

Value Added Courses
Medical Biochemistry, TMMC & RC, TMU

Certificate course on: Quality Management in Medical laboratory; in a nut a shell

(16 hours)

Background/ Intent:

The course shall address and emphasize on identification, evaluation, minimization and control of laboratory related quality issues to generate accurate and precise reports for the end users. The candidates will be able to understand the needs of various quality control programs in a medical laboratory and how to document the same. They would be taught to apply and incorporate Quality Control (QC) practices to monitor the performance of test procedure as day to day laboratory practices. This would help the candidates to learn how to minimize laboratory errors and increase the confidence of all the stake holders.

Outcomes:

At the end of successful completion of this course the student will be:

- I. The candidate would learn the importance of quality control in clinical laboratories in a hospital.
- II. Candidate would be able to understand the meaning of Total Quality Management (TQM).
- III. The learner will understand the quality in terms of accuracy and precision of reports generated from Clinical Laboratory which may influence clinical outcome of the patients.

Course Outline:

- Course Coordinator: Dr Sangeeta Kapoor
- **Resource faculty:** 1. Dr. Sangeeta Kapoor (Professor & HOD)
2. Dr. Tariq Mahmood (Professor & DMS)
3. Dr. Anil Kumar (Professor)
4. Dr. Sushil Yadav (Assistant Professor)
5. Dr. Jyoti Trivedi (Assistant Professor)
- Mode of Conduct: Multifaculty (Online)
- Pre-test questionnaire (MCQ based)
- Applicants: UG/Interns/PG's of any health science stream
- Course duration:- 8 weeks
- Final Assignment (minimum 50% necessary for certification)

Module I: Total Quality Management (TQM) in a Hospital Laboratory

Lecture-1:- Fundamentals of TQM: Meaning, Evolution, Concepts and Methodology. (50 mins)

Lecture-2:- Implementation of TQM: Concepts of cost benefit analysis and principles of TQM pyramid. (60 mins)

Module II: Internal Quality Control (IQC) in a Hospital Laboratory.

Lecture-1:- Introduction to IQC: Definition, meaning, components (45 mins)

Lecture-2: Internal Quality control materials: Types, reconstitution, storage etc. (45 mins)

Lecture-3: IQC plan and testing of Quality control (50 mins)

Lecture-4: Precision, Accuracy, Westgard's rule understanding and LJ (Levey-Jennings) chart interpretation. (60 mins)

Lecture-5: Trouble shooting of internal Quality control outliers (60 mins)

Lecture-6: Methods to review of IQC data (60 mins)

Module III: External Quality Assessment and Proficiency testing in a Hospital Laboratory.

Lecture-1: General features of External Quality Assurance program (45 mins)

Lecture-2: EQC material and its' analysis (50 mins)

Lecture-3: EQA sample testing and maintenance of EQA statistics (50 mins)

Lecture-4: EQA trouble shooting and rectification of errors (60 mins)

Lecture-5: EQA Data management & review (60 mins)

Module IV: Newer Quality Initiatives

Lecture-1: Introduction to Six Sigma concepts and it's methodologies (45 mins)

Lecture-2: Understanding the Six Sigma Matrix (50 mins)

Lecture-3: Concept of Operator Specification Chart and Power Function Curve (60 mins)

Lecture-4: Westgard sigma rules (50 mins)

Lecture-5: Sigma matrix for measurement uncertainty evaluation (60 mins)

Final Assignment

Minimum 50% passing criteria required for certification

Registration fees: Rs 1000 per person

References:

- Varley's Practical Clinical Biochemistry Textbook. Sixth Edition
- Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics by Nader Rifai, Andrea Rita Horvath, Carl. T. Wittwer. Eighth edition
- Clinical Biochemistry: Metabolic and clinical aspects by William J Marshall, Marta Lapsley, Andrew P. Day and Ruth M. Ayling. Third Edition
- Clinical Chemistry Principles, Techniques and Correlations by Micheal L. Bishop, Edward P. Fody, Carleen Van Sichen, James March Mistler and Michelle Moy. Ninth edition