



The Shrewsbury and  
Telford Hospital  
NHS Trust

# Paediatric Observation Competency Assessment and Guidelines Document



Proud To **Care**  
Make It **Happen**  
We Value **Respect**  
Together We **Achieve**

## **Introduction**

Recording of physiological observations is an important part of the health assessment of young people. Successive National Confidential Enquiries into Patient Outcomes and Death (NCEPOD) have demonstrated poor performance, recording and recognition of abnormal physiological observations and acknowledge their contribution to the failure to identify significant deterioration in a patient's condition. The introduction of Paediatric Early Warning Scores (PEWS) has also given a visual tool to aide this and further support appropriate escalation of the sick child. RCPCH (2018)

## **Target Audience**

All ED Staff (medical and nursing) who as part of their normal duties, care for children (0-16 years).

## **Why perform the assessment?**

Important information gained by assessing and measuring these vital signs can be indicators of health and ill health. However, we believe they should not be performed in isolation but part of the broader observation and assessment of the infant, child or young person. (RCN 2017)

## **Who performs the assessment?**

In many instances vital signs will be assessed, measured and monitored by health care assistants and nursing students, under the direction and supervision of a registered nurse.

Nurses, at the point of registration, must meet the Nursing and Midwifery Council's (NMC) standards for pre-registration nursing education (2018), which includes the ability to:

- carry out comprehensive nursing assessments of children and young people, recognising the particular vulnerability of infants and young children to rapid physiological deterioration
- select valid and reliable assessment tools for the purpose required including the use of SaTH approved PEWS and observation charts
- systematically collect data regarding health and functional status of individuals, clients and communities through appropriate interaction, observation and measurement
- analyse and interpret data accurately and take appropriate action
- recognise when the complexity of clinical decisions requires specialist knowledge and expertise, and consult or refer accordingly.

## **How often is a child assessed?**

This will depend upon the clinical condition, diagnosis or procedure, and in the initial stages should be directed by the assessing clinician responsible for the child's management plan and local policies and procedures. This however; is not

prescriptive and the frequency of observation may be altered as the child's condition dictates.

For a child requiring neurological observations please refer to the neurological observations guidelines. NICE (2019)

### **What are the components of physiological observations?**

Vital signs are temperature, pulse rate, respiratory rate and signs of respiratory distress, oxygen saturation levels, AVPU, blood pressure, capillary refill time and pain score. RCPCH (2018) set the minimum standards for observation recording 'all Infants, children and young people with a medical illness or significant trauma should have a set of vital signs recorded' blood sugars should be recorded in all unwell children and those in a Resuscitation room (Resus Council (UK) 2018).

## **ASSESSMENT**

### **\*\*CLINICAL CONDITION WILL DICTATE THE ORDER IN WHICH THE OBSERVATIONS ARE TAKEN – FOLLOW THE PRINCIPLES OF ABCDE\*\***

#### **General Principles**

- The child, young person and/or parent/carer should consent to vital sign assessment and measurement. Where a child or young person under 16 is unaccompanied, local policies should be followed.
- Where appropriate, the child/young person and parent/carer should assist the practitioner in performing vital sign assessment and measurement.
- The infant, child and/or young person should be positioned correctly and comfortably prior to the procedure.
- Actions to restrain the infant or child should comply with best practice guidance.
- Post-Head injury assessment should include the level of consciousness.

#### **Temperature**

A temperature should be recorded on all children who attend with an acute presentation of illness with the device applicable for age.

Some indicators that should prompt a temperature check include:

"Whenever a child feels warm to the touch the temperature should immediately be measured even if it was normal a short time before"(Hockenberry, 2003).

If a child feels cold or if their skin appears mottled the temperature should be measured.

A child has a convulsion.

Oral and rectal routes should not be routinely used to measure the body temperature in children aged from nought to five years (NICE, 2018).

In infants under the age of four weeks, temperature should be measured with an electronic thermometer in the axilla (NICE, 2018).

For infants and children aged from four weeks to five years an electronic/chemical dot thermometer in the axilla or an infra-red tympanic thermometer should be used.

The thermometer should be left in position for sufficient time to gain an accurate reading, according to the manufacturer's instructions.

### **Heart Rate**

Even in healthy infants, locating and palpating a peripheral pulse can be difficult; it is therefore more useful to auscultate with a stethoscope and count the rate of the apex beat. (mid clavicular line 4<sup>th</sup> or 5<sup>th</sup> intercostal space, just below the left nipple). This will give an accurate assessment of the heart rate and rhythm and should be performed in all children under the age of 2yrs.

For children above this age, palpation of a peripheral pulse (i.e.: radial) or central pulse (carotid or brachial) will be sufficient to assess the heart rate, rhythm and amplitude in order to make a complete assessment.

**\*\* Use of electronic recording such as SPO2 monitors do not give a full evaluation of heart rate and rhythm and should NOT be used in place of manual methods.\*\*\***

The heart rate should be evaluated for a MINIMUM of THIRTY seconds.

### **Respiratory Rate**

Respiratory rate is one the earliest indicators of illness and deterioration (Hodgetts, 2002, Goldhill and McNarry, 2004) yet a study undertaken by NCEPOD (2005) found that it was the least recorded variable. This is still true today 15 years after the publication of this research.

In order to perform a complete and accurate respiratory assessment the child's chest should be fully exposed in order to observe for signs of respiratory distress. Avoid simply lifting outer clothing and baby grows which often don't expose the chest completely. It is however; possible to simply count the respiratory rate without removing articles of clothing.

Dependent upon the age of the child, it may be possible to count the respiratory rate by simply observing their breathing pattern, whilst the patient is unaware of what you are doing, as this often alters their pattern of breathing. This is more difficult in younger children, where you may need to place a hand onto their abdomen to assist in counting the respiratory rate.

Other signs of respiratory distress to observe for include:-

Skin colour – particularly cyanosis

Pattern of breathing – e.g. Prolonged expiratory phase or apnoea

Subcostal and intercostal recession

Tracheal tug

Sternal recession

Accessory muscle use  
Nasal Flaring  
Stridor or wheeze

**\*\* The respiratory rate should be counted for a minimum of one minute\*\***

The frequency of respiratory assessment and measurement should be increased during opiate infusions or in respect of any other drug which may cause hyperventilation or apnoea, for example, prostaglandin infusion.

**Blood Pressure**

Recording of blood pressure in children is arguably the most difficult; this is mainly due to the lack of tolerance for what is essentially an uncomfortable procedure. This however; doesn't detract from its value in a comprehensive assessment, there are a number of situations where it is essential that a blood pressure is recorded. These include but are not exclusively:-

Possible raised Intracranial pressure – either from head injury or other neurological abnormality such as meningitis, encephalitis, space occupying lesion. Where symptoms may include altered consciousness, irritability, neck stiffness/photophobia, altered behaviour and seizures.

Signs of misdistribution of circulating volume in conditions such as septicaemia, anaphylaxis, nephritic syndrome or other coagulopathy.

Potential hypovolaemia from traumatic injuries; including fractures of long bones and abdominal trauma.

Spinal injury.

Signs of renal pathology – peripheral/facial oedema, polyuria/anuria, haematuria.

Diabetic Ketoacidosis.

Drug treatment that has the potential to cause hyper/hypotension.

The arm should be used for measuring blood pressure, but when this is not possible in infants, the lower leg can be used.

The arm should be positioned at the level of the heart and well supported.

The correct size of cuff is essential for gaining an accurate recording.

The cuff should be of sufficient size to ensure overlap to cover 100% of the circumference of the arm and 2/3 of the length of the upper arm or lower leg. The bladder within the cuff must cover 80% of the arm's circumference and should be positioned over the artery from which the blood pressure will be taken. Incorrect cuff placement is a frequent source of error in both electronic and manual blood pressure measurement (Wedgbury and Valler-Jones, 2008; Valler-Jones and Wedgbury, 2009).

Sucking, crying and eating can influence blood pressure measurements and these should be noted.

Movement can affect the accuracy of automated blood pressure monitors.

The first reading of automated monitors should be disregarded.

### **Capillary Refill Time**

Capillary refill time (CRT) is a useful tool used to assess the circulation status of ill children. Its usefulness has been questioned more recently. However, current Resuscitation Council guidelines (2018) suggest that it isn't used in isolation, rather in conjunction with the other parameters previously discussed to ensure a full holistic assessment.

To perform CRT:-

Expose the forehead or sternum (avoid peripheries as these are sensitive to changes such as environmental temperature - cold hands/feet = slow CRT)

Press down firmly, with sufficient pressure to force all blood out of the superficial capillaries – causing blanching.

Hold for five seconds then release

Count in seconds, the time taken for the centre of the blanched area to begin to re-perfuse with blood.

A time of less than 3 seconds is classed as normal.

The use of a PEWS chart will help guide the frequency of observation recording but this can be increased as necessary by the clinical team caring for the child.

## Competency Assessment

Name.....

Date.....

Assessor.....

### Temperature

<u>Criteria</u>	<u>Achieved (✓/✗)</u>
Informs child/parents and gains consent for procedure	
Chooses age appropriate device (is able to verbally identify different ages/devices required)	
Uses device in accordance with manufacturers instructions	
Follows local infection control policies	
Records reading in appropriate documentation	
Identifies situations where temperature reading would be repeated	

### Heart Rate

<u>Criteria</u>	<u>Achieved (✓/✗)</u>
Informs child/parents and gains consent for procedure	
Identifies landmarks/location of apex beat	
Auscultates with stethoscope over apex beat for 30 seconds	
<b><u>Is able to calculate heart rate accurately from numbers obtained</u></b>	
Locates peripheral/central pulse	
Comments on rate/rhythm and amplitude of pulse	
Records findings in appropriate documentation	
Identifies areas of concern/escalation in relation to heart rate	
Follows local infection control policies	

### Blood Pressure

<u>Criteria</u>	<u>Achieved (✓/✗)</u>
Informs child/parents and gains consent for procedure	
Identifies appropriate size cuff	
Applies cuff correctly	
Disregards first electronic reading	
Repeats recording	
Records findings in appropriate documentation	
Identifies areas of concern/escalation in relation to heart rate	
Follows local infection control policies	

### Respiratory Rate

<u>Criteria</u>	<u>Achieved (✓/✗)</u>
Informs child/parents and gains consent for procedure	
Exposes chest fully	
Counts respiratory rate for 1minute	
Observes and comments on signs of respiratory distress	
Observes and comments pattern of breathing	
Records findings in appropriate documentation	
Identifies areas of concern/escalation in relation to respiratory rate	
Follows local infection control policies	

### Capillary Refill Time

<u>Criteria</u>	<u>Achieved (✓/✗)</u>
Informs child/parents and gains consent for procedure	
Exposes either forehead or sternum	
Presses firmly for 5 seconds	
Releases pressure	
Counts time taken for capillary refill to start to return	
Records findings in appropriate documentation	
Identifies areas of concern/escalation in relation to capillary refill time	
Follows local infection control policies	

### Questions

Achieved  
✓/✗

1. What situations would prompt you to check a child's temperature?
2. What device would you use to check the temperature of a 3 week old baby?
3. Where would you find the apex beat?
4. Where would you find a central pulse?
5. Name two situations that may cause an increased heart rate
6. Name two situations that may cause an increased respiratory rate
7. Why should you not perform CRT peripherally?
8. What proportion of the upper arm should the BP cuff cover?
9. What situations may influence blood pressure readings?
10. Name three situations where a blood pressure reading is essential

### Overall

### Achieved/Not achieved

### Signed (assessor)

## References

Goldhill DR, McNarry A (2002) *Intensive Care Outreach Services*. *Curr Anaesth Crit Care* 13:356–361

Hodgetts T.J., Kenward G., Vlackonikolis I., Payne S., Castle N., Crouch R., Ineson N. & Shaikh L. (2002) *Incidence, location and reasons for avoidable in-hospital cardiac arrest in a district general hospital*. *Resuscitation* 54(2), 115–123.

Leonard P and Beattie T (2004) Is measurement of capillary refill time useful as part of the initial assessment of children? *European Journal of Emergency Medicine*, 11 (3), pp.158-163.

National Institute for Health and Clinical Excellence (2018) *Feverish illness in children: NICE guideline*, London: NICE.[www.nice.org.uk](http://www.nice.org.uk)

National Institute for Health and Clinical Excellence (2018) *Feverish illness in children: NICE guideline*, London: NICE.[www.nice.org.uk](http://www.nice.org.uk)

National Institute for Health and Clinical Excellence (2014) *Head Injury: Assessment and Early Management: Guideline updated 2019*. London. [www.nice.org.uk](http://www.nice.org.uk)

Nursing and Midwifery Council (2015) *The NMC code of professional conduct: standards for conduct, performance and ethics*, London: NMC.

Nursing and Midwifery Council (2018) *Standards for pre-registration nursing education*, London: NMC.

Resuscitation Council (UK) ( 2018 ) *European Paediatric Advanced Life support*. 4<sup>th</sup> ED. Resus Council. London

Royal College of Nursing (2017) *Standards for assessing, measuring and monitoring vital signs in infants, children and young people*. Royal College of Nursing.

Royal College of Paediatrics and Child Health (2018) *Facing the Future: Standards for Children in Emergency Care Settings*. London. RCPCH

Valler-Jones, T and Wedgbury, K (2009) *Measuring blood pressure using a manual sphygmomanometer*, *International Journal of Clinical Skill*, 3 (1).  
<http://www.ijocs.org/issues/vol3iss1.aspx>

Wedgbury K and Valler-Jones, T (2008) *Measuring blood pressure using an automated sphygmomanometer*, *British Journal of Nursing*, 17 (11),