

#### C.1.4 Sensory symptoms such as tingling or numbness in adults and children

Component	Description
<b>Review question</b>	In people who present with tingling or altered sensation in the body, what is the accuracy of accompanying signs and symptoms to support non-specialists in identifying suspected neurological conditions?
<b>Objectives</b>	To identify signs and symptoms that, if presenting with tingling or altered sensation in the body, would indicate a neurological condition requiring referral for further specialist assessment.
<b>Population</b>	People presenting to a non-specialist with tingling or altered sensation in the body stratified into the following 2 groups: <ul style="list-style-type: none"> <li>• Adults, young people and children (&gt;5 years)</li> <li>• Children (&lt;5 years old) and babies</li> </ul>
<b>Presence or absence of predictor</b>	The committee identified the following predictors in people presenting to a non-specialist with tingling or altered sensation in the body for inclusion in the review: <ul style="list-style-type: none"> <li>• alcohol use</li> <li>• diabetes</li> <li>• distribution of symptoms (for example, peripheral or particular nerve)</li> <li>• duration of symptoms</li> <li>• loss of reflexes</li> <li>• pain</li> <li>• periodicity (transience) and focality</li> <li>• sensory loss</li> <li>• vitamin deficiencies</li> <li>• weakness.</li> </ul>
<b>Outcomes</b>	<p><b>Main outcomes:</b></p> <ul style="list-style-type: none"> <li>• Sensitivity (%) and specificity (%)</li> <li>• Area under the ROC curve (AUROC) – measure of predictive accuracy</li> <li>• Positive and negative predictive values</li> </ul> <p><b>Other outcomes:</b></p> <ul style="list-style-type: none"> <li>• Adjusted odds ratios for the presence of the following conditions: <ul style="list-style-type: none"> <li>○ compression neuropathy (for example, carpal tunnel syndrome and Meralgia paresthetica)</li> <li>○ demyelination</li> <li>○ drug toxicity – chemotherapy, alcohol, platinum-based drugs</li> <li>○ functional (hyperventilation)</li> <li>○ mononeuropathy multiplex</li> <li>○ peripheral neuropathy</li> <li>○ radiculopathy</li> <li>○ seizures</li> <li>○ small fibre neuropathy</li> <li>○ TIAs</li> </ul> </li> </ul>

Component	Description
	<ul style="list-style-type: none"> <li>○ tethering of the spinal cord.</li> </ul>
<b>Study design</b>	Prospective or retrospective cohort studies and case-control studies with multivariate analysis.
<b>Exclusions</b>	<ul style="list-style-type: none"> <li>• Neonates (infants aged 28 days and under)</li> <li>• Studies that are unadjusted for any of the identified predictors listed above</li> <li>• Studies with univariate analysis only</li> </ul>
<b>How the information will be searched</b>	<p>The following neurological condition groups* will form the basis of the search strategy:</p> <ul style="list-style-type: none"> <li>• epilepsy</li> <li>• functional disorders</li> <li>• multiple sclerosis and inflammatory disorders</li> <li>• peripheral nerve disorders</li> <li>• spondylotic myelopathy and radiculopathy</li> <li>• tumours of the nervous system</li> <li>• catch-all group – rare and other neurological diseases.</li> </ul> <p>The following neurological condition groups will not be included in the search strategy:</p> <ul style="list-style-type: none"> <li>• ataxia</li> <li>• central nervous system infections</li> <li>• cranial nerve disorder</li> <li>• development disorders</li> <li>• headaches and migraine</li> <li>• neuromuscular diseases</li> <li>• sleep disorders</li> <li>• traumatic brain and spine injury.</li> </ul> <p><i>*Condition groups taken from Defining Adult Neurological Conditions, National Neurology Intelligence Network, April 2016</i></p>
<b>Key confounders</b>	Any of the predictors listed above
<b>The review strategy</b>	<ul style="list-style-type: none"> <li>• Statistical outputs may include sensitivity, specificity, adjusted odds ratios and AUC</li> <li>• Meta-analysis where appropriate will be conducted.</li> <li>• Evidence from indirect settings, which the committee evaluated as generalisable to a non-specialist setting, will be included in the review.</li> <li>• The risk of bias of each study will be assessed using the QUADAS-2 checklist for diagnostic studies or the NGC checklist for prognostic studies.</li> <li>• The overall quality of the evidence will be assessed using an adapted version of GRADE.</li> <li>• The review may cross-refer to existing NICE guidance which has identified early signs and symptoms for neurological conditions which present with tingling or altered sensation in body.</li> </ul>