



# **IFMBE CED 2020 CE Competency & Leadership Webinars:**

## ***CE Perspectives on Health Leader Communication:***

### ***Sustainable Development of Clinical Engineering In Bangladesh***

### ***To Achieve Global SDG by 2030***

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**Advisor, Clinical Engineering Association, Bangladesh (CEAB)**

**Chairman, Medical Device Manufacturing Guidelines Preparation, DGDA**

**Member, Biosimilar Products Guidelines Preparation, DGDA**

**Member, Sub Technical Committee for Medical Devices, DGDA**

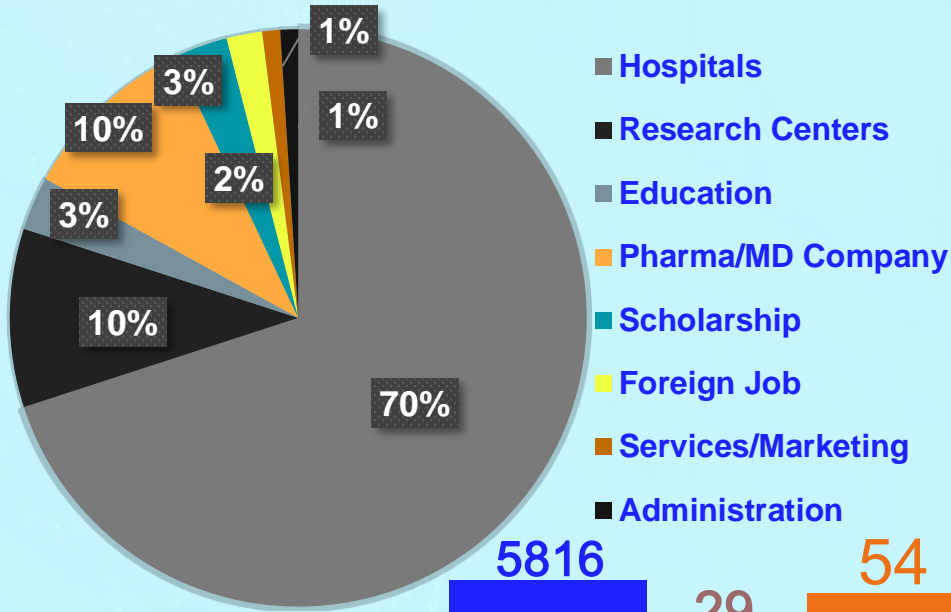
**Chairman, QC & Validation of Medical Devices (Local Innovation during Covid-19)**

**Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh**

**Platinum Member, World Birth Defects Day, ICBDSR**

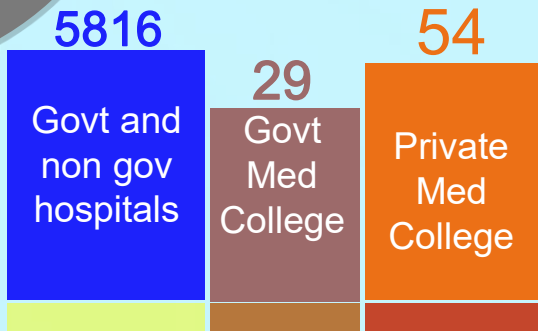
# MoH&FW Overview, Bangladesh

## Ministry of Health & Family Welfare



- ❖ Directorate General of Health Services (DGHS)
- ❖ Directorate General of Family Planning (DGFP)
- ❖ National Institute of Population Research & Training (NIPORT)
- ❖ Directorate General of Drug Administration (DGDA)
- ❖ Directorate General of Nursing & Midwifery (DGNM)
- ❖ Directorate of Nursing Services (DNS)
- ❖ Health Economics Unit (HEU)
- ❖ Health Engineering Division (HED)
- ❖ Transport & Equipment Maintenance Organization (TEMO)
- ❖ Bangladesh Nursing & Midwifery Council (BNMC)
- ❖ Pharmacy Council of Bangladesh (PCB)
- ❖ National Electro Medical Equipment Maintenance Workshop & Training Center (NEMEMW&TC)

01  
BME Institute



# Healthcare Facilities & Industries

**Total Govt. Hospitals: 610**

**District Level (Secondary): 65**

**Sub District Level (Primary): 482**

**Medical College Hospitals: 15**

**Beds at Govt. Hospitals: 49,415**

**Community Clinics & Health Centers: 16,438**

**Satellite Clinics for Child**

**& Maternal Healthcare: 30,000**

**Total Private Hospitals: 5,023**

**Beds at Pvt. Hospitals: 87,610**

**Population/ Hospital Bed: 1528**

**Registered Doctors: 93,763**

**Doctors/10000 Population: 4.90**

**Registered Nurses: 48,001**

**Nurses/10000 Population: 2.80**

**Registered Paramedics: 33,644**

**Certified BME/CE/CET: None**

## Specialized Hospitals with Bed Capacity:

DMCH: 2600 (5000)

BSMMU: 2000 (2700)

SMCH: 1400

ShMCH: 900

DSH (Children): 600

NINS (Neuro): 350

NICRH (Cancer): 300 (16 Cancer Centers)

NHFB (Cardiac): 450

NITOR (Orthopedic): 500

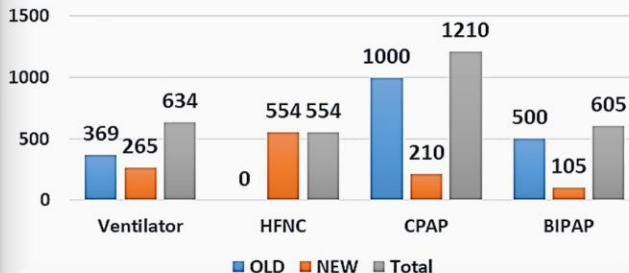
SHNIBPS (Burn): 500 (World's Largest One)

BIRDEM (Diabetes): 700

CMH: 1650 (Including New Cancer Center)

ICMH: 75

Scenario of key Medical Devices availability for COVID-19 in Bangladesh



**Homeopathic**  
Manufacturer: 42  
Registered Drugs: 2,400  
Retail Pharmacy: 2,353  
Wholesale Pharmacy: 1,140

**Millennium  
Development  
Goal 2018**



**Unani**  
Manufacturer: 276  
Total Registered Drugs: 6,389  
Retail Pharmacy: 675



**ALLOPATHIC**  
Manufacturer: 257  
Registered Drugs: 29,486  
Total Generic: 3,657  
Retail Pharmacy: 113,872



**Ayurvedic**  
Manufacturer: 201  
Registered Drugs: 4,025  
Retail Pharmacy: 405




**Herbal**  
Manufacturer: 528  
Manufacturer: 32  
Retail Pharmacy: 11

**Total Ventilator: 1159**

**Total ICU: 733**

**Number of Medical  
Device Manufacturer: 05  
In pipeline: 15**

# Bangladesh Government's Regulation on Medical Devices & Health Professionals



Registration Guidelines for Medical Devices  
Bangladesh  
2015

Directorate General of Drug Administration  
Ministry of Health and Family Welfare  
Government of the People's Republic of Bangladesh

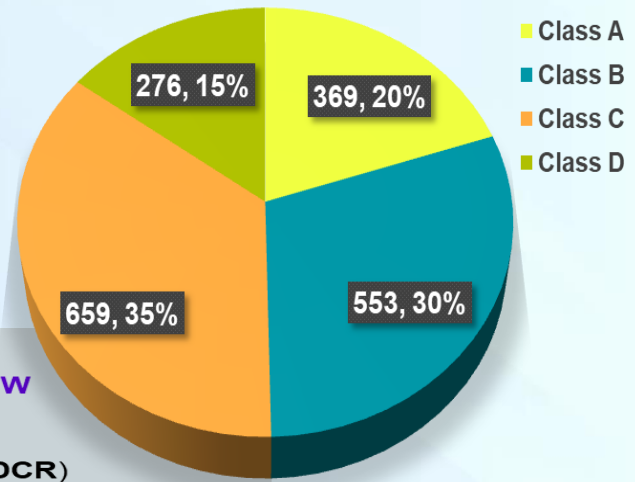
**Medical Devices Regulation In Bangladesh**  
**Directorate General of Drug Administration, DGDA, MoH&FW**  
Drug Control Committee (DCC)  
Medical Devices Technical Committee (MDTC)  
Medical Devices Technical Sub-Committee (MDTSC)  
Registration Guidelines for Medical Devices, Bangladesh 2015  
Medical Devices Manufacturing Guidelines, Bangladesh 2020  
Global Atlas of Medical Devices, WHO Medical Devices Technical Series, 2017  
Medical Devices: Nomenclature system



Guidelines for Good Clinical Practice (GCP) for Trials on Pharmaceutical Products  
Bangladesh

**Clinical Trials**  
**Directorate General of Drug Administration (DGDA), MoH&FW**  
**Directorate General of Health Services (DGHS), MoH&FW**  
Bangladesh Medical Research Council (BMRC)  
Institute of Epidemiology Disease Control And Research (IEDCR)  
International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR'B)  
Bangabandhu Sheikh Mujib Medical University (BSMMU)  
Contact Research Organizations-09 (CRO)  
Hospitals and Health related Research Centers

Registered Medical Devices by DGDA as of June 2019



**DGDA operates District Office at 47 Districts of Bangladesh**

**Certification & Licensing of Health Professionals:**  
**Doctor:** Bangladesh Medical and Dental Council (BMDC)  
**Nurse:** Directorate of Nursing Services (DNS), MoH&FW  
**Engineer:** The Institution of Engineers, Bangladesh (IEB)  
**BME/CE/BMET/CET:** **None**



# COVID-19 CE Response

## COVID-19 Updates:

- ❖ 1<sup>st</sup> Case: 08 March 2020
- ❖ Total Cases: 423,620
- ❖ Total Deaths: 6,108
- ❖ Recovered: 341,416
- ❖ Death Rate: 1.44%

11 Nov 20

Source: IEDCR, Bangladesh

**MIST as the First  
Responder to Produce  
Hand Sanitizer to Fight  
COVID-19 Crisis**

**MIST in Development of  
Ventilator to Support  
COVID-19**

**Emergency  
Ventilator**



**UV  
Disinfectant  
Chamber**



**Contribution:  
Biomedical  
Engineering  
Dept, MIST**





# Emergency Use Authorization

❖ Total Innovative Projects for Ventilator: 18 (**a2i, ICT Division**)  
Technical Quality Control & Supervision: **BME Dept., MIST**



Gas Flow Analyzer: **CITREX H4, IMT Analytics**  
Conventional Ventilator: **01**  
Emergency Ventilator: **04**  
Clinical Trials: **In progress (BMRC, CRO & DGDA)**

❖ **Emergency use Authorization by DGDA: Real Detect COVID-19 RT PCR Kit-01**





# Government Response to CE Professionals during COVID-19



## MoU between Bangladesh-KSA Governments on 07 March 2019 to Establish Saudi Bangladesh Institute of Biomedical Engineering & Technology (SBIBMET)

- 01** INTRODUCTION TO THE BIOMEDICAL EQUIPMENT TECHNOLOGY ASSISTANT PROGRAM
- 02** INTRODUCTION TO MEDICAL EQUIPMENT TECHNOLOGY CONCEPTS
- 03** UNDERSTANDING THE WORKING OF BASIC EQUIPMENT
- 04** CALIBRATION AND MAINTENANCE OF BASIC EQUIPMENT
- 05** KNOWLEDGE OF EQUIPMENT AND DEPARTMENT APPRACTICUM
- 06** KNOWLEDGE OF IN VITRO DIAGNOSIS
- 07** KNOWLEDGE OF TREATMENT MACHINES FOR EXTERNAL BEAM RADIOTHERAPY
- 08** KNOWLEDGE OF BIOMATERIALS AND THEIR USES
- 09** KNOWLEDGE OF ADVANCED EQUIPMENT
- 10** KNOWLEDGE OF NETWORKING/CYBERSECURITY
- 11** KNOWLEDGE OF TREATMENT PLANING IN CANCER THERAPY
- 12** KNOWLEDGE OF REHABILITATION ENGINEERING
- 13** KNOWLEDGE OF BIOMEDICAL ROBOTICS
- 14** KNOWLEDGE OF ANAESTHESIOLOGY
- 15** KNOWLEDGE OF MEDICAL EQUIPMENT QUALITY ASSURANCE AND CONTROL

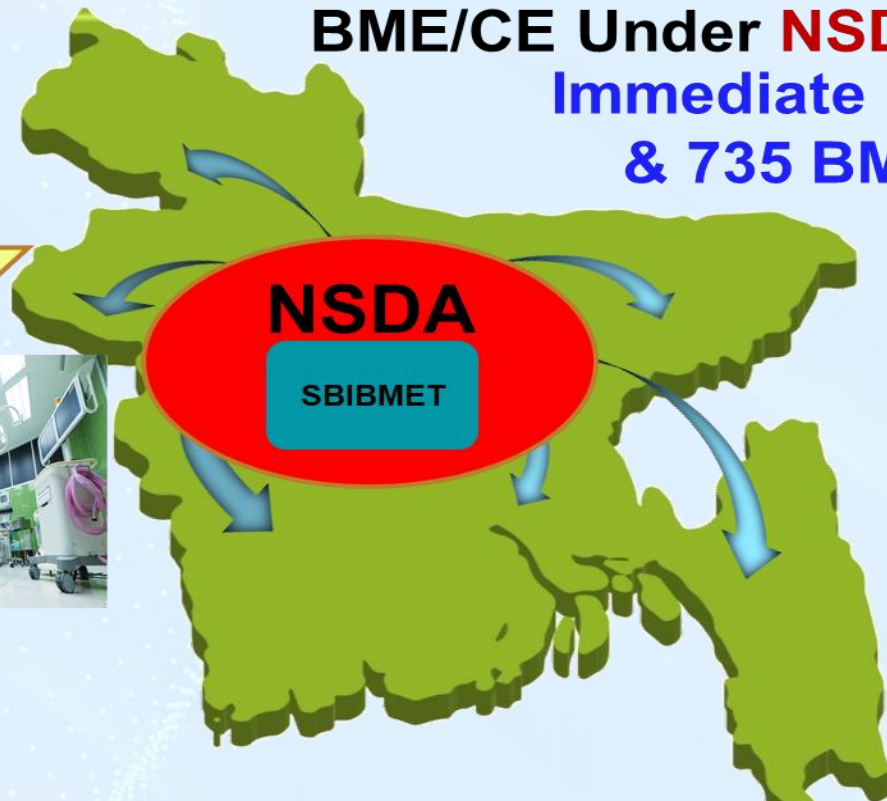
Training Modules

# Government Response to CE Professionals during COVID-19

Proposed National Infrastructure In  
BME/CE Under **NSDA & SBIBMET**

Immediate Recruitment of 100 BME  
& 735 BMET by MoH&FW, BD

1000 Beds Hospital



1

1 BTC in each of the 64 Districts of Bangladesh

2

64 Biomedical Training Centers by 2023

3

BTC = Biomedical Training Centers Under SBIBMET

4

BTC will play dual role as Training centers with diagnostic & testing centers



# Government Response to CE Professionals during COVID-19



## Bangladesh Government Role for Clinical Engineering in Healthcare Sector of Bangladesh



**SBIBMET will play role for developing certified CE/CET for minimizing the gaps between the other countries. Bangladesh shall achieve SDG in healthcare sector specially for trained and certified CE/CET by 2030.**

The Bangladeshi Registered Professionals specially Clinical Engineering Certification, Training, and Examination Process shall will be improved and implemented efficiently in assistance with **WHO, IFMBE, ACCE, ECRI, PAHO, AAMI, IMDRF, AHWP, IBSC** and other regulatory authorities.

The development and practice of the effective training modules to train new graduates of **BME** and **EMT** shall follow the success stories and seek cooperation from the expert countries who are already in effective clinical engineering practice.

Collaborative mechanism shall be implemented immediately for CE-HTM Accreditation and Certification in Bangladesh with the assistance from **CED, IFMBE**.

Mutual relationship with all the Clinical Engineering Association worldwide shall be established with good practice and regular reporting systems. **GCEA** shall pave the way magnificently with its global partners.

# CE-HTM Leadership Principles

'CE principles can be learned by all CE-HTM practitioners in Bangladesh to advance their Careers'

## 01 Global Communication

- ❖ CED, IFMBE
- ❖ Direct collaboration with the CE HTM Leaders to Share Ideas
- ❖ Learning through reciprocal meeting at various international Congresses & Conferences

## 02 Adaptive Decision Making

- ❖ High-Level Decision Makers of the Government and Private sector
- ❖ Awareness about the CE-HTM Necessity & Importance at Hospital
- ❖ Formulation of National CE Action Plan & immediate implementation

## 03 Quality Enhancement

- ❖ Increasing Number of BME Dept & Students in Universities/Institutes
- ❖ More number of CE professionals in Hospitals & related Facilities
- ❖ Training for the Trainers and Junior Faculties & Lab Assistants

## 04 Facilitate Training

- ❖ Training Center in every District
- ❖ Hands on Training by the MoH&FW, MoEWOE, BME Institute, and NEMEMW&TC
- ❖ On Line Training by the ICT Division using Simulation and Animated contents of Medical Devices & Trouble Shooting.

## 05 Ensure Clinical Practice

- ❖ CE-HTM Good Practice should be ensured by monitoring process
- ❖ Medical Data Management System should be improved
- ❖ Integrity and Privacy of HIMS should be Prioritized and Secured

## 06 Investment, Policy & Legislation

- ❖ More investment shall be needed to establish Medical Device Industries
- ❖ Standard Policy Adaptation and Chartered by related Authorities
- ❖ Device Testing Laboratories and Importers & Traders should be brought under resilient Legislation Process



**IFMBE**

Clinical Engineering Division

**THANK YOU!**

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