HEALTHCARE SUPPORT WORKER EDUCATION AND COMPETENCY PROGRAMME:

PAEDIATRIC EARLY WARNING SCORE

Learning Contract

The following statements apply to the individual learner and should be completed prior to undertaking any supervised practice and competency development/sign off.

As a learner I declare that I have/will:

• Successfully completed all mandatory requirements

• Use constructive feedback and advice to positively inform my learning

• Take responsibility for my own learning and development, maintaining my competence in Paediatric Early Warning Score (PEWS) assessments

• Complete supervised practice within reasonable timeframes, and not practice unsupervised until I am assessed and signed off as competent

Learner Signature:……

Facilitator Signature:……

Date:……

Introduction

Welcome to the NHS Greater Glasgow and Clyde (NHSGGC) Health Care Support Worker (HCSW) Paediatric Early Warning Score (PEWS) education and competency programme.

You have been nominated to attend this programme by your Senior Charge Nurse (SCN) or Team Leader, with the understanding that you have completed the following; corporate induction and the HCSW workbook and Code of Conduct, hold a recent Basic Life Support certificate and have been in post for at least three months.

This programme has three stages:

Before the study day	The study day	**After** the study day
Work through this pack and complete the activities. This will provide the foundation of information for the practical workshop.	Builds on the learning from this workbook. Practical session on measuring and recording pulse, temperature, respiratory rate, blood pressure, AVPU on a PEWS chart.	Undertake supervised practice, achievement and sign-off of competency with the support of preceptor (competency booklet provided on study day). Final sign off from SCN / Team lead / Educator.

The study day will build on your leaning gained from this pack, as there will be a practical element please bring with you:

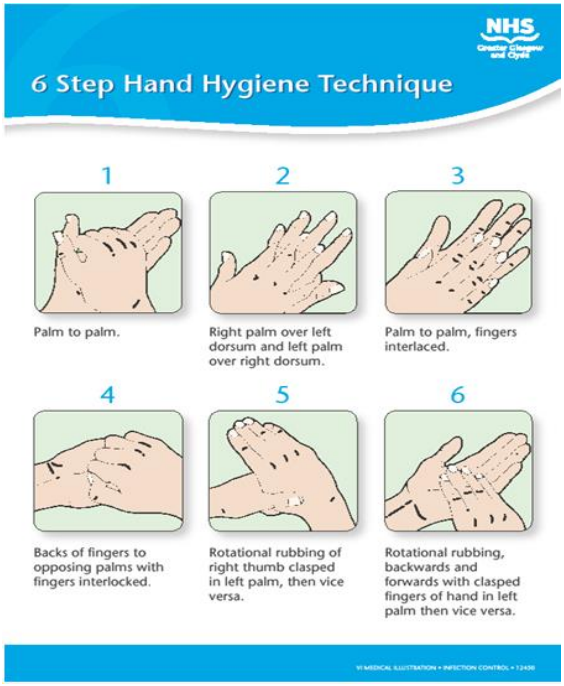
- Uniform
- Watch/timer
- Pen
- This booklet (with pre-course activities completed)
- A willingness to learn

This booklet is to help you prepare and learn about key aspects of PEWS monitoring of patients. You can access the additional resources by clicking on the links or use a portable electronic device camera to scan and open the QR code links to fill in the pre-course activities.

Considerations		
Accountability	Always work within the HCSW Code of Conduct Please ensure you have re-read the code, prior to the study day.	
Consent	Before undertaking any nursing intervention it is essential that consent is gained. This should be from the patient, or resident parent / guardian if the patient is unable to provide consent themselves due to age or understanding. More information on consent in children and young people can be found on page 26 of the 'Consent Policy on Healthcare Assessment, Care & Treatment' (NHS GGC, 2021)	
Patient preparation	Ensure that the parent/carer have a clear understanding of the procedure you are due to undertake and where possible, the child/young person too. Correctly identify the patient using their name band, verbal communication and patient notes. Ensure your patient is comfortable and safe before, during and after the clinical procedure whilst providing emotional and physical support throughout.	
Equipment	All equipment should be cleaned before and after using it, according to local policy. Choose the appropriate equipment such as correct sized BP cuff, then undertake pre-checks on device of choice and ensuring it is clean, intact and within service date before use.	

Infection Prevention and Control	Before touching your patient please ensure hand hygiene is carried out as instructed below and appropriate personal protective equipment (PPE) is used as per local infection control policy. Hand Hygiene - NHSGGC	

Handwashing should be performed as indicated in NHSGGC policies:



Paediatric Early Warning Score (PEWS)

Vital signs and observations are essential to assessing a patient's clinical status. Regular recording and assessment of observations are used to detect signs of serious illness or deterioration and provide the necessary information on how a patient's illness is responding to treatment. Vital signs include heart rate, respiratory rate, blood pressure, oxygen saturations and temperature. We also use our clinical judgement to assess levels of consciousness and acting on concerns staff / or carers have about the patient.

The Paediatric Early Warning Score was introduced to improve identification and communication of the deteriorating child across Scotland. Previously there had been 14 different early warning score charts, all scoring differently. Maternity and Children's Quality Improvement Collaborative (MCQIC) agreed on the standardisation of an early warning scoring system to be used across Scotland.

There are now five age appropriate charts which are all similar in appearance.

- 0-11 months
- 12-23 months
- 2-4 years
- 5-11 years
- > 12 years

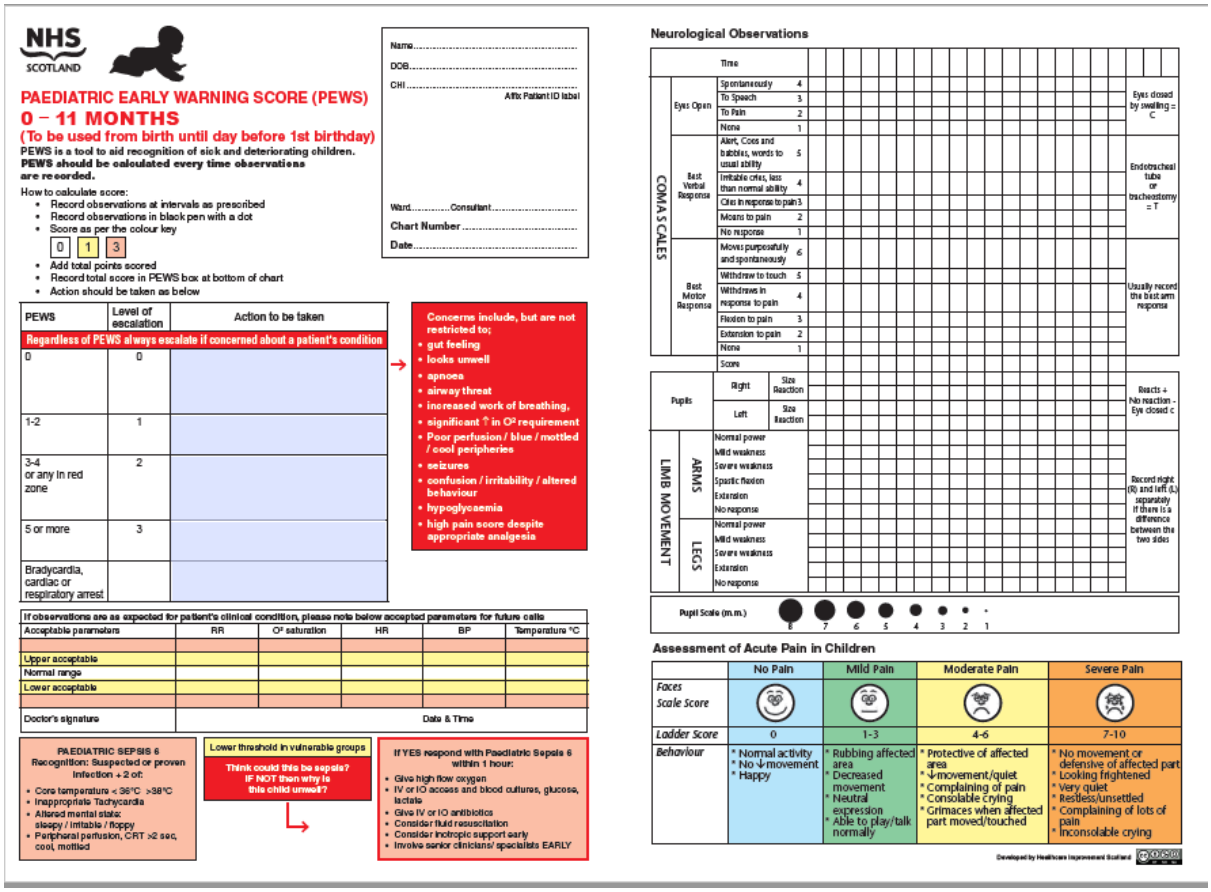
By using PEWS we can recognise sick patients and manage any deterioration. Children's observations change as they grow meaning it's essential that the correct chart is used for their age. Using the incorrect chart will have an impact on their score and may have implications for the correct management of a deteriorating patient. Further information can be found on

Further information can be found in

NHSGGC Paediatric Guidelines Website

Scottish Patient Safety Programme Website

Example of PEWS chart



NHS SCOTLAND

PAEDIATRIC EARLY WARNING SCORE (PEWS)
0 – 11 MONTHS
(To be used from birth until day before 1st birthday)

PEWS is a tool to aid recognition of sick and deteriorating children.
PEWS should be calculated every time observations are recorded.

How to calculate score:
- Record observations at intervals as prescribed
- Record observations in black pen with a dot
- Score as per the colour key

0 | 1 | 3

- Add total points scored
- Record total score in PEWS box at bottom of chart
- Action should be taken as below

Name.....
DOB.....
CHI.....
Affix Patient ID label
Ward.....Consultant.....
Chart Number.....
Date.....

PEWS	Level of escalation	Action to be taken
Regardless of PEWS always escalate if concerned about a patient's condition		
0	0	
1-2	1	
3-4 or any in red zone	2	
5 or more	3	
Bradycardia, cardiac or respiratory arrest		

Concerns include, but are not restricted to;
- gut feeling
- looks unwell
- apnoea
- airway threat
- increased work of breathing,
- significant ↑ in O^2 requirement
- Poor perfusion / blue / mottled / cool peripheries
- seizures
- confusion / irritability / altered behaviour
- hypoglycaemia
- high pain score despite appropriate analgesia

If observations are as expected for patient's clinical condition, please note below accepted parameters for future calls

Acceptable parameters	RR	O^2 saturation	HR	BP	Temperature °C
Upper acceptable					
Normal range					
Lower acceptable					
Doctor's signature			Date & Time		

PAEDIATRIC SEPSIS 6
Recognition: Suspected or proven infection + 2 of:
- Core temperature < 36°C >38°C
- Inappropriate Tachycardia
- Altered mental state: sleepy / irritable / floppy
- Peripheral perfusion, CRT >2 sec, cool, mottled

Lower threshold in vulnerable groups
Think could this be sepsis? IF NOT then why is this child unwell?

If YES respond with Paediatric Sepsis 6 within 1 hour:
- Give high flow oxygen
- IV or IO access and blood cultures, glucose, lactate
- Give IV or IO antibiotics
- Consider fluid resuscitation
- Consider inotropic support early
- Involve senior clinicians/ specialists EARLY

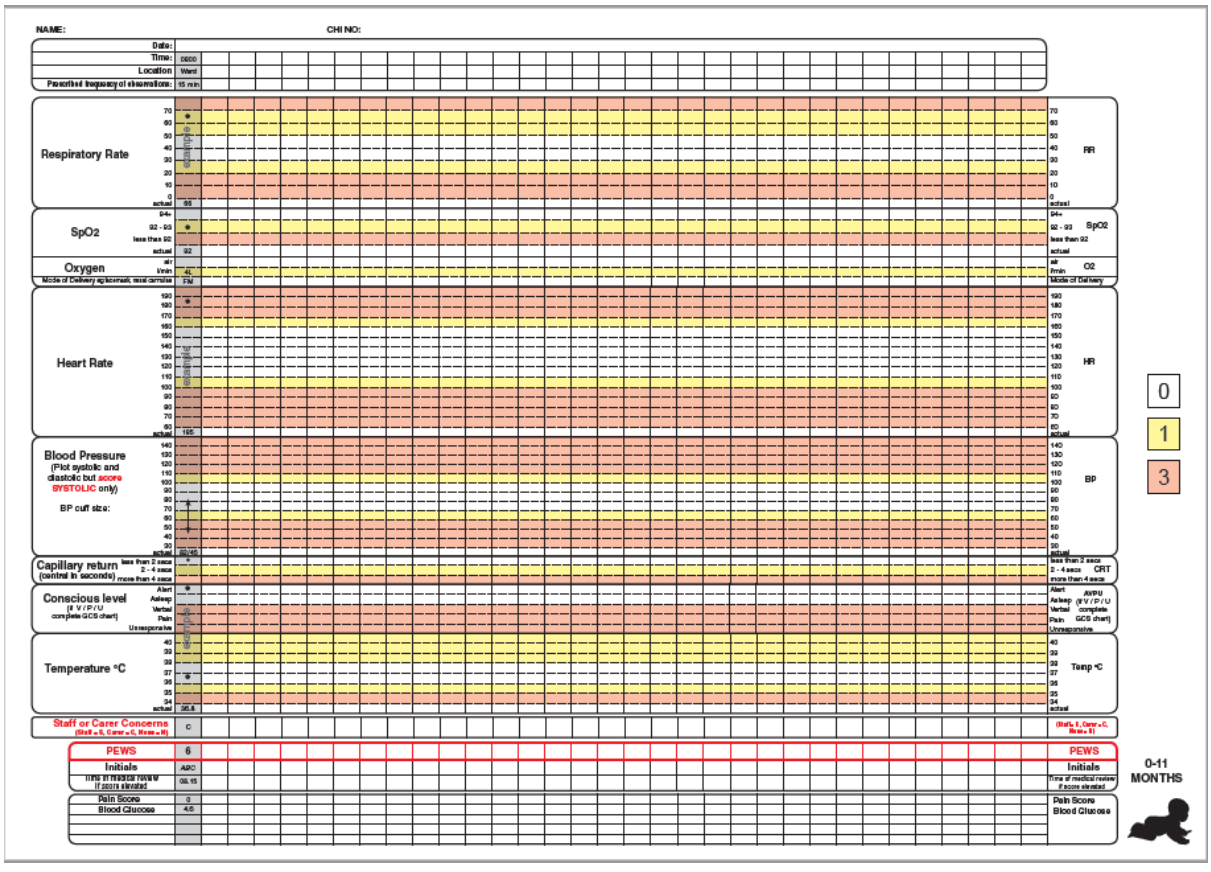
Neurological Observations

Time				
COMA SCALES – Eyes Open	Spontaneously	4		Eyes closed by swelling = C
	To Speech	3		
	To Pain	2		
	None	1		
Best Verbal Response	Alert, Coos and babbles, words to usual ability	5		Endotracheal tube or tracheostomy = T
	Irritable cries, less than normal ability	4		
	Cries in response to pain	3		
	Moans to pain	2		
	No response	1		
Best Motor Response	Moves purposefully and spontaneously	6		Usually record the best arm response
	Withdraw to touch	5		
	Withdraws in response to pain	4		
	Flexion to pain	3		
	Extension to pain	2		
	None	1		
	Score			
Pupils – Right	Size Reaction			Reacts + No reaction - Eye closed c
Pupils – Left	Size Reaction			
LIMB MOVEMENT – ARMS	Normal power			Record right (R) and left (L) separately if there is a difference between the two sides
	Mild weakness			
	Severe weakness			
	Spastic flexion			
	Extension			
	No response			
LIMB MOVEMENT – LEGS	Normal power			
	Mild weakness			
	Severe weakness			
	Extension			
	No response			
Pupil Scale (m.m.)	8 7 6 5 4 3 2 1			

Assessment of Acute Pain in Children

	No Pain	Mild Pain	Moderate Pain	Severe Pain
Faces Scale Score				
Ladder Score	0	1-3	4-6	7-10
Behaviour	* Normal activity * No ↓movement * Happy	* Rubbing affected area * Decreased movement * Neutral expression * Able to play/talk normally	* Protective of affected area * ↓movement/quiet * Complaining of pain * Consolable crying * Grimaces when affected part moved/touched	* No movement or defensive of affected part * Looking frightened * Very quiet * Restless/unsettled * Complaining of lots of pain * Inconsolable crying

Developed by Healthcare Improvement Scotland



NAME: CHI NO:

Date:
Time: 0000
Location Ward
Prescribed frequency of observations: 15 min

Respiratory Rate
SpO2
Oxygen
Mode of Delivery nasal cannula
Heart Rate
Blood Pressure (Plot systolic and diastolic but score SYSTOLIC only)
BP cuff size:
Capillary return (central in seconds)
Conscious level (A V / P / U complete GCS chart)
Temperature °C
Staff or Carer Concerns (Well = 0, Conc = C, Home = H)
PEWS
Initials
Pain Score
Blood Glucose

0
1
3

0-11 MONTHS

Respiratory Rate

Breathing is the process of air moving in and out of the lungs supplying essential oxygen to the body's organs and tissues.

We can successfully assess a patients breathing by watching the patient's chest movement, listening for any abnormal breathing sounds and counting the rate at which the patient is breathing, we can highlight if there is any cause for concern.

Activity:

Watch the video below

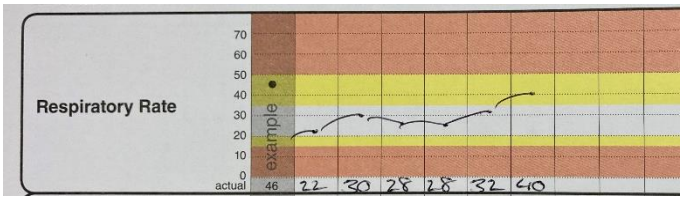
How do lungs work?

Date watched……

When counting a respiratory rate, both the inspiration and expiration are included as 1 breath and should be counted for **60 seconds** in total and no less. Normal respiration should look effortless, there should be no audible sounds and the chest should move equally (both sides of chest have symmetrical rise and fall) and at an even rate. The table below outlines the normal breaths per minute in infant, children and young people.

0-11 months	12-23 months	2-4 years	5-11 years	12> years
30-49	25-39	20-34	20-29	15-24

Accurately document and plot findings in the PEWS chart as per picture right, identify score and report/escalate appropriately.



Activity: What do you think would change your respiratory rate?

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Oxygen Saturations

A pulse oximeter is a non-invasive method to measure the level of oxygen in the blood (oxygen saturations or Sp02).

The monitors used have a detachable probe and when connected correctly display a red sensor light. There are two types of probes as shown below.

Activity:

Watch the video below

How to measure someone's oxygen levels

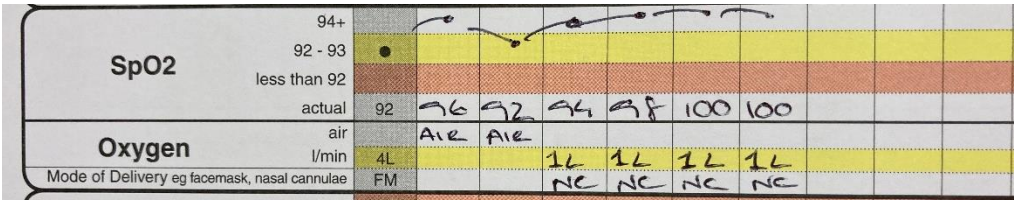
Date watched……..

Single use probe

Reusable probe

The probes above is for use of fingers/toes only. Oxygen saturation levels should ideally be 94% -100% in infants, children and young people. This does not change in relation to age. Although, there are a range of patients within the hospital who may have lower oxygen saturations due to their condition such as patients within the cardiac speciality.

Accurately document and plot findings in the PEWS chart as per picture below:



In the oxygen section, please document if the patient is being nursed in air or receiving oxygen therapy, how many litres and the route in which this is being administered.

Activity: Think of patients who you have looked after, what has caused oxygen (Sp02) levels to drop? ……

……..

How did your patient look? ……

……

Pulse

Activity:

Watch the videos below

How the heart actually pumps blood

Date watched……..

A pulse is the pressure in your arteries which increases briefly as your heart pushes out blood to keep the circulation going. Between beats, your heart relaxes and the pressure drops. While measuring the pulse rate, you also assess the volume (strength), regularity of the pulse. A baseline pulse is important to monitor changes.

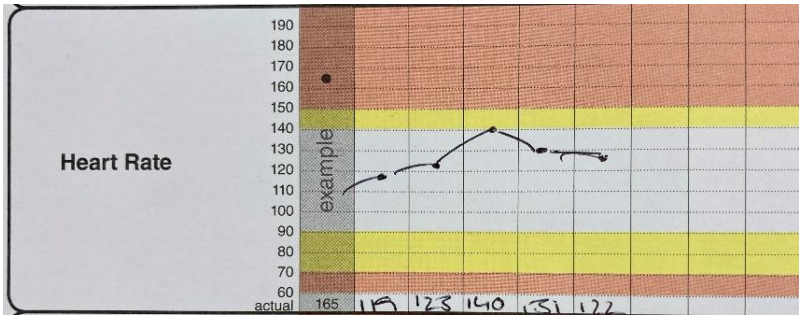
Where on the body can we feel a pulse?

By placing index and middle fingertips together as shown below, we can feel the pulse pushing through the arteries. Please remember **not** to use your thumb to assess a pulse as it is likely you will feel your own pulse instead of your patient's.

Electronic devices such as a pulse oximeter, described in the oxygen saturation section of this pack also measure a pulse rate. However, measuring a pulse is not just about the number of beats, but also about the strength, regular/irregular which can only be felt manually. Therefore it is important that if using a pulse oximeter, you must also feel for a manual pulse rate. Normal heart beats per minute in infant, children and young people:

0-11 months	12-23 months	2-4 years	5-11 years	12> years
110-159	100-149	90-139	80-129	70-109

Accurately document and plot findings in the PEWS chart as per picture:



Activity: During a normal day, what do you think makes your pulse rate increase?

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Activity: During a normal day, what do you think makes your pulse rate slow down?

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Blood Pressure

Blood pressure is the pressure that the blood exerts against the inner walls of the blood vessels, and it is the force that keeps the blood circulating continuously, even between heartbeats.

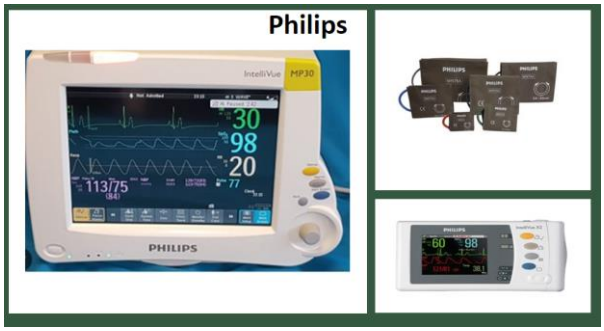
Many factors can influence the blood pressure recorded, including accuracy and efficiency of equipment, use of correct technique and other variables including temperature, exercise, and movement.

Within paediatrics we mainly use a non-invasive method of measuring blood pressure using an electronic monitoring device. Most commonly used devices available look similar to these.

Activity: Watch the video below

How Blood pressure works

Date watched:……



The systolic and diastolic will be displayed on the monitor:

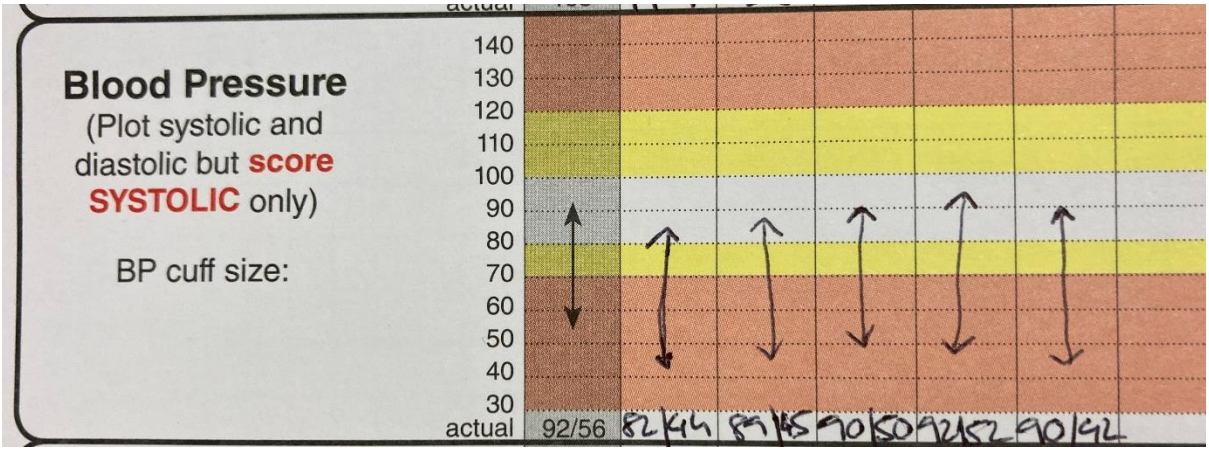
The systolic (top number) component of blood pressure represents the high pressure in the artery when the heart is pumping, whereas the diastolic (bottom number) is when the heart is at rest between beats.

The table below outlines the normal Systolic rates per age:

0-11 months	12-23 months	2-4 years	5-11 years	12> years
70-99	70-99	80-99	80-129	70-109

Once the reading has been identified, it must be charted in the PEWS chart accordingly. Both the systolic and diastolic need to be recorded but it is only the **systolic** that gets scored on the PEWS chart.

Accurately document and plot findings in the PEWS chart as per picture:



Activity: During a normal day, what do you think makes your blood pressure increase?

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Activity: During a normal day, what do you think makes your blood pressure lower?

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Capillary Refill Time

Assessing a patient's capillary refill time (CRT) can be a good indicator of changes in infants/ children/young people's blood flow and a sign of dehydration. CRT is the time it takes for colour to return to a capillary bed after pressure has been applied to create a blanching of the area.

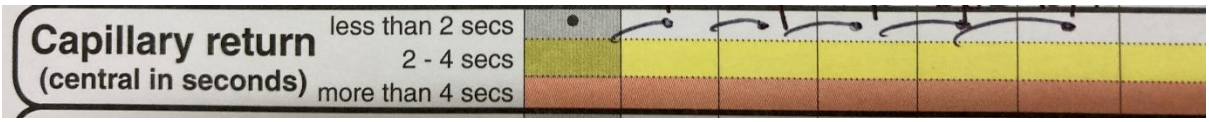
A normal CRT should be less than 2 seconds, this does not change in relation to age.

<u>How to obtain a central capillary refill time:</u>

This can be carried out by counting aloud although it is suggested to use a watch with a 3rd hand or digital timer due to personal interpretation of seconds.

- Press index finger on the child's sternum, applying pressure for 5 seconds
- Remove finger and count in seconds how long that it takes for colour to return to the blanched area

Accurately document and plot findings in the PEWS chart as per picture:



Activity: During a normal day, what do you think makes your CRT slower?

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Conscious Level

A rapid assessment of a patient's conscious level can be determined by the AVPU score. This simple scoring system is an acronym for the grading.

A= Alert

V= Verbal response

P= Painful response

U= Unresponsive

If a patient is alert or asleep and woken easily, simply plot this on the PEWS chart and score appropriately.

Activity:

Watch the video below

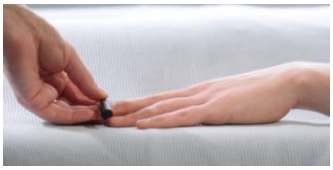
AVPU Assessment

Date watched……..

If the patient is difficult to rouse from sleep or is drowsy and only responds to you speaking to them, this should be documented as a verbal response and escalated immediately to the nurse in charge of the patient for further assessment and escalation if required.

If the patient is not responsive to verbal response, a pressure stimulus is then applied by applying pressure to the fingertip, earlobe or a trapezius (shoulder muscle) squeeze. Please seek immediate help for further intervention by medical and nursing staff if you are having difficulty rousing the patient.

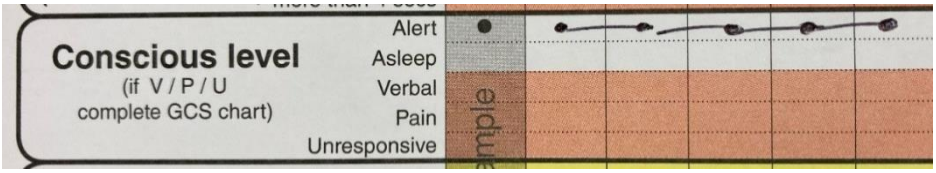
Pressure is applied for a max 10secs and assess the response.



Fingertip

Trapezius squeeze

Accurately document and plot findings in the PEWS chart as per picture:



Activity: What do you think can affect your conscious level?

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……

Temperature

Measuring the temperature of our patients is important to provide vital information about environmental factors or infection status.

Normal temperature ranges for infants, children and young people 36° to 37° although safe ranges on the PEWS is between 36° and 38°.

Any elevated temperature is above 38° and referred to as pyrexia. Temperatures between 35° and 36° are referred to as hypothermic.

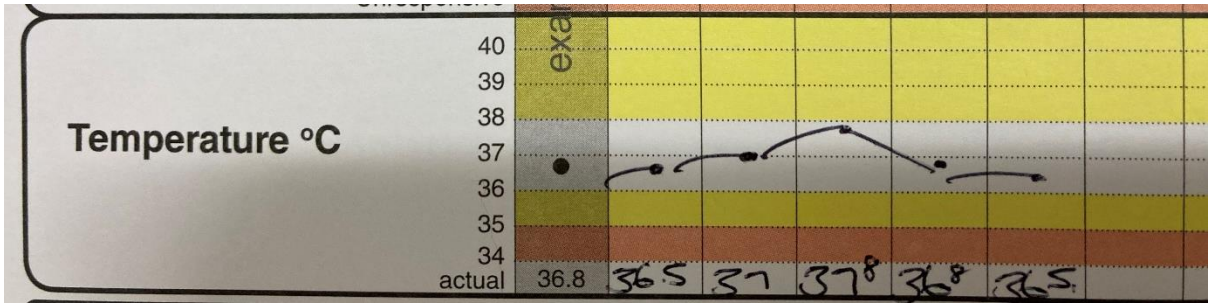
Accurately document and plot findings in the PEWS chart as per picture:

Activity:

Watch the video below

Temperature Regulation

Date watched……..



Activity: What do you think affects your temperature?

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Prior to the study day

Please check you have:

- ☐ Watched all the videos in this pack
- ☐ Completed all the activities in this pack

If there is anything you are not sure about make a note of it here and we can answer this at the practical workshop

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Well done on completing you pre-course reading. We are looking forward to seeing you at the practical workshop!

Programme for the practical workshop

	Welcome to the session
	Overview of pre-course reading
	Governance & PEWS guidelines
	Tea/coffee break
	Theory of vital signs, clinical observations, trends and escalation
	Lunch
	Communication skills and escalation (SBAR)
	Scenarios
	Course evaluation

Notes page for the study day