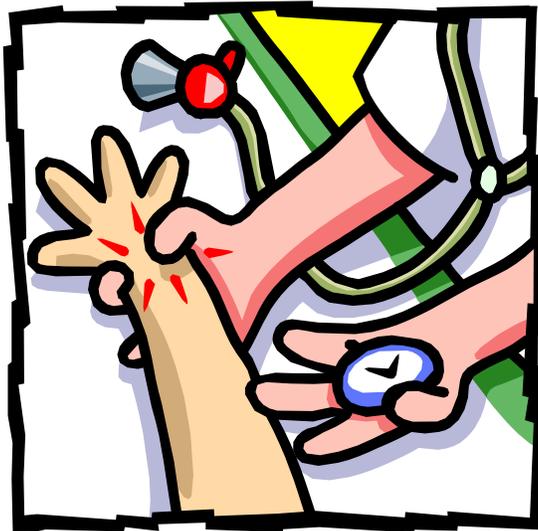


**CHESTERFIELD ROYAL HOSPITAL
CRITICAL CARE DEPARTMENT**

**STUDENT NURSES
Bsc (Hons) Nursing**



**CAROLINE BULLAS,
CLAIRE MESTDAGH & SARAH RENWICK**

CHESTERFIELD ROYAL HOSPITAL
CRITICAL CARE DEPARTMENT

NAME:

DATE AND PLACE OF ALLOCATION:

LEARNING ENVIRONMENT MANAGER:

Index

	Page No
Welcome to ITU & HDU	4
Philosophy of Care	5
Information Regarding ITU & HDU	6
Daily Routine	10
Your first Day	11
Learning Opportunities	12
Common Causes of Patient Admission to Critical Care	13
Equipment used in Critical Care	16
Patient Procedures / Treatment	21
Common Drugs used in Critical Care	22
Student evaluation	23
Mentorship evaluation form	24
Mentor feedback form	26

WELCOME TO THE INTENSIVE THERAPY UNIT AND HIGH DEPENDENCY UNIT

The staff of the Critical Care Directorate at Chesterfield Royal Hospital Foundation Trust would like to welcome you and hope you enjoy working as part of our team, caring for the critically ill patient.

We aim to create an atmosphere for students, which is relaxed, supportive and stimulating. We hope that you develop some useful skills and gain knowledge that will benefit your future practice during your allocation.

This is a supernumerary placement and as such you are not expected to be responsible for the care of any patients. However with the support and supervision of qualified staff you have the opportunity to participate in the care of critically ill patients and their families. This is intended to give you more freedom to learn and practice without the pressure and responsibility of a mandatory workload.

By the end of your placement we hope you will have gained an insight into the functioning of intensive and high dependency care and the role they play in caring for critically ill patients.

The Intensive Therapy unit and High Dependency unit are well sign posted from the main entrance. As the units are classed as a high security area the main doors to the units are kept locked so you will need to ring the bell on arrival and have identification available.

Changing rooms are situated on the units. Valuables should be kept on your person, as lockers are not always available.

PHILOSOPHY OF CARE

Our aim is to provide a welcoming environment for patients and their families.

We respect the needs of the patients as individuals by:

- Recognizing each patient as unique, and whose interests are paramount.
- Attempting to understand their perspectives, opinions, and feelings, and to acknowledge their right to privacy.
- Considering the physical, psychological, social, cultural and spiritual needs of our patients and their families.
- Respecting the right of our patients to information and appropriate participation in decisions about their care.
- Respecting the need for information, support and care to our patients' families, involving them in patient care if they wish.

We believe our patients have the right to have care provided at the highest standards by:

- Considering the patient and their family as central to care planning and management.
- Providing the appropriate skilled team to deliver the care.
- Ensuring patients and families feel able to question their care, and receive honest answers.

We believe all our staff are important, and should:

- Feel valued and respected as individuals.
- Have access to a positive working and learning environment.
- Feel able to practice at levels consistent with their accountability.

INFORMATION REGARDING THE INTENSIVE THERAPY UNIT

This unit provides a general intensive therapy service to the residents and visitors of North Derbyshire. The unit supports seven beds

We admit adult patients of any age, and do admit children for condition stabilisation prior to transfer to Sheffield or Nottingham the two regional paediatric centres, both of which are within twenty miles.

Our sole admission criteria are that patients should be deemed potentially recoverable.

The department provides care to 350 – 400 patients per year. If the department is full, ITU services are sought within the region. Requests for beds from other ITU's are not uncommon.

Patient's admission diagnoses are varied, from multi-organ failure to major trauma or post-operative management.

The ITU team believes strongly in the principles of patient focused care and work hard to achieve this. The Anaesthetic Directorate motto, "Humanity amidst Technology" sums up both the teams' approach to their work, and the perception of the recipients of their care.

Nine anaesthetic consultants provide medical cover to the unit and they work closely with the nurses and professions allied to medicine, as part of the multi disciplinary team.

INFORMATION REGARDING THE HIGH DEPENDENCY UNIT

This unit provides High Dependency Care to residents and visitors of North Derbyshire.

We admit adult patients that have usually single organ failure, step down from ITU, epidural management, emergency medical and surgical admissions and elective surgical admissions for post operative monitoring and pain management.

HDU provides care to 900-1100 patients per year. The patients are admitted by and treated by different consultants and clinical specialists.

There are three teams of staff, which rotate between ITU and HDU every eight weeks. The nursing team is highly autonomous, well motivated and is considered to be compassionate and caring in their approach to clinical care.

Most senior staff nurses and above has completed the intensive care course or critical care modules and possesses a teaching qualification. The unit is used as a learning environment for pre and post registration nursing, midwifery, medical, physiotherapy and pharmacy students. Ambulance paramedic and trainee operating department practitioners (ODP) also request allocations to the unit. Places for learners are always over subscribed. When allocated to critical care, learners are always supernumerary.

Education audits of both units are highly favourable. The principles of nursing audit are well supported within the unit. Work on clinical standard setting led to the development of the clinical practices team led by Charge Nurse Tim Chappell. The education team consists of Sisters Caroline Bullas, Denise Penney and Kerry Sharp.

During your allocation a member of staff will be assigned as your mentor. We will try to allocate you to work with your mentor, this may not be possible but you will always work with a member of staff who will support you and answer your questions.

PATIENT GROUPS

Both units admit a wide variety of patients from emergencies to list admissions, these include: -

Medical Emergencies

Surgical emergencies

General surgery

Obstetric emergencies

Chronic Pain

A wide range of medical conditions

Occasionally the Intensive care unit admits paediatric patients for resuscitation and stabilisation prior to transfer to a regional unit.

OFF DUTY

The off duty is:

Mornings 07.15 -14.45

Afternoon 12.15- 19.45

Long Day 07.15 – 19.45

Nights 19.15 – 07.45

If you have any queries please don't hesitate to contact us on our direct line –
ITU 01246 512287 / 512282
HDU 01246 512668 / 513237

ON SITE FACILITIES

Car parking is available within the hospital grounds in the pay and display car parks. Multi visit car park tickets are available from the shop.

Shop @ the Royal offers snacks, sandwiches and sundry items.

Opening times:

Mon-Friday 8.00am -8.00pm

Saturday 9.00am- 6.00 pm

Sunday 9.00am- 6.00pm

Café @ the Royal is open for hot food, snacks and sandwiches every day from 8:00 am to 8.00pm.

LIBRARY

This is situated on the ground floor in the purpose built Education centre. There is an extensive range of literature available with access to CD-ROMs and the Internet. It is possible to gain access to the Trust Intranet, which includes local policies and guidelines relating to patient care and Trust practice and access to NHS Athens Resources via Self-Registration. Card operated photocopying facilities are also available at 5p per page.

The library staff are extremely helpful if you experience any difficulties obtaining the literature you require.

Opening Hours:

Monday, Tuesday, Thursday & Friday..... 8.30am – 5.00pm
Wednesday..... 8.30am – 6.30pm

CLOSED BANK HOLIDAYS & WEEKENDS

VISITORS

Visiting patients on ITU is open for family and close friends. We allow 2 visitors per bed and they can swap. Visitors are advised that mornings are very busy and they often cannot spend much time with their relative, who may be receiving cares at this time.

We try to keep the relatives as up to date as possible with information about their relative's condition. We also try to be truthful about their prognosis. When a Doctor sees any relatives, the nurse looking after that patient goes with them.

Visiting on HDU is the same as many of the wards:
14.00– 20.00

Only 2 visitors per bed and they can swap.

There is a room available in Ash Court for relatives to use if they wish to stay.

DAILY ROUTINE

When taking over the patient, the nurse must carry out a few basic safety precautions to ensure that the patient is safe and that he/she is prepared for any emergency.

This includes: -

- Checking there is a bagging set attached to an oxygen flow meter
- There are 3 different sized Guedal airway within reach
- That all oxygen and suction points around the bed work
- That the ventilator is working as prescribed and documented on ventilation prescription chart
- Check the monitor, ventilator and infusion pump alarms are functioning and set at reasonable levels and alarm function sheets signed
- The patient's colour and chest expansion are good
- Checking the patient's level of analgesia and sedation. Are they awake and frightened? Are they in pain?
- Check infusions - ensure that there are enough drugs left to last a couple of hours
- Check the NG tube is at the right length & feed is running as prescribed

When the nurse is satisfied to the aforementioned, they can begin their patient's care.

LEARNING OPPORTUNITIES

The learning opportunities are vast within your critical care placement, to enable you to achieve your competencies in your OAR. Please discuss with your mentors any specific learning opportunities which interest you.

1) Medical / case notes regarding specific treatments and conditions.

2) Patient Diaries

3) Discussion with: -

- a) Medical staff
- b) Consultant ward rounds
- c) Colleagues
- d) Multi-disciplinary team
- e) Pain Team
- f) Specialist Nurse Organ Donation

4) Client centred – clinical procedures at the bedside / skill demonstration.

5) Working with the: -

- a) Critical Care Outreach Team
- b) Physiotherapist
- c) Dietician
- d) Pharmacist
- e) Infection control team
- f) Pain Specialist Nurse

6) Visiting other departments: -

- a) A&E
- b) CCU, EMU, CDU
- c) Pharmacy production
- d) Labs – biochemistry, haematology, microbiology
- e) Mortuary
- f) Pain clinic
- g) Satellite renal unit
- h) Theatres/PACU
- i) X-ray department

Common Causes of Patient Admissions to Critical Care

Acute Myocardial Infarction (AMI): also known as a heart attack. An AMI can occur when the blood flow through one or more of the coronary arteries to the heart is reduced. This reduces the vital organs' continuous oxygen supply and results in an area of the heart being permanently damaged.

Acute Kidney Injury (AKI): is the sudden shut down of both kidneys. The kidneys are no longer able to make urine, rid the body of wastes, or keep a healthy balance of salts such as sodium and potassium.

Adult Respiratory Distress Syndrome (ARDS): a form of acute respiratory failure that occurs after a precipitating event such as trauma, aspiration, or inhalation of a toxic substance. It is particularly associated with septic shock.

Asthma: an acute severe asthma attack is an emergency situation requiring prompt assessment and management.

Cardiac Arrest: occurs when the heart suddenly stops pumping. This may be the result of a number of conditions, but is most commonly associated with a myocardial infarction.

Chronic Obstructive Pulmonary Disease (COPD): is a chronic debilitating disease. Patients include those with emphysema and chronic bronchitis, both of which can result from long term smoking. In this disease, the lungs lose their capacity to absorb adequate oxygen and/or excrete adequate amounts of carbon dioxide from the body.

Diabetic Ketoacidosis (DKA): is a medical emergency. It is a serious condition caused by either not enough, or a lack of insulin. Diabetic Ketoacidosis more commonly affects type 1 diabetics and may be the first sign that a person has developed diabetes.

Hyperosmolar, Hyperglycaemic State in Diabetes (HHS): this diabetic emergency is similar to DKA, however there are some notable differences. Hypoglycaemic coma: occurs when the blood sugar level is extremely low and there is not enough sugar or glucose for normal brain metabolism.

Drug Overdose: is defined as taking an excessive amount of a drug or drugs which may lead to toxic effects on the body.

Guillain-Barre Syndrome (GBS): this is a rare illness that affects the peripheral nervous system. Symptoms include numbness and weakness in the limbs. It usually develops 10-20 days after a respiratory or gastrointestinal infection that provokes an allergic response in the peripheral nerves.

Heart Failure: occurs when the heart fails in its ability to work as a functional pump to adequately pump blood around the body.

Liver Failure: this can be due to a number of reasons. Hepatitis A, B or C, alcoholism, autoimmune diseases, metabolic disorders, toxins, drugs, fatty liver disease and biliary obstructions. If the disease is longstanding, liver tissue can sometimes be gradually replaced by extensive scar tissue, leaving small areas of liver cells (nodules) which regenerate and attempt to carry out the normal liver functions. This is called cirrhosis of the liver.

Oesophageal Varices: resemble varicose veins, but appear inside the oesophagus and occasionally inside the stomach. A 'varix' is part of a vein that has become enlarged and has thin walls. These may rupture and bleed, resulting in hematemesis.

Pancreatitis: acute pancreatitis comes in mild and severe forms. In severe disease, the effects of the inflammation spreads to other organs and the patient will require intensive medical therapy. The main causes of pancreatitis are gallstones and excess alcohol consumption.

Pleural Effusion: occurs when there is a build-up of fluid in the pleural space. This can occur for a number of reasons including a Hydrothorax – a collection of serous or protein fluid (e.g. in pancreatitis or heart failure).

Pneumonia: is a serious respiratory disorder and occurs when an organism, most commonly a bacteria, causes an overwhelming infection in the lungs leading to inflammation and sputum production.

Shock Hypovolemic Shock: caused by loss of large amounts of blood or body fluids. It occurs in serious accidents, with major surgery, in burns and with medical conditions where there is severe vomiting and diarrhoea. The patient's heart will pump faster to try to compensate for the decreased blood volume. This is seen as a raised pulse.

Cardiogenic Shock: this is due to heart muscle damage, and can occur as a result of an MI (Myocardial Infarction) or when the heart muscle has a severe infection, for example endocarditis. The damaged heart muscle often results in abnormal heart rates ie tachy or bradycardia. Inotropic drug therapy may be needed to support the heart to pump with more force.

Septic Shock: caused by severe infection. Septic shock is triggered by the body's reaction to the toxins (poison) released by the bacteria into the blood. In severe septic shock, blood vessels may constrict or dilate. Drugs (vasoconstrictors) can be used in critical care to narrow the blood vessels and improve blood pressure. Vasodilators are used if needed to widen the blood vessels, lowering the blood pressure.

Anaphylactic Shock: caused by an allergic reaction. In a severe allergic reaction, the small blood vessels (capillaries) leak fluid and the blood vessels dilate. Usual treatment for this type of shock includes adrenaline.

Neurogenic Shock: caused by damage to the nervous system. The autonomic nervous system keeps the muscles of blood vessels slightly contracted. When a part of this system is damaged, the blood vessels lose the ability to constrict and instead they dilate, causing shock.

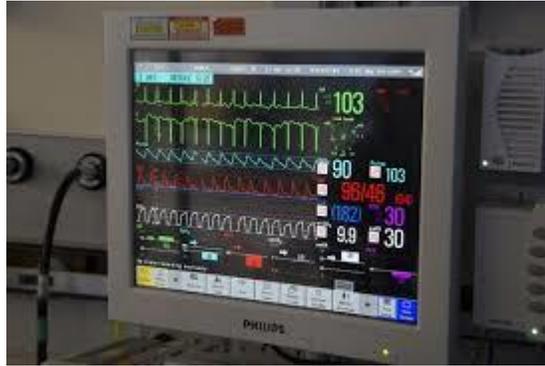
All of the above types of shock require admission to critical care.

Cerebrovascular Accident (CVA): is caused by a disruption to the circulation to the brain. When the circulation to a part of the brain stops, the brain tissue is permanently damaged, and the brain cells die. If the blood supply has been blocked by a blood clot in a blood vessel it is called an Ischaemic stroke. When there has been bleeding from an artery or vein, it is called a Haemorrhagic stroke.

Surgical Procedures: after significant elective or emergency surgical procedures which require close monitoring such as gastrointestinal or colorectal surgery for peritonitis, inflammatory bowel disease.

Equipment Used in Critical Care

Every patient in critical care has a **monitor** which enables continuous monitoring of heart rate and rhythm, blood pressure, oxygen saturations, temperature, respiratory rate with the option to add other variables.



Many patients in Intensive Care will be sedated with powerful drugs given to them continuously through an **intravenous infusion**; these patients will require assistance with their breathing using a ventilator.



Patients can also be breathing using a **ventilator** when they are awake using a tracheostomy tube which allows full ventilatory support to be delivered whilst the patient is awake. This method is used if the patient is likely to take some time to wean from the ventilator.



Arterial Line: is a small, thin plastic catheter similar to an IV cannula which is inserted into an artery and allows constant monitoring of blood pressure. This may be essential for stabilising the patient's condition. It also provides access for the frequent blood sampling a critically ill patient needs and may be inserted into the radial, brachial, femoral or pedal artery. An arterial line is inserted into the artery using the same technique as inserting a peripheral cannula, it is then sutured to the skin to keep it in place. The catheter is connected to the monitor where the patient's blood pressure is constantly displayed as a waveform.



Central Line: is an intravenous line which is used for giving fluids and/or medications. Certain medications commonly used in critical care cannot be given in the smaller peripheral veins. A central line is inserted into one of the larger veins of the body: jugular, femoral or subclavian veins.



Endotracheal Tube (ETT): is a plastic tube used during mechanical ventilation, a procedure used to assist the patient breathing. The ETT is inserted into the patient's trachea and attached to a ventilator to assist with their breathing.



Indwelling Urinary Catheter: all critical care patients require an indwelling urinary catheter to measure the amount of urine being produced. This enables accurate fluid balance to be calculated.



Nasogastric (NG) Tube: is a flexible plastic tube that is inserted into the patient's nose and passed into the stomach. The NG tube has two main purposes; firstly it allows the emptying of the stomach and prevents the build-up of fluids which may cause aspiration if the patient was to vomit. Secondly, it provides a way to give oral medications and nutrition to a patient who is unable to swallow.



Renal Dialysis: **dialysis machines (prismaflex)** assist the kidneys to work; there are many reasons why someone may need dialysis. For example if the kidneys are failing because of disease or injury, to remove harmful toxins and excess fluid. CVVHDF (Continuous VenoVenous Heamodiafiltration) is used on ITU whereby patients are connected to dialysis via a vas cath (a tube similar to a central line only used for CVVHDF). Blood is removed via the catheter and is circulated through a filter in the machine to clean the blood which is then returned via the same line. Patients receiving dialysis require close monitoring of their blood pressure and will require a number of blood tests to check their dialysis is working properly.



Tracheostomy Tube: is a small tube placed directly into the patient's trachea using a small hole made in the neck. These are used to facilitate weaning patients from ventilatory support which can take some time. Tracheostomies inserted for this purpose are temporary and are removed when no longer needed.



Vas Cath: is a dialysis catheter, a specialised central line only used in dialysis. This catheter is placed when the patient requires dialysis for renal failure. It is placed either in the jugular, femoral or subclavian veins.



Ventilator: these machines can either assist patients to breathe if they need it, or completely take over their breathing to allow the body to rest. The patient is connected to the ventilator via either an endotracheal tube or a tracheostomy inserted into the trachea.



Patient Procedures/Treatment

Bronchoscopy: is a medical procedure which allows a long thin tube to be passed into the airway – this is called the bronchoscope. And allows the structures in the airway such as the larynx, vocal chords and trachea to be visualised.

ECG (Electrocardiograph): this is a recording of the electrical activity of the heart. The rate and regularity of the heartbeat can be examined. It also enables heart muscle problems such as ischaemia to be detected.

ECHO (Echocardiography): this uses sound waves to create an image of the beating heart and is essentially an ultrasound of the heart. This allows doctors to view the hearts action in real time which enables diagnosis of a number of serious problems.

Extubation: this is the removal of the endotracheal tube, discontinuation of mechanical ventilation.

Intubation: the insertion of an endotracheal tube into the trachea via the mouth.
Suctioning an artificial airway: this involves passing a long thin tube (suction catheter) through the airway to remove secretions that have collected. This ensures the patient has a clear airway for their breathing and that the tube doesn't occlude.

Common Blood Tests: performed on admission and at least daily.
Full Blood Count (FBC) – monitors Hb, platelet count and white blood cell count
Urea and Electrolytes (U&E) – monitors levels of urea, creatinine and salts such as sodium and potassium.
Liver Function Tests (LFT)
Coagulation Screen – monitors levels of clotting factors in the blood
CRP – C reactive Protein, an inflammatory marker which can be used to assess infection
Arterial Blood Gas (ABG) – monitors blood oxygen saturation and enables ventilation changes to be made

Common Drugs Used in Critical Care

Adrenaline: several uses, e.g. Anaphylaxis. Commonly used in critical care as a vasoconstrictor to treat hypotension and give circulatory support. Can be administered as a bolus or more long term via a continued infusion via a central line.

Alfentanil: used for analgesia and suppresses respiratory activity in patients receiving invasive ventilation.

Clonidine: used as a sedative agent to wean patients off deeper sedating agents.

Dexmedetomidine: used as a sedative agent to wean patients off deeper sedating agents.

Folan: anticoagulant only used with dialysis (CVVHDF) Insulin: hyperglycaemia occurs in most critically ill patients. When admitted to ITU, all patients are commenced on infusions of 20% Glucose and intensive insulin regime until alternative nutrition is established.

Metaraminol: a vasoconstrictor used to treat hypotension which can be given via a peripheral vein.

Noradrenaline: a vasoconstrictor used to treat hypotension. Administered by continuous intravenous infusion via a central line.

Phenylephrine: a vasoconstrictor used to treat hypotension. Can be given via a peripheral vein.

Potassium: electrolyte used in the correction of hypokalaemia (low potassium). Can either be taken orally, or more commonly in critical care, via a continuous intravenous infusion via a central line. See potassium protocol & policy.

Propofol: sedation used in ITU given continuously via intravenous infusion.

Ranitidine: H2-receptor antagonist used as a prophylaxis for gastro-oesophageal reflux.

Remifentanil: sedation. Has a much shorter duration onset than Alfentanil, often used overnight when patients not quite ready for extubation

Tinzaparin: anticoagulant used for the prevention of venous thromboembolism

Vasopressin: is a drug which has many uses. Its use in critical care is in support of other vasoconstrictors, usually Noradrenaline.

Antibiotics: all antibiotics are commenced and discontinued on advice of the consultant microbiologist who conducts a ward round daily. Some of the more common ones are listed below: Ciprofloxacin, Clindamycin, Co-Amoxiclav, Fluconazole, Gentamycin, Meropenem, Tazocin (PipercillinTazobactam), Septrin.

