A POCKET COMPANION FOR NEW HOUSE SURGEONS

The House Officer's Green Book

Surviving and Thriving in the Surgical Ward

20 ESSENTIAL WARD & SURGICAL SKILLS



ARRANGED BY

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Surviving and Thriving in the Surgical Ward: 20 Essential Skills for New House Surgeons

From the first lecture in anatomy to your first night on call: a pocket companion for every new doctor who walks into a surgical unit.

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Prologue: The Long Road to the Ward

A short story for every young doctor who has ever wondered how they got here, and where they are going next.

The letter

Ali was standing in his father's small shop in Gujranwala when the merit list came out. His FSc marks had been good, 1,040 out of 1,100, but the MDCAT had kept him awake for months. His mother read his name aloud from the phone screen twice, just to be sure. That evening the whole street knew: *Ali is going to become a doctor.*

He did not yet know what that sentence really meant. He thought it meant a white coat and a stethoscope. It would take him five years and one house job to learn that it meant something much bigger: that one day, at 3 a.m., a frightened stranger would look at him and trust him with their life.

First Year: learning the map of the body

The first day in the dissection hall, Ali felt faint. The smell of formalin, the silent cadaver, the grey tissue. His anatomy demonstrator smiled and said, *"This person donated their body so that you could learn. Respect them by learning well."*

So he learned. The brachial plexus, the inguinal canal, the blood supply of the stomach. He drew Calot's triangle in his notebook without knowing that, years later, he would watch a surgeon carefully dissect it during a laparoscopic cholecystectomy, and suddenly every line he had drawn would make sense.

Physiology taught him how the machine works: why a patient becomes tachycardic when bleeding, why the kidneys stop making urine when blood pressure falls, why potassium matters to the heart. Biochemistry taught him the chemistry of life: electrolytes, enzymes, acid and base.

Lesson Ali learned later: every fluid you prescribe on the surgical ward is physiology. Every incision is anatomy. The basics never leave you.

Second Year: deeper, harder, closer

Second year brought neuroanatomy, embryology, endocrine physiology and more biochemistry. The books became thicker and the nights longer. He failed one viva in his first attempt; the examiner asked him about the course of the ulnar nerve and his mind went blank. He cried in the hostel that night.

His roommate Bilal said, *"Every doctor you admire has failed something. The difference is that they came back."* Ali cleared his supplementary exam with distinction. He never forgot that the ulnar nerve passes behind the medial epicondyle.

At the end of second year he passed the First Professional examination. He had the foundation. Now he had to learn how things go wrong.

Third Year: when the body goes wrong

Third year opened the door to disease. **Pathology** taught him inflammation, healing, neoplasia, thrombosis and shock: the language of every disease he would ever treat. **Pharmacology** taught him what each drug does, its dose and its danger. **Forensic Medicine** taught him injuries, medicolegal reports, poisoning and the law; he did not yet know how many MLCs he would one day write in the emergency room. **Community Medicine** taught him that health begins in clean water, vaccination and nutrition, long before the hospital.

And for the first time he went to the wards. He wore his white coat a little too proudly and carried a notebook in his pocket. He took his first history from an old farmer with a hernia and forgot to ask about his bowel habits. The professor gently corrected him. Ali wrote

the correction in his notebook in capital letters.

Fourth Year: eyes, ears and many exams

Fourth year brought **ENT** and **Eye (Ophthalmology)**, both examined at the end of the year, along with Community Medicine and the remaining parts of Pathology and Forensic Medicine. He learned to use an otoscope, to examine a fundus, to recognise a cataract and to manage epistaxis. There were written papers, OSPEs with timed stations, long cases and short cases, and the vivas that made his hands sweat.

He learned a strategy that saved him: *study daily, revise weekly, practise on real patients, and never walk into a ward without asking one patient one question.*

Final Year: the big five

Final year felt like climbing a mountain with five peaks: **Medicine, Surgery, Gynaecology and Obstetrics, Paediatrics**, and the allied specialities within them. He clerked patients in the evenings, attended operating theatres, watched deliveries in the labour room, and learned to examine a crying child.

In surgery he learned the examination of a lump, an ulcer, a hernia, a thyroid, a breast. He learned that a good history makes the diagnosis in most patients, and the examination confirms it. In the final professional exam, his long case was a patient with obstructive jaundice. He took the history slowly, examined carefully, and said: *"My provisional diagnosis is carcinoma head of pancreas, with a differential of a distal CBD stone."* The external examiner nodded. That nod was worth five years.

When the result came, he was **Dr. Ali**.

The first morning of the house job

Now Ali stands at the door of the surgical unit, with a new name badge and an old fear. The ward is busy. A drip has stopped running. A patient post-laparotomy has a fever. A nurse is asking for a Foley catheter. The registrar says, *"Dr. Ali, please send the pre-op investigations for bed 12 and set up a drip for bed 7."*

He realises that the five years taught him *what* to know. The house job will teach him *what to do*.

This little book is for Ali, and for you. It will not replace your seniors, your nurses or your textbooks. But it will stand beside you, in your coat pocket, through your first months in the surgical ward.

Welcome to surgery, Doctor.

Part One: Settling In

Chapter 1. Your First Day in the Surgical Unit

Your first job is to learn the people, the place and the patients. Do this in the first 48 hours and the rest of the house job becomes much easier.

Know your team

Who	What they do	What they expect from you
Professor / Head of Unit	Leads the unit, takes major decisions, teaches	Punctuality, honest presentation of patients
Associate / Assistant Professor	Runs OT lists, OPD, rounds	Complete notes, ready investigations
Senior Registrar / Registrar	Day-to-day decisions, emergencies	Early information about sick patients
Postgraduate residents (PGs)	Admissions, operations, on-call	Help with procedures, timely tasks
Head Nurse / Staff Nurses	Drug rounds, vitals, dressings	Clear written orders, respect
Ward boys, OT technicians	Patient transfer, OT setup	Courtesy, clear instructions

On day one, do these five things

1. Introduce yourself to the registrar and head nurse; save their phone numbers.
2. Walk the ward: find the crash cart, oxygen, suction, dressing trolley, sharps box and the treatment room.
3. Learn the bed numbers and the name and diagnosis of every patient.
4. Find out the OT days, OPD days, on-call (emergency) days and round timings of your unit.
5. Carry a small notebook and a pen torch. Write every task down.

> **Golden rule:** If you are unsure, ask. A question costs you a moment of embarrassment; a guess can cost a patient their life.

Chapter 2. Duties, Ward Rounds, On-Call and Handover

A typical day

Time	Task
Before the round (7:30–8:00 a.m.)	See every patient; check vitals chart, intake-output, drains, wounds; note overnight events
Morning round	Present patients briefly; write the plan immediately
After the round	Send investigations, fill forms, change drips, do dressings, arrange consults
OT days	Prepare listed patients; assist in theatre
Afternoon	Follow up results; inform registrar of abnormal reports
Evening / on-call	Receive admissions, review sick patients, hand over properly

How to present a patient on the round (the 60-second format)

"Bed 12, Mr. Akram, 54-year-old man, day 2 after open cholecystectomy. Comfortable overnight, afebrile, pulse 88, BP 130/80. Drain 40 ml serous. Tolerating sips. Plan was to start oral fluids and remove the drain tomorrow. Today's Hb 11.8, TLC 9,400."

That is: **bed and name → age and diagnosis → day of operation → overnight events → vitals → drains/wound → results → plan.**

On-call duty

- Receive every new patient within minutes, especially those referred from the Emergency.
- Triage: acute abdomen, trauma, bleeding and the septic patient are seen first.
- Inform your senior early, not late. A call at 11 p.m. is better than a crisis at 4 a.m.
- Write the time on every note you make.

Handover (use SBAR)

Letter	Meaning	Example
S	Situation	Bed 7, post-op day 1 laparotomy, urine output low
B	Background	Perforated duodenal ulcer, repaired yesterday
A	Assessment	Output 15 ml/h for 3 hours, pulse 110
R	Recommendation	Fluid challenge done; please review at 10 p.m.

Chapter 3. Writing a Surgical History

A well-written history is the single most useful document in the patient's file. It tells your seniors what you found, protects the patient, and protects you medicolegally.

Structure of a surgical clerking

1. **Biodata:** name, age, sex, address, occupation, date and time of admission, mode of admission (OPD/Emergency), informant.
2. **Presenting complaints:** in the patient's words, with duration. *"Pain right upper abdomen × 3 days; vomiting × 1 day."*
3. **History of presenting complaint:** analyse each complaint.
    - Pain: use **SOCRATES** (Site, Onset, Character, Radiation, Associations, Time course, Exacerbating/relieving factors, Severity).
    - Lump: when noticed, how, size change, pain, discharge, other lumps.
    - Ulcer: onset, duration, pain, discharge, trauma, healing.
    - GI symptoms: appetite, weight loss, vomiting, bowel habit, bleeding per rectum, jaundice.
4. **Systemic review:** cardiovascular, respiratory, urinary, neurological, musculoskeletal.
5. **Past medical and surgical history:** previous operations, diabetes, hypertension, IHD, asthma, TB, hepatitis B and C, bleeding disorders.
6. **Drug history and allergies:** anticoagulants, antiplatelets (aspirin, clopidogrel), steroids, insulin and oral hypoglycaemics. Write allergies in red.
7. **Personal history:** smoking (pack-years), naswar, alcohol, diet, sleep.
8. **Family history:** cancers, bleeding disorders, diabetes.
9. **Socio-economic history:** occupation, family support, who will consent.
10. **For women:** menstrual and obstetric history, last menstrual period, possibility of pregnancy.

> **Tip:** Always end the history with a one-line summary: *"A 45-year-old diabetic woman with a 3-day history of right upper quadrant pain, fever and vomiting."* This line tells your senior that you have understood the patient.

Part Two: Thinking Like a Surgeon

Chapter 4. Examining the Surgical Patient

Examine every patient with a chaperone where needed, with privacy, warm hands and good light. Always compare with the normal side.

1. General physical examination

- Appearance: comfortable, in pain, toxic, pale, jaundiced, dehydrated.
- Vitals: pulse, BP, respiratory rate, temperature, SpO_2, and pain score. Add GCS in trauma and head injury.
- Hands: clubbing, pallor, capillary refill. Neck: lymph nodes, JVP. Feet: oedema, peripheral pulses.

2. Local examination (the classic sequence)

Inspection → Palpation → Percussion → Auscultation, and for a lump or limb add **movement, measurement and regional lymph nodes**.

Lesion	Key points to examine
Lump	Site, size, shape, surface, edge, consistency, fluctuation, transillumination, mobility, fixity to skin/deep structures, regional nodes
Ulcer	Site, size, shape, edge (sloping, punched-out, undermined, rolled, everted), floor, base, discharge, surrounding skin, nodes
Hernia	Site, reducibility, cough impulse, relation to pubic tubercle, deep ring occlusion test, both sides
Acute abdomen	Distension, guarding, rigidity, rebound tenderness, Murphy's sign, McBurney's point, bowel sounds, hernial orifices, DRE
Limb ischaemia	Colour, temperature, capillary refill, pulses, Buerger's angle, ulcers, gangrene

3. Systemic examination: chest, cardiovascular, and neurological as relevant to the presentation and to anaesthetic fitness.

> **Never forget:** the hernial orifices and the digital rectal examination (with consent and a chaperone) in every acute abdomen. "If you don't put your finger in it, you will put your foot in it."

Chapter 5. Making a Diagnosis

A diagnosis is a reasoned statement, not a guess. Build it in four steps:

1. **Summarise** the findings in one sentence.

2. **Localise** the problem: which organ or anatomical region?
3. **Think of the pathology** using a surgical sieve: congenital, traumatic, infective/inflammatory, neoplastic (benign/malignant), vascular, degenerative, iatrogenic.
4. **Rank the differentials**: the most likely first, then the dangerous ones you must not miss.

Writing it in the file

Provisional diagnosis: Acute calculous cholecystitis. *Differential diagnoses:* (1) Biliary colic, (2) Acute pancreatitis, (3) Perforated duodenal ulcer, (4) Right basal pneumonia. *Plan:* NPO, IV fluids, analgesia, IV antibiotics, CBC, LFTs, serum amylase/lipase, ultrasound abdomen; inform registrar.

> **Tip:** Write the diagnosis, the differential and the plan on every new admission. A plan written by you, even if changed by your senior, shows you are thinking.

Chapter 6. Sending Investigations: Which Test for Which Patient

Every test should answer a question. Before sending a sample, ask: *what will I do differently with this result?*

How to send a sample correctly

1. Confirm the patient's identity (name, bed number, MR number) at the bedside.
2. Use the correct tube: **purple (EDTA)** for CBC and blood grouping; **red/yellow (plain/gel)** for LFTs, RFTs, electrolytes, viral markers; **blue (citrate)** for PT/APTT/INR; **grey (fluoride)** for glucose.
3. Label the tube at the bedside, never in advance.
4. Fill the form fully: clinical details, provisional diagnosis, urgency, your name and signature.
5. Track the result and write it in the file with the date.

Routine investigations by situation

Patient	Investigations to send
Every elective surgical admission	CBC, blood sugar (random/fasting), urea and creatinine, HBsAg and anti-HCV, urine complete examination
Age > 40, or cardiac/respiratory disease	Add ECG and chest X-ray (as per unit/anaesthesia protocol)

Patient	Investigations to send
Diabetic	Add HbA1c, fasting and post-prandial sugar, urine for ketones if unwell
Major surgery (laparotomy, thyroid, breast, hepatobiliary)	Add serum electrolytes, LFTs, PT/APTT/INR, blood group and cross-match
Thyroid surgery	Add thyroid function tests, indirect laryngoscopy (vocal cord check), serum calcium
Jaundice / hepatobiliary	LFTs (bilirubin, ALP, GGT, ALT), PT/INR, ultrasound abdomen; MRCP when advised
Acute abdomen	CBC, electrolytes, urea/creatinine, serum amylase/lipase, erect chest X-ray, abdominal X-ray, ultrasound; beta-hCG in women of child-bearing age
Trauma	CBC, blood group and cross-match, FAST scan, X-rays as needed, CT when indicated
Septic patient	CBC, CRP, blood cultures (before antibiotics), lactate, electrolytes, renal function
Patient on anticoagulants	PT/INR, APTT; discuss stopping/bridging with your senior

Chapter 7. Requesting and Interpreting Imaging

Writing a good radiology request

Give the radiologist a question to answer. Write the age, sex, key clinical findings, relevant results (e.g., creatinine before contrast), the provisional diagnosis and the specific question. *"?Appendicitis, rule out ovarian pathology"* is far better than *"USG abdomen please."*

Before contrast CT: check serum creatinine, ask about contrast allergy, asthma and metformin, ensure IV access (preferably 18G), and keep the patient fasting as required.

Which test, when

Imaging	Best for	Look for
Erect chest X-ray	Perforation, chest pathology, pre-op	Free gas under the diaphragm, effusion, consolidation, cardiomegaly
Plain abdominal X-ray	Intestinal obstruction, stones	Dilated loops (small bowel central with valvulae; large bowel peripheral with haustra), air-fluid levels, radio-opaque stones
Ultrasound	Gallbladder, liver, kidneys, appendix, pelvic organs, free fluid, FAST in trauma	Gallstones with acoustic shadow, thick GB wall, dilated CBD (> 6–7 mm), hydronephrosis, collections
CT scan (contrast)	Acute abdomen, trauma, cancer staging, collections, pancreatitis	Free air, fluid, abscess, bowel wall thickening, transition point, masses, metastases
MRI / MRCP	Biliary tree, rectal cancer staging, soft tissue, spine	CBD stones, strictures, extent of tumour, fistula tracks (perianal)
Doppler ultrasound	Arterial and venous disease	DVT, arterial stenosis/occlusion, varicose vein reflux

A simple method to read any X-ray: ABCDE

1. **A**dequacy and patient details (name, date, side marker, erect or supine).
2. **B**ones.
3. **C**entral structures (heart, mediastinum) or **C**ontour of bowel.
4. **D**iaphragm (free air?) and **D**ilated loops.
5. **E**verything else: soft tissues, lines, tubes, stones.

> **Rule:** Always look at the image yourself, then read the report. And always tell your senior about an urgent finding (free air, obstruction, collection, bleed) immediately.

Part Three: Hands-On Ward Skills

For every procedure follow the same five habits: **identify the patient, explain and take consent, wash hands, use aseptic technique, document.**

Chapter 8. Inserting an IV Cannula

Choosing the size

Gauge (colour)	Approximate flow	Use
14G (orange)	~250–300 ml/min	Major trauma, massive bleeding
16G (grey)	~180–200 ml/min	Major surgery, rapid fluids
18G (green)	~90–100 ml/min	Blood transfusion, CT contrast, most surgical patients
20G (pink)	~55–60 ml/min	Routine fluids and drugs
22G (blue)	~30–35 ml/min	Small or fragile veins, children, elderly

Exact flow rates vary by manufacturer; check the packaging.

Steps

1. Gather: cannula, tourniquet, alcohol swab, gauze, transparent dressing, flushed saline syringe, gloves, sharps box.
2. Choose a vein: start distally on the non-dominant forearm or dorsum of hand. Avoid joints, the side of a mastectomy/AV fistula, infected or oedematous skin.
3. Apply the tourniquet 7–10 cm above; let the vein fill (tap gently, ask the patient to make a fist).
4. Clean the skin with alcohol and let it dry. Do not re-touch the site.
5. Anchor the vein by stretching the skin below. Insert bevel up at 10–30°.
6. Watch for flashback, lower the angle, advance 2 mm more, then slide the cannula off the needle.
7. Release the tourniquet, press over the vein tip, withdraw the needle into the sharps box, cap or connect.
8. Flush with 5–10 ml normal saline: no swelling or pain = correct position.
9. Secure with a transparent dressing; label date and time.

Care: inspect the site every shift. Remove at the first sign of redness, pain or swelling (phlebitis). Re-site according to your hospital policy, usually every 72–96 hours or when clinically indicated.

Chapter 9. IV Fluids: Prescribing and Setting the Drip

Know your fluids

Fluid	Na^+ (mmol/L)	K^+ (mmol/L)	Other	Typical use
0.9% Normal saline	154	0	Cl^- 154	Resuscitation, vomiting with alkalosis, drug dilution
Ringer's lactate (Hartmann's)	~130–131	4–5	Lactate 28–29, Ca^{2+} ~2	Resuscitation, most surgical patients
5% Dextrose	0	0	Glucose 50 g/L	Free water, hypoglycaemia; never for resuscitation
Dextrose saline (0.18% or 0.45% NaCl + dextrose)	30–77	0	Glucose	Maintenance (check local stock)

Three questions before writing any drip

1. **Resuscitation?** Shocked, hypotensive, tachycardic: give a crystalloid bolus of 500 ml over 15 minutes (adults), reassess, and inform your senior.
2. **Maintenance?** Patient NPO but stable: about **25–30 ml/kg/day of water**, with about **1 mmol/kg/day each of sodium, potassium and chloride**, and 50–100 g/day glucose. A 60 kg adult needs roughly 1.5–1.8 L/day plus potassium.
3. **Replacement?** Add measured losses: NG aspirate, drains, stoma, fistula, fever. Replace NG loss with saline plus potassium.

Setting the drip rate

$$\text{Drops per minute} = \frac{\text{Volume (ml)} \times \text{Drop factor (drops/ml)}}{\text{Time (minutes)}}$$

Standard adult giving sets are usually **20 drops/ml** (some brands 15); micro-drip sets are 60 drops/ml. Check the packet.

Example: 1,000 ml over 8 hours with a 20 drops/ml set = 1,000 × 20 ÷ 480 ≈ **42 drops/minute**.

Monitor: pulse, BP, urine output (aim ≥ 0.5 ml/kg/hour), daily electrolytes in patients on IV fluids, and a daily fluid balance chart. Never add potassium as a bolus; maximum 10 mmol/hour on the ward unless your senior directs otherwise with monitoring.

Chapter 10. Blood Sampling and Blood Transfusion

Venepuncture: same preparation as cannulation; use a vacutainer or syringe; fill tubes in the correct order (culture bottles, citrate, plain/gel, EDTA, fluoride); mix gently; label at the bedside.

Blood cultures: before antibiotics where possible, two sets from separate sites, clean the bottle tops, fill the correct volume.

Blood transfusion: the safety steps

1. Correct sample: patient identified, tube labelled at the bedside, request signed.
2. Consent and indication documented.
3. At the bedside, **two people check**: patient's name and MR number on wristband, bag label, blood group, expiry date and bag integrity.
4. Record baseline vitals.
5. Start slowly; stay and observe the patient for the first 15 minutes, then check vitals again. Complete each unit within 4 hours.
6. **Stop immediately** if fever, rigors, rash, breathlessness, back/loin pain, hypotension or dark urine appear. Keep the line open with saline, inform your senior and the blood bank, and send the bag back.

Chapter 11. Passing a Nasogastric (NG) Tube

Indications: decompression in intestinal obstruction or ileus, persistent vomiting, before emergency surgery, gastric lavage, feeding.

Do not pass blindly through the nose in suspected base-of-skull fracture or severe facial injury (use orogastric route under senior supervision). Take care with oesophageal varices and recent oesophageal or gastric surgery: ask your senior.

Steps

1. Explain the procedure; sit the patient upright (45–90°) with the neck neutral.
2. Choose size (adult 14–18 Fr for drainage; fine-bore for feeding).
3. Measure length: **Nose → Earlobe → Xiphisternum (NEX)**, mark the tube.
4. Lubricate the tip; insert along the floor of the nose (straight back, not upwards).
5. At the nasopharynx, ask the patient to swallow sips of water (if allowed) and advance with each swallow to the mark.
6. **Stop and withdraw** if the patient coughs, chokes, becomes cyanosed or cannot speak.

7. **Confirm position:** aspirate and test pH (⩽ 5.5 confirms gastric placement), or chest X-ray if aspirate fails. The "air whoosh" test is **not** reliable. Never feed through a tube until position is confirmed.
8. Fix to the nose with tape, attach drainage bag, record length at the nostril and output on the chart.

Chapter 12. Urinary Catheterisation (Foley Catheter)

Indications: urinary retention, monitoring output in sick and post-operative patients, major surgery, immobility.

Contraindication: suspected urethral injury (blood at the meatus, perineal bruising, high-riding prostate after pelvic trauma). Do not pass a catheter; call your senior (a suprapubic catheter may be needed).

Steps (aseptic technique)

1. Consent and chaperone; patient supine. Choose size 14–16 Fr for most adults.
2. Open the sterile set; sterile gloves; test the balloon if the manufacturer advises.
3. **Male:** retract the foreskin, clean the glans from meatus outwards, instil lignocaine gel and wait 3–5 minutes. Hold the penis upright and insert the catheter fully, to the bifurcation.
4. **Female:** separate the labia, clean front to back, identify the meatus (above the vaginal opening), insert 5–6 cm beyond where urine appears.
5. **Inflate the balloon only after urine flows** (and after full insertion in males), with sterile water as marked (usually 10 ml). Pain on inflation = stop, deflate, reposition.
6. Gently withdraw until resistance; connect a closed drainage bag below bladder level.
7. **In men, always replace the foreskin** to prevent paraphimosis.
8. Document size, balloon volume, residual urine and date.

> **Daily question on every round:** Does this patient still need the catheter, the cannula and the NG tube? Every unnecessary tube is a route for infection.

Part Four: Wounds, Sutures and the Operating Theatre

Chapter 13. Examining a Wound

Check every surgical wound daily on the round, and immediately if the patient has fever, pain or soakage.

What to look at

Look for	Normal healing	Warning sign
Edges	Apposed, dry	Gaping, separated
Skin around	Mild pinkness first 48 hours	Spreading redness, warmth, induration
Discharge	None or slight serous	Pus, foul smell, bile, faeces, blood
Pain	Settling day by day	Increasing pain, tenderness
Swelling	Minimal	Fluctuation (abscess/seroma/haematoma)
Patient	Afebrile	Fever, tachycardia, raised TLC

Wound infection usually appears on days 4–7. Remove one or two sutures to drain pus, send pus for culture and sensitivity, and inform your senior.

Burst abdomen (wound dehiscence) classically around days 5–8: a gush of pink serous fluid ("salmon-pink") from the wound is a warning. If bowel is visible, cover with sterile saline-soaked gauze, keep the patient NPO, start IV fluids and call your senior at once.

Chapter 14. Daily Dressing and Drain Care

Dressing technique (aseptic, no-touch)

1. Explain, give analgesia if needed, ensure privacy and good light.
2. Wash hands; prepare the dressing trolley (sterile pack, normal saline/antiseptic, gauze, tape, gloves, waste bag).
3. Remove the old dressing with clean gloves; look at it (amount and type of soakage), discard.
4. Change to sterile gloves; clean the wound **from clean to dirty**: along the incision, from the centre outwards, one swab per stroke.
5. Clean drain sites last.
6. Apply a sterile dressing; date it; document your findings.

Types of dressing

Wound	Dressing
Clean, closed incision	Dry sterile dressing; often can be left 48 hours, then open or light dressing
Infected, open wound	Saline/antiseptic cleaning, loose gauze packing, daily or twice daily

Wound	Dressing
Cavity (abscess drained, pilonidal)	Gentle packing that fills the cavity without forcing it
Heavily exudative / large wounds	Absorbent dressings; negative pressure wound therapy (VAC) where available

Drain care

- Record daily volume and character: serous, serosanguinous, frank blood, pus, bile, faecal, chyle.
- Sudden increase of fresh blood, bile or faecal matter = inform your senior immediately.
- Keep the bag below the wound level; check it is not kinked or dislodged.
- A drain is usually removed when output is minimal (commonly < 30–50 ml in 24 hours, as your unit decides). Remove the stitch, ask the patient to breathe out, withdraw steadily, cover the site.

Chapter 15. Sutures: Types and Uses

Classification

Suture	Type	Filament	Approximate strength / absorption	Common uses
Polyglactin 910 (Vicryl)	Absorbable, synthetic	Braided	~50% strength at 3 weeks; absorbed in 56–70 days	Subcutaneous tissue, bowel anastomosis, ligatures
Poliglecaprone 25 (Monocryl)	Absorbable, synthetic	Monofilament	Short strength; absorbed in 90–120 days	Subcuticular skin closure
Polydioxanone (PDS)	Absorbable, synthetic	Monofilament	Long strength; absorbed in ~6 months	Abdominal wall (mass) closure, paediatric
Chromic catgut	Absorbable, natural	Twisted	Absorbed by ~90 days (variable)	Mucosa, now less used

Suture	Type	Filament	Approximate strength / absorption	Common uses
Polypropylene (Prolene)	Non-absorbable, synthetic	Monofilament	Permanent	Hernia mesh fixation, vascular, abdominal closure, skin
Nylon (Ethilon)	Non-absorbable, synthetic	Monofilament	Permanent	Skin closure
Silk	Non-absorbable, natural	Braided	Loses strength slowly	Securing drains, ties
Stainless steel wire	Non-absorbable	Mono/multi	Permanent	Sternum, tendon

Size: the more zeros, the finer the thread. **1 and 0** for abdominal wall; **2-0/3-0** for subcutaneous tissue, bowel, skin of trunk; **4-0/5-0** for face and hands; **6-0 and finer** for vessels, nerves, eyelids.

Needles

- **Round-bodied (taper):** pushes tissue aside; for bowel, vessels, fascia, soft tissue.
- **Cutting / reverse cutting:** sharp edges; for skin and tough tissue.
- **Taper-cut:** for tough tissues such as tendon and calcified vessels.

> **Remember:** monofilaments slide easily and resist infection but need more throws in a knot; braided sutures hold knots well but can harbour bacteria.

Chapter 16. Suturing, Knot Tying and Suture Removal

Basic suturing principles

1. Hold the needle holder with thumb and ring finger; needle grasped at the junction of the middle and posterior thirds.
2. Enter the skin at 90°, follow the curve of the needle with wrist rotation.
3. Take equal bites on both sides: about 5 mm from the edge and 5–8 mm apart (smaller on face).
4. Evert the edges slightly. Approximate, do not strangulate: *"Approximate, not strangulate."*

5. Place the knot to one side, not on the incision.

Common stitches

Stitch	Use
Simple interrupted	Most skin wounds; safe, one stitch can be removed if infection occurs
Simple continuous	Long clean wounds; quick
Vertical mattress	Eversion of edges in lax skin; holds tension
Horizontal mattress	Tension areas, haemostasis
Subcuticular	Cosmetic closure (absorbable monofilament)

Knots: practise the **reef (square) knot**, **surgeon's knot** (double first throw) and **instrument tie** until you can do them with eyes closed. Square throws lie flat; each throw reverses direction. Monofilaments need more throws than braided sutures.

Suture removal (usual timing)

Site	Days
Face and neck	3–5
Scalp	7–10
Trunk and abdomen	7–10 (longer for laparotomy, under tension, or in diabetics and elderly)
Limbs	10–14
Over joints	14

To remove: clean, lift the knot with forceps, cut **below the knot on one side close to the skin**, pull the suture towards the wound (never pull the outside part of the stitch through the tissue). Apply steri-strips if the edges look weak.

Chapter 17. Scrubbing, Gowning, Gloving and Assisting in Theatre

Before theatre: check the patient's name, consent, side marking, NPO status, investigations, blood availability and the anaesthesia fitness form.

Scrubbing (surgical hand antisepsis)

1. Remove watches and rings; nails short; cap and mask on.

2. First scrub of the day: clean under nails.
3. Wash hands and forearms with antiseptic (povidone-iodine or chlorhexidine) for the time your theatre protocol recommends (usually 3–5 minutes), from fingertips to elbows.
4. Keep hands above elbows; let water drain off the elbows.
5. Dry with a sterile towel, one side for each arm, from fingers to elbow.

Gowning and gloving: use the **closed gloving** technique; hands stay inside the gown cuffs until gloves are on. After gowning, hands stay between chest and waist, in front of you. **Never** touch anything that is not sterile; if you do, say so and change.

How to be a good assistant

- Know the operation before you scrub. Read the steps the night before.
- Retract steadily and keep your hands still; the surgeon must see.
- Suck and swab when asked, and keep the field dry.
- Cut sutures leaving appropriate tails (about 3 mm for most ties; longer for monofilament), only when told.
- Watch, learn, and count with the scrub nurse: swabs, needles and instruments.
- After surgery, write or help write the operation notes and post-op orders.

Part Five: Keeping Patients Safe

Chapter 18. Pre-operative Preparation and Post-operative Care

Pre-op checklist (the evening before and the morning of surgery)

- [ ] Informed consent signed by the patient (or guardian), with the procedure, side and risks written clearly, and witnessed
- [ ] Investigations complete and checked; abnormal results discussed
- [ ] Anaesthesia review done and fitness documented
- [ ] NPO instructions given (commonly 6 hours for solids, 2 hours for clear fluids, as per anaesthesia protocol)
- [ ] Blood grouped and cross-matched where needed
- [ ] Site and side marked
- [ ] Anticoagulants/antiplatelets stopped as advised; diabetic and antihypertensive plan from the anaesthetist
- [ ] Prophylactic antibiotic prescribed (usually within 60 minutes before incision)
- [ ] DVT risk assessed; stockings/heparin as prescribed
- [ ] Jewellery, dentures and nail polish removed; patient wristband checked

Post-op orders: write them clearly

1. Vitals: every 15 minutes in recovery, then hourly, then 4-hourly.
2. Position, oxygen, and when the patient may start oral intake.
3. IV fluids (type, volume, rate).
4. Analgesia (regular and as needed), antiemetics, antibiotics.
5. Drains, NG tube, catheter: what to measure and when to report.
6. DVT prophylaxis and early mobilisation; chest physiotherapy and deep breathing.
7. Investigations for the next morning.

Common post-operative problems by time

Time after surgery	Think of
First 24 hours	Primary/reactionary haemorrhage, hypovolaemia, pain, urinary retention, atelectasis (fever)
Days 2–3	Chest infection, urinary infection, ileus
Days 3–5	Anastomotic leak (fever, tachycardia, peritonism), cannula phlebitis
Days 4–7	Wound infection, intra-abdominal collection
Days 5–10	Wound dehiscence, DVT/pulmonary embolism, secondary haemorrhage

> **Remember the causes of post-op fever with the "5 Ws":** Wind (lungs), Water (urine), Wound, Walking (DVT), Wonder drugs (drug fever) and lines.

Chapter 19. Emergencies on the Ward: The Deteriorating Patient

When called to a sick patient, do not panic. Use **ABCDE** and call for help early.

Step	Check	Act
Airway	Talking? Noisy breathing?	Head tilt/chin lift or jaw thrust, suction, airway adjunct
Breathing	Respiratory rate, SpO_2, chest movement, breath sounds	Oxygen, sit up; ABG, chest X-ray

Step	Check	Act
Circulation	Pulse, BP, capillary refill, urine output, bleeding, drains	Two large-bore cannulas, bloods (CBC, group and cross-match), fluid bolus, stop bleeding
Disability	GCS/AVPU, pupils, **blood glucose**	Treat hypoglycaemia, review drugs (opioids)
Exposure	Full examination: wound, abdomen, calves, lines, rashes	Keep warm, look for the source

Situations you must recognise quickly

- **Haemorrhagic shock:** tachycardia, falling BP, pallor, cold peripheries, rising drain output. Resuscitate and call the registrar immediately; the patient may need to go back to theatre.
- **Sepsis:** fever or hypothermia, tachycardia, tachypnoea, confusion, hypotension. Send cultures, give fluids and start antibiotics without delay, as per your hospital sepsis protocol.
- **Anaphylaxis:** stop the drug; IM adrenaline 0.5 mg (0.5 ml of 1:1,000) into the anterolateral thigh for adults, repeat after 5 minutes if needed; oxygen, fluids, call for help.
- **Pulmonary embolism:** sudden breathlessness, chest pain, tachycardia, low SpO_2 in a post-op patient. Oxygen, inform senior urgently.
- **Hypoglycaemia** in a fasting diabetic: check sugar in every drowsy or sweating patient.
- **Cardiac arrest:** call the code team, start high-quality CPR (30:2, rate 100–120/min, depth 5–6 cm), attach the defibrillator.

> **Golden rule:** the earliest sign of deterioration is often a rising respiratory rate and pulse. Look at the trend on the chart, not just the last value.

Chapter 20. Notes, Documentation, Discharge and Professionalism

Writing daily progress notes: use SOAP

- **S**ubjective: what the patient says (pain, appetite, flatus, stools).
- **O**bjective: vitals, examination, wound, drains, intake-output, results.
- **A**ssessment: how the patient is doing; any problem.
- **P**lan: what will be done today.

Every note needs the **date, time, your name, signature and designation**. Never write "patient fine"; write what you found.

Discharge summary: diagnosis, operation and date, key findings, complications, histopathology (if available or pending), medicines with dose and duration, wound care, date of suture removal, follow-up date, warning signs that need early return, and the unit's contact number.

Medicolegal duties: in trauma, assault and poisoning cases, inform the senior and the medicolegal officer as per hospital policy. Record injuries exactly, with time. Keep notes legible and never alter a previous entry (strike once, sign and date).

Professionalism

- Be on time, and be honest. If you have made a mistake, tell your senior immediately.
- Respect every patient's privacy and dignity; talk to the family with compassion.
- Respect nurses and paramedical staff: they will teach you more than you expect.
- Look after yourself: eat, sleep when you can, and ask for help if you feel overwhelmed.

Part Six: Learning in the Unit

Chapter 21. Academic Activities: CPC, Presentations, Journal Club, M&M and the Suture Workshop

In our surgical unit you learn on the ward, in theatre and in the teaching room every week. These activities are part of your house job duties, so attend every one, on time and prepared.

The unit's academic calendar

Activity	How often	Who presents	What happens
House officers' CPC / case or topic presentation	One fixed day every week	House surgeons, by rota	A ward case or an allocated topic, followed by discussion with consultants
PGR and resident presentation	One fixed day every week	Postgraduate residents (PGRs) and residents	A case presentation or an allocated topic from the training curriculum
Journal club	Regularly, as scheduled by the unit	Residents and house surgeons, by turn	Critical review of a recent research article

Activity	How often	Who presents	What happens
Morbidity and Mortality (M&M) conference	At the end of every month	The team that managed each patient	Every complication and death of the month is reviewed and discussed
Hands-on suture workshop	For every new batch of house surgeons	Consultants teach; house surgeons practise	Suturing and knot tying on suture practice boards with the sutures available in the unit

Your unit will announce the exact days and the presentation rota at the start of your rotation; note them in your diary on day one.

1. Your weekly CPC or presentation (house surgeons)

Every house surgeon will present in turn on the fixed weekly day. You will present either a **case** from our ward or a **topic** allocated to you.

- **Case presentation:** history, examination, provisional diagnosis and differentials, investigations with the actual reports and images, management done, outcome, and three learning points.
- **Topic presentation:** definition, relevant anatomy, causes, clinical features, investigations, management, complications and recent advances, from *Bailey & Love* and current guidelines.
- Keep it to about 10–15 minutes and 10–15 slides; be ready for questions from the consultants.
- Get your slides checked by your registrar or PGR at least one day before.

2. The PGR and resident presentation

On another fixed day each week, PGRs and residents present cases or **allocated topics** from their training curriculum. House surgeons must attend: this is where you hear how senior trainees think, and it is the best preparation for your own FCPS Part I and Part II.

3. Journal club

A resident or house surgeon presents one recent article from a surgical journal. Learn to ask four questions of every paper:

1. What was the question, and why does it matter?
2. How was the study done (design, patients, sample size)?
3. What did they find, and are the results believable?
4. Will this change what we do in our unit?

4. Morbidity and Mortality (M&M) conference: end of every month

At the end of each month the unit reviews **every patient who had a complication and every patient who died**. The house surgeon and resident who managed the patient present a short summary:

- Diagnosis, operation and date, and the complication or cause of death.
- Timeline of events: when the problem was noticed, who was informed, what was done.
- Classification of the complication (for example by the Clavien-Dindo grade) and whether it was preventable.
- Lessons learned and changes to the unit's practice.

> **The spirit of M&M:** it is about learning, not blaming. Present honestly, because a hidden complication teaches nobody, and a discussed one may save the next patient. Keep a list of every complication on your ward through the month so the M&M record is complete.

5. Hands-on suture workshop for new house surgeons

The surgical unit has arranged a **hands-on suture workshop** for every new batch of house surgeons. Consultants of the unit conduct it as a practical workshop:

- You practise on **suture practice boards (pads)** using the sutures available in the unit: absorbable and non-absorbable, braided and monofilament (see Chapter 15).
- The consultant first demonstrates, then watches you practise and corrects your grip, angle and knot.
- Skills covered: holding the needle holder, forceps and scissors; simple interrupted, continuous, vertical and horizontal mattress and subcuticular stitches; **hand tie and instrument tie** (reef knot and surgeon's knot); and suture removal.
- Keep practising on the board in your free time until every knot is square and every stitch is even. Ask your seniors to check your board.

Only after you have shown safe technique on the board will you be allowed to close skin on real patients, under supervision.

> **Remember:** presentations make you a thinker, M&M makes you safe, and the suture board makes your hands ready. Treat all three as seriously as the ward round.

Epilogue: The Road Ahead

Six months later, Dr. Ali scrubbed for an appendicectomy. The registrar handed him the scalpel and said, *"Your incision, Doctor."* His hands were steady. He had passed hundreds of cannulas, dozens of NG tubes and catheters, written countless notes, and sat beside frightened patients at night. He was no longer a student pretending to be a doctor. He was a doctor.

As the house job came to an end, he sat down with his professor and asked, *"Sir, what next?"* This is the map the professor drew for him.

After the house job: your main roads

Road	What it involves	Who it suits
FCPS (CPSP)	FCPS Part I, then IMM (where required), then supervised training and FCPS Part II in the chosen speciality	Those who want to become specialists and consultants in Pakistan
MS / MD (university programmes)	Entry test, structured residency in a university hospital, research thesis	Those who want a degree-based residency and academic career
Surgical training abroad	UK: MRCS and the licensing route (PLAB/UKMLA for international graduates); USA: USMLE Steps and residency match; Middle East and Australia have their own licensing exams	Those prepared for exams, English tests and a long-term plan
Medicine and allied specialities	FCPS/MD in medicine, paediatrics, radiology, anaesthesia, pathology and more	Those who discovered a different passion during the house job
General practice, public health and service	Medical officer posts (PPSC/FPSC), family medicine, MPH, armed forces, NGOs	Those who want early service, community work or administration
Research and teaching	Demonstrator posts, research projects, publications, MPhil/PhD	Those who love basic sciences and teaching

Exam names, eligibility and rules change; always confirm the latest requirements with PM&DC, CPSP, the university and the relevant foreign licensing body.

The professor's ten pieces of advice

1. Complete your house job with full commitment; your references come from it.
2. Register with PM&DC as soon as you are eligible.
3. Decide your direction early, but stay open: rotate, observe, and talk to people in each field.
4. Start preparing for your Part I exam during the house job: one hour a day adds up.
5. Keep a logbook of every procedure you do and every operation you assist.
6. Take part in audits, case reports and research; write your first paper.
7. Learn basic life support and trauma courses (BLS, ACLS, ATLS) when you can.
8. Improve your English, communication and computer skills.
9. Find a mentor and keep in touch with your teachers.
10. Never lose the reason you started: the patient in front of you.

Ali closed his notebook. Twelve years earlier he had read his name on a merit list in his father's shop. Now he knew that becoming a doctor was not a single day. It was a road, and he was only at its beginning.

May Allah make your hands a source of healing and your heart a source of mercy for every patient you meet.

A Note from the Author

This mini book is written for the young doctors who join our surgical units every year with bright eyes and nervous hands. It is not a replacement for standard textbooks such as *Bailey & Love's Short Practice of Surgery* or for your hospital's own protocols and policies; always follow your seniors and your institution's guidelines.

If it makes your first week a little easier, and your patients a little safer, it has done its job.

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