Comparing guideline recommendations for management of young febrile infants across London

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Background

Differentiating between febrile infants with a self-limiting infection, and those with an underlying serious bacterial infection (SBI) can be challenging, as they both present with similar non-specific symptoms at an early stage. There is also no single test that can reliably distinguish between the two groups.

Currently in the UK three national guidelines exist to support clinicians with this:

- NICE NG143 Fever in under 5s: assessment and initial management [2]
- NICE NG51 Sepsis: recognition, diagnosis and early- management [3]
- British Society for Antimicrobial Chemotherapy paediatric pathway for infants under 90 days of age with a fever and no source [4]

Objectives

The aim of this study was to review the spectrum of current guidelines being used across London hospitals regarding investigations and managements for infants under 3 months presenting with fever and to compare these to NICE NG 143 'Fever in under 5s' guideline [2].

Methods

REACH network local leads working in London hospitals with an Emergency Department were asked to share trust clinical practice guidelines (CPG) relating to the management of febrile infants or to indicate if no such local CPG existed and NICE gold-standard guidance (GSG) was followed [2].

CPGs and the GSG were reviewed by two independent researchers and guideline quality was ascertained using the AGREE II tool [4].

Specific domains were chosen for comparison between local guidelines and NICE GSG. These were based on variation between national guidelines and previous studies and included:

- Differences between **risk-stratification** into low, medium, and high risk (figure 1 illustrates NICE traffic light
- **Investigations** (indications for C-Reactive protein (CRP) testing, conducting a Lumbar Puncture (LP))
- Management with intravenous (IV) **antibiotics**
- Criteria for **admission**
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Figure 1: NICE traffic light risk-stratification [2]

	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

1. Kuppermann N, et al I. JAMA Pediatr 2019;173:342
2. (National Institute for Health and Care Excellence guideline 2019): https://www.nice.org.uk/guidance/ng143
3. National Institute for Health and Care Excellence guideline 2017: https://www.nice.org.uk/guidance/ng51
4. https://bsac.org.uk/paediatricpathways/febrile-infant-aged-90-days.php
5. AGREE Next Steps Consortium (2013). The AGREE II Instrument . 3,http://www.agreetrust.org
6. https://www.reachnetworkldn.com/fire

Results

25 trusts were included, 16(64%) used the NICE guidelines.

Nine trusts followed their own local CPGs.

All **9 CPGs were compliant with NICE for risk stratification** [2] as well as indications for a CRP testing.

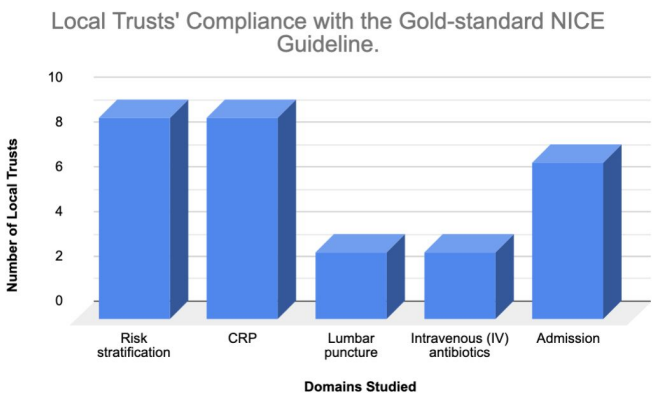
3 CPG recommended to perform a **lumbar puncture i**n line with NICE, the other CPGs recommended carrying out a LP in infants presenting with amber features, which is a more **cautious approach** than NICE.

4 CPGs recommended the use of parenteral **antibiotics** in line with NICE, whilst the other 5 guidelines suggested a more cautious approach.

7 CPGs recommended **admission** in line with NICE and the other 2 CPGs did not mention admission criteria. (Figure 2 summarises these findings.)

All the **local CPGs scored lower in quality in the AGREE II tool**, when compared to NICE guidelines. In general local guidelines scored low on the AGREE II tool on the stakeholder involvement, rigour of development, and editorial independence section and scored high in the clarity of presentation section.

Figure 2:



Conclusion

The **NICE fever GSG** [2] **is used by 64% of the London trusts** part of the REACH collaborative. Local guidelines are **more cautious in comparison to NICE in respect to need for LP and IV antibiotics**. This is potentially causing significant variation of care and outcomes for febrile infants between London hospitals. This is currently being explored by the REACH network Febrile Infant Regional Evaluation (FIRE) study [6].