral load, disease and transmissibility, markers of protection)
- 4.4 Determine optimal clinical practice strategies to improve the processes of care (including early diagnosis, discharge criteria, optimal adjuvant therapies for patients and contacts);
- 4.5 Consideration of how to manage outcomes when there are other co-existing conditions e.g. mental illness, CVD, diabetes, cancer etc.
- 4.6 Pharmacovigilance of the new drugs and vaccine when introduced

5. Social Sciences studies

- 5.2 Health systems research relevant to the outbreak; wider impacts of the pandemic on the health system; and public health messaging.
- 5.3 Generate high-quality evidence to achieving the goals of the strategic public health response plan.
- 5.4 Promote the prioritization of knowledge needs according to epidemic dynamics.
- 5.5 Promote that knowledge is produced according to local, national and regional needs.
- 5.6 Promote that knowledge outputs and methodological limitations are easily understood by non-social scientists.
- 5.7 Develop guidelines and Standard Operating Procedures (SOPs) to operationalize epidemic mitigation mechanisms.
- 5.8 Engage with communities to bring their voices to research and decision-making processes.
- 5.9 To understand cultural, long-term, and non-intended consequences of epidemic-control decisions.
- 5.10 Understand how decisions in the field may inadvertently undermine response goals.
- 5.11 Document how COVID-19 and the health system response affect the supply and access to other health care provision (such as maternal health, immunization, routine surgeries, chronic disease care etc); and determining strategies to mitigate this;

- 5.12 Effective health systems responses to the epidemic: addressing issues such as health, wellbeing and effectiveness of the health workforce; supply chain management, financing, optimal implementation of clinical management and infection control measures.
- 5.13 Understanding and mitigating contextual vulnerability of health systems
- 5.14 Impact of COVID 19 Pandemic in personal life, family life & social life of undergraduate & postgraduate medical students.
- 5.15 Knowledge attitude & practice about COVID 19 Pandemic prevention among the people of Bangladesh [upper, middle & low socioeconomic class]

6. Health Education

- 6.2 Evaluation of the undergraduate medical curriculum of Bangladesh in relation to COVID 19 Pandemic and other emerging and reemerging diseases
- 6.3 Evaluation of the Postgraduate medical curriculum [all MPH courses] of Bangladesh in relation to COVID 19 Pandemic and other emerging and reemerging diseases

7. Health System Studies

- 7.2 Review of performance of public health system to manage COVID-19 for reform, reorganization and strengthening
- 7.3 Review of performance of clinical service system to manage COVID-19 for reform, reorganization and strengthening
- 7.4 Health manpower
 - 7.4.1 Analysis of health workforce in terms of demand, utilization, efficiency during Covid19 and in future
 - 7.4.2 Assessment of managerial capacity from Upazila, district, division, directorate and ministry
 - 7.4.3 Efficiency in prevention and control of Covid19 pandemic
- 7.5 Disease Surveillance and rapid response
 - 7.5.1 Feasibility to establish functioning Epidemiology units from national to Upazila level

8. Animal and environmental research:

- 8.2 Presence and transmission of SARS COV- 2 virus in human, animal and environment
- 8.3 Management measures at the human-animal interface

9. Ethics:

- 9.2 Ethical practice in clinical management, vaccines trial, diagnostics trial, therapeutics trial,
- 9.3 Ethical issues in digital contact tracing

10. Genetic studies of COVID-19

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