**THE UNITED REPUBLIC OF TANZANIA**

**MINISTRY OF HEALTH**

**MUHIMBILI NATIONAL HOSPITAL**

**MLOGANZILA**

**DIRECTORATE OF MEDICAL SERVICES**

**REHABILITATION MEDICINE DEPARTMENT**

**ICU TRAINING MODULE COURSE OUTLINE FOR PERIPHERAL HOSPITALS IN TANZANIA.**

**COURSE TITLE: PHYSIOTHERAPY IN CRITICAL CARE**

**COUSE CODE: ICP 101**

**COURSE DURATION: 4 WEEKS**

**COURESE VALUE: 20 CPD POINTS**

**ACKNOWLEDGEMENT**

The executive Director of Muhimbili National Hospital, Prof. Mohamed Janabi appreciated the effort and support provided by the Deputy Executive Director, Dr. Julieth Magandi, D/DMS Dr. Faraja Chiwanga, HCRT Mr. Mbwalila Ng’amilo and the Head of Department of Rehabilitative Medicine, Mr. Patrick Foster in the course of developing this Training module.

This training module is expected to build capacity for physiotherapists working in peripheral hospitals, considering one of the missions of Muhimbili National Hospital is to build capacity for hospitals in the periphery as appropriate.

Prof. Mohamed Janabi also extends his gratitude for the following persons in particular, in the course of making this noble module, namely;

PT. Patrick Foster: President of physiotherapist Association of Tanzania

PT. Bwana Aloice: Physiotherapy officer, MNH Mloganzila

PT. Irene Minde: Physiotherapy officer, MNH Mloganzila

PT. Geofrey Burton: Physiotherapy Tutor, MUHAS

PT. Elieka Kaaya: Physiotherapy officer MNH UPANGA

Mr. Wilson Fungameza: HRCT MNH Mloganzila

Ms. Arafa Mkumbo: HRCT MNH Mloganzila

**ACRONYMS AND ABBREVIATION**

**ABG**: Arterial Blood Gases

**ACV**: Assist Control Ventilation

**ARDS**: Acute Respiratory Distress Syndrome

**BiPAP**: Bi-level Positive Airway Pressure

**BP:** Blood Pressure

**CMV**: Continuous Mandatory Ventilation

**COPD**: Chronic Obstructive Pulmonary Disease

**CPAP**: Continuous positive Airway

**CPR**: Cardiorespiratory Resuscitation

**CVE:** Cerebral Vascular Event

**DDx:** Differential Diagnosis

**EBP**: Evidence Based Practice

**FBG:** Fasting Blood Glucose

**Fio2**: Fraction of Inspired Oxygen

**GCS**: Glasgow Coma Scale

**HFNO**: High Flow Nasal Oxygen

**HPI:** History of Presenting Illness

**HR:** Heart Rate

**ICU**: Intensive Care Unit

**IPC**: Infection Prevention and Control

**IPD:** Inpatient Department.

**MAP**: Mean Arterial Pressure

**MICU**: Medical Intensive Care Unit

**MNH**: Muhimbili National Hospital

**NICU**: Neonatal Intensive Care Unit

**NIV**: Non Invasive Ventilation

**NPRS**: Numerical Pain Rating Scale

**NRM**: Non Rebreather Mask

**PC**: Pressure Control

**PDx:** Provisional Diagnosis

**PEEP**: Positive End Expiratory Pressure

**PICU**: Pediatric Intensive Care Unit

**PPE**: Personal Protective Equipment

**PRVC**: Pressure Regulated Volume Control

**Pt**: Patient

**RBG:** Random Blood Glucose

**ROS:** Review of Other Systems

**SICU**: Surgical Intensive Care Unit

**SIMV:** Synchronized Intermittent Mandatory Ventilation

**SOFA**: Sequential Organ Failure Assessment

**SPO2**: Peripheral Oxygen Saturation

**VAS**: Visual Analogue Scale

**VC**: Volume Control

**WDx**: Working Diagnosis

**FOREWORD**

Muhimbili National Hospital Mloganzila is National Referral Hospital, Research Centre and University Teaching with of over **608** bed capacity and attending to **350** to **500** outpatients per day.

Mission of Muhimbili National hospital is to provide sustainable, effective efficient and high quality tertiary specialist and highly specialized medical services for local and international referred patients, as well as providing conducive environment for training and research.

Vision of Muhimbili National Hospital is to become a center of excellence in provision of highly specialized services in medicine, medical training and research.

Muhimbili as National Hospital has the obligation of strengthening medical services in peripheral hospitals by appropriate means like providing supportive training as deemed fit by so doing, building capacity for health professionals across peripheral hospitals.

………………………………

Prof. MOHAMED Y. JANABI.

**COURSE DEVELOPMENT PROCESS**

Physiotherapy short course training module in ICU was developed through several stages, namely;

**Needs Assessment:** Gaps of physiotherapy in ICU were identified through simple random sampling among physiotherapy WhatsApp groups, observations from documentations in the files. The gaps included challenges to practice evidence based practice and lack of required skills to provide physiotherapy in the ICU.

**Course development team:** Course development team comprised the following:

* Representative from Association of physiotherapy leadership (president of association of physiotherapists from Tanzania).
* Lecturer from Muhimbili University of Allied Health Sciences (MUHAS), Physiotherapy section.
* Two Coordinators from Research and Training Section, Muhimbili National Hospital Mloganzila.
* Physiotherapy Officer from Maternity ICU, Muhimbili National Hospital, Upanga.
* Physiotherapy Officer from Surgical ICU & PICU, Muhimbili National Hospital, Mloganzila.
* Physiotherapy officer from Medical ICU & NICU, Muhimbili National Hospital Mloganzila.

**Learning Objectives:** Learning objectives were defined clearly whereby after completion of the course, learning outcomes could be easily achieved. Bloom’s Taxonomy was used to form learning objectives as appropriate. Objectives were reversed to make sure that they were specific, measurable, achievable, relevant and Time bound.

**Content development:** Materials were gathered to address the learning objectives, incorporating evidence based practice and ensuring teaching methodologies matched the learning needs.

**Instructional Design:** Contentswere organizedwith various teaching methodologies. See Appendix 3

**Integration of Assessment tools:** Various assessment tools were designed to evaluate mastery of skills. See appendix 1 and 4.

**Implementation:** Various methodologies were assigned to each session to address the learning objectives. See appendix 3.

**Continuous Improvement and feedback**: A tool was developed to assess feedback from trainees to measure effectiveness of the module and identify areas for improvement. See appendix 2.

**GENERAL OBJECTIVE**

The purpose of physiotherapy training in ICU is to equip a trainee with knowledge and clinical skills in the assessment, accurate physiotherapy impression and physiotherapy management of Critical illness using physiotherapy techniques based on clinical findings and evidence Based Practice in **MICU, SICU**, **NICU &PICU**.

**COURSE LEARNING OBJECTIVES**

1. **SESSION ONE:** **EVIDENCE-BASED PRACTICE**

**At the end of learning period trainees should be able to;**

* Explain the concept of evidence-based practice.
* Illustrate components and hierarchy of the evidence-based practice.
* Access Scientific Medical Literature.
* Apply knowledge of proper citations and referencing in professional writings for Evidence Based Practice (EBP).
1. **SESSION TWO: INTRODUCTION TO ICU**

 **At the end of learning period trainees should be able to;**

* Appreciate history, types and levels of the Intensive Care Unit.
* Explain the concept of ICU in relation to critical illness.
* Identify Indications for ICU admission.
* Demonstrate ICU protocols.
* Identify precautions and contraindications with regard to physiotherapy in ICU.
* Identify common problems associated with respiratory care in the ICU.
1. **SESSION THREE:** **MECHANICAL VENTILATION**

 **At the end of learning period trainees should be able to;**

* + Define the mechanical ventilation
	+ Explain basic settings and modes of mechanical ventilator
	+ Identify indications for mechanical ventilation
	+ Describe the weaning protocol of mechanical ventilation
	+ Identify complications of mechanical ventilation
1. **SESSION FOUR:** **ASSESSMENT PROTOCOL AND DOCUMENTATION**

**At the end of learning period trainees should be able to;**

* + Take accurate comprehensive and focused clinical history.
	+ Demonstrate privacy, dignity and confidentiality in the context of health assessment.
	+ Demonstrate knowledge and skills on patients’ consultation.
	+ Critically appraise knowledge and skills within the context of holistic clinical assessment.
	+ Accurately carry out documentation of objective and subjective data from the patient.
1. **SESSION FIVE**: **PHYSIOTHERAPEUTIC MODALITIES IN THE ICU AND MULTIDISCIPLINARY APPROACH**

 **At the end of learning period trainees should be able to;**

* + Recognize the aims of physiotherapy in the ICU
	+ Identify indications for physiotherapy intervention in ICU
	+ Identify the Precautions and contraindications of physiotherapy in the ICU.
	+ Appropriately perform physiotherapeutic techniques used in the ICU.
	+ Utilize outcome measure tools in physiotherapy process in the ICU.
	+ Carry out effective and efficient communication with other members of the clinical team.
1. **SESSION SIX:** **BASIC LIFE SUPPORT.**

 **At the end of learning period trainees should be able to;**

* + Explain the concept of basic life support
	+ Identify key components of basic life support
	+ Perform a primary survey
	+ Demonstrate cardiorespiratory resuscitation (CPR)
	+ Identify emergency lifesaving drugs in relation to physiotherapy practice.
1. **SESSION SEVEN:** **PHYSIOTHERAPY FOLLOWING ORGAN TRANSPLANT**

 **At the end of learning period trainees should be able to;**

* + Describe the concept, history, protocols and sources of organ transplant,
	+ Role of physiotherapy in organ transplant
	+ Pre and post physiotherapy in organ transplant.

**ADMISSION CRITERIA FOR TRAINEES**

Any physiotherapist who has attained at least qualification of physiotherapist (Diploma) in any recognized institution.

**SKILLS CHECK DURING LEARNING**

Examination in this context will be used as a tool to monitor and regulate learning process. Whenever examination is given, feedback is mandatory to enable the students to rectify weak areas. Trainers are expected to start giving feedback by pointing out positive side and lastly negative side for improvement.

**PRE AND POST EXAMINATIONS**

This will involve practical examination where students will be given patients to assess, hence present to the panel for rating, both for pre and post-test. Assessment will take 30 minutes, presentations 10 minutes. See **appendix 1** for rating scale.

**Objective Structured Clinical Examination (OSCE)**

Trainers will identify stations such as Surgical ICU /Medical ICU where trainees will carry out numeral tasks such as case presentations to be demonstrated.

**Clinical Evaluation**

Trainers will be evaluating trainees as they practice on daily basis by observation or simulations. Practical exams by demonstrations of skills to check the extent of how they mastered demonstrations.

**Take home Assignments**

May be in the form of written exams such asmultiple choices questions (MCQs), True or False questions, short answer questions and essayquestions**.** Written questions must reflect clinical application, for example; describe how to use incentive spirometer**.**

**Random questions for brain storming**

During class sessions, trainers are encouraged to employ brain storming as a tool to make trainees think and provide solutions as appropriate