Appendix 1: Clinical examination for signs of meningism[40]

Kernig sign

1. Child is supine
2. One hip and knee are flexed to 90 degrees by the examiner
3. The examiner then attempts to passively extend child's knee
4. Positive if there is pain along spinal cord, and/or resistance to knee extension

Brudzinski sign

1. Child is supine with legs extended
2. The examiner grasps child's occiput and attempts neck flexion
3. Positive if there is reflex flexion of child's hips and knees with neck flexion

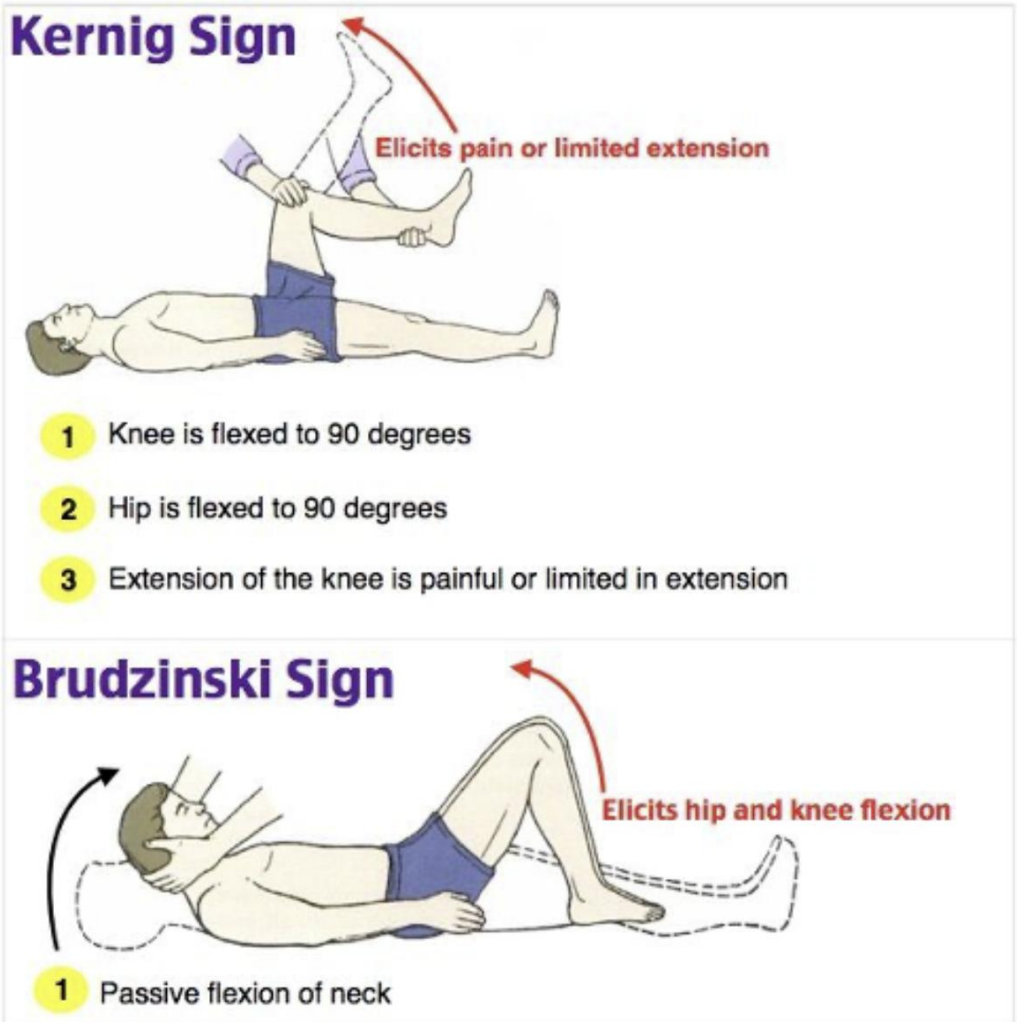

Image from Royal Children's Hospital Melbourne.

Appendix 2 [14]

Febrile Seizures: Parent/Caregiver advice leaflet

Call 999 or go to A&E if your child:

- has a seizure for the first time
- has a seizure that lasts more than 5 minutes
- is having difficulty breathing
- has stiffness and twitching on only 1 side of their body
- is more sleepy than usual for more than 1 hour after the seizure stops
- has more than 1 seizure within 24 hours

Do not take your child to A&E if they are still having a seizure or are unconscious, call 999 instead.

- Do not drive to A&E. Ask someone to drive you or call 999 and ask for an ambulance.
- Bring any medicines your child takes with you.

What to do if your child is having a febrile seizure

If your child is having a febrile seizure, it's important to keep them safe while you wait for medical help.

Do

check the time the seizure starts and ends

protect their head with your hands or something soft

remove any dangerous objects that are nearby

after the seizure ends, put your child in the recovery position and make sure there is nothing in their mouth or throat that might affect their breathing

Don't

do not move your child or try to hold them in place

do not put anything in your child's mouth

do not try to lower your child's temperature by undressing them or sponging them with cold water

(Adapted from NHS Inform).

Appendix 3 [41]

Classification: Official

NHS Improvement

Patient Safety Alert

Risk of harm from inappropriate placement of pulse oximeter probes

18 December 2018

Alert reference number: NHS/PSA/W/2018/009

Warning Alert

Measurement of oxygen saturation, using a pulse oximeter probe, is routinely undertaken as part of patients' vital signs during diagnosis and ongoing monitoring. Oxygen saturation readings are a key component of the National Early Warning Score (NEWS2).[1]

Oximeter probes can be single or multiple use and are designed to attach to specific parts of the body. Adult oximeter probes can be attached to either a finger or an ear, but are not interchangeable between these sites, whilst probes for babies and children need to be selected according to the patient's weight.

If an oximeter probe intended for the finger is attached to the ear (or vice versa), or a probe intended for an adult is attached to a baby or a child (or vice versa), it can produce a reading up to 50% lower or 30% higher than the real value.[2,3,4] The clinical implication of an inaccurately high reading, especially as part of NEWS2, is that staff may be falsely reassured about a patient's condition, when in reality the patient is deteriorating, or may make an inappropriate intervention when in fact a patient is stable or improving.

The national patient safety team was made aware that this issue may be under-recognised. To gain further information, we carried out a survey of clinical staff and observed clinical practice. Key issues identified were:

- a substantial proportion of staff do not know that finger probes can give misleading results if attached to ears
- a quarter said they do not have access to probes specifically for the ear, even though in almost all clinical settings some patients will need these
- once probes are removed from their packaging there is no easily visible prompt to remind the user where to attach the probe
- staff may not be aware of other factors that can affect the accuracy of the reading.

Although no reports were found in the National Reporting and Learning System (NRLS) relating to this issue, the scale of these gaps in knowledge and equipment suggests the potential for severe patient harm is high.

The local actions required by this alert will help reduce the risk of incorrect probe selection and placement. To reinforce and embed these local changes, NHS Improvement and the Medicines and Healthcare products Regulatory Agency (MHRA) are asking manufacturers to review device labelling and provide prompts for correct attachment. NHS Improvement have also asked the Clinical and Products Assurance (CAPA) arm of NHS Supply Chain (NHSSC) to review the oximeter probe descriptions in its catalogue.

Actions

Who: All organisations providing NHS funded-care where oxygen saturation probes are used as part of routine or emergency monitoring of patients

When: To commence immediately and actions completed by 18 June 2019

1. Identify a clinical leader to bring together people with responsibilities for medical device training and education, clinical skills assessment, NEWS2 implementation and procurement of pulse oximeters.
2. Develop an action plan to reduce the risk of inappropriate placement of pulse oximetry probes. This should:
   - arrange for ongoing access to adult finger and ear probes in all clinical areas where oximetry is used (including for the range required for babies and children where appropriate)
   - provide point-of-use reminders on why it is vital to use the correct probe for fingers and for ears, and for babies and children
   - provide point-of-use reminders on other factors that may interfere with the accuracy of the reading.
3. Once your organisation's action plan for managing these risks has been agreed, communicate the key messages in this alert and the plan to relevant clinical staff, clinical education/training staff, and patients or their carers who self-monitor oxygen saturation levels.

Patient Safety
improvement.nhs.uk/resources/patient-safety-alerts

See page two for technical notes, stakeholder engagement and advice on who this alert should be directed to.

NHS Improvement (December 2018) Contact us: patientsafety.enquiries@nhs.net Publication code: IT 14/18

Appendix 4 [2]

NICE National Institute for Health and Care Excellence

Traffic light system for identifying risk of serious illness in under 5s

Refer to the summary version of table 3 for the NICE guideline on sepsis if a child presents with fever and symptoms or signs that indicate possible sepsis

	Green – low risk	Amber – intermediate risk	Red – high risk
Colour (of skin, lips or tongue)	• Normal colour	• Pallor reported by parent/carer	• Pale/mottled/ashen/ blue
Activity	• Responds normally to social cues • Content/smiles • Stays awake or awakens quickly • Strong normal cry/not crying	• Not responding normally to social cues • No smile • Wakes only with prolonged stimulation • Decreased activity	• No response to social cues • Appears ill to a healthcare professional • Does not wake or if roused does not stay awake • Weak, high-pitched or continuous cry
Respiratory		• Nasal flaring • Tachypnoea: – RR >50 breaths/ minute, age 6–12 months – RR >40 breaths/ minute, age >12 months • Oxygen saturation ≤95% in air • Crackles in the chest	• Grunting • Tachypnoea: RR >60 breaths/minute • Moderate or severe chest indrawing
Circulation and hydration	• Normal skin and eyes • Moist mucous membranes	• Tachycardia: – >160 beats/minute, age <12 months – >150 beats/minute, age 12–24 months – >140 beats/minute, age 2–5 years • CRT ≥3 seconds • Dry mucous membranes • Poor feeding in infants • Reduced urine output	• Reduced skin turgor
Other	• None of the amber or red symptoms or signs	• Age 3–6 months, temperature ≥39°C • Fever for ≥5 days • Rigors • Swelling of a limb or joint • Non-weight bearing limb/not using an extremity	• Age <3 months, temperature ≥38°C* • Non-blanching rash • Bulging fontanelle • Neck stiffness • Status epilepticus • Focal neurological signs • Focal seizures

CRT, capillary refill time; RR, respiratory rate
* Some vaccinations have been found to induce fever in children aged under 3 months

This traffic light table should be used in conjunction with the recommendations in the NICE guideline on fever in under 5s.