# Developing Competency-Based Allied Health Workforce

Final Report

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## Abbreviations

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|---|---|
| ACR | Annual Confidential Report |
| AD | Assistant Director |
| BCS | Bangladesh Civil Service |
| BHB | Better Health in Bangladesh |
| BHW | Bangladesh Health Watch |
| BMDC | Bangladesh Medical and Dental Council |
| BSc | Bachelor of Science |
| CME | Centre for Medical Education |
| CPD | Continuous Professional Development |
| CS | Civil Surgeon |
| DCS | Deputy Civil Surgeon |
| DD | Deputy Director |
| DMF | Diploma in Medical Faculty |
| DMLT | Diploma in Medical Laboratory Technology |
| DMT | Diploma in Medical Technology |
| DGHS | Directorate General of Health Services |
| DGME | Directorate General of Medical education |
| ESP | Essential Service Package |
| FCDO | Foreign, Commonwealth and Development Office |
| GOB | Government of Bangladesh |
| HPNSP | Health, Population and Nutrition Sector Program |
| HNPSIP | Health, Nutrition and Population Strategic Investment Plan |
| HRIS | Human Resources Information System |
| HSD | Health Services Division |
| IDI | In-Depth Interview |
| IHT | Institute of Health Technology |
| KII | Key Informant Interview |
| MA | Medical Assistant |
| MAT | Medical Assistant Training |
| MATS | Medical Assistant Training School |
| MCWC | Maternal and Child Welfare Centers |
| ME&FWD | Medical Education and Family Welfare Division |
| MLOP | Mid-level Ophthalmic Personnel |
| MOHFW | Ministry of Health and Family Welfare |
| MSH | Management Sciences for Health |
| NCD | Non-Communicable Disease |
| NHP | National Health Policy |
| OPD | Out-Patient Department |
| PCB | Pharmacy Council of Bangladesh |
| PG | Post-Graduate |
| PHC | Primary Health Care |

| | |
|---|---|
| QA | Quality Assurance |
| SACMO | Sub-Assistant Community Medical Officer |
| SDG | Sustainable Development Goal |
| SMF | State Medical Faculty |
| SSC | Secondary School Certificate |
| TA | Technical Assistance |
| UHC | Universal Health Coverage |
| UHFPO | Upazila Health and Family Planning Officer |
| UK | United Kingdom |
| UzHC | Upazila Health Complex |
| WHO | World Health Organization |

# Summary

**Background**

For any health system, health workers are the most critical driving force. Honorable Prime Minister in her message to the National Health Policy 2011 (NHP 2011) mentioned that health human resources are universally recognized as important indicator for development. The NHP 2011 emphasizes on modernization and updating of all medical, nursing, medical technologists and health allied workforce education as per need of the country. The 8th Five Plan 2020-2025 recorded that the MOHFW would focus on improving quality of public and private pre-service health workforce education system (GOB 2020). Improved quality of medical education across all health professionals' institutions, modernization and transformation of the medical education system and building capacity and skills within the workforce to fulfill the aspirations of the Sustainable Development Goals and achieving Universal Health Coverage are now a major priority.

Among the categories of allied health workforce, the importance of medical technologists and medical assistants (Sub Assistant Community Medical Officers- SACMOs) has been given high priority. Currently in the public sector, 11 Medical Assistant Training Schools (MATS) are functioning in the public sector, construction of 5 MATS has been fully completed and 8 are under construction. Currently 15 Institute of Health Technologies (IHTs) are being operated under MOHFW and 2 under Armed Forces, construction of 4 IHT has been completed and 8 are under construction. However, the quality of education in these institutions both in public and private sectors is mostly challenged by a shortage of qualified teachers.

**Technical Assistance**

The Foreign, Commonwealth and Development Office (FCDO) of the United Kingdom (UK) is supporting the 4th Health, Population and Nutrition Sector Program (4th HPNSP) of the Ministry of Health and Family Welfare through the 'Better Health in Bangladesh (BHB)' program. FCDO provided a Technical Assistance (TA) for developing competency-based allied heath workforce, and ARK Foundation implemented the TA. The TA mechanism is managed by FCDO appointed agency MSH.

**Objectives and Methods of the TA**

The objectives of the TA were to: a) improve quality of medical education for allied health workforce; b) recommend ways for development/strengthening capacity to deliver quality medical education for allied health workforce; c) recommend digitization of the systems for medical education for allied health workforce; d) Provide recommendations for strengthening capacity for regulating medical education for allied health workforce across the public and private sectors; and e) recommend for conducive policy and legal environment for quality medical education for allied health workforce.

Under the guidance of the Directorate General of Medical Education (DGME) and in close coordination with the Centre for Medical Education (CME) and government IHT and MATS

officials, the TA team arranged introductory meetings with DGME, FCDO and Management Sciences for Health (MSH). A wide range of documents have been reviewed, and in-depth/key informant interviews were conducted. Field visits to Jhenaidah, Nalta (Satkhira) and Bagerhat MATS and Jhenaidah and Nalta (Satkhira) IHTs were done. In addition, three consultative workshops and one dissemination workshop were arranged to discuss and validate preliminary findings.

**Findings**

***Education course for Medical Assistant***

- The course is of 3 years duration with Secondary School Certificate (SSC) pass as entry qualifications. However, other prevailing diplomas in engineering, agriculture, fisheries, and forestry courses are of 4 years duration with SSC as entry qualifications (Bangladesh Technical Education Board Law 2018).
- To develop clinical competencies clinical attachment in district hospital or Upzila Health Complex (UzHC) is must which is hampered currently as many of the MATS, are not properly connected with the district hospital or Upzila Health Complex (UzHC).
- In some of the MATS the academic lab is not well functioning to conduct the practical training properly.
- Currently the curriculum 2009 of SMF is followed in MATS for training Medical Assistants which is having information overload.
- At the end of the 3 years course there is provision for one year internship with placement of 9 months at General /Sadar hospital or any equivalent hospital and 3 months at UzHC. There is no logbook to keep record of the performance. Moreover, MATS loses all control over the students during the internship as some of the students go far away for internship and the principal of MATS is neither controlling the district hospital not the UzHC. Therefore, the internship is not properly supervised neither by MATS faculty nor by the consultants of the General hospital or doctors of UzHC.
- Small group teaching, practical demonstration and formative assessments are hampered by shortage of classroom, well equipped lab, and faculty thereby, hampering competency developing during course.
- Most of the physical facilities are poorly maintained and there is not enough space to support all educational activities.
- The MATs course curriculum doesn't fulfill prerequisite of admission in graduation and higher education courses.

***Education courses for Diploma Medical Technologists***

- The courses are of 3 years duration with Secondary School Certificate (SSC) pass as entry qualifications, which doesn't match with the similar courses running in the country.
- There is information overload and contents are not updated.
- The competency-based teaching and learning is seriously hampered due to absence of regular and adequate number of faculties.
- Inadequate amount of equipment in the lab and absence of advanced technology training is hampering competency development.

- For clinical attachment, though there is a slot of 18 weeks in 3rd year, there is no list of contents or logbook and there is no fixed schedule for clinical attachment.
- The clinical attachment is not supervised due to shortage of faculty, lack of coordination between the IHT and the clinical facility.

**Capacity of Medical Assistant Training School**

- The faculty in different MATS varies widely with no standard organogram
- There is no department for each subject and no teachers for clinical subjects. The consultants working in the district hospitals where the students get clinical attachment are teaching clinical subjects on request from the principal of the MATS without any incentives.
- There is no subject wise department in MATS and teachers are teaching without specific knowledge and competencies of that subject. Only the clinical teaching by the consultants is based on their specialty.
- Most of the faculties are coming from health service division who were working as, UHFPO, DCS or CS and do not have any teaching experience.
- Another serious challenge is vacancy against sanction posts. At present around 50% posts are vacant.
- Though MATS is an institute to produce Medical Assistants with the competency of limited curative care of the patients but there are no clinical teachers. Teachers of both basic and clinical subjects do not have any opportunity to be trained on teaching principles and methodologies
- Teacher's performance assessment system does not exist in any MATS. At present there is no career pathway for the teachers and retention is always challenging.

**Capacity of Institute of health Technology (IHT)**

- All IHT does not run seven discipline and it varies widely in different IHT.
- Number of sanction posts in different IHT does not follow any defined organogram. The newly constructed IHT have no sanction posts yet and are functioning with faculty and staffs working in attachment from health service division.
- A significant number of posts are vacant against sanction posts in all IHT.
- There is no subject wise department in IHT and teachers are teaching all the subject without specific knowledge and competencies of that subject.
- The faculty does not get the opportunity for continued medical education. At present there is no provision of teachers training. Most of teachers are working on deputation and mostly not designated teachers therefore, lacking in teaching experience with limited expertise of using modern technology and no further mechanism for faculty development. Lack of regular faculty hampers development of competencies of the students.
- Performance appraisal for the faculties does not exit at present. The government Annual Confidential Report (ACR) does not allow to assess the teaching capacity of the faculty.
- There is no defined career development structure in IHT in general.

**Governance**

*Policies, rules and regulations*

Senior faculty positions including Principal in both the MATS and IHT belong to the BCS (Health) cadre. Except Associate and Assistant Professors of the IHT, none of these positions are ring fenced. Hence anyone of the same level may be posted in these positions. Often posted persons don't have any teaching experiences affecting the quality of teaching.

With the creation of two divisions in the MOHFW, administration of BCS (Health) remains with the HSD, but the MATS and IHT belong to the MEFWD, which can't posts officials affecting the teaching seriously.

Bangladesh Health Departmental Non-Medical Staff Recruitment Rules 2018 regulates deployment of Tutors in MATS and Lecturer and Lab Instructors at IHTs of Dhaka and Rajshahi. However the post creation for Jhenaidah and Chattogram with other IHTs mentions about The Director of Nursing Services (Gazetted and Non-Gazetted Post) Recruitment Rules 1979 for Instructor. But the said rule is repealed by the Directorate of Nursing (Employee) Recruitment Rules 2016 and this new rules has no reference to IHT instructor.

Two separate guidelines for the establishment and operation of MATS and IHT in non-public sector exist since 2010. However public sector MATS and IHT in many cases don't satisfy conditions required under these guidelines.

MOHFW termed the course as Medical Assistant Training/Course, SMF calls as Medical Assistant Training course, BMDC registers as Medical Assistant, but the BMDC Law 2010 in its 5$^{th}$ schedule termed as Diploma of/in Medical Faculty (DMF).

MOHFW and DGME title diploma courses as Diploma in Medical Technology (DMT) with discipline within bracket. However in the respective curriculum the diploma courses are titled differently like Diploma in Medical Laboratory Technology (DMLT), Diploma in Occupational Therapy, Diploma in Operation Theatre Assistant, Diploma in Dental Technology, Diploma in Intensive Care Assistant, Diploma in Pharmacy, Diploma in Medical Technology (Physiotherapy), Diploma in Medical Technology (Radiology and Imaging), Diploma in Medical Technology (Radiotherapy) etc.

Medical Assistant when recruited by the DGHS and DGFP is given the designation as Sub-Assistant Community Medical Officer (SACMO). Under DGHS, 50 bed Upazila Health Complex (UzHC) has provision of 1 SACMO in the out-patient department (OPD), 31 bed UzHC has provision of 2 SACMO in the OPD, 30 bed hospital has 2 SACMO provision in the OPD and union level Union Sub-Centre/Rural Dispensary has 1 SACMO post. Under DGFP, SACMOs are in-charge of the Union Health and Family Welfare Centers. However under both DGHS and DGFP, SACMO posts are blocked without any opportunities of promotion.

Diploma Medical Technologists are recruited and deployed in the DGHS and other entities under it following Bangladesh Health Departmental Non-Medical Staff Recruitment Rules 2018. Direct recruitment with concerned diploma is in Grade 11. But Lecturer (Grade 12) at IHTs of Dhaka and

Rajshahi recruit with diploma in concerned medical technology. Thus the same rule recruits same qualified person in two different grades.

Besides regular revenue budgets, both MATS and IHT are supported through the Medical Education and Health Manpower Development Operational Plan of the 4th Health, Population and Nutrition Sector Programme 2017-2022. However allocation from the both the budgets mentioned to be inadequate both in terms of amount and line items. During field visits at different MATS and IHTs computers, laboratory equipment, books and furniture were found in so much quantities, which will never be properly utilized. Respective authorities informed about non-supply of required laboratory equipment, reagents according to their need.

*Education board and Regulatory body*

SMF acts as education board for medical assistant training (MAT) and most of the diploma medical technologist courses except the diploma pharmacist for which PCB functions as education board. However SMF suffers from legal vacuum. The Bengal Medical Act 1914 through which its predecessors was established is said to have not enacted in Bangladesh. Proposed Bangladesh Allied Health Professional Education Board Law 2019 is yet to be enacted. BMDC registers the Medical Assistant. BMDC accredited MATS, which is granted after inspection by the BMDC. This BMDC accreditation is not supported by the law. The 5th schedule of BMDC Law 2010 records SMF as training institute, therefore anyone having SMF certificate is eligible for BMDC registration. Though as per clause 29 of the BMDC Law 2010, use of the title *doctor* is reserved for minimum MBBS/BDS holder and violation is punishable, BMDC hasn't taken any move when the Medical Assistant, register by it is using the doctor title. PCB also registers diploma pharmacist and there is no regulatory authority for other types of medical technologists. Bangladesh Rehabilitation Council Law 2018 is enacted. According to the 2nd schedule of the law Diploma in Medical Technology (Physiotherapy/Occupational Therapy/Prosthetics and Orthotics) is included. Since SMF suffers from legal vacuum, it will have conflict with the Bangladesh Rehabilitation Council for the Diploma in Medical Technology (Physiotherapy/Occupational Therapy/Prosthetics and Orthotics) for conduction of course and examination. MEFWD is entrusted with policy regarding medical education, preparation of schemes related to medical education including IHT, matters related to IHT, engagement with SMF, but HSD is entrusted with engagement with Pharmacy Council. Thus SMF is headed by the Secretary, MEFWD but PCB is headed by the Secretary, HSD. For proper check and balance education board and regulatory body need to be separate. For the MATS this is full-filled. However if the proposed Bangladesh Allied Health Professional Education Board Law 2019 get enacted, the requirement for regulatory body for the medical technologists needs to resolved. Also current roles of PCB as both education board and regulatory body need to be segregated.

*Integrating the auxiliary forces into the health system*

Out of 9 functioning MATS, 8 are at district level. But Satkhira is at Nalta, a union under Kaliganj upazila. Similarly out of 5 MATS whose construction has been completed, 3 are at upazila level and 2 are further down. Out of 8 MATS whose construction is under progress, at least 5 are at upazila or below level. Not only those located at below district will have limitations in retaining

faculties but also internship is required at district level general/ sadar hospital and access for that will have difficulties.

Similarly, out of 13 functioning IHTs, 9 are at district level. But Satkhira is at Nalta, a union, Jamalpur is in Islampur upazila, Tungipara is a upzila under Gopalganj. Out of 4 IHTs waiting for commissioning, 2 are at district level and Kashiani is a upzila under Gopalganj district, also Joypurhat one is at Gopinathpur union under Akkelpur upazila. Out of 8 IHTs whose construction is under progress, 4 are at upazila or below level. Below the district level IHTs will have limitations in retaining faculties and also required clinical attachment in the appropriate hospitals and access for that will have difficulties.

Though 31 bed UzHC and 30 bed hospital has 2 SACMO positions, the upgraded 50 bed UzHC has reduced the position to 1. Other DGHS hospitals don't have SACMO posts. Health Bulletin 2019 reported that DGHS has 5337 sanctioned posts of SACMO, of which 1628 (30.50%) as vacant. Similarly under DGFP, posts created in 159 maternal and child welfare centers (MCWC) in 2019 don't have SACMO provisions. In different entities under DGHS different types of medical technologists' positions are available. However in December 2019, 36% posts were vacant with 63% for physiotherapy, 58% for radiotherapy and 51% for pharmacy. Similarly though in each of the UH&FWC under DGFP, there is a post of diploma pharmacist, most of those are vacant.

Cumilla MATS doesn't have its own building and premises. Jhenaidah MATS's most of the constructed building is occupied by RAB since its construction.
Considering WHO's recommended HWF ratio of 1:3:5 for physicians: nurses: other paraprofessionals and trends of expansion health facilities and medical education institutes in the country there is a huge need of both medical assistants and medical technologists

*Governance*
Since Bangladesh currently has 4 public sector medical universities, 114 medical colleges, 35 dental colleges/units, 218 MATS, 110 IHTs, 2 homeopathy graduate colleges, 61 private homeopathy diploma colleges, 1 government graduate ayurvedic and unani college, 10 private diploma ayurvedic institutions and 16 diploma unani institutions and more of these types of academic institutions will be established both in the government and private sector in the coming future, DGME's Dhaka-based set-up is insufficient for monitoring these vast number of varied types of entities located all over the country currently and in near future.

In 2018-2019, 41% students took admission into MATS and 26% students were admitted in diploma courses in the IHTs. In 2019-2020, 49% students were admitted into the MATS and 44% students took admission for diploma courses in the IHTs. Against the serious shortage of medical assistants and medical technologists more than half of the available seats are not filled-in over years. Absence of recruitment by the DGHS and DGFP for several years and lack of competencies (for medical technologists) leading not recruiting by the private sector facilities and also production by the Bangladesh Technical Education Board affiliated institutions are cites as reasons for such situation.

The title of MATS and its head as Principal confuses people. Similarly the designations of Senior and Junior Lectures are not only confusing but also embarrassing for the post holders.

IHT has too many masters – MEFWD, DGME, SMF, PCB, Universities and MATS also – MEFWD, DGME, SMF, BMDC. Mostly each of these entities operates without much coordination with others. One stop service may resolve the problems faced by the MATS and IHTs.

The number of seats in public sector MATS varies and so also for the disciplines and seats in the IHTs of public sector.

**Recommendations**

***Education course for Medical Assistant***

- The total duration of the course should be increased to four years, with clinical attachment inbuilt from first year to 4$^{th}$ year in the clinical facilities / District hospitals and at Upazila Health Complex in year 3 for a certain period.
- The curriculum needs to be reorganized, reviewed and updated to meet the needs of the current context as well as national and international standards.
- New course contents should be emphasized including computer science, managing chronic diseases, NCDs, shared risk factors, emergency care, managing pandemics (COVID 19), outbreak (e.g., Dengue, Chikungunya) etc.
- For competency development tutorial, practical sessions need more emphasis.
- There should be well equipped academic lab for relevant departments.
- Logbook based, supervised and evaluated clinical attachment needs to be established.

***Education courses for Diploma Medical Technologists***

- Total course duration should be four years with increased emphasis on practical demonstrations, laboratory, and clinical attachment. Clinical placement should start early from 1st year.
- To conduct small group, practical or demonstration session, there should be enough faculty.
- The curricula of different diploma courses need to be reviewed, revised, updated and changed focusing on changing social determinant of health and disease epidemiology.
- New contents need to be included e.g., many modern diagnostic tests are emerging which needs to be included in the course, Pharmacy course need to include Good Pharmacy Practice, Adverse drug reaction, antimicrobial resistance etc.
- Academic Lab for different departments needs to be established.
- Opportunity for establishing service lab may be explored.
- Diploma courses curricula should be redesigned in such a way that these fulfill prerequisite of admission in graduation and higher education courses.
- There should be two separate B.Sc. courses for MT, one tailormade for the government and private diploma holders and one for the freshly admitted students with HSC background.
- Gradually B.Sc. courses should be introduced for other DMT courses so that the students of all the DMT courses get equal opportunity for higher studies.

- For better practical teaching, B.Sc. MT graduates should get priority in the teaching position in IHTs.

***Long-term recommendations for both MATS and IHT***

Proper implementation of curriculum is crucial and the following initiatives may need to be addressed;

- For better management of courses, students and faculties comprehensive Electronic Management Information system (E- MIS) and Human Resources Information System (HRIS) need to be established.
- Quality Assurance (QA) Mechanism and regular online reporting of key quality indicators in dashboard need to be introduced by IHTs.
- Accreditation system needs to be established.
- Opportunities need to be explored and linkages should be developed with national and international institutes for higher academic qualifications and further professional development.
- All the diploma course should be followed by graduation and master degree course gradually considering the increased educational demand of the institutes and health facilities.

**Capacity improvement of the faculties**

***Medical Assistant Training School***

- Running a four-year course demands an appropriate organogram for the institution. The number of posts may vary depending on the number of seats available. There should be defined department for each subject. Post of Registrar for each clinical subject for teaching students in the attached hospital needs to be created. Scope of MA in teaching post should be created. The principal of each MATS should upgrade to grade 3 position and another grade 3 post should be created for the Vice Principal position. A structured subject specific organogram has recommended.
- The newly constructed MATS at Upazila or below level is facing a big challenge in recruiting and retaining faculties at that level.
- An administrative reform is required to overcome this current situation. There may be number of options of reform, and to choose a single appropriate option is difficult. After in depth consultations with the concern stakeholders one of the options may be recruiting faculties and staffs directly for the specific MATS sidestepping the existing recruitment rules for the revenue posts. This needs to create a partial autonomous status of that institute. The budget allocation will be controlled centrally as other revenue set up. Suitable mechanism for peripheral disbursement of budget may be explored. The other option may be, the institution will be functioning with a public private partnership. In this scenario the faculty will be recruited as private MATS. The most feasible option in the present situation is to develop a structured agreement between Health Service Division and Medical Education and Family Welfare Division of MoH&FW for regular posting of the faculty on demand from DGME.

- Career pathways should be created for SACMO. There should be opportunity to be promoted by upgrading the grade. They can be promoted as senior SACMO and chief SACMO and may be posted in General/District Hospital.

***Institute of health Technology (IHT)***

- The grade and recruitment rules for the post of Associate Professor and Assistant Professor in IHTs should be revised. For Dhaka and Rajshahi IHT a different organogram may be formulated as these IHTs are running B.Sc. course along with Diploma courses. Post of subject specific instructors need to be included in the organogram. More Medical Technologists in teaching posts is needed for practical classes. A structured subject specific organogram has recommended. Post should be created according to the number of disciplines in that IHT.
- An administrative reform is needed to run the IHT at Upazila level and below.
- For the faculty development a teacher training program should be in place and all IHT should establish a medical education unit with mandate and equipped for developing teaching skills of the faculty.
- There should be Potential career pathways for the Medical Technologists and opportunity to be promoted by upgrading the grade.

**Governance**

*Policies, rules and regulations*

BCS (Health) cadre may be sub-divided as Administration and Academic. Faculties and senior positions of MATS and IHTs may be within the BCS (Health: Academic), administration of which may be vested to the MEFWD. Also PCB needs to be within MEFWD.

Bangladesh Health Departmental Non-Medical Staff Recruitment Rules 2018 may be revised to put relevant posts of all MATS and IHTs under DGME and same grade for similar posts.
For the sake of level playing fields, public sector MATS and IHTs also need to satisfy requirements mentioned in the establishment and operation of MATS and IHT in non-public sector guidelines 2010.

MEFWD, DGME, SMF, BMDC, PCB – all need to use the same title for the medical assistant and diploma medical technologists courses. Existing practice of titling differently need to stop.
More posts of SACMO and medical technologists need to be created in the institutions and facilities under the both divisions of the MOHFW considering career progression of both categories. Vacancies of existing posts need to be filled-in immediately with system of regular recruitment as vacancy arises.

Proper budget need to be allocated both from the revenue and development budget as per need of each of the MATS and IHT. Current practice of pushing items through the OP needs to be stopped.

*Education board and Regulatory body*

Proposed Bangladesh Allied Health Professional Education Board Law 2019 needs to be enacted immediately with responsibility of diploma pharmacist also under this board. Another law needs

to be enacted for forming a registering authority for the medical technologists except pharmacist. Bangladesh Rehabilitation Council Law 2018 may be revised to avoid potential conflict with the SMF and its successor. BMDC's existing practice of accredited MATS may be stopped. BMDC needs to enforce professional conduct for medical assistants.

*Integrating the auxiliary forces into the health system*
New MATS and IHTs need to be established but not below district level. Currently functioning, construction completed and construction on-going MATS and IHTs below district (upazila, union etc.) need to be make properly functioning by exploring different options like providing autonomy or operation through public-private partnership.

Move need to take to have own buildings and premises for Cumilla MATS and recover buildings from RAB for Jhenaidah MATS.

*Governance*
DGME need to have regional/divisional setup for proper functioning of the public sector institutions and monitoring those of private sector.

Move need to take for full capacity enrollment in both public and private MATS and IHTs. Seats in public MATS and disciplines and seats in public IHTs need to similar as much as possible to get optimum outcome of the inputs provided. Title of MATS and its Principal, Senior Lecturer and Junior Lecturer needs to be reviewed and replaced with suitable ones.

One stop service provision may be introduced for the MATS and IHTs by coordinating among the agencies involved.

# 1 Introduction

## 1.1 Health Workforce

For any health system, health workers are the most critical driving force. Health care is a labor-intensive service industry. The health workers are the personification of the system's core values. It heals and cares for people, eases pain and suffering, prevents disease and mitigates risk. It is the human link that connects health knowledge to health action. The health workers are at the heart of each and every health system. It is central to advancing health. They are the ultimate resource for promoting health, preventing disease and curing sickness. Money, drugs, infrastructures are needed but they demand a motivated, skilled and supported workforce. People, not just vaccines and drugs prevent disease and cure illness. Workers are active, not passive agents of health change. Health workers spearhead and glue together the health system (BHW 2008). In health systems, workers function as gatekeepers for, and navigators of, the effective, or wasteful, application of all other resources, such as drugs, vaccines and supplies (WHO 2006). The role of allied health workforce in achieving the health indicators of Sustainable Development Goal (SDG) demands focused investment and policy for its development. Bangladesh is facing a critical challenge in producing allied health workforce with appropriate skills to complement the improved health care services for the population.

## 1.2 Health Workforce in Policies

Honorable Prime Minister in her message to the National Health Policy 2011 (NHP 2011) mentioned that health workforce is universally recognized as important indicator for development. NHP 2011 identified Bangladesh as having critical shortage of health workers and commented that patients receive first care from un-skilled service providers. 13$^{th}$ main objective of the NHP 2011 is modernization and updating of all medical, nursing, medical technologists and health allied workforce education as per need of the country. NHP 2011 strategies include increase the number of educational institutions as the number of paramedic and technologists are much less than the need (#25-b), reforms in the pharmacy council and state medical faculty for ensuring service, education and training of the pharmacist, medical technologist and other paramedics (#26) (GOB 2012). Bangladesh health workforce strategy 2015 has included "ensure availability of competent and adequate number of workforces equitably and develop and maintain quality health workforce at all levels" as its strategic objectives (MOHFW 2015). Health, Nutrition and Population Strategic Investment Plan (HNPSIP) 2016-2021 mentioned that health workforce development predominantly involves institutional education before entering the services. The quality of education in these institutions both in public and private sectors is mostly challenged by a shortage of qualified teachers. Improved quality of medical education across all health professionals' institutions and modernization and transformation of the medical education system to fulfill the aspirations of the Sustainable Development Goals and achieving Universal Health Coverage are now a major priority. Quality, standardization and accreditation issues remain major challenges. Building capacity and skills within the workforce is an area requiring considerable attention (MOHFW 2016). The 8$^{th}$ Five Plan 2020-2025 recorded that the MOHFW would focus on improving quality of public and private pre-service health workforce education system (GOB 2020).

Health worker density was 7.4 per 10,000 populations and the distribution of physician: nurse: health technologist was 1:0.5:0.2 in 2014. The density has now increased to 9.9 per 10,000 populations and the distribution is 1:0.6:0.3 in 2019. Health workers density needs to be raised to 44.5 per 10,000 and the distribution, to be raised 1:3:5 by 2030. These targets remain challenging (MOHFW 2021). Among the categories of allied health workforce, the importance of medical technologists and medical assistants (Sub Assistant Community Medical Officers-SACMOs) has been given high priority.

### 1.3 Medical Assistant

Medical Assistant Training course is being approved since 1976. Medical Assistant Training Schools (MATS) were established first in the public sector in 1975. Currently in the public sector 11 MATS are functioning. Physical facilities construction is completed for another 5 and for another 8, construction of physical facilities is under progress. Full list of public sector MATS is in annexure-1. MATS in non-public sector started since 2008. Currently 209 MATS are functioning in the non-public sector. Nine public sector MATS has 818 seats, while 209 non-public MATS have 12,895 seats. Thus 218 MATS in the country has total 13,713 seats. Intakes are annual, usually around June of the year.

### 1.4 Medical Technologists

Bangladesh started its journey with 1 Institute of Health Technologies (IHT), used to be called as Paramedical Institute at Dhaka, established during 1960s in the public sector with a mandate to produce Medical Technologists. After the independence, in 1976 at Rajshahi, the second IHT (still known as Paramedical Institute) was established in the public sector. Now 15 IHTs are operated under the Ministry of Health and Family Welfare (MOHFW) and 2 IHTs are operated by the armed forces. Another 4 IHTs under the MOHFW are waiting to be commissioned. Also, more 8 IHTs under the MOHFW are under construction. Full list of public sector IHTs is in annexure-2. IHT in private sector started since 1996 and now 95 IHTs in the private sector are in operation. IHTs offer both diploma and bachelor courses. Diplomas are offered in 13 disciplines – laboratory, physiotherapy, radiology and imaging, sanitary inspectorship training, dentistry, pharmacy, radiotherapy, operation theatre assistant, intensive care assistant, expanded program on immunization, occupational therapy, prosthetics and orthotics, cardiology. Bachelor courses are on laboratory, physiotherapy and radiology and imaging. 2 IHTs under the MOHFW offer bachelor courses with 210 seats. 15 IHTs under the MOHFW have 2819 seats for diploma courses. 2 IHTs of armed forces institutes have 980 seats for diploma courses. 95 private IHTs have 8960 seats for diploma courses. Thus 110 IHTs of the country have total seats of 12,751 for diploma courses and 210 seats for bachelor courses. Intakes are annual.

### 1.5 Technical Assistance

MOHFW is implementing the 4th Health, Population and Nutrition Sector Program (4th HPNSP) from January 2017 to June 2022, with the goal to ensure all citizens of Bangladesh enjoy health and well-being by expanding access to quality and equitable health care in a healthy and safe living environment'. The FCDO of the UK is supporting the 4th HPNSP, through the 'Better Health in Bangladesh (BHB)' program. It aims to increase utilization of quality health services, especially

by women, children, and the poor, delivered equitably by efficient and sustainable health systems. BHB program, among others, aims to provide demand-driven TA to MOHFW and to its divisions, directorates, and particularly to the Line Directors (LD) of the Operational Plans (OP) of the 4th HPNSP to meet immediate and emerging needs. The TA mechanism is managed by FCDO appointed agency MSH.

**The objectives of the TA are**

1. Improve quality of medical education for allied health workforce.
2. Recommend ways for development/strengthening capacity to deliver quality medical education for allied health workforce.
3. Recommend digitization of the systems for medical education for allied health workforce.
4. Provide recommendations for strengthening capacity for regulating medical education for allied health workforce across the public and private sectors.
5. Recommend for conducive policy and legal environment for quality medical education for allied health workforce.

MSH invited proposal for TA for developing competency-based allied heath workforce. In response ARK foundation submitted the proposal, which was accepted. Accordingly, MSH and ARK Foundation signed contract for the duration of 01 June to 30 September 2021 to deliver the TA. This report is part of the said TA.

Among the TA team Prof Shah Monir Hossain led the team and took the responsibility for *capacity improvement of faculties;* Prof Muhammod Abdus Sabur was responsible for *governance;* Dr. Khaleda Islam took care of *courses and curricula* and Prof Rumana Huque coordinated the whole work.

## 2. Methodology

Under the guidance of the DGME and in close coordination with the Centre for Medical Education (CME) and government IHT and MATS officials, the following methodologies were followed to address the abovementioned objectives:

1. Introductory meeting with DGME on 02 June 2021
2. Introductory meeting with FCDO and MSH on 06 June 2021
3. Documents review. Full list of the documents reviewed is in the annexure-3
4. In-depth/key informant interviews. Full list of IDI/KII is in the annexure -4
5. Field visits to Jhenaidah, Nalta (Satkhira) and Bagerhat MATS and Jhenaidah and Nalta (Satkhira) IHTs.
6. Consultative workshops:
    i. Inception workshop on 13 June 2021 to share the objectives, activities and methodologies
    ii. Workshop specific with MATS on 05 August 2021
    iii. Workshop specific with IHT on 09 August 2021
    iv. Dissemination workshop on 29 September to share the draft report.
7. Final report submitted on 30 September 2021

# 3. Findings

## 3.1. Educational Course for Medical Assistants

### 3.1.1 Eligibility Criteria for Admission

According to the circular for the admission in the academic year 2019 -2020 and 2020 - 2021 in the government and private MATS, the eligibility criteria were as follows;

- The candidate should be a Bangladeshi by birth.
- Passed secondary school certificate (SSC) or equivalent examination
- Passed in current year or in the immediate past three years (e.g., for admission in the academic year 2020- 2021, passed from 2016 to 2020)
- Has secured minimum GPA 2.5 in the SSC examination
- Must have Biology

### 3.1.2 Course Curricula

According to the curriculum 2009 of the SMF, the duration of course is three years plus one year internship. The academic session starts from the month of January every year though in curriculum 2009 it is written as January or June. The curriculum is available in the SMF website. The courses are delivered in discipline-based way, in subsequent phases i.e., there are specific subjects for each year and with year final the teaching and learning of those subjects finishes. The course is divided into 3 parts in three years and the year wise distribution of subjects is as follows:

| **Current Year Wise Subjects Distribution** | |
|---|---|
| **1st year** | 1. Basic English<br>2. Basic Computer Science<br>3. Basic Community Health & Medical Ethics<br>4. Basic Anatomy & Physiology |
| **2nd year** | 1. Basic Pharmacology<br>2. Basic Pathology & Microbiology<br>3. Basic Community Medicine & Health Management (Group A&B) |
| **3rd year** | 1. Basic Medicine & Pediatrics,<br>2. Basic Surgery<br>**3.** Basic Obstetrics & Gynecology**.**<br>4. Basic Community Medicine & Health Management (Group C&D) |

**The findings of year 1 are as follows:**

| **Year 1 - Subjects** | Lecture | Tutorial | Practical | Field visit | Total |
|---|---|---|---|---|---|
| Basic English | 60 | 90 | 20 | | 170 |
| Basic Computer Science | 30 | | 100 | | 130 |
| Basic Community Health & Medical Ethics | 90 | 90 | | 60 | 240 |
| Basic Anatomy & Physiology | 100 | | 100 | | 200 |
| | 280 | 180 | 220 | 60 | 740 |

- The field visit for Basic Community Health & Medical Ethics usually doesn't take place due to resource constrain.
- It is difficult to conduct practical of Anatomy and Physiology due to shortage of lab facilities

**The findings of year 2 are as follows:**

| **2nd year - Subjects** | Lecture | Tutorial | Practical | Field visit | Total |
|---|---|---|---|---|---|
| Basic Pathology & Microbiology | 60 | 136 | 42 | | 238 |
| Basic Pharmacology | 59 | 59 | 10 | 10 | 138 |
| Basic Community Medicine & Health Management (Group A & B) | 72 | 72 | | 75 | 219 |
| Total | 191 | 267 | 52 | 85 | 595 |
| Clinical / Ward / Bed side Teaching | | | | | 200 |
| Grand Total | | | | | 795 |

- The field visit of Pharmacology and Community Medicine and Health Management usually is not taking place because of resource constrain.
- Though there is teaching learning hour allocation for Basic Community Medicine & Health Management, there is no examination and usually session doesn't start in 2nd year.
- There is a slot of 200 hours Clinical / Ward / Bed side Teaching for Basic Medicine & Pediatrics, Basic Surgery and Basic Obstetrics & Gynecology subjects. However, many of the MATS, do not conduct this clinical teaching.

**The findings of year 3 are as follows:**

There are no discipline wise subject specific teachers for clinical subjects, teaching of which is dependent on availability of consultants of district hospitals. Currently, there is subject overload in year 3 as the following four subjects are taught;

- Basic Medicine & Pediatrics
- Basic Surgery
- Basic Gynecology & Obstetrics
- Basic Community Medicine & Health Management is assigned for Group C & D

Currently the curriculum 2009 of SMF is followed the contents of which needs to be reorganized, reviewed and updated to meet the needs of the current context as well as national and international standards. The current epidemiological disease profile, job description and competencies of the SACMOs need to be considered as well.

> *'In pharmacology, the students are taught about mode of action, indication, contra-indication etc., which are not practically needed for them. So, the contents of the curriculum should be redesigned based on the area they will work in' Key Informant.*

There are no standard text books for the Medical Assistants. The teachers have to prepare their lesson plan having learning objectives and contents following time allocation of the curriculum. They are also deciding the teaching methods, methods of evaluation and list of resource materials required. Less examiner and minimum remuneration are the barriers.

The medium of instruction is English and the language course is taught in first year. The total three-year period is divided into 3 parts and there are year final examinations at the end of each academic year.

At the end of the 3 years course there is provision for one year internship with placement 9 months at General /Sadar hospital or any equivalent hospital and 3 months at Upazila Health Complex (UzHC). MATS don't have any control over the students during the internship as the principal of MATS is neither controlling the district hospital not the UzHC. Therefore, the internship is not properly supervised neither by MATS faculty nor by the consultants of the General hospital or UzHC and there is no logbook to keep record of the performance.

### 3.1.3 Educational Facilities and Teaching Aids

Some of the MATS don't have enough space for tutorial and practical and are not well equipped for practical teaching, thereby hampering skill developing education. Maintenance of equipment in most of the institutes is the problem and repairing nonfunctional one is the challenge. Most of the physical facilities are poorly maintained and there is not enough space to support all educational activities.

### 3.1.4 Course Assessment

There are examinations after each of 1st, 2nd and 3rd year conducted by the SMF. The examinations are conducted in English. Usually, the respective MATS are the examination center if approved by SMF. The examination is conducted every year in December and June and the pass mark is minimum 50%.

There are examiners for each subject. The internal examiners are the teacher of respective subject from the same MATS while the external examiners should be a teacher of same subject from another MATS/medical institute. There are written, oral and practical examinations.

**Eligibility criteria for appearing in the year-final examination are,**

- Completion of card and field visit will be considered as pre-requisite for form fill up,

- Certificate from the principal of MATS regarding students obtaining at least 75% attendance in all aspects (theory, practical, tutorial, residential field practice) during the academic year,
- No student shall be allowed to appear in the Year II & Year III Final examinations unless the student passes all the subjects of 1st and 2nd year Final examinations respectively, and
- the mandatory pre-requisite for 3rd year final examination is completion certificate from all four units.

**Some findings from IDI: MATS**

- *"Need to change name, people often say 'why principal in a school?' It can be 'Medical Assistants Training Institute"*
- *"There is no recruitment for last 12 years, that is why MATS are getting less students"*
- *"Prerequisite criteria for admission should be GPA 3, students having 2.5 is poor in English, and faces difficulties in coping"*
- *"To ensure enrollment of better students, GPA can be increased and critical questions for admission test should be set".*
- *"Gap between SSC and admission shouldn't be more than 2 years".*
- *"Students should get admitted after passing HSC".*
- *'Course should be of 4 yrs with internship or clinical attachment included within course".*
- *"Clinical attachment should be supervised with logbook & after finishing a viva examination should be taken to assess capability of doing field level tasks"*
- *"Usually, the clinical attachment at district hospital is in yr 3 & completes just before exam, we get less time to finish the courses of 3rd yr"*
- *"Earlier, district hospital was under MATS supervision & was easier to manage clinical attachment. Now it is under CS & MATS doesn't have any control over students during internship".*
- *"2nd year has only 2 subjects whereas 3rd year has 4 which should be reorganized and Com Medicine can be shifted to year 2. This will reduce pressure of students at 3rd yr".*
- *"This is an Institution without any teaching cadre. We need change in the organogram".*
- *"There is no teacher for computer science and English, student's fund from admission fee is used for paying guest lecturers".*
- *There is no subject-wise teaching staff, need to liaison with DH to get teachers for surgery, medicine, gynae. If the consultants don't get time, students are deprived. We need individual department & subject wise teacher".*
- *"If the course is 4 years their entry grade in job can be upgraded"*
- *'Posts should be created in UzHC for SACMOs'*
- *'Vacant posts should be filled up'*
- *'Utilization of SACMO should be increased'*
- *"In MATS Sirajganj, out of 71 sanctioned posts, 39 (55%) posts were vacant, as of July 15th 2021".*
- *'Internship is very important however to get 10th grade job 4 years course is a prerequisite. Hence, internship can be merged with course to increase clinical attachment.'*
- *"There is no teacher to teach 1st year basic English and computer science. Need to hire guest teacher, but no honorarium is allocated".*

- *"No teacher for the final year courses (surgery, gynae, medicine). Hence, the courses often cannot be completed as these are dependent on guest teachers and there is no honorarium for them".*
- *"At UzHC some SACMOs are competent, but all of them are not competent enough".*
- *MATS students can learn more at UzHC though they often don't do any work as internship is not done properly. Moreover, students do not have any place to stay at UzHC.*

**The highlights of the ongoing review process of MATS curriculum by CME are as follows;**

- The total duration of the course has been increased from 3 to 4 years
- Subject wise list of competencies to be acquired were identified
- More time has been allocated for practical/hands on/clinical training
- Clinical exposure has been designed from 1st year and more clinical placement in 2nd, 3rd and 4th year at specified health facilities
- Three-month attachment has been designed at UzHC in 3rd year
- The subjects have been rescheduled in four years
- Lecture classes of Medicine, Surgery and Gynecology & Obstetrics will start from 2nd year and will continue up to 4th year.
- New contents like behavioral science, communication skills, ethics, SDG, UHC, Community Clinic etc. has been added with due importance
- No separate internship is designated as the whole course is designed incorporating practical/ hands-on training/clinical exposure from first year and as and when required
- The maximum duration to complete the 4 years course has been fixed to 10 years

**International Courses**

In India Medical Assistants complete clinical and administrative tasks in the hospitals, and other healthcare facilities. They record a patient's personal information, help physicians with patient examinations, schedule patient appointments, and prepare blood samples for laboratory tests. Medical Assistant courses are offered at Graduate, Postgraduate (PG), Masters, Doctorate, and Diploma levels. Apart from that, there are plenty of certificate courses offered by colleges in on-line as well as off-line mode. The diploma and PG Diploma Courses are from 4 months to 3 years and the prerequisites are 10 or 12 years of schooling or have completed graduation. The Bachelors in Medical Assistant Course is full time for 3 years and offered after the 12 years of schooling (MA India).

In Nepal they have Community Medicine Assistant (CMA) course which is offered by Health Training School which is 15 months course. The CMA course is affiliated to Council for Technical Education and Vocational Training (CTEVT) and recognized by Nepal Health Professional Council. The CMA curriculum is designed to implement in the technical schools under the CTEVT to produce basic level health worker in the country. In Sri Lanka the number of private health care organizations is on the rise. Therefore, the goal is to create employable graduates called medical assistants. In Pakistan, 6 institutes are offering Diploma Medical Assistance courses on many different subjects.

In Bhutan, the faculty of nursing and public health is one among the three faculties under the newly established Khesar Gyalpo University of Medical Sciences, with a mandate to train Health Assistants (HA) and Basic Health Workers (BHW) who are the frontline health workers in health service delivery. In 1975, Bhutan introduced two other categories of health workers, and formed the Primary Health Care (PHC) team to maintain the newly established Basic Health Units in the country. They also introduced certificate courses for medical technicians, currently offering bachelor degree programs in Public Health and three years diploma program in Community Health, and Medical Technician (MA Bhutan).

## 3.2 Education courses for Medical Technologists

### 3.2.1 Eligibility Criteria for Admission

According to circular (DGHS for the academic year; 2019-2020 and of DGME for academic year 2020 – 2021), for admission in the 3-year diploma courses in government and private IHT, a single admission test was arranged for all candidates. The candidate (except for DMT Sanitary Inspectorship) should have the criteria which are a) the candidate should be a Bangladeshi by birth, b) passed SSC or equivalent examination, c) passed in current or previous 3 years, c) has secured minimum GPA 2.5 in the SSC examination and d) must have Biology. Though one of the eligibility criteria for admission in DMT courses is SSC passed, there are students who are enrolled in the courses with HSC.

> *'MT Radiology is a specialized subject. Students not studied physics in SSC will not be able to cope. Therefore, students from science background should only be enrolled'- - IHT Principal.*

> *'I was involved in teaching nursing students with arts background and faced difficulties in delivering science subjects. So, we shouldn't enroll student with Arts or commerce background for IHT' In-depth interview.*

The eligibility criteria for admission in DMT Sanitary Inspectorship are a) only the in -service candidates are eligible to apply, b) HSC or equivalent, c) age limit 40 years on the date specified in the advertisement and d) minimum 3 years' service experiences as health assistant or equivalent health workers as specified in the advertisement.

The selection of the candidates is done on the basis of;

- Aggregate marks obtained in the SSC and HSC examinations.
- Who have completed 5 (five) years' service will get 2 additional marks per year which will be counted after 5 (five) years but not more than 10 marks (e.g.; for 6 years = 2, for 7 years= 4, for 8 years=6, for 9 years=8, and for 10 years = 10)

### 3.2.2 Course Curricula

The total three-year period is divided into 3 parts and there are year final examinations at the end of each academic years and in each year, there are 40 weeks of teaching and learning (Teaching/Learning hours: 900- 1500 hours/year). The three-year DMT courses are being

delivered in subsequent phases, in discipline-based way which is, each year specific subjects are taught and with year final the teaching and learning of those subjects finishes. There is 18 weeks clinical attachment which is only in 3rd year.

The year wise time distribution is as below;

| Year | Institutional teaching | Clinical placement | Revision & exam |
|---|---|---|---|
| 1st Year | 36 weeks | - | 04 weeks |
| 2nd Year | 36 weeks | - | 04 weeks |
| 3rd Year | 18 weeks | 18 weeks | 04 weeks |

The 1st year course is same for all the disciplines of the DMT courses. There are seven subjects in 1st year which is creating burden for students. In 1st year, 4 subjects out of 7 don't have tutorial which is important for in-depth learning and competency development. More than 50% hours are for theory.

The subject wise hours distribution is as follows;

| Papers | Subjects | Theory | Tutorial | Practical | Total |
|---|---|---|---|---|---|
| I | English | 75 | 25 | - | 100 |
| II | Physics | 50 | | 50 | 100 |
| III | Chemistry | 80 | | 20 | 100 |
| IV | Basic Human Anatomy | 70 | 60 | 70 | 200 |
| V | Basic Human Physiology | 75 | 60 | 65 | 200 |
| VI | Community Medicine | 150 | | 50 | 200 |
| VII | Basic Microbiology & Parasitology | 40 | | 30 | 70 |
| | Total | 540 | 145 | 285 | 970 |
| | | **56%** | **15%** | **29%** | **100%** |

*'All the knowledge of 1st year is not required in working life, e.g., Physics is needed for radiotherapist, not needed for dentistry' - Principal IHT.*

**DMT Laboratory Technology**

In 3rd year 41% of total hour is allocated for Field / hospital placement which should create opportunity to develop competencies as the Medical Laboratory Technologists in professional life may be involved in one of the following four categories of job;

- Primary Health Care level
- Secondary Health Care level.
- Tertiary Health Care level and
- IHT for Teaching.

**DMT Physiotherapy**
The clinical attachment mentioned in curriculum is only for IHT Dhaka, nothing is mentioned for students of IHT outside Dhaka.

**DMT Radiotherapy -** In 2nd year there is clearly mentioned institutes for field placement for the subject Pathology and Radiation Physics though there is no time allocation.

**DMT Occupational Therapy -** In 3rd year there is a course 'Community Culture and Disability, and there is allocation for clinical placement. However, where to place is not mentioned in curriculum.

**Diploma Pharmacy -** One of the important job descriptions of the DMT Pharmacy is to manage pharmaceutical products. The course neither has content on pharmacy and pharmaceutical product management nor specific requirement for pharmacy attachment.

**Findings from Key Informants: Pharmacology**

'*They should be taught about the drug interactions, so that they can report to the doctors if there is any issue in the prescription'-.*

*'Communicating the doses properly to the patients is the role of pharmacists, therefore drug compliance should be emphasized in the curriculum'.*

*'The drug preparation has become primitive topic and do not have value in this modern era; it can be excluded. Pharmacists have responsibilities to face audit. So, audit handling as well keeping track of the storage etc. can be included in the curriculum'*

*'The diploma students don't need to know detailed information about the route of drugs, because they do not have the authority or choice to change the prescribed drugs.'*

*'The course design should be service oriented, and some key contents (storage, dispensing with labeling, communication with the patients, knowledge on adverse effect of the drugs, explaining the doses, understanding the prescription) should be emphasized'.*

**Teaching and learning methods**
The following teaching and learning methods of theoretical, practical, clinical attachment and community exposure are followed during course implementation:

1. Large Group Teaching - Lecture
2. Small Group Teaching e.g. Tutorial, Demonstration, Students' interaction
3. Practical session
4. Field Placement- In small groups for performing activities by the student themselves

The teaching learning is severely affected by acute shortage or lack of regular faculty as a result the competencies mentioned in job description is not addressed during teaching - learning process which ultimately fail to develop competent medical technologists.

Many faculties are not aware of using the advanced technology and equipment and the teachers who have been posted usually have no teaching experience, with no further provision for faculty development.

### 3.2.3 Educational Facilities and Teaching Aids

The IHTs were built many years ago to accommodate fewer students in smaller number of courses. Gradually over the period, the course number run by IHT and the student's intake increased. Therefore, there is shortage of accommodation as well as teaching aids and other supplies to run the courses which is hampering proper delivery of course curriculum. Lack of maintenance of equipment, furniture, physical facility etc. is the phenomenon everywhere in the old buildings and most of the IHTs.

**Practical or Demonstration Session**

- Well-equipped lab is not available in all IHT lack of equipment seriously compromising practical teaching, demonstration etc.
- Shortage of faculty to conduct the tutorial or practical sessions
- Absence of patients or simulator for skill development

**Laboratory practice and Clinical attachment**

For clinical attachment there is a slot of 18 weeks in 3rd year though there is no list of contents or logbook which needs to be developed for the placement and there is no fixed schedule for clinical attachment as a result some course starts placement after 15 days, some after 30 days. The clinical attachment is not supervised due to shortage of faculty, lack of coordination between the IHT and the clinical facility. There is no enlisted Medical College Hospital or district hospital for IHT students for clinical attachment. Students choose the hospital which is nearby to their own area of residence sometimes far away from the institute. They get enrolled with a letter from respective IHT and don't maintain any communication with IHT during the clinical attachment. There is no scope for community exposure in IHT courses, which is important for some of the courses e.g., DMT Physiotherapy.

> *"The students of DMT Lab technology, when placed in lab of medical colleges, attend some lectures and mostly observe lab activities, don't get opportunity to perform by themselves. They should at least perform some activities like blood collection, staining, autoclaving, PAPS smear staining etc."- Key informant.*

> *"We need to engage students in small group sessions. As they remain unattended after large group lectures, many of them secretly prepare for HSC exam which is hampering quality of learning"- In-depth interview.*

> *"Service-oriented lab can create opportunity for skill development, generate revenue, using which local expenditure can be managed. 'The students may receive 50% of their training in IHT and the rest in clinical attachment in Medical Colleges or District Hospitals. This clinical attachment is important to create scope for advance training using modern technology" - Principal IHT.*

*"There are numerous medical colleges and universities, and the diploma students can be placed in those institute for coursework with specific objectives of learning skills/ competencies, and after finishing the clinical attachment the students would be sent back after proper evaluation. This will help to minimize the gap of faculties in the IHT and the students will also get better exposure and understanding" Key Informant.*

### 3.2.4 Course Assessment

**Assessment Process: DMT**

Types of Assessment

- Summative Assessment is end course evaluation
- Formative Assessment is in course evaluation includes of card/ item

**Qualifying Criteria**

Student shall have to pass written, oral, practical and formative separately in each paper of the examination which means;

- Written Exam - 50%
- Practical - 50%
- Oral - 50%
- Formative assessment - 50%

**Grading**

1. Grade A+: 75% and above
2. Grade A: 60% - 74%
3. Grade B*: 45% - 59%
4. Grade-C: Pass mark for all the year final is minimum 50%.

*There is a typo in Grade B, the range of which should start from 51% to 59% which needs to be corrected

There are three final examinations at the end of each year. Supplementary examinations for the students who failed in regular examination held after 6 months of the regular year final examination. The examination is held at the month of January and July every year. Currently IHT send questions to moderation committee, conducts the examinations. The answer scripts are not sent back to IHTs, rather checked and submitted at SMF. Only a few teachers from IHT are invited for marking/checking answer scripts. Gust teachers are often chosen as external. The whole process is conducted by SMF. After finishing the three-year course and successfully passing the third-year final exam the student receives the diploma certificate.

**Eligibility criteria for appearing in the year-final examination:**

- Certificate from the respective head of institutes regarding students obtaining at least 75% attendance in all aspects (theory, practical, tutorial, residential field practice) during one academic year.

- Obtaining at least 50% marks in the formative examinations.
- No objection Certificate from the head of the respective institutes regarding taking part any activities contrary to the discipline of the institute.
- No student shall be allowed to appear in the Year II & Year III Final examinations unless the student passes all the subjects of 1st and 2nd year Final examinations respectively

**The assessment related findings from IHT are as follows;**

- Skill and competency tests are seriously hampered
- Some IHT conducts test examination regularly before allowing the students to appear in the 3rd year final examination which is a good practice.

> *'The diploma students should be assessed based on their competency rather than their knowledge. Currently, the students of DMT Pharmacy are taught by the MBBS doctors, and are assessed by the PhD holders from university through Bangladesh Pharmacy Council. Those who teach, should prepare and moderate the questions. The moderation can be done by the university teachers may be up to 20 -25%, not more than that, and the contents should also be fixed for moderation' - Key Informant.*

**BSc in Medical Technology**

**Number of IHTs running the Bachelor courses -** Only 2 government IHTs (Dhaka and Rajshahi) offer bachelor courses and intakes are annual.

Courses run by IHT are:

1. BSc in Medical Technology (Laboratory)
2. BSc in Radiology and Imaging Technology
3. BSc.in Medical Technology (Dental)
4. Bachelor of Physiotherapy

Brief Overview of Bachelor courses of IHTs with seat numbers

| | Courses | Govt* | Non Govt Quota | | | Total |
|---|---|---|---|---|---|---|
| | | Diploma | Diploma | General | Freedom fighter** | |
| | IHT Dhaka | | | | | |
| | B.Sc. in Medical Technology (Laboratory) | 28 | 13 | 13 | 1 | 55 |
| | B.Sc. in Radiology and Imaging Technology | 20 | 10 | 10 | | 40 |
| | Bachelor of Physiotherapy | 28 | 13 | 13 | 1 | 55 |
| | B.Sc. in Medical Technology (Dental)*** | | | | | |
| | IHT Rajshahi | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | B.Sc. in Medical Technology (Laboratory) | 15 | 7 | 7 | 1 | 30 |
| | Bachelor of Physiotherapy | 15 | 7 | 7 | 1 | 30 |
| | | | | | | 210 |

*The government quota is for the diploma medical technologists who are working with the government.

** One seat is reserved for the freedom fighter in each course. The FF may be diploma holder or from general background. After accommodating the FF, the category wise seat numbers are adjusted, keeping the total seat number constant.

***B.Sc. in Medical Technology (Dental) course was run by IHT Dhaka. However, student intake is postponed for last couple of years. The same course was approved by Rajshahi university for IHT Rajshahi though the institute couldn't start the course yet due to shortage of resources.

**Current Review Process of DMT Curricula of IHT by CME**

- The total duration of the course has been increased from 3 to 4 years
- Subject wise list of competencies to be acquired were identified
- Redistribution of subjects in four years in logical & rational way
    - 1st year 5 subjects which are common for all courses,
    - 2nd year 5 subjects out of which 3 subjects are common for all courses and remaining 2 subjects belongs to specific course.
    - 3rd year 3 subjects of specific course and
    - 4th year 2 subjects of specific course & special lab attachment as per future job description
- More time allocation for course specific academic lab based practical/hands on training to acquire identified competencies
- New contents like behavioral science, communication skills, ethics, SDG, UHC, Community Clinic etc. has been added with due importance
- Special lab-based attachment in 4th year as per future job description
- Moderate Carry-on system e.g.
    - One will be eligible to attend the 2nd year classes after passing at least 3 subjects out of 5 subjects of 1st year.
    - One will be eligible to attend the classes of 3rd year after passing at least 3 subjects out of 5 subjects of 2nd year.
    - One will be eligible to attend the classes of 4th year after passing at least 2 subjects out of 3 subjects of 3rd year.
- Assessment will be conducted by
    - Subject specialist teacher (Professor*/ Associate professor/ Assistant professor/Lecturer) will be illegible to be an examiner, moderator and will be able to evaluate the examination script.
    - Subject specific instructors will be illegible to undertake the practical examinations

- No separate internship is designated as the whole course is designed incorporating practical/ hands-on training/ clinical exposure from first year and as and when required
- The maximum duration to complete the 4 years course has been fixed to 10 years

*Though CME recommended Professor along with other categories of faculty, there is no position for Professor in the IHT.

**International Courses**

In India diploma Medical Laboratory Technology is a 2 years course which can be pursued after Class 10 or Class 12 and have an internship program of 3-6 months duration. The BSc in Medical Technology is a three-year course. The program helps students in gaining academic experiences and balanced training in laboratory medicine, enables them to perform diagnostic testing in the laboratories. The students learn to provide services in diagnostic at a faster pace as they are trained in hospital settings. The candidates should have passed 12 years schooling with Physics, Chemistry, Biology and mathematics subjects, and should possess good English language skills (MLT India).

In Pakistan the syllabus of BSc Medical Laboratory Technology is divided into six semesters, for a period of three years. The course introduces students to the importance of laboratories and subjects such as Human Anatomy, Human Physiology, Health Education, and more (MLT Pakistan).

In Sri Lanka the mode of Instruction is English in Diploma in Medical Laboratory Technology. The eligibility criteria of Bachelor in Medical Laboratory Technology (BSc MLT) of Tribhuvan University are 12 years of schooling passed or equivalent with Physics, Chemistry, and Biology and GPA 2.4. Those who have passed the Health Science Proficiency Certificate/Diploma (General Medicine, Medical Lab Technology, Ophthalmic Science, Dental Science, Pharmacy, Ayurveda, Radiography, Physiotherapy) courses with at least 50% aggregate in total marks and registered in Nepal Health Professional Council, Nepal Pharmacy Council or Nepal Ayurveda Council as per related educational program may be admitted to the BSc MLT course (MLT Sri Lanka).

**IHT Rajshahi: IDI**

- *"We don't have any dedicated anatomy lab hence, no cadaver /body for demonstration or dissection".*
- *"Limited class rooms to run 7 disciplines of Diploma MT courses including sanitary inspectorship, and 2 disciplines of BSc".*
- *"Some equipment is supplied however, due to shortage of spaces those could not be used yet. May expire without using".*
- *"Currently has students under both Rajshahi University (old students) and Rajshahi Medical University (New students)".*
- *"There is insufficient scope for extracurricular activities in the campus, i.e. no playground, though there are empty spaces. The ponds inside IHT campus are occupied and supervised by the DC office, not accessible for IHT students or staff".*

**IHT Bogura: IDI**

- *"This institute was originally started as MATS on 2006 and later converted to IHT. Therefore, the organogram, budget all are for MATS which is creating difficulties in running the IHT. The organogram and economic code should be changed to that of IHT".*

- *'The IHT needs visiting faculty and the remuneration is from local fund which is collected from students during admission (once only). Each student pay BDT 16,000 at the time of admission. Each guest teacher gets 400 taka per class, that is how we manage to bring guest teachers".*

**IHT Chattogram: IDI**

- *"This IHT Chattogram was established in 2010, with construction of academic building, hostels, quarters etc. However, all the buildings have been declared as 'abandoned' and will be demolished by PWD. The places will be acquired by the Chittagong Medical University. One big building will absorb all these facilities".*
- *"Source of honorarium of Gust teachers is from student's admission fee who pay BDT 23,800 once during admission. There is no monthly fees and examination fees are paid annually during exams".*

**IHT Gopinathpur, Akkelpur, Jaipurhat: IDI**

- *"This IHT was established in June, 2019. It is about 26 km from Jaypurhat in a remote union. No students are admitted yet though the total number of seats is 103, (DMT Pharmacy - 50, DMT Lab 50 students, Freedom Fighter -2, Tribal -1)".*
- *"No faculty position has been created, obviously no one is posted yet, nor in attachment even, including office assistant. Only two gate-keepers have been outsourced. There is no budget allocation and no code number issued".*
- *"There was electricity during handover however, the electricity has been disconnected as the bill could not be paid".*
- *"Few furniture, laptop has been handed over, which are deposited to CS office, safety of which is a concern".*
- *"During pandemic the building was used as isolation center which was closed in November, 2020 with withdrawal of all staff and equipment taken back".*

**IHT Kashiani and IHT Tungipara of Gopalganj: IDI**

*"The IHT of Gopalganj have the building constructed though there is no faculty position created and budget allocation is not there. Therefore, no students are there currently. Both the institutes received some furniture and computers, maintenance and security of which is a problem".*

**IHT Jhinaidaha: IDI**

- *"The IHT was established in 2012 and currently having eight courses (Laboratory Technology, Radiography, Physiotherapy, Radiotherapy, Dental Technology, Sanitary Inspectorship, Pharmacy and Optometry)".*
- *Though Optometry course (MLOP Ophthalmic Refractionist) is approved for IHT Jhinaidaha with posting of one lecturer, the course didn't start yet as there is no nearby ophthalmic hospital or institute where the students may get clinical attachment to learn practically and there is no SMF approved course curriculum".*
- *"The institute currently doesn't have any student for Sanitary Inspectorship".*
- *"Though the institute is running for more than eight years and students are enrolled yet, there is no lab facility even a microscope is not there to train students practically especially for Laboratory Technology course. Also, there is no X ray machine to train the students of Radiography course".*
- *There are 20 to 25 students enrolled each year with HSC background*

## 3.3 Capacity of the faculties of MATS

### 3.3.1 Adequacy of the number of faculty members

There are eleven functional MATS in public sector to produce Medical Assistant with required knowledge, skill and attitude to provide promotive, preventive and first line curative care to the community.

The faculty in different MATS varies widely with no standard organogram. A common organogram is there with 71 sanction posts out of which only 11 academic posts in the old seven MATS established during 1975 to 1979. But no new posts created thereafter. There are one grade 4 post for the principal, one grade 5 post for Senior Lecturer, four grade 6 posts of Junior lecturer, one grade 9 post of Medical Officer and four grade 10 posts of Tutors. There are no subject wise faculty. Only tutors are posted against Subject (Clinical Pathology, Pharmacology, Anatomy & Physiology and Sanitation).

There is no department for each subject and no teachers for clinical subjects. The consultants working in the district hospitals where the students get clinical attachment are teaching clinical subjects on request from the principal of the MATS without any incentives.

There are no teachers for English and Computer Science. The institute invites guest lecturer for teaching these subjects and pay from the student's fee collected during admission. There is inconsistency in collecting fees by different MATS and is ranging from TK.8500 to Tk.13, 500/student during admission. This goes against financial discipline and the authorities may face a serious audit objection for collecting and expending this money. Another serious challenge is vacancy against sanction posts. At present around 50% posts are vacant. Though Jhenaidah MATS was established in 2011 but yet to have any sanctioned posts and organogram. Three Assistant Director (AD) from Health Service Division of MOHFW are working on attachment. So also, the fate of Nalta MATS in Kaligonj Upazila of Shatkhira district that established in 2018 and is functioning with one part-time principal whose original posting is as assistant professor of the

Satkhira Medical College. These two MATS are functioning without any designated teachers and the students are deprived of learning the subjects appropriately.

Similar situation is prevailing in Gazipur and Tungipara, Gopalganj MATS and the civil surgeons are in charge of principal without any faculty for teaching students.

A proposed post creation for all MATS has submitted to the MOHFW by a committee formed by the MOHFW chaired by the Secretary, SMF. A total 174 posts of different grades were proposed for each MATS out of which 84 is teaching posts. For each MATS one principal and one vice principal of grade 3 posts also proposed. Other proposed teaching posts are as below in the table:

| **Department** | Number of Post | Grade |
|---|---|---|
| **English** | | |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| **Computer Science** | | |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| **Community Medicine** | | |
| Associate Professor | 1 | 4 |
| Assistant Professor | 3 | 6 |
| Lecturer | 4 | 9 |
| **Anatomy and Physiology** | | |
| Associate Professor | 1 | 4 |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| Senior Medical Technologist | 1 | 10 |
| Medical Technologist | 2 | 11 |
| **Pathology and Microbiology** | | |

| | | |
|---|---|---|
| Associate Professor | 1 | 4 |
| Assistant Professor | 2 | 6 |
| Lecturer | 2 | 9 |
| Senior Medical Technologist | 1 | 10 |
| Medical Technologist | 2 | 11 |
| **Pharmacology** | | |
| Associate Professor | 1 | 4 |
| Assistant Professor | 2 | 6 |
| Lecturer | 2 | 9 |
| Senior Medical Technologist | 1 | 10 |
| Medical Technologist | 2 | 11 |
| **Medicine & Pediatrics** | | |
| Associate Professor | 2 | 4 |
| Assistant Professor | 4 | 6 |
| **Surgery** | | |
| Associate Professor | 2 | 4 |
| Assistant Professor | 4 | 6 |
| **Gynecology & Obstetrics** | | |
| Associate Professor | 2 | 4 |
| Assistant Professor | 4 | 6 |

This proposal for post creation should be revisited in context of rationality and number of available seats. There is no post for tutor in the proposed organogram. Presently there are four tutor posts in MATS and with the present recruitment rules Medical Technologists are being recruited for the tutor posts.

### 3.3.2 Knowledge and competencies required by the faculty members

There is no subject wise department in MATS and teachers are teaching without specific knowledge and competencies of that subject. Only the clinical teaching by the consultants is based on their specialty.

### 3.3.3 Capacity assessment of the current faculty members

Most of the faculties are coming from health service division who were working as, UHFPO, DCS or CS and do not have any teaching experience.

Though MATS is an institute to produce Medical Assistants with the competency of limited curative care of the patients but there are no clinical teachers. The consultants of the hospital teach students on the request of the institution head without any incentive. The job description of consultants does include academic activities for MATS. Without any administrative control by the principal MATS sometime they are not motivated to teach students.

Teachers of both basic and clinical subjects do not have any opportunity to be trained on teaching principles and methodologies. The faculties coming from administrative experience finds difficulty in teaching and most of them are reluctant to continue as teachers. In some cases, they have a feeling that it is a temporary waiting station for his next promotion in the higher administrative position.

The faculties are not trained in teaching methodology. There is no scope for further professional and modern technology development.

### 3.3.4 Mechanism for assessing performance of the faculty members

Teacher's performance assessment system does not exist in any MATS. The government Annual Confidential Report (ACR) is the only tool for appraisal which does not allow to assess the teaching capacity of the faculty.

### 3.3.5 Career pathways for the faculty members

At present there is no career pathway for the teachers and retention is always challenging. Teachers with subject specific postgraduation are reluctant to continue in MATS and try to be posted in medical colleges.

As per the present recruitment rules tutors are posted from the Medical Technologist and it is a block post. There is no position like senior tutor as a feeder post for the tutors.

## 3.4 Capacity of the faculties of IHT

### 3.4. 1 Adequacy of the number of faculty members

All IHT offer Diploma in Medical Technology. Dhaka and Rajshahi run both diploma and B.Sc course in two disciplines. The B.Sc courses are affiliated by Dhaka University and Rajshahi Medical University respectively. Dhaka and Rajshahi IHTs are older and have sanctioned post in revenue budget. There are 88 sanctioned posts of those 41 are teaching posts. Bogura IHT was established in 2007 by converting the MATS. No post created as for IHT requirement and is functioning with MATS organogram. Jhenaidah IHT established in 2011 and was blessed with an organogram of 42 posts in 2015. Though it runs 7 disciplines namely laboratory, radiology and imaging, physiotherapy, dentistry, pharmacy, radiotherapy and sanitary inspectorship but there are five Associate Professors posts for physiotherapy, dentistry, pharmacy, radiotherapy and optometry respectively. There are lecturer and instructor posts for all courses except sanitary inspectorship. Though optometry course yet to start (SMF doesn't have any such course in public IHT till now) it has been allocated with both Associate Professor, Lecturer and Instructor posts. Laboratory and Radiology have only lecturer and instructor posts. Sanitary Inspectorship has no dedicated faculty. Out of 42, vacant posts are 26 (62%). Vacancy for faculties is 7 (37%) out of 19. In April 2021, 38 posts are created for each of the 5 IHTs – Chattogram, Rangpur, Barishal, Sylhet (all established in 2011) and Khulna (still under construction). Faculties and other staffs are yet to be posted. These IHTs have been functioning with faculties on attachment and other staff recruited locally and paid out of fees collected from the students. Jamalpur IHT is reported to have 35 sanctioned posts, but none are posted and currently operating with on attachment faculty and outsourced staff.

All IHT does not run all discipline and it varies widely in different IHT. According to the sanction posts teachers are posted from health service division of MoH&FW and mostly from the administrative position in Upazila and district level without any academic exposure. Only instructors are posted against subject and recruited from the medical technologists. There is no post of teachers for English, Bangla, Physics, Chemistry and Computer Science. Students' fees are used for paying guest lecturer.

Recently a proposal for post creation with a uniform organogram for all IHT has submitted to the MOHFW by a committee formed by the MOHFW chaired by the Secretary, SMF. A total 364 posts of different grades were proposed for each IHT out of which 168 are teaching posts. Though Dhaka and Rajshai IHT conduct B.Sc. courses but proposal has not included any more position to run those courses. For each IHT one principal and one vice principal of grade 3 posts also proposed. Other proposed teaching posts are as below in the table:

| **Department** | Posts | Grade |
|---|---|---|
| **English** | | |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| **Computer Science** | | |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| **Community Medicine** | | |
| Associate Professor | 1 | 4 |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| **Physiology** | | |
| Associate Professor | 1 | 4 |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| Senior Medical Technologist | 1 | 10 |
| Medical Technologist | 1 | 11 |
| Physics | | |
| Assistant Professor | 1 | 6 |
| Lecture | 2 | 9 |
| Chemistry | | |
| Assistant Professor | 1 | 6 |
| Lecture | 2 | 9 |

| Microbiology |
|---|

| | | |
|---|---|---|
| Associate Professor | 1 | 4 |
| Assistant Professor | 1 | 6 |
| Lecturer | 2 | 9 |
| Senior Medical Technologist | 1 | 10 |
| Medical Technologist | 2 | 11 |
| **Anatomy** | | |
| Associate Professor | 1 | 4 |
| Assistant Professor | 1 | 6 |
| Curator | 2 | 6 |
| Lecturer | 2 | 9 |

| **Department of Laboratory Medicine, Dental, Radiology & Imaging, Physiotherapy, Radiotherapy, OT Assistant, Intensive Care Assistant, Pharmacy, SIT (Same organogram for each department)** | | |
|---|---|---|
| Associate Professor | 1 | 4 |
| Assistant Professor | 2 | 6 |
| Lecturer | 4 | 9 |
| Senior Medical Technologist | 1 | 10 |
| Medical Technologist | 2 | 11 |

There is a scope in revisiting the proposed organogram and can be restructured according to the affiliated discipline for each IHT. There is no post for instructor in this proposal though at present there are subject wise instructor post in most of the IHT.

### 3.4.2 Knowledge and competencies required by the faculty members

There is no subject wise department in IHT and teachers are teaching all the subject without specific knowledge and competencies of that subject. The associate professors and assistant professors who have postgraduate degree is teaching on their subject but in most of the IHT such posts are vacant.

### 3.4.3 Capacity gap of the current faculty members

The faculty does not get the opportunity for continued medical education. At present there is no provision of teachers training. Centre for medical Education (CME) is providing training for the teachers of medical colleges only. Most of teachers are working on deputation and mostly not designated teachers therefore, lacking in teaching experience with no further mechanism for faculty development. Moreover, the teachers are not sufficiently proficient with modern information and communication technology. Many faculties are not aware of using the advanced technological equipment. Lack of regular faculty hampers development of competencies of the students.

### 3.4.4 Mechanism for assessing performance of the faculty members

Performance appraisal for the faculties does not exit at present. The government Annual Confidential Report (ACR) is the only tool for appraisal which does not allow to assess the teaching capacity of the faculty.

### 3.4.5 Career pathways for the faculty members

In IHT there are two categories of teachers. One group are posted from BCS (Health) cadre with minimum MBBS degree and are transferable to the public health sector. Those who have postgraduation degree may be transferred with or without promotion to another academic institute. The others have no opportunity to go through a career pathway.

Another group of teachers are recruited from the Medical Technologists as instructor for practical classes and with seniority may be promoted as senior medical technologist in the same institution. But this is very limited for some specific subjects. There is no defined career development structure in IHT in general.

## 3.5 Governance

### 3.5.1 Policies, rules and regulations

For the public sector MATS and IHT, Medical Education and Family Welfare Division (ME&FWD) of the Ministry of Health Family Welfare (MOHFW) in consultation with the Directorate General of Medical Education make decision. Both the MATS and IHT's senior positions (Principal) including faculties (Senior Lecturer, Junior Lecturer, Medical Officer for MATS and Associate Professor, Assistant Professor, Medical Officer for IHT) belong to Bangladesh Civil Service (BCS) (Health). According to The Bangladesh Civil Service Recruitment Rules 1981 Part XX Bangladesh Civil Service (Health) and The BCS (Examination for Promotion) Recruitment Rules 1986, Principal of both MATS and IHT is a Deputy Director (DD) level position and to be filled-in by promotion from Civil Surgeon (CS), Assistant Director (AD), Senior Lecturer MATS etc. Dhaka IHT principal's position is of Director level and to be filled-in by promotion from the DDs, principals MATS/IHTs etc. Since MATS and IHT's Principal post is not ring-fenced within the BCS (Health) cadre, any one of the same rank (director/DD) may be posted. In most cases these positions are filled-in by persons having no experience/exposure of teaching and thus make proper functioning of the institution including quality of teaching extremely difficult. Senior Lecturer MATS is a CS/AD level position and to be filled-in by promotion from Deputy Civil Surgeon (DCS), Upazila Health and Family Planning Officer (UHFPO), Junior Lecturer MATS etc. Junior Lecturer MATS is DCS/UHFPO level position and to be filled-in by promotion from the Assistant Surgeons (Medical Officers), the entry level post in the BCS (Health) Cadre. Also as the other senior faculty positions of MATS are not ring-fenced within the BCS (Health) cadre, any one of the same rank may be posted. In most cases these positions are filled-in by persons having no experience/exposure of teaching and thus make proper functioning of the institution including quality of teaching extremely difficult. However Associate Professors and Assistant Professors of the IHTs are ring fenced and filled-in by promotion from the MBBS with post-graduate degree/diploma. But Associate Professors of IHTs are equivalent to Assistant Professors of the medical colleges.

In the revised Rules of Business, 1996 (vide Cabinet Division's S.R.O No. 62-Law/2017 dated 16 March 2017) MATS and IHT belong to ME&FWD, but administration BCS (Health) cadre officer is under Health Services Division (HSD). Since the Principal and senior faculty positions of both MATS and IHT belong to the BCS (Health) cadre, deployment in these positions is in the jurisdiction of HSD, appearing to be a challenge. The mass transfer of doctors in the early part of July 2021 that sparked debates also had some from MATS and IHT.

Bangladesh Health Departmental Non-Medical Staff Recruitment Rules 2018 regulates deployment of Tutors in MATS (Grade 10) and to be filled-in by promotion of Medical Technologist (Radiography/Sanitary Inspectorship/Laboratory or Pharmacy) with minimum 3 years experiences or 7 years experiences as Laboratory Instructor; deployment at IHTs of Dhaka and Rajshahi - Lecturer (Grade 12) to be filled-in by direct recruit with diploma in concerned medical technology with PCB registration (in case of pharmacy) and also by promotion minimum 5 years experiences at Laboratory Instructor post; Lab Instructor (Grade 14) direct recruit with diploma in concerned medical technology and promotion 5 years experiences at Laboratory Attendant post in Grade 18 or 19. However the post creation for Jhenaidah and Chattogram with others mentions about The Director of Nursing Services (Gazetted and Non-Gazetted Post)

Recruitment Rules 1979 for Instructor (Grade 10). But the said rule is repealed by the Directorate of Nursing (Employee) Recruitment Rules 2016 and this new rules has no reference to IHT instructor.

Two separate guidelines for the establishment and operation of MATS and IHT in non-public sector exist since 2010. However public sector MATS and IHT in many cases don't satisfy conditions required under these guidelines.

Medical Assistant Training course is of 3 years duration. One year internship with 9 months in General/Sadar Hospital or any equivalent hospital and 3 months at Upazila Health Complex is a prerequisite for registration. September 2009 curriculum is being followed now. Centre for Medical Education in association with relevant stakeholders has taken initiative to revise the current curriculum, which is yet to be finalized. MOHFW termed the course as Medical Assistant Training/Course, SMF calls as Medical Assistant Training course, BMDC registers as Medical Assistant, but the BMDC Law 2010 in its 5$^{th}$ schedule termed as Diploma of/in Medical Faculty (DMF).

IHTs' bachelor courses are of 4 years duration and diploma courses are of 3 years duration. MOHFW and DGME title diploma courses as Diploma in Medical Technology (DMT) with discipline within bracket. However, in the respective curriculum the diploma courses are titled differently like Diploma in Medical Laboratory Technology (DMLT), Diploma in Occupational Therapy, Diploma in Operation Theatre Assistant, Diploma in Dental Technology, Diploma In Intensive Care Assistant, Diploma in Pharmacy, Diploma in Medical Technology (Physiotherapy), Diploma in Medical Technology (Radiology and Imaging), Diploma in Medical Technology (Radiotherapy) etc. Existing diploma curricula are of 2008. Centre for Medical Education in association with relevant stakeholders has taken initiative to revise the current curriculum, which is yet to be finalized.
Medical Assistant when recruited by the DGHS and DGFP is given the designation as Sub-Assistant Community Medical Officer (SACMO). Under DGHS, 50 bed Upazila Health Complex (UzHC) has provision of 1 SACMO in the out-patient department (OPD), 31 bed UzHC has provision of 2 SACMO in the OPD, 30 bed hospital has 2 SACMO provision in the OPD and union level Union Sub-Centre/Rural Dispensary has 1 SACMO post. Under DGFP, SACMOs are in-charge of the Union Health and Family Welfare Centers. However, under both DGHS and DGFP, SACMO posts are blocked without any opportunities of promotion.

Diploma Medical Technologists are recruited and deployed in the DGHS and entities under it following Bangladesh Health Departmental Non-Medical Staff Recruitment Rules 2018. In Grade 11, Medical Technologist Laboratory through 80% direct recruitment with Diploma in Medical Technology Laboratory and 20% promotion from Laboratory Attendant with minimum 8 years experiences; Medical Technologist Sanitary Inspectorship by direct recruitment with Diploma in Medical Technology Sanitary Inspectorship; Medical Technologist (Dental) by direct recruitment with medical technologist (dental) diploma; Diploma Pharmacist by direct recruitment with diploma in by pharmacy and PCB registration: Medical Technologist Radiography recruited directly with Diploma in Medical Technology Radiography; Medical Technologist (BCG/EPI) by 60% promotion from HA with minimum 3 years experiences and 40% direct recruitment with

Diploma in Medical Technology (BCG/EPI). In Grade 10, Senior Medical Technologist (Lab) by promotion from Medical Technologist (Lab) with 3 years experiences; Senior Radiographer by promotion from Medical Technologist Radiography with minimum 3 years experiences; District Sanitary Inspector by promotion from Medical Technologist (Sanitary Inspector) with minimum 3 years experiences; District EPI Superintendent by promotion from Medical Technologist (BCG/EPI) with minimum 3 years experiences. Chief Optical Inspector (Grade 11) by transfer from Medical Technologist Lab on the basis of seniority. Optical Maintenance Officer Grade 9 by promotion from Chief Optical Inspector with minimum 10 years experiences in the post. But Lecturer IHT (Dhaka/Rajshahi) in Grade 12 by direct recruit with diploma in concerned medical technology with PCB registration (as appropriate) and also by promotion with minimum 5 years experiences at Laboratory Instructor post. Similarly Assistant Physiotherapist/Physiotherapist in Grade 12 by direct recruit with medical technology physiotherapy diploma. Also Laboratory Instructor IHT in Grade 14 by direct recruit with diploma in concerned medical technology and promotion with 5 years experiences at Laboratory Attendant post in Grade 18 or 19.

Besides regular revenue budgets, both MATS and IHT are supported through the Medical Education and Health Manpower Development Operational Plan of the 4th Health, Population and Nutrition Sector Programme 2012-2022. However, allocation from the both the budgets mentioned to be inadequate both in terms of amount and line items. During field visits at different MATS and IHTs computers, laboratory equipment, books and furniture were found in so much quantities which will never be properly utilized. Respective authorities informed about non-supply of required laboratory equipment, reagents according to their need.

### 3.5.2 Education board and Regulatory body

State Medical Faculty (SMF) acts as education board for medical assistant training (MAT) course. It conducts 1st year, 2nd year and 3rd year final examinations – all twice in a year and issues certificates. After passing the third year final examination and completion of one year internship (with proof of certificates from the general/sadar hospital and upazila health complex), SMF issues the certificate for completion of MAT course. SMF also acts as education board for most of the diploma medical technologist courses and for the diploma pharmacist Pharmacy Council of Bangladesh (PCB) functions as education board. However SMF suffers from legal vacuum. The Bengal Medical 1914 through which its predecessors was established is said to have not enacted in Bangladesh. Proposed Bangladesh Allied Health Professional Education Board Law 2019 is yet to be enacted.

Bangladesh Medical and Dental Council (BMDC) register the Medical Assistant (vide clause 15 of the BMDC Law 2010). Certificate from SMF and testimonial from the MATS principal are the prerequisite. Medical Assistant registration fee is Taka 750/- with Taka 1000/- as fee to entry the name in the relevant register. Registration is required within 3 months of the completion of internship after which a late fee of Taka 300/- is charged for a year or fraction thereof. BMDC only registers those completed MAT course from the BMDC accredited MATS, which is granted after inspection by the BMDC and no renewal is required. This BMDC accreditation is not supported by the law. The 5th schedule of BMDC Law 2010 records SMF as training institute, therefore anyone having SMF certificate is eligible for BMDC registration. Currently though 218

MATS are in operation in the country, BMDC accredited only 112. Registration to the Medical Assistant is provided for 5 years after which renewal is required by providing the fees only, which is Taka 300/-. However a fee of Taka 200/- is charged as late fee of renewal for a year or fraction thereof. Though as per clause 29 of the BMDC Law 2010, use of the title *doctor* is reserved for minimum MBBS/BDS holder and violation is punishable, BMDC hasn't taken any move when the Medical Assistant, register by it is using the doctor title. It was informed that Medical Assistants had filed a case in the court demanding their right to use doctor title and the case is pending. BMDC also hasn't sanctioned any Medical Assistant for any professional misconduct.

PCB also registers diploma pharmacist and there is no regulatory authority for other types of medical technologists. Bangladesh Rehabilitation Council Law 2018 is enacted. According to the 2nd schedule of the law Diploma in Medical Technology (Physiotherapy/Occupational Therapy/Prosthetics and Orthotics) is included. In the 4th schedule within degree awarding academic institutions, Dhaka and Rajshahi IHTs are not included though these two institutions conduct Bachelor in Science in Physiotherapy courses. In the 5th schedule as Diploma in Medical Technology (Physiotherapy) providing institutions IHTs of Dhaka, Rajshahi, Rangpur, Bogura, Chattogram, Barishal, Jhenaidah and Sylhet are include. The council is entrusted with the responsibilities of deciding the entry criteria, duration, curricula of the courses along with conduction of examinations, recognize the institutes offering courses and registers the professionals. Since SMF suffers from legal vacuum, it will have conflict with the Bangladesh Rehabilitation Council for the Diploma in Medical Technology (Physiotherapy/Occupational Therapy/Prosthetics and Orthotics) for conduction of course and examination. SMF faced similar problems in the past with Bangladesh Technical Education Board and the more than decade long tussle has just ended. But another seems to be offing.

In the revised Rules of Business, 1996 (vide Cabinet Division's S.R.O No. 62-Law/2017 dated 16 March 2017) ME&FWD is entrusted with policy regarding medical education (#3), preparation of schemes related to medical education including IHT (#5), matters related to IHT (#6), engagement with SMF (#7), but HSD is entrusted with engagement with Pharmacy Council (# 13). Thus SMF is headed by the Secretary, ME&FWD but PCB is headed by the Secretary, HSD.

For proper check and balance education board and regulatory body need to be separate. For the MATS this is full-filled. However if the proposed Bangladesh Allied Health Professional Education Board Law 2019 get enacted, the need for regulatory body for the medical technologist need to resolved. Also current roles of PCB as both education board and regulatory body need to be segregated. For the diploma pharmacist the proposed Bangladesh Allied Health Professional Education Board may take care as education board while PCB continues the role of registering diploma pharmacist.

### 3.5.3 Integrating the auxiliary forces into the health system

Out of 11 functioning MATS, 8 are at district level. But Satkhira is at Nalta, a place under Kaliganj upazila. Similarly, out of 5 MATS whose construction has been completed, 4 are at upazila level and some further down. Out of 8 MATS whose construction is under progress, at least 5 are at upazila or below level. Not only those located at outside district will have limitations in retaining

faculties but also internship is required at district level general/sadar hospital and access for that will have difficulties.

Similarly, out of 15 functioning IHTs, 9 are at district level. But Satkhira is at Nalta, a place under Kaliganj upazila, Jamalpur is in Islampur upazila, Tungipara is a upzila under Gopalganj. Out of 4 IHTs waiting for commissioning, 2 are at district level and Kashiani is a upzila under Gopalganj district, also Joypurhat is at Gopinathpur union under Akkelpur upazila. Out of 8 IHTs whose construction is under progress, 4 are at upazila or below level. Not only those located at outside district will have limitations in retaining faculties but also required clinical attachment in the appropriate hospitals and access for that will have difficulties.

Though 31 bed UzHC and 30 bed hospital has 2 SACMO positions, the upgraded 50 bed UzHC has reduced the position to 1. Other DGHS hospitals don't have SACMO posts. Health Bulletin 2019 reported that DGHS has 5337 sanctioned posts of SACMO, of which 3709 filled-in and 1628 (30.50%) as vacant. Similarly, under DGFP, posts created in 159 maternal and child welfare centers (MCWC) in 2019 don't have SACMO provisions.

Under DGHS different entities have different types of medical technologists' positions, some of which are mentioned below:

| Entities | Laboratory | Pharmacy | Dental | Radiology | Physiotherapy | SIT | EPI |
|---|---|---|---|---|---|---|---|
| Civil Surgeon's Office | Senior MT -1 MT-1 | X | X | X | X | DSI-1 | DES-1 |
| 250 Bed Hospital | 4 | 4 | 1 | 1 | X | X | X |
| 100 Bed Hospital | 3 | 3 | 1 | 2 | 1 | X | X |
| 50 Bed UzHC | 4 | 1 | 1 | 1 | X | 1 | 1 |
| 31 Bed UzHC | 3 | 2 | 1 | 1 | X | 1 | 1 |
| 30 Bed Hospital | 1 | 1 | 1 | X | X | X | X |
| 25 Bed Hospital | 1 | 1 | X | 1 | X | X | X |
| 20 Bed Hospital | 1 | 1 | X | X | X | X | X |
| 10 Bed Hospital | 1 | 1 | X | X | X | X | X |

Health Bulletin 2019 reported that in December 2019 situation of different medical technologists' posts were as follows:

| Medical Technologists | Sanctioned | Filled-up | Vacant | Vacancy % |
|---|---|---|---|---|
| Pharmacy | 2915 | 1441 | 1474 | 50.57 |
| Laboratory | 2389 | 1581 | 808 | 33.82 |
| Radiography | 795 | 584 | 211 | 26.54 |
| Radiotherapy | 86 | 36 | 50 | 58.14 |
| Physiotherapy | 337 | 126 | 211 | 62.61 |
| Dental | 627 | 476 | 151 | 24.08 |
| Sanitary Inspectorship | 498 | 481 | 17 | 3.41 |
| EPI | 499 | 483 | 16 | 3.21 |
| Total | 8146 | 5208 | 2938 | 36.07 |

Under DGFP, in each of the UH&FWC, there is a post of diploma pharmacist. But most of those are vacant.

Cumilla MATS doesn't have its own buildings and premise. Current operations are performed in other government building and hired buildings. Academic building and male students' hostels of Jhenaidah MATS are occupied by the RAB. Only female students' hostel building is used for academic purpose and boys' hostel. Girls' hostel is run in a hired building.

World Health Organization in its World Health Report 2006 titled as Working together for Health has identified a density threshold of physicians, nurses and other health workforce (HWF) as 22.8 per 10,000 population and internationally the ratio of doctors, nurses and other HWF is 1:3:5. Estimating 180 million population of the country in 2021, the Human Resources Management Unit of the MOHFW in 2013 projected the need of 1,03,500 physicians, 3,10,500 nurses and 5,17,500 other HWF. BMDC has 1,17,000 (MBBS 1,06,000 and BDS 11,000) registered physicians, so others HWF should be 5,85,000. If we consider half of the HWF as medical assistants and the other half as medical technologists, then the country need 2,92,500 medical assistants and 2,92,500 medical technologists. BMDC has registered 19,750 medical assistants. Therefore there is a huge market need of medical assistants in the country. Health Bulletin 2009 reported that health facilities under DGHS were 589 and under private sector registered by DGHS were 2271. Also Health Bulletin 2019 reported health facilities under DGHS as 2258 and under private sector registered by DGHS are 5321. Thus growth in 10 years under DGHS is 383% and in private sector is 43%. Therefore there is a huge market need of medical technologists in the country.

### 3.5.4 Governance

Since Bangladesh aspires to be a healthy, happy and prosperous country through planned development and control of its population (MOHFW 2012), developing its population into resources is a priority. As enormous need of both medical assistants and medical technologists exists more MATS and IHTs need to establish both in public and private sectors. However to make those institutions functioning effectively need to establish minimum at district level and not below that.

Bangladesh currently has 4 public sector medical universities, 114 medical colleges (38 government and 76 private) (Health Minister 2021), 35 dental colleges/units (9 government and 26 private), 218 MATS (9 government and 209 private), 110 IHTs (15 government and 95 private), 2 homeopathy graduate colleges (1 government and 1 private), 61 private homeopathy diploma colleges, 1 government graduate ayurvedic and unani college, 10 private diploma ayurvedic institutions and 16 diploma unani institutions (1 government and 15 private) (Muhammod Abdus Sabur 2020). More of these types of academic institutions will be established both in the government and private sector in coming future. Thus DGME's Dhaka-based set-up is insufficient for monitoring these vast number of varied types of entities located all over the country. Thus DGME need to have regional/divisional set up to ensure optimum governance.

Both the medical assistant and medical technologist courses are of 3 years duration with Secondary School Certificate (SSC) pass as entry qualifications. However other prevailing

diplomas in engineering, agriculture, fisheries, and forestry courses are of 4 years duration with SSC as entry qualifications (Bangladesh Technical Education Board Law 2018).

In 2018-2019, around 5,500 (41%) students took admission into MATS and around 3,000 (26%) students were admitted in diploma courses in the IHTs (Muhammod Abdus Sabur 2020). In 2019-2020, 49% (95% in government and 45% in private) students were admitted into the MATS and 44% (72% in government and 21% in private) students took admission for diploma courses in the IHTs. Against the serious shortage of medical assistants and medical technologists more than half of the available seats are not filled-in. Absence of recruitment by the DGHS and DGFP for several years and lack of competencies (for medical technologists) leading not recruiting by the private sector facilities and also production by the Bangladesh Technical Education Board affiliated institutions are cites as reasons for such situation.
The title of MATS and its head as Principal confuses people. In Bangladesh context School has Head Master/Mistress and College has Principal. Similarly School ends with Grade 10 class and after Grade 10 institution is usually known as College. Similarly the designations of Senior and Junior Lectures are not only confusing but also embarrassing for the post holders. In the BCS (Health) Cadre composition Medical Officer and Lecturer (of Medical Colleges) are of same rank. But in MATS, after being promoted from Medical Officer (Lecturer) one will be posted as Junior Lecturer.

IHT has too many masters – ME&FWD, DGME, SMF, PCB, Universities and MATS also – ME&FWD, DGME, SMF, BMDC. Mostly each of these entities operates without much coordination with others. One stop service may resolve the problems faced by the MATS and IHTs.

Not all MATS have same seats. Seat numbers in different MATS are shown below:

| MATS | Bagerhat | Cumilla | Noakhali | Kushtia | Faridpur | Tangail | Sirajganj | Jhenaidah | Satkhira |
|---|---|---|---|---|---|---|---|---|---|
| Seats | 152 | 52 | 102 | 102 | 102 | 102 | 102 | 52 | 52 |

Similarly courses and seat number varies in different IHTs and given below:

| IHT | | Lab | Physio | Radiology | Dentistry | Pharm | Radiotherapy | SIT | OTA | ICA |
|---|---|---|---|---|---|---|---|---|---|---|
| Dhaka | Graduate | 55 | 55 | 49 | X | X | X | X | X | X |
| | Diploma | 50 | 50 | 50 | 50 | 50 | 20 | 50 | 25 | 25 |
| Rajshahi | Graduate | 30 | 30 | X | X | X | X | X | X | X |
| | Diploma | 50 | 50 | 50 | 50 | 50 | 20 | 50 | X | X |
| Bogura | Diploma | 65 | 50 | 55 | 55 | 50 | 20 | 50 | X | X |
| Chattogram | Diploma | 50 | 50 | 50 | 50 | 50 | 20 | 50 | X | X |
| Borishal | Diploma | 50 | 50 | 50 | 50 | 50 | 20 | 50 | X | X |
| Rongpur | Diploma | 50 | 50 | 50 | 50 | 50 | 20 | 50 | X | X |
| Jhenaidah | Diploma | 50 | 50 | 50 | 50 | 50 | 20 | 50 | X | X |
| Sylhet | Diploma | 50 | 50 | 50 | 50 | 50 | X | 50 | X | X |
| Sirajganj | Diploma | 50 | X | X | X | 50 | X | X | X | X |
| Satkhira | Diploma | 50 | X | 50 | X | X | X | X | X | X |
| Jamalpur | Diploma | 50 | X | 50 | X | X | X | X | X | X |
| Tungipra | Diploma | 50 | X | X | X | 50 | X | X | X | X |
| Gazipur | Diploma | 50 | X | X | X | 50 | X | X | X | X |
| Kashiani | Not yet functioning | | | | | | | | | |
| Joypurhat | Not yet functioning | | | | | | | | | |

# 4. Recommendations

## 4.1 Education course for Medical Assistant

### 4.1.1 Eligibility Criteria for Admission

The eligibility criteria for admission is recommended to be the same.

### 4.1.2 Course Curriculum

**Course Duration**- The total duration of the course should be increased to four years, with clinical attachment inbuilt from first year. This will increase skill-based training opportunities and help to develop competencies among the Medical Assistants. There will be no separate internship.

**Organization of the Subjects**- the subjects should be reorganized, e.g., Year 1- Only four subjects, English, Computer Science, Anatomy and Physiology, Year 2 - Basic Pathology & Microbiology and Basic Pharmacology, Year 3 - Public Health / Community Medicine and Emergency Medicine, Year 4 - Basic Medicine & Pediatrics, Basic Surgery and Basic Gynecology & Obstetrics. Pediatrics may start in year 3.

**Public Health or Community Medicine** - Basic Community Health & Medical Ethics & Basic Community Medicine & Health Management may be combined to a single subject as Public Health or Community Medicine

**The Clinical Attachment -** should start in clinical facility / District hospitals, from 1$^{st}$ year and at UzHC in year 3. The clinical attachment should be competency based e.g., observe, assist, perform. There should be logbook to guide, record, monitored, and supervised. After finishing attachment there should have assessment/viva examination to ensure that the objectives have been achieved. Supervising the Medical Assistants and conducting their exam should be included in the job description of the clinical teachers and consultants.

**Competencies** - Subject wise competencies need to be identified and the Medical Assistants should acquire the competencies during clinical attachment including communication skill.

**Course content** - information overload should be addressed with categorization (must know, need to know, nice to know) and under changing disease epidemiology, new course content should be added

**Information overload** - this should be addressed for every subject e.g.; Pharmacology may focus on the drugs used in ESP and the drug list which SACMOs are authorized to prescribed.

**New course contents** should be emphasized e.g., Computer science (basic database for individual patient and facility-based data entry, DHIS2), Medicine (NCDs - Managing chronic diseases, NCDs, shared risk factors), Emergency care, Public Health / Community Medicine e.g.

- Working during pandemics (COVID 19), outbreak (Dengue, Chikungunya etc.)

- Health system orientation, brief overview of ESP and PHC, national protocols of different diseases
- Preventive, promotive, Screening, follow-up, palliative & homebased care

**Teaching - Learning Method** - Theory teaching should be maximum 1/3rd of teaching hour. Tutorial, practical sessions need more emphasis for skill development and should be card or assignment based. Need discipline based, subject specific trained teachers with resource material available to ensure proper teaching-learning method.

**Medium of Education** - English should be the medium of Instruction and emphasis needs to be given on English language though there were arguments against this

**Education unit** should be introduced in each MATS to support Quality Assurance (QA) mechanism and Accreditation system.

### 4.1.3 Course Assessment

The formative and summative assessment process should be strictly be followed and year final must include certain percentage of marks from the formative assessment. Formative assessment may include card completion, assignment in tutorial, practical examination. Summative assessment may include combination of short question, MCQ etc. in written, structured oral, skill test by demonstration, preclinical laboratory exercise may be assessed by objective structured practical examination (OSPE) and competency in clinical setting- by objective structured clinical examination (OSCE). The assessment procedure needs to be uniform for both government and private sector.

### 4.1.4 Compendium of necessary education facilities

The physical facilities need to improve and changing demand of delivering the course using modern methods and technologies. Suitable and sufficient infrastructure should be there to deliver the curriculum properly and the institutes need space to accommodate students and teachers. Proper implementation of the curriculum needs following supports;

**Practical training -** Academic lab should be introduced in all the MATS for practical training and competency development. Availability of sufficient well-equipped labs with logistics should be there. Trained staff to maintain the educational labs with budget allocation for maintenance of the lab should be there.

**Physical Structure -** There should be enough class rooms for small group session, tutorial and self-learning, standard library facilities, and common rooms for the students.

## 4.2 Education courses for Medical Technologists

### 4.2.1 Eligibility Criteria for Admission

The eligibility criteria for admission will remain the same.

### 4.2.2 Course Curricula

**Course duration** - Total course duration should be four years. One year increase is important as DMTs are skill-based courses, and to develop competencies more time should be spent in practical demonstrations, laboratory, and clinical attachment etc. Clinical placement should start early from 1st year.

**The Language of instruction** should be English.

**Teaching Learning Hours**

- Theory should be maximum 1/3$^{rd}$ of total teaching hour according to educational science.
- Content overload should be addressed and reduced as all courses don't need all contents equally and many contents are not required for professional life. Course specific contents may be prioritized later.
- Physics and Chemistry may be combined and reduced as 'science' subject
- Tutorial hours for all subjects should be there
- Basic computer science, delivered in the 2$^{nd}$ year of every course, should be taught in first year so that students can start using computer from the very beginning. They need to learn use of laptop, software for data entry and web-based reporting, as the DMTs have to do record keeping using electronic database and they need to generate monthly report or upload the report to DHIS2 platform. Therefore, computer training to do assignments or generating reports should be part of education process.

**Course specific prerequisite** - The DMT Intensive Care Technology course should be run in IHTs which are attached and nearby a tertiary facility having intensive care unit. The Pharmacy course need to include contents like Good Pharmacy Practice, Adverse drug reaction etc. Antimicrobial resistance which is a global as well as national public health emergency and the course content needs to address that. Training should be arranged in Model Pharmacy and on electronic database.

**Computer literacy** - for all students and teachers should be ensured.

**Course Contents** - Contents need to be reviewed and updated considering current job description. Many modern diagnostic tests are emerging which needs to be included in the course.

**Practical or Demonstration Session**

- Well-equipped discipline wise Academic Lab for different departments should be established for clinical skill development of the students
- Enough faculty is required to conduct small group, practical or demonstration session
- Opportunity for establishing services-oriented lab should be explored.

- Standard operating procedures (SOPs) for different practical tasks should be available in the lab.

**Laboratory practice or Clinical attachment**

- List of contents or logbook should be there to Observe, Assist, and Perform.
- Fixed schedule to start and finish the attachment should be there,
- It should be supervised
- Students will appear an examination every 2 weekly by supervisor or at IHT and mark will be recorded in logbook. Percentage of logbook mark will be added as formative assessment in year final examination.
- Outpatient department is required for clinical practice of students
- Designated Hospitals or Clinicals Facilities should be there for clinical placement of students for IHTs outside Dhaka.
- There should be better coordination with specialized institute / medical colleges for specialized lab/clinical training

**New Contents** - should be considered under changing epidemiological context e.g., tobacco control law enforcement along with advocacy is important job description of the Sanitary Inspectors. This topic needs to be included in the course content of the DMT Sanitary Inspectorship.

**New Courses**- Medical science has been progressed. New emerging issues need to be addressed. Time to think developing new courses e.g., medical equipment maintenance (biotechnology), dialysis technology etc.

### 4.2.3 Course Assessment

**Summative Assessment should be as follows**

- Written – combination of short question, MCQ etc.
- Oral – structured
- Skill test by demonstration,
- Preclinical laboratory exercise - by objective structured practical examination (OSPE)
- Competency in clinical setting- by objective structured clinical examination (OSCE).

**Formative Assessment should be as follows**

- Card completion
- Assignment in tutorial
- Practical examination
- Laboratory /Clinical attachment – logbook completion & Evaluation/viva

**Others**

- The remuneration for the external examiners, invigilators should be increased.
- Questions of Pharmacy course should be set and moderated by the IHT faculties and should focus on basic concepts, these should not be intensive.

### 4.2.4 Compendium of necessary education facilities

Proper maintenance for physical infrastructure and surrounding environment is important for implementation of curriculum. The physical facilities need to improve considering the increasing number of students and courses. The facility needs to accommodate changing demand of delivering the course using modern methods and technologies e.g., need well established computer lab to accommodate students to attend web-based teaching sessions, for self-learning using e-modules and lectures.

Graduation courses are introduced now and the institutes need space to accommodate students and teachers for that as well. Suitable and sufficient infrastructure should be there to deliver the curriculum

There should be common rooms for the students and standard library facilities should be available. Hostel accommodation should be sufficient for both male and female students.
Availability of teaching microscope and functional microscope for students along with other lab equipment and trained staff to maintain the educational labs should be ensured. There should be some budget allocation for maintenance of the equipment and lab. Standard operating procedures (SOPs) for different practical tasks should be available in the lab.

**Recommendations for B.Sc. MT**

- There should be two separate B.Sc. courses for MT, one tailormade for the government and private diploma holders as there is a knowledge gap between them with HSC holders, and one for the freshly admitted students with HSC background. Diploma MT who are in government job must have a minimum of 5 years of working experience. This prerequisite creates a significant age gap among students from government job and private sector which may lead to communication gap and conflict between young and middle-aged students.
- The different curricula of two different universities need to be synchronized
- Gradually B.Sc. courses should be introduced for other DMT courses so that the students of the courses get equal opportunity for higher studies
- B.Sc. MT graduates should get priority in the teaching position in IHTs and other job opportunities also need to be created.

## 4.3 Long-term Recommendations for MATS and IHT

### 4.3.1 Proper Implementation of Curriculum

This is crucial and to ensure proper implementation need to establish quality assurance mechanism and Accreditation system. Need computer lab for students to attend web-based teaching sessions, self-learning using e-modules and lectures. Web-based teaching and learning - COVID 19 pandemic taught the lesson of using web-based teaching and learning and increased use of ICT to improve access to educational sessions and materials. Developing a common website for all teaching institutes, uploading e-learning modules and ensuring access to the website for the registered students will be cost effective and will help continuous learning and development. Simulation lab should be established in future for competency development.

### 4.3.2 Opportunities for higher academic qualifications

Considering the increased demand of profession and continuous knowledge generation, the diploma course should be followed by graduation. The diploma course curriculum should be redesigned in such a way that it should fulfill prerequisite of admission in graduation and higher education courses. Mechanism to bridge diploma to graduation course should be there. Opportunities need to be explored and linkages should be developed with national and international institutes for higher academic qualifications and further professional development.

### 4.3.3 Opportunities for continuous Development

Currently there is hardly any opportunity for continuous learning and development. Sometimes respective programs like nutrition, child health, NCD etc. arrange training in which students may be invited to participate.

Use of different electronic educational resource, interactive E-learning methods, video-clips especially for the basic and pre-clinical subjects is crucial now. good quality e-learning module development and availability in website will ensure delivery of quality course materials, and will help significant improvement in learning. Best quality lectures may be prepared using graphs and images which will facilitate understanding of complicated process. Video clips of real-life case story may help in understanding the clinical process better. Interactive modules will help practicing till the student becomes competent. The e-learning is also in alignment with adult learning method which encourages learners to take responsibility of learning utilizing own time and pace.

To create opportunities for continuous learning and development electronic management information system (E- MIS) and human resources information system (HRIS) is important which will give an overview of courses and faculties available. For better management of students and faculties from both public and private sector institutes E MIS and HRIS is important. This database will help better networking and linkage development. Linkage may be established between national and international allied HWF institutes for knowledge sharing through participation in web-based conferences, seminar, lecture, sharing educational resources and exchange visits.

### 4.4.4 Opportunities for cost recovery

From documents review and reports of different consultative meetings of stakeholders, it has been identified that there is huge demand of competent Medical Assistants and Medical Technologists at home and abroad. Therefore, emphasis has to be given to the production of competent HWF from MATS and IHT. The opportunity may be utilized for cost recovery by enrolling foreign students. To achieve that the following conditions need to be ensured;

- Highest political commitment and enough budget allocation is required to implement quality education for MATS and IHT students.
- Change in mindset and outlook of coworkers in workplace is important to accept Medical Assistants and Medical Technologists working in the team and sharing responsibilities.
- Cost effective utilization - increasing intake of students in bigger institutes having sufficient facilities and decreasing number of small institutes will ensure cost effective utilization of MATS and IHT.

- Considering demand of the future health system opportunity may be explored to replace diploma courses gradually by B.Sc. courses
- There should be clearly designated carrier path so that young generation gets interested in this profession.

The following conditions may also be considered for cost recovery though the current financial policy reviewed is required for that;

- Receiving fee for specific services e.g., simulation lab uses for skill development by students from private MATS and IHT for training. These may create income generation and cost recovery.
- There should be scope for use of all modern technology and web-based teaching learning facilities through establishment of a center which may contain medical education unit, skill lab, digital library and e-learning system. The center may be accessible for both public and private sector to ensure cost effective utilization and cost recovery.

## 4.4 Capacity improvement of the faculties of MATS

### 4.4.1 Recommendation on appropriate organogram

Present organogram of MATS is not compatible with the recommended curriculum for competency development of the students. To run a four-year course, demand an appropriate organogram for the institution. The number of posts may vary depending on the number of seats available. There should be defined department for each subject. Post of Registrar for each clinical subject for teaching students in the attached hospital needs to be created. Scope of Medical Assistants in teaching post should be created. A structured proposal for academic post creation is as below. The principal of each MATS should upgrade to grade 3 position and another grade 3 post should be created for the Vice Principal position.

| Department | Number of Post | Grade | Remarks |
|---|---|---|---|
| **English** | | | |
| Assistant Professor and Head of the Department | 1 | 6 | |
| Lecturer | 2 | 9 | |
| **Computer Science** | | | |
| Assistant Professor and Head of the Department | 1 | 6 | |
| Lecturer | 2 | 9 | |
| **Community Medicine** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 3 | 9 | |
| **Anatomy and Physiology** | | | |
| Associate Professor of Physiology and Head of the Department | 1 | 4 | |
| Assistant Professor of Anatomy | 1 | 6 | |
| Lecturer | 3 | 9 | |
| Senior Tutor | 1 | 10 | A Senior Medical Assistant is eligible for the post |
| Tutor | 2 | 11 | Medical Assistants are eligible for this post |
| **Pathology and Microbiology** | | | |
| Associate Professor of Pathology and Head of the Department | 1 | 4 | |
| Assistant Professor of Microbiology | 1 | 6 | |
| Lecturer | 3 | 9 | |
| Senior Tutor | 1 | 10 | A Senior Medical Assistants is eligible for the post |

| | | | |
|---|---|---|---|
| Tutor | 2 | 10 | Medical Assistants are eligible for the posts |
| Senior Medical Technologist (Lab) | 1 | 10 | |
| Medical Technologist (Lab) | 2 | 11 | |
| **Pharmacology** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 1 | 6 | |
| Lecturer | 2 | 9 | |
| Tutor | 2 | 10 | Medical Assistants are eligible for the post |
| Senior Medical Technologist | 1 | 10 | |
| Medical Technologist | 2 | 11 | |
| **Medicine & Pediatrics** | | | |
| Associate Professor of Medicine and Head of the Department | 1 | 4 | |
| Assistant Professor of Medicine | 1 | 6 | |
| Assistant Professor of Pediatrics | 1 | 6 | |
| Registrar of Medicine | 2 | 9 | |
| Registrar of Pediatrics | 2 | 9 | |
| **Surgery** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Registrar | 2 | 9 | |
| **Gynecology & Obstetrics** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Registrar | 2 | 9 | |

This organogram is unique for the MATS that are situated in the district level and a 200 bedded hospital is within the reach. All the principals of MATS are in strong opinion to bring all the proposed clinical teachers under the administrative control of MATS and will work in the hospital for patient care.

But the MATS situated in the Upazila level or below cannot retain a grade 4 BCS (Health) cadre officers and will face a big challenge for clinical teaching.

An administrative reform is required to overcome this current situation. There may be number of options of reform, and to choose a single appropriate option is difficult. After in depth consultations with the concern stakeholders one of the options may be recruiting faculties and staffs directly for the specific MATS sidestepping the existing recruitment rules for the revenue

posts. This needs to create a partial autonomous status of that institute. The budget allocation will be controlled centrally as other revenue set up. Suitable mechanism for peripheral disbursement of budget may be explored. The other option may be, the institution will be functioning with a public private partnership. In this scenario the faculty will be recruited as private MATS. The most feasible option in the present situation is to develop a structured agreement between Health Service Division and Medical Education and Family Welfare Division of MoH&FW for regular posting of the faculty on demand from DGME.

For a permanent solution creating a sub cadre for medical education has strongly recommended in the governance section of this report.

### 4.4.2 Capacity assessment

The faculty should get the opportunity for CME. The teachers need exposure to other ongoing programs of DGHS and with the changing national guidelines and protocols for PHC which will help them to teach students better with up-to-date knowledge.
For continuous professional development (CPD) every institution should have a medical education unit, digital library and e-learning system. A regular Teacher's training program should be in place.

### 4.4.3 Performance assessment

Performance assessment of the faculty does not exit in the academic culture of MATS. As per the BCS rules ACR is the only tool for performance appraisal and it does not have any indicators for academic performance.

### 4.4.4 Career pathways

Potential career pathways for the MA in the wider context of the health system is always demanding. Currently, there is no scope of promotion of SACMO. Career pathways should be created for SACMO. There should be opportunity to be promoted from $11^{th}$ to $10^{th}$ grade. They can be promoted as senior SACMO and chief SACMO and may be posted in General/District Hospital.

## 4.5 Capacity improvement of the faculties of IHT

### 4.5.1 Recommendation on appropriate organogram

The grade and recruitment rules for the post of Associate Professor and Assistant Professor in IHTs should be revised to make similarities with other existing similar designations. For Dhaka and Rajshahi IHT a different organogram may be formulated as these IHTs are running B.Sc. course along with Diploma courses. Post of subject specific instructors need to be included in the organogram. More Medical Technologists in teaching posts is needed for practical classes.
Present organogram of IHT is not compatible with the updated curriculum for competency development of the students. To run a four-year course with an increased number of students demand an appropriate organogram for the institution. There should be defined department for each subject. A structured proposal for academic post creation is as below. The principal of each

IHT should upgrade to grade 3 position and another grade 3 post should be created for the Vice Principal position.

| Department | Number of Post | Grade | Remarks |
|---|---|---|---|
| **English** | | | |
| Assistant Professor and Head if the Department | 1 | 6 | |
| Lecturer | 1 | 9 | |
| **Computer Science** | | | |
| Assistant Professor and Head if the Department | 1 | 6 | |
| Lecturer | 1 | 9 | |
| **Community Medicine** | | | |
| Assistant Professor and Head if the Department | 1 | 6 | |
| Lecturer | 2 | 9 | |
| **Physiology** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 1 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 10 | |
| Senior Medical Technologist | 1 | 10 | |
| Medical Technologist | 1 | 11 | |
| **Physics** | | | |
| Assistant Professor and Head if the Department | 1 | 6 | |
| Lecturer | 2 | 9 | |
| **Chemistry** | | | |
| Assistant Professor and Head if the Department | 1 | 6 | |
| Lecturer | 2 | 9 | |
| **Microbiology** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 1 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 10 | |
| Senior Medical Technologist | 1 | 10 | |
| Medical Technologist | 2 | 11 | |
| **Anatomy** | | | |
| Assistant Professor and Head if the Department | 1 | 6 | |
| Curator | 1 | 6 | |
| Lecturer | 2 | 9 | |

| | | | |
|---|---|---|---|
| **Department of Laboratory Medicine** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 4 | 9 | |
| Instructor | 2 | 10 | |
| Senior Medical Technologist | 1 | 10 | |
| Medical Technologist | 2 | 10 | |
| **Department of Dentistry** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 10 | |
| Senior Medical Technologist (Dental) | 1 | 10 | |
| Medical Technologist (Dental) | 2 | 10 | |
| **Department of Radiology & Imaging** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 10 | |
| Senior Medical Technologist | 1 | 10 | |
| Medical Technologist | 2 | 10 | |
| **Department of Physiotherapy** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 4 | 9 | |
| Instructor | 2 | 10 | |
| Senior Physiotherapist | 1 | 10 | |
| Physiotherapist | 2 | 10 | |
| **Department of Radiotherapy** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 10 | |
| Senior Medical Technologist | 1 | 10 | |
| Medical Technologist | 2 | 10 | |
| **Department of OT Assistantship** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 1 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 11 | |

| | | | |
|---|---|---|---|
| **Department of Intensive Care Assistantship** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 1 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 10 | |
| **Department of Pharmacy** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 2 | 9 | |
| Instructor | 2 | 10 | |
| Senior Pharmacist | 1 | 10 | |
| Pharmacist | 2 | 10 | |
| **Department of Sanitary Inspection** | | | |
| Associate Professor and Head of the Department | 1 | 4 | |
| Assistant Professor | 2 | 6 | |
| Lecturer | 4 | 9 | |
| Senior Instructor | 1 | 10 | |
| Instructor | 2 | 10 | |

The IHT situated in the upazila or below level will face challenges in retaining faculties. An administrative reform is required to overcome this current situation. There may be number of options of reform, and to choose a single appropriate option is difficult. After in depth consultations with the concern stakeholders one of the options may be recruiting faculties and staffs directly for the specific IHT sidestepping the existing recruitment rules for the revenue posts. This needs to create a partial autonomous status of that institute. The budget allocation will be controlled centrally as other revenue set up. Suitable mechanism for peripheral disbursement of budget may be explored. The other option may be the institution will be functioning with a public private partnership. In this scenario the faculty will be recruited as private IHT. The most feasible option in the present situation is to develop a structured agreement between Health Service Division and Medical Education and Family Welfare Division of MoH&FW for regular posting of the faculty on demand from DGME. For a permanent solution creating a sub cadre for medical education has strongly recommended in the governance section of this report.

### 4.5.2 Capacity development

For the faculty development a teacher training program should in place and all IHT should establish a medical education unit with mandate and equipped for developing teaching skills of the faculty.

### 4.5.3 Performance assessment

A structured performance appraisal for the faculty should be in place. This needs to be use during promotion or for any incentives.

### 4.5.4 Career pathways

Potential career pathways for the Medical Technologists in the wider context of the health system is always demanding. Currently, there is very little scope of promotion of the Medical Technologists. There should be opportunity to be promoted from $11^{th}$ to $10^{th}$ grade.

## 4.6 Governance

### 4.6.1 Policies, rules and regulations

BCS (Health) cadre may be sub-divided as BCS (Health: Administration) and BCS (Health: Academic). ME&FWD may then be entrusted with the BCS (Health: Academic). Senior positions (principal and faculties) may be included in the BCS (Health: Academic).

Bangladesh Health Departmental Non-Medical Staff Recruitment Rules 2018 may also be revised to segregate positions belong to academic institutions of the DGME. Also positions of MATS and IHT of similar level need to put in the same grade. The post creation orders of the Jhenaidah, Chattogram and other IHTs that mentions about The Director of Nursing Services (Gazetted and Non-Gazetted Post) Recruitment Rules 1979 for Instructor (Grade 10) need to be revised to bring those positions under the proposed segregated rules.

Both MATS and IHTs allocation from revenue and development budgets need to be synchronized for optimum allocation as per their need. Also push supply need to avoided and supply as per their demand need to ensure.

### 4.6.2 Education board and Regulatory body

To provide proper legal basis of the examinations conducted and certificates issued by the SMF, the proposed Bangladesh Allied Health Professional Education Board Law 2019 need to be enacted immediately.

A new council needs to be established through enacting appropriate law to registers the medical technologists.

PCB's role may be restricted to the registration of the pharmacists and examination conduction for the diploma pharmacists may be vested to the Bangladesh Allied Health Professional Education Board.

Move need to undertake to revise the Bangladesh Rehabilitation Council Law 2018 as it conflicts with the jurisdiction of SMF.

Current practice of BMDC accreditation of MATS may be revisited as not supported by its law. Also, BMDC needs to enforce its obligation for overseeing the professional conduct of the medical assistant including using Dr. title before their name.

Move need to undertake to revise the Rules of Business, 1996 (vide Cabinet Division's S.R.O No. 62-Law/2017 dated 16 March 2017) to entrust ME&FWD with the PCB.

### 4.6.3 Integrating the auxiliary forces into the health system

Since there is an enormous need of both the medical assistant and medical technologists in the country and the need is likely to enhance in future, new MATS and IHT need to be established in the public sector, but not below the district level

Those MATS and IHT already established below upazila level may be explored to operate on public-private partnership basis for proper functioning.

New posts need to be created of the medical assistant and medical technologist in the MATS, IHT and public sector health facilities and also incorporating the same in the non-public sector institutions and facilities by revising the relevant law so that employment opportunities and career progression are optimally taken care.

Move need to take for immediate recruitment of the vacant posts under the MOHFW and a system of regular recruitment need to be established.

### 4.6.4 Improving governance across the public and private sectors

DGME needs to have regional/divisional setup for optimal functioning of vast amount institutions belonging to public and private sectors under its jurisdiction.
The nomenclature of MATS and its senior positions like Principal, Senior Lecturer, Junior Lecturer need to be changed to avoid confusion, embarrassment and reflect the prevailing context.

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MLT India https://collegedunia.com/courses/diploma-in-medical-laboratory-technology-dmlt
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# Annexes

## 1. List of Public Sector MATS

*Functioning*

I. Noakhali MATS
II. Tangail MATS
III. Sirajgonj MATS
IV. Bagerhat MATS
V. Kushtia MATS
VI. Faridpur MATS
VII. Cumilla MATS
VIII. Jhenaidah MATS
IX. Nalta, Kaliganj, Satkhira MATS
X. Tungipara, Gopalganj MATS
XI. Gazipur MATS

*Constriction completed*

XII. MATS, Patnitola, Noagaon
XIII. MATS, Kobirajpur, Rajoir, Madaripur
XIV. MATS, Hatbonogram, Pangsha, Rajbari

*Construction on-going*

XV. Manikganj MATS
XVI. MATS, Kazipur, Sirajganj
XVII. Bhola MATS
XVIII. Jhalkathi MATS
XIX. MATS, Babuganj, Barishal
XX. MATS, Modhupur, Tangail
XXI. MATS, Khetlal, Joypurhat
XXII. MATS, Agolchara, Barishal

**2. List of Public Sector IHT**

*Functioning*

I. Dhaka IHT
II. Rajshahi IHT
III. Bogura IHT
IV. Chattogram IHT
V. Barishal IHT
VI. Rangpur IHT
VII. Jhenaidah IHT
VIII. Sylhet IHT
IX. IHT, Gandhail, Kazipur, Sirajganj
X. IHT, Nalta, Kaliganj, Satkhira
XI. Sheikh Hasina IHT, Islampur, Jamalpur
XII. IHT, Tungipara, Gopalganj
XIII. Gazipur IHT
XIV. IHT, Kahiani, Gopalganj
XV. IHT, Gopinathpur, Akkelpur, Joypurhat

*Construction completed*

XVI. Munshiganj IHT
XVII. Madaripur IHT

*Construction on-going*

XVIII. Khulna IHT
XIX. Manikganj IHT
XX. Sunamganj IHT
XXI. IHT, Raiganj, Nageshwari, Kurigram
XXII. IHT, Kabirhat, Noakhali
XXIII. IHT, Dhamairhat, Naogaon
XXIV. IHT, Shibchar, Madaripur
XXV. Mymensingh IHT

## 3. List of Documents Reviewed

I. The State of Health in Bangladesh 2007: Health Workforce in Bangladesh, Who Constitutes the Healthcare System? By Bangladesh Health Watch

II. Working together for health. The World Health Report. By WHO

III. National Health Policy 2011

IV. Health, Nutrition and Population Strategic Investment Plan (HNPSIP) 2016-2021

V. 8th Five Year Plan July 2020 – June 2025

VI. Annual Programme Implementation Report 2021 (Draft)

VII. Bangladesh Population Policy 2012

VIII. Mid-Term Review 2020 of the 4th Health, Population and Nutrition Sector Programme 2017-2022: Thematic Area – Medical Education and Regulation

IX. Bangladesh Health Workforce Strategy 2015

X. The Bangladesh Civil Service Recruitment Rules 1981 Part XX Bangladesh Civil Service (Health)

XI. The BCS (Examination for Promotion) Recruitment Rules 1986

XII. Revised Rules of Business, 1996 vide Cabinet Division's S.R.O No. 62-Law/2017 dated 16 March 2017

XIII. Prothom Alo of 03 September 2021 covering Health Minister's answer on Bangladesh Parliament on 02 September 2021

XIV. Bangladesh Health Departmental Non-Medical Staff Recruitment Rules 2018

XV. Directorate of Nursing (Employee) Recruitment Rules 2016

XVI. Guidelines for the establishment and operation of MATS in non-public sector 2010

XVII. Guidelines for the establishment and operation of IHT in non-public sector 2010

XVIII. Bangladesh Medical and Dental Council (BMDC) Law 2010

XIX. Bangladesh Rehabilitation Council Law 2018

XX. Health Bulletin 2019

XXI. Health Bulletin 2018

**4. List of Curriculum Reviewed**

**a)** Curriculum for Medical Assistant Training Course September 2009

**The three-year DMT courses offered by IHT are as follows;**

I. Diploma in Medical Technology (Laboratory Technology)
II. Diploma in Medical Technology (Dental Technology)
III. Diploma in Medical Technology (Radiology and Imaging)
IV. Diploma in Medical Technology (Radiotherapy)
V. Diploma in Medical Technology (Sanitary Inspectorship)
VI. Diploma in Medical Technology (Occupational Therapy)
VII. Diploma in Medical Technology (Physiotherapy)
VIII. Diploma in Medical Technology (Operation Theatre Assistance-ship)
IX. Diploma in Medical Technology (Intensive Care Assistance-ship)
X. Diploma in Medical Technology (Pharmacy)

**B.Sc. in Medical Technology**

I. B.Sc. in Medical Technology (Laboratory)
II. B.Sc. in Radiology and Imaging Technology
III. B.Sc. in Medical Technology (Dental)
IV. Bachelor of Physiotherapy

## 5. List of IDI/KII Conducted

| Sl No | Name and designation |
|---|---|
| 1. | Dr. Farhana Haq, Principal, IHT, Rajshahi |
| 2. | Prof. Dr. Md. Jawadul Haque, Rajshahi Medical University |
| 3. | Dr. Rakhal Chandra Barua, Principal, IHT, Chattogram |
| 4. | Amatul Hasib, Principal, Bogura IHT |
| 5. | Md. Ramjan Ali, Principal Jaipurhat IHT |
| 6. | Dr. Suzat Ahmed, Civil Surgeon, Tungipara |
| 7. | Dr. Nazmul Hasan, Junior lecturer, Noakhali MATS |
| 8. | Dr. Abdul Mannan, Tangail MATS |
| 9. | Dr. Akikun Naher, Principal, Shirajganj MATS |
| 10. | Dr. Habibur Rahman, Principal, Kushtia, MATS |
| 11. | Dr. Idris Miah, Principal, Bagerhat MATS |
| 12. | Dr. Md. Zakir Hossain, Principal at Cumilla MATS |
| 13. | Dr. Md. Masud Rana, Principal, Jhenaidah MATS |
| 14. | Dr. SK. Nazmus Saqueeb, Principal, Satkhira MATS |
| 15. | Dr. Pradip Kumar Saha, Jamalpur IHT |
| 16. | Dr. Rejina Ahmed, Principal, Jhenaidah IHT |
| 17. | Dr. Umme Aziz Nasima Khandker, Principal, Dhaka IHT |
| 18. | Dr. Md. Zahidur Rahman, SMF |
| 19. | Dr. Md. Liaquat Hossain, Deputy Registrar, Bangladesh Medical and Dental Council |
| 20. | Mr. Muhammad Mahbubul Haq, Secretary, Pharmacy Council of Bangladesh |
| 21. | Prof Saidur Rahman Khasru, Chairman of the Department of Pharmacology, Bangabandhu Sheikh Mujib Medical University |
| 22. | Md. Shah Alam, Additional Secretary |
| 23. | Dr. Mollika Khattun, Deputy Secretary (Per-1 Section), MEFWD, MOHFW |
| 24. | Prof. Amirul Morshed, ADG, DGME |
| 25. | Prof. Enamul Kabir, Head of the Department of Pathology of Popular medical College |

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1. Prof. A H M Enayet Hussain, Director General, Directorate General of Medical Education (DGME, MOHFW
2. Md. Shakhawat Hossain, Additional Secretary, MEFWD, MOHFW
3. Md. Abdus Salam Khan, Joint Secretary (Planning), MEFWD, MOHFW
4. Dr. Mollika Khattun, Deputy Secretary (Per-1 Section), MEFWD, MOHFW
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14. Dr. Ahmed Al-Kabir, RTM International
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27. Shafiqul Islam, Health Adviser, FCDO
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30. Dr. Muhammod Abdus Sabur, Consultant, ARK Foundation
31. Dr. Khaleda Islam, Consultant, ARK Foundation
32. Prof Rumana Huque, Consultant, ARK Foundation

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11. Dr. Idris Miah, Principal, Bagerhat MATS
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15. Prof. Abu Yusuf Fakir
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38. Tahmid Hassan, Communication Officer, ARK Foundation

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
স্বাস্থ্য শিক্ষা অধিদপ্তর
মহাখালী, ঢাকা-১২১২

মুজিব বর্ষে স্বাস্থ্য খাত
এগিয়ে যাবে অনেক ধাপ

স্মারক নং- স্বাঃশিঃঅধিঃ/পরিঃউঃ/আইএইচটি ও ম্যাটস/ কারিগরি সহায়তা প্রস্তাব/ ২০২০/১৩৫০ তারিখঃ ১৭/১০/২০২১

বরাবর

সচিব
স্বাস্থ্য শিক্ষা ও পরিবার কল্যাণ বিভাগ
স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়
বাংলাদেশ সচিবালয়, ঢাকা।

দৃষ্টি আকর্ষণঃ যুগ্ম সচিব (পরিকল্পনা)।

বিষয়ঃ আইএইচটি ও ম্যাটস এর গুণগত মান উন্নয়নের লক্ষ্যে কারিগরি সহায়তা প্রস্তাব- "Developing Competency- Based Allied Health Workforce" এর অনুমোদিত চূড়ান্ত প্রতিবেদন প্রেরণ প্রসঙ্গে।

উপর্যুক্ত বিষয়ের আলোকে জানানো যাচ্ছে যে, আইএইচটি ও ম্যাটস এর গুণগত মান উন্নয়নের লক্ষ্যে FCDO এর সহায়তায় ARK Foundation কর্তৃক বাস্তবায়িত স্বাস্থ্য শিক্ষা অধিদপ্তরের কারিগরি সহায়তা প্রস্তাব-"Developing Competency-Based Allied Health Workforce" এর চূড়ান্ত প্রতিবেদনের খসড়া গত ২৩ সেপ্টেম্বর ২০২১ ইং গ্রহণ করে গত ২৯ সেপ্টেম্বর উক্ত খসড়া প্রতিবেদনের উপর সিরডাপ মিলনায়তনে একটি অবহিতকরণ কর্মশালা অনুষ্ঠিত হয়। উক্ত কর্মশালার মতামত সমূহ বিবেচনা করে গত ৩০ সেপ্টেম্বর ২০২১ ইং তারিখে কারিগরি সহায়তা প্রস্তাব-"Developing Competency- Based Allied Health Workforce" এর চূড়ান্ত প্রতিবেদন গ্রহণ ও অনুমোদন করা হয়। উক্ত অনুমোদিত চূড়ান্ত প্রতিবেদন আপনার সদয় বিবেচনার জন্য এতদসঙ্গে প্রেরণ করা হয়।

সংযুক্তি: Developing Competency- Based Allied Health Workforce

Final Report

A. Rahman 17.10.21

(অধ্যাপক ডা. কাজী আফজালুর রহমান)
পরিচালক (পরিকল্পনা ও উন্নয়ন)
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স্মারক নং- স্বাঃশিঃঅধিঃ/পরিঃউঃ/আইএইচটি ও ম্যাটস/ কারিগরি সহায়তা প্রস্তাব/ ২০২০/ তারিখঃ

অনুলিপি সদয় অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য (জ্যেষ্ঠতার ক্রমানুসারে নয়)
১. অতিরিক্ত সচিব (উন্নয়ন), স্বাস্থ্য শিক্ষা ও পরিবার কল্যাণ বিভাগ, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
২. অতিরিক্ত মহাপরিচালক (প্রশাসন/চিকিৎসা শিক্ষা), স্বাস্থ্য শিক্ষা অধিদপ্তর, মহাখালী, ঢাকা।
৩. পরিচালক (সকল), স্বাস্থ্য শিক্ষা অধিদপ্তর, মহাখালী, ঢাকা।
৪. সচিব মহোদয়ের একান্ত সচিব, স্বাস্থ্য শিক্ষা ও পরিবার কল্যাণ বিভাগ, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৪. অধ্যাপক ডা. রুমানা হক, নির্বাহী পরিচালক, ARK Foundation.
৫. অফিস কপি।

(ডা. সায়মা আখতার চৌধুরী)
সহকারী পরিচালক (পরিকল্পনা)
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