

# THE TAMIL NAU Dr. MGR MEDICAL UNIVERSITY, CHENNAI

## SYLLABUS AND REGULATIONS 2015-16

### BACHELOR OF MEDICAL RECORD SCIENCE

#### SCHEME OF EXAMINATION:

The scheme of examination is as follows:

#### FIRST YEAR

S.No.	Subject Title	IA		Theory		Practical		Viva Voce	
		Max	Min	Max	Min	Max	Min	Max	Min
1.	Basic Sciences( Anatomy, Physiology, Microbiology, Biochemistry, Pharmacology & Forensic Medicine)	50	25	100	50	-	-	50	25
2.	Medical Terminology – I	50	25	100	50	-	-	50	25
3.	Medical Record Science	50	25	100	50	-	-	50	25

#### Internal Paper:-

S.No.	Subject Title	IA		Theory	
		Max	Min	Max	Min
1.	* English	50	25	100	50
2.	*Computer	50	25	100	50

\* English and Computer are internal papers. Marks to be sent to the University. There will be no University examination for English and Computer Paper  
Internal Assessment

<b>Theory (20)</b>	<b>Practical (20)</b>	<b>Log Book/Project/Record (10)</b>
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\* Wherever there is no Log Book/Project/Record work the 10 mark be added to the Practical of the respective subject.

## SECOND YEAR

S.No.	Subject Title	IA		Theory		Practical		Viva Voce	
		Max	Min	Max	Min	Max	Min	Max	Min
1.	Bio-Statistics, Hospital Statistics	50	25	100	50	-	-	-	-
2.	Information Technology – I	50	25	100	50	-	-	-	-
3.	Medical Terminology II	50	25	100	50	-	-	50	25
4.	Health Information Management I & Nomenclature	50	25	100	50	-	-	50	25

## THIRD YEAR

S.No.	Subject Title	IA		Theory		Practical		Viva Voce	
		Max	Min	Max	Min	Max	Min	Max	Min
1.	International Classification of Diseases (ICD- 10) and Surgical Procedures (ICD- 9CM), CPT, HCPCS	50	25	100	50	-	-	50	25
2.	Hospital Organisation and Administration Medical Ethics and Consumer Protection Act	50	25	100	50	-	-	-	-
3.	Health Information Management II, Medical Transcription, Telemedicine and Financial Management	50	25	100	50	-	-	50	25
4.	Quality Management in Health Care	50	25	100	50	-	-	-	-

**RECOMMENDED CLOCK HOURS OF INSTRUCTION FOR EACH SUBJECT:-**

Sub Code	Subjects	Lecture Hours
BMRSc 1-1	Basic Sciences	140 hours
BMRSc 1-2	Medical Terminology – I	200 hours
BMRSc 1-3	Communication Skills	50 hours
BMRSc 1-4	Medical Record Science	120 hours
BMRSc 2-1	Bio-Statistics, Hospital Statistics	75 hours
BMRSc 2-2	Information Technology	75 hours
BMRSc 2-3	Medical Terminology II	150 hours
BMRSc 2-4	Health Information Management I & Nomenclature	150 hours
BMRSc 3-1	International Classification of Diseases (ICD -10) and Surgical Procedures (ICD -9CM) , CPT & HCPCs	175 hours
BMRSc 3-2	Hospital Organisations and Administration and Medical Ethics and Consumer Protection Act I	150 hours
BMRSc 3-3	Hospital Accounting and Financial Accounting, Health Insurance and Billing Design	150 hours
BMRSc 3-4	Health Information Management II, Medical Transcription and Telemedicine	175 hours
	Practical Experience (Total hours for 3 years)	4310 hours
	Special Lectures	50 hours

**PRACTICAL TRAINING**

Out Patient Area		Hours
01.	Registration of new cases	70
02.	Registration of old cases	70
03.	Patient guide	40
04.	Computerized Alpha Index	20
05.	OP coding (diseases) and Indexing	96
06.	OP records retrieval	100
07.	OP procedure test	2
08.	OP Seminar	3
09.	OP Statistics	20
10.	Investigation Process	3
<b>Total</b>		<b>524</b>

<b>In Patient Area</b>		<b>Hours</b>
01.	Admission Office (Computerized & Manual)	160
02.	Inpatient record forwarding	150
03.	Daily Census (Computer and Manual)	160
04.	Assembling and Deficiency Check	160
05.	Inpatient diagnoses Coding and Indexing	192
06.	Discharge analysis (Manual & Computer)	160
07.	Incomplete record control	160
08.	Completed record control (Group study)	160
09.	Correction and authentication of Birth & Death reports	150
10.	Medico -legal Procedures (OP & IP)	50
11.	Medical Statistics	25
12.	Record retention and destruction (OP and IP records)	72
13.	Seminar	10
14.	Test on IP procedures	3
15.	Various OPDs	1500
<b>Total</b>		<b>1599</b>

<b>Miscellaneous section</b>		<b>Hours</b>
01.	Orientation introduction to all sections of the hospital	42
02.	Hospital Reception	15
03.	Record system in other departments of the hospital (Radiation Therapy, MHC, CHAD, RUHSA)	20
04.	Secretarial Practice	15
05.	Library	500
06.	Visiting other Health Care Institutions	30
07.	Special projects	20
08.	Training in Rural and Urban Health Centres	45
<b>Total</b>		<b>687</b>

### **AWARD OF DEGREE**

The university shall award the degree only after successful completion of the 3 year course and Compulsory Paid Internship.



Recognize common anatomical planes, regions, and abbreviations;  
Acquire knowledge of the anatomical and physiological terms to comprehend Medical Terminology;  
Correctly code the diseases and operative procedures to clinical pertinence as per WHO's ICD – 10;  
Read and understand names of diseases and types of infections for proper classification.  
Understand various Laboratory Tests and Reports, needed in patient care and completion of medical records;  
Read and understand the names and dosages of drugs prescribed alone or in combination for treatment of various diseases;  
Understand various types of medical documentations  
Guide the patients to their respective clinical specialities on presenting signs and symptoms.

## **1. HUMAN ANATOMY AND PHYSIOLOGY**

### ***Objectives:***

*To make the student to understand medical documentation to perform record analysis, and International Classification of diseases to clinical pertinence.*

On completion of this subject, the student will be able to:

Identify all anatomical structures of the human body

Understand the technical functions of various organs and systems of the body

Acquire knowledge about various body fluids, hormones and enzymes

### **Topics Covered:**

- i. Integumentary system,
- ii. Musculoskeletal system,
- iii. Respiratory system,
- iv. Cardiovascular system,
- v. Blood and lymphatic system,
- vi. Digestive system,
- vii. Urogenital systems,
- viii. Endocrine system,
- ix. Nervous system,
- x. Organs of special sense.

## **2. CLINICAL AND GENERAL**

### ***PATHOLOGY Objectives:***

*To make the student to understand pathology laboratory reports, the normal ranges of investigations, severity and specificity of disease conditions which will help him perform International Classification of diseases to clinical pertinence.*

On completion of this subject, the student will be able to:

- Differentiate between symptoms and diseases
- Understand the needs of mandatory diagnostic procedures
- Demonstrate an understanding of the pathology of common diseases
- Understand various pathology laboratory reports
- Know about the possibilities and consequences of nosocomial infections, needle prick injuries etc., in a health care facility

Topics covered:

Introduction to  
Pathology  
Inflammation  
Infection  
Degeneration  
Benign and Malignant Tumours  
Blood groups, cross-matching,  
transfusions Tests done on various  
body fluids and tissues

### **3. BIOCHEMISTRY**

#### **Objectives:**

*To make the student to understand biochemistry laboratory investigation requests, reports, the normal ranges of investigations, severity and specificity of disease conditions which will help him perform International Classification of diseases to clinical pertinence.*

#### **Topics covered:**

- i. Chemistry of the human body fluids in health and diseases
- ii. Cerebrospinal fluid
- iii. Clotting mechanism of the blood,
- iv. Enzymes produced in the G.I.Tract,
- v. Vitamins, Hormones, Proteins and Non-proteins,
- vi. Nitrogenous substances, lipids, carbohydrates,
- vii. Electrolytes
- viii. Metabolism, acid-base balance,
- ix. Normal values and ranges of biochemistry investigations

### **4. MICROBIOLOGY**

#### **Objectives:**

*To make the student to understand microbiology laboratory investigation requests, reports, various types of bacterial, viral and fungal infections, culture reports, severity and specificity of disease conditions which will help him perform International Classification of diseases to clinical pertinence.*

#### **Topics covered:**

- i. Introduction to Microbiology,
- ii. Classification and characteristics of organisms,
- iii. Cultivation and identification of organisms,bacteria etc.,
- iv. Disinfection,antiseptics,sanitation,
- v. Immunity,
- vi. Allergy
- vii. Pathogenic organisms,non-pathogenic organisms,virus and fungus.

### **5. PHARMACOLOGY**

#### **Objectives:**

*To make the student to understand drugs and their actions on human body systems, side effects, contra indications, allergic reactions which will enable him to perform qualitative analysis of medical records , accurate coding and medical billing if required*

#### **Topics covered:**

- i. Introduction to pharmacology,
- ii. General and Local anesthetics

- iii. Hypnotics and Sedatives
- iv. Narcotic analgesics, narcotic antagonists,
- v. Non-narcotic analgesics, antipyretics,
- vi. Psycho-pharmacological agents,
- vii. Drugs acting on autonomic nervous system
- viii. Antihistamines,
- ix. Blocking agents
- x. Respiratory pharmacology, cardiovascular pharmacology
- xi. Coagulants and anticoagulants,
- xii. Diuretics, hormones
- xiii. Chemotherapy
- xiv. Drug addiction

## 6. FORENSIC MEDICINE

### **Objectives:**

*To make the student know about the basics of Forensic Science, Types of medico-legal cases, external causes of injuries, adverse effect of drugs and chemicals, medical laws and ethics, medico-legal autopsy, determination of causes underlying death and code them, etc.*

- i. Topics covered:
- ii. Asphyxial deaths
- iii. Hanging
- iv. Rape , Sodomy
- v. Gun shot injury, injury by bullets, sharp objects
- vi. Traffic Accidents
- vii. Drowning
- viii. Medico-legal aspects of wounds
- ix. Wound certificate
- x. Toxicology
- xi. Food poisoning
- xii. Medico-legal autopsy.

The health information practitioner becomes involved in these ethical dilemmas to the extent that adequate documentation of events in the medical record is required.

### **BMRSc 1-2 MEDICAL TERMINOLOGY I** (including fundamentals of clinical science)

### **OBJECTIVES:**

***On the completion of this Course, the students will be able :***

- To know the elements of medical words.
- To develop sense of correctness of medical terms.
- To gain an understanding of standard medical abbreviations.
- To understand the relationship between medical terms and their

synonyms

in common usage.

- To spell correctly the medical terms, to detect the meaning of unfamiliar medical terms, by analysis into their elements, and to follow directions given in medical phraseology



To appreciate the logical order of medical terms, the exactness of concepts in medical terms, and the importance of medical terminology consciousness and continuous study

***All the above characteristics will enable the students in***

Developing an ability to read and understand medical records and the medical literature;

Writing terms correctly when abstracting medical records

Establishing accuracy in International Classification of Diseases, Surgical procedures which will be useful in statistics, medical billing, and auditing medical insurance claims.

**I . Introduction to Medical Terminology**

1. Definition and Origin of Medical Terms.
2. Components of Medical Terms
3. Prefixes
4. Suffixes
5. Roots and Combining forms
6. External Anatomy and Internal Anatomy
7. Additional Lists and their combining forms grouped as:

Verbs, Adjectives Body Fluids  
Body Substances Chemicals  
Colours Phobias

**Terms Relating to the  
Body as a Whole**

1. Study of the Body
2. Basic Structures
3. Cells
4. Tissues
5. Organs
6. Systems
7. Directions
8. Anatomic Planes and Position

**III. The Skeletal System**

1. Pathologic conditions (Inflammations and Infections)
2. Hereditary, Congenital and Developmental Disorders
3. Fractures
4. Metabolic and Deficiency Diseases
5. Symptomatic Terms
6. Diagnostic Terms
7. Oncology Terms
8. Operative Terms
9. Laboratory Tests and Procedures
10. Standard Abbreviations

**IV. The Muscular System**

1. Pathologic Conditions
2. Degenerative and Innervative Disorders

3. Hereditary, Congenital and Developmental Disorders
4. Symptomatic Terms
5. Diagnostic Terms
6. Oncology Terms
7. Operative Terms
8. Laboratory Tests and Procedures.
9. Standard Abbreviations

## **V. Integumentary System**

1. Pathologic Conditions
2. Fungal, Viral and Parasitic Infections
3. Hereditary, Congenital and Developmental Disorders
4. Symptomatic Terms
5. Diagnostic Terms
6. Oncology Terms
7. Operative Terms
8. Laboratory Tests and Procedures

## **BMRSc 1-3 COMMUNICATION SKILLS**

### **OBJECTIVES:**

***On completion of this course, the student will be able to:***

- ./ Cut down common grammar errors
- ./ Read, write and speak in right terminology appropriate to the context
- ./ Develop vocabulary related to general and office communications
- ./ Communicate effectively
- ./ Use well mannered body language
- ./ Maintain eye contact during conversations
- ./ Demonstrate skill in writing and speaking
- ./ Undertake office correspondence, that include letters, circulars, memos, reports, writing departmental policies and procedures
- ./ Project department related presentations before invited audience

### **I. Basics of Communication:**

- Process of and models of communications
- Types of communications:
  - a). Oral communication
  - b). Written Communication
  - c). Non-verbal communication & Body language
- Barriers to communications

### **II. Reading Skills:**

- Types of readings: Skimming, Scanning, intensive / loud / silent reading, map reading
- Sample passages for reading with comprehension exercises
- Tables and Graphic Organizers

### **III. Listening skills**

- Definition of listening
- Types of Listening
- Purposes of listening
- Obstacles for listening
- Contexts of listening
- To be a good listener
- Listening to a Lecture

### **IV. Speaking Skills**

- Formal & Informal Conversation: Agreeing, Emphasizing, thinking ahead, correcting oneself, interrupting, politely expressing reservations, opinions, disagreeing, accepting invitations declining invitations etc.
- Telephone Conversation
- Interviews
- Visual Presentation

## **V. Writing Skills**

- Tenses
- Writing Sentences
- Writing Paragraphs: The Development of a Paragraph
- Formal Letters – personal, applications, bio-data,
- Official correspondence: Outgoing correspondence, replying incoming correspondence, writing circulars, notices, charge memos
- Writing Reports
- Tables, Charts and Graphs
- Medical Transcription

## **VI. Study Skills**

- Improving Study Skills
- Note Taking: Some Basic Devices,
- Writing Summaries, observation reports, and action plan

## **VII. Effective communication in Hospitals:**

- Communicating to match the mission and vision of the institution
- The strategy of keep informed
- The nature of communications in a hospital
- Upward and Downward Communications
- Reporting of feedbacks
- Intra and interdepartmental communications
- Communications with Medical Staff, Paramedical staff and Support Services Staff
- The care provider – customer relationship
- Patient as VIP and his rights; Patient's locus standing, his agony, pains and tensions
- Directing patients to right destinations
- Giving hope to the hopeless
- Communications with the sick and injured
- Communications with teens and youngsters, middle aged and the aged
- Keeping up good impressions and manners before patients and their attendants
- Body language – How can you say it better than words?
- Communicating practically and technically feasible solutions
- How to say “no” graciously?
- Effective Intra and interdepartmental communications
- Common problems arising out of bad quality communications and trouble shooting techniques.

## **BHRA 1-4 MEDICAL RECORD SCIENCE**

**Subject description:** Information is the life blood of health care delivery system. The medical record, in manual or automated form, houses the medical information that describes all aspects of patient care. Physicians, nurses, and other health care providers require medical information for treating a patient. The medical record serves as a communication link among care-givers. Documentation in the medical record also serves to protect the legal interests of the patient, health care provider, and health care facility.

### **OBJECTIVES:**

***On completion of this Course, the students will be able to:***

1. Get acquainted with brief Historical Review of Medical Records, in USA, at the International Level and in India
2. Learn Definition of Medical Record, its Values accruing to various users
3. Be familiar with Medical Record Forms and their Content Index Cards and Registers
4. Review of health records for Deficiencies, Qualitative & quantitative analysis
5. Acquire knowledge for the organization and management of medical record department (both for Inpatients & Out-patients, including Emergency care patients)
6. To know about different numbering, filing and color coding systems
7. To know about the role of a health record professional in quality management & improvement, Utilization and risk management programmes.
8. To know about health record documentation policies, corrections and authentication procedures
9. To know the Legal Aspects & Confidentiality of Medical Records
10. To know about different nomenclatures, and classification systems of medicine and procedures
11. To know about manual and computerized medical record administration
12. To know about claims through medical insurance
13. Learn the techniques to file medical records in an accessible manner;
14. Learn the Retention Policies of medical records, and ways of disposal of Inactive Medical records
15. Get acquainted with the latest storage devices- Scanning & Disk Storage, Digital Record keeping system, etc
16. Maintain and Manage Disease Index, Physician Index, Operation Index and registers such as Admissions& Discharges, Birth, Death, Medico-legal, Notifiable Diseases, Cancer Registry etc., and indexes such as Disease, Physician, and Operations.

## **CONTENTS OF THE CURRICULUM THEORY**

### **1. History of Development of Medical Records During different periods**

1. Early Ancient Times to Renaissance Period (16<sup>th</sup> & 17<sup>th</sup> Centuries)
2. 18<sup>th</sup> -20<sup>th</sup> Centuries and Till Date
3. In U.S.A.
4. At International Level
5. In India

### **AI. Characteristics of quality Medical Records:**

- Definition, Characteristics of 'Good' Medical Record
  - Values of 'Good' Medical Record to various users Required
  - Characteristics of entries in medical Records
  - Responsibility for Medical Record Quality
  - Source-oriented, Problem-oriented, and Integrated medical records
  - Medical Record Forms and their Content
  - Standard Order of Arrangement of Medical Record forms
  - Analysis of Medical Record-Quantitative & Qualitative
  - Incomplete Record Control

### **III. Medical Records for different patient encounters with health care facility**

- i. Ambulatory Care Records {Emergency & Outpatient Records}
- ii. Clinical Records in Long Term Care and Rehabilitation Facilities
- iii. Mental Health Records

### **IV. Filing Methods, Storage, and Retention**

Numbering and Filing Systems  
Filing  
Storage- Microfilming and Disk Storage  
Retention  
Registers & Indexes  
Record movement control & Tracking system

### **V. Organizational Aspects of Medical Record Department/Services**

Policies  
Functions  
Location, Space and Layout  
Equipment  
Forms Designing and Control  
Medical Records Flow and Processing

### **VI. Organizational Aspects of the Centralized Admitting Services**

- Principles of Identification of a Patient
- Methods of Collection of Identification Data

- Types of Central Admitting Services
- Admitting Policies
- Procedure Outlines for Admissions
- Flow of Records following Admissions
- Advantages of good Admitting Policies and Procedures
- Pre-requisites for smooth & efficient functioning of the Centralized Admitting Services

## **VII. Medical Record Department Management**

- i. Planning, Organizing, Directing and Controlling
- ii. Personnel
- iii. Principal Responsibilities and Duties of the Medical Record Administrator/Director

## **VIII. Tools of Management in the Hands of the Medical Record**

Administrator/Director Intradepartmental and Interdepartmental Relationships

- i. Developing Intradepartmental Relationship
- ii. Developing Interdepartmental Relationships with various Departments of the Hospital

## **IX. Quality Management**

- i. External and Internal Pressures for quality
- ii. Quality Assessment and Quality Improvement
- iii. Quality Assurance & Medical Care Evaluation
- iv. Utilization management
- v. Peer Review
- vi. Utilization review processing & outcomes of Utilization management
- vii. Risk management program [Organization & Operation
- viii. International Standards Organization [ISO], Quality Council of India, & National Accreditation Board of Hospitals [NABH]

## **X. Health Care Statistics, Quality control of Data Collection & Presentation**

- i. Incomplete Record Control
- ii. Inpatient census and rates computed from it.
- iii. Ambulatory care statistics
- iv. Long term Care Statistics
- v. Processing and reporting of Reproductive Health Statistics
- vi. Reporting of Notifiable Diseases to Public Health Authorities

## **XI. Nomenclatures and Classification Systems:**

1. Standard Nomenclatures of diseases (SNDO).
2. Current Medical Information Terminology.
3. Systematized Nomenclature of Pathology (SNOP)
4. Systematized Nomenclature of Medicine (SNOMED)
5. Common Procedures Coding System (HCPCS)
6. Current Procedural Terminology

7. International Classification of Functioning, Disability and Health (ICF)
8. Case-Mix Classifications
9. Diagnosis Related Groups
10. ICD – 9 (CM)
11. ICD – 10
12. ICD- Oncology (ICD - O)

## **XII. Medico-Legal Aspects of the Medical Records**

1. Medical Ethics , Hippocratic Oath, and Code of Ethics for the Medical Record Professionals
2. Ownership of the Medical Record
3. Privileged Communication and confidentiality of Medical Records
4. Release of Information: To the Patient , To Authorized Persons /Agencies Legal Implications of release of Information to unauthorized , Persons/Agencies.
5. Consents: Different types and their validity, invalidity blanket, and improper consents.
6. Corrections in identification data medical documentations
7. Rights and responsibilities of patients
8. Medical Record in a Court of Law
9. Legal requirements in Retention of Medical Records



## **INTRODUCTION TO COMPUTERS**

### **DESCRIPTION**

This course is designed for students to develop basic understanding of uses of computer and its applications.

### **OBJECTIVES**

At the end of the course, the student will develop

Demonstrate skill in the use of MS office, M.S. Excel and MS Power Point

### **COURSE CONTENT**

Creating and Managing Professional Documents using Word

Presenting and Managing Data effectively using Excel

Creating and Managing presentations using Power Point

Communicate and Manage tasks, contacts and Appointments using office outlook

Introduction to Digital Life Style

TYPING TEXT IN MS WORD

Inserting tables in a document

Formatting the text – using different font sizes, bold, italics Bullets and numbering

Pictures, file insertion

Aligning the text and justify

Choosing paper size

Adjusting margins

Header and footer, inserting page No's in a document Printing a file with options

Using spell check and grammar

## CREATING TABLE IN MS-EXCEL

- Cell editing – Using formulas and functions
- Manipulating data with excel
- Using sort function to sort numbers and alphabets
- Drawing graphs and charts using data in excel – Auto formatting – Inserting data from other worksheets

## PREPARING NEW SLIDES USING MS – POWERPOINT

- Inserting slides – Slide transition and animation – Using templates Different text and font sizes – slides with sounds – Inserting clip arts, pictures, tables and graphs – Presentation using wizards.

## Medical Record Science - Viva

### **BMRSc 2-1 BIOSTATISTICS & HOSPITAL STATISTICS**

#### **OBJECTIVES:**

***On completion of this Course, the students will be able to:***

- Define i) General Statistics, ii) Biostatistics iii) Hospital Statistics and, iv) Health Statistics
- Define various important Hospital Statistical Terms
- Understand the basics of theoretical aspects of General Statistics & Biostatistics;
- Learn the methods for the collection, presentation, analysis and interpretation of numerical data
- Compute data on Admissions & Discharges, monthly analysis of Hospital Performance Statistics and the Daily Inpatient Census;
- Compute percentages and rates commonly used in preparation of hospital statistical information;
- Describe the role of the Medical Record Practitioner in ensuring accuracy and reliability of statistical Data compiled and presented by the Medical Record Department

## OBJECTIVES (RESEARCH METHODOLOGY)

1. Enhance conceptual knowledge in budding researchers.
2. Use conceptual knowledge of Research Methodology in designing and implementing research design.
3. Train researcher to draw better conclusions from the analysis.

## I. GENERAL & BIO-STATISTICS

- i. **Definition** of Statistics and Biostatistics
- ii. **Frequency Distribution:** Measures of Central Tendency – Arithmetic Mean, Median and Mode for un-grouped and grouped data
- iii. **Presentation of data:** Bar diagram, Pie Diagram, Histogram, Frequency polygon, Frequency curve, and Line diagram.
- iv. **Measures of Variation:** Range, Inter Quartiles, Mean Deviation, Standard Deviation Co-efficient of Variation
- v. **Probability:** Definitions of Classical Probability (Priori) and Frequency, Probability (Posteriori), Addition and Multiplicative Theorems of Probability
- vi. **Probability Distribution:** Binomial distribution, Poisson distribution and Normal distribution
- vii. **Sampling-** Definition: Population and simple Sampling, Simple Random Sampling, Stratified Random Sampling, Systematic Random Sampling and Cluster Sampling
- viii. **Correlation and Regression:** Scatter Diagram, Linear Correlation and Linear Regression Equation Test of Significance – Procedure Test of Significance for large samples and for small samples Chi-square Test – Testing for association Misuse of Chi-square Test

### AI. HOSPITAL STATISTICS

Definition of hospital statistics, and important Hospital Terms  
Sources of Hospital Statistics – Registers, Medical Records and Daily Ward Census  
Analysis of Hospital Services and Discharges  
Important Rates, Ratio and Percentages with  
Formula Uses and Limitations of Hospital Statistics.  
Hospital Statistics Reporting.

### ➤ VITAL STATISTICS

Definition and Uses of Vital statistics  
Methods of Collection of Vital Statistics  
Formulae for  
processing Vital  
Statistics: Crude Rates  
Specific Rate  
Mortality Rates – Crude Death Rate, Specific Death Rates with

respect to age , sex etc. Cause-of-death Rates; Infant Mortality Rates; Neonatal Mortality Rates

Post-Neonatal Mortality Rate or Late Infant Mortality Rate

#### **IV. Health Statistics**

- i. Introduction
- ii. Uses and Sources
- iii. Collection of hospital statistical data: Birth, Death, fetal death, live birth and immature infants, reporting, determination of basic data, daily analysis of hospital service, discharge analysis procedure, cumulative method, monthly and annual reports, computation of percentage (ratios) inpatient census and bed occupancy rate (computerized and manual), presentation of hospital data.
- iv. Criteria of ill health
- v. Classification of healthy and sick
- vi. Measurement of morbidity

#### **Research Methods:**

- 1) Research in medicine and health care
- 2) Clinical research and clinical trials
- 3) Health record data in research
- 4) Research process
  - a) Defining the research question (problem)
  - b) Determining a research design and method
  - c) Data collection procedures
  - d) Data analysis
  - e) Presenting results
  - f) Publishing researcher
  - g) quality improvement and the use of aggregate data
  - h) The role of HIM professionals in quality improvement programs
  - i) Collecting data through questionnaire and Record forms, Methods of collecting data, literature review and steps in research methods Presentation of Data – Bar Diagram; Pie Diagram; Histogram; Frequency, Polygon, Frequency Curve; Cumulative Frequency Curve and Line Diagram.

## **BMRS c 2-2 INFORMATION TECHNOLOGY**

### **INTRODUCTION**

Hospitals are highly complex institutions, with thousands of individuals sharing responsibility for the care and services provided to patients. Since medical interventions have expanded exponentially over the past several decades and average length of stay in hospitals has dropped sharply, patients now receive an enormously complex array of services in a much shorter period of time. Effective care and the survival of patients require the management of large amounts of information over a relatively short period of time. Failure to communicate or accurately record information in a timely manner can easily cost the life of a patient. In addition, growing pressures to constrain health care costs have put great pressure on hospitals to be more efficient as well as effective. The survival of a hospital requires the effective management of large amounts of information.

The hospital of the twenty-first century cannot survive without effective information technology. Relatively quickly, information systems and technology have become integral components of health care delivery systems.

#### **Learning Objectives:**

Medical informatics, may be defined as the art and science of processing medical information.

#### **Computer Applications and Technologies in Healthcare**

This course provides an overview of healthcare information systems with a concentration on computerized health information management (HIM) functions. Students will be introduced to common software applications utilized to perform HIM processes. Emerging technology issues in healthcare will be explored.

#### **Office Applications**

This course focuses on the concepts and operation of the main components of word processor, electronic spreadsheet, database management, and presentation software programs. Students will gain fundamental knowledge of a major software suite and learn skills that have practical application in real world situations.

#### **Basic ICD-10, ICD-9CM Coding**

This course is designed to introduce the student to medical nomenclature and classification systems. Emphasis will be placed on ICD-9-CM structure, conventions, and guidelines for coding in hospitals and physicians offices.

On completion of this programme, trainees will have knowledge of accessing and processing biomedical and clinical information, basic principles of patient and hospital data base management (expertise in computing, communications, and content)

## **1. The Internet**

Define the Internet How  
the Internet works  
Internet capabilities and limitations  
How to connect to the Internet via modem ISDN, etc.  
Navigate the World Wide Web  
Identify services and tools offered on the Internet Use  
services and tools offered on the Internet Explain  
book marks  
Safety

## **2. Email**

Define electronic mail  
Compose electronic messages  
Send electronic messages using appropriate format  
Transmit document using electronic mail system

## **3. Basic knowledge of networks**

Explain communications standards  
Describe network structures  
Explain network types and protocols  
Explain network connectivity  
Explain the function of servers in a graphic network  
Describe various network operating systems  
Explain the difference between network software and individual use software Use a  
network to access, file, and store files

## **4. Information processing activities**

Key, process, print and store text and data information using integrated software  
Troubleshoot basic computer malfunctions  
Load media devices  
Set up print devices  
Operate scanner devices  
Operate Print devices  
Maintain print devices  
Monitor peripheral equipment operations

## **Operating Systems**

Identify operating systems and their attributes (i.e., DOS, Unix, Macintosh, Windows) Identify the  
advantages and disadvantages of the computer to individuals and business. Identify the roles and  
equipment used for input, processing, and output in an information system.  
Identify correct safety procedures

## **Demonstrate basic computer literacy**

Create directories/folders and sub-directories  
Format disks  
Manipulate files (copy, rename, delete)  
Keyboard proficiently by touch

## **Computer File Manipulation**

Create data directory and subdirectories/folders and place files in subdirectories/folder. Copy, rename, move and delete files. Copy a disk. Make backup disks/files of a data directory or Subdirectory/folder and delete data from backup disks/files

### **a) Personal computer systems**

Monitor system status and performance  
Run diagnostics  
Report computer system malfunction(s)  
Report software malfunction(s)  
Maintain security  
Perform backup procedure(s)  
Perform preventive maintenance  
Follow log-off and power-down procedure(s)  
Follow equipment maintenance procedures  
Follow quality control procedures

### **b) Maintain computer security requirements**

Follow security rules, regulations, and codes  
Implement security procedures

### **c) Software applications**

Define software types and functions  
Describe need for application software  
Describe different types of software applications  
Explain advantages and disadvantages of integrated and dedicated software  
Explain software copyright laws  
Explain data compression techniques  
Explain use of passwords/security  
Utilize desktop productivity tools

### **e) Operation of peripheral devices**

Identify peripherals and operating requirements of each  
Explain purpose of input devices (e.g., keyboard, mouse, scanners, pens, bar code readers, credit/debit/smart cards, voice, video, gloves)

Describe operation of output devices (e.g. voice, speaker output devices, printers, plotters, printer sharing units, SCSI interface, video display) Describe operation of multimedia (video, audio sound)

### **g) Information Processing Cycle**

Describe difference between data files and program files

## **5. Database**

Define database

Explain terms used in database systems

Describe common functions of database systems

Use database to create, input, edit, and display fields and records

Analyze structure of database file

Perform calculations with a data base file

Alter structure of database file

Sort records based on multiple fields

Identify advanced database technology

Use appropriate reference materials

Utilize relational database

Enter elements into database

Proofread database

Explain database

Design report formats

Transfer data to and from remote database

Print reports using data from multiple databases

Use database files with other application software

Verify accuracy of output (e.g., edit reports)

### **Basic Data Processing**

Input, update and store data into records in an existing database

Open stored spreadsheet, input and update data into spreadsheet, store revised spreadsheet and print revised spreadsheet

### **Database and Spreadsheet Operations**

Plan and create database, input and update data into records, store database and print quick reports from database.

Create spreadsheet, input data into spreadsheet, update data in spreadsheet and store spreadsheet.

## **6. Introduction to Spread sheet packages**

## **7. Introduction to Word Processing packages**

### **Document processing**

Key, print and store merge documents (form letters, mailing labels and envelopes)



Scan documents onto a formatted storage medium and import into a word processing program  
Locate and retrieve information from a variety of electronic sources  
Prepare, place and send information on the internet  
Key, Print and store transparency masters for presentation from legible longhand or edited rough draft using presentation software.

## **9. Basic Computer Concepts and Applications**

Explain how data is stored in main computer memory  
Explain how computer system executes program instruction  
Explain computer storage capacity  
Explain how data is represented  
Describe data storage devices  
Identify types of memory  
Describe back-up and archival disciplines  
Merge a database application and a spreadsheet application with a word processing document.  
Use available software to input personal, business, and organizational names in proper indexing order, and produce an alphabetical list. Integrate database, spreadsheet and graphic files  
Convert documents from one system to another  
Demonstrate use of computer thesaurus  
Use multimedia techniques/resources  
Perform merge functions

## **10. Hospital Information System (HIS) with Electronic Medical Records (EMR)**

### **BMRSc 2-3      MEDICAL TERMINOLOGY II**

#### **OBJECTIVES:**

*On the completion of this Course, the students will be able :*

- To know the elements of medical words.
- To develop sense of correctness of medical terms.
- To gain an understanding of standard medical abbreviations.
  - To understand the relationship between medical terms and their synonyms in common usage.
- To spell correctly the medical terms, to detect the meaning of unfamiliar medical terms, by analysis into their elements, and to follow directions given in medical phraseology
- To appreciate the logical order of medical terms, the exactness of concepts in medical terms, and the importance of medical terminology consciousness and continuous study

*All the above characteristics will enable the students in*

- Developing an ability to read and understand medical records and the medical literature;
- Writing terms correctly when abstracting medical records

**Establishing accuracy in International Classification of Diseases, Surgical procedures which will be useful in statistics, medical billing, and auditing medical insurance claims.**

## **I. The Cardiovascular System**

1. Pathologic Conditions
2. Hemorrhages and related Conditions
3. Hereditary, Congenital and Developmental Disorders
4. Symptomatic Terms
5. Diagnostic terms
6. Oncology Terms
7. Operative Terms
8. Laboratory Tests and Procedures
9. Standard Abbreviations

## **II. The Respiratory System**

1. Pathologic Conditions
2. Symptomatic Terms
3. Diagnostic Terms
4. Oncology Terms
5. Operative Terms
6. Laboratory Tests and Procedures
7. Standard Abbreviations

## **III. The Gastro-Intestinal System**

1. Pathologic Conditions
2. Hereditary, Congenital and Developmental Disorders
3. Symptomatic Terms
4. Diagnostic Terms
5. Oncology Terms
6. Surgical Procedures
7. Laboratory Tests and Procedures
  
9. Standard Abbreviations

## **IV. The Genito-Urinary System**

### **(A). Urinary Tract**

1. Pathologic Conditions
2. Hereditary, Congenital and Developmental Disorders
3. Symptomatic Terms
4. Diagnostic Terms
5. Oncology
6. Surgical Procedures
7. Laboratory Tests and Procedures
8. Standard Abbreviations

## **B) Male Reproductive Organs**

1. Hereditary, Congenital and Developmental Disorders
2. Sexually Transmitted Disorders (STD)
3. Symptomatic Terms
4. Diagnostic Terms
5. Operative Procedures

## **C) Female Reproductive Organs**

1. Hereditary, Congenital and Developmental Disorders
2. Sexually Transmitted Disorders (STD)
3. Symptomatic Terms
4. Diagnostic Terms
5. Operative Procedures
6. Laboratory tests and Procedures

## **V. The Endocrine System (Pituitary-Anterior & Posterior: Hypothalamus; Thyroid; Parathyroid;**

Adrenal-Cortex and Medulla; Pineal body; Pancreas; Gonads-Ovaries & Testes & Thymus)

1. Pathologic Conditions
2. Hereditary, Congenital and Developmental Disorders
3. Symptomatic Terms
4. Diagnostic Terms
5. Oncology
6. Surgical Procedures
7. Laboratory Tests and Procedures
8. Standard Abbreviations

## **VI. The Nervous System**

### ***(A). Neurological Disorders***

1. Pathologic conditions
2. Hereditary Congenital and Developmental Disorders
3. Circulatory Disturbances
4. Other Organic Abnormalities
5. Oncology
6. Diagnostic Terms
7. Surgical and other Procedures
8. Laboratory Tests and Procedures

### ***(B). Psychiatric Disorders***

1. Psychiatric Disorders
2. Other Descriptive and Diagnostic Terms
3. Various Tests
4. Treatment Methods for Psychiatric Conditions

## **VII. The Sensory Organs**

### **(A). Sense of Vision**

1. Pathologic conditions
2. Hereditary, Congenital and Developmental Disorders
3. Diagnostic Terms
4. Operative terms
5. Oncology
6. Vision Tests and Procedures

### **(B). Sense of Hearing**

1. Pathologic condition
2. Hereditary, Congenital and Developmental Disorders
3. Oncology
4. Surgical Procedures
5. Hearing Tests.

### **(C ). Sense of Smell**

1. Pathologic and Other terms  
Laboratory Tests

### **(D). Sense of Taste**

1. Pathologic and Other terms

### **(E). Touch and Other Cutaneous Senses**

1. Terms referring to these senses

## **BLOCK-XII Multiple-System Diseases**

1. Inflammations and Infections
2. Symptomatic Terms
3. Diagnostic Terms
4. Laboratory Tests and Procedures

**BMRSc 2-4    HEALTH INFORMATION MANAGEMENT 1 &  
NOMENCLATURE**

Health Information Management serves the healthcare industry and the public by managing, analyzing, and utilizing the data vital for patient care and making the data accessible to healthcare providers. Enhancing individual patient care through timely and relevant information is one of the primary goals for the Health Information Management Technology.

**1. Informatics and Health Information Management**

Introduction, Health care delivery systems, Informatics in Health Care, Health Information Management profession, Data and formation management, Information systems Development

**2. Aggregate Health care data**

Secondary records and Health care database, Clinical classification and Terminologies, Reimbursement methodologies.

**Nomenclature**

1. Introduction to Nomenclature
2. Early Nomenclature
3. Specialty Nomenclature
4. Statistical Classifications
5. Other Classifications
6. Choosing a Classification System
7. Encoding Systems
8. Summary

**BMRSc 3-1 International Classification of Diseases(ICD-10) and  
SurgicalProcedures(ICD-9CM), CPT, HCPCS**

Coding of final diagnosis and secondary diagnosis.disease and operation nomenclatures,  
International Classification of Disease 10,International Classification of Disease – 9CM  
indexing of patient care data.Introduction and usage of International Classification of Disease in  
practicals.

International Classification of Diseases

ICD-10, ICD-9 CM (Surgical Procedures)

CPT – Current Procedural Terminology (Introduction)

HCPCS – Healthcare Common Procedure Coding System (Introduction)

ICD-10 -     Alpha-numeric coding  
                  Volume 1 – Tabular list  
                  Volume 2 – Instruction manual  
                  Volume 3 – Alphabetical Index

Classification of Diseases according to Clinical Pertinence

ICD-9CM (Procedure) coding – International Classification of Diseases – Clinical  
modification

CPT – Introduction of CPT and HCPCS – 3 levels of codes

**BMRSc 3-2 HOSPITAL ORGANIZATION AND ADMINISTRATION,  
MEDICAL ETHICS & CONSUMER PROTECTION ACT**

**I. HOSPITAL ORGANIZATION AND ADMINISTRATION 1.**

**Introduction to Hospital Administration**

- a) Who's Who in hospital – Key administrators and their functions, overview of medical and para-medical specialities, main service departments:
  - b) Overview of health services – government services: private & not for profit: primary, secondary & tertiary health care: types of hospital: community, super – speciality etc.

**II. Principles of Organizational Management**

- a) Culture, Values and Mission
- b) Organizational Structure
- c) Planning and Controlling
- d) Hospital Organizational Structures – Government, Private and Not for Profit.

**BI. Managing People ( Human Resources )**

- a) Overview – scope and functions of HR dept, HR planning
- b) Recruitment and Appointment
- c) Training and Development
- d) Goal setting, rewards systems and motivation
- e) Performance Appraisal
- f) Promotion, internal transfers
- g) Problems and Legal issues
- h) Leadership
- i) Working in teams

**IV. Clinical Services**

- a) Overview of clinical departments and services – OPD, In-patients, ICU, Surgical, Emergency, Community/family Health, Paramedical & Rehabilitation
- b) Types of doctors, their training, roles and responsibilities
- c) The role & responsibilities of the HOD
- d) Medical Audit
- e) Medical Negligence & Litigation

**V. Nursing Services and Wards**

- a) Objectives of the nursing service
- b) Nursing service organization, types of nurses, their training, qualifications and functions, other ward staff, personnel issues.

- c) Ward management

#### **VI. Product-based services**

- a) Pharmacy purchasing and stores
- b) Pharmacy dispensing
- c) Prosthetics & Orthotics

#### **VII. Diagnostic Services (Radiology, Laboratories, Blood Bank etc)**

- a) Overview – main services and their functions
- b) In-house services

#### **VIII. Patient Services ( non medical )**

- a) Reception, Welcome/Help Desk
- b) Patient facilities, wheelchairs, Ambulances
- c) Public Relations – objectives, functions, policies, different media, methodologies, networking

#### **IX. Managing Support Services**

- a) Overview of functions of all support services including Laundry, Catering, Cleaning, CSSD, Transport, Security, Materials ( Purchase and Stores ) etc
- b) Functions of GS Office

#### **X. Hospital Infrastructure ( Buildings and Plant )**

- a) Civil Engineering – Planning and maintaining buildings, water & sewage
- b) Electrical Engineering
- c) Mechanical Engineering, Equipment Maintenance, Medical Gases, etc
- d) Biomedical Engineering

#### **XI. Hospital Information Systems**

- a) Analysing information requirements
- b) Reporting systems
- c) Early warning systems
- d) Computerized Systems, intranet

#### **2. Managing the Organization ( putting it all together )**

- a) Planning: strategy and corporate planning
- b) Dealing with risk and uncertainty
- c) Organizational Development and Change management
- d) Corporate Governance & legal matters
- e) Relationships with other institutions and organizations



## **MEDICAL ETHICS & CONSUMER PROTECTION ACT**

This course is designed to provide Medical Record professionals, an advanced knowledge of structure of Indian Judicial system, Basics of Medical laws, Matters relating to Medical Negligence, Medical Ethics and Consumer Protection Act.

This course will equip student with general skills needed in guiding medical professionals to follow required standards of medical documentations to protect the welfare of the health care institution and the patients.

### **COURSE OBJECTIVES:**

At the end of the course student will be able to understand:

- Structure of Indian Judicial System, Medico-legal cases.
- Prevention against complaint of medical negligence
- Negligence as a crime
- Encountering consumer by Medical Professionals
- Code of Medical Ethics
- Rights of patient as a consumer

### **Laws relating to Hospital Administration:**

#### **1. Structure of Indian Judicial System:**

Subordinate courts - Various Tribunals - High court and Supreme court - their working relationships and effect of orders.

#### **2. Medico – legal cases:**

IPC – Medical Termination of Pregnancy Act 1971, Transplantation of Human Organs Act.

#### **3. Law of Contract:**

Patient as a consumer - Law of Tort - Composition of D.C.D.R.F, S.C.D.R.C and N.C.D.R.C - powers, terms and jurisdiction, enforcement of orders.

#### **4. Medical Negligence:**

Negligence - Medical Negligence - Contributory Negligence - Gross Negligence - Criminal Negligence - Onus of Proof - Prevention of such Negligence.

#### **5. Liability and Compensation:**

Vicarious Liability - Liability of Medical Professionals and Para-medical staff - Quantum of Compensation - Applicability of provisions of Consumer Protection Act for various institutions.

## **6. Consumer Protection Act 1986:**

Various provisions - structure, powers and jurisdiction of various forums constituted in C.P Act - orders - how enforced.

## **7.Consent:**

Consent - Medical Consent - various types of Consent - Consent forms - “informed Consent” in clinical trials - Consent as a process - full proof methods for proper Consent - various defects in obtaining Consent.

## **8.Important case studies:**

District Forums, State Consumer Disputes Redressal Commission - National Consumer Disputes Redressal Commission Case study as how cases were decided.

## **BMRSc 3-3 HEALTH INFORMATION MANAGEMENT II, MEDICAL TRANSCRIPTION,TELEMEDICINE AND FINANCIAL MANAGEMENT**

Health Information Management serves the healthcare industry and the public by managing, analyzing, and utilizing the data vital for patient care and making the data accessible to healthcare providers. Enhancing individual patient care through timely and relevant information is one of the primary goals for the Health Information Management Technology.

### **1. Development of Health Care Information**

Health Care Information standards, Paper based Health Records, Computer based patient records, Ethical issues in Health Information Management

### **2. Management of Health Information Services**

Principles of Management and Leadership, Work Design and Performance improved, Human Resources Management, Training and Development, Project Management, Strategic Management.

### **Medical Transcription:**

Basics of Medical Transcription

Objectives of Medical Transcription

Rules of Medical Transcription

Advantages of Medical Transcription

Division of medical words into their component parts

Forms, Suffixes, Prefixes and Terminology

Laboratory tests, Clinical procedures and Abbreviations

## **Telemedicine:**

- Basic health care
  - Classification of Telemedicine
  - Technology of Telemedicine
  - Objectives of Telemedicine
  - Rules of Telemedicine
  - Telemedicine Act
- Merits of Telemedicine
  - Future Telemedicine plans
  - Research

## **Health Insurance**

- Definition and Concept of Health Insurance
- Issues in Health Insurance
- Effective Health Insurance
  
- Reason of Lack of coverage
  
- Health Insurance in India and Third Party Administration
  
- Billing and Health Insurance
  
- Insurance Regulatory Developments Authority and its Role
  
- Financial Management

## **BMRS 3-4 – QUALITY MANAGEMENT IN HEALTH CARE**

### **Unit – 1 – Introduction & Evolution of Quality Systems**

Definition – Concepts & Perspectives – Types of Quality – Dimensions of Quality – Evolution of Quality – Quality characteristics – Importance and Benefits of Quality – Variable and Attributes – Conforming and Non -Conforming unit – Defect – Standards or Specification – Quality of design – Quality of conformance – Quality of performance – Quality Control – Total Quality Control.

### **Unit – 2 TQM & SIX – SIGMA**

TQM Definition – Principles of TQM – Implementing TQM Concepts in Hospital Departments – Six Sigma – Features – Benefits and Goals of Six Sigma – Scope of Six Sigma in Hospital – Pareto Analysis - Root Cause Analysis – Quality Improvement Teams.

### **Unit – 3 : Process Approach to Quality Management in Hospitals:-**

Process – Process Management – Triple Role of Process Team – PDCA Cycle – Preparation of process flow diagrams for distinct processes in a hospital – Quality Aspects of processes in Hospitals Diagnostic services – Nursing services – House keeping – Blood Bank – Pharmacy – OPD – Surgery – ICU – Emergency and Trauma Care – Canteen – Hospital Stores.

#### **Unit :4 Quality Assurance Methods:-**

Definition – Principles of Quality Assurance – Quality Policy – Quality Manual – Hospital Sop's  
5'S Techniques – Specification limits – Process Control limits – Process capability analysis tools  
– Product Testing – Prototype Testing – Failure Testing – Process Mapping – Process Mapping  
Tools – Quality Audit – Business Process Reengineering – Essence of Re-engineering.

#### **Unit – 5 – Quality Certification systems**

Introduction – International Standards ISO 9000-9004 – Elements of ISO 9000 – Areas of ISO  
9000- Family of ISO 14001 – Environment Management Systems – ISO 14000 Family Stages  
of Environmental Management Standards – Evaluation and Compliance.

#### **Unit – 6 – Quality Accreditation in Hospitals:-**

Accreditation System – Process – Procedure – Joint Commission Internation (JCI) – Mission –  
Benefits – Value – Accreditation in 15 Areas – JCI for Primary care centres – JCI Accredited  
Hospitals in India – Basic Objectives of National Accreditation Board for Hospitals (NABH) –  
Standards of NABH – Documentation Procedure – Patient Rights and Education – Benefits of  
NABH to Hospital – Employees – Patients and TPA's

#### **FOURTH YEAR – INTERNSHIP**

##### **POSTINGS FOR INTERNSHIP :-**

1. Out patient Department - 3 Months
2. In-patient Department - 2 Months ( Documentation Analysis and Deficiency  
Checking, Form Design)
3. Medical Coding - 3 Months
4. Notification for Birth & Death - 1 Month
5. Census - 1 Month
6. Confidentiality and Release of Information including MLC – 2 months.

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