



Ballarat **Health**Services



## **Surgical Workbook**

### **Self-directed learning package**

**To be read in conjunction with:  
HMO/Intern position description  
Surgical Unit orientation information**

**NAME:** \_\_\_\_\_

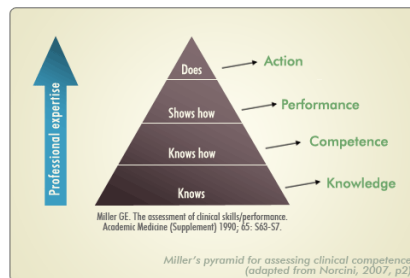
**Author: Dr Benjamin Scott  
July 2016**

## Self-directed workbook - Surgery

This self-directed workbook is a guide for you to assess your knowledge and identify your learning needs by completing the workbook.

It is not mandatory, but we would like to continue to use it as it assists with performance appraisals (which is essentially performance coaching), and to provide some more structure and real learning outcomes.

The following diagram highlights the key objectives, with our aim to see more of “does” and “shows how”



### *BHS Surgical Expected Learning Outcomes*

1. To be able to manage patients with surgical presentations on the ward and referred by the Emergency Department.
2. Understand the management requirements for post-operative patients.

### *Education*

The education series covers the following topics:

1. Abdominal Pain
2. Pyrexia – Post op
3. Appendicitis
4. Ischaemia
5. Anticoagulation
6. Hypotension
7. Diabetes
8. Bowel Obstruction
9. Hypovolaemia

The learning resources in this self-directed workbook cover these topics. The learner should complete the self-directed workbook to enhance their own understanding of their learning needs. Every section does not need to be completed. Use it to reinforce areas where your knowledge is strong, or to identify areas that need some work. In many cases this will mean on the job learning, rather than finding information in books.

We suggest that completing this workbook in preparation your surgical term is strongly advised.

### **Formal educational activities occur throughout the week (Surgical terms)**

It is not possible for doctors to attend all sessions due to shift work, duration of rotations and leave etc. therefore we endeavor to publish for each topic the PowerPoint presentations and associated

resources for people to read on the BHS education resource website:  
<http://educationresource.bhs.org.au/home>

**Case 1:**

You have been asked to review Mrs. Robertson in the emergency department, a 38 year old female, who has presented with upper abdominal pain over the last 24 hours. She explains that it began in the epigastric region but moved to the right upper side about 8 hours ago. The pain is constant, 8/10 with no radiation.

**1. What is your differential diagnosis for this patient (list 3)**

**2. What specific examination findings will you look for?**

From the end of the bed, Mrs. Robertson is obviously in pain and looks uncomfortable. She is not jaundiced.

**Blood pressure: 135/80**

**Heart Rate: 95**

**Respiratory Rate: 16**

**Temperature: 38.1**

You examine her abdomen and find that she is tender in the RUQ and is “murphy’s sign positive”.

**3. What is murphy’s sign and why does it cause pain?**

**4. What bedside tests or investigations will you order and why?**


The following tests results are available:

Full Blood Examination			
<b>Haemoglobin</b>	12.8 g/dL (11.5-16.5)	<b>White Cell Count</b>	14.1 x10 <sup>9</sup> /L (4.0-11.0)
<b>Haematocrit</b>	35.6 % (37.0-47.0)	<b>Neutrophils</b>	11.4 x10 <sup>9</sup> /L (2.0-8.0)
Red Cell Count	4.05 x10 <sup>12</sup> /L (3.80-5.80)	Lymphocytes	1.4 x10 <sup>9</sup> /L (1.0-4.0)
MCV	88 fL (80-96)	Monocytes	1.3 x10 <sup>9</sup> /L (< 1.0)
MCH	31.6 pg (27.0-32.0)	Basophils	0.0 x10 <sup>9</sup> /L (< 0.2)
MCHC	36.0 g/dL (32.0-36.0)	Eosinophil Count	0.0 x10 <sup>9</sup> /L (< 0.5)

Platelet Count 159 x10<sup>9</sup>/L (150-450)

Pancreatic Studies-Serum	General Biochemistry
Lipase <^10 U/L (0-60)	Sodium 140 mmol/L (136-146)
	Potassium 3.4 mmol/L (3.5-5.0)
	Chloride 106 mmol/L (95-110)
	Bicarbonate 22 mmol/L (22-31)
	Urea 2.7 mmol/L (2.3-7.6)
	eGFR >^90 mL/min/1.73m2 (> 60)
	Creatinine 52 umol/L (40-80)

5. What imaging will you request?



**Ballarat Health Services**  
**Radiology Department**

Ph: (03) 5320 4270  
Fax: (03) 5320 4830  
  
P.O. Box 577  
Ballarat 3350

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**Patient Details**

Affix Hospital ID Label here

Name: \_\_\_\_\_

D.o.B.: \_\_\_\_\_

URN: \_\_\_\_\_

Ward or O.P. Department

\_\_\_\_\_

Appt Time and Date

\_\_\_\_\_

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**Referrer Details** *(Please print clearly)*

Name: \_\_\_\_\_

Phone/Pager: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Courtesy Copy Dr. Details**

\_\_\_\_\_

\_\_\_\_\_

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**Patient Transport**

Wheelchair

Trolley

Bed/Cot

IV  O<sub>2</sub>

Nurse Escort

Bedside/Mobile

**Special Needs**

Infectious/Cognitive Impaired

Details: \_\_\_\_\_

Renal Failure (See over)

Creatinine/eGFR: \_\_\_\_\_

Contrast Allergies: \_\_\_\_\_

Pregnant Yes/No

**Classification**  
*(Office Use only)*

Private

Bulk Bill

T.A.C.

Workers Comp.

Veteran Affairs

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**Clinical History**

\_\_\_\_\_

---

**Provisional Diagnosis**

\_\_\_\_\_

Urgent *(Please supply contact details)*

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**Examination Requested**

Ultrasound

X-Ray

CT

Angiography

Fluoroscopy/Contrast Studies

Theatre Mobile

Interventional

**Area to be Examined**

\_\_\_\_\_

\_\_\_\_\_

Right     Left     Both

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Important: All CT and Ultrasound examinations must have an appointment. For appointments phone 5320 4270.

## Radiology Report

### ULTRASOUND ABDOMEN

#### Indication

? cholecystitis with elevated white cell count and right hypochondrium tenderness.

#### Report

The gallbladder wall is thickened, measuring 9mm with mobile sludge and a 25mm immobile gallstone in the gallbladder neck. The CBD measures 6mm on these limited views with no definite choledocholithiasis. Proximally there is no intrahepatic duct dilatation or discrete liver lesion. The portal vein measures 11mm with normal hepatopetal flow.

The pancreas is heterogeneous with the spleen being normal, 75mm long.

Both kidneys demonstrate normal corticomedullary differentiation, both kidneys measuring 99mm with no hydronephrosis or renal calculi.

#### Impression

Thickened gallbladder wall with multiple sludge and large gallstone is suggestive of cholecystitis. The patient however was not significantly tender on probe palpation, possibly as a result of analgesia. No intra or extrahepatic duct dilatation.

6. Working with the diagnosis of cholecystitis, what will be your management for this patient (consider that the patient is in the emergency department currently, and the logistics that will be involved).

a) Immediate management in ED

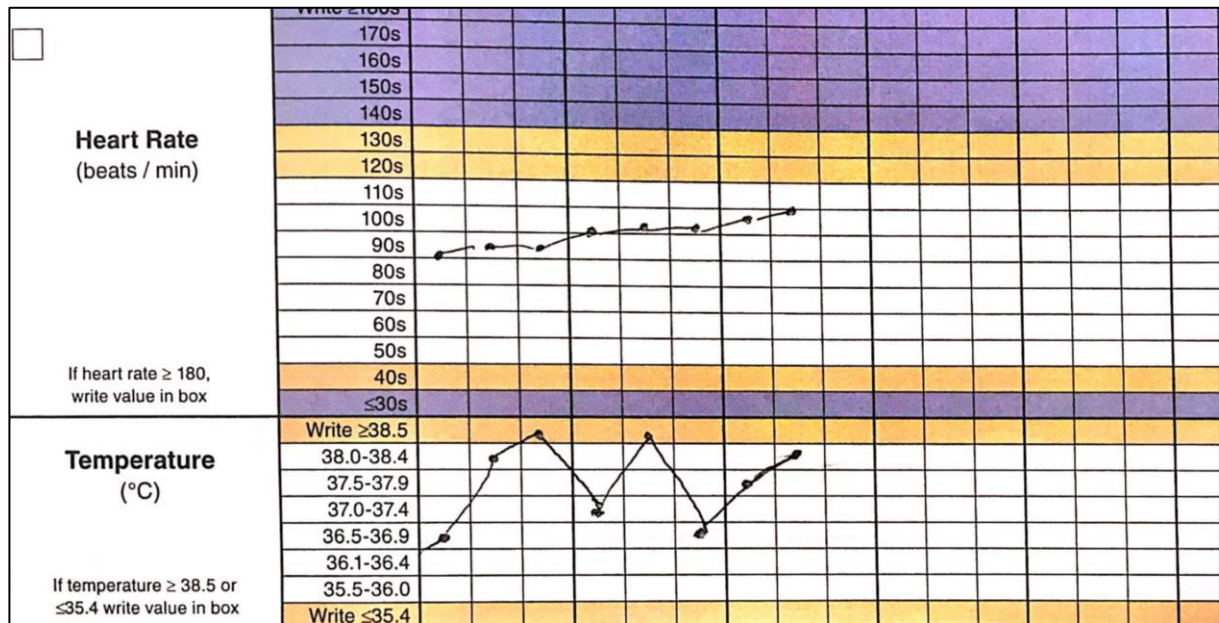
b) Definitive Management







You move to 22b and Mrs. Fung is looking unwell. She had abdominal surgery 8 days ago and as she lives alone in an isolated area, the team has decided to keep an eye on her until she improves. You review her observation chart.



3. What is the likely cause of this pattern of fever in a postoperative patient?

4. You examine the patient's abdomen and there is generalised tenderness. What actions will you take?





### **Case 3**

You have been asked to review Miss Stevenson, an 18 year old female has presented to the ED with abdominal pain.

**1. What are the questions you will ask about abdominal pain?**

After a focused history you discover that the pain is in the right iliac fossa. The pain started 6 hours ago and was initially in the peri-umbilical area. Prior to this she has been experiencing nausea and anorexia for approximately 16 hours. The pain is exacerbated by coughing and was increased when driving over bumps on the car ride to the emergency department.

**2. Based on the history, what is your differential diagnosis for this patient?**

**3. What specific signs will you be looking for on examination?**

*Examination findings*

**Blood Pressure: 130/80**

**Heart Rate: 88**

**Respiratory Rate: 16**

**Temp: 38.1**

From the end of the bed the patient appears uncomfortable. The peripheries are cool and the oral mucous membranes are dry.




You find that the patient is tender at McBurney's point. Rebound tenderness is present. When palpating the left side of the abdomen, pain is experienced on the right side. Bowel sounds are present. You lay the patient on their left side and extend the right hip, which exacerbates the pain.

4. *Where is McBurney's point?*
  
5. *What is Rosving's sign?*
  
6. *How do you elicit rebound tenderness?*
  
7. *What is the psoas sign?*
  
- 8. What is your initial management for this patient?**

*(Hint: consider analgesia, hydration, anti-infective and communication with appropriate staff)*

At this stage you are suspicious of acute appendicitis.

**9. What blood tests will you order? Consider those that will also help to exclude other significant pathology.**

		<h1 style="color: green;">Request Form</h1>		Regional Centre Locations on reverse 18 Banksia Street Heidelberg Victoria 3084 <b>03 9244 0444 www.dorevitch.com.au</b>				
Specialist Diagnostic Services Pty Ltd, ABN 84 007 190 043 APA No. 000042, trading as Dorevitch Pathology								
<b>PATIENT SURNAME</b> _____		<b>GIVEN NAMES</b> _____		<b>REQUESTING PRACTITIONER</b> Surname & Initials, Address, Tel No., & Provider DR..... PROV ..... <b>EMPLOYEE NO:</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>MANDATORY</b> COPY TO <b>BALLARAT HEALTH SERVICES</b> <b>BASE HOSPITAL</b> HOSPITAL & WARD WARD.....				
D.O.B. / /	SEX M / F	UR No.	ACC To	ADDRESS _____		POSTCODE	<input type="checkbox"/> PRIVATE <input type="checkbox"/> BULK BILL <input type="checkbox"/> PENSIONER <input type="checkbox"/> REPAT	
PATIENTS PHONE		MEDICARE/REPAT No.						
<b>SPECIMEN COLLECTED</b> DATE / TIME	<b>DRUG - LAST DOSE</b> DATE / TIME	<b>PERSON DRAWING BLOOD</b> I certify that the blood specimen(s) accompanying this request was drawn from the patient named above and I established the identity of this patient by direct inquiry and/or by inspection of wrist band, and immediately upon the blood being drawn I labelled the specimen(s). This signature also acknowledges the collection of all other specimens. Surname (print)..... Signed.....			Location	C V N H P O L	PR QU PA PU	Fee C
<b>CLINICAL NOTES</b> (Inc. medication)		Fasting <input type="checkbox"/>		<b>TESTS REQUESTED</b>		URGENT <input type="checkbox"/> TEL/FAX NO..... BY.....		
<input type="checkbox"/> SD (Self Determine)								
<b>Gynae Cyto.</b> <input type="checkbox"/> Prev. abn. <input type="checkbox"/> Cx ..... <input type="checkbox"/> Premenop <input type="checkbox"/> Postmenop <input type="checkbox"/> HRT <input type="checkbox"/> Preg. Due ...../...../..... <input type="checkbox"/> Post Part.								
PATIENT STATUS AT THE TIME OF THE SERVICE OR WHEN THE SPECIMEN WAS COLLECTED (a) A PRIVATE PATIENT IN A PRIVATE HOSPITAL, OR APPROVED DAY HOSPITAL FACILITY OR, (b) A PRIVATE PATIENT IN A RECOGNISED HOSPITAL OR, (c) A PUBLIC PATIENT IN A RECOGNISED HOSPITAL OR, (d) AN OUTPATIENT OF A RECOGNISED HOSPITAL.		<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NO		<b>Doctor to sign</b>  Dr. _____		<b>REQUEST DA</b>		
				PLEASE NOTE THE LEGAL REQUIREMENT THAT ALL PATHOLOGY REQUESTS BE SIGNED BY THE REQUESTING DOCTOR				

The Pathology results are available for the following blood tests

### Full Blood Examination

<b>Haemoglobin</b>	138 g/L (115-165)	<b>White Cell Count</b>	10.3 x10 <sup>9</sup> /L (4.0-11.0)
<b>Haematocrit</b>	0.40 L/L (0.37-0.47)	<b>Neutrophils</b>	<b>8.8</b> x10 <sup>9</sup> /L (2.0-8.0)
<b>Red Cell Count</b>	4.70 x10 <sup>12</sup> /L (3.80-5.80)	<b>Lymphocytes</b>	1.0 x10 <sup>9</sup> /L (1.0-4.0)
<b>MCV</b>	85 fL (80-96)	<b>Monocytes</b>	0.5 x10 <sup>9</sup> /L (< 1.0)
<b>MCH</b>	29 pg (27-32)	<b>Basophils</b>	0.0 x10 <sup>9</sup> /L (< 0.2)
<b>MCHC</b>	346 g/L (320-360)	<b>Eosinophil Count</b>	0.0 x10 <sup>9</sup> /L (< 0.5)


**Platelet Count** 199 x10<sup>9</sup>/L (150-450)

### Pancreatic Studies-Serum


**Lipase** <^10 U/L (0-60)

-END OF RESULT-

### C-Reactive Protein

 **SERUM C-REACTIVE PROTEIN (CRP)**

Date	Lab. No.	CRP	Ref Range (0-10)
10/02/15	41149484	< 1	
01/07/16	46647243	< 1 mg/L	

 <^1 mg/L (< 10)

### General Biochemistry

<b>Sodium</b>	<b>134</b> mmol/L (138-146)
<b>Potassium</b>	3.7 mmol/L (3.5-5.0)
<b>Chloride</b>	97 mmol/L (95-110)
<b>Bicarbonate</b>	26 mmol/L (22-31)
<b>Urea</b>	5.4 mmol/L (2.3-7.6)
<b>eGFR</b>	>^90 mL/min/1.73m2 (> 60)
<b>Creatinine</b>	54 umol/L (40-80)
<b>Calcium</b>	2.48 mmol/L (2.15-2.65)
<b>Calcium (Alb adjusted)</b>	2.31 mmol/L (2.15-2.65)
<b>Serum Magnesium</b>	0.74 mmol/L (0.60-1.10)
<b>Inorganic Phosphate</b>	1.1 mmol/L (0.8-1.4)
<b>Total Bilirubin</b>	13 umol/L (< 15)
<b>Alanine Aminotransferase</b>	17 U/L (< 30)
<b>Aspartate Aminotransferase</b>	21 U/L (< 30)
<b>Alkaline Phosphatase</b>	55 U/L (20-105)
<b>GGTP</b>	13 U/L (< 30)
<b>Total Protein</b>	77 g/L (65-85)
<b>Albumin</b>	48 g/L (38-50)
<b>Globulin</b>	29 g/L (22-39)

### HCG (Serum)

**QUANTITATIVE HUMAN CHORIONIC GONADOTROPHIN (4th IS)**

**Serum HCG :** < 2 IU/L (Ref.Range <5)

POST LMP	RANGE
< 3 weeks	5 - 50
3 - 4 weeks	50 - 500
4 - 5 weeks	100 - 5000
5 - 6 weeks	500 - 10000
6 - 7 weeks	1000 - 50000
7 - 8 weeks	10000 - 100000
8 - 10 weeks	15000 - 200000
10 - 14 weeks	10000 - 100000

Method: Beckman Coulter Dxl

Note: The same immunoassay should be used if the patient is being monitored with serial HCG measurements.

- 10. Your next task is to contact the surgical registrar. Fill out the different sections of the ISBAR handover tool to cover what you will say in the conversation.**

**ISBAR: Introduction, Situation, Background, Assessment, Recommendation/Request**

*Introduction:*

*Situation:*

*Background:*

*Assessment:*

*Recommendation / Request:*

- 11. Your surgical registrar explains that he is suspecting appendicitis. Is there any other imaging you should consider? What is the definitive management for acute appendicitis?**

The patient has been returned to the ward.

- 12. How will you manage this patient's pain?**

- 13. Can she eat and drink?**



14. Does she need prevention for venous thromboembolism?

15. What follow up will she need?

16. Do antibiotics need to be continued?

A few days later the histopathology is returned.

#### HISTOPATHOLOGY REPORT

##### CLINICAL NOTES:

Lap appendix.

##### SPECIMEN:

Appendix: An appendix, 71x7x6mm (L x W x mesoappendix), with tan to grey congested surface. The wall is up to 1.5mm. Luminal contents are pale tan to brown. Part processed in one block with 1x LS of tip and 2x TS of body. (EP/ja/SB)

##### MICROSCOPY:

The appendiceal mucosa is extensively ulcerated with neutrophilic inflammation traversing the full thickness of the appendiceal wall in areas extending to the surface where there is acute serositis. In portions of the wall, it is necrotic, completely replaced by neutrophilic inflammation. Acute inflammation also extends into the mesoappendix, where there is intramesoappendiceal abscess formation. At the tip the suppuration extends through a defect in the muscularis propria, which is not an area of perforation, but rather a point where vasculature perforates the muscularis, creating a discontinuity in the muscle layer. At this point at the tip there is a small periappendiceal abscess, 7mm in size. There is no tumour, hyperplasia, dysplasia or malignancy.

##### CONCLUSION:

Appendix: Acute appendicitis with periappendiceal abscess at the tip.

**Note:** It is an important lesson in this case that a patient may have appendicitis even in the absence of significantly abnormal blood tests (such as white cell count and CRP) and these should not be relied upon to confirm or refute the diagnosis of appendicitis.

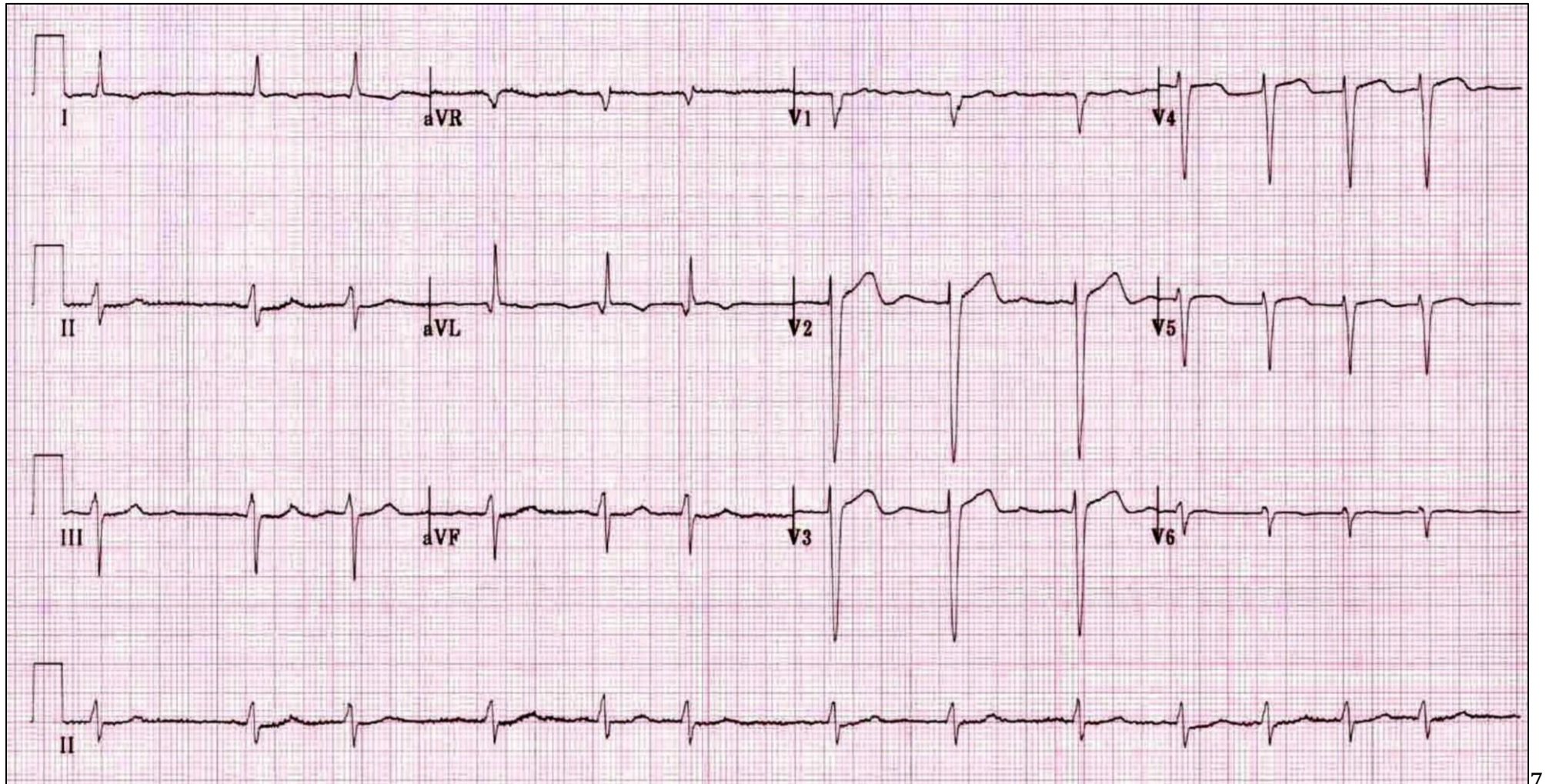


# ECG

Patient: Mr. Johnson

Age: 55

Gender: male



**3. What does the ECG show?**

You hand this information over to your registrar and they tell you they are suspecting an acutely ischaemic limb

**4. How are ischaemic limbs classified?**

**5. What are the other potential diagnoses?**

**6. How will you manage this patient both immediately and definitively?  
(cue: what management can you commence in the emergency department? Which team will need to be contacted for the definitive treatment?)**

**7. What services are available within the hospital to assist you in the management of this patient during the post operative period?**

**8. You are asked to review the patient post operatively and they are complaining of 10/10 pain in the right lower limb. What complication/s may have occurred?**



**Case 5**

Mrs. Jenkins has just undergone a laparoscopic cholecystectomy and has returned to the ward. She is a 60-year-old woman who has a history of previous deep venous thrombosis.

One of the junior nurses pages you and asks if you want anticoagulation for this patient.

1. What risk factors do you need to enquire about to assess the risk for a venous thromboembolism occurring?
  
2. What mechanical devices do we use to prevent VTE?
  
3. What pharmacological agents are available for prevention of VTE?
  
4. Chart an appropriate dose of enoxaparin.

Regular medications				Date and month					
<b>Variable dose medications</b>				Drug level					
Date	Medication (Print Generic Name)			Time level taken					
Route	Frequency	Dose Time		<b>Dose</b>					
Prescriber to enter individual dose			Prescriber						
Indication		Pharmacy use		Nurse					
Prescriber Signature		Print your name	Contact	Time given					
VTE risk assessed: <input type="checkbox"/> Extreme <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low <input type="checkbox"/> Contraindicated									
Date	Medication (print generic name)								
Route	Dose	Frequency and NOW Enter Times							
Indication		Pharmacy Use							
Prescriber Signature		Print your name	Contact						
Mechanical Prophylaxis				AM CHECK					
Prescriber/NI Signature		Print Your Name	Contact	PM CHECK					

## **Case 6**

You are on the way to a clinical review for a patient with a low blood pressure. The patient is day 1 post hemi-colectomy.

### **Vital Signs**

Heart Rate: 115

Blood Pressure: 98/80

Temperature: 36.9

Respiratory rate: 24

The patient is complaining of generalised abdominal pain that has been getting worse since the morning

**1. What are the potential causes for hypotension in the post-operative patient?**

**2. How will you assess the patient to identify a cause?**

**3. What management will you initiate?**



Your second patient for the day is also hypotensive but is 5 days following a cholecystectomy. The patient is short of breath and has convincing crackles in their left lower lobe. The patient is septic.

**4. What is sepsis? What symptoms or signs will you look for?**

**5. What antibiotics would be used in this case?**

*If you aren't sure you should review the surviving sepsis guidelines, which provide guidance on antibiotic choice in a wide range of clinical scenarios.*

**6. Who can be contacted if there are doubts about choice of antibiotics?**

### Case 7

Mr. Jones is a 55-year-old man who is having a hemi-colectomy in 2 days. The nursing staff want to know if you would like him to continue taking his regular medications. He is currently on Metformin 1g BD and Gliclazide 80mg Daily (dose).

#### 1. What is your plan for these medications?

Mrs. Ruffalo is a 61yo female, had a cholecystectomy 1 day ago and is expected to be in hospital for 2 more days. He has known type 2 diabetes. The nurse mentioned that the blood sugars have been somewhat erratic and unpredictable.

You calculate the mean daily glucose is 17mmol/L.

#### 2. How are you going to manage this patients blood sugars?

You are attending morning ward round and are seeing Mr. Wong. He was brought into the Emergency Department last night and is to have an appendectomy. He is a Type 1 Diabetic and is normally on basal-bolus regimen of insulin. The patient is fasted and you have maintenance fluid running. Your student asks you if you will prescribe his normal insulin as they are concerned you will make the patient hypoglycaemic.

#### 3. How will you respond to this statement?

### Case 8

You have been asked by your registrar to see a 40 year old female in the Emergency department who has a suspected bowel obstruction. You attend the patient's bedside and a 2 day history of cramping abdominal pain with a recent onset of nausea and vomiting. There is a past history of hypertension, type 2 diabetes mellitus and a surgical history of an appendectomy 15 years ago and a cholecystectomy 5 years ago.

1. Is this likely to be a small bowel obstruction or a large bowel obstruction?

2. How do the presentations differ?

3. What are the causes of small bowel obstructions?

4. What are the causes of large bowel obstructions?

5. What imaging/investigations will you order for this patient?

**Activity** – Visit the website below to see excellent radiographic images of the different types of bowel obstruction.

[http://www.radiologymasterclass.co.uk/tutorials/abdo/abdomen\\_x-ray\\_abnormalities/pathology\\_small\\_bowel\\_obstruction](http://www.radiologymasterclass.co.uk/tutorials/abdo/abdomen_x-ray_abnormalities/pathology_small_bowel_obstruction)

**6. How will you manage this patient?**

**7. While the patient is waiting for surgery you are called to the ward for a clinical review. The pain is now constant and the abdomen has generalized tenderness. The patient is guarding when you palpate. What do you think has happened?**

### Case 9

You have been asked to see Mrs. Lucas on the ward. She is currently nil orally and has a nasogastric tube inserted. The nurse in charge has asked you to prescribe some IV fluids as he thinks the patient is hypovolaemic.

**1. What examination findings will you look for to confirm hypovolaemia?**

On examination you discover that Mrs. Lucas has cool peripheries, heart rate of 100 and a blood pressure of 125/80. You decide that this patient requires fluid resuscitation and routine maintenance.

**2. If Mrs Lucas is 65kg and has no other comorbidities, what will you prescribe this patient? (use the flow chart on the next page if you need some guidance)**

<https://www.nice.org.uk/guidance/cg174/chapter/1-recommendations>

These guidelines (quite short and well worth a read) break fluid prescription down to three components.

**Algorithm 1: Assessment**

**Using an ABCDE (Airway, Breathing, Circulation, Disability, Exposure) approach, assess whether the patient is hypovolaemic and needs fluid resuscitation**

Assess volume status taking into account clinical examination, trends and context. Indicators that a patient may need fluid resuscitation include: systolic BP <100mmHg; heart rate >90bpm; capillary refill >2s or peripheries cold to touch; respiratory rate >20 breaths per min; NEWS ≥5; 4<sup>5</sup> passive leg raising suggests fluid responsiveness.

Yes

**Algorithm 2: Fluid Resuscitation**

**Initiate treatment**

- Identify cause of deficit and respond.
- Give a fluid bolus of 500 ml of crystalloid (containing sodium in the range of 130–154 mmol/l) over 15 minutes.

**Reassess the patient using the ABCDE approach**  
Does the patient still need fluid resuscitation? Seek expert help if unsure

Yes

Does the patient have signs of shock?

Yes

Seek expert help

>2000 ml given?

No

Give a further fluid bolus of 250–500 ml of crystalloid

Yes

Seek expert help

Yes

No

**Assess the patient's likely fluid and electrolyte needs**

- History: previous limited intake, thirst, abnormal losses, comorbidities.
- Clinical examination: pulse, BP, capillary refill, JVP, oedema (peripheral/pulmonary), postural hypotension.
- Clinical monitoring: NEWS, fluid balance charts, weight.
- Laboratory assessments: FBC, urea, creatinine and electrolytes.

Can the patient meet their fluid and/or electrolyte needs orally or enterally?

Yes

**Ensure nutrition and fluid needs are met**  
Also see [Nutrition support in adults](#) (NICE clinical guideline 32).

Does the patient have complex fluid or electrolyte replacement or abnormal distribution issues?

Look for existing deficits or excesses, ongoing abnormal losses, abnormal distribution or other complex issues.

No

**Algorithm 3: Routine Maintenance**

**Give maintenance IV fluids**

Normal daily fluid and electrolyte requirements:

- 25–30 ml/kg/d water
- 1 mmol/kg/day sodium, potassium, chloride
- 50–100 g/day glucose (e.g. glucose 5% contains 5 g/100ml).

**Reassess and monitor the patient**

Stop IV fluids when no longer needed.  
Nasogastric fluids or enteral feeding are preferable when maintenance needs are more than 3 days.

**Algorithm 4: Replacement and Redistribution**

**Existing fluid or electrolyte deficits or excesses**

- Check for:
- dehydration
  - fluid overload
  - hyperkalaemia/hypokalaemia
- Estimate deficits or excesses.

**Ongoing abnormal fluid or electrolyte losses**

- Check ongoing losses and estimate amounts. Check for:
- vomiting and NG tube loss
  - biliary drainage loss
  - high/low volume ileal stoma loss
  - diarrhoea/excess colostomy loss
  - ongoing blood loss, e.g. melanaemia
  - sweating/fever/dehydration
  - pancreatic/jejunal fistula/stoma loss
  - urinary loss, e.g. post AKI polyuria.

**Redistribution and other complex issues**

- Check for:
- gross oedema
  - severe sepsis
  - hypernatraemia/hyponatraemia
  - renal, liver and/or cardiac impairment.
  - post-operative fluid retention and redistribution
  - malnourished and refeeding issues
- Seek expert help if necessary and estimate requirements.

**Prescribe by adding to or subtracting from routine maintenance, adjusting for all other sources of fluid and electrolytes (oral, enteral and drug prescriptions)**

**Monitor and reassess fluid and biochemical status by clinical and laboratory monitoring**



# Surgery

## Skills and Procedures Checklist – PGY 1

The PGY 1 Doctors in Training should work towards competency and be confident to perform the following procedures relevant to general surgery:

Element	Procedure/skill	Observed	Assisted	Performed
<b>Minor surgical</b>	Incision of drainage of sub cutaneous abscess			
	Excision of skin lesions			
	Closure of a superficial wound			
	Surgical knots and simple suture insertion			
	Removal of suture and staples			
<b>Wounds</b>	Care of wound healing by secondary infection			
	Debridement of superficial contaminated wound			
	Removal of foreign body from eye, ear and nose			
<b>Tubes &amp; drains</b>	Insertion of intercostal drain			
	Placement of urethral catheter			
	Placement of nasogastric tube			
	Pleural/peritoneal tap			
	Removal of wound drain			
<b>Splinting</b>	Applying a plaster backslab splint			
<b>Cannulation</b>	Insertions of IV cannula			
<b>BLS</b>	Basic life support			
<b>Haemorrhage Control</b>	Superficial wound haemostasis			
	Epistaxis			
<b>Emergency Assessment and Management</b>	Post-operative bleeding			
	Acute abdomen			
	Abdominal sepsis			
	Septic shock			
	GI Bleeding			

Referenced from the *Royal Australasian College of Surgeons Essential Surgical Skills*

Please list any further skills and procedures experienced on Surgery rotation: include co-signature from supervisor			
Details of procedure/skill	Observed	Assisted	Performed

Comments/reflections from experiences listed in this section:

## Skills and Procedures Checklist – PGY 2+

By the end of PGY 2 Doctors in Training should be able to perform the above procedures and be working towards competency in these additional procedures relevant to surgery:

Element	Procedure/skill	Observed	Assisted	Performed
<b>Paediatric Surgery</b>	Insertion of IV cannula in children			
	Maintenance of IV fluid management for children			
	IV fluid resuscitation for children			
	Advanced Paediatric Life Support			
	Appropriate prescribing of analgesia for a child			
<b>Orthopaedic Surgery</b>	Recognises and initiated managements of orthopaedic emergencies <ul style="list-style-type: none"> <li>• Open fractures</li> <li>• Compartment syndrome</li> <li>• Cauda equine syndrome</li> </ul> Acute bone and joint infections/sepsis			
	Recognise and diagnoses common orthopaedic presentations			
	Common fracture classification application			
	Principles of closed reduction of simple fractures and dislocations			
	Application of common upper and lower limb plaster casts			
	Draping for upper and lower orthopaedic procedures			
	Ordering equipment for uncomplicated primary hip and knee joint replacement surgery			
	Supervised surgery for common upper and lower limb fractures <ul style="list-style-type: none"> <li>• Ankle fracture</li> <li>• Neck of femur fracture</li> <li>• Forearm fracture</li> </ul>			
	Reduction of colles' wrist fracture			
	Reduction of shoulder dislocation			
<b>Vascular Surgery</b>	Assessment of acute limb ischaemia			
	Investigation and management of patients with acute limb ischaemia			
	Calculation of Ankle Brachial Index			
	Care of angiographic puncture sites			
<b>Pre-operative</b>	Appropriate assessments and investigations			
<b>Post-operative care</b>	Post-operative care of common elective and trauma procedures			
	Post-operative physiotherapy and rehabilitation after elective and trauma procedures			
<b>ALS</b>	Advanced life support			
<b>Emergency Assessment and Management</b>	Miscarriage			
	Closed head Injury			
	Compartment Syndrome			
	Trauma			
	Long Bone fractures			
	Burns			
	Tendon Injury			

Referenced from the *Royal Australasian College of Surgeons Essential Surgical Skills*

**Please list any further skills and procedures experienced on Surgery rotation: include co-signature from supervisor**

<b>Details of procedure/skill</b>	<b>Observed</b>	<b>Assisted</b>	<b>Performed</b>

**Comments/reflections from experiences listed in this section:**


# Mini-CEX Assessment 1

## Introduction:

A mini-CEX exercise assessment (mini-CEX) is a 15-20 minute snapshot of doctor-patient interaction observed and assessed by a senior departmental doctor (Consultant or Registrar). Various skills to be assessed during a patient consultation include; medical interviewing, physical examination, communication, clinical judgement, professional qualities, counselling skills, organisation and efficiency.

## Instruction:

During core rotations DiTs are expected to complete **a minimum of 2 mini-CEX assessments** from the skills and procedure check list provided below.

<b>Department:</b>		
<b>Date:</b>		
<b>Clinical Problem:</b>		
Assessment Criteria	Descriptors	Results
<b>1. Medical Interviewing</b>	<ul style="list-style-type: none"> <li>Elicits a history that is relevant, concise and accurate to patient's context and preferences</li> <li>Effectively uses appropriate questions</li> <li>Responds appropriately to verbal and non-verbal cues</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>2. Physical examination skills</b>	<ul style="list-style-type: none"> <li>Performs a focused physical examination that is relevant and accurate</li> <li>Provides competent explanation to patient</li> <li>Sensitive to patient's comfort and modesty</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>3. Communication</b>	<ul style="list-style-type: none"> <li>Develops rapport, trust and understanding with patient/family</li> <li>Accurately conveys relevant information and explanations to patients/family and other health professionals</li> <li>Develops a shared plan of care with patients/families and other health professionals</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>4. Clinical judgment</b>	<ul style="list-style-type: none"> <li>Demonstrates effective clinical problem solving and judgement to address patient problems</li> <li>Interprets available data and integrates information to generate differential diagnoses and management plans</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>5. Professionalism/ Counselling skills</b>	<ul style="list-style-type: none"> <li>Exhibits honesty, integrity, compassion and respect</li> <li>Participates effectively and appropriately in an interprofessional healthcare team</li> <li>Appropriately manages conflicts of interest</li> <li>Aware of own limitations</li> <li>Effectively manages challenges such as obtaining informed consent, delivering bad news, addressing anger and misunderstanding</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>6. Organisation/ efficiency</b>	<ul style="list-style-type: none"> <li>Sets priorities and manages time efficiently</li> <li>Manages competing demands and stress</li> <li>Appropriately manages supervision, resources and staff.</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>Overall performance</b>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent	
<b>Assessor comments on candidate's strengths and areas for improvement.</b>		

## Mini-CEX Assessment 2

### Introduction:

A mini-CEX exercise assessment (mini-CEX) is a 15-20 minute snapshot of doctor-patient interaction observed and assessed by a senior departmental doctor (Consultant or Registrar). Various skills to be assessed during a patient consultation include; medical interviewing, physical examination, communication, clinical judgement, professional qualities, counselling skills, organisation and efficiency.

### Instruction:

During core rotations DiTs are expected to complete **a minimum of 2 mini-CEX assessments** from the skills and procedure check list provided below.

<b>Department:</b>		
<b>Date:</b>		
<b>Clinical Problem:</b>		
Assessment Criteria	Descriptors	Results
<b>1. Medical Interviewing</b>	<ul style="list-style-type: none"> <li>• Elicits a history that is relevant, concise and accurate to patient's context and preferences</li> <li>• Effectively uses appropriate questions</li> <li>• Responds appropriately to verbal and non-verbal cues</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>2. Physical examination skills</b>	<ul style="list-style-type: none"> <li>• Performs a focused physical examination that is relevant and accurate</li> <li>• Provides competent explanation to patient</li> <li>• Sensitive to patient's comfort and modesty</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>3. Communication</b>	<ul style="list-style-type: none"> <li>• Develops rapport, trust and understanding with patient/family</li> <li>• Accurately conveys relevant information and explanations to patients/family and other health professionals</li> <li>• Develops a shared plan of care with patients/families and other health professionals</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>4. Clinical judgment</b>	<ul style="list-style-type: none"> <li>• Demonstrates effective clinical problem solving and judgement to address patient problems</li> <li>• Interprets available data and integrates information to generate differential diagnoses and management plans</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>5. Professionalism/ Counselling skills</b>	<ul style="list-style-type: none"> <li>• Exhibits honesty, integrity, compassion and respect</li> <li>• Participates effectively and appropriately in an interprofessional healthcare team</li> <li>• Appropriately manages conflicts of interest</li> <li>• Aware of own limitations</li> <li>• Effectively manages challenges such as obtaining informed consent, delivering bad news, addressing anger and misunderstanding</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>6. Organisation/ efficiency</b>	<ul style="list-style-type: none"> <li>• Sets priorities and manages time efficiently</li> <li>• Manages competing demands and stress</li> <li>• Appropriately manages supervision, resources and staff.</li> </ul>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent
<b>Overall performance</b>	<input type="checkbox"/> Competent <input type="checkbox"/> Not yet competent	
<b>Assessor comments on candidate's strengths and areas for improvement.</b>		

# Case Based Presentation 1

## Introduction:

During core rotations DiTs are requested to record **at least one case** that provided a valuable learning opportunity. The purpose of this assessment is to assist staff, allowing them to reflect upon clinical practice and develop insight into recognising limitations. At the end of term rotation assessment, DiTs are encouraged to seek feedback on these journals. **(De identify all cases -NO PATIENT ID PLEASE)**

Department:	
Case/Presentation	
<b>Description:</b> Overview of what has happened.	
<b>Feelings:</b> What were you thinking and/or feeling throughout?	
<b>Evaluation:</b> What was positive and/or negative about the experience?	
<b>Analysis:</b> What was the underlying cause/issue of the situation?	
<b>Conclusion:</b> What else could have been done?	
<b>Action plan:</b> If this case was presented again would you do anything differently?	



## Case Based Presentation 2

### Introduction:

During core rotations DiTs are requested to record **at least one case** that provided a valuable learning opportunity. The purpose of this assessment is to assist staff, allowing them to reflect upon clinical practice and develop insight into recognising limitations. At the end of term rotation assessment, DiTs are encouraged to seek feedback on these journals. ***(De identify all cases -NO PATIENT ID PLEASE)***

<b>Department:</b>	
<b>Case/Presentation</b>	
<b>Description:</b> Overview of what has happened.	
<b>Feelings:</b> What were you thinking and/or feeling throughout?	
<b>Evaluation:</b> What was positive and/or negative about the experience?	
<b>Analysis:</b> What was the underlying cause/issue of the situation?	
<b>Conclusion:</b> What else could have been done?	
<b>Action plan:</b> If this case was presented again would you do anything differently?	

## References:

1. Burns E. Atrial Fibrillation [Internet]. 2016 [cited 2016 Jul 14]. Available from: <http://lifeinthefastlane.com/ecg-library/atrial-fibrillation/>

The Medical Education team would like to acknowledge Dr. Ben Scott for his work in developing this resource for Doctors in training at Ballarat Health Services