



Guide to Undergraduate Skills

Faculty of Medicine, University of Jaffna

Preface

The skills to become a competent doctor to perform history-taking, physical examination, clinical investigations, using diagnostic reasoning, procedural perfection, effective communication, team work and professionalism are included in the medical curriculum. While studying medicine, students will learn how to examine, communicate and perform certain procedures with patients to work as part of a medical team.

The student will have to demonstrate medical and technical ability to prepare themselves for a career path of medicine. There are many skills the students will have to know. For example, the student should be well versed in nutritional assessments, administering medications, drawing blood, urinalysis, changing dressings, removing sutures, IV infusions, and swabs. The only way to gain these skills is to obtain the necessary training with patient.

This student guide on the skills will be a guide to help the student to learn the needed skills for the future. The given list will get updated on a regular basis

Curriculum Development and Evaluation Committee (CDEC)

Faculty of Medicine

University of Jaffna

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List of Practical skills to be acquired

1. Physiology

Practical Skills - Measure and interpret the results of the following:

1. Height
2. Weight and determining BMI
3. Skinfold thickness and body fat
4. Waist and hip circumferences
5. Bleeding time
6. Blood grouping
7. Reaction time
8. Peak expiratory flow rate
9. ECG- name the waves, identify intervals and segments, calculate heart rate, calculate PR interval
10. Blood pressure
11. Physical fitness- Crumpton index, exercise and blood pressure, Valsalva maneuver
12. Body temperature
13. Eye- visual acuity, field of vision, colour vision, corneal and light reflexes
14. Ear- Test for hearing - tuning fork

Describe the measurement and interpret the results of the following:

1. Osmotic fragility
2. ESR
3. PCV -capillary tube and Wintrobe tube
4. WBC count
5. Identification of WBC and Differential count
6. RBC count
7. Hb
8. MCV, MCHC, MCH
9. Clotting time -capillary tube, test tube
10. EMG, nerve conduction velocity
11. Lung volumes
12. FEV, FEV₁
13. Minute ventilation
14. Metabolic rate
15. Audiometry
16. Sense of taste
17. Sense of smell

Clinical skills:

- Cutaneous sensations
- Motor system
- Reflexes
- Describe the physiological basis of symptoms and signs in relation to physiological systems in the body

2. Biochemistry

1. Qualitative analysis of Macromolecules
2. Serum Protein Electrophoresis
3. Serum Total Protein Estimation by Biuret Method
4. Estimation of Urinary excretion of Ascorbic Acid
5. Qualitative tests for Bile and blood
6. Serum Bilirubin Estimation
7. Estimation of Serum Ferritin Level
8. Estimation of Serum Calcium
9. Estimation of Serum Glucose Level
10. Estimation of Serum Insulin level
11. Estimation of Serum Cholesterol Level
12. Estimation of Serum Urea Level
13. Analysis of Urine for Normal Constituents
14. Analysis of Urine for Abnormal Constituents
15. Estimation serum Alanine Amino Transferase (ALT)

3. Microbiology

Conducted as Demonstrations

1. Infection control
2. Standard precautions
3. Introducing microbiology laboratory & microscopic demonstration of Gram stained smears
4. Specimen collection & transport for fungal identification
5. Virological diagnosis including collection and transport of specimens
6. Urine collection, transport and storage for culture
7. Lumbar puncture, collection of CSF, storage and transport
8. Identification of pathogens in the microbiology laboratory – Day1, Day2, Day3
9. Collection of nasal swab, throat swab, sputum specimen & nasopharyngeal swab for culture, transport and storage
10. Tuberculosis diagnosis
11. Demonstration collection of blood for culture, storage and transport
12. Interpretation of microbiology reports & ABST

Students are expected to know the following procedures:

1. IPC

- Hand hygiene
 - Cough etiquette
 - Donning and doffing of PPE
 - Spill management
 - Selecting correct disinfectant
2. Collection, storage and transport of specimens for fungal infections
 3. Collection, storage and transport of specimens for viral infections
 4. Collection, storage and transport of following samples:
 - Sputum specimens for respiratory infections (including TB)
 - Nasopharyngeal swab
 - CSF specimens for culture
 - Blood for culture
 - Throat swab for culture
 - Urine for culture (MSU, clean catch urine, catheter specimen, SPA)
 - Wound swab for culture
 13. Interpretation of microbiology reports

4. Parasitology

1. Collection, storage and delivery/transport of faecal specimens to a laboratory for diagnosis of parasitic infections
2. Macroscopic examination of stool sample
3. Gross identification of intestinal nematodes (Round worm, Whip worm, Pin worm and tape worm)
4. Preparation of wet smears of stools in saline and iodine to identify intestinal protozoal and helminth parasites
5. Perform adhesive (cellophane) tape test for the identification of *Enterobius vermicularis*
6. Collection of blood by finger prick method or by venipuncture for parasitic investigations
7. Preparation of thick and thin blood smears for the identification of blood parasites
8. Examine stained thin blood films and identify malaria parasites (*Plasmodium falciparum* and *Plasmodium vivax*)
9. Examine stained thick blood films and identify microfilaria (*Wuchereria bancrofti*)
10. Preparation of skin smear directly from the lesions for the confirmation of the parasitic conditions (Cutaneous leishmaniasis, Scabies)
11. Identify the medically important Insects and Arachnides
12. Sample collection, preparation of wet smear and the microscopic confirmation of *Trichomonas vaginalis*
13. Identification of medically important venomous snakes in Sri Lanka

5. Clinical skills and procedures

The list is categorised into 3 groups:

- A. Should be capable of performing unsupervised.
- B. Should be capable of performing under supervision.
- C. Should have witnessed

5.1. IMAGING

- | | |
|--|---|
| 1. Completing a radiology request form | A |
| 2. Interpreting a plane radiograph | A |
| 3. Angiogram | C |
| 4. Barium enema | C |
| 5. Barium meal | C |
| 6. Chest and abdominal CT scan | C |
| 7. Head CT scan | C |
| 8. Intravenous urogram | C |
| 9. Hysterosalpingogram (HSG) | C |
| 10. Magnetic Resonance Imaging | C |
| 11. Nuclear Medicine examination | C |
| 12. Paediatric imaging procedures | C |
| 13. Ultrasound examination including obstetric and gynecologic scans | C |

5.2. PRESCRIBING

- | | |
|---|---|
| 1. Drug prescribing on hospital prescription chart | A |
| 2. Writing a discharge prescription | A |
| 3. Prescribing a controlled drug | C |
| 4. Pain management | A |
| 5. Knowledge of insulin prescribing | A |
| 6. Fixed rate and variable rate infusion prescribing | A |
| 7. Writing an IV fluid prescription | A |
| 8. Assessment of fluid balance | A |
| 9. Prescribing TPN (not done by junior staff) | B |
| 10. Prescribing naso-gastric feed (done by dietician) | B |
| 11. Prescribing intrathecal therapy | C |
| 12. Prescribing blood and blood products | A |
| 13. Prescribing contraception | A |

5.3. ADMINISTRATION OF DRUGS AND NUTRITION

14. Oral drug administration	A
15. Sublingual drug administration	A
16. Rectal drug administration	A
17. Transvaginal drug administration	A
18. Intradermal Patch administration	A
19. Eye drop administration	A
20. Ear drops administration	A
21. Nosal drop administration	A
22. Use of dry power inhalers, metered dose inhalers and spacers	A
23. Use of nebulizers	A
24. Preparation of drugs for parenteral administration - single dose ampoules	A
25. Preparation of drugs for parenteral administration - multi close ampoules	A
26. Assembling minijets for resuscitation	A
27. Drug dilution	A
28. Intramuscular drug administration	A
29. Subcutaneous drug administration	A
30. Intravenous drug administration	A
31. Preparation and administration of insulin -single dose	A
32. Preparation and administration of insulin by infusion	A
33. Setting up and care of infusion pumps and volumetric devices	A
34. Setting up and care of patient controlled analgesia systems	A
35. Oxygen therapy- methods of administration and concentration	A
36. Preparing and giving a baby feed	A
37. Care of parenteral nutrition (done by TPN nurse)	A
38. Administration of blood and blood products	A

5.4. PARENTERAL ACCESS AND CARE

39. Safe disposal of sharps	A
40. Handling of high risk specimens	A
41. Procedure for management of needlestick injuries	A
42. Venipuncture -on models	A
43. Venipuncture -on patients	A
44. Taking blood cultures	A
45. Heel stabs in infants	B
46. Insertion of IVcannulae -on patient	A
47. Use of local anaesthetic for cannulae insertion	A
48. Running through a bubble-free IVline and care of line	A

49. Use of three-way taps	A
50. Setting up and use of blood warming device	B
51. Use of pressure bags for infusion	B
52. Use of air inlets	A
53. Insertion of central venous pressure (CVP)lines	C
54. Measurement of CVP by water manometer	B
55. Measurement of CVP by pressure transducer	B
56. Care of CVP lines (including knowledge of complications and safe removal of line)	A
57. Taking of arterial blood gases - on models	A
58. Taking of arterial blood gases - on patients	A
59. Care of arterial lines	B
60. lumbar puncture as investigation or anaesthetic technique	C
61. Intrathecal drug administration	C

5.5. BASIC SURGICAL PROCEDURES

62. Scrubbing up for sterile procedure	A
63. Simple splints	A
64. Basic wound management	A
65. Simple bandaging and dressings	A
66. Care of plasters (including checking circulation)	A
67. Application of plasters	B/C
68. Suturing -on models	B
69. Suturing - on patients	B/C
70. Removal of sutures	A
71. Removal of staples	A
72. Pleural aspiration and biopsy	B
73. Care of chest drains	A
74. Chest drain insertion	C
75. Removal of chest drain	C
76. Care of patients with tracheostomy	A
77. Paracentesis	C
78. Joint aspirations	C
79. Assisting in minor surgery / intermediate surgery	A
80. Delivery of fetus in an uncomplicated pregnancy	A

81. Repair of episiotomy	A
82. Amniotomy	A
83. Assisting in repair of cervical tear	A
84. Assisting uncomplicated caesarean section	A

5.6. PATIENT HANDLING SKILLS

1. Measurement of weight/height/length —adult	A
2. Measurement of weight/height/length/head circumference —Child	A
3. Measurement of weight/height/length/head circumference—Infant	A
4. Patient lifting	A/B
5. Log rolling/straight lifting	A
6. Manual in-line immobilisation of cervical spine	A
7. Handling ward beds and resuscitation trolleys	A

5.7. CLINICAL ADMINISTRATIVE SKILLS AND CHARTING

1. Documentation of patient progress and procedures carried out in patient notes	A
2. Ordering of patient investigations: Provision of clinical information; avoidance of over-investigation; seeking advice	A
3. Notification of communicable disease	A
4. Reporting adverse events following administration of drugs and vaccines	A
5. Filling drug reaction forms	A
6. Referral letters	A
7. Letters to GPs	A
8. Certification of death	A
9. Completion of death certificate	A
10. Requesting inquest	A
11. Use of 'do not resuscitate' orders	A
12. Getting consent for procedures	C
13. Breaking bad news: Familiarity with Adults with Incapacity	B

5.8. PATIENT MONITORING AND INVESTIGATION

1. Manual BP measurement	A
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2. Use of ophthalmoscope	A
3. Use of auriscope	A
4. Automatic BP measurement	A
5. ECG monitoring	A
6. 12 lead ECG and interpretation	A
7. CXR assessment	A
8. Use of pulse oximetry	A
9. Peripheral temperature measurement	A
10. Core temperature measurement	A
11. Insertion of urinary catheter -male -on model	A
12. Insertion of urinary catheter - male - on patient	A
13. Insertion of urinary catheter -female - on model	A
14. Insertion of urinary catheter -female -on patient	A
15. Fitting of urine bag on baby	A
16. Collection of MSU and urinalysis	A
17. Nasogastric tube insertion and checking position	A
18. Measurement of peak flow	A
19. pulmonary function tests —spirometry	B
20. Proctoscopic examination	A
21. Use of vaginal speculum	A
a. Taking a high vaginal swab	A
b. Performing PAP smear	A
c. Identifying vaginal wall prolapse	A
d. Identifying fistulas	A
22. Taking of throat swab	A
23. Taking of wound swab	A
24. Performing PR & testing for faecal occult blood	A
25. Visual acuity testing and recording	A
26. Use of fluorescein eye drops	A
27. Eversion of lid and removal of foreign body	C
28. Colour vision testing	A
29. Slit lamp examination of the eye	C
30. Stoma care	A
31. Needle biopsy of liver / kidney	C
32. Bone marrow aspiration and biopsy	C
33. Upper gastrointestinal endoscopy	C
34. Colonoscopy	C
35. Bronchoscopy	C
36. Perform Hess test	A

- 37. Perform PCV measurement
- 38. Perform grouping and cross matching A

5.9. LIFE SUPPORT MEASURES

- 1. Assessment of the unconscious patient A
- 2. Mouth to mouth and mouth to mask ventilation- adult A
- 3. Mouth to mouth, mouth to mouth and nose, mouth to mask ventilation —child A
- 4. Management of respiratory arrest — BLS —adult/ child/ infant A
- 5. Management of cardiac arrest —BLS —adult/ child/ infant A
- 6. Suctioning of the airway — rigid high flow catheter A
- 7. Suctioning of the airway — non rigid catheter —adult A
- 8. Suctioning of a tracheostomy/mini tracheostomy A
- 9. Management of choking — adult/ child A
- 10. Recovery position A
- 11. Use and insertion of oropharyngeal airway A
- 12. Use and insertion of nasopharyngeal airway A
- 13. Perform bag and mask ventilation A
- 14. Endotracheal intubation and checking tube position—patient A
- 15. Use a defibrillator A
- 16. ALS management of cardiac arrest — adult A
- 17. ALS management of cardiac arrest—child A
- 18. Methods of patient warming A
- 19. Methods of patient cooling A
- 20. Immediate management of anaphylaxis A