

**PRESENTING PROBLEM:
POST SEIZURE**

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YES

Highest temperature >37.8°C or history or examination indicates a febrile illness

NO

If the child is on any of the following check level
- phenobarbitone,
phenytoin,
carbamazepine,
ethosuxemide,
lamotrigine, sodium valporate
Blood can be stored

YES

Is the child under follow up for epilepsy or suspected epilepsy ?

NO

- Including**
- Visual problems
 - Headaches
 - Developmental milestones/ school work
 - Past history of predisposing conditions e.g. CP brain surgery

Is admission required? (Table 2)

YES

ADMIT

NO

Ensure detailed history and eye witness account.

Ensure full examination

- Including:**
- Neurological
Conscious level (AVPU), pupils, eye movements, upper motor neurone signs, cerebellar signs, gait
Head circumference
 - Blood pressure
 - Fundi
 - Skin
 - Capillary blood sugar if not fully alert

Consider differential diagnoses (Table 1)
Investigate and treat accordingly FBC, U&E, Ca, Mg, are **not** routinely required unless history or examination suggest otherwise

NO

DISCHARGE. 6 week OPD.
No need for EEG
Information leaflet. Counsel re recurrence

Does the child need admission? (see Table 2)

YES

ADMIT (any paediatric facility e.g. ward, short stay/observation unit)

SEIZURE AND FEVER

Antipyretics - see Medicines for children for dose and frequency

Does the child have definite neck stiffness?

ADMIT to acute paediatric facility

Treat as MENINGITIS according to your local protocol

Does the child have any of these features ?

- COMPLEX FEBRILE SEIZURE**
- Multiple seizures in same illness
 - Focal features
 - Prolonged >15 minutes
- OR**
- Drowsy before the seizure
 - More than 3 days illness
 - GP contact in last 24 hrs
 - Vomiting at home
 - Drowsy >1 hour post seizure
 - Dubious neck stiffness
 - Bulging fontanelle

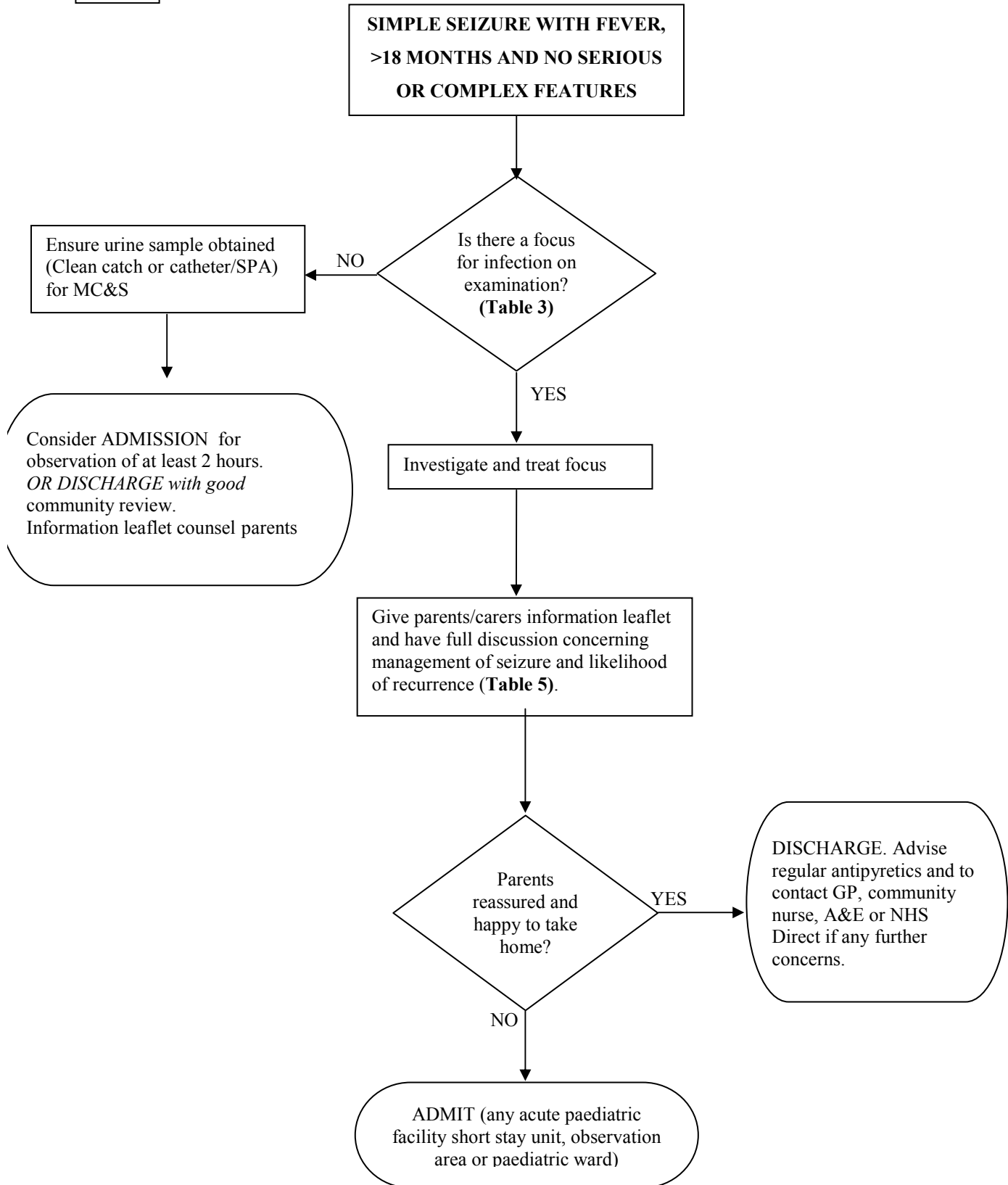
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Infant aged <18 months?
OR
Prior treatment with antibiotics?

- Evidence shows these features are associated with a small increased risk of meningitis
- Admit
 - Consider lumbar puncture
 - Review 2 hours

- Identify source of fever, investigate and treat accordingly (**Table 3**)
- Urine for MC&S in all. Ensure good clean catch, SPA or catheter specimen in those <2 years
- Consider LP if the child develops any of the symptoms or signs listed above
- Minimum 2 hours observation
- Regular antipyretics

ADMIT (short stay unit, observation unit or paediatric ward)



Seizure

- Episodes of excessive, abnormal muscle contraction, usually bilateral, which may be sustained or interrupted (International League Against Epilepsy Report 2001).

Febrile seizure

- An age related disorder almost always characterized by generalized seizures occurring during an acute febrile illness (International League Against Epilepsy Report 1989).
- This definition does not encompass an age cut off or temperature. Most studies define febrile seizure as 6 months to 5 years with either a history of a febrile illness or a documented temperature at presentation.

Fever and seizure

- Other conditions can cause a seizure associated with fever. These include intracranial infection / encephalitis and epilepsy, metabolic or neurodegenerative disease.

Table 1: List of differential diagnoses for the child presenting with a first afebrile seizure to the Accident and Emergency Department

<i>Type of seizure</i>	<i>Cause</i>
Isolated seizure	No cause found
Symptomatic Epilepsies	Generalised - tonic clonic seizures, absence seizures, myoclonic seizures Partial - benigne rolandic, complex partial epilepsy
Acute symptomatic epileptic seizure	Intracranial infection (bacterial/viral, diffuse/localised) Ingestion (deliberate, accidental) Trauma (head injury, non accidental injury) Tumour Intracranial haemorrhage Hypertension Hydrocephalus Metabolic (low glucose, calcium, magnesium, high and low sodium)
Neonatal/Early infant seizures (<3 months)	<i>In addition to the above causes:</i> Hypoxic ischaemic encephalopathy (from birth) CNS infections (acute and congenital) Fifth day fits Drug withdrawal Pyridoxine dependency
Other important differentials (not epileptic seizures)	Convulsive syncope - reflex anoxic seizure, vasovagal seizure (both neurally mediated syncopes), arrhythmias e.g. long QT (cardiac syncope), suffocation, psychogenic seizures

Table 2: Criteria for admission of a child with a first afebrile seizure to an acute paediatric facility.

<i>Category</i>	<i>Criteria/signs</i>
Age	Less than 1 year
Neurology	Glasgow coma scale (or equivalent) <15 (>1hour post fit) New neurological signs
Raised intracranial pressure	Papilloedema, tense fontanelle
Generally unwell	Irritable, disinterested, vomiting
Meningism	Kernig's positive, photophobia, neck stiffness
Complex seizure	Prolonged (>15 minutes), focal, recurrent
Signs of aspiration	Respiratory distress, need for oxygen, chest signs
High parent or carer anxiety	Parent's/ carers do not feel happy to take the child home following a full discussion

Table 3: Common differential diagnoses of children presenting with fever and seizure.

N.B. Viral infection, otitis media and tonsillitis account for 85-90% with the others making up 10-15% of all causes.

<i>Cause for fever</i>
Viral infection (e.g. upper respiratory tract infection, non specific viral illness, roseola, chicken pox and other exanthema, etc.)
Otitis media
Tonsillitis
Urinary tract infection
Gastroenteritis
Lower respiratory tract infection
Meningitis
Post immunisation
Post ictal fever (only likely after generalised seizure of >10mins)

Table 4: Contraindications for lumbar puncture

<i>Category</i>	<i>Criteria/ signs</i>
Drowsiness or impaired consciousness	Falling conscious level, glasgow coma scale of <13
Signs of septicaemic shock	Poor perfusion, low BP, tachycardia
Clinical diagnosis of invasive meningococcal disease	Rapid onset illness, typical haemorrhagic rash
Signs of raised intracranial pressure	Pappiloedema, coma, abnormal posturing, abnormal pupillary responses, high BP, low pulse
Focal neurological signs	On clinical examination of cranial and peripheral nerves

Table 5: Prognosis of febrile and afebrile seizures

<i>Risk</i>	<i>Percentage</i>
Population risk of febrile seizure	2.7 to 3.3%
Risk of recurrence of febrile seizure following first seizure	29 to 35%
Risk of epilepsy following simple febrile seizures	1 to 2.4%
Risk of epilepsy following complex febrile seizures (prolonged >15 minutes, focal, multiple in 24 hours)	4.1 to 6%
Risk of a single afebrile seizure in childhood	1%
Risk of a recurrence following a first afebrile seizure	50%