

Learning Environment



Ward 2C

Learner Booklet

Welcome

We would like to warmly welcome you to Lancashire Teaching Hospitals NHS Foundation Trust (LTHTR). Incorporated on the 1st of April 2005, LTHTR was the first trust in the county to be awarded “Teaching Hospitals” status.

We have created this pack as a useful resource to help you to settle in with us. The purpose of this booklet is to provide you with information to help you on your learning environment.

About LTHTR

We have three equally important strategic aims:

- To provide outstanding and sustainable healthcare to our local communities
- To offer a range of high-quality specialist services to patients in Lancashire and South Cumbria
- To drive health innovation through world class education, training and research

We provide a range of Hospital based health services for adults and children and cover a range of specialities. These include cancer services such as radiotherapy, drug therapies and surgery, disablement services such as artificial limbs and wheelchair provision. Other specialities include vascular, major trauma, renal, neurosurgery and neurology including brain surgery and nervous system diseases.

Our five core values:

- Being caring and compassionate
- Recognising individuality
- Seeking to involve
- Building team spirit
- Taking personal responsibility



We deliver care and treatment from three main facilities:

- Royal Preston Hospital
- Chorley and South Ribble Hospital
- Specialist Mobility and Rehabilitation Centre, Preston

In relation to car parking, please refer to your Induction to the Trust, for information regarding car parking. Additional information can be found on our Intranet page.

<https://legacy-intranet.lthtr.nhs.uk/car-parking-documents>



Learning Environment

Welcome to the Neurosciences Directorate. During your placement we hope that you will feel part of the team.

You will be allocated a Practice Assessor who will, with the assistance of others, provide you with support.

We encourage you to take responsibility for your own learning and it will be your responsibility to arrange times with your mentor for your assessments and to review your work. Your priority will be to learn and the staff will endeavour to facilitate this for you. We encourage you to ask questions which can be directed at any member of the Multi-disciplinary team (MDT) within the ward, and to seek out learning opportunities.

On your first day please complete the learning contract and ensure that the orientation and health and safety checklist has been completed.

Neurosciences Directorate

The neuroscience directorate consists of Neurosurgery on Wards 2a, b, and c and Neurology on Ward 17. On ward 2a, b and c, pre and post- operative patients are cared for. Some post op patients are level 2 (more highly dependent) and these patients are monitored on Ward 2a.

Ward 17 is a neurology ward. The Neuro-rehabilitation unit cares for patients who have had a traumatic brain injury.

The directorate is supported by various specialist nurses, and physiological measurements technicians.

Suggested reading for this placement.

Any good anatomy and physiology book such as 'Principles of Anatomy and Physiology' Tortora and Babowski. Wiley.

A Neurosciences nursing book e.g. 'The Clinical practice Neurological and Neurosurgical Nursing.' Joanne V Hicky. Lippincott.

Nursing journals.

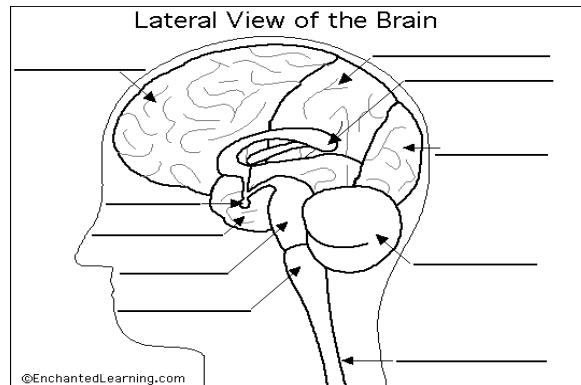
'Neurology and Neurosurgery illustrated.' Lyndsey, Bone, Callendar.

You will find it helpful to have knowledge of the following.

- The areas of the brain and their function.
- Cerebral circulation
- The cranial nerves
- Basic spinal anatomy.

Neuro Anatomy and Physiology.

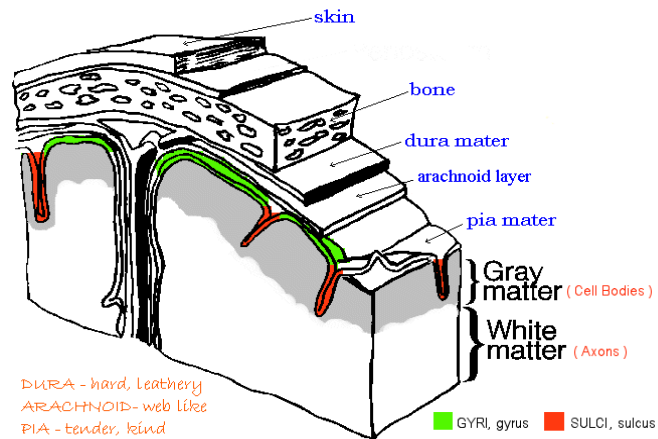
From reviewing the basic anatomy of the brain from a textbook of your choice can you label the diagram below?



Which areas of the brain are responsible for these functions?

Function	Area of brain responsible.
Personality Emotions Motor Problem solving Reasoning	
Sensory	
Hearing Language Speech	
vision	
Balance and coordination	
Regulation of basic body functions	

The Meninges



The spine

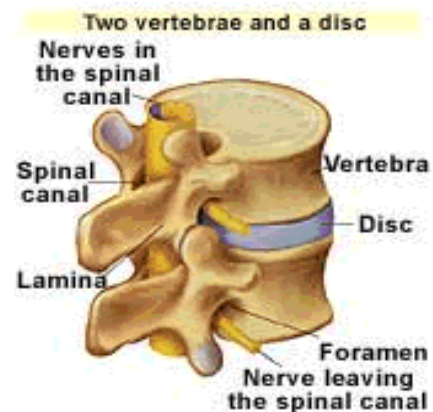
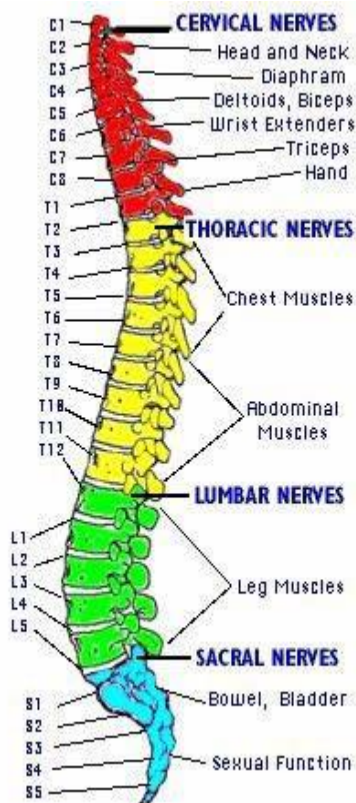
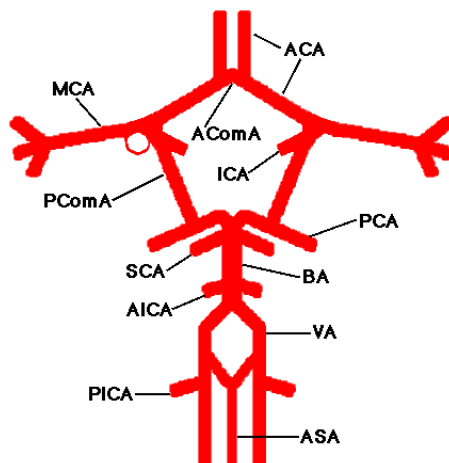


Diagram to illustrate cerebral circulation



Can you complete the diagram by indicating what the letters stand for?

ACA		AICA	
MCA		ICA	
PCA		PICA	
AICA		VA	
BA		ASA	
SCA			

Diagram to illustrate cerebral aneurysms

TYPES OF CEREBRAL ANEURYSMS



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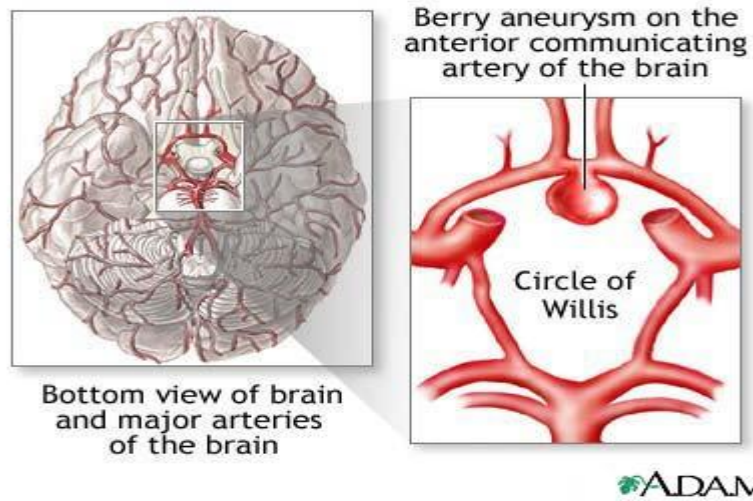
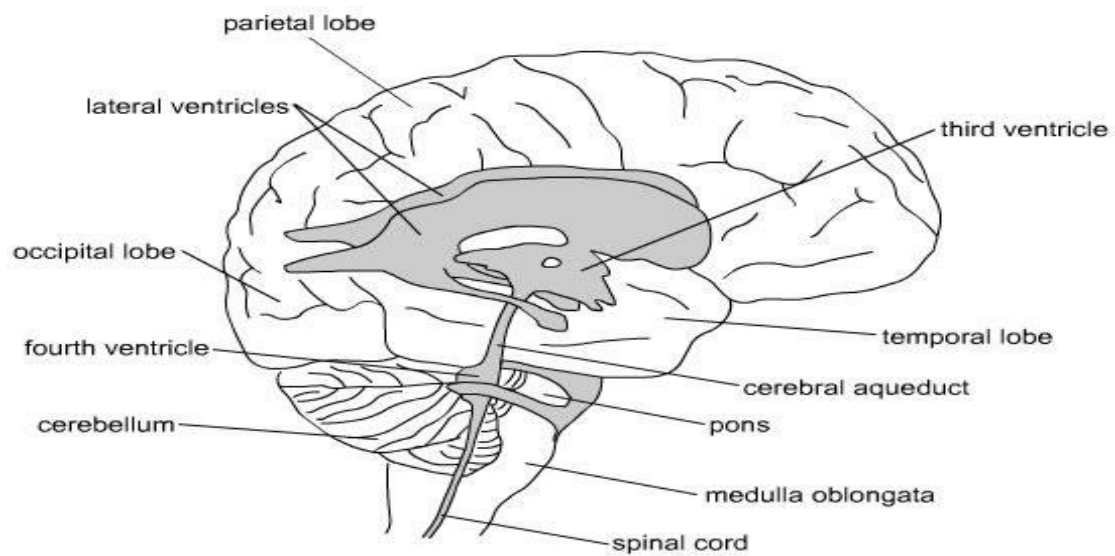


Diagram to illustrate the ventricles of the brain

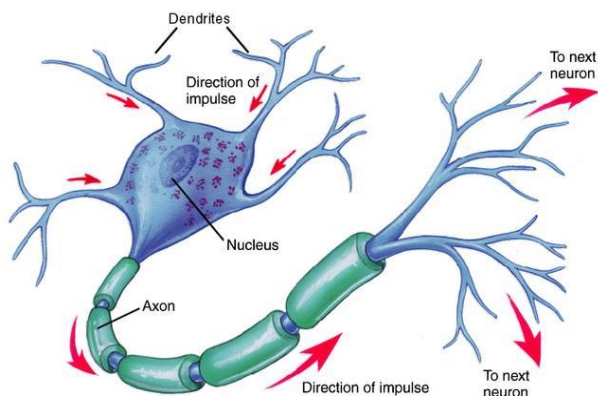


Where is CSF produced?

What is its purpose?

Where does it go?

Neurological disorders can occur as a result of damage or dysfunction of the nerve cells (neurones).



Describe the following

Sensory nerve.....

Motor nerve.....

Which Neurological disorder is associated with degeneration of motor neurones
.....

Which Neurological disorders are associated with dysfunction at the neuromuscular junction.....

The shaded areas around the neuron on the diagram above represent the myelin sheath. What is the function of the myelin sheath?.....
.....

Which neurological condition is caused by a disorder of the myelin sheath?
.....

Neurological assessment

All patients admitted to Neurosciences have a full Neurological assessment carried out by the medical staff who document this information in a booklet. Take a look at a completed booklet. Ongoing Neurological assessments are also carried out by the nursing staff.

Why do we perform neurological assessment?

- To give information about a patient's conscious level by looking at behavioural responses, in association with vital signs and pupil reaction,
- To help determine which regions of the nervous system need further investigation and if any emergency therapeutic interventions are needed prior to further investigation
- ...and thus to help preserve the functioning of the nervous system.
- To highlight any deterioration in the patient's condition.

How do we carry out neurological assessment?

A full neurological examination of the patient for diagnostic purposes involves assessment of:-

- Patient history
- Mental status
- Cranial nerves
- Motor system
- Reflexes
- Coordination and gait
- Sensory system.
- Skull and spine

Neurological observations give us information about the patient's central nervous system i.e. the brain and spinal cord.

The Glasgow coma scale devised by Teasdale and Jennet 1974 is a useful tool for assessing level of consciousness.

Reduced level of consciousness can occur as a result of intracranial disease, or secondary to other systemic conditions. It is a common feature in acute illness and therefore forms part of the overall patient assessment A, B, C, D, E.

D is for debility and refers to neurological assessment.

The ALERT principles highlight that a reduction in level of consciousness can lead to a compromised airway and for this reason a more rapid assessment can be used using the AVPU scale.

Causes of neurological deficit.

Head injury	hypoglycaemia
Intracranial haemorrhage	hyponatraemia
Space occupying lesion	drugs
Cerebral infarction	fits

Intracranial infection / abscess	hypothermia
Cerebral malignancy	hyperthermia
Hypoxaemia	hypothyroidism
Hypotension	hepatic encephalopathy
Hypercapnoea	

AVPU

Carrying out a full neurological assessment and getting an exact score can take time. In the emergency situation where a loss of consciousness is often secondary to hypovolaemia, and or hypoxia, a simple assessment of the patient's overall response using AVPU is applied.

A = awake and alert

V= responds to speech

P= responds to painful stimuli

U= unresponsive.

Pupil response.

Raised intracranial pressure can cause pressure and or damage to the oculomotor nerve, which affects pupil reaction, if this is suspected then pupil response should be checked regularly.

Pupil size.

Pupil size and reactivity assesses the nerve pathway from the optic nerve to the midbrain. Changes in pupils are a late sign of raised intracranial pressure and deteriorating level of consciousness. Pupil size is estimated against a scale of 1 – 8 millimetres. The normal size is 3 – 4. Pupils should be symmetrical. Some individuals have normally asymmetrical pupils but they should react normally. None reacting pupils can occur as a result of eye disease, ocular motor nerve compression, or optic nerve disorders. Bilateral dilatation can also occur where there is sympathetic over activity such as in overdose of tricyclic antidepressant drugs, or when adrenaline has been administered during resuscitation.

Direct light response.

Move a lit pen torch from the outer aspect of the eye towards the pupil. The pupil should constrict briskly. Move the pen away and the pupil should dilate to its original size. Repeat in the other eye. This constriction and dilatation is referred to as the direct light response.

Consensual light response.

When shining the light in one eye, watch the reaction in the other. Both pupils should react the same simultaneously. This is referred to as the consensual light response.

Brisk constriction is recorded as +, no reaction is recorded as -.

Abnormal responses.

If the patient has a lesion on one side then the pupil on that side will be unresponsive. The opposite pupil will however react consensually, the none responding pupil referred to as unresponsive consensually.

Limb responses

These are assessed to identify any deficit such as weakness (muscle weakness) or loss of movement which can be caused by damage to nerve pathways e.g. in spinal cord lesions or injuries, or by compression of brain tissue. Each limb needs to be assessed separately.

Optimum position for assessing limbs is semi-recumbent. Strength of response is assessed from no response to normal power. Apply resistance to the patient's limbs, with normal power the patient should be able to resist you. A patient with normal power will be able to hold their arms up in the air and hold them there, or raise a leg up off the bed. If the patient is unable to obey commands then the limb's response to pain can be assessed by applying pressure to the side of the nail bed in a toe or finger. This should result in flexion of the arms and extension in the legs.

Patients who have suffered a spinal injury will have a lack of movement in both limbs below the level of the injury.

The limb responses are referred to as MRC grade. What does this mean?

Vital signs.

Raised intracranial pressure causes a rise in blood pressure, a drop in heart rate, a drop in respiratory rate, and a rise in temperature. These are late signs with agitation or confusion and weakness of the limbs presenting first.

The unconscious patient may also maintain stable vital signs.

Laboratory assessment

The cause of neurological deterioration may be chemical which needs to be confirmed or excluded. A bedside measurement of blood sugar supported with a laboratory assessment can easily be carried out. Blood can also be taken to assess electrolyte balance and other specific investigations.

Neurological assessment includes assessment of GCS, pupil reaction, limb movements, vital signs, and laboratory investigations in order to determine the nature

of the patient's problem, and therefore any interventions that may be required. Follow ABCDE, as management of the airway overrides any other potential interventions.

Surgical procedures commonly undertaken on Neurosurgery.

- Clipping of arterial aneurysm – anterior communicating aneurysm, middle cerebral artery aneurysm, posterior communicating aneurysm.
- Preparation of patients for coiling.
- Craniotomy – removal of tumour, evacuation of haematoma.
- Burr hole biopsy.
- Removal of extradural haematoma.
- Removal of intracerebral haematoma.
- Anterior cervical discectomy.
- Decompression laminectomy / discectomy / microdiscectomy.
- Transphenoidal pituitary
- Drainage of cerebral cysts
- Repair of CSF leak
- Peritoneal shunts, insertion, revision, replacement.

Investigations commonly carried out within Neurosciences.

- Angiogram
- Ct scan, CTA
- Doppler
- ECG
- EEG
- EMG
- LPS
- MRI scan MRA
- Muscle biopsy
- Myelogram
- Tensilon test
- VEP
- Skull X R
- Dutch test
- Nerve conduction tests
- Visual fields

Problems commonly found in Neuroscience patients.

- Agnosia
- Dysphasia
- Dyspraxia
- Facial palsy
- Hemiplegia

- Motor and sensory deficits.
- Paraplegia
- Spasticity
- Quadraplegia
- The effects of being wheelchair or bed bound.
- The effects of uncertainty regarding diagnosis.

Conditions commonly found in Neuroscience patients.

- Cerebral and spinal tumours
- Chronic inflammatory polyneuropathies.
- Dementia.
- Encephalitis
- Epilepsy
- Guillain Barre syndrome.
- Motor Neurone disease
- Multiple sclerosis
- Myasthenia Gravis.
- Parkinson's disease.
- Dystonia.
- Normal pressure hydrocephalus.

Words commonly used in Neurosciences, and their meanings

A – (or An)	Absence of or inability to
Abdominal reflexes	Abdominal muscle contractions on stroking the skin
Akinesia	Inability to start a movement, slowness in movement.
Amnesia	Loss of memory
Anaesthesia	Inability to feel touch
Anarthria	Inability to pronounce words
Aneurysm	A weal bulge in an arterial wall
Angioma (AVM)	A collection of abnormal arteries, capillaries and veins.
Anosmia	Loss of sense of smell
Aphasia	Inability to speak
Aphonia	Inability to make sounds
Ataxia	Unsteadiness
Aura	Warning symptoms

Axon	Long process of nerve cell
Bulbar	Concerning the medulla
Burr-hole	A hole drilled in the skull
Carpel tunnel	Channel in wrist through which the median nerve passes.
Cat scan	Computerised axial tomography
Cauda equina	The nerve fibres below the spinal cord.
Cephalgia	Headache
Chiasma	Crossing of the optic nerves.
Choroid plexus	Vascular tissue in the ventricles forming the CSF
Circle of Willis	The arteries at the base of the brain
Cortex	The surface layer of the cerebral and cerebellar hemispheres.
Craniotomy	Opening the skull
Craneoplasty	Repair of the skull with synthetic material.
C.S.F.	Cerebro spinal fluid
Diplopia	Seeing double
Disc (optic)	The optic nerve leaving the eye as through an ophthalmoscope
Disc (intravertebral)	Fibro-cartilagenous cushion between the vertebrae.
Disorientation	Confusion as to time place, person.
Doppler	Method of using ultrasound
Dorsiflexion	Bending backwards

Dys -	Difficulty in
Dysarthria	Difficulty on pronouncing words
Dysphasia	Difficulty in expressing thoughts in words
Electro encephalopathy (EEG)	Recording the electrical activity of the brain
Electromyography (EMG)	Recording the electrical activity of muscle
Encephalitis	Inflammation of the brain

Extrinsic	Outside and separate from nervous tissue
Fascia	Tough tissue covering the muscles in limbs or trunks
Flaccid	Limp, floppy, loss of tone
Focal epilepsy	A fit affecting one part of the body, arising from one point of the brain.
Foramen	A opening
Fossa	A compartment of the skull holding a part of the brain.
Ganglia	Collection of nerve cells.
Gilia	Supporting cells and fibres of the nervous system.
Glioblastoma	The most malignant glioma.
Glioma	Tumours growing from supporting cells.
Grand mal (tonic clonic seizure)	Generalised tonic clonic seizures with loss of consciousness.
Grey matter	Nervous tissue containing nerve cells.
Hallucinations	Sensory impression of something that is not there.
Hemianopia	Loss of half of the visual field.
Hemiplegia	Paralysis of one half of the body.
Hydrocephalus	Enlargement of the ventricles.
Hypopituitarism	Loss of pituitary gland
Idiopathic	Of unknown cause
Intracranial hypertension	High pressure within the skull.
Intrinsic	Inside
Jacksonian fits	Convulsions starting at one pint and spreading to involve wider areas.
Medulla	Lower part of the brain stem.
Meningioma	A benign tumour growing from the arachnoid.
Myelogram	X-R of the vertebral canal using contrast

	medium.
Magnetic resonance imaging (MRI)	A method of brain scanning using magnetic fields.
Neuralgia	Pain in the nerve
Neurone	The nerve cell, its fibre and all its branches.
Nystagmus	Rhythmical oscillation of the eyes.
Optic	Concerned with the eyes or visual pathways.
Otorrhoea	Running from the ear.
Papilloedema	Swelling of the optic nerve seen with an ophthalmoscope.
Petit mal (absence seizures)	A form of epilepsy, frequent episodes of detachment from surroundings.
Posterior horns	Part of spinal grey matter receiving sensory roots
Ptosis	Drooping of the eye lid
Reflex	An automatic response to stimuli
Retro- Bulbar	Behind the eye
Rhinorrhoea	Running from the nose.
Scotoma	A patch of blindness
Sella Turcica	A saddle shaped cavity at the base of the skull containing the pituitary gland.
Sensory	Concerned with feeling.
Sensory level	The point where sensation changes from normal to abnormal
Shunt	A method of bypassing an obstruction to CSF flow.
Space occupying lesion	A tumour or other growing lesion.
Spondylosis	Degeneration changes in bone and disc in the spine.
Status epilepticus	Prolonged seizure or, seizures following each other in rapid succession
Stereotaxis	Use of instrumentation to locate accurately locate lesions in the brain
Stupor	Unconscious but rousable

Subdural	Between dura and arachnoid.
Sulci	Furrows on the surface of the brain.

Syrinx	A cavity in brain stem or cord
Tentorial herniation	Forcing part of the brain through the
Tic	Recurrent spasm
Tinnitus	Ringling in the ears
Trephine	A circular disc cut in the skull
Ventricles	Cavities in the brain containing CSF
Vertigo	A sense of rotation
Vestibular	Concerned with the Labyrinth and its connections.
White matter	The parts of the brain and spinal cord containing myelinated fibres.

Other useful resources

The brain and Spine Foundation	www.brainandspine.org.uk
The Neuroscience Nursing Benchmark group	www.nnbg.org.uk
Movement disorders	www.wemove.org
The Neurological alliance	www.neural.org.uk
For patients with Guillain-Barre Syndrome	www.gbs.org.uk

Induction

The Local Induction process will take place throughout the first week of your placement.

This will comprise of:

- Trust and department orientation, including housekeeping information
- Location of emergency equipment
- IT access
- Reading & acknowledgement of Mandatory Trust policies such as Health & Safety, Fire Safety, Infection Control, Information Governance, Staff Code of Conduct, Social Networking and Dress Code policies.
- Adult Basic Life Support training if applicable
- Trust Moving & Handling Training if applicable
- COVID-related policies & procedure
- Orientation
- Professional voice: - freedom to speak up, datix, chain of command, open door policy
- An awareness of our Educational Governance Team- evaluation and importance of feedback
- Inter-professional Learning Sessions
- Practice Assessment Record and Evaluation (PARE) training, if applicable
- Collaborative Learning in Practice (CLiP™), if applicable
- How the role of Practice Development Facilitator can support you, where applicable



What to bring on your first day

- Uniform: All other items in the dress code policy must be adhered to <https://legacy-intranet.lthtr.nhs.uk/search?term=uniform+policy>
- A smallish bag which would fit into a small locker.
- You may wish to bring a packed lunch and a drink on your first day.

Inter-professional Learning Sessions and eLearning Resources

At our Trust, our Education Team facilitates a yearly programme of Inter-professional Learning (IPL) sessions. This programme consists of various teaching sessions, delivered by our Specialist Teams, to support and enhance our learners and trainees' learning experience with us.

Inter-professional learning is an important part of your development and allows you to build professional relationships and communication skills with the wider multi-disciplinary teams. Our IPL sessions are valuable in supporting you to stretch your knowledge and experiences to enhance your clinical practice. They also help bridge the gap between theory and practice, allowing you to hold a deeper understanding of the topics discussed. Our sessions are open for all learners and trainees on placement at our Trust to attend and these learning opportunities are an extension to your learning environment; therefore, these hours need to be recorded on your timesheets. We encourage our staff to facilitate enabling a learner/trainee to attend these sessions.

Please note: You must inform your learning environment prior to attending a session. These IPL sessions need to be discussed in a timely manner with your learning environment.

You are required to complete a reflection on each of your IPL sessions, as well as documenting on your HEI documentation what you have learnt and how this relates to your current placement.

You can book onto our IPL Sessions by accessing this link <https://elearning.lthtr.nhs.uk/login/index.php> and searching for 'IPL'.

You can access our policies and procedures via our Intranet page, which will help expand and stretch your knowledge.

Support with evidencing your learning outcomes or proficiencies

We encourage you to use the Trust learning logs to collate and evidence your skills, knowledge and abilities achieved. You can then present your completed learning logs to your Practice Assessor/Educator during your assessment meetings. Any staff member who is involved in coaching you can complete your learning log feedback.

You can request time during your placement hours to complete these and request feedback prior to the shift ending. To obtain a copy of our learning logs, please visit our Health Academy Webpage on the link below, where you will see a copy of our CLiP™ Learning Log available for you to download, on the right hand side - <https://healthacademy.lancsteachinghospitals.nhs.uk/support/clinical-placement-support/collaborative-learning-in-practice-clip/>

Chain of Command

Keeping patients safe, providing the best care that we can and learning in an environment where you feel safe and valued is important to us. Speaking up about any concern you have on your learning environment is also important. In fact, it's vital because it will help us to keep improving our services for all patients.

There may be occasions where we witness, experience or are asked to do something that causes us concern. Often, these concerns can be easily resolved, but sometimes it can be difficult to know what to do.

Our Clinical Placement Support Team are available Monday – Friday, 8.00am – 4.00pm should you need to contact them in relation to any concerns regarding your learning environment. If your concern relates to patient safety and/or your concerns are outside of these hours, please follow the chain of command in your learning environment and speak with the person in charge.

Please visit our Freedom to Speak Up page on the Intranet for more details.



We value your feedback

Our Trust values your feedback. To continuously improve, we offer opportunities for our learners and trainees to provide feedback regarding both your learner experience and your learning environment. We would encourage you to kindly complete your end of placement evaluation, within your clinical hours.

We will keep you updated with the improvements that we make based on the feedback you provide us with.

Learning Environment Improvement Forum

Our Learning Environment Improvement Forum began in November 2021, with key stakeholders attending; Learners, Trainees, Clinical Staff, Education Leads and our Nursing Directorate. Monthly meetings are held to share new and innovative ideas as to how we can collaboratively enhance our learning environments, to support both learners, trainees and staff.

All attendees at the Learning Environment Improvement Forums contribute their suggestions and guidance on our projects. Collaboratively, exciting improvements are implemented to enhance our learning environments.

Innovative changes made by our Learning Environment Improvement Forum, within Academic Year 2021-2022;

- NEW Learner Boards designed and placed on our learning environments
- Learner booklets made available on our Health Academy webpage to prepare our learners and trainees for their clinical placements, as suggested by our learners and trainees
- PARE and CLiP™ training embedded into our Learner and Trainee Inductions
- Quick Reference Guide designed and created to welcome our learners and trainees to the Trust and prepare them for their clinical placements

We welcome any of our staff, learners and trainees at the Trust to attend our Learner Environment Improvement Forums, to contribute your ideas and suggestions for our new and innovative projects. You can join via the E-Learning Portal - <https://elearning.lthtr.nhs.uk> and going to Courses, then selecting the tab 'Inter Professional Learning', where you will see our forum listed.