Whittington Health NHS

Febrile Convulsions – Management Guidelines

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Version Control Sheet

Version	Date	Author	Status	Comment
1.0	May 2004	Dr H Mackinnion, Dr J Raine	Off-line	
2.0	May 2006	Dr H Mackinnion, Dr J Raine	Off-line	
3.0	Feb 2013	Dr Ranjith Govindan Dr Giles Armstrong	On-line	
4.0	Dec 2016	Dr Kirstie Kinross Dr Kerry Robinson	Awaiting review	The following changes were made (please see highlighted text in guideline): 1. Classification of complex febrile convulsions. -Duration changed from more than 20 mins to more than 10 mins. This was changed to be in-keeping with current APLS guidance. 2. Discharge advice: this section was changed to be consistent with NICE Feverish illness in children MAY 2013 guideline. It covers specific advice on the management of fever, further seizures and red flag symptoms.

➢ Criteria for use

This guideline should be used for the management of Febrile Convulsions. This is defined as [1]:

- A seizure occurring between the age of 6 months and 5 years
- In association with a febrile illness, with no signs or symptoms of meningitis. (The temperature must be more than 38 ° C, typically before the onset of the seizure)
- No prior history of epilepsy/unprovoked seizures or neonatal seizures

➢ Inclusion/ exclusion criteria

This guideline should not be used in the following situations:

- In children less than 6 months old
- Children with signs of meningitis or sepsis
- In seizures with no definite history of fever

In these cases children should be discussed with an appropriate senior clinician.

➢ Classification

Febrile convulsions are classified as Simple or Complex.

Complex Febrile convulsions – are those that have one or more of the following:

1. Duration more than 10 minutes
2. Recurrence within 24 hours or the same febrile illness
3. Focal features to the seizures

A febrile convulsion without any of the above mentioned features is classified as a “Simple Febrile Convulsion”.

➢ Clinical management

1. Manage the seizures if the child is still fitting. Refer to the APLS Status Epilepticus Algorithm for full advice (available in all clinical areas)

2. Once the child is stable, take a thorough history focusing on:

    - Identifying the focus of fever (with particular emphasis to ruling out meningitis and encephalitis),
    - Identifying any of the complex features (see above)
    - Determining the risk for future recurrence and/or development of epilepsy.
    - Ruling out a cardiac cause (Brugada syndrome, long QT syndrome)[2]

    The following sub headings will aid as a guide:

    a) History of presenting complaint – features strongly suggestive of possible meningitis include (document presence or absence in all cases):

        - Age less than 1 year,
        - Already on antibiotics,
        - Drowsy or irritable (not just an unsettled child),
        - Poor feeding
        - Petechiae

    b) Birth history- features associated with increased risk of developing epilepsy include (document presence or absence in all cases):

        - Prematurity (document any neonatal complications)
        - Birth asphyxia (Hypoxic Ischaemic Encephalopathy)
        - Neonatal hypoglycaemia,
        - Neonatal convulsions.

    c) Developmental history

    d) Immunisation history– Incomplete immunisation especially in children aged 6-18 months against *Haemophilus influenzae* b and Streptococcus *pneumonia.*

e) Family history of febrile seizures or epilepsy, cardiac arrhythmias or young sudden death

3. Perform a detailed general and neurological examination including:
    - Signs of meningitis
    - Neurocutaneous markers (e.g. café-au-lait macules)
    - Measure head circumference and plot on growth chart
    - Todd's paralysis (a transient paralysis following a prolonged seizure, usually indicative of a focal onset of seizures)

4. A finger prick blood glucose estimation should be done in all cases, especially in children with prolonged seizures.

5. No other blood tests or imaging are routinely needed in simple febrile convulsions, but may be required on an individual case basis to assist in establishing the cause of the fever. A urine dipstick may be necessary where the focus of fever is not clear. An ECG should be considered if a cardiac arrhythmia is being considered as a cause (tachycardia out of proportion to the fever, weak peripheral pulses, significant pallor or positive family history)[2]

5. Paediatric opinion should always be sought in the following:

    a) First episode of febrile fits

    b) Suspected CNS infection (e.g. meningitis or encephalitis)

    c) Child under one year of age

    d) Any feature of complex febrile fits

    e) Abnormal neurological examination

    f) Slow recovery with abnormal behaviour or drowsiness after seizure (consider referral if normal neurological or mental state is not achieved within one hour).

➢ Admission criteria

It is often impossible to complete assessment of the child in the ED, and 4-6 hours observation may be needed. A child with a first "simple febrile convulsion" may be sent home on the same day, following a senior review (Paediatric Registrar or Consultant), provided that

1. Age is over 18 months

2. Home circumstances satisfactory

3. Parent's anxiety is addressed

It is not necessary to routinely admit all first episodes of febrile convulsions to the Ifor ward. However, all such children should be admitted to the PACU for a minimum of 6 hours of observation.

➢ Indications for Lumbar Puncture (LP)

The apparent risk of meningitis in children who present with febrile seizures is 2-5%. Even though the yield from LP is low in cases of febrile seizures, it should be strongly considered in children less than 18 months of age, and especially in less than 12 months of age, as clinical signs of meningitis are difficult to elicit in this age group. Always discuss with the on-call consultant, before performing an LP in a child who has had a seizure.

RELATIVE CONTRAINDICATIONS TO LP

- Prolonged or Focal seizures
- Focal neurological signs
- Widespread purpuric rash in an ill child
- Glasgow Coma Scale less than 13
- Pupillary dilatation
- Impaired oculocephalic reflexes
- Abnormal posture or movement, decerebrate or decorticate posturing or cycling movements of limbs
- Inappropriately low pulse, elevated blood pressure, and irregular respirations
- Coagulation disorder
- Papilloedema
- Hypertension

➢ Discharge advice (to be documented in the notes)

Explanation is important, as seizures can be very frightening for parents. The following points should be covered and a leaflet provided (this is available on the intranet):

1. Instructions about the management of fever:
    - Antipyrectic agents have NOT been shown to reduce the risk of further febrile convulsions. It may be used for pain / discomfort associated with febrile illnesses. When using paracetamol or

ibuprofen in children with fever, do not give both agents simultaneously[3].

- Tepid sponging is not recommended (It does not produce a sustained drop in temperature and can cause vasoconstriction). The child should not be undressed or overwrapped. Avoid using fans to cool the child[3].

2. Explain when and how to seek urgent medical advice - any seizure, serious symptoms such as non-blanching rash, lack of normal alertness, dehydration, the child getting worse, the parent worried and fever for more than five days.

3. What to do if a further seizure occurs. Place in recovery position; advise do not put anything in their mouth or use restraint. Time how long the convulsion lasts. Call an ambulance for a seizure lasting more than five minutes.

4. The diagnosis of febrile convulsions has no bearing on immunisation practice. Routine immunisations should be completed as per schedule.

Advice specifically for prolonged febrile fits:

- There is no role for regular anticonvulsant treatment.

- Parents of children who had prolonged febrile fits should be taught to administer buccal Midazolam or rectal Diazepam before and have Basic Life Support training before discharge.

➢ Parent Counselling (to be documented in the notes)

Parents often want to know about the following-

1. **Recurrence risk**- 1/3 of children with febrile seizures will have recurrence, 90% of which will occur in the first 2 years of the first seizure. The risk factors for recurrence are:[4]

a) Age less than 1 year

b) Seizures with low grade fever

c) Multiple seizures in the same febrile illness

d) Family history of febrile seizures in a first degree relative

2. **Risk of developing epilepsy** – the vast majority of children with febrile seizures do not develop epilepsy. With simple febrile seizures, the risk is same as that of the general population (1%). With complex febrile seizures this risk is approximately 5%. The factors that increase the risk for future epilepsy are:

   a) Family history of epilepsy

   b) "Complex" features.

   c) Presence of neurodevelopmental abnormalities.

3. **Risk of developing brain damage**- Most population based studies have shown no relation between simple or complex febrile seizures, including febrile status epilepticus with the later development of neurological deficits, overall cognitive functioning or specific memory impairment[4]. Also, there is no increased risk or incidence of mortality in febrile seizures, including febrile status epilepticus.

➢ Follow up

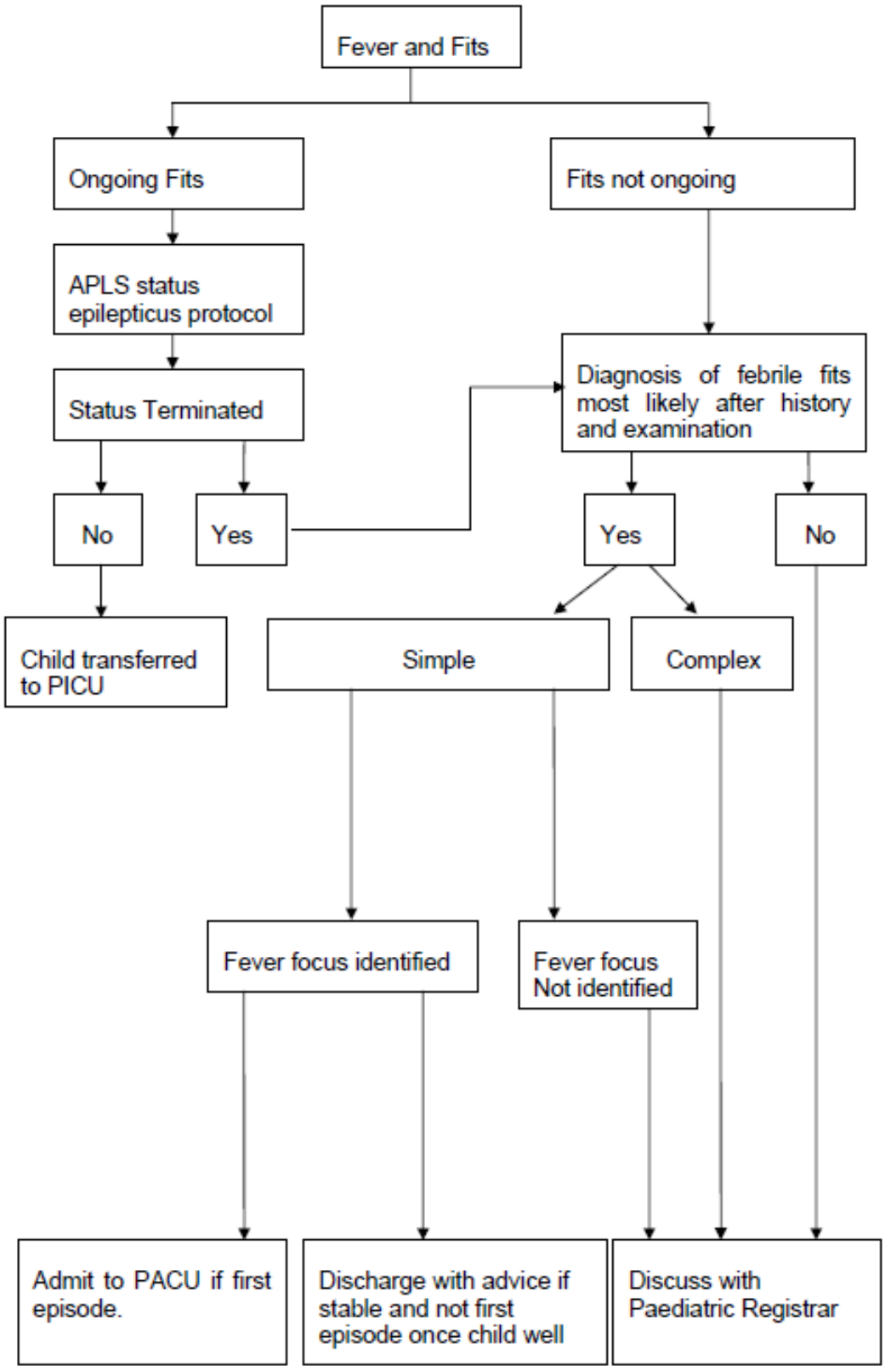
The majority of children who have simple febrile convulsions do not require paediatric follow up.

Discuss with Consultant Paediatrician for follow up of children who have:

1. Complex febrile seizures
2. Risk factors for developing epilepsy

➢ Contacts

Paediatric Registrar (bleep-3111) or Consultant (via switchboard/CENCOM)


Fever and Fits
Ongoing Fits
Fits not ongoing
APLS status epilepticus protocol
Status Terminated
Diagnosis of febrile fits most likely after history and examination
No
Yes
Yes
No
Child transferred to PICU
Simple
Complex
Fever focus identified
Fever focus Not identified
Admit to PACU if first episode.
Discharge with advice if stable and not first episode once child well
Discuss with Paediatric Registrar

➢ References

1. Commission on Epidemiology and Prognosis, International League against Epilepsy (1993) Guidelines for epidemiologic studies on epilepsy. Epilepsia 34,592-596.
2. J.R. Skinner, S.K. Chung, C.A. Nel, A.N. Shelling, J.R. Crawford, N McKenzie, R Pinnock, J.K. French. Brugada Syndrome Masquerading as Febrile Seizures. *Pediatrics* 2007:119:1206-1211
3. National Institute for Health and Care Excellence. Feverish Illness in Children NICE guidelines CG160, 2013 *(last accessed December 2016)*
4. C.Waruiru, R.Appleton. Febrile Seizures: an update. *Arch Dis Child* 2004; 89:751-756.
5. M.A.Mikati. Febrile Seizures. In: Kleigman, Stanton, St.Geme,Schor, Behrman(Eds) *Nelson Textbook of Pediatrics*. 19th ed. Elsevier; 2011.p 2017-2018.
6. D.R.Nordli.Jr. Febrile Seizures.In: C.P.Panayiotopoulos(Ed) *Atlas of Epilepsies*. Springer; 2010.p855-859.
7. C.M.Verity. Febrile Convulsion-a practical guide *Presented at the ILAE 13th annual teaching weekend*. Oxford, 2011.
8. N. Patel, D. RAM, N. Swiderska, L.D. Mewasingh, R.W. Newton, M. Offringa. *Febrile seizures.* BMJ 2015;351:h4240

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document without the impact?**	N/A	
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If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Director of Human Resources.

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To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	

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9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and effectiveness of the document?	Yes	
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
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	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval			
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval			
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The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
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Name of Committee		Name & role of Committee Chair	
Signature			