Ward 18 RPH

Student Nurse Information Pack

Ward Philosophy

We are here to provide care and support for patients and their families.

We work with expertise, professionalism and compassion.

We recognise that every person is individual and unique.
The care we provide will reflect this by involving patients, their families and friends in their care, in an environment of partnership and support.
In this environment the patients, their relatives and all the members of the MDT can work together to provide the best and the most appropriate care available.

We believe that each person has right to be informed about their illness and proposed treatment. It is to enable them to make informed choices and maintain independence and dignity.

We use evidence based, innovative and person-centred approaches to nursing practice to ensure that best quality care is provided.

We ask to be treated with respect, whilst recognising that aggressive, abusive or violent behaviour is unacceptable.

Introduction

Lancashire teaching hospitals NHS trust is a teaching hospital therefore we have many students entering the hospital including those from many other specialities. In accordance with trust policy please ensure you always have your trust ID with you and adhere to our standards for dress and communication. You can access these on the intranet or ask any of the team who will be happy to help.

Ward 18

Ward 18 is a busy 28 bedded mixed sex medical ward, specialising in cardiology and Endocrinology. We work closely with the teams in coronary care and the cardiac catheter lab. We take step down patients from coronary care and we prepare patients for procedures, such as permanent pacemakers, cardiac angiograms and trans oesophageal echocardiograms. We also transfer patients to Blackpool Victoria hospital for more complex interventions as they are the regional cardiac centre.
We care for patients on a DKA protocol and VRII sliding scale.

Shift times

Day: 7am-7.30pm
Night: 7pm-7:30am

As a student nurse you will be supernumerary, but we recommend that you work a variety of shifts, documented on previous page. This will enable you to fully appreciate the diversity of patients we receive on to the ward. Your shift pattern will be negotiated with one of the ward sisters and you will find them on healthroster with plenty of notice. Please feel free to make requests on the roster but remember these are not guaranteed and any shift changes will need to be swapped with other students.

You will work with various members of the team as part of the CLIP programme and provide learning logs of your development for your mid and end point meetings.

Staff

Consultants: Dr W. Khan
Dr S.Khan
Dr Irfan Ahmed
Dr Mohamed Ahmed
Dr Mo Lasheine
Dr. Joseph

Ward Manager: Nicola Evans

Sisters : Hannah Payne
Anu John
Rebecca Coleman

Clinical educator Izabela Bielas-Barnes

Learning Environment Manager: Hannah Payne

Ward Clark: Carol Davies

Housekeeper: Rozina Siddique

Phone Numbers

Switchboard: 01772 716565

Ward 18: 01772 522318

Cardiac arrest: **2222**

This is the emergency number also used for security and fire.

Your Placement

Lancashire Teaching Hospitals and Ward 18 as part of education ethos embedded Collaborative learning in practice (CLiP) system .
It entails utilising clinical placement in a different way with direction being provide by coaches and overseen by placement facilitator.

As a student nurse it is expected that you will continually develop towards engaging in critical thinking and demonstrate increased ability to utilise your own initiative. To facilitate this, you will be supported to use the student board, in the centre of the ward. This will enable you to access spoke placements and provide information of your progression. You will work with a range of staff and supervisors and varying members of the MDT.

Interviews

Beginning: 1st week
Intermediate: Weeks 4-5
Final: Last week

For those students on the 4 week placement your interviews will take place in the first and last week. Mid-point interviews will be arranged at convenient time within your 2nd and 3rd week.

These meetings are your responsibility to arrange!

The 1st and mis point can be held with any supervisor and additional comments can be added and is encouraged to ensure regular timely feedback.

Spoke Placements

We encourage our students to engage in other areas. As part of your professional development you will be expected to arrange this yourself. See list below for contact details.

Spoke	Contact Name	Extension
Bereavement team & donation co-ordinator	Helen Bradley	8184
Cardiac catheter suite	Georgina Lowe	4382
Cardiac specialist nurses	Anna Adam	7588
Cardiac rehab unit	Preston	2311

Coronary care unit	Nicola Calcutt	2330
Diabetic specialist nurse	Reception	2254
Dietician	Jenna Madden	2467
Heart failure specialist nurse		8377
Infection control team	Reception	2592
Nutrition nurses	Reception	3057
Occupational therapy	Reception	3224
Physiotherapy	Reception	2876
Speech and Language	Reception	
Tissue viability	Reception	2655

Clinical Information/Skills

This placement will allow you to gain a variety of skills and enhance your knowledge. You will learn basic nursing care, useful in any care environment. You will also be exposed to specialist skills used in ward 18 such as ECG's and telemetry.

Learning Opportunities

- Management of cardiac, and medical patients with varied conditions
- Admission, discharges and transfers
- Work and make decisions within the multi-disciplinary team (MDT), enhancing your communication skills
- Taking care of a team of patients for a shift
- Develop clinical skills in the management of pain, utilizing medication, distraction techniques and physical intervention
- Develop knowledge and skill in administering sub-cut/intramuscular/intravenous medication including drug calculations
- Medicines management: knowledge of medication used on the ward
- Documentation such as risk assessments, monitoring charts e.g. fluid balance and nursing notes
- Pressure area management: gaining a basic knowledge in wound care and the utilization of equipment, such as pressure mattress
- Importance of fluid management and its documentation
- Observe a variety of procedures on and off the ward

- Management of infectious disease and barrier nursing
- Palliative care, nursing the dying patient and counselling their relatives
- Identification of the deteriorating patient, through haemodynamic observations, assessments, ECG's etc
- Giving information to patients and relatives were appropriate using aids such as health promotion leaflets
- Using IT to access policy and procedures to improve/inform your practice
- Management and monitoring of VRII sliding scale and DKA's

National Early Warning Score (NEWS 2)

NEWS is this trusts observation scoring system used to identify deteriorating patients. In order to recognise abnormal observations it is important to have knowledge of normal ranges

Normal readings:
Respiratory Rate: 12-20
Oxygen saturation: >96%
Temperature: 36.0-38.0 degrees
Systolic Blood Pressure: 100mmhg-210mmhg
Heart Rate: 50-90bpm
Blood Glucose: 4-7mmol

It is important to note that these are only guidelines and you should consider the patient's condition. Should you find abnormal readings or significant change it is your responsibility to inform a senior nurse. The nurse will then assist you to manage this and escalate accordingly.

The NEWS 2 scoring system also has pain, nausea and sedation assessment scale. These are rated on a scale of 0-3. Talk to your patient and use your clinical judgement to assess this. Urine output and blood glucose levels are also on the NEWS 2

A-E Assessment

This assessment tool should be followed when signs of deterioration are noted. This should also be performed when a patient is scoring a NEWS of 5 and above or 3 in one specific parameter.

IF	Step	Assessment	Management	ASSESS
UNSURE	A Airway	• Is the airway patent and maintained • Can the patient speak • Are there added noises • Is there a see-sawing movement of the chest and abdomen	• Ensure airway is patent and maintained • Simple airway manoeuvres • Suction • Consider using airway adjuncts and position patient • O2 via high concentration mask	RESPOND
CALL	B Breathing	• Observe rate and pattern • Depth of respiration • Symmetry of chest movement • Use of accessary muscles colour of patient • Oxygen saturations	• Position of patient • Consider physio therapy and nebulisers • Bag valve mask • O2 via high concentration mask	AFTER
FOR	C circulation	• Manual pulse and BP • Capillary refill time • Urine output fluid balance • Temperature • Ensure patient iv access	• Cannulate • Take appropriate bloods • Blood cultures • Fluid bolus administer titrate	EACH
HELp	D Disability	• Conscious level using AVPU • Blood glucose level • Pupil size and reaction • Observe for seizure • Pain assessment	• Consider recovery position • Correct blood glucose • Control seizure • Control pain	INTER
	E Exposure	• Perform head to toe examination front to back	• Manage abnormal findings appropriately	VENTION

Sepsis

Sepsis inflammatory response criteria

Systolic Blood Pressure	<90mmhg or drop of 40mmhg
Lactate	>2mmols/l
Heart rate	> 130bpm
Respiratory rate	>25/per min
Oxygen saturations	<91%
Acutely altered mental state	
Non Blanching rash, mottled or cyanosed	
Urine output	Not passed urine in 18hours or <0.5mls/kg/hr
Neutropenic	<0.5x10*9per litre

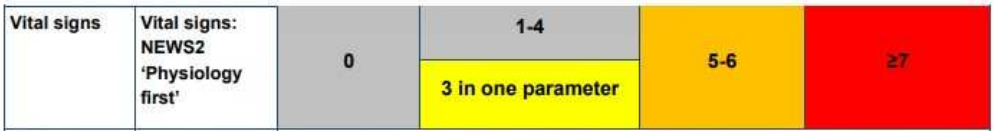
Sepsis 6

- Oxygen to maintain target saturations
- Anti-biotics given IV within 60minutes
- IV Fluid resuscitation
- Blood cultures, Lactate & relevant bloods
- Early senior review

- Hourly urine output & perform RWT

Sepsis Pathway

Fig 1: Clinical Decision Support Framework for initial evaluation of sepsis in Adults ≥16 years.



Basic Life

Support

Shout for help

Open airway head tilt chin lift or jaw thrust

Check breathing look listen and feel for 10 seconds

If breathing detected place patient in the recovery position

If no signs of breathing or circulation call 2222 adult cardiac arrest and state where patient is

Immediately Start chest compressions 30 to be completed before two rescue breaths are given

Continue this until qualified help arrives or patient shows signs of life

Bloods/ samples - normal ranges

- **U&E**
  Sodium 133-146 mmol/l
  Potassium 3.5-5.3mmol/l
  Urea 2.5-7.8 mmol/l
  Creatinine 45-84umol/l

- **FBC**
  WCB 4.0-11.0 19*9/l
  HGB 115-165 GL
  Platelets 140-440 10*9/l
  Rbc 3.8-5.8 10*12/l
  HCT 0.370-0.470 ratio
  HMCV 82.0-98.0 FL
  MCH 27.0-32.0 PG
  RDW 11.8-14.0%
  Neutrophils 1.60-7.50 10*9/l
  Lymphocytes 1.00-4.0010*9/l
  Monocytes 0.20-1.010*9/l
  Eosinophils 0.04-0.4410*9/l
  Basophils 0.00-0.10 10*9/l
  Nucleated RBC 0-0.0110*9/l

- **CRP** 0.0-5.0 MG/L
- **Trop** 3-14 NG/L
- **B-type Natriuretic Peptide (BNP) –**

- BNP levels below 100 pg/mL indicate no heart failure.
- BNP levels of 100-300 pg/mL suggest heart failure is present.
- BNP levels above 300 pg/mL indicate mild heart failure.
- BNP levels above 600 pg/mL indicate moderate heart failure.
- BNP levels above 900 pg/mL indicate severe heart failure.

- **Liver function test**

- Bilirubin 0-21 umol/L
- 0-42 U/L
- Total protein 60-80 g/L
- ALT 0-41 U/L

- **Lactate** <250 U/L
- **Urine**

- pH value (measure of the acidity of the urine. Normal values, depending on diet, range from about 5 to 7, where values under 5 are too acidic, and values over 7 are not acidic enough)
- Protein (not usually found in urine)
- Sugar (glucose, not usually found in urine)
- Nitrite (not usually found in urine)
- Ketone (a metabolic product, not usually found in urine)
- Bilirubin (breakdown product of hemoglobin, not usually found in urine)
- Urobilinogen (breakdown product of bilirubin, not usually found in urine)
- Red blood cells (erythrocytes, not usually found in urine)
- White blood cells (leukocytes, not usually found in urine)

Drug calculations

- Drip rate
- Drop rate = $\frac{\text{amount of fluid in mls x unit volume}}{\text{The time the fluid is prescribed over in minutes}}$
- Unit volumes are printed on the giving set pack

- Dosage calculations
- Volume to be given = amount prescribed x unit volume
- Number of measures = $\frac{\text{amount prescribed}}{\text{amount per measure}}$
- Number of tablets = $\frac{\text{what you want}}{\text{what you've got}}$

Conversions

- Units of weight

1000 micrograms = 1 milligram
1,000,000 micrograms = 1 gram
1000 milligrams = 1 gram
1000 grams = 1 kilogram

- Units of volume

1000 millilitres = 1 litre

- Units of length / height

1000 millimetres = 1 metre
10 millimetres = 1 centimetre
100 centimetres = 1 metre
1000 metres = 1 kilometre

Common drugs

The following is a list of drugs commonly used on ward 18. It may be of some benefit for you to familiarise yourself with them.

Drug	**Clue**	**Usage**	**Side effects**
Amioderone	Arrhythmias		
Amlodipine	Hypertension		
Amoxicillin	Antibiotic		
Aspirin	Anti-coagulant		
Atenolol	Beta blocker		
Atorvastatin	Cholesterol		
Atrovent	Breathing		
Bisoprolol	Beta blocker		

Clopidogrel	Anti-coagulant		
Digoxin	Anti-arrhythmic		
Diltiazem	Hypertension		
Docusate	Bowels		
Enalapril	Hypertension		
Ferrous sulphate	Vitamin supplement		
Fragmin	Anti-coagulant		
Furosemide	Diuretic		
GTN	Chest pain		
Heparin	Chest pain		
Inhalers	Breathing		
Isorbide mononitrate	Angina		
Lactulose	Bowels		
Lansoprazole	Gastric acid		
Levofloxacin	Antibiotic		
Metoclopramide	Anti-sickness		
Morphine	Pain killer		
Nitronal	Chest pain		
Omeprazole	Stomach acid		
Perindopril	Hypertension		
Prednisolone	Steroid		
Ramipril	Hypertension		
Salbutamol	Breathing		
Senna	Bowels		
Sotalol	Beta blocker		
Spirolactone	Diuretic		
Thyroxine	Hormone		

Abbreviations

AF – Atrial fibrillation
AXR – Abdominal x-ray
BD- Twice Daily
BP – Blood Pressure
C/N – Charge nurse
C/O – Complaining of
C&S – Culture and sensitivity
CABG – Coronary artery bypass graft
CCF – Congestive Cardiac Failure
CCU – Coronary care unit
CRCU – Intensive care unit
CSSU – Catheter specimen of urine
CVA - Cerebral vascular accident

CXR – Chest x-ray
DWT – Daily weight
ECG – Electrocardiography
ECHO – Echocardiogram
FBC - Full Blood count
FR – Fluid restriction
Hb – Haemoglobin
I/C – With
IDDM – Insulin dependent diabetic
IHD – Ischaemic heart disease
IM – Intramuscularly
IV – Intravenous
IVAB – Intravenous antibiotics
IVI – Intravenous infusion
LP – Lumbar Puncture
LVF – Left ventricular failure
Mane – Morning
MI – Myocardial infarction
MSSU - Midstream Specimen of urine
NAD – No abnormality detected
NIDDM – Non insulin dependent diabetic
PE – Pulmonary embolism
PO – Oral
PPM – Permanent pacemaker
PR – Per Rectum
PRN – As required
PV – Per vagina
QDS – Four times a day
S/B – Seen by
SN – Staff Nurse
SR – Sister
Stat – Immediately
TDS – Three times a day
TNT – Trop T
TPN – Total Parental Nutrition
TPR – Temperature, Pulse and Respirations
TTH – To take home
TTO – To take out
U & E – Urea and Electrolyte
VT – Ventricular tachycardia

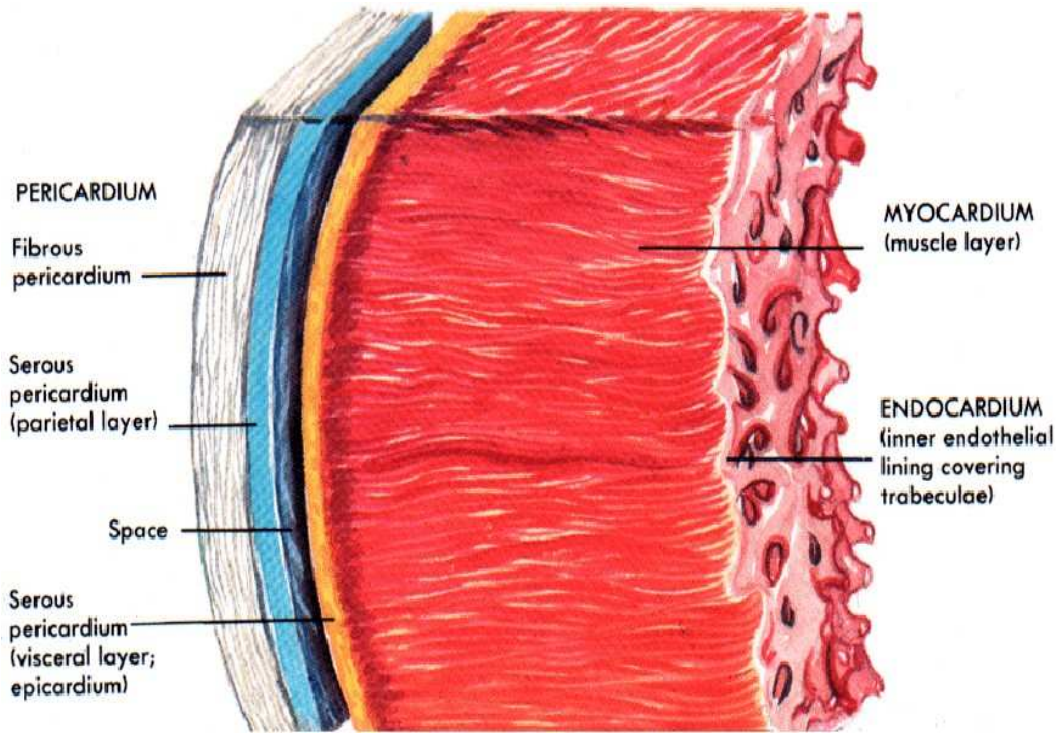
WCC – White cell count

This list is not a comprehensive list but has most used on the ward. If you come across any further abbreviations, please add them.

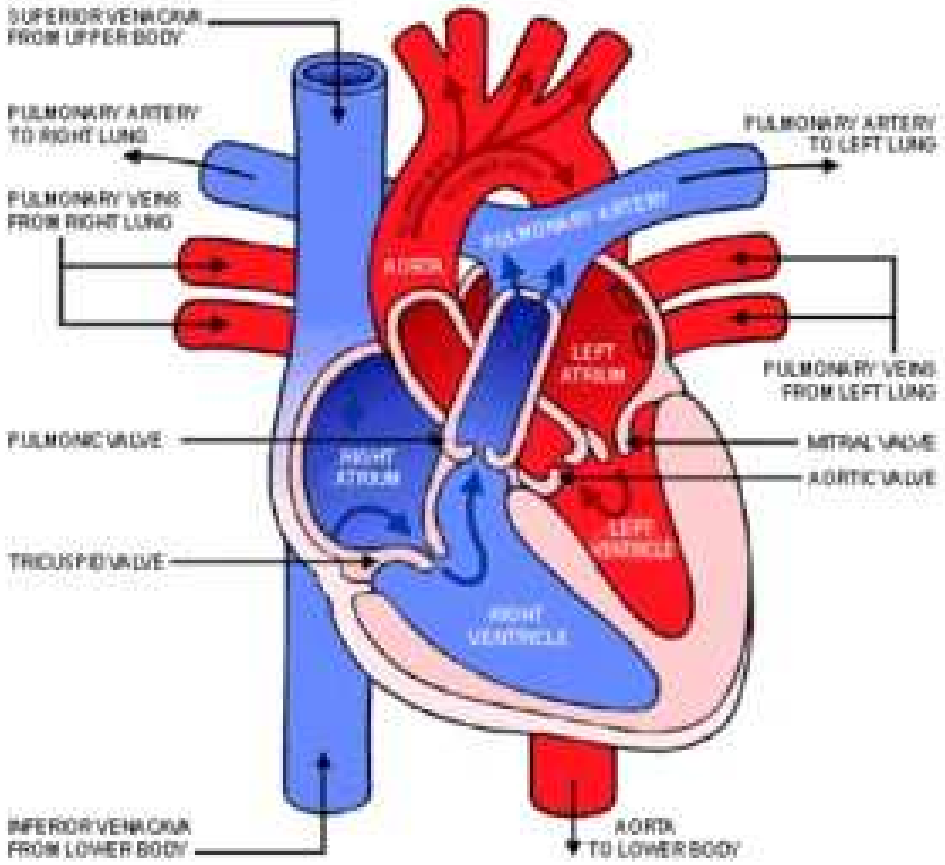
Cardiology

Layers of the heart

The heart consists of three layers of tissue. The pericardium is a fibrous covering around the heart that holds it in a fixed position. The myocardium is the muscular section that contains specialised cells used in the conduction of the electrical activity. The endocardium is a thin smooth three layered membrane that forms the inner lining of the heart.


PERICARDIUM
Fibrous pericardium
Serous pericardium (parietal layer)
Space
Serous pericardium (visceral layer; epicardium)
MYOCARDIUM (muscle layer)
ENDOCARDIUM (inner endothelial lining covering trabeculae)

Blood Flow:



The heart comprises of four chambers, two atria form the top proportion of the heart and two ventricles form the bottom. The heart is divided into the right and left side separated by the septum, with each side having an atria and ventricle. The atria receive the blood coming into the heart from the inferior and superior vena cava. The ventricles pump the blood out of the heart.

The right side of the heart pumps blood into the pulmonary arteries, it is interesting to note these are the only arteries that carry deoxygenated blood. The pulmonary arteries carry blood to the lungs and gaseous exchange takes place before it is returned to the left side of the heart through the pulmonary veins, which are the only veins that carry oxygenated blood. The left side of the heart pumps oxygenated blood out of the ventricle into the aorta and the general circulation of the body.

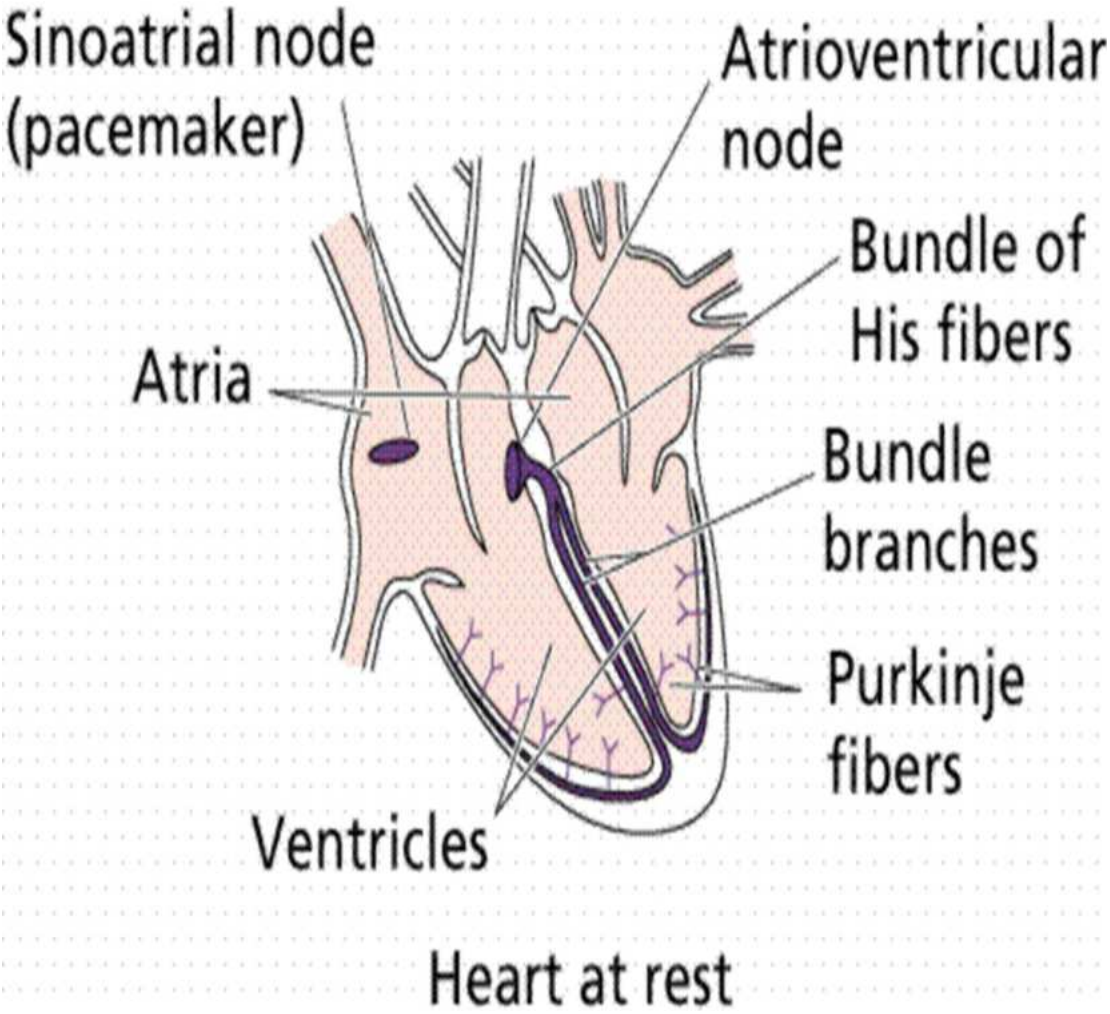
<u>The valves</u>

The heart consists of four valves, which prevent the back flow of blood.

- The tricuspid valve prevents the back flow of blood from the right ventricle to the right atria, during cardiac contraction.
- The pulmonary valve prevent back flow of blood from the pulmonary artery to the right ventricle, during cardiac contraction
- The mitral (bicuspid) valve prevents the back flow of blood from the left ventricle to the left atria, during cardiac contraction.
- The aortic valve prevent back flow of blood from the aorta to the left ventricle, during cardiac contraction

<u>How the Heart Beats</u>

The heart muscle is unique in that each cell has the ability to generate its own electrical impulse. However, a normal heart beat is produced by the generation of electrical impulse from Sinoatrial node located in the right atrium, near the superior venacava. The SA node is the hearts natural pacemaker, as it has small specialised cells which initiate impulses more rapidly than other heart cells. The AV node is a small mass of neuromuscular tissue situated in the wall of the atria septum, near the atrioventricular valves. It conducts electrical charge by impulses that sweep over the atria myocardium.



Heart at rest

<u>How the</u>

Heart beats Flow Chart:

Electrical impulse begins at the SA node

↓

The atria then begin to fill with blood

↓

The electrical impulse then travel towards the AV node

↓

At this point valves begin to open allowing the passage of blood to the ventricles

↓

The impulse then continues down the Bundle of His and bundle branches

↓

The ventricles are then completely filled with blood

↓

The impulse is now at the purkinje fibres causing the heart to beat and pump blood out of the ventricles

↓

The process then re-starts

The ECG

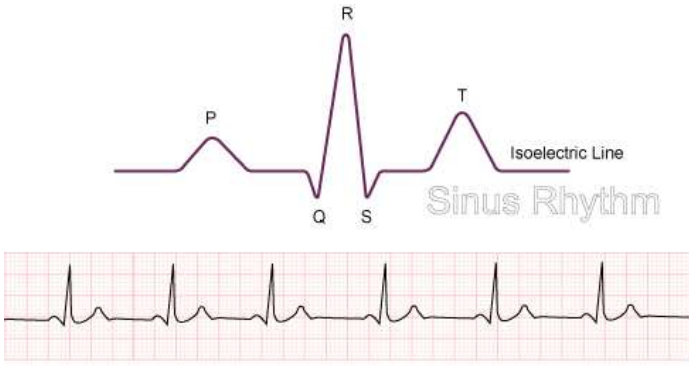
Once you understand how the heart beats it can be then related to ECGs. Depolarisation is the description of the contraction of the heart muscle. Repolarisation is the resting state of the heart muscle.

The electrical impulse spreading through the heart is represented on the ECG in the following way.

1. Atrial depolarisation **P** wave
2. 2. Ventricular depolarisation **QRS** complex
3. Atrial and ventricular repolarisation. **ST** segment
4. **T** wave represents ventricular repolarisation.

A **U** Wave maybe present but this is not common but can be seen in hypokalemia (Low potassium).

As the atria repolarise during ventricular contraction, there is no wave representing atrial repolarisation as it is buried in the QRS.



<u>How to read a rhythm strip</u>

Six step approach:
1) Is there any electrical activity?
2) What is the ventricular rate?
3) Is the QRS rhythm regular or irregular?
4) Is the QRS width normal or prolonged?
5) Are the P-waves? Are they normal?
6) How is atrial activity related to ventricular activity?

Sinus rhythm
The normal cardiac rhythm, the sino-atrial node initiates the impulse and follows the normal conduction pathway.

Sinus bradycardia.
Sinus bradycardia is the same as sinus rhythm with a heart rate of less than 60 beats per minute.

Sinus tachycardia.
Sinus tachycardia is the same as sinus rhythm with a rate of more than 100 beats per minute.

Atrial fibrillation (A.F)
Atrial fibrillation is the most common arrhythmia encountered in clinical practice. Resuscitation council (2008). It is characterised on the E.C.G by irregularly irregular ventricular activity, and an undulating baseline with no recognisable P waves in any leads.

Atrial flutter
Atrial flutter is seen on the ECG as flutter waves. It is best viewed in leads II, III, and aVF and has a saw tooth appearance

Asystole
The characteristics of asystole are The absence of any electrical activity. Some evidence of atrial activity (p waves) may be present as in the strip below, but atrial impulses are not conducted to the ventricles. Without ventricular activity ventricular contraction can not occur, as a result no cardiac output or perfusion can occur. We rarely see a completely flat line, it is therefore important to check the patient and lead positioning.

There are other rhythms, but these are the basics. If you want more challenging ones, ask Izabela!!!!

Myocardial Infarction

A heart attack (myocardial infarction or MI) is a serious medical emergency in which the supply of blood to the heart is suddenly blocked. It is diagnosed commonly from ECG changes or a raise in Troponin levels.

Symptoms:

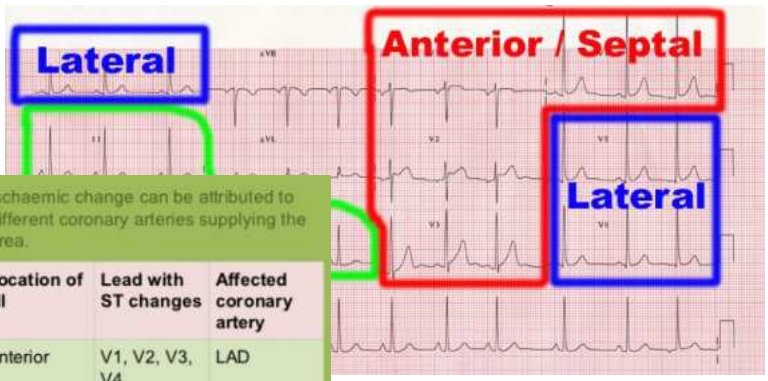
- Chest pain – this could radiate to the back, arms or neck
- Chest tightness
- Shortness of breath
- Light headed
- Clammy
- Nausea

- Cough/wheeze
- Raised Troponin levels
- ECG changes

Types of MI

STEMI (ST Elevation Myocardial Infarction) is a complete occlusion of the coronary artery. This is seen on an ECG. Where there is a raise of ST segment of 1 or more small squareS. This could be in just one lead so it is important to check all leads. Rapid assessment of an STEMI is vital. Treatment of a STEMI is more rapid these patients will be given medication but will be listed for urgent PCI too. Here at RPH it is trust policy to blue-light patients with new onset ST elevation to Blackpool Victoria Hospital.

NSTEMI (Non-ST Elevation Myocardial Infarction) is a partial occlusion of the coronary artery. This is seen on an ECG. There is no elevation in the ST segment. ST depression could occur as could T wave inversion.

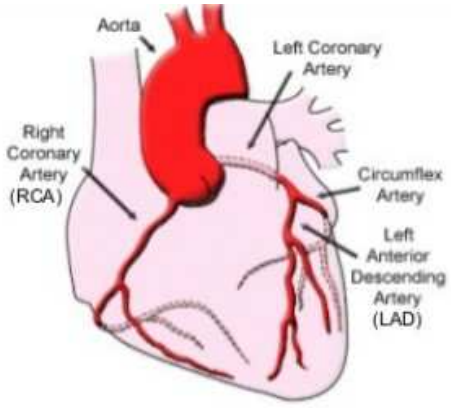


MI's can occur in different leads. This indicates the part of heart that is damaged.

Ischaemic change can be attributed to different coronary arteries supplying the area.

Location of MI	Lead with ST changes	Affected coronary artery
Anterior	V1, V2, V3, V4	LAD
Septum	V1, V2	LAD
left lateral	I, aVL, V5, V6	Left circumflex
inferior	II, III, aVF	RCA
Right atrium	aVR, V1	RCA
*Posterior	Posterior chest leads	RCA
*Right ventricle	Right sided leads	RCA

*To help identify MI, right sided and posterior leads can be applied



This diagram shows the part of the heart effected relating to the ECG.

Treatments

Following an NSTEMI patients are placed on the Acute Coronary Syndrome (ACS) treatment. This consists of the following medication:

- ACE inhibitor
- Analgesia
- Anti-thrombolytic drugs e.g. Clopidogrel
- Aspirin
- Beta-Blockers
- Lipid lowering drugs (Statins)
- Low molecular weight heparin
- Nitrates
- Oxygen – this tends to be used as a precaution and does not necessarily need to remain as part of the treatment

Patients will then usually have angiograms (is a test that looks inside your coronary arteries). Following this patients will usually have stents inserted at the same time. Lancashire Teaching Hospitals doesn't offer this service and patients are sent to BVH, mainly as a day patient.

Heart Failure

Heart failure is where the heart isn't able to pump blood effectively, through long term damage. The main causes are:

- Chronic Heart Disease (CHD)
- Hypertension
- Cardiomyopathy
- Arrhythmias
- Valve disease
- Alcohol and drug abuse
- Diabetes

Heart failure varies in severity and is scaled in a class system of, 1-4. The higher the class denotes the severity of heart failure symptoms impacting daily life. Heart failure can be diagnosed with X-rays, echocardiograms, ECGs and blood tests.

Echocardiograms are the best way to diagnose heart failure. They can assess left ventricular function in terms of ejection fraction; this is a common term you will here on the ward. Ejection fraction is the percentage of blood pumped out of the left ventricle during each beat. A normal ejection fraction is 55-70%. An ejection fraction of less than 30% is considered extremely poor.

<u>Symptoms</u>

- Breathlessness – this due to an excess of fluid putting pressure on the heart. Breathlessness can vary in severity resulting in a reduced exercise tolerance
- Oedema – swelling and excess fluid particularly occurs in lower limbs
- Wheeze – often a result of the breathlessness
- Fatigue

<u>Types of heart failure</u>

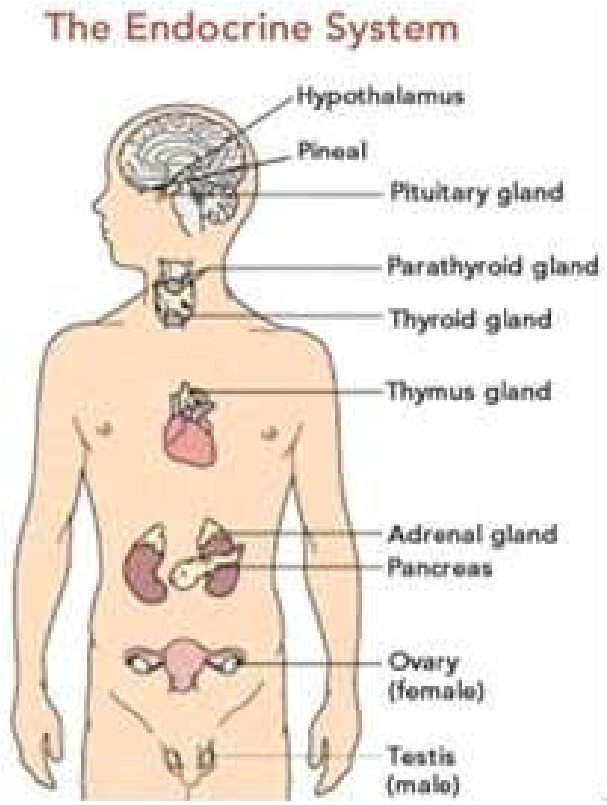
- Acute HF – Symptoms that exacerbate rapidly resulting in breathing difficulties and possible pulmonary oedema

- Left sided HF– patients tend to have a 'wet' sounding chest because of pulmonary congestion, resulting in breathlessness. Left sided heart failure is categorised into 2 elements
  - Systolic HF – The left ventricle doesn't contract normally and isn't able to pump enough blood around the body
  - Diastolic HF – The left ventricle doesn't fill back up properly or with enough blood because the muscle is stiff

- Right sided HF– Peripheral oedema is present in this case, due to the inability to pump blood/fluid back to the heart

CCF is a combination of both left and right sided heart failure.

Endocrinology

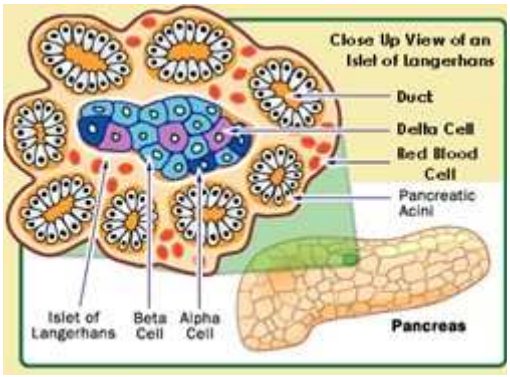


The endocrine system is the collection of glands that produce hormones that regulate metabolism, growth and development, tissue function, sexual function, reproduction, sleep, and mood, among other things.

For the purpose of learning to support your placement on ward 18 we will be examining only the pancreas and its functions. This is because most endocrine patients on ward 18 are uncontrolled diabetics.

The pancreas is an organ located in the abdomen. It plays an essential role in converting the food we eat into fuel for the body's cells. The pancreas has two main functions: an exocrine function that helps in digestion and an endocrine function that regulates blood sugar.

This placement pack will concentrate only on the endocrine function with relation to the regulation of blood glucose.



The cells which make up the pancreatic islet of langerhans are found in clusters irregularly distributed throughout the substance of the pancreas. Unlike the exocrine pancreas which produce pancreatic juice there are no ducts leaving from the clusters of the islet cells. Pancreatic hormones are directly secreted into the blood stream and are circulated throughout the body. The pancreatic islets contain 3 types of cells. The alpha cells which secrete glucagon, beta-cells which secrete insulin, delta-cells which secrete somatostatin. The role of these cells are to control normal blood glucose 4-7mmol, this controlled by their opposing actions in the production of insulin and glucagon. Glucagon increases blood sugar.

Insulin

Insulin decreases blood sugar. Insulin is a polypeptide consisting of 50 amino acids. The main function of insulin is to lower blood levels of absorbed nutrients when they rise above normal circulating levels. When the nutrients especially glucose are in access insulin is released. It promotes this by:

- Acting on cell membranes and stimulating uptake and use of glucose by muscles and connective tissue cells
- Increasing conversion of glucose to glycogen (glycogenesis) particularly in the liver and skeletal muscles
- Accelerating the uptake of amino acids by cells and the synthesis of protein
- Promoting synthesis of fatty acids and storage of fat in adipose tissue (lipogenesis),

- Decreasing glycogenolysis (breakdown of glycogen) preventing the breakdown of protein/fat and gluconeogenesis (formation of new sugar in protein)

Secretion of insulin is stimulated by increased blood glucose and amino acid levels and gastro-intestinal hormones e.g. gastrin, secretin, cholecystokinin. Secretion is decreased by sympathetic stimulation, and somglucagon, adrenaline, cortisol and somatostatin. Glycogenesis is the formation of glycogen from sugar by the liver and skeletal muscles.

Glucagon

The effects of glucagon increase blood glucose levels by stimulating:

- The conversion of glygogen to glucose in the liver and skeletal muscles (Glycogenolysis)
- Gluconeogensis is a metabolic pathway that results in the generation of glucose from non-carbohydrate carbon substrates such as lactate, glycerol, and glucogenic amino acids.

Somatostatin

The effect of this hormone is too inhibiting the secretion of insulin and glucagon.

Summary

We Hope you enjoy your placement on ward 18 and learn plenty. Please remember that you are responsible for your own learning. All staff are here to help you and your progression. Ensure your interviews are completed on time so that progress and concerns are addressed and you are able to develop into a STAFF NURSE with confidence and ease.

Should you get sick please ring the ward in plenty of time.

Finally ……

Welcome

Enjoy
Learn
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