

A Final Project Report on

Planning for Non-Communicable Disease and Disorders Research Training Program in Low- & Middle-Income Countries (D71)



Clinical Research Platform Bangladesh Award night, 2019



A Final Research Performance Project Report

on

**“Planning for Non-Communicable Disease and Disorders Research Training Program in
Low- & Middle-Income Countries (D71)”**

Grant No: PAR-17-097

Submitted by:

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Fogarty



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Program Faculty:



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Project Director
Scientist, Head, Initiative for Non communicable diseases,
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Prof. Habibul Ahsan
Joint Project Director
Louis Block Professor, Department of Public Health Sciences, Department of Medicine - Section of Human Medicine, Committee on Cancer Biology , University of Chicago



Dr. Muhammad Yunus
Emeritus Scientist
MCHD, icddr,b



Prof. Zuo-Feng Zhang
Professor, Associate Dean for Research
University of California Los Angeles



Vivekanand Jha
Professor of Nephrology
The George Institute for Global Health



Dr. Dewan S Alam
Visiting Professor, Faculty of Health
York University, Canada

D71 Fellows:

❑ Clinical fellows: 17

Name of the Clinical fellows

1. Dr. AKM Monwarul Islam, Associate Professor, NICVD
2. Dr. Fatema Doza, Associate Professor, NICVD
3. Dr. Mohammad Arifur Rahman, Junior Consultant, NICVD
4. Dr. Farhana Ahmed, Registrar, NICVD
5. Dr. Kaniz Fatema Ananya, Medical Officer, NICVD
6. Dr. Fatima Zohra, Psychiatrist, NIMH
7. Dr. Md. Abdullah Al Mamun, Psychiatrist, NIMH
8. Dr. M M Jalal Uddin, Associate professor, NINS
9. Dr. Tanvir Haider, Research Assistant, NINS
10. Dr. Mir Ishraqzaman, Consultant, NHF &RI
11. Dr. Kalim Uddin, Assistant professor, NHF & RI
12. Dr. Hasinatul Zannat, Medical Officer, Department of Nephrology, BSMMU
13. Dr. Ashok Kumar, MS (Thesis part), Department of Cardio Thoracic Surgery, BSMMU
14. Dr. Mohammad Ashraf Uddin Sultan, Research Assistant, Department of Cardiology, BSMMU
15. Dr. Redoy Ranjan, Medical Officer, BSMMU
16. Dr. Shoib Ahmed, Honorary Medical Officer, NICRH
17. Dr. Jannat Ara Shefa, Research Physician, Institute of Pediatric Neuro Disorder & autism(IPNA), BSMMU



❑ Research fellow: 8

Name of the Research fellows

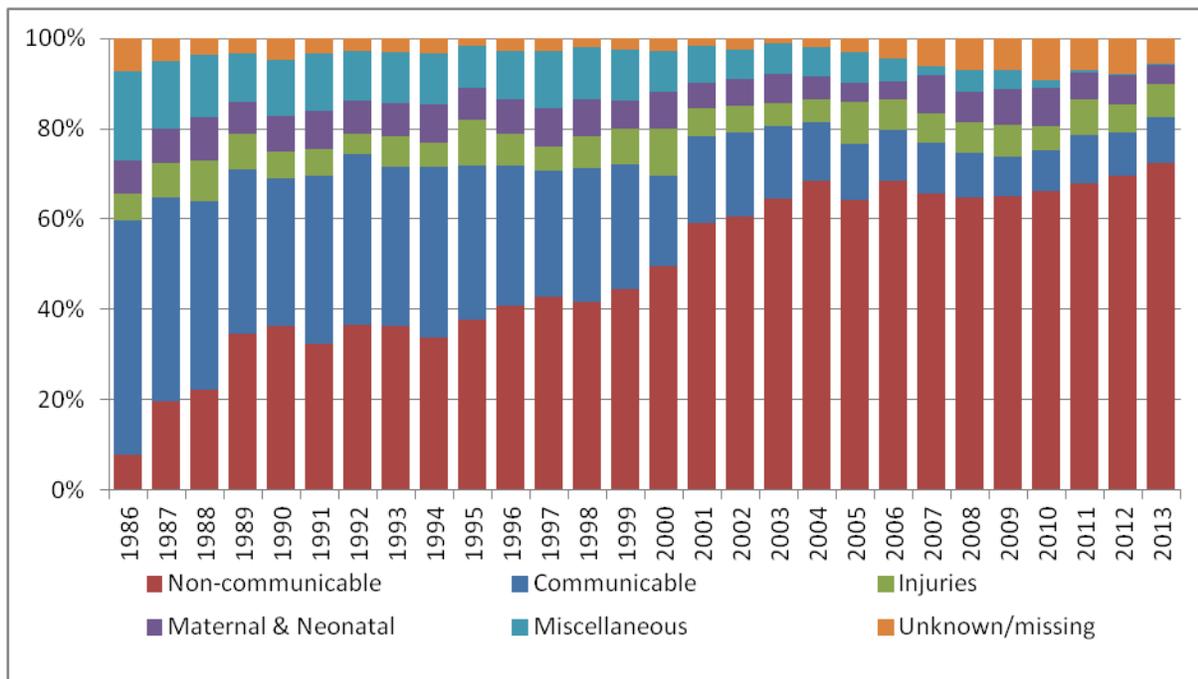
1. Dr. Kamrun Nahar Koly, Assistant Scientist, Initiative for NCD, HSPSD, icddr,b
2. Dr. Tauhidul Islam, Research Investigator, Initiative for NCD, HSPSD, icddr,b
3. Dr. Sabrina Ahmed, Research Investigator, Initiative for NCD, HSPSD, icddr,b

4. Nantu Chakma, Senior Research Officer, Initiative for NCD, HSPSD, icddr,b
5. Dr. Josepha Elizabeth, Research Officer, Initiative for NCD, HSPSD, icddr,b
6. Dr. Noshin Farzana, Project Research Physician, Initiative for NCD, HSPSD, icddr,b
7. Dr. Mir Nabila Ashraf, Research Fellow , Initiative for NCD, HSPSD, icddr,b
8. Saimul Islam, Data Management officer, Initiative for NCD, HSPSD, icddr,b

Chapter 1: Background

Chronic Non-Communicable Diseases (NCDs) are the largest contributors of mortality both globally and in the low- and middle- income countries (LMICs). Thirty-eight million people die each year from NCDs, mainly from cardiovascular diseases (CVD), cancers, chronic respiratory diseases, and diabetes. Over 14 million deaths from NCDs occur between the ages of 30 and 70, of which 85% are in developing countries (1). The global burden of NCD is expected to increase substantially over the next few years, and the risk factors of NCD in LMIC should be characterized to guide effective and cost-efficient actions (2). Cause of death data collected through verbal autopsy under icddr, Matlab Health and Demographic Surveillance System (HDSS) revealed that death from NCDs rose from around 8 % in 1986 to more than 70% in 2013.

Figure: Health transition graph, Matlab, Bangladesh 1986-2013



Source: Matlab HDSS

Bangladesh, a country with a lower middle income economy of South Asia, has been experiencing a demographic and epidemiological transition with rapid urbanization and globalization and a gradual increase in life expectancy (5). The common behavioral, metabolic and physiological risk factors for NCD are highly prevalent in Bangladesh (6,7).

In 2002, WHO estimated that about 140,000 Bangladeshis died due to coronary heart disease, which is the leading cause of death in Bangladesh and 70,000 people died of cerebrovascular (or stroke) events, which is the leading cause of sustained disability in Bangladesh (8). The majority of CVD deaths occur among people under 70 years of age and the country suffers from a significant loss of productive working years due to CVD deaths [8]. Despite a high disease burden and death in Bangladesh, there is very little understanding of the underlying population risks and strategies for prevention and treatment of CVD and other NCD's. There is a shortage of investigators who are able to conduct health-related research relevant to NCD in our countries (10, 11). Adopting a sustainable strategy for developing scientific expertise and local capacities to conduct independent research relevant to NCD, would be critically important to understand the contextual nature of determinants of NCD as well as approaches to their treatment in order to prevent NCD.

There is an important need for fundamental and advanced training in CVD related research in LMIC. Although different institution have research experience in several areas related to CVDs, a common platform of developing capacity of local researchers to generate solid evidence for prevention and control of CVD remains limited. The proposed training under this planning program will enhance the research capacity and experience of trainees and faculties at all the institutions, through training workshops and participation in data analysis and interpretation and elaboration of scientific manuscripts. These activities will allow trainees to engage in existing work at icddr,b, in order to acquire hands-on experience in the conduct of research in CVD and will also support the development of new research initiatives and grant proposals. Furthermore, adequate mentorship is critical for success in research. This project will allow enhanced access to mentors with a broad range of expertise that can be matched to the interests, needs, and backgrounds of the trainees and faculty at icddr,b and other collaborating institute.

Chapter 2: Methodology

2.1 Program administration:

The project was jointly directed by Professor Habibul Ahsan, Louis Block Professor, Department of Public Health Sciences, University of Chicago and Dr. Aliya Naheed, Scientist and Head of the initiative for Noncommunicable Diseases in icddr, b. icddr, b was the secretariat of the administrative responsibilities and BSMMU was the key national partner. To formalize the activities of D71 a Steering Committee formed with the representative of icddr, b, BSMMU and other national leading institutions. The Steering Committee advised the activities of Joint PIs

Dr. Md Yunus is the PI of GEOHealth center in Bangladesh and an Emeritus Scientist at icddr,b. supported Dr. Naheed and Professor Ahsan in development of the Steering Committee, planning of this training and capacity building of the clinicians. Dr. Dewan S Alam is a Professor of global health in University of York, Canada was also involved in this planning grant.

Through this grant partnership also expanded with two other international academic institutes University of California Los Angeles (UCLA) & George Institute India. Professor Zuo-Feng Zhang, is a Professor of Epidemiology and Medicine in UCLA and a member of the Scientific Advisory Group (SAG) of icddr,b. He visited icddr,b on July ,2019 for attending the meetings of SAG. That time took 3 days long course on Cancer Epidemiology for the young researchers of icddr, b. He also took a personal development session for the D71 fellows to guide them in exploring future scopes of research raining at UCLA and other international institutions. Professor Vivekananda Jha, Executive Director of George Institute for Global Health India, a key faculty member organized a training session for the D71 fellows at George Institute for Global Health India.

One young researcher, Dr. Noshin Farzana was recruited as a D71 Fellow to lead the team in the Initiative for NCD of icddr, b for supporting the PI in implementing various activities under the D71 program.

2.2 Program Faculty:

This project was designed with six core faculty members who had long term experience in Noncommunicable diseases research. The core faculty members were Professor Habibul Ahsan,

Director for Epidemiology and prevention, University of Chicago, Dr. Aliya Naheed, Scientist & Head, Initiative for Noncommunicable Disease, icddr,b, Dr. Md Yunus, Emeritus Scientist, icddr,b, Dr. Dewan S Alam, Professor, Global health, University of York, Canada , Zuo-Feng Zhang, Professor & Associate dean of research, UCLA, Vivekanand Jha, Professor of Nephrology and Executive Director, of George Center for Global Health India

Professor Habibul Ahsan, is the Director for Epidemiology and prevention at University of Chicago has initiated an educational collaboration with icddr,b in 2015. Dr. Ahsan has 20 years' experience in population cancer research integrating socio-behavioral, environmental, and genomic factors within the context of prevention, etiology, treatment response and prognosis of cancer. In particular, he led population studies investigating individual-level and societal-level determinants as they relate to disparity in breast cancer risk and etiology.

Dr. Aliya Naheed is the Head of the initiative for Noncommunicable Diseases in icddr,b and she has more than 20 years of research experiences. She has been PI of several large scale community bases studies, including randomized control trials on hypertension and gestational diabetes and has been actively involved in academic teaching in icddr,b and other institutions in Bangladesh. Her long-time experience in scientific leadership, particularly her expertise in health systems intervention research and the long track record in research training put her in the best position to lead the proposed planning project in Bangladesh and steer the secretariat in icddr,b .

Dr. Md Yunus is the PI of GEOHealth center in Bangladesh and an Emeritus Scientist at icddr,b. he has more than 40 years of experience of research and intervention on diverse public health problems, capacity building and research training. He had experience of research in the field of diarrheal diseases, nutrition, arsenic and health effects including cancer, priority environmental and occupational public health concerns, and other aspects of public health in icddr, b.

Dr. Dewan Alam is a public health researcher with his primary background as medical doctor and further training in epidemiology, nutrition and public health during his masters, doctoral and postdoctoral programmes. He was the PI of NHLBI funded Center for Control of Chronic Disease (CCCD) in Bangladesh established at icddr,b in 2009. Currently he is a Professor of global health in University of York, Canada

Table1. : Participating Faculty Members and area of research interest

Faculty Name	Area of research emphasis
Dr. Aliya Naheed	Health Systems and Implementation Research in NCD
Prof. Habibul Ahsan	Environmental and genomic factors in cancer and other diseases
Dr. Muhammad Yunus	Environmental Health & CVD
Prof. Zuo-Feng Zhang	Molecular epidemiology of cancers
Dr. Dewan S Alam	Global Health, NCD Epidemiology
Vivekanand Jha	Nephrology

Zuo-Feng Zhang is a Professor of Epidemiology, Co-Director of the UCLA Center for Environment Genomics, Director of Molecular Epidemiology Training Program, Scientific Director of UCLA Central Tumor Registry and associate dean of research at UCLA. Dr. Dr. Zhang's research focuses on the molecular epidemiology of cancers of the bladder, prostate, esophagus, stomach, head and neck and cervix. Other research interests include nutrition and cancer, epidemiology of second primary cancer; methodological issues in the use of tumor markers in cancer epidemiology; and progression and survival of cancer

Vivekanand Jha is a Professor of Nephrology and Executive Director, of George Center for Global Health India. He has led a number of randomized controlled trials and observational studies as PI which have informed development of global guidelines for treatment of patients with kidney disease, in particular glomerulonephritides and kidney transplant recipients. He was invited by Lancet to write a paper on the Global dimensions of chronic kidney disease and another one on the Ethics of dialysis. He is leading the George Institute for Global Health in India which has an extensive track record of conducting community based interventional studies of the type proposed in this project.

2.3. Development of Steering Committee:

To advise the joint PIs a Steering Committee formed Chaired by Honorable Vice Chancellor of BSMMU and Co Chaired by the Deputy Executive Director of icddr, b. Dr. Aliya Naheed was

convener of the Steering Committee. Faculty of the leading national premier teaching institutions, and senior scientists of icddr, b were also part of the Steering Committee. The organogram of the steering committee is given in the figure 1

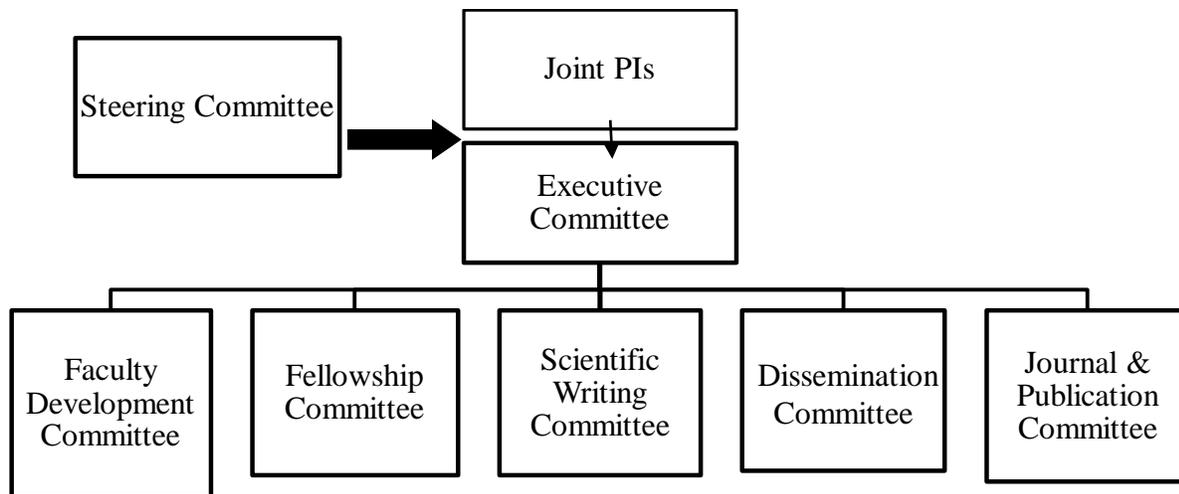


Figure 2: Organogram of the Steering Committee

2.4. Steering Committee Meetings

2.4.1: Strategic meeting of Clinical Research Platform, Bangladesh and formation of Steering Committee:

Strategic Meeting of the Clinical Research Platform, Bangladesh was held on 21st December, 2017 to discuss about developing Steering Committee and its TOR. Dr. Aliya Naheed, Head Initiative for Noncommunicable Diseases, icddr,b was the convener of the meeting. In this meeting from icddr, b, Mr. Syed Monjurul Islam, Deputy Executive Director and



Chief Operating Officer; Dr. M Yunus, Emeritus Scientist; Dr. Aftab Uddin, Head, Technical Training Unit and Dr. Kamrun Nahar Koly; Research Investigator, INCD were present. From BSMMU Prof. Mohammad Kamal, Head, Department of Pathology, Prof. Haris, Department of Cardiology and Dr. Abdullah Al Mamun, Deputy Register were also attended the meeting.

program an important meeting took place in presence of Honorable Vice Chancellor of BSMMU

Professor Kanak Kanti Barua and Deputy Executive Director and Chief Operating Officer of icddr, b Mr. Syed Monjurul Islam. Prof Abdul Jalil, Head Department of Medicine, BSMMU and Dr. Abdullah Al Mamun, Deputy Register, BSMMU also attended the meeting. Dr. Aliya Naheed, Had Initiative for Noncommunicable Diseases, icddr, b was the convener of the meeting

2.5. Development of working groups under steering committee:

In the first meeting of the steering committee five working groups were formed following consensus of the committee members to support the activities to achieve the aims of the D71 grant. The five working groups are: (i) Faculty Development Committee, (ii) Fellowship Committee, (iii) Scientific Writing Committee, (iv) Dissemination committee, and (v) Journal & Publication Committee.

2.6. Finalization of the Activities of the different working group of the Steering Committee

Activities of the different working groups are given below:

1. **Academic Committee:** Curriculum development/organizing courses
2. **Fellowship Committee:** Mentoring D71 fellows to raise research grants
3. **Scientific Writing Committee:** Organizing workshops and courses for building skills of scientific writing, such as, writing protocol/dissertation/ grant/ manuscript.
4. **Journal & Publication Committee:** Organizing workshops for building skills of the Editors of the local journals to review articles for the peer reviewed journals, review abstracts for conference, and training of the young clinicians and the public health researchers on how to get published in peer reviewed journals.
5. **Dissemination Committee:** Organizing scientific seminars by invited speakers, organize scientific conference, build skills of scientific presentation before a scientific audience, and dissemination of the achievements of the success achieved under the D71 project.

Chapter 3: Objective of the Study

3.1. General Objective:

The main goal of this proposal is to build research capacity of young researchers in LMIC to generate novel ideas which can be put in to be tested at post graduate research level.

3.2. Specific objectives:

Aim 1:

To strengthen the capacity of young multidisciplinary researchers at icddr,b to generate novel research question and formulate sound research design in order to develop high-quality research proposal in different area of cardiovascular diseases and cancer.

Aim 2:

To establish a consortium of experts of NCD researcher for mentoring young researchers for handling large database, conducting advance analyses and publish research evidence for dissemination broadly.

Aim 3:

To develop a standardized common set of measures including addition of new objectives and identification of data source at different institutions, so that prospective PhD candidates can access to essential data for conducting research and other academic purposes.

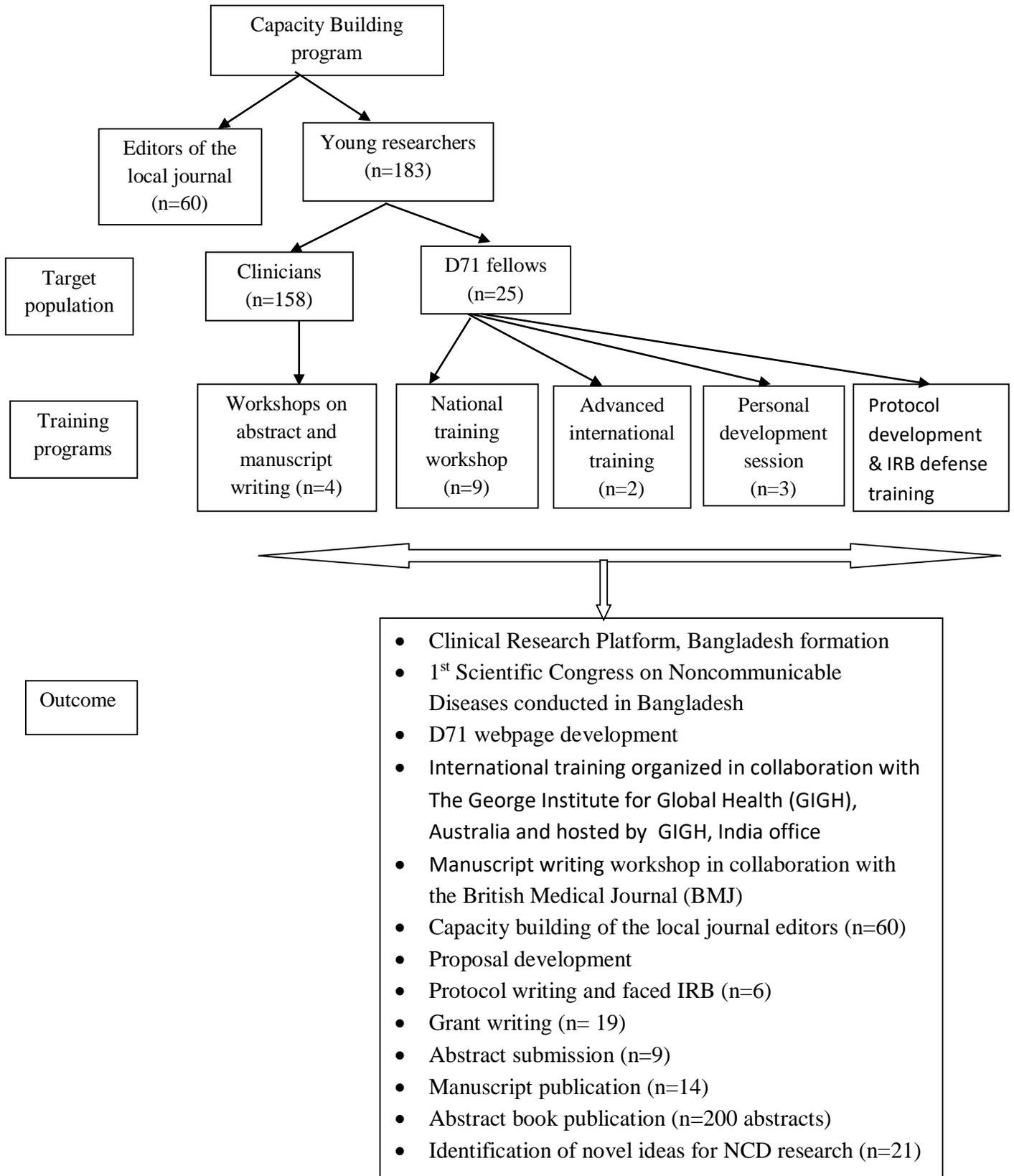
Chapter 4: Major Activities

A. Activities under aim 1

Under this aim the project has undertaken multiple activities in order to enhancing the abilities of icddr,b researchers and clinicians in the post graduate medical institutions who were recruited under the D71 Fellowship Program. These activities were conducted in an informal way adjusting with the time available by the busy clinicians and the public health researchers on top of their routine services, and addressed individual needs. Such as, the activities included were, hands on training on developing research protocols, defending a protocol before the Institutional Review Board (IRB), knowledge building sessions for learning current epidemiology of NCD burden globally and local issues, conducting needs based workshops for discussion in various areas of NCDs and how to develop research questions, organizing national and international trainings for skill building in research methodology, personal development sessions, improving English writing skills by external resources, networking with interdisciplinary colleagues and experts, organizing journal clubs on topics of common interests, facilitating free access to relevant scientific articles in high impact peer reviewed journals and more.

Besides the need based planned session for the D71 Fellows, a few additional workshops were arranged for clinicians who are interested in conducting clinical research at a few national institutions of different clinical specialty as well as the departments of different clinical specialty within the post graduate institutions of BSMMU. The goal of those workshops was to guide the clinicians with the basic methods of conducting research in the clinical settings and how to synthesize data to write a scientific manuscript. These workshops were also used to create a network between the clinical specialists and public health researchers in icddr, b. Following activities were undertaken throughout the tenure of the project under aim 1.

Flow diagram 1: The D71 capacity building program



A. 1. D71 Fellows recruitment:

To recruit the Fellows in the program an online advertisement was circulated in the web portals of different institutions and personal connections. In response to the announcement, 40 applications were submitted from different institutions. Following review of the applications the *Fellowship Committee* selected 25 Fellows including 17 clinicians from BSMMU, National Institute of Cardiovascular Diseases (NICVD), National Institute of Neuroscience (NINS), National Heart Foundation, National Institute of Mental Health, Bangladesh and eight public health researchers in icddr,b.

A. 2. Training sessions of the D71 fellows:

The Fellows were invited to workshops conducted on various aspects of a research related to building capacity to conduct clinical research in NCDs. and provided practical guidance on writing protocols for obtaining approval from the IRB for implementing their own research. The courses were designed by the *Academic Committee* and they organized necessary workshops for the Training of the fellows.

The trainings received by the D71 fellows:

1. Introduction of NCD epidemiology
2. Introduction to basic research methodology and epidemiological study design
3. How to develop methodology in research protocol: STROBE guideline'
4. Literature Review Techniques
5. How to write an abstract for a conference
6. Clinical Epidemiology on cancer research by Zuo Feng Zhang
7. Writing protocols
8. Defending before IRB
9. English writing sessions

A. 3. International training of the D71 fellows:

Selected Fellows were provided financial support to attend the following international workshops for advanced level training on research methodology, data analysis implantation research and manuscript writing.

The international training are:

- I. Training on research methodology, data analysis and implantation research organized by D71 project in collaboration with **The George Institute for Global Health (GIGH)** and hosted by GIGH, Delhi office on March, 2019. There were seven selected fellows attended the training and their course fee and accommodation was supported by the D71 project. Please see the course module and details of the training in the following <http://www.crplatform.icddrb.org/publications-1-1>
- II. Harvard Medical School Center for **Global Health Delivery- Dubai** who were the **donor of another study (MENTHOL study)** led by the **D71 PI in icddr, b, organized a** training on Scientific Manuscript writing on April, 2018 in Dubai, UAE. The training was focused on research and capacity building in critically neglected areas of global health importance. The D71 project supported two fellows from icddr, b to attend this international workshop where young researchers from seven other countries were also attended. In this training program the fellows got chance to work on the data set of their ongoing research. (<http://www.crplatform.icddrb.org/publications-1-1>)

A. 4. Special trainings:

Besides, training on NCD research a few selected fellows got chance and financially supported to attend special training on assessment of household air pollution conducted by another NIH awarded project GEOHealth (July, 2018) and a workshop on health economics and economic evaluation conducted by James P. Grant School of Public Health, BRAC University (September, 2018) (Link <http://www.crplatform.icddrb.org/publications-1-1>)

A. 5. Personal and professional development sessions:

For The D71 fellows the program arranged three personal development workshops with eminent international scientists. In these sessions the fellows got chance to have an open discussions with the international faculties about their research ideas, gap of knowledge, scope of NCD research and future opportunities. These sessions were arranged with:

- Dr. Richard Smith, Ex-Chair of Board of Trustees, icddr,b

- Professor Zuo Feng Zhang and Professor, Professor of Molecular Epidemiology of Cancer, The University of California, Los Angeles (UCLA)
- Anushka Patel, Vice Principal Director & Chief Scientist, The George Institute for Global Health, Professor of Medicine, The University of New South Wales (UNSW)

A 6. Capacity building on scientific of the clinicians at different institutions:

Under this project several workshops were arranged in order to meet the great demand of the clinicians about how to write an abstracts for the conferences and how to write a manuscript for publishing research in a high impact peer reviewed journals. Following activities have been accomplished under the guidance of the *Scientific Committee*.

- Arranged a manuscript writing workshop titled “*How to get your research published*”. This workshop was facilitated by Dr. Anita Jain, Clinical Editor of the BMJ at icddr, b on 19th October, 2019 where around 200 enthusiastic participants attended the workshop.
- Three separate workshops were arranged on “*How to write an abstract for a congress*” at National Institute of Cancer Research And Hospital (NICRH) (29th July, 2019), Department of Neurology, BSMMU in association with Bangladesh Neurology Society (25th August, 2019) and Department of Rheumatology, BSMMU (3rd September, 2019)
- The clinicians and researchers who submitted abstract for the ‘1st Scientific Congress on NCD’ within the one month of announcement, received review and comments from the Jury Board members of the Congress and got guidance on how to improve their abstracts for a resubmission. More than 50 clinicians and researchers availed this opportunity. All participants were also guided about how to make a presentation following an internationally recognized template. in the congress under 9 themes 10 abstracts were nominated by the designated Jury Board comprised of the experts under that disciplines, and altogether 90 abstracts were selected for oral and poster presentation and two of them selected as best presenters under each category. Among all the abstracts two research works also identifies as best innovation and intervention. Altogether 21 clinicians and researchers received best presenter’s award and the news of the award giving ceremony received huge media coverage.

<http://www.crplatform.icddrb.org/blank-page-59>

A. 7. Writing research grants:

The D71 fellows got direct mentoring on writing research grants by generating novel NCD research ideas. During the project period, six fellows individually applied for research grants in response to the call of young researchers' grant of 'Swedish International Development Agency (SIDA)' and four fellows applied for 'Islamic Bank Development Transform fund call'. Moreover, two female fellows were applied for women mentorship grant by 'Health System and Global fund'. Under the guidance of the PI they also worked in group for writing larger grants like NCD call by Directorate general of Health Services, Bangladesh, NCD research Welcome trust call, grant call funded by Department for international Development (DFID), public engagement fund and Biomedical resource grant by National Institute of Health Research (NIHR).

A. 8. Writing protocol and institutional review board:

Under the program the fellows got chance to write protocol to obtain clearance from institutional review board (IRB).

They wrote following protocols for their own institutional IRB:

➤ IRB of icddr, b:

- I. National prevalence of dementia among elderly population in Bangladesh
- II. "Accessing healthcare for common mental disorder as a comorbid condition with non-communicable diseases in selected rural upazilas in Bangladesh: Perspectives of patients, their families and healthcare providers"
- III. Micronutrient Survey in Bangladesh, 2018-2019
- IV. Generate evidence for advocating for common anti-hypertensive, anti-diabetic drugs and Aspirin in generic names and at low cost

➤ IRB of BSMMU:

- I. CT angiographic evaluation of graft patency rate following coronary endarterectomy with OPCABG in Bangladesh
- II. Postoperative atrial fibrillation following off-pump coronary artery bypass graft surgery: elderly versus young patients

III. Validation of the tool to identify neuro developmental disorders

A. 9. Development of organizing capacity of fellows:

Throughout the project tenure the fellows developed extraordinary capacity of organizing skills besides research capacity. The junior researchers in icddr,b and other national institutions developed their skills of organizing workshops, organizing press conference, serve as a Jury member for reviewing abstracts, communications with the participants, communications with the senior faculty of national institutions and collaborate with Government officials for different activities to maintain research collaboration. These experience also helped them to build their leadership capacity.

B. Activities under aim 2:

To achieve the aim to develop a common platform for the NCD experts to mentor young researchers specially support them in manuscript writing following activities were implemented:

B. 1. Development of Clinical Research Platform, Bangladesh

For conducting high quality clinical trials on NCD to strengthen clinical research of Bangladesh, a memorandum of understanding developed among International Centre for Diarrhoeal Disease Research, Bangladesh (icddr, b), Bangabandhu Sheikh Mujib Medical University (BSMMU), and British Medical Journal (BMJ) on August 2017. Through Clinical Research Platform, Bangladesh, D71 project had developed a strong institutional platform for building up research collaboration between public health and clinical researchers. Around 200 clinicians and researchers from different clinical institutions are already member of this platform. The platform is working on developing virtual platform to enhance research capacities of the members. Along with D71 project activities this network is still working on to explore all possible avenues for building capacities of the local researchers and clinicians for generating evidence through state high quality clinical research (<http://www.crplatform.icddrb.org/description-of-activities-of-workin>)

B. 2. Forming a faculty group local NCD experts from different national institutions:

To develop a national faculty pool of NCD experts and brief them about D71 project a briefing session of D-71 was arranged at BSMMU chaired by the honorable Vice Chancellor of BSMMU. In this session institutional head or representatives of five teaching institutes involved

in clinical services related NCD in Bangladesh including BSMMU, National Institute of Cardiovascular Diseases (NICVD), National Institute of Mental Health (NIMH), National institute of Neuroscience (NINS) and National Heart Foundation Hospital & Research Institute (NHF & RI) were invited. From this meeting the faculty pool agreed to identify potential young researchers from their institutions and directly contribute in creating critical mass of future leaders of NCD research.

(<http://www.crplatform.icddrb.org/description-of-activities-of-workin>)

B.3. Formation of clinical and public health expert consortium:

A clinical and public health expert consortium formed with 84 members against nine themes of the 1st Scientific Congress on NCD. The themes of the Congress were Hypertension & Cardiovascular Diseases, Prevention of Diabetes in Bangladesh, Stroke and other Neurological disorders, Mental Health and NDD, Chronic Kidney Diseases, Rheumatology and Musculoskeletal Disorders, Chronic Respiratory Diseases, Oncology and Evidence of NCD in Bangladesh: Prevention & control. The expert panel reviewed the abstracts submitted under a designated theme and select the best presentations (oral and poster) for each theme.

(<http://www.crplatform.icddrb.org/blank-page-14>)

B. 4. The “1st Scientific Congress on NCD” conducted in Bangladesh:

The country’s 1st first ever congress on Non communicable diseases was organized with the aim to create an enabling environment for the clinicians and the public health researchers in Bangladesh to present their seminal work in NCD. The Congress was hosted by the Clinical Research Platform, Bangladesh and jointly organized by icddr, b and Bangabandhu Sheikh Mujib Medical University (BSMMU). This congress created a chance for the D71 fellows as well as for the clinicians to present their abstracts. All the abstracts published in the abstract book of the 1st Scientific Congress on NCD.

There were nine scientific sessions arranged in the congress. Each session was based on one thematic area of the NCD. In each Scientific Session, an expert of the relevant theme presented a Keynote Speech to give an overview of the theme and burden of different NCDs in Bangladesh. Following the keynote speech 10 selected presenters presented their scientific paper as oral presentation and poster presentation. Each presenter had to face the respective

expert panel. Among the D71 fellows seven were selected to present their work as poster and oral presentation in different themes of the Congress. Two of them, Dr. Josepha Elizabeth and Dr. Fatima Zohora also awarded as best presenters. The conference was live streamed in the social media to reach larger community. The conference also received a huge media coverage including print, online and electronic media and it was inaugurated by a press conference which was held on 17th October, 2019 at Milton Hall, BSMMU in presence of the Honorable Vice Chancellor of BSMMU Professor Kanak Kanti Barua, Deputy Executive Director and Chief Operating Officer of icddr, b Syed Monjurul Islam and Convener of the Congress Dr Aliya Naheed. (<http://www.crplatform.icddrb.org/conference-copy>)

B. 5. Local journal of editors

The D71 project also had the objective to enhance editorial capacity and quality of the local journals for promoting publishing manuscripts of new researchers in peer reviewed local and international journals. To achieve this objective the *Journal and publication committee* a 2 days long workshop on “How to review an article- for peer reviewed journal” was arranged at Bangladesh College of Physicians and Surgeons on May, 2018. Over 60 faculties of different disciplines from the national institutions of Bangladesh were had experience of reviewing peer reviewed international journal. This workshop was designed to facilitate the participants’ capacity building on the peer review process of a journal and role of an editor, mechanics of reviewing an article as a journal reviewer and how to write a review. Dr. Aliya Naheed, PI of the D71 program was the lead faculty of the workshop.

B. 6. Publication of research evidence:

Mentoring young researchers to publish high quality paper in peer reviewed journal to generate research dissemination for broader community was one of the major objectives of the D71 program.

- **Abstract:** Through the direct guidance and strong monitoring D71 fellows were able to write abstract of their ongoing research work and 9 of them submitted their abstract in the 1st Scientific Congress on NCD. Among this 9 abstracts 7 abstracts were selected for oral and poster presentation.

Title of the abstracts:

- I. Prevalence of diabetic retinopathy among ambulatory diabetic patients visiting tertiary hospitals in Bangladesh,
- II. Determinants Of Stroke Among Adult Male (30-65 Years) Of Bangladesh-A Hospital Based Case-Control Study
- III. Prevalence and Risk Factor Analysis of Stroke After Coronary Artery Bypass Graft Surgery
- IV. Perinatal Factors Among Children Neurodevelopmental Disorders in Outpatient Department of Psychiatry
- V. Impact of Psychosocial Intervention on Depression Among Mothers of Children With Autism Spectrum Disorder in Bangladesh
- VI. Feasibility of Psychosocial Supports Can Improve Quality of Life Among The Mothers of Children With Autism Spectrum Disorder in Bangladesh
- VII. Nutritional Status and Its Association With Cognitive Level in Children With Autism in Bangladesh
- VIII. Burden of Dementia Among Elderly Population in Bangladesh and Multi Morbidity
- IX. Double Burden Malnutrition among School Age Children in Bangladesh

- **Manuscript:**

14 manuscripts were published in local and peer reviewed journal as first author or coauthor by the D 71 fellows. 7 fellows were also working on their manuscripts. Besides, manuscript writing 3 fellows also got hands on training on project report writing on their ongoing research work

Title of the manuscripts:

1. Naheed, A., **Islam, M. S.**, Hossain, S. W., Ahmed, H. U., Uddin, M. J., Tofail, F., & Munir, K. (2019). Burden of major depressive disorder and quality of life among mothers of children with autism spectrum disorder in urban Bangladesh. *Autism Research*.
2. Naheed, A., Breiman, R. F., **Islam, M. S.**, Saha, S. K., & Naved, R. T. (2019). Disparities by sex in care-seeking behaviors and treatment outcomes for pneumonia among children admitted to hospitals in Bangladesh. *PloS one*, *14*(3), e0213238.

3. **Islam MT**, Möller J, Zhou X, Liang Y. Life-course trajectories of body mass index and subsequent cardiovascular risk among Chinese population. *PloS one*. 2019; 14(10).
4. Uphoff EP, Newbould L, Walker I, **Ashraf N**, Chaturvedi S, Kandasamy A, Mazumdar P, Meader N, Naheed A, Rana R, Wright J. A systematic review and meta-analysis of the prevalence of common mental disorders in people with non-communicable diseases in Bangladesh, India, and Pakistan. *Journal of Global Health*. 2019 Dec; 9(2).
5. Feng, L., Naheed, A., de Silva, H. A., Jehan, I., Raqib, R., **Islam, M. T.**, . . . Senan, S. (2019). Regional Variation in Comorbid Prediabetes and Diabetes and Associated Factors among Hypertensive Individuals in Rural Bangladesh, Pakistan, and Sri Lanka. *Journal of Obesity*, 2019.
6. Naheed A, Haldane V, Jafar TH, **Chakma N**, Legido-Quigley H. Patient pathways and perceptions of hypertension treatment, management, and control in rural Bangladesh: a qualitative study. *Patient preference and adherence*. 2018; 12:1437-49.
7. **MA Rahman**, A Rahman, SN Uddin, AKMM Islam, TA Chowdhury, F Ahmed, SS Ray, D Hossain, L Farzana, 2018. Rheumatic Fever and Rheumatic Heart Diseases in Bangladesh: Challenges and Remedies, *Cardiovasc. j*. 10(2): 206-211
8. **MA Rahman**, A Rahman, F Ahmed, 2018. What is clotted cannot be blotted. *Journal of the American College of Cardiology*. 71 (16), suppl, S190-191
9. M M Arefin, A Rahman, MG Azam, A Momen, **MA Rahman**, J Jahan, FA Cader, 2018. Impact of myocardial blush grade on in-hospital outcome after primary percutaneous coronary intervention. *Journal of the American College of Cardiology*. 71 (16), suppl, S14
10. Akhter S, Hussain AHME, **Shefa J** et al. Prevalence of Autism Spectrum Disorder (ASD) among the children aged 18-36 months in a rural community of Bangladesh: A cross sectional study [version 1; referees: awaiting peer review]. *F1000Research* 2018, 7:424 (doi: 10.12688/f1000research.13563.1)

11. **Ranjan R**, Adhikary D, Saha SK, Mandal S, Hasan MK, Adhikary AB. Impact of prosthetic heart valves on pregnancy in Bangladeshi women. *Perfusion* 2019, 34: 1-7. DOI: <https://doi.org/10.1177/0267659118817712>
12. Adhikary D, **Ranjan R**, Mandal S, et.al. Prevalence of carotid artery stenosis in ischaemic heart disease patients in Bangladesh. *SAGE Open Medicine*. 2019; 7:1-5. DOI: <https://doi.org/10.1177/2050312119830838>
13. **Ranjan R**, Adhikary D, Acharya M, Chakravarty S, Saha SK, Adhikary AB. Histopathological analysis of the coronary atheroma extracted during coronary artery bypass graft surgery. *Bangabandhu Sheikh Mujib Med Univ J*. 2018; 11: 226-230. DOI: <https://doi.org/10.3329/bsmmuj.v11i3.37827>
14. **Ranjan R**, Acharya M, Saha H, Joshi D, Saha S, Adhikary AB. A 24-year-old male patient with weakness in the left upper limb. *Bangabandhu Sheikh Mujib Med Univ J*. 2018; 11: 236-240. DOI: <https://doi.org/10.3329/bsmmuj.v11i3.37703>

B. 7. Expanded collaboration with other institutions:

Through D71 project collaboration with local and international institutes are expanded. Collaboration with Bangabandhu Sheikh Mujib Medical University, National Institute of Cardiovascular Diseases (NICVD), National Institute of Neuro Science (NINS), National Institute of Mental Health (NIMH) and National Heart Foundation & Research Institute (NHF&RI) enhanced with this project and identified new collaboration with National Institute of Kidney Disease and Urology (NIKDU) and National Institute of Cancer Research Hospital (NICRH).

Expansion of research capacity activities achieved through enhancing the joint Collaboration with two international organizations George institute of Global Health and the British Medical Journal. This project also crated opportunity to develop a new collaboration with The Global Health Network of University of Oxford to develop knowledge sharing hub. This collaboration expanded with five other countries including in Nepal, Bangladesh, Colombia, Uganda, Brazil, and the United Kingdom. The partner countries jointly submitted a partnership grant on MRC Applied Global Health Research Board (UKRI/MRC).

B. 8. Generating novel research ideas for NCD research

From the submitted abstracts for 1st Scientific Congress on NCD this project has identified 21 young researchers with innovative ideas for different fields of NCD research

C. Activities under aim 3:

The subsequent measures were taken to develop standardized practices for promoting research work of prospective PhD candidates and post doc trainees as well as development of commonly accessible data sources:

C. 1. Writing abstracts utilizing internal data resources from different institutions:

Inviting abstract for 1st Scientific Congress on NCD helped the clinical and public health researchers to explore internal data resources to analyze for generating scientific writing including abstracts on different areas of NCDs. More than 200 research works under nine thematic areas have been published and available in the following link <http://www.crplatform.icddrb.org/conference-copy>

C. 2. Development of Webpage:

One of the D71 fellows designed a webpage under the guidance of the project director of the D71 project and all activities of D71 project as well as that of the Clinical Research Platform Bangladesh were exhibited. Those who registered for the 1st Scientific Congress on NCD were directly became the member of this digital platform and till now more than 400 members can access this webpage. In near future this webpage will be upgraded as the virtual platform where the users will have the access of sharing data, knowledge, methods of designing different research ideas and also scope of webinar on different research topics. Please visit the web link: www.crplatform.icddrb.org.

C. 3. Identify new funding sources:

To support further strengthening the capacity of the existing cohort we have made a few attempts to apply for a few grant. One grant was submitted to the call of D43 grant of NIH as a Co Applicant with The George Institute of Global Health India and University of Kelaniya, Sri Lanka. Another grant was submitted to address the Biomedical Resource Grants-Wellcome

Trust to Develop a biomedical research infrastructure and data resources for enhancing clinical research and improving quality of care in Bangladesh. None of the grants were successful.

C. 4. A round table discussion organized:

Round table discussion on “Improving Quality of NCD care at primary health facilities in Bangladesh” one of the major activities of D71 program done under the 1st scientific Congress on NCD. The aim of the round table discussion was to bring out the actual situation of NCD services in primary health care settings and identify new scopes of research to improve the quality of care. Invited speakers of the round table discussion were Dr. Md. Raushan Anwar, Director, Primary Health Care, DGHS, Brigadier General Momimur Rahman Mamun, Chief Health Officer, Dhaka North City Corporation, Brigadier General Sharif Ahmed, Chief Health Officer, Dhaka South City Professor Dr. M A Mohit, Director, National Institute of Mental Health, Professor Dr. Md. Shahedur Rahman Khan, Director, National Institute of Diseases of the Chest and Hospital, Professor Dr. Md. Moarraf Hossen, Director , National Institute of Cancer Research & Hospital, Professor Sohel Reza Chowdhury, Head, Dept. of Epidemiology and Research, National Heart Foundation Hospital and Research Institute, Professor. S M Mustafa Zaman, Professor, Department of Cardiology, BSMMU. The session was chaired by Honorable Vice Chancellor, BSMMU and Moderated by the Dr Aliya Naheed, Head of the Initiative for Non Communicable Diseases. The discussion was proved crucial for developing strategies to strengthen primary health care facilities for NCD in Bangladesh. The round table discussion was took place on 20th October, 2019 from at Milton Hall, BSMMU.
<http://www.crplatform.icddrb.org/blank-page-49>

Chapter 5: Training and professional development opportunities

A. National Training Workshop:

A.1. Workshop on “Introduction of NCD epidemiology”

The introductory workshop of the D71 fellowship program was held on 9th July 2018. This introductory session was begun with a scientific session about overall idea of NCD epidemiology which was presented by Dr. Tauhidul Islam, RI, Initiative for NCD, iccdr,b which was followed by a session where briefly discussed about the objective of fellowship. This workshop gave the fellows an opportunity to know about the critical situation NCD



A.2. Research methodology and epidemiological study design



2nd workshop under D71 fellowship program on ‘Introduction to basic research methodology and epidemiological study designs’ was held on 1st August 2018. This half day workshop was conducted by Dr. Aliya Naheed, Head of Initiative for Non Communicable Diseases, HSPSD. She taught the fellows regarding basic of research methodology and study designs. What type of resign designs are applicable to

answer specific type of research questions were described with practical examples. At the end of the sessions the all the fellows participated in a small discussion session where they solved their own queries regarding epidemiological study designs based on the theory learnt in the workshop.

A.3: Workshop on ‘How to develop methodology in research protocol: STROBE guideline’

The 3rd workshop under D71 fellowship program on ‘How to develop methodology in research protocol: STROBE guideline’ was held on 4th September 2018. Dr. Aliya Naheed, Head of Initiative for Non Communicable Diseases, HSPSD was the mentor of the workshop. Firstly, the fellows were introduced about different guideline of developing proposal such as STROBE, CONSORT and



PRISMA guideline. Then the fellows got a detailed training on training about how to write a protocol according to STROBE guideline. For this workshop the each of the fellows brought a short outline of concept note of their current or proposed research work. After the theoretical session the fellows participated in a practical session where they criticize their own concept note and develop a new research question and short protocol on their concept following the STROBE guideline.

A.4: Workshop on “Literature Review Technique” held at icddr, b

A half-day workshop was organized on “Literature Review Technique” by the Initiative for Non Communicable Diseases (INCD), icddr,b. The workshop took place at the Library of icddr,b on 7th August 2019. This workshop was conducted by the library of icddr, b. The Department of Library of icddr, b has previous experience in delivering training on literature review techniques to the young researchers of icddr, b. Utilizing their expertise the D71 project arranged this workshop for the fellows and interns of INCD attended the workshop.

A.5 Workshops on “How to write an abstract for a conference”

For the capacity building of the D71 Fellows in abstract writing this project arranged a session on how to write an abstract for conference. This session was held on 9th July, 2019 at icddr, b. In this session the fellows were taught about various approaches of writing abstract and the difference between abstract of manuscript and abstract for conference. After the session each fellows were given to criticize previously written or published abstracts after that they were asked to rewrite the abstract according to given guideline.



A.6. Short course on Clinical epidemiology of cancer research by Professor Zuo-Feng Zhang

Prof. Zuo-Feng Zhang, UCLA, one of the core faculties of D71 conducted a short course on Clinical and Epidemiological research study design at icddr, b from 17th June to 19th June. The three days training focused on basic concept in clinical epidemiological study design, including hypothesis generating, retrospective and prospective study designs including cohort, nested case-control, case-cohort and case-control studies, causation, bias, confounding and interactions. Six internal fellows of D71 from Initiative for NCDs, icddr, b participated in the session.



A.7. Training on writing protocols and defending before IRB:

During the tenure of the D71 project the fellows from icddr, b received one to one guidance from the PI regarding writing protocol. For writing protocol, they followed the internationally recognized template of icddr, b. The fellows also got hands on training on how to defend before IRB, how to address any change in the protocol and ethical issues of a protocol. Besides, icddr, b

fellows, three external fellows also received this hands on training for their protocol development and got direction to face their own institutional review board (IRB)

B. International training of the D71 fellows:

B.1: Research Training Program at “The George Institute for Global Health, Delhi, India”

The George Institute for Global Health, Australia arranged a special Research Training Program on Study Design, Research Methods and Implementation Science for the D71 fellows of icddr, b in Delhi, India from 22nd to 24th March. In this three day long training program 5 D71 fellows of icddr,b INCD Dr. Tauhidul Islam, Research



Investigator, Mr. Nantu Chakma, Senior Research Officer, Dr. Noshin Farzana, Project Research Physician Dr. Josepha Elizabeth, Research Officer and Dr. Mir Nabila Ashraf, Research Fellow attended the training program. Along with them two other fellows from BSMMU Dr. Jannat Ara Shefa, Research Physician, Institute of Paediatric Neurodisorder & autism (IPNA), BSMMU and Dr. Ashraf Uddin Sultan, BSMMU also attended the training. Professor Vivekanand Jha, Executive Director at The George Institute for Global Health, India, Anushka Patel, Professor of Medicine at UNSW, Sydney and Chief Scientist at the George Institute for Global Health, David Peiris, Director of the Centre for Health Systems Science at the George Institute for Global Health, Laurent Billot, Director of the Statistics Division at the George Institute for Global Health, Rohina Joshi, Associate Professor, Faculty of Medicine, UNSW Sydney were the key presenters in the training program.

B.2: Workshop on Scientific Manuscript Writing in Dubai, UAE

Dr. Aliya Naheed, Head, Initiative for NCD led a team including two D71 fellow from icddr, Dr. Kamrun Nahar Koly, RI and Mr. Saimul Islam, Statistical Officer to attend a Scientific Manuscript Writing Workshop held on April 8-12, 2018 in Dubai, UAE. The meeting was hosted by the Harvard Medical School Center for Global Health Delivery - Dubai to focus on



research and capacity building in critically neglected areas of global health importance. In this training program the fellows got chance to work on the data set of their ongoing research

C. Special trainings:

Except of training on NCD research a few fellows get chance to attend two special training on household air pollution as environmental pollution and health economics and economic evaluation.

4.4.1. Workshop on "Assessment of Household Air Pollution at Personal Level"

Three selected D71 fellows Dr. Tauhidul Islam, Dr. Josepha Elizabeth, Dr. Noshin Farzana attended a workshop arranged by another NIH awarded project GEOHealth on "Assessment of Household Air Pollution at Personal Level" on 29th July, 2018. As Air pollution is a environmental risk factor and its strong association with NCDs, this workshop allowed the fellows to know the procedures of assessment of household air pollution and its health hazards which help them to develop new research ideas for NCD research

4.4.2. Workshop on 'Economic Evaluation and Prioritizing for Universal Health Coverage'

Three selected D71 fellows Dr. Tauhidul Islam, Dr. Noshin Farzana, Dr. Mohammad Arifur Rahman attended the workshop on Economic Evaluation and Prioritizing for Universal Health Coverage conducted by in James P. Grant School of Public Health, BRAC University from

25th - 27th September 2018. This 3 days long workshop helped the fellows in application of cost evaluation in randomized control trial.

D. Capacity building of the clinicians at different institutions:

To meet the great demand among the clinicians about writing abstracts for the conferences and writing manuscripts for publishing research findings in a high impact peer reviewed journals this project arranged several workshops to develop capacity of writing.

- Three workshops were arranged on “How to write an abstract for a congress” at different national institutes.
- As part of the 1st Scientific Congress on NCD this program also arranged a manuscript writing workshop titled with “How to get your research published”.

This workshop was facilitated by Dr. Anita Jain, Clinical Editor of the BMJ

D.1. Workshops on “How to write an abstract for a conference”



Prior to the 1st Scientific Congress under the D71 program 3 workshops arranged on “How to write an abstract for congress”. The first session was organized at the National Institute of Cancer Research And Hospital (NICRH) on 29th July, 2019, where around 40 post-graduate students and faculty of Oncology from NICRH, BSMMU and Dhaka Medical College hospital were attended. The Director of the National Institute of Cancer Research Hospital, Professor Dr. Md. Moarraf Hossen chaired the program. Professor Dr. M A Hai, Director of the

Bangladesh Cancer Society Hospital and Welfare Home was the Chief Guest of the meeting. Dr. Aliya Naheed, Head, Initiative for Noncommunicable Diseases, iccdr, b was the key faculty of this session.

In association with Bangladesh Neurology Society the D71 program arranged second session on abstract writing which was held on Department of Neurology, BSMMU on 25th August, 2019. Post graduate students and faculty members from BSMMU and National institute of Neuroscience were participated in this session. In this session the participants were also took part in a practical session where they restructured an abstract according to the given guideline.

The third session was organized by the Department of Rheumatology, BSMMU on 3rd September, 2019. With an interactive session the participants were leant basics about writing an abstract for conference. The facilitator Dr. Aliya Naheed, Head, Initiative for Noncommunicable Diseases, iccdr, b tried to solve the queries of the students and guide them about the techniques of abstract writing.

D.2. Workshop on “How to get your research published”:

iccdr,b has the experience of 6 decades of publishing health related research. However, still we sometime struggle publishing in high impact journals and the struggle may be even harder for clinicians who are mostly obliged to provide clinical services to the patients. Considering that, D71 program organized a manuscript writing workshop **“How to get your research published”** with The British Medical Journal as part of the activities of 1st Scientific Congress on NCD.



This workshop was facilitated by the Clinical Editor of the BMJ, Dr. Anita Jain. Over 200 enthusiastic participants attended the workshop where Honorable Vice-Chancellor of BSMMU Prof. Kanak Kanti Barua was the Chief Guest. In this workshop the participants got opportunity to learn about research study designs, levels of evidence, STROBE Statement, Kipling's Guide to Writing a Scientific Paper, points to consider for writing a high quality clinical research paper, ethical considerations. The participants also attended a practical session at the end of the workshop.

D. 3. Capacity building through 1st Scientific Congress on NCD

One of the major activities of D71 project was arranging 1st Scientific Congress on Noncommunicable diseases. The main objective of the congress was the capacity building of young researchers on writing abstracts utilizing the internal resources and presenting their findings in front of the mass audience. On this context the participants who submitted abstracts for the 1st Scientific Congress on NCD as early bird, received review and comments from the Jury Board members and got individual support to improve their writing skills based on the expert comments. They are also guided by the expert panel about how to improve their presentation. Around 51 early bird submitters availed this opportunity.

Chapter 6: Press Conference and Media Coverage

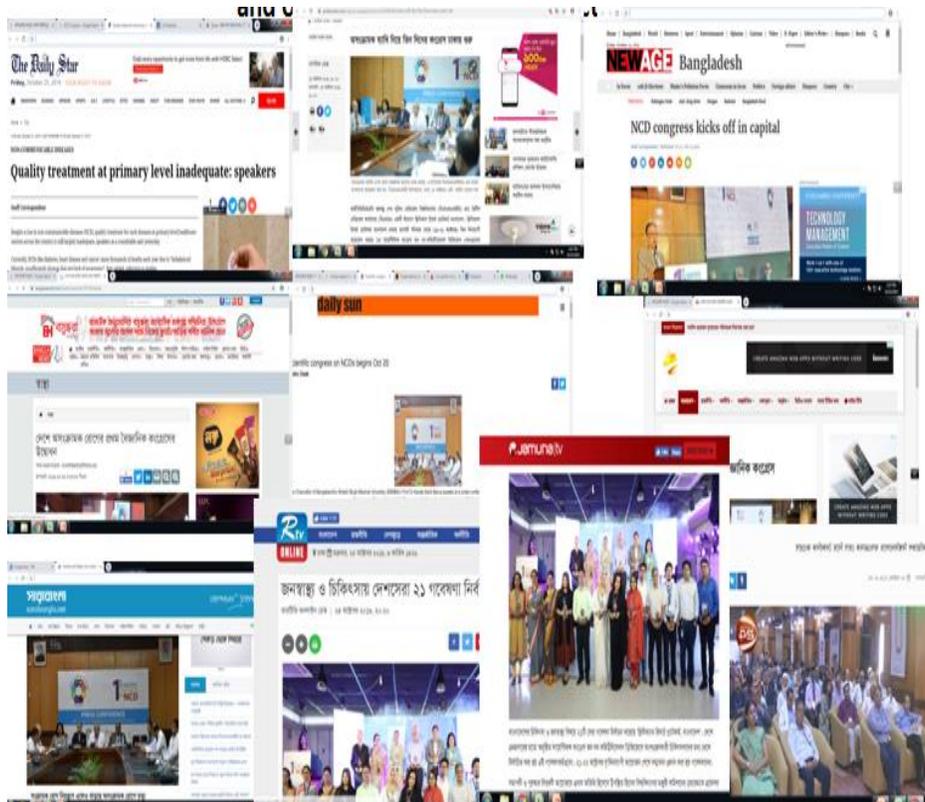
A press conference was organized ahead of the 1st Scientific Congress on NCD, which was held on 17th October, 2019 at Milton Hall, BSMMU. The Honorable Vice Chancellor of BSMMU Prof. Kanak Kanti Barua, DED and Chief Operating Officer of icddr, b Syed Monjurul Islam and Convener of the Congress Dr Aliya Naheed were presented the



importance of the research collaboration between clinicians and public health researchers to create a strong platform for NCD research in Bangladesh. Please find the detail in the following link:

<http://www.crplatform.icddr.org/blank-page-59>

Media Coverage of the Congress



Chapter 7: Key achievements

Achievements under aim 1:

- 8 public health researchers were trained in icddr, b to do clinical research.
- Seventeen clinical fellows are now well trained regarding basic skill of research methodology, study design, protocol development, ethical concerns of conducting research and publishing
- Both clinical and public health researchers are now trained to develop high quality research proposals individually
- The involved institutions also benefitted by getting scope for new research collaboration and publication of high quality manuscripts in peer reviewed journals

Achievements under aim 2:

- A memorandum of understanding among icddr, b, BSMMU and British Medical Journal developed for creating a Clinical Research platform for supporting clinical research of icddr, b established.
- Capacity developed to generate new research questions utilizing institutional database
- Published the first NCD abstract book in Bangladesh including more than 200 abstract derived from 9 different specialties, which is unique and never done in the country before.
- International Faculty pool developed
- Brought a large pool of NCD expert and formed a NCD expert panel for conducting NCD research by various clinical institutions in Bangladesh.
- Develop expertise of the board of editors of the local journal on “ How to review peer reviewed journal” to help the young researchers to develop high quality manuscripts

Achievements under aim 3:

- Identified 21 talented young researchers to develop interest in research and created opportunities to mentor them for continued advancement of their research in the future.

- Development of a webpage sharing knowledge about study designs, methods of utilization of different research tools, different guidelines for protocol development, manuscript writing and dissemination of research work of the fellows
- Sensitized local policy makers and managers about quality of NCD services at primary health care (PHC) facility and engage them with the country level specialists to improve quality of PHC care.
- Created a network between icddr, b and national premier institutions to expand the research infrastructure of icddr, b in clinical settings in order to conduct future RCTs in NCD in Bangladesh.
- Expand collaboration with national and international research organizations to improve the quality of NCD research in Bangladesh

Chapter 9: Opportunities

- This project gives an opportunity to create environment of Non communicable diseases research in hospital settings of Bangladesh.
- This project also helped us to develop critical mass of young NCD researchers who are supported by their expert mentors.
- Through this program the local need to improve a research infrastructure is identified.
- This experience helped us to develop new concepts of research including generating electronic database within the different national institutes of Bangladesh.
- A pool of young NCD researchers created through the D71 project who received training on research methodology for developing clinical research in NCD and provided practical guidance on writing protocols for obtaining approval from the IRB for implementing their own research through various national and international training and workshop. Despite a short tenure of the program, under the close mentoring and hands on training supported the clinicians and the public health researchers to submit nineteen research grants, six protocols to the respective institutional review board (IRB), and fourteen manuscripts in local and peer reviewed journals.
- By organizing country's the 1st Scientific Congress on NCD on October, 2019, created a platform for the fellow clinicians/ researchers from various institutions in Bangladesh to present their research findings in front of large audience.
- The congress also helped to create consortium of expert panel of different discipline who mentored the clinicians in improving their scientific writing. Within the short period of the project we received support and time from the enthusiastic collaborators at free of cost.

Chapter 10: Impact of the project

Impact on physical resources:

- Grant submission: Both clinical and public health researchers are trained to develop high quality research ideas. Within the project period the fellows from icddr, b submitted 19 proposals in response to different grant calls. From January- April' 2020 the icddr, b fellows submitted 6 proposals both in group and individually
- Protocol: Under the program, both external and icddr, b fellows got chance to write 6 protocols to obtain clearance from institutional review board (IRB).
- Manuscript publication: Based on the hands on training on scientific writing, seven fellows published 14 manuscripts in local and peer reviewed journal as first author or coauthor. The icddr, b fellows have been started working on their manuscripts for generating high quality research evidence and publish them in high impact journal from January 2020 after completion of the project
- Abstract publication: utilizing internal data source, D71 fellows were able to write abstract their and 9 of them submitted their abstracts in the 1st Scientific Congress on NCD. Besides, D71 fellows, clinicians and public health researchers of different institutions submitted abstracts and total 200 research works under nine thematic areas of the Congress have been published in the conference proceedings.

Impact on institutional resources:

- Establishment of Clinical Research Platform, Bangladesh, a tripartite agreement among icddr, b, BSMMU and British Medical Journal, created a network between clinicians and public health researchers which open an opportunity of new collaborations for conducting clinical research.
- As an institution, icddr, b also get chance to expand its research infrastructure in clinical institutions of Bangladesh beyond icddr, b's hospital and field sites.
- A large pool of NCD experts from various clinical institutions in Bangladesh brought into a single platform and formed a NCD expert panel for conducting NCD research
- International faculty consortium also developed

- Country's first ever scientific Congress on NCD was conducted in Bangladesh

Impact on information resources:

- Under this project a webpage to exhibit all the activities of D71 project as well as that of the Clinical Research Platform Bangladesh. This webpage is become a digital platform of knowledge sharing hub for more than 400 clinicians and public health researchers. In near future this the users of the webpage will have the access of sharing data, methods of designing different research ideas and also scope of webinar on different research topics. Please visit the web link: www.crplatform.icddrb.org.
- Availability of the electronic version of the abstract book for referring knowledge about different themes of Noncommunicable diseases.
<http://www.crplatform.icddrb.org/conference-copy>

Chapter 11: Limitations

1. Despite a short tenure of the program we have been able to achieve some success in achieving aim 1 and 2. However, due to time and resource constrains we have not yet achieved the aim 3 3 of developing common data source at different institutions to create access to essential data for prospective PhD candidates due to resource and budget constraints.
2. the Scientific Writing Committee would not able to organize hands on training sessions following congress for supporting the fellows on writing manuscripts to publish in peer reviewed journals because of shortage of funding and resources based on their abstracts
3. Due to resource constrains virtual activities were not well established during the tenure of the project

Chapter 12: Recommendations

1. To achieve the ultimate goal of strengthening clinical research in Bangladesh it is critical to continue the capacity building program in Noncommunicable disease research for at least 3-5 years more and support further strengthening the capacity of the existing cohort for creating essential leadership in NCD research of Bangladesh.
2. Need to explore further funds to develop larger electronic database and develop a standardized common set of data source at different institutions, so that prospective PhD candidates can access to essential data for conducting research and other academic purposes.

Chapter 13: Annexure

Annexure 13.1: Name and designation of the Jury board members: Scientific Jury Board

1. Jury Board: Hypertension & Cardiovascular Diseases

- Professor Dr. Sajal Krishna Banerjee, Head, Division of Clinical Cardiology, BSMMU
- Professor Dr. Syed Ali Ahsan, Chairman, Department of Cardiology & Head, Division of Interventional Cardiology, BSMMU
- Professor Dr. Afzalur Rahman, Director, National Institute of Cardiovascular and Diseases (NICVD)
- Professor Dr. Abdul Wadud Chowdhury, Head, Department of Cardiology, DMCH
- Professor Dr. Harisul Haque, Department of Cardiology, BSMMU
- Professor Dr. Mohd. Zahid Hussain, Chairman, Paediatric Cardiology, BSMMU
- Professor Dr. Sohel Reza Chowdhury, Head, Department of Epidemiology and Research, National Heart Foundation Hospital and Research Institute
- Dr. Dhiman Banik, Associate Professor, Department of Cardiology, National Heart Foundation Hospital and Research Institute
- Dr. A.K.M. Monwarul Islam, Associate Professor, National Institute of Cardiovascular and Diseases (NICVD)
- Dr. Muhammad Yunus, Emeritus Scientist, MCHD, icddr, b
- Dr. Fatema Khatun, Associate Scientist, HSPSD, icddrb
- Dr. Arifur Rahman, NICVD (D71 Fellow)
- Dr. Noshin Farzana, icddr, b (D71 Fellow)

2. Jury Board: Prevention of Diabetes in Bangladesh

- Professor Dr. Md. Farid Uddin, Chairman, Department of Endocrinology, BSMMU
- Professor Dr. Md. Abul Hasanat, Department of Endocrinology, BSMMU
- Professor Dr. M. Abu Sayeed, Department of Endocrinology, Ibrahim Medical College
- Professor Dr. Md. M. A. Jalil Ansari, Professor & Head, Department of Endocrinology, Dhaka Medical College & Hospital

- Professor Dr. Dipak Kumar Nag, **Professor & Head of the department, Vitreo-Retina,** National Institute of Ophthalmology & Hospital
- Dr. Ruhul Amin, Associate Professor, Department of Endocrinology, Sir Salimullah Medical College & Mitford Hospital, Dhaka
- Dr. Parvin Akter Khanam, Associate Professor, Department of Epidemiology & Biostatistics, BIRDEM
- Dr. Tareen Ahmed, Deputy Director, Health Education Department, BIRDEM
- Dr. Biswajit Bhawmik, Coordinator, Centre for Global Research, BADAS, Dhaka, Bangladesh
- Dr. Shahjada Selim, Assistant Professor, Department of Endocrinology, BSMMU
- Dr. Md. Shafiqul Alam Sarker, Emeritus Scientist, NCSD, icddr, b
- Dr. Sabrina Rasheed, Associate Scientist, Universal Health Coverage, icddr,b
- D71 Fellow: Mr. Nantu Chakma, INCD, icddr, b

3. Jury Board: Stroke and other Neurological disorders

- Professor Dr. Md. Rafiqul Islam, Chairman, Department of Neurology, BSMMU
- Professor Dr. Abu Nasar Rizvi, Department of Neurology, BSMMU
- Professor Dr. Md. Badrul Alam, Joint Director and Professor of Neurology, National Institute of Neuroscience & Hospital
- Professor Dr. Md. Mizanur Rahman, Chairman, Department of Pediatric Neurology, BSMMU
- Professor Dr. Md. Azharul Hoque, National Institute of Neuroscience & Hospital
- Professor. Dr. Maliha Hakim, Department of Neurology, National Institute of Neuroscience & Hospital
- Professor Dr. Kazi Mohibur Rahman, Department of Neurology, National Institute of Neuroscience & Hospital
- Professor Dr. Sharifuddin Khan, Department of Interventional Neurology, National Institute of Neuroscience & Hospital
- Professor Dr. Md. Abdul Hannan, Department of Neurology, Bangabandhu Sheikh Mujib Medical University

- Professor Dr. Md. Moniruzzaman Bhuiyan, Department of Neurology, Bangabandhu Sheikh Mujib Medical University
- Dr. Kazi Gias Uddin Ahmed, Associate Professor, Department of Neurology, Dhaka Medical College Hospital
- Badrul Islam Sinha, Research Investigator, LSSD, icddr, b
- D71 fellow: Dr. Josepha Elizabeth, Research Officer, INCD, icddr,b

4. Jury Board: Mental Health and NDD

- Professor Dr. Shaheen Akhter, Director, IPNA,BSMMU
- Professor Dr. M.M.A. Shalahuddin Qusar, Chairman, Department of Psychiatry, BSMMU
- Professor Dr. Mohammad Sayadul Islam Mullick, Department of Psychiatry, BSMMU
- Professor Dr. Jhunu Shamsun Nahar, Department of Psychiatry, BSMMU
- Professor Dr. Akhlaq Hossain Khan, Assistant Professor, Department of Neurology, BSMMU
- Dr. Helal Uddin Ahmed, Associate Professor, National Institute of Mental Health
- Dr. Mekhala Sarker, Associate Professor, National Institute of Mental Health
- D71 fellow: Dr. Jannat Ara Shefa, Research Physician, Institute of Paediatric Neurodisorder & autism (IPNA), BSMMU
- D71 fellow: Dr. Mir Nabila Ashraf, Research Fellow, INCD, icddr, b

5. Jury Board: Chronic Kidney Diseases:

- Professor Dr. Muhammad Rafiqul Alam, Pro-vice Chancellor (Administration) Department of Nephrology, BSMMU
- Professor Dr. Md. Nurul Hooda, Director, National Institute of Kidney Diseases & Urology (NIKDU)
- Professor Dr. Haurun Rashid, Chairman Kidney Foundation Hospital & Research Institute
- Professor Dr. Ayub Ali Chowdhury, Department of Nephrology, National Institute of Kidney Diseases & Urology (NIKDU)
- Professor Dr. M. Muhibur Rahman, Department of Nephrology, Popular Medical College
- Professor Dr. Asia Khanam, Chairman, Department of Nephrology, BSMMU

- Professor Dr. Md. Nizamuddin Chowdhury, Head, Department of Nephrology, Dhaka Medical College
- Professor Dr. Ranjit Ranjan Roy, Chairman, Department of Paediatric Nephrology, BSMMU
- Professor Dr. Sarwar Iqbal, Department of Nephrology, BIRDEM
- Professor Dr. Shamim Ahmed, Department of Nephrology, Kidney Foundation Hospital & Research Institute
- Dr. K.B.M Hadiuzzaman, Associate Professor, Department of Nephrology, BSMMU & General Secretary Renal Association
- Dr. Md. Nazrul Islam, Associate Professor, Department of Nephrology, Dhaka Medical College
- Dr. Kazi Shahnoor Alam, Associate Professor, Department of Nephrology, National Institute of Kidney Diseases & Urology (NIKDU)
- Dr. Babrul Alam, Associate Professor, Department of Nephrology, National Institute of Kidney Diseases & Urology (NIKDU)
- Dr. Hasinatul Jannat, NIKDU (D71 Fellow)
- Dr. Josepha Elizabeth, icddr, b (D71 Fellow)

6. Jury Board: Rheumatology and Musculoskeletal Disorders

- Professor Dr. Shahana Akhter Rahman, Pro Vice Chancellor (Academic), BSMMU
- Professor Dr. Syed Atiqul Haq, Department of Rheumatology, BSMMU
- Professor Dr. Md. Nazrul Islam, Chairman, Department of Rheumatology, BSMMU

7. Jury Board: Chronic Respiratory Diseases

- Professor Dr. Mohammed Atiqur Rahman, Treasurer of BSMMU, Professor of Department of Respiratory Medicine, BSMMU
- Professor Dr. Md. Shahedur Rahman Khan, Director, Department of Respiratory Medicine, NIDCH
- Professor Dr. AKM Mosharraf Hossain, Chairman, Department of Respiratory Medicine, BSMMU
- Professor Dr. Uttam Kumar Barua, Director, Shaheed Suhrawardy Medical College and Hospital, Professor & Head, Department of Respiratory Medicine

- Professor Dr. Md. Mohiuddin Ahmad, Professor & Head, Department of Respiratory Medicine, DMC, Dhaka
- Professor Dr. Md. Rafiqul Islam, Head, Dept. of Respiratory Medicine, SSMCH
- Professor Dr. Md. Delwar Hossain, Internal Medicine & Pulmonology, Ibrahim Medical College
- Professor Dr. Md. Khairul Hassan Jessy, Department of Respiratory Medicine, NIDCH
- Dr. Shamim Ahmed, Associate Professor, Department of Respiratory Medicine , BSMMU
- Dr. Muhammad Yunus, Emeritus Scientist, MCHD, icddr, b
- Dr. Mir Nabila Ashraf, icddr, b (D71 Fellow)

8. Jury Board: Oncology

- Professor Dr. Chowdhury Yakub Jamal, Dean, Faculty of Pediatric, Professor of Pediatric Hematology and Oncology, BSMMU.
- Professor Dr. Sabera Khatun, Ex-Chairman, Department of Gynaecological Oncology, BSMMU.
- Professor Dr. Sarwar Alam, Chairman, Department of Oncology, BSMMU
- Professor Dr. Md. Moarraf Hossen, Director cum Professor of Radiotherapy, NICRH
- Professor Dr. Md. Mafizur Rahman, Head, Department of Radiation Oncology, NICRH
- Professor Dr. Qazi Mushtaq Hussain, Head Department of Radiotherapy, Dhaka Medical College Hospital
- Professor Dr. Md. Anwarul Karim, Chairman, Department of Paediatric Hematology and Oncology, Bangabandhu Sheikh Mujib Medical University
- Dr. Aliya Shahnaz, Associate Professor, Department of Oncology, Dhaka Medical College & Hospital
- Dr. Mohammad Sayeed Hossain, Assistant Professor, Department of Radiation Oncology, NICRH.
- Dr. Md. Moshir Rahman, Assistant Professor, Department of Radiation Oncology, NICRH

9. Jury Board: Evidence of NCD in Bangladesh: Prevention & control

- Dr. Nur Mohammad, Line Director, NCDC Programme, Directorate General Health Services
- Professor Dr. Syed Shariful Islam, Chairman, Department of Public Health and Informatics
- Dr. Mahmood-Uz-Jahan, Director, Bangladesh Medical Research Council (BMRC)
- Dr. Aliya Naheed, Scientist & Head Initiative for Noncommunicable Diseases, Health Systems and Population Studies Division, icddr, b
- Professor Dr. Sohel Reza Chowdhury, Head, Dept. of Epidemiology and Research, National Heart Foundation Hospital and Research Institute
- Dr. Saidur Rahman Mashreky, Director, Public Health and Injury Prevention, Centre for Injury Prevention, Health Development and Research, Bangladesh (CIPRB)
- Saimul Islam, icddr, b (D71 Fellow)

Annexure 13.2: Organizing Committee Members of 1st Scientific Congress on Non communicable Diseases

To organize the conference an organizing committee developed and this committee gathered for 5 meeting to organize the 1st Scientific Congress on NCD properly.

□ Convener of the Congress:

Dr. Aliya Naheed, Scientist & Head Initiative for Noncommunicable Diseases, Health Systems and Population Studies Division, icddr, b

The Organizing Committee

Chair: Professor Dr. Kanak Kanti Barua, Vice Chancellor, BSMMU

Co-chair: Dr. Aliya Naheed, Head, Initiative of NCD, icddr, b

Member:

1. Professor Dr. Mohammed Kamal, Dean, Faculty of Basic Science and Para Clinical Science, BSMMU
2. Dr. Mahmood-Uz-Jahan , Director, Bangladesh Medical Research Council (BMRC)

a. Registration Committee

Chair: Professor Dr. Syed Mozaffor Ahmed, Proctor, BSMMU

Co chair: Dr. Fahmida Tofail, Scientist, NCSD, icddr,b

Members:

1. Professor Dr. Md. Abu Taher , Assistant Proctor, BSMMU
2. Dr. Josepha Elizabeth, Research Officer, INCD, icddr,b

b. Conference Management Committee:

Chair: Professor Dr. A B M Abdul Hannan, Registrar, BSMMU

Co-Chair: Mohammad Noushad Chowdhury, Director, Supply Chain and Facilities Management, icddr,b

Members:

1. Professor Dr. Md. Ashadul Islam, Additional Registrar-1, BSMMU
2. Dr. Shaikh Abdullah Al Mamun, Deputy Registrar-1
3. Mr. AKM Emdadul Haque, Senior Administrative, INCD, icddr, b

c. Program Committee

Chair: Professor Dr. Md. Shahidullah Sikder, Pro-vice Chancellor (Research and Development) Department of Dermatology, BSMMU

Co chair: Dr. Muhammad Yunus, Emeritus Scientist, MCHD, icddr, b

Members:

1. Professor Dr. Mohd. Zahid Hussain, Chairman, Pediatric Cardiology, BSMMU
2. Professor Dr. Md. Abul Hasnat Joarder, Department of Otolaryngology, BSMMU

The Finance committee

Chair: Professor Dr. Mohammed Atiqur Rahman, Treasurer, BSMMU

Co Chair: Thomas Liam Barry, Director of Finance, icddr, b

Members:

1. Professor Dr. Salimur Rahman, Department of Hepatology, BSMMU
2. Ms. Annrita Muthoni Mugambi, Controller Finance, Finance, Central Management Services, icddr, b
3. Anjon Kumar Dey, Senior Treasury Officer
4. A. K. M Solayman, Data Management officer, Initiative for NCD, HSPSD, icddr, b

The Scientific Committee

Chair: Professor John D. Clemens, Executive Director, icddr,b

Co chair:

- **Professor Dr. Chowdhury Yakub Jamal**, Dean, Faculty of Pediatrics, Professor of Pediatric Hematology & Oncology
- Dr. Daniel D Reidpath, Sr. Director, Health Systems and Population Studies Division, icddr,b

Advisors:

- Professor Dr. A.H.M. Enayet Hussain, Additional Director General, Planning and Development, DGHS
- Dr. Shams El Arifeen, Senior Director, Maternal & Child Health, Maternal and Neonatal Health, icddr,b

- Dr. Rubhana Raqib, Senior Scientist, Enteric and Respiratory Infections Infectious Diseases Division, icddr,b

a) Publication and Dissemination Committee:

Chair: Professor Dr. Harisul Haque, Department of Cardiology, BSMMU

Co Chair: Dr. Fahmida Tofail, Scientist, NCSD, icddr, b

Member:

1. Dr. KM Tarikul Islam, Associate Professor, Department of Neuro Surgery, BSMMU
2. Dr. Mohammad Ashraf Uddin Sultan, Research Assistant, Department of Cardiology, BSMMU
3. Mr. Md. Saiful Islam, Senior Manager Communications, icddr, b



Organizing committee meeting

Annexure: 13. 3: Top 10 abstracts of nine themes:

1. Cardiovascular Diseases & Hypertension:

Name	Title of abstract	Institution
Dr Mohammad Abdur Rahim	Prediction of Coronary Artery Disease Severity by Using CHA2DS2-VASC-HSF Score in Patients with ST-Elevation Myocardial Infarction	Post graduate fellow ,NICVD
Ashraf Ur Rahman(Dr Tamal)	Association of Vitamin D Level with Severity of Angiographically Documented Coronary Artery Disease: Observations from Bangladeshi Patients	Department of Cardiology, National Institute of Cardiovascular Diseases (NICVD), Bangladesh.
Dr Mohammad Faisal Ibn Kabir	Betel nut chewing influences vitamin-D level	Assistant Professor, Department of Cardiology, BSMMU
Dr Md Fakhru Islam Khaled	Apical Hypertrophic Cardiomyopathy: A Frequently Missed Fatal Diagnostic Entity	Assistant Professor Department of Cardiology, BSMMU
Mohammad Walidur Rahman	Frequency and Characteristics of Patients with Heart Failure with Preserved Ejection Fraction in a Tertiary Level Hospital of Bangladesh.	Resident, BSMMU
Dr Chayan Kumar Singha	Echocardiographic assessment of rheumatic valvular disease and their complications in Bangabandhu Sheikh Mujib Medical University---a one year study	Medical Officer, Department of Cardiology , BSMMU
Mohammad Khurshadul Alam	The pattern of cardiac arrhythmias in acute ST elevated myocardial infarction and their in-hospital outcome	MD Student Thesis Part
Dr Md Noornabi Khondoker	Comparison between spironolactone and eplerenone on LV systolic function in patients with chronic heart failure	1 Resident, University Cardiac Center, BSMMU, Bangladesh
Dr. Redoy Ranjan	Prevalence And Risk Factor Analysis Of Stroke After Coronary Artery Bypass Graft Surgery	Assistant Professor, Department of cardiology, BSMMU
Dr Md Mashiul Alam	A comparative study of different treadmill scores to diagnose coronary artery disease among patients attending Bangabandhu Sheikh Mujib Medical University	Assistant Professor of Cardiology, Jahurul Islam Medical College & Hospital

2. Prevention of diabetes in Bangladesh

Name	Title of abstract	Institution
Dr Md Firoj Hossain	Comparison Of Vitamin D Status between newly detected Type 2 Diabetes Mellitus and control	Junior Consultant (Medicine), Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.
Bilkis Banu	Drug, diet and physical activities management of Bangladeshi rural diabetic patient	Dept of Public Health, Northern University Bangladesh
Dr Afsana Habib Sheuly	Scaling up Diabetic Retinopathy Services (SDRS) Phase-II: reflects the epidemic of Diabetic Retinopathy in Bangladesh	Project Manager, Helen Keller International, Bangladesh
Dr. Ashim Dhar	Thyroid (Have to call to give title)	
Dr. Noshin Farzana	Prevalence of diabetic retinopathy among ambulatory diabetic patients visiting tertiary hospitals in Bangladesh	Project Research physician, ICDDR,B
Dr Md Habibul Ghani	Outcome of Vitamin D Supplementation on Prediabetic Adults with Vitamin D Deficiency	Resident, phase-B BSMMU
Dipak Nag	Diabetic Retinopathy in Youth-Onset Diabetes: reports from a screening centre in Bangladesh	Professor and Head, Department of Vitreo-retina, National Institute of Ophthalmology & Hospital
Dr Md Shahed Morshed	Is There Any Relationship between Vitamin D and Insulin Resistance among Adults with Prediabetes?	Post Graduate fellow, BSMMU
Farhana Karim	Cost of care for T2 Diabetes management of patients attending the tertiary level hospitals in Dhaka	Assistant Scientist, International Centre for Diarrhoeal Disease and Research, Bangladesh
Dr Ibrahim Faisal	Vitamin D status and its relation with tumour necrosis factor-alpha and high sensitivity C-reactive protein among adults with prediabetes	Resident, BSMMU

3. Mental Health and Neurodevelopmental disorders:

Name	Title of abstract	Institution
Jhunu Shamsun Nahar	Psychiatric Morbidity among rural and slum female population: a study conducted in Bangladesh	Professor, Department of psychiatry, BSMMU
Naznin Sultana	A CROSS SECTIONAL STUDY ON RELATIONSHIP BETWEEN LONELINESS AND DEPRESSION AMONG ELDERLY IN DHAKA BANGLADESH	North South University
Naheed Nabi	Primary Developmental findings of Cerebral Palsy children at first visit	Institute Of Paediatric-Neurodisorder and Autism (IPNA)
Saimul Islam	Impact of psychosocial intervention on depression among mothers of children with autism spectrum disorder in Bangladesh Theme: Mental health and Neurodevelopmental Disorders	Icddr,b
Samiha Kaisar	Environmental Noise Exposure and Learning Performance of Secondary School Students	National Institution of Preventive and Social Medicine
Dr. Jannatara Shefa	Nutritional status and its association with cognitive level in children with autism in Bangladesh	Institute of Paediatric Neurodisorder and Autism (IPNA), BSMMU
Syed Emdadul Haque	Mental health problem among adolescents and youth in Bangladesh	UChicago Research Bangladesh
Dr. Kamrun Nahar Koly	Feasibility of psychosocial supports can improve quality of life among the mothers of children with autism spectrum disorder in Bangladesh	icddr,b
Dr. Fatima Zohra	Perinatal factors among children neurodevelopmental disorders in outpatient department of psychiatry	National institute of Mental Health
Dr. Panchanan Acharjee	The pattern of help-seeking behavior among patients with sexual dysfunctions attending in psychiatry outpatient department in a tertiary care hospital of Bangladesh.	Assistant Professor, Department of Psychiatry, Chattogram Medical College

4. Stroke and other Neurological Disorders:

Name	Title of abstract	Institution
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Dr A T M Hasibul Hasan	Prevalence and Risk Factors of Stroke in Bangladesh: A Nationwide Population Based Survey	Registrar , National Institute of Neurosciences and Hospital
Assc prof Sukriti Das	Tranexamic acid for the treatment of significant traumatic brain injury	Associate Professor , Dhaka Medical College Hospital
Nasreen Sultana	Easy Z score imaging systems in brain perfusion SPECT for the assessment of severity of AD.	Professo, National Institute of Nuclear Medicine and Allied Sciences,
Badrul Islam	Guillain-Barré syndrome in Bangladesh - An overview	Research Investigator, International Centre for Diarrhoeal Disease Research, (icddr,b), Dhaka, Bangladesh;
Dr. Mir Nabila Ashraf	Behavior and cardio metabolic risk factors among patients with Dementia in Bangladesh	Research Fellow , Icddr,b
Sukriti Das	Stem Cell Research in Bangladesh: Neurosurgical Perspective	Associate Professor, department of Neurosurgery, Dhaka Medical College & Hospital
Mohammad Shahidullah	Ischemic Stroke Subtyping, based on Vascular Imaging	Associate Professor of Neurology BSMMU
Dr S M Monir Hossain	Cerebral revascularization by EC-IC bypass in ischemic conditions of different etiological mode	Assistant Registrar, National Institute of Neurosciences and Hospital
Anil Kumar Shah	Vitamin D Status and the Determinants of its Deficiency in Admitted Acute Ischemic Stroke Patients of a Tertiary Care Hospital in Bangladesh	MD Resident Bangabandhu Seikh Mujib Medical University
Dr. Mir Nabila Ashraf	Determinants of stroke among adult male (30-65 years) of Bangladesh-a hospital based case-control study	Research Fellow , Icddr,b

5. Chronic Kidney Diseases:

Name	Title of abstract	Institution
Dr Nura Afza Salma Begum	The start of ABO incompatible Kidney Transplantation in Bangladesh - review of five cases	Assistant Professor, Kidney Foundation

		Hospital and Research Institute
Dr Sanjoy Kanta Nath	Relationship of vascular access flow with impaired right ventricular function in chronic hemodialysis patients	MD (Nephrology), Department of Nephrology Dhaka Medical College
Dr Jahangir Md Sarwar	Autologous adipose derived stem cell trasplantation shows promising prospect in management of CKD	Senior Consultant 250 Bedded General Hospital, Manikganj, Bangladesh
Dr Mohammad Rezaul Hossain	Aetiopathological pattern of patients with chronic kidney disease of unknown aetiology (CKDu	Department of Nephrology Dhaka Medical college, Dhaka, Bangladesh
Dr Tasnuva Sarah Kashem	Validating continuous glucose monitoring system in haemodialysis patients	Assistant Professor of Nephrology, Kidney Foundation Hospital and Research institute, Bangladesh
Shudhanshu K Saha	Relationship between anemia and biochemical parameters of metabolic bone disease in chronic kidney disease stages 3-5 pre-dialysis patients	Registrar, Department of Nephrology, BIRDEM General Hospital, Dhaka, Bangladesh
Muhammad Abdur Rahim	High prevalence of chronic kidney disease stages 3-5 among patients with type 2 diabetes mellitus in Bangladesh	Associate Professor, Department of Nephrology, Ibrahim Medical College & BIRDEM General Hospital, Dhaka, Bangladesh;
Dr. Tridip Kanti Barman	Comparison of Cardiac Outcome of Continuous Ambulatory Peritoneal Dialysis & Hemodialysis in Chronic Kidney Disease 5 Patients with Heart Failure	MD (Nephrology) Phase B examinee, Department of Nephrology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

6. Chronic Respiratory Diseases:

Name	Title of abstract	Institution
Dr Dibanur Rashid	Prevalence of Respiratory Symptoms among Cotton Mill Workers in Bangladesh	Resident, Pulmonology, BSMMU.

Dr. Abdullah Al Masud	Histopathological Pattern of Bronchial Carcinoma among Women in Bangabandhu Sheikh Mujib Medical University	BSMMU
Dr Shish Mohammad Sarker	Frequency of Osteoporosis among Chronic Obstructive Pulmonary Disease Patients attending Respiratory Medicine Out Patient Department, BSMMU	Respiratory Medicine Out Patient Department, BSMMU
Dr Md Mamunur Rashid	Insight into the uses of non-invasive ventilation for management of COPD exacerbation over one year	Assistant Professor, respiratory Medicine; National Institute of diseases of Chest and Hospital (NIDCH), Dhaka
Muhammad Ashique Haider Chowdhury	Primary care strategies to ensure quality health services for chronic respiratory patients: an exploratory study in three rural sub-districts of Bangladesh	PhD Student, University of Chicago
Dr. Kazi Fawzia Afreen	INHALED MANNITOL IN PATIENTS WITH BRONCHIECTASIS: EFFECT ON LUNG FUNCTION AND HEALTH STATUS	Assistant Professor, Department of Respiratory Medicine, National Institute of Diseases of The Chest & Hospital, Dhaka, Bangladesh
Dr. Muhammad Ali Ashraf	Bone mineral density among Chronic Obstructive Pulmonary Disease patients admitted in a tertiary level hospital	MBBS, FCPS (Medicine) Part-II
Dr Md Rowshan Arif	Pattern of bacterial infection in acute exacerbation of COPD in a Tertiary Care Hospital	Resident, BSMMU
Dr. Anita Rubaiya	Observation of pulmonary function among cotton mill workers in Bangladesh with spirometric assessment	Resident, BSMMU

7. Rheumatology and Musculoskeletal Disorders

Name	Title of abstract	Institution
Prof Md Nazrul Islam	Tofacitinib versus lower dosage etanercept in refractory spondyloarthritis: a pilot study from Bangladesh	Chairman, Department of Rheumatology Bangabandhu Sheikh Mujib Medical University (BSMMU) Dhaka, Bangladesh

Mohammad Abul Kalam Azad	Urinary tract infection in patients of systemic lupus erythematosus-report from a developing country	Medical officer Bangabandhu Sheikh Mujib Medical University
Ali Hasan Farid	Anticardiolipin antibody in paediatric sle patients and its association with neuropsychiatric manifestations	Department of Paediatrics
Mujammel Haque	Assessment of Growing Pain and its Risk Factors in School Children.	Department of Paediatrics
Sufia Khatun Sumi	Assessment of serum concentrations of vitamin D, calcium, inorganic phosphate, alkaline phosphatase and parathormone in Juvenile Idiopathic Arthritis Patients in	Department of Paediatrics Bangabandhu Sheikh Mujib Medical University
Dr Farah Habibur Rahman	Use of different loading dosages of vitamin D3 in young adults with vitamin d deficiency in Bangladesh on	Medical Officer Modern One Stop Arthritis Care and Research Center, Dhaka, Bangladesh
Dr Parisa Khandaker	Knowledge about hepatitis B virus infection among patients attending tertiary care rheumatology center of Bangladesh	Medical Officer Modern One Stop Arthritis Care and Research Center, Dhaka, Bangladesh
Dr Ashik Uz Zaman	Use of lower dose etanercept and risk of tuberculosis in spondyloarthritis patients-study from a tuberculosis endemic country	Medical Officer , Modern One Stop Arthritis Care and Research Center, Dhaka, Bangladesh
Dr Fahid Bin Nazrul	Associated factors of vitamin D deficiency among the female rheumatic patients in Bangladesh	Medical Officer, National Heart Foundation Hospital and Research Institute, Dhaka, Bangladesh

8. Oncology

Name	Title	Designation:
Dr Momena Begum	Children treated with metronomic chemotherapy in a low and middle income country; is a new concept in oncology	Department of Pediatric Hematology and Oncology

		Bangabandhu Sheikh Mujib Medical University.
Dr nazneen sultana	Frequency, risk factors, severity and clinical manifestations of vincristine induced peripheral neuropathy in children undergoing chemotherapy for acute lymphoblastic leukemia during induction	Department of Paediatric Haematology and Oncology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh.
Dr. Suriana Sultana	Cervical Carcinoma patterns of presentation and management: Recent experience in National Cancer Research Institute and Hospital, Bangladesh	National Cancer Research Institute and Hospital FCPS Part 2 Trainee
Dr. Syed Mohammad Ariful	Female Lung cancer: an emerging issue in Bangladesh	Assistant Professor, Medical oncology, National institute of cancer research and hospital, Dhaka
Md Abdur Rafi	Knowledge and awareness about cervical cancer and prevalence of HPV vaccination among university students of Bangladesh	Paediatric Haematology and Oncology, Department of Microbiology Dhaka, Bangabandhu Sheikh Mujib Medical University (BSMMU) Bangladesh
Dr Mehnaz Akter	Efficacy and Safety of Piperacillin-Tazobactam and Cefepime as empirical therapy for febrile neutropenic children with Acute Lymphoblastic Leukaemia	
DRrFarzana Islam	Role of Fluconazole as Antifungal Prophylaxis during Induction Phase of Chemotherapy in Paediatric Acute Leukaemia	
Prof. Ashrafunnessa	Staging of Cervical Cancer at the Colposcopy Clinic of BSMMU	Chairman, Department of Gynaecology Oncology
Dr. Shirin Tarafder	Mixed-phenotype acute leukemia : Flow cytometric analysis in a tertiary care center of Bangladesh	Associate Professor Department of Microbiology, BSMMU
Muhammad Rafiqul Islam	Geriatric oncology and Bangladesh: A clinical jeopardy of cancer patient management in near future.	Assistant Professor, Medical Oncology National institute of cancer research and hospital, Dhaka

9. Evidence of NCD: Prevention and Control

Name	Title	Designation:
Md Mohibur Hossain Nirob	Media representation of NCDs in Bangladesh	Resident , Bangabondhu Sheikh Mujib Medical University
Sharadindu Shekhar Roy	Comparison of risk factors between Young and older patients presenting with Acute Myocardial Infraction	NICVD
Saifur Rahman Chowdhury	Sociodemographic status and multimorbidity development among adults: a systematic review and meta-analysis	North South University, Bangladesh
Dr. Josepha Elizabeth	Burden of dementia among elderly population in Bangladesh and multi morbidity	Icddr,b
Dr.Monira Hossain	Fasting lipid profile in overweight and obese children: A hospital based study	
Saimul Islam	Double burden of malnutrition among school going children	Statistical officer, Icddr,b
H E M Mahbubul Eunos	Electronic health record system for NCDs diagnosis, care and management	Coordinator, UChicago Research Bangladesh
Dr Tahniyah Haq	Cardiometabolic risk in overweight and obese children in Bangladesh	Assistant Professor , BSMMU
Ahmad Khairul Abrar	Association of Smoking and SLT with Blood Lipids in a Urban Slum Population of Dhaka	Program officer (Tobacco Control Program), Department of Epidemiology and Research, National Heart Foundation Hospital and Research Institute
Abu Abdullah Mohammad Hanif	Prevalence and determinants of hypertension and self-reported diabetes among the elderly population of Bangladesh	Senior Research Fellow BRAC James P Grant School of Public Health

Annexure 13.4: Winners of the scientific sessions of 1st Scientific Congress on NCD

Theme	Category	Winner	Research Topic
1. Hypertension and cardiovascular Diseases	Oral	Dr Mohammad Faisal Ibn Kabir Assistant Professor, Department Department of Cardiology, BSMMU	Betel nut chewing influences vitamin-D level
	Poster	Dr Chayan Kumar Singha Medical Officer BSMMU	Echocardiographic assessment of rheumatic valvular disease and their complications in Bangabandhu Sheikh Mujib Medical University---a one year study
2. Prevention of Diabetes in Bangladesh	Oral	Bilkis Banu Assistant Professor, Dept of Public Health, Northern University Bangladesh	Drug, diet and physical activities management of Bangladeshi rural diabetic patient
	Poster	Dr IBRAHIM FAISAL, Post Graduate Student, BSMMU	Vitamin D status and its relation with tumour necrosis factor-alpha and high sensitivity C-reactive protein among adults with prediabetes
3. Stroke and other Neurological Disorders	Oral	Dr A T M Hasibul Hasan Registrar	Prevalence and Risk Factors of Stroke in Bangladesh: A

		National Institute of Neurosciences and Hospital	Nationwide Population Based Survey
	Poster	Dr. Sukriti Das Associate Professor, department of Neurosurgery Dhaka Medical College & Hospital	Stem Cell Research in Bangladesh: Neurosurgical Perspective
4. Chronic Kidney Diseases	Oral	Dr Nura Afza Salma Begum Assistant Professor; Kidney Foundation Hospital and Research Institute	The start of ABO incompatible Kidney Transplantation in Bangladesh - review of five cases
	Poster	Dr Nura Afza Salma Begum Assistant Professor; Kidney Foundation Hospital and Research Institute	The start of ABO incompatible Kidney Transplantation in Bangladesh - review of five cases
		Dr Nura Afza Salma Begum Assistant Professor; Kidney Foundation Hospital and Research Institute	The start of ABO incompatible Kidney Transplantation in Bangladesh - review of five cases
5. Chronic Respiratory Diseases	Oral	Dr Md Mamunur Rashid	Insight into the uses of non-invasive ventilation

		Assistant Professor, respiratory Medicine; National Institute of diseases of Chest and Hospital (NIDCH), Dhaka	for management of COPD exacerbation over one year
	Poster	DR ANITA RUBAIYA HUSAIN; BSMMU	Observation of pulmonary function among cotton mill workers in Bangladesh with spirometric assessment
6. Mental Health and Neurodevelopmental Disorders	Oral	Dr. Saleh Uddin Ahmed, Assistant Professor, Department of Psychiatry, BSMMU	Psychiatric Morbidity among rural and slum female population: a study conducted in Bangladesh
	Poster	Dr. Fatima Zohra, Psychiatrist, Uttora Adhunik Medical College	Perinatal factors among children neurodevelopmental disorders in outpatient department of psychiatry
7. Rheumatology and Musculoskeletal Disorders	Oral	Dr. Mahfil Ara Rahman Medical Officer and Research Assistant, Modern One Stop Arthritis Care and Research Center® (MOAC&RC®), Dhaka, Bangladesh	Tofacitinib versus lower dosage etanercept in refractory spondyloarthritis: a pilot study from Bangladesh
	Poster	Dr Farah Habibur Rahman	Use of different loading dosages of vitamin D3 in

		Medical Officer Modern One Stop Arthritis Care and Research Center® (MOAC&RC®), Dhaka, Bangladesh	young adults with vitamin d deficiency in Bangladesh on
8. Oncology	Oral	Dr. Mehnaz Akter	Efficacy and Safety of Piperacillin-Tazobactam and Cefepime as empirical therapy for febrile neutropenic children with Acute Lymphoblastic Leukemia
	Poster	Dr. Momena Begum Department of Pediatric Hematology and Oncology, Bangabandhu Sheikh Mujib Medical University.	Children treated with metronomic chemotherapy in a low and middle income country; is a new concept in oncology
9. Evidence of NCD in Bangladesh: Prevention and Control	Oral	Dr. Josepha Elizabeth Icddr,b;	Burden of dementia among elderly population in Bangladesh and multi morbidity
	Poster	Dr Tahniyah Haq Assistant Professor, BSMMU	Cardio metabolic risk in overweight and obese children in Bangladesh
10. Best innovation		Dr. Badrul Islam International Centre for Diarrhoeal Disease Research, (icddr,b), Dhaka, Bangladesh;	Guillain-Barré syndrome in Bangladesh - An overview

11. Best intervention		Dr Jahangir Md Sarwar Senior Consultant; 250 Bedded General Hospital, Manikganj, Bangladesh	AUTOLOGOUS ADIPOSE DERIVED STEM CELL TRASPLANTATION SHOWS PROMISING PROSPECT IN MANAGEMENT OF CKD
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Annexure 12.5: Gantt chart of the activities

Activities	Q1	Q2	Q3	Q4	Q5	Q7	Q8	Q9	Q10
	Sep- Dec'17	Jan- Mar'18	Apr- Jun'18	Jul- Sept'18	Oct- Dec'18	Jan- Mar'19	Apr- Jun'19	Jul- Sept'19	Oct- Dec'19
Grant awarded									
Activation of the grant									
Steering Committee formation									
Briefing session of D71									
Workshop with Local editors									
Fellows selection and working Committee development									
Workshop on Scientific Manuscript Writing in Dubai, UAE									
Work shop on Introduction of D71 & NCD epidemiology									
Work shop on Introduction to basic research methodology and epidemiological study designs									
Work shop on How to develop methodology in research protocol									
Work shop on Training program of Economic Evaluation and									

Prioritizing for Universal Health Coverage, JPGSPH, BRAC									
Work shop on Development and submission of protocol									
Webpage development and launching									
Study Design and Research Methods & Implementation Science, TGI, India									
Workshop on Literature review									
Workshops on “How to write an abstract for a conference”									
Preparatory phase of 1st Scientific Congress on NCD									
1st Scientific Congress on NCD									
Workshop on Manuscript writing with BMJ									
Electronic version of abstract book publication									