



COMPETENCY BASED LEARNING AND TRAINING

(CoBaLT)



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SRI BALAJI VIDYAPEETH
Pilliyarkuppam, Pondy-Cuddalore Main Road, 607402

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Preamble

SBV is forging ahead by introducing an unique Competency Based Learning and Training Model (COBALT) for setting up a high standard of Post Graduate Medical Education in the country and to ensure training of postgraduates who can function independently as specialists, researchers or medical teachers when they complete their course.

This model is a progressive step in achieving our Mission, Vision and goals in response to the prevailing national needs.

Competency

Competence is defined as the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values ,and reflection in daily practice for the benefit of the individuals and communities being served.”¹

Entrustable Professional Activities (EPAs)

These are broad distinguishable areas of competence. Since competencies are not directly measurable, they need to be in a format which is observable and measurable. This **format is called ‘Entrustable Professional Activities’ or ‘EPAs’**. EPAs describe a measurable activity or task that requires specialized knowledge and skills, and encompasses multiple **competencies**. They are **‘critical activities’ in the professional** life of physicians agreed up on by the speciality community that must be assessed and approved at some point ,in the ongoing creation and training of the specialists.

Levels of EPAs: These represent five sequential stages in the development of competency from novice to the expert level.

- Level 1 – Expected ability of a novice, mostly limited to observation only .

- Level 2 – Ability to perform the activity under strict supervision.
- Level 3 – Ability to perform the activity under loose supervision.
- Level 4 – Ability to perform the activity independently.
- Level 5 – Expertise in the activity; ability to perform the activity independently and teach others.

Milestone: It is a significant point or an observable marker of an individual's ability along a developmental continuum.

Each EPA is mapped to appropriate domains of competency and the level of competency to be attained at the end of 1st, 2nd and 3rd years of Postgraduate degree course and at the end of 1st and 2nd years of Postgraduate Diploma Course are defined. The residents do a self-assessment for the EPAS at the time of joining. The faculty will do the assessment at the end of every 3 months for the first year and every six months thereafter, **to document the student's** progress.

List of EPAs

A. General

- I. History taking and general physical examination
- II. Formulating a differential diagnosis based on history and examination
- III. Ordering and interpretation of common diagnostic tests
- IV. Entering and discussing orders and prescriptions and giving the necessary instructions to the patients
- V. Document clinical details in the patient record
- VI. Clinical presentation of a case
- VII. Using evidence-based medicine to improve patient care
- VIII. Give or receive a patient handover to transition care responsibility.
- IX. Participating efficiently as a member of an inter-professional team.
- X. Diagnosing conditions requiring emergency care and providing primary care.

- XI. Obtain informed consent for tests and/or procedures
- XII. Performing general medical and surgical procedures
- XIII. Identifying system failures and taking appropriate corrective measures

B. Department specific

1. Anaesthesia

- I. Performance of preoperative assessment, risk stratification & preoperative preparation in normal patients or with controlled comorbid illness.
- II. Performance of Preoperative assessment, risk stratification & preoperative preparation in patients with comorbidity and varying degrees of end organ damage.
- III. Securing airway in patients with normal airway anatomy
- IV. Securing airway in patients with Difficult airway
- V. Administering General Anaesthesia to patients of ASA I and II physical status.
- VI. Administering General Anaesthesia to patients of ASA III and IV physical status.
- VII. Managing Central Neuraxial Blockade in patients with ASA I & II physical status.
- VIII. Managing Central Neuraxial Blockade in patients with ASA III & IV physical status.
- IX. Performing Peripheral nerve/Fascial plane blocks
- X. Providing Monitored Anaesthesia Care
- XI. Proficient in peripheral and central vascular access including invasive arterial access.
- XII. Ability to manage acute pain conditions
- XIII. Ability to manage chronic pain conditions
- XIV. Ability to conduct anaesthetic management for Cardiac Surgery
- XV. Ability to conduct anaesthetic management for Thoracic Surgery
- XVI. Ability to conduct anaesthetic management for Neurosurgery
- XVII. Ability to conduct anaesthetic management in Paediatric patients
- XVIII. Ability to conduct Anaesthetic management in Obstetrics patients
- XIX. Ability to manage the critically ill patient
- XX. Conversant in pedagogic and andragogic methods of teaching and learning

XXI. Proficient in formulating a protocol, literature search, data collection and analysis for conduct of research

2. Anatomy

- I. Identify and describe the gross structures in various regions of the human body
- II. Perform gross and fine dissection in all regions of the body and the viscera and demonstrate to students
- III. Teach, demonstrate and assess the students
- IV. Prepare and demonstrate and illustrate the histology slides of various tissues
- V. Perform embalming technique of adult cadavers and fetus
- VI. Acquire administrative skills to set up Histology lab/museum/Embalming lab for helping in the process of learning anatomy
- VII. Understand the basic embryology and teach the students by making models and charts
- VIII. Acquire administrative skills to set up Genetic lab for helping in the process of learning genetics
- IX. Perform basic techniques in genetics
- X. Perform gross sections of different regions of brain and spinal cord and correlate with its relations, applied aspects and demonstrate to students
- XI. Assist and help the clinicians in updating and reinforcing their basic anatomical knowledge

3. Biochemistry

- I. Prioritizing a differential diagnosis based on history, physical examination and biochemical analysis
- II. Recommending and interpreting common screening and diagnostic tests and data
- III. Giving the necessary instructions to the patients related to biochemical investigations
- IV. Obtain informed consent for investigations and for academic research
- V. Collaborate as a member of an interprofessional team
- VI. Form clinical questions and retrieve evidence to advance patient care

- VII. Evaluate and report clinical laboratory testing including critical values and special investigations
- VIII. Provide guidance for the resolution of preanalytical, analytical and post analytical testing issues
- IX. Provide biochemistry support for interdisciplinary presentations/clinicopathological meet
- X. Provide patient care consultations
- XI. Optimize test utilization
- XII. Improve quality and patient safety
- XIII. Evaluate and choose a new test/assay or instrument
- XIV. Perform a laboratory audit
- XV. Should be able to write a scientific protocol for clinical research
- XVI. Reporting and communication of scientific research
- XVII. Select and demonstrate competency in a range of teaching methods
- XVIII. Select a learning outcome and design and develop an appropriate assessment method
- XIX. Solicit feedback on one's leadership and teaching from multiple observers & critically reflect on it.

4. Community medicine

- I. Clinical management of diseases of public health importance within the broader context of environmental, family, society as per national policies.
- II. Assess needs of the community (including vulnerable groups) for organizing health services.
- III. Plan and organize epidemiological studies, collect, analyse data (Choose and perform appropriate statistical test for given situation by using statistical packages (online and offline) efficiently and present.
- IV. Descriptive Epidemiology: Characterize the health of a community (community diagnosis).
- V. Investigate and respond to an outbreak or epidemic.

- VI. Use of basic concepts of health economics to develop, analyse and interpret budget for research study/health project.
- VII. Conduct small groups and large group sessions for undergraduate medical students.
- VIII. Conduct a Family Health Appraisal, identify & prioritize issues, develop an action plan & follow up.
- IX. Develop linkage for emergency preparedness in hospital
- X. Identify, assess and suggest preventive and control measures for common occupational diseases
- XI. Observe various legislations and laws pertaining to health.
- XII. Organize and work in team for community health services including camps, use of ICT for health education, training of health workers in public health activities.
- XIII. Locate, appraise, and assimilate evidence from scientific studies related to health problems and critical appraisal of journal articles.
- XIV. Participate in the various disease surveillance systems of the government and notification of diseases.
- XV. Collection, processing and testing food and water samples.
- XVI. Review and comment on ongoing health programmes and schemes.
- XVII. Develop linkages with the local health governance, local NGOs and grassroots agencies.
- XVIII. Use of ICT tools for classroom teaching & health education campaigns

5. DVL

- I. Form clinical questions and retrieve evidence to advance patient care
- II. Perform detailed dermatological examination with appropriate use of dermatological descriptive terminology.
- III. Diagnosis of skin diseases, including use of dermatological hand tools and side-lab investigations.
- IV. Treatment of skin diseases with an understanding of the various formularies and their appropriate usage.

- V. Identify and interpret the histopathological findings of common, uncommon and complex dermatoses.
- VI. Diagnosis of paediatric dermatoses and their treatment with medications in appropriate Dosage.
- VII. Perform various dermatosurgical procedures with adequate exposure on use of LASERS. Familiar with recent advances in dermatology.
- VIII. Counselling of patients regarding treatment, course of disease and prognosis of the skin condition.
- IX. Aware of the medicolegal aspects of dermatology.
- X. Diagnosis, treatment and rehabilitation of leprosy cases.
- XI. Diagnosis and treatment of sexually transmitted diseases, including syndromic management when relevant.
- XII. Adopt preventive measures at individual and community level for skin diseases, venereal infections and leprosy.
- XIII. Able to write scientific papers and deliver oral presentations at conferences
- XIV. Identify system failures and contribute to a culture of safety and improvement
- XV. Able to effectively teach undergraduate students during clinical postings.
- XVI. Treats all patients with respect and protects patients confidentiality.

6. ENT

- I. Recognise a patient requiring urgent or emergency care and initiate evaluation and management like management of dizzy patient, management of epistaxis, stridor, foreign body removal in aerodigestivetract , and foreign body of ear& nose, nasal fracture reduction. Post-operative care, evaluation and counselling
- II. Performing basic surgeries such as Adenotonsillectomy, septoplasty, middle meatalantrostomy, myringoplasty, cortical mastoidectomy.
- III. Performing basic office procedures like diagnostic nasal endoscopy, video laryngoscopy, post nasal examination, throat swabs, ear swabs, nasopharyngeal swabs, FNACs .

- IV. Day care procedures like lobuloplasty, keloid excision, etc.
- V. Assisting in advanced surgeries such as modified radical mastoidectomy, stapedotomy, facial nerve decompression, frontal sinusotomy, sphenoidotomy, orbital decompressions, Transphenoidal excision of pituitary macroadenoma, optic nerve decompression, Head & Neck Surgeries, Laryngectomies .
- VI. Reading and interpreting X-rays, e.g. X ray PNS, Mastoids, Nasopharynx, soft tissue neck etc.
- VII. Reading and interpreting CT PNS, HRCT Temporal Bone, CT & CECT Neck, CT CP angle, MRI, Barium Studies
- VIII. Reading , Doing and Interpreting Audiological investigation like PTA, Impedence, BERA, OAE, SiSi, Tone decay etc.
- IX. Research methodology and writing of paper, Poster presentation and publications
- X. Performing cadaveric dissection to learn temporal bone dissection

7. FMT

- I. Examine injured person, prepare medico-legal report and initiate management
- II. Examine, assess legal implications and prepare report or certificate in cases of physical assault
- III. Examine, assess legal implications and prepare report or certificate in cases of suspected drunkenness
- IV. Examine, assess legal implications and prepare report or certificate in victim of sexual offences
- V. Examine, assess legal implications and prepare report or certificate in Accused of sexual offences
- VI. Examine, assess legal implications and prepare report or certificate in cases of Impotency & disputed paternity
- VII. Collect, preserve and dispatch the specimen/ material to the concerned authority
Interpret the clinical and laboratory findings which are reported.
- VIII. Determine the age by dental, physical and radiological examination
- IX. Establish identity of an individual for medico-legal purpose

- X. Perform examination and interpret findings for medico legal purposes in cases pertaining to pregnancy, delivery, artificial insemination, abortion, sterilization, impotence, AIDS and infectious disease.
- XI. Describe normal and abnormal sexual behaviour and its medico-legal implications.
- XII. Apply the principles involved in methods of identification of human remains by race, age, sex, religion, complexion, stature, hair, teeth, anthropometry, dactylography, foot prints, hairs, tattoos, poroscopy and superimposition techniques.
- XIII. Receive a dead body from the police officer with a request for conducting autopsy. Maintaining the Body count register in a mortuary to check transfer of dead bodies on a daily basis.
- XIV. Handling of PM reports, specimens submission forms etc.
- XV. Custody and maintenance of autopsy instruments, including embalming fluids.
- XVI. Perform medico-legal post-mortem and be able to collect, preserve and dispatch specimens or trace evidence to the appropriate authority.
- XVII. Perform medico-legal exhumation and collect, preserve and dispatch specimens or trace evidence to the appropriate authority.
- XXVIII. Receive a weapon for medico-legal examination and generate a weapon examination report. Be able to understand and describe the mechanism of various types of injuries.
- XIX. Diagnose and classify death, identify the signs of death, post-mortem changes, interpret the autopsy findings, artifacts and results of the other relevant investigations to logically conclude the cause, manner (suicidal, homicidal and accidental) and time of death.
- XX. Manage medico-legal responsibilities in mass disasters involving multiple deaths like fire, traffic accident, aircraft accident, rail accident and natural calamities.
- XXI. Demonstrate post-mortem findings in infant death to differentiate amongst live birth, still birth and dead born.
- XXII. Perform post-mortem examination in cases of death in custody, torture and violation of human rights
- XXIII. Perform post-mortem examination in cases of death due to alleged medical negligence as in operative and anaesthetic deaths.

- XXIV. Understand the law relating to poisons, drugs, cosmetics, narcotic drugs and psychotropic substances.
- XXV. Examine and diagnose the poisoning cases and apply principles of general management and organ system approach for the management of poisoning cases.
- XXVI. Collect, preserve the despatch the material for analysis, interpret the laboratory findings, and perform the Medico-legal formalities in a case of poisoning
- XXVII. Demonstrate the methods of identification and analysis of common poisons prevalent in the region.
- XXVIII. Understand the toxic hazards of occupation, industry, environment and the principles of predictive toxicology
- XXIX. Understand the basic principles of toxic kinetics and toxicodynamics of poisonous substances.
- XXX. PG must be able to provide service that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health
- XXXI. Demonstrate proficiency in the psychiatric evaluation of individuals with a history of Criminal Behaviour
- XXXII. Demonstrate proficiency in the psychiatric evaluation of individuals with issues pertaining to criminal responsibility and competency to stand trial
- XXXIII. Demonstrate proficiency in the psychiatric evaluation of individuals with a history of sexual misconduct.
- XXXIV. Demonstrate proficiency in applying civil law and regulation of psychiatry issues when conducting a psychiatric evaluation of individuals.
- XXXV. PG must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
- XXXVI. Interpret the scene of crime.
- XXXVII. Examine – bloodstains for blood grouping, nuclear sexing, HLA Typing, seminal stains & hair for medico-legal purpose.
- XXXVIII. Understand the legal and medico-legal system in India.
- XXXIX. Understand medical ethics and the law in relation to medical practice, etiquette, MCI, disciplinary control, rights and duties of a registered medical practitioners,

professional misconduct, consent, confidentiality, medical negligence and Consumer Protection Act.

XL. Describe medical ethics and law in relation to organ transplantation, biomedical human research and experimentation, human rights, citizen character and International codes of medical ethic.

XLI. Describe the ethics and law in relation to artificial insemination, abortion, antenatal sex, fetus , genetics, and euthanasia.

XLII. Identify the case of torture and violation of human rights.

XLIII. Demonstrate the principles and objectives of post-mortem examination, formalities and procedures of medico-legal autopsies in accordance with existing conventions and the law.

XLIV. Describes and demonstrate the methods for preservations of viscera.

8. General medicine

I. Collaborate as a member of an inter-professional team

II. Form clinical questions and retrieve evidence to advance patient care

III. Applied aspects of cardiovascular system

IV. Applied aspects of Respiratory system

V. Applied aspects of Central Nervous system

VI. Applied aspects of Gastrointestinal and hepatobiliary system

VII. Applied aspects of Endocrine and Reproductive System

VIII. Applied aspects of Nephrology

IX. General Medicine Including Paediatrics, Psychiatry and Dermatology

X. Interview an adolescent, clinically examine, formulate differential diagnosis, management plan and effectively communicate with their parents / guardian

XI. Interview a patient with psychiatric disorder, clinically examine, formulate differential diagnosis, management plan and effectively communicate with the patient / guardian

XII. Interview a patient with dermatologic disorder, clinically examine, formulate differential diagnosis and create management plan

- XIII. Tropical Medicine, Environmental Medicine and Nutritional disorders
- XIV. Approach a patient with infectious disease, create a diagnostic and therapeutic algorithm and formulate preventive strategy
- XV. Approach a patient with poisoning / envenomation, and environmental disorders, create a diagnostic and therapeutic algorithm and formulate preventive strategy
- XVI. Geriatrics, Recent advances and Procedures
- XVII. Approach an elderly patient, create a diagnostic and therapeutic algorithm and formulate preventive strategy
- XXVIII. Research and Research Methodology
- XIX. Interpretation of ECG
- XX. Perform Lumbar Puncture
- XXI. Perform Bone marrow aspiration/biopsy
- XXII. Perform Ascitic/Pleural Paracentesis
- XXIII. Secure Oral/Nasopharyngeal/laryngeal/Advanced airway
- XXIV. Secure central Intravenous access(IJV)/Dialysis catheter Secure Nasopharyngeal Tube/ Ryle's Tube
- XXV. Perform Cardiopulmonary Resuscitation by BLS & ACLS protocol.

9. General Surgery

- I. Effective communication with peers and superiors.
Attitudes towards patient, relatives, peers and Supervisors Effective relevant systemic Examination in OPD and bedside clinics
- II. Ability to make a diagnosis and DD
- III. Pre-operative counselling of patient and attendant.
- IV. Basic Pre& Post-operative care.
- V. Basic surgical skills like handling energy devices, suturing techniques and OT techniques
- VI. Performing Minor General Surgery procedure (Performing simple swelling excision, appendectomy, hydrocele, hemorrhoids, fissure, hernia)
- VII. Basic trauma management

- VIII. Reading and interpreting all basic X-rays
- IX. Reading and interpreting all CT abdomen relevant to General surgery
- X. Endoscopy, Colonoscopy, Laparoscopy, Laparotomy Skills
- XI. Perform basic procedures like breast lumpectomy, thyroidectomy, and varicose vein surgeries.
- XII. Gastrectomy, Hemicolectomy, Pancreatic Surgery
- XIII. Able to write Scientific Papers, Make podium Presentation
- XIV. Conduct bedside clinics to Undergraduate students

10. Microbiology

- I. Should be able to carry out various methods of sterilization process Should be able to perform & interpret various staining techniques like gram staining. acid fast staining. negative staining and special staining
- II. Should be able to perform & interpret motility of bacteria by hanging drop preparation of clinical specimen.
- III. Should be able to maintain both bacterial & fungal stock culture.
- IV. Should be able to carry out antibiotic sensitivity testing as per standard guidelines.
- V. Should be able to interpret & report to clinician about peripheral blood smear for parasites.
- VI. Should be able to identify the pathogenic bacteria by aerobic and anaerobic culture methods.
- VII. Should be able to perform & confirm the identification of fungus by routine fungal culture of clinical specimen.
- VIII. Should be able to perform and interpret rapid serological tests for bacterial and viral infection
- IX. Should be able to perform various other serology techniques like ELISA, IFA.
- X. Should be able to perform diagnostic tests using automated machines.
- XI. Should be able to perform Molecular techniques for diagnosing various infectious diseases.
- XII. Should be able to manage needle stick injury.

XIII. Should be able to instruct the technician for handling & disposal of biomedical wastes.

XIV. Should be aware & able to implement Infection control practices

XV. Should be familiar with norms & requirements of NABL, NABH accreditation

XVI. Should be able to prepare protocol for investigating any outbreak in the area like cholera, typhoid, brucellosis and viral infections.

XVII. Should be able to carry out systematic research work

XVIII. Should be able to perform as a team worker / leader.

XIX. Should be able to teach Microbiology for undergraduate medical students.

11. Obstetrics & Gynaecology

I. Providing antenatal care including obstetric examination

II. Providing intra-natal care including labour management

III. Managing PPH

IV. Performing Minor obstetrics procedure (Normal delivery, episiotomy repair, repair of 1st and 2nd degree perineal tear)

V. Performing Instrumental delivery

VI. Performing Caesarean Section

VII. Complex obstetric procedures (Repair of III rd degree perineal tear, complete perineal tear repair, assisted breech delivery, external cephalic version, destructive operations ,MROP, shoulder dystocia)

VIII. Performing basic obstetric ultrasound

IX. Performing neonatal resuscitation

X. Performing gynaecological examination, minor OPD gynaecological procedures (Pap smear, VIA, VILI, Cervical biopsy)

XI. Performing minor gynaecological OT procedures (D&C, FC, SE, Polypectomy ,Conization)

XII. Performing basic gynaecological ultrasound

XIII. Performing abdominal hysterectomy

XIV. Preforming Vaginal hysterectomy

- XV. Complex surgeries (Staging laparotomy, Radical hysterectomy, Tuboplasty, Vaginoplasty, Diagnostic and operative endoscopic procedures)
- XVI. Insertion and removal of Cu-T
- XVII. Performing minor family planning procedures (suction and evacuation, dilatation and evacuation)
- XVIII. Performing sterilization (Puerperal, Interval, Concurrent, Laparoscopic)
- XIX. Should be able to write a scientific protocol for clinical research
- XX. Reporting and communication of scientific research

12. Ophthalmology

- I. Vision Testing /
- II. Refraction External Examination of the Eye
- III. Special Investigation
- IV. Cataract Surgery & Trabeculectomy (steps)
- V. Repair of open globe injuries / Lid tear
- VI. Minor Procedures
- VII. Oculoplastic & Lid Surgeries
- VIII. Lacrimal sac surgeries
- IX. Subspeciality Surgeries - Vitreo - Retinal, Antiglaucoma, Keratoplasty, Squint
Critical appraisal of medical literature, research, medico legal & ethical issues

13. Orthopaedics

- I. Orthopaedic & Radiology and related investigations
- II. Splints and tractions Wound care Medical documentation Performing and assisting
- III. Trauma Procedures including metallurgy knowledge
- IV. Triaging and resuscitation in Orthopaedic emergencies and referrals (Inter & Intra Department)
- V. Sub speciality surgeries
- VI. Orthopaedic diseases and Rehabilitation
- VII. Prescription and medications in Orthopaedics

VIII. Communication skills

IX. Research and critical appraisal of literature

14. Pediatrics

I. Breaking the bad news

II. Clinical demonstration classes for undergraduates

III. Performing general medical procedures Performing minor surgical procedures

IV. Identifying organ dysfunction and taking remedial measures

V. Assessing the Growth and nutritional status of children

VI. Assessing the Development status of children

VII. Advising parents regarding growth and development of a child

VIII. Attending delivery of a newborn, and breast feeding counselling

IX. Resuscitation of a sick newborn

X. Assessment and management plan of common neonatal problems

XI. Counselling the mother of a neonate getting discharged

XII. Counselling the parents of a sick child

XIII. Assessing the need for oxygen and choosing the suitable mode of delivery

XIV. Knowledge about mechanical ventilation (setting, choosing appropriate mode, and weaning) Performing CPR in a child

XV. Practice of universal precautions Prevention of Hospital acquired infections (Hand hygiene, etc)

XVI. Should be able to write a scientific protocol for clinical research

XVII. Reporting and communication of scientific research

15. Pathology

I. Should be able to interpret frozen sections

II. Should be familiar with indications and interpretation of ancillary techniques like Karyotyping, FISH, PCR, electron microscopy

III. Should be able to interpret and diagnose cytological smears

IV. Should be able to interpret cytology of sputum, bronchial washings, serous effusions, etc.

- V. Should be able to prepare, stain and interpret peripheral smear
- VI. Should be able to interpret bone marrow smears
- VII. Should be able to perform and interpret routine haematological investigations like haemoglobin, TLC, DLC, ESR PCV, Blood indices
- VIII. Should be able to perform and interpret special investigations like Retic count, Sickling test, Osmotic fragility test, haemoglobin electrophoresis, Fetal Haemoglobin, etc.
- IX. Should be able to plan investigations in a clinical case Should be able to perform and interpret Urine Examination
- X. Should be able to perform and interpret CSF, Pleural Fluid, Peritoneal Fluid, Synovial fluid examination.
- XI. Should be able to perform and interpret semen analysis.
- XII. Should be able to perform urgent investigations like CSF, Platelet count during emergency duties.
Should demonstrate familiarity with in laboratory investigations in Microbiology and biochemistry
- XIII. Should be able to plan and execute internal quality control programme for laboratory
- XIV. Should be able to participate in external quality control programme
- XV. Should be able to perform blood grouping and Rh typing
- XVI. Should be able to perform cross-matching
- XVII. Should be able to perform ELISA for infectious disease, Coomb's test
- XXVIII. Should be able to separate blood components and have knowledge of indications of using blood components
- XIX. Should have knowledge of criteria of selection of blood donors
- XX. Should be able to manage adverse donor reactions
- XXI. Should be familiar with FDA regulations for blood bank
- XXII. Should be able to investigate a case of mismatched blood transfusion
- XXIII. Should be able to participate in multidisciplinary meetings like tumor boards, CPCs, Dermato-Pathological conferences
- XXIV. Should be able to present oral and poster presentations, write paper in conferences

XXV.Should be able to teach pathology to undergraduates (MBBS), and allied health sciences like, BDS, BSc (Nursing), BSc (MLT), BSc (Radiology), etc.

XXVI.Should be able to supervise technicians

XXVII.Should have thorough knowledge of Biomedical Waste disposal.
Should be familiar with norms and requirements of NABL,NABH Accreditation
Should be able to carry out systematic research work for dissertation
Should be able to perform as a team leader

16. Pharmacology

I.Rational Use of Drugs – Essential Medicines List & ‘P’ drug.

II.ADR reporting and participating in National Pharmacovigilance Program

III.Drug Compliance – Measuring Medication Adherence Analysing Prescribing pattern using WHO criteria

IV.Identifying Drug-Drug Interactions Identifying the right choice of drug based on Pharmacoeconomics

V.Evaluating Drug Promotional Literature

VI.Evaluating the Teaching – Learning Methodologies in Pharmacology

VII.Performing Bioassay of drugs

VIII.Performing Herbal Extraction Procedures

IX.Performing In vivo small animal experiments

X.Understanding Basics of Research Methodology & Performing a Clinical or Experimental research

XI.Obtaining Informed Consent for participation in the clinical trial

XII.Applying basic concepts of Biostatistics in Performing Clinical or Experimental research

XIII.Design a Protocol for a Clinical or Experimental study

XIV.Criticise a Journal Article

XV.Writing a manuscript for publication

17. Physiology

- I. Evaluate physiological functions in patients Generate patient reports for assessment of physiological functions
- II. Teach effectively the basic physiological mechanisms of human body with reference to their implications in the pathogenesis of diseases and management to undergraduate medical, paramedical and other basic science students
- III. Interact with the allied departments and render services in advanced laboratory investigations.
- IV. Acquire administrative skills to set up concerned department / laboratories for assessing physiological functions.
- V. Should be able to serve the community as competent physiologists by imparting physiological understanding of health problems.
- VI. Possess necessary knowledge, skills and attitude to carry out biomedical research to enhance knowledge in basic sciences.
- VII. Apply the principles of professionalism and ethics in rendering the service

18. Psychiatry

- I. Assess & manage a patient presenting with history suggestive of a mental disorder.
- II. Assess & manage mental behaviour in a patient with physical illness, in collaboration with other medical/surgical specialists, incorporating principles of liaison psychiatry.
- III. Conduct mental health screening in non-psychiatric settings, including appropriate follow-up Action.
- IV. Administer electroconvulsive therapy (ECT) in accordance with standard operating procedure 5. Develop and implement a safe & comprehensive discharge plan for psychiatric inpatients
- V. Plan and implement clinical audit, to improve patient care and out come.
- VI. Provide basic education regarding the mind, mental health & mental illness to a lay audience

VII. Provide counselling about stress management, mental health promotion & prevention of mental illness

VIII. Deliver didactic psychiatry lectures for undergraduate medical students

IX. Conduct clinical training sessions for undergraduate medical students

19. Radiology

I. Triage and protocols exams.

II. Interprets & reports X - ray examinations and priorities a DD

III. Performs & reports contrast Procedures.

IV. Performs & reports USG examinations (abdomen including pelvis, Obstetrics).

V. Performs & reports Doppler examinations

VI. Interprets & reports CT examinations.

VII. Interprets & reports MRI examinations.

VIII. Interprets Mammogram examination.

IX. Obtain informed consent and performs image guided diagnostic / Interventions procedures.

X. Communicates Diagnostic imaging findings.

XI. Recommends appropriate next steps.

XII. Manages patient after imaging procedures.

XIII. Collaborate as a member of an inter professional team.

XIV. Behaves Professionally.

XV. Formulates clinical questions and retrieves evidence to advance patient care

XVI. Identifies system failures and contributes to a culture of Safety and Improvement.

20. Pulmonary Medicine

I. Performing basic diagnostic respiratory tests (Sputum smear examination for AFB, TST, Pleural aspiration, ABG)

- II. Performing complex diagnostic respiratory tests (Spirometry, DLCO, Allergic skin tests, PSG)
- III. Performing complex interventional procedures (ICD insertion , pleural biopsy, Bronchoscopy and procedures, thoracoscopy)
- IV. Patient counselling for diagnostic and therapeutic interventions (HIV testing, initiation of ATT, aerosol therapy, Pulmonary rehabilitation etc.)

Multi-source feedback (MSF)

Multi-source feedback is the feedback obtained from different sources including patients, relatives and other health care professionals regarding EPAs which pertain to dealing with patients, their relatives or other health care workers ,communication, attitude, professionalism etc. They form the basis of assessing the level of competency achieved by the student. SBV uses specially designed, contextually relevant evaluation forms for this purpose from faculty, health care professional, patient and peer. (**Annexures1-4**)

E-Portfolio

Residents will record all their activities regarding Patient-Care and Academics in an E-portfolio, on daily basis. The faculty supervisor will review this at regular intervals. A longitudinal view of the residents' work paints a picture of growth, progress and continuity over a period of time so that the learner can present a profile of accomplishments based on evidence. (**Fig.1**)

The major components of an E-portfolio include

- Curriculum Vitae
- Details of undergraduates training with achievements

- Details of resident training
- Patient care activities
- Participation in Clinical governance and audit
- Teaching learning activities
- Critical incident reporting and reflection on these incidents
- Participation in outreach activities, research academic publications, training courses and extra-curricular activities.
- Reflections on these experiences form a major part of the portfolio.

A hands-on workshop on e-portfolio will be conducted for all incoming residents to enable them to create and manage their e-portfolios effectively.

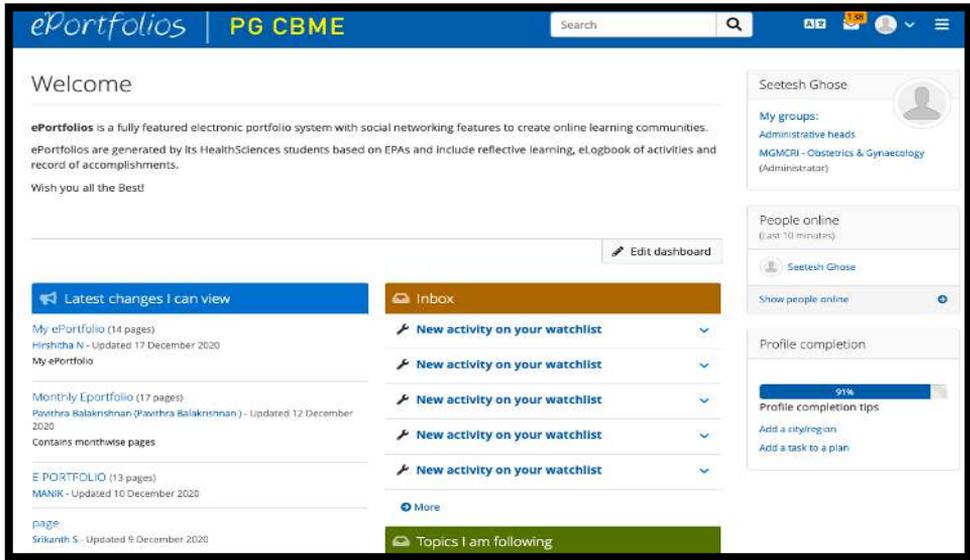


Figure.1 Screenshot of e-portfolios of PG CBME

STEPS INVOLVED IN COMPETENCY BASED LEARNING AND TRAINING (CoBaLT) PROGRAM

1. Departments prepare a list of competencies required to be attained by the resident in the speciality.
2. Competencies are attributes and cannot be measured directly. Hence these competencies are converted into a series of measurable activities called **Entrustable Professional Activities (EPAs)**, which implies that once qualified, the resident will be able to perform all these satisfactorily.
3. EPAs are listed in order of General EPAs common to all disciplines followed by EPAs which are specific to the speciality concerned.
4. For each EPA an expected level of performance is fixed at the end of each year of the course.
 - a. These levels are called milestones
 - b. The criteria for grading the levels have been fixed by the departmental faculty after comprehensive review.
5. The expected satisfactory level of performance for these EPAs at the time of course completion is generally fixed at Level 4 for most of the EPAs and Level 3 for complex EPAs which would require further post-doctoral training.
6. The EPAs are made available to the postgraduate residents immediately after joining the program.
7. They grade their own level on these EPAs at admission.
8. The students are graded by the faculty four weeks after admission and the difference in levels, if any, between self-assessment and faculty assessment, would be shared with the student as feedback. This process enables the student to understand the differences between **one's** own perspective and that of the trainer.

9. On admission, each student is allotted a faculty supervisor who will mentor with the student till the completion of the course.
10. The mentor follows & records the progress of the student on the EPAs at three monthly intervals during the first year and six monthly intervals thereafter.
11. PG Residents record all activities related to academics & patient care daily in the e- portfolio. The faculty mentor reviews the e portfolio every week and provides appropriate feedback to the mentee.
12. The students are encouraged to discuss aspects of their training, the difficulties perceived in the course and other relevant issues with the mentor.
13. The mentor responds to the queries and records his/her observations in his/her weekly post.
14. For students not showing 'Satisfactory' progress, intervention in the form of a focused feedback and additional exposure to learning resources and skill training is instituted.
15. In addition to the mentor, other faculty from the department can also monitor the progress of the student & provide constructive feedback.

Conclusion

The unique features of the COBALT approach are opportunities for a tailored intervention based on individual needs and the attention given to both process and outcome. Another major strength of this model is emphasis on reflective practice, which is further supported by continuous feedback and mentoring by the supervisor with additional inputs from departmental colleagues.

Reference:

1. Epstein RM, Hundert EM. Defining and assessing professional competence. JAMA 2002;287:226-35.

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Annexure 1

Mahatma Gandhi Medical College and Research Institute

Pillaiyarkuppam, Puducherry – 607 402

Multisource Feedback Form

(To be completed by respective Unit Head)

Name of the Resident:UIN No.:

Name of the Faculty:Date:

Sl. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1.	History taking and physical examination			
2.	Regularity and punctuality			
3.	Ability to identify patient's problems			
4.	Patient management skills			
5.	Procedural skills / range of clinical technical skills			
6.	Self-directed learning			
7.	Communication skills			
8.	Proper and complete documentation			
9.	Relationship with peers			
10.	Works constructively in the health care system			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

Annexure 2

Mahatma Gandhi Medical College and Research Institute

Pillaiyarkuppam, Puducherry – 607 402

Multisource Feedback Form

(To be completed by Nurse / Technician / Other Health Professionals)

Name of the Resident:UIN No.:

Name of the Respondent: Date:

Sl. No.	Criteria to be assessed	Score		
		Below part (1)	At par (2)	Above par (3)
1.	Shows a caring attitude to patients			
2.	Is respectful towards patients			
3.	Shows no prejudice in the care of patients			
4.	Communicates effectively with patients			
5.	Empathetic counselling of patient's relatives			
6.	Communicates effectively with colleagues			
7.	Communicates effectively with other health professionals			
8.	Allows them to express their doubts or concern regarding clinical decisions			
9.	Proper and complete documentation			
10.	Works constructively in the health care system			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
Signature:				

Annexure 3

**Mahatma Gandhi Medical College and Research Institute
Pillaiyarkuppam, Puducherry – 607 402
Multisource Feedback Form
(To be completed by Patient/Relative)**

Name of the Resident: UIN No.:

Name of the Respondent: Date:

Sl. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1.	Shows a caring attitude to patients			
2.	Is respectful towards patients			
3.	Shows no prejudice in the care of patients			
4.	Communicates effectively with patients			
5.	Empathetic counseling of patient's relatives			
6.	Effectively counsels patients preoperatively and postoperatively			
7.	Takes religious and social considerations into account when making decisions			
8.	Allows patients to make an informed decision regarding management and allows them to express their doubts and concerns			
9.	Takes financial situation of patient into consideration when making decisions			
10.	Discusses each step of the management with the patient and relatives			
	Total score:			
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
Signature:				

Annexure 4

Mahatma Gandhi Medical College and Research Institute

Pillaiyarkuppam, Puducherry – 607 402

Multisource Feedback Form

(To be completed by Peer)

Name of the Resident: UIN No.:

Name of the Respondent: Date:

Sl. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1.	Shows a caring attitude to patients			
2.	Is respectful towards patients			
3.	Shows no prejudice in the care of patients			
4.	Communicates and counsels effectively patients and patient's relatives			
5.	Critically evaluates and uses patient outcomes to improve patient care			
6.	Communicates effectively with colleagues			
7.	Communicates effectively with other health professionals			
8.	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback			
9.	Regularity and punctuality of attendance			
10.	Works constructively in the health care system			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
Signature:				