

# **Stroke in Childhood**

**Clinical guideline for diagnosis, management  
and rehabilitation**

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Appendix 1

Contains:

- Guideline scope

Royal College of Paediatrics and Child Health  
5-11 Theobalds Road, London, WC1X 8SH

The Royal College of Paediatrics and Child Health (RCPCH) is a registered charity in England and Wales (1057744) and in Scotland (SC038299).

# Appendix 1: Guideline scope

## Remit

The guideline aims to produce evidence-based guidance on the diagnosis, management and rehabilitation of stroke in children and young people aged 29 days to 18 years and will be based partly on the 2004 Royal College of Physicians (RCP) guidelines, *Stroke in Childhood: Clinical Guidelines for Diagnosis, Management and Rehabilitation*<sup>1</sup>.

## Clinical need for the guideline

- Stroke is one of the top 10 causes of childhood death affecting several hundred children in the UK each year<sup>2</sup>.
- Current guidelines on the diagnosis and management of childhood stroke are based on the recommendations of the Paediatric Stroke Working Group and were published by the RCP in 2004<sup>1</sup>. These guidelines may no longer reflect best and most up to date clinical practice.
- Childhood stroke, although relatively uncommon, is associated with high mortality and morbidity due to lack of early recognition or uniform management.
- The guidance needs urgent updating to ensure it reflects best practice and utilises the most up-to-date evidence.

## The guideline

- The guideline will be developed according to the Royal College of Paediatrics and Child Health (RCPCH) *Setting Standards for Development of Clinical Guidelines in Paediatrics and Child Health* publication<sup>3</sup>, which is accredited by the National Institute for Health and Care Excellence (NICE) accredited.
- This document acts as the scope and defines exactly what the guideline is to examine, and what the guideline developers will consider.
- The areas to be addressed by the guideline are outlined in the following sections.

## Scope consultation

A stakeholder consultation on the scope is scheduled to take place mid-2015. All comments will be collated and reviewed for consideration.

## Populations to be covered

### Groups that will be covered

The guideline will cover children and young people (aged 29 days to 18 years at time of presentation) with acute arterial ischaemic stroke (AIS) (acute focal neurological disorder with imaging evidence of cerebral infarction in a corresponding arterial distribution) and haemorrhagic stroke (HS) up until their transition to adult care. These will be collectively referred to as 'stroke'. Transient ischaemic attack (TIA) is difficult to diagnose in children and a vascular aetiology can only be confidently attributed if there is an image correlated in the brain or cerebral circulation. Many children with TIA symptoms will have brain infarction and therefore TIA is not considered separately in this document.

Consideration will be given to the management of unruptured, at risk vascular malformations in children and young people (arteriovenous malformations, cavernous malformations, cerebral aneurysms and arteriovenous fistulae).

## Groups that will not be covered

The guideline will not address:

- Neonates (0 to 28 days)
- Children and young people with other types of stroke syndromes
- 18 years or more at the time of presentation
- Intracerebral haemorrhage secondary to trauma
- Neonatal intra-ventricular haemorrhage
- Spinal stroke syndromes
- Cerebral venous thrombosis

## Target audience

The guideline will be set within the context of the healthcare structures in the UK and is intended to help inform clinical decisions of all UK paediatricians, healthcare professionals involved in the regulation or practice of the care of children and young people affected by stroke, at any stage of their care and rehabilitation, and non-healthcare professionals involved with educational/social services. Sections may also be of relevance to education and social care professionals.

The input of parents will be a key component of the development process; a separate abbreviated parent/carer version of this guideline will be developed and will be hosted on [www.rcpch.ac.uk/stroke-guideline](http://www.rcpch.ac.uk/stroke-guideline).

## Healthcare setting

The guideline is to be aimed at professionals working in primary care, secondary level acute paediatrics, tertiary level paediatric neurosciences, as well as those within the ambulance sector, paediatric intensive care unit, community paediatrics, neurodisability, education, and social services. It may also be of use and interest to professionals working with young people transitioning into adult care.

## Clinical issues that will be covered

The purpose of the guideline is to describe the identification, diagnosis, early management and rehabilitation of AIS and HS in children and young people; with the aim of reducing brain damage, preventing subsequent stroke, and optimising potential for function and participation.

This includes:

- Identifying groups at risk of childhood stroke and recurrence
- Identifying the clinical presentations of childhood stroke
- Determining timing and modality of imaging needed to diagnose stroke in children and young people
- Defining referral pathways for AIS/HS
- Defining diagnostic procedures aimed at confirming diagnosis and identifying underlying risk factors for AIS/HS
- Defining early management (medical/surgical/endovascular) including medical stabilisation, service organisation and provision (appropriate care settings, health professionals that should be involved, intensity and duration)
- Acute assessment of neurological status and stroke severity
- Assessment and maintenance of body functions, including nutrition, hydration, communication, cognition and mobility
- Management of stroke complications (prevention, detection, treatment)
- Medical interventions to minimise stroke severity and prevent recurrence
  - For AIS, including specific medications such as thrombolysis, anticoagulants, antiplatelet agents and blood transfusion
  - For HS, including treatment of coagulation defects and haematologic disorders

- Surgical interventions for acute treatment or secondary prevention (including indications and timings for referral to neurosurgery)
  - For AIS, role of decompression and revascularisation.
  - For HS, including haematoma evacuation, surgical resection/clipping for aneurysms and arteriovenous malformations (AVMs)
- Endovascular interventions (indications/timing for referral to interventional neuroradiology, role of endovascular therapies; for AIS mechanical thrombectomy/clot retrieval/extraction, for HS embolisation/coiling).
- Radiotherapy (radiosurgery) and its role in the treatment of HS due to AVM or cavernoma.
- Long term management and rehabilitation including:
  - Assessment to determine rehabilitation needs, interventions for various body functions and structures (mental functions, sensory functions and pain, speech & language functions, different system function and structures), activities and participation (learning/applying knowledge, general tasks and demands, communication, mobility, self-care, domestic life, interpersonal interactions and relationships, major life areas, community, social and civic life)
- Delivery of rehabilitation including availability, appropriate care settings, health professionals involved, family involvement, service organisation and provision including quantity intensity and duration.
- Identifying elements of care and support that are important to families
- Discharge planning
- Management of transition of healthcare to adult services
- Transitions of educational and social care through educational stages (nursery – primary – secondary – college)
- Assessment to determine rehabilitation needs, interventions for various body functions and structures, activity and participation
- Delivery of rehabilitation

Clinical issues that will not be covered:

- Management of other childhood stroke syndromes not covered by the scope
- Screening and primary prevention in children and young people with sickle cell disease, as this has already been covered by an National Health Service (NHS) screening programme for clinical care<sup>4</sup>
- Primary prevention of childhood stroke

## Related guidance

- *National Clinical Guideline for Stroke (2016)*<sup>1</sup>
- *Management of Sickle Cell Disease: Summary of the 2014 Evidence-Based Report by Expert Panel Members (2014)*<sup>5</sup>
- *Guidelines for the Acute Medical Management of Severe Traumatic Brain Injury in Infants, Children, and Adolescents (2012)*<sup>6</sup>
- *European Network for Rare and Congenital Anaemias (ENERCA) Clinical Recommendations for Disease Management and Prevention of Complications of Sickle Cell Disease in Children (2011)*<sup>7</sup>
- *Sickle Cell Disease in childhood: Standards and Guidelines for Clinical Care (2010)*<sup>4</sup>
- *Stroke in Childhood: Clinical Guidelines for Diagnosis, Management and Rehabilitation (2004)*<sup>8</sup>

# References

1. Royal College of Physicians Intercollegiate Stroke Working Party. National clinical guideline for stroke. RCP; 2016. Available from
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7. de Montalembert M., Ferster A., Colombatti R., *et al.* ENERCA clinical recommendations for disease management and prevention of complications of sickle cell disease in children. *American Journal of Hematology* 2011;86(1):72-75.
8. Paediatric Stroke Working Group. Stroke in childhood: Clinical guidelines for diagnosis, management and rehabilitation. Royal College of Physicians; 2004.