

Special / Invited Article

Ad-din Research Unit (ARU): Biomedical Research on the Move!

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First thing first:

Does research remain so important a tool in upgrading medical college and hospitals, particularly if it is a privatized one? The answer is simply 'Yes' and 'Logical'; if we take a deeper insight on to globally encaptivated phenomena called Research Capacity Building in short 'RCB'. RCB is defined as a 'process of developing sustainable abilities and skill development enabling individual/organization(s) performing quality research.¹⁻²

Our earlier observations, in-and-abroad, evidenced that no medical college/university teachers can reach the peak of success solely by virtue of completing academic curriculum. Rather, teaching-learning (T-L) facilitates following modern medical education can excel with the best outcome when it is adjunct with research activities, as reported from Australia³ and other authors, globally (*Personal Communication: Prof. PK Rajesh, Dep. VC, Acad. & International, AIMST Univ., Kedah, Malaysia with Dr. KS Anwar, IUHW, Narita, Japan, Jan 2021*).

Background Information:

In recent years, global interest in strategic planning for RCB has increased by few folds since it assists the healthcare professionals in flourishing much *McKeon et al* reported.³ Evidences from Bristol University, England, showed that RCB has a positive impact on policy, education, research and developmental issues- the gate way to build institutional research capacity.⁴

Building health professional capacity to engage in research has been prioritized in RCB concepts that yields multifaceted benefits towards: healthcare professionals, organizational benefits and patient satisfactions, essential or Health Services Research.⁵ All these benefits are ultimately translated into overall societal development, according to a recent systematic review that yields increased recognition of multi-strategic approach in RCB,⁵ enhanced positive attitude,⁶⁻⁸ and, increased uptake of research towards evidence-based practice⁹ as well as its motivators, enablers and barriers that includes enhanced job satisfaction⁹⁻¹¹ and a prudent RCB Framework¹²⁻¹³.

Reportedly, healthcare professionals involved in quality research have been reported to influence on infrastructure and processes of patient care, positively¹²⁻¹³ with a strong strategic planning and policy making^{6-11,13-14} including efficient services delivery⁷ and prioritizing healthcare workforce.^{9-11,14-16}

RCB- Bangladesh Context:

Before looking into our aim of producing quality research involving AWMCH clinicians or bio-medical faculties, let's review our country-specific RCB perspectives, first:

In Bangladesh, drives on RCB in medical college/hospitals, particularly in private hospitals has neither been reported nor been noticed. However, few large NGOs institutions (ICDDR, B, BRAC, CIPRB, etc.) and few GOB institutions (BSMMU, DMCH, DSH, etc.) reportedly excelled in health care service delivery and research activities utilizing their respective RCB-drives.

Thus, feeling recharged on the need of such drives, we, at the Ad-din Women Medical College (AWMC) started planning our '[Ad-din Research Unit \(ARU\)](#)' envisaging all 4 Ad-din Medical College Hospitals under the umbrella located in Dhaka, Khulna and Jessore of ARU.

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Rational: Will ARU drives add value in Ad-din income generating process?

Global interest on RCB is evidenced to grow faster over the past few years, particularly on strategic planning for research among health professionals. Literature yielded that RCB contributes high impacts on policy issues and educational attainments once blended with research and developmental (R&D) activities towards building institutional research capacity. This, in turn, aids in the improvement of quality in patient care and clinical management including standardizing the hospital laboratory services- all of which ultimately adds value in a hospital's income generating processes, obviously, though gradually, yet steadily.

Targeting these aforementioned contexts some senior doctors like, Prof. ARML Kabir, Head, Dept. of Pediatrics, Dr. Richmond Gomes, Assoc. Prof., Dept. of Internal Medicine, Prof. Afiquor Rahman, the Principal planned to form this ARU, led by Prof. Nahid Yasmin, the Director General (Hosp. and Nursing) which was finally approved by Dr. Sheikh Mohiuddin, the Exec. Director and CEO of Ad-din Foundations.

Plan of ARU:

- Conducting series of training courses/ workshops on research methodology
- Formulating various research projects and conducting those at par
- Collecting and storing data from various projects
- Publishing data/ reports/ manuscripts in various national and international journals
- Towards income generating process: preparing research projects to run with external funding
- Running service delivery (research products: training/ writing up projects/data management)

Finally, ARU was born!

Based on aforementioned facts and figures of evidenced based global practice of RCB in medical colleges hospital/institutions, 'Ad-din Research' Unit (ARU) was established on 26th May 2021 under AWMC.

ARU further envisions of bringing in all 4 existing Ad-din Medical Colleges under the one umbrella of ARU located in two large cities (Dhaka and Khulna) and in two district towns (Jessore and Kushtia).

ARU's goals:

The ultimate goal of ARU is to create a sustainable and optimum research environment at the AWMC to

encourage all clinical and bio-medical teachers, academicians and researchers/scientists to devote part of their weekly working time (at least 5%) into bio-medical, clinical and other research activities.

Short-Term Goals (*within one and half years from launching ARU*):

- To conduct series of courses/workshops on research methodology to assist the all-aforementioned teaching and hospital staff in creating interest and getting involved into bio-medical research
- To apply for funding from private, national and international donor's/research organizations/universities
- Give a hand towards strengthening the AWMC's Institutional Review Board (IRB) including creating an ERC & RRC committee involving subject expertise from AWMC and other National/ Universities/ Res Inst.
- To start boosting our AWMC journal to shape it up with quality and international indexing issues with doi.

Mid-Term Goals (*from 2nd year onwards*):

- ❖ Despite ARC's commitment and dedication towards achieving its short-term goals start formulating and organizing to conduct various big-budgeted research projects in collaboration with Dhaka Univ./ others
- ❖ To earn the international indexed status of our AWMC journal with/ under Doi system
- ❖ To arrange/launch various local/inter/national seminars /conference in different themes/ departments.
- ❖ To implement bi-lateral collaborative drives with AIMST university as per MoU (to be completed soon).

Lon-Term Goals (*from 3rd year onwards*):

- To achieve the first short and mid-term goals and keep it sustainable incorporating in future plans
- To emphasize more on increasing bi and tri-lateral collaboration with inst./Univ/ research organizations
- To increase the quality of our AWMC journal much more to attract global level of publications
- To make a system of handing over the chair of Head ARU on a 3-year contract basis after each term.

ARU's Plans and Programs:

- We now need to develop ARU further to provide our talented academicians and clinical experts a modest yet sound platform to facilitate them running the research activities, at par.
- The ARC-team will reach out to them all with a ready-to-go scientific platform prudently enough towards adding values in their scientific growth and research potentiality, thus, allowing them to accomplish to go for publishing their important research findings.
- Thus, our talented Ad-din doctors' hub can flourish full potential to bloom up their latent, if not hidden, & their expertise in scientific forums largely, despite few existing constraints & manageable hurdles.

ARU's Requirement to grow and move forward sustainably:

- To train up clinicians/bio-medical experts/nurse/technicians with adequate input, we essentially need required manpower, constantly.
- To furnish ARU's research and innovation approaches we definitely require a robust technical support and electronic back up.
- To accomplish all these, certain financial assistance, particularly in this sort of expensive endeavor of procuring costly logistic/electronic instrument and laboratory back up supports.

ARU's plans on Cost-Recovery Drive through sustainable Self-help Approach:

Though ARU requires certain financial assistance/logistic support from AWMC as initial back-up-cost to run its initial activities, ARU has already drawn up a self-help approach envisaging to arrange its own funding through:

- Establish some bi/multi-lateral research collaborations with some national universities (DMCH, DSH, BIRDEM, BSMMU, etc.) and research institutions (Arora, Dept. of Pub Health, Daffodils Int'l Univ. etc.)
- International university/institutes to run research projects for sharing knowledge, skills and experiences and go for joint research degree programs and sharing international publications, as follows:
 - AIMST University, Malaysia,
 - IUHW Univ., Chiba Japan,
 - Xian Jiao Tong Univ. Shaanxi Xian, China)

Probable Obstacles and Plausible Way-out

Since the ARC, as just a newly established unit it suffers from a degree of financial hardship, we, essentially, look for certain funding to cover up RCB drives including research and development (R&D) activities involving AWMC faculties with the ultimate goal of improved patient care and proper hospital management. And, for that reason, ARC essentially, look for certain extra funding to cover up ARU's research and development activities.

However, since ARU currently suffer a bit in adequate financing, we essentially require extra funding/grant from other sources which we at the ARU trying to organize through applying for various research grants. Some of which have been shown in following sections:

ARU performances/ achievement since May 21, 2021

Over these past seven months, the ARU has gained some considerable achievements as follows:

Programmatic approach on how to develop, motivate and activate our medical teachers (pre/para-clinicians including the hospital doctors/clinicians).

1. Organized an in-house training course on research methodology for the AWMC physicians and nurses (Assisted by Dr. Suraiya Hasna Suha)

- **Research methodology course** for clinical doctors, titled '**Workshop on Basic Research Methodology**'
- As a part of **Nursing Course** conducts 3-weeks **research methodology course**, (Assisted by Dr. Suraiya Hasna Suha and Ms. Faugia Islam Anne), as follows:
 - **3rd year Diploma** Nursing (including a brief project '**Perception on breast feeding** among mothers')
 - **4th year BSc** Nursing (including a brief project '**Awareness on breast cancer** among mothers')

2. Conducted two in-house study in collaboration with Dept. of Medicine and Pediatrics, AWMC:

- a. Dengue Clinico-epidemiological Survey-2021 with Prof. Nahid Yasmin, Prof. ARM Kabir, Prof. Afzalun-nessa BL, Assoc. Profs. Richmond RG, Bhowmik N, Sudipta R, Karim Rezwan, Saiful BK, Asst.Prof. Masuma K, etc. **Project Coordinator:** Dr. Kazi Selim Anwar, Dr. Meherun Neela (Research Officer)

- b.** Clinico-epidemiological and Virological Study on Childhood Hand, Foot & Mouth Disease (HFMD) being rampant in Bangladesh, with Prof. ARML Kabir, Prof. Mahmuda H, Prof. Kaniz R, Prof. Lutfunnessa: AWMCH, Prof. MAH Mollah, BIRDEM-2, Assoc. Prof. Dr. Azraf H, Assoc. Prof. Laila Sharmin, Raj MCH, Prof. Dr. Syed Afzal Karim, Aurora skin care and aesthetics, Dr. Wasif A Khan, Dr Sabina Y, icddr,b, Assoc. Prof. Mahfuza Hussain, Prof. Probir K Sarker, DSH, Dr. Sheikh A Hoque, Dr. Tania H CARS, DU (Assisted by Dr. Suraiya Hasna Suha and Ms. Faugia Islam Anne).

3. Initiated few academic and research collaborations with the following Inter/national Universities

- a.** AIMST University, Malaysia: Preliminarily agreed/ Letter of intent sent by the DG/ Agreement on the way to be finalized, soon
- b.** IUHW University, Narita/ Tokyo, Japan: Connections/Negotiations going on
- c.** Xian Jiao Tong University, Shaanxi Xian, PR, China (Running a PhD project with Prof. Jinjun Liu, Prof. Nahid Y, Prof. Laila N as PI and Dr. Kazi Selim- Prog. Coordinator)
- d.** Dhaka Univ: Dept. of Biochemistry (Running a study on pre-eclampsia with Prof. S Tamanna, Prof. N Yasmin, Prof. L Noor as PI and Dr. Kazi SA- Coordinator)

4. Submitted 15 research proposals for funding, all in a row at the following donors:

A. Nine research projects submitted at the **Ministry of Health (MoH)**, as follows:

1. Further upgrading of research cell at AWMCH: A Research Capacity Building (RCB) Drives.
2. Molecular Genetics and Genomics of Cystic fibrosis (CF)- a life threatening childhood disease largely misdiagnosed: A Multi Centre study in Bangladesh: Phase-I
3. Benign Prostatic Hyperplasia (BPH) and Lower Urinary Tract Symptoms (LUTS): Associations and Risk Factors among 50+ years-old men
4. Prevalence of Nocardia spp. causing non-healing-wound infection in randomly selected districts.

5. Preventing HBV vertical transmission & immune prophylaxis failure using antiviral drug in pregnant women- a cost effective lifesaving drive from Ad-din Hospitals: First effort in Bangladesh.
6. Comparison of efficacy of Heated Humidified-High-flow nasal cannula (HHHFNC) with nasal Continuous Positive Airway Pressure (nCPAP): a primary respiratory support in neonates.
7. Association of Ac. kidney injury in complicated pregnancy & its Outcome after 28 wks pregnancy
8. The Molecular genetic approach to diagnose primary immune deficiencies (PIDs) in children attending major hospitals in Dhaka city.
9. Evaluation of Clinical Rickets in Respect to Biochemical & Radiological Assay: A Multi-Center Study in Under-5 Children Attending Major Hospitals in Dhaka City.

B. The following 5 Research Projects were submitted at the **Ministry of Science & Technology (MOST):**

1. Randomized Control Trial to Compare the efficacy of Heated Humidified-High-Flow nasal cannula (HHH-FNC) Versus Nasal Continuous Positive Airway Pressure (nCPAP) as a primary respiratory support among admitted neonates
2. Knowledge-level, Attitudinal trend & Practice-status on COVID-19 Prevention among the indigenous or tribal population of Bangladesh
3. Effect of prophylactic anti-seizure medication on Long term Neurodevelopment of asphyxiated term newborn – A randomized control trial
4. “Persistent thrombocytopenia in convalescent phase of Dengue during on-going outbreak: ITP in Disguise”
5. Association of acute kidney injury in complicated pregnancy & its outcome after 28 weeks’ pregnancy

C. One Research Project has been submitted at the Bangladesh Medical Research Council (BMRC) on

‘Assessing the knowledge, attitudinal trend and practice level on the prevention of COVID-19 among the indigenous/ marginalized people of Bangladesh’.

Conclusion:

A research center in any hospital remains essential as the global literature reveals. Being on the right track, the

ARU is on the move quite actively in achieving quality performance in health and research that will boost fames for Ad-din foundation in terms of AWWC's extended activities.

The AWWC should take pride on ARU- a wing, first time in the country, to set an example as a standard medical college hospital in Bangladesh. This will obviously assist in delivering improved health care services along with prudent input in research and development. We remain optimistic on ARU with its successive accomplishments and triumph, yet to come soon!!

References

1. Holden L, Pager S, Golenko X, Ware RS. Validation of the research capacity and culture (RCC) tool: measuring RCC at individual, team and organisation levels. *Aust J Prim Health*. 2012;18(1):62–7
2. Trostle J. Research capacity building in international health: definitions, evaluations and strategies for success. *Soc Sci Med*. 1992;35(11):1321–4
3. McKeon S, Alexander E, Brodaty H, Ferris B, Frazer I, Little M. Strategic review of health and medical research in Australia-better health through research. In: Canberra: commonwealth of Australia; 2013. p. 1–304
4. Angeline M. Barrett, Michael Crossley and Hillary A. Dachi (2011) International collaboration and research capacity building: learning from the EdQual experience, *Comparative Education*, 47:1, 25–43, DOI: 10.1080/03050068.2011.541674
5. Matus, J, Walker, A & Mickan, S. *BMC Health Services Res* (2018) 18:716 <https://doi.org/10.1186/s12913-018-3518>.
6. Lizarondo L, Grimmer-Somers K, Kumar S. A systematic review of the individual determinants of research evidence use in allied health. *J Multidiscip Health* 2011; 4:261–72.
7. Skinner EH, Williams CM, Haines TP. Embedding research culture and productivity in hospital physiotherapy departments: challenges and opportunities. *Aust Health Rev*. 2015;39(3):312–4.
8. Williams C, Miyazaki K, Borkowski D, McKinstry C, Cotchet M, Haines T. Research capacity and culture of the Victorian public health allied health workforce is influenced by key research support staff and location. *Aust Health Rev*. 2015;39(3):303–11.
9. Pickstone C, Nancarrow S, Cooke J, Vernon W, Mountain G, Boyce R. Building research capacity in the allied health professions. *Evid Policy*. 2008; 4(1):53–68. <https://doi.org/10.1332/174426408783477864>.
10. Hulcombe J, Sturgess J, Souvlis T, Fitzgerald C. An approach to building research capacity for health practitioner in a public health environment: an organizational perspective. *Aust Health Rev*. 2014;38(3): 252–8
11. Pager S, Holden L, Golenko X. Motivators, enablers, and barriers to building allied health research capacity. *J Multidiscip Healthc*. 2012; 5(53): e9.
12. Hanney S, Boaz A, Jones T, Soper B. Engagement in research: an innovative three stage review of the benefits for health-care performance. *Health Serv Deliv Res*. 2013;1(8). <https://doi.org/10.3310/hsdr01080>
13. Cooke J. A framework to evaluate research capacity building in health care. *BMC Fam Pract*. 2005; 6:44.
14. Stewart D, Al Hail M, Abdul Rouf PV, El Kassem W, Diack L, Thomas B, Awaisu A. Building hospital pharmacy practice research capacity in Qatar: a cross-sectional survey of hospital pharmacists. *Int J Clin Pharm*. 2015;37(3):511–21.
15. Ried K, Farmer EA, Weston KM. Bursaries, writing grants and fellowships: a strategy to develop research capacity in primary health care. *BMC Fam Pract*. 2007;8(1)
16. Lansang M, Dennis R. Building capacity in health research in the developing world. *Bull World Health Organ*. 2004;82(7):764–70.