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Group A streptococcus in children

Interim clinical guidance summary

16 December 2022

This interim clinical guidance update is aimed at clinicians involved in the diagnosis and treatment of children up to the age of 18 years, and follows the [UKHSA report released on 2 December 2022](#). It was developed by the NHS England Group A Streptococcus Clinical Reference Group and UKHSA Incident Management Team. It is endorsed by Royal College of General Practitioners (RCGP), Royal Pharmaceutical Society (RPS), Royal College of Paediatrics & Child Health (RCPCH) and the National Institute for Health and Care Excellence (NICE).

This interim guidance is valid until end of January 2023 and will be reviewed with epidemiology of infections and emerging evidence.

Background

Group A Streptococcus (GAS) is a bacterium which can colonise the throat, skin and anogenital tract. It can cause a diverse range of clinical presentations such as skin, soft tissue and respiratory tract infections, including:

- tonsillitis
- pharyngitis
- scarlet fever

- impetigo
- erysipelas
- cellulitis
- pneumonia

Notifications and GP consultations of scarlet fever in England are higher than normal for this point in the season, after unusual persistence of GAS activity into the summer.

Notifications of invasive group A streptococcus (iGAS) disease are following a similar trend and are higher than expected for this time of year with an unusually high number of children presenting with lower respiratory tract GAS infections, including pulmonary empyema. The increased iGAS rates may reflect increases in the co-circulation of respiratory viruses.

As per the UKHSA guidance issued 2 December 2022, given the unusually high level of GAS and viral co-circulation in the community, health care professionals are asked to have a low threshold to consider and empirically prescribe antibiotics to children presenting with features of GAS infection (including as detailed below), including when the presentation may be secondary to viral respiratory illness.

Clinicians in primary care should maintain a low threshold for prompt referral to secondary care of any children presenting with persistent or worsening symptoms.

Clinical guidance

The aim of this guidance is to support clinical diagnosis, promote appropriate use of antimicrobials, whilst ensuring patient safety in an evolving situation. This may be subject to change as the situation develops with improved understanding of factors associated with severity and evolving epidemiological trends.

Existing national guidance should be followed. Professionals may find the following NICE resources helpful, as well as information for parents available via the [Healthier Together](#) and [NHS](#) websites.

[Fever in under 5s: assessment and initial management \[NG143\]](#)

[Sore throat – acute \[CKS\]](#)

[Scarlet Fever \[CKS\]](#)

[Sepsis: recognition, diagnosis and early management \[NG51\]](#)

The following UKHSA resources may be helpful:

<https://www.gov.uk/government/collections/scarlet-fever-guidance-and-data>

<https://www.gov.uk/government/collections/group-a-streptococcal-infections-guidance-and-data>

In addition, the following practice points may be of assistance to clinicians:

Scarlet fever

Scarlet fever remains a clinical diagnosis. First symptoms often include a sore throat, headache, fever, nausea and vomiting.

After 12 to 48 hours the characteristic fine red rash develops (if you touch it, it feels like sandpaper). Typically, it first appears on the chest and stomach, rapidly spreading to other parts of the body. On more darkly-pigmented skin, the rash may be harder to spot than on children with lighter skin tones, although the 'sandpaper' feel should be present.

Further symptoms include:

- fever over 38.3° C (101° F) or higher is common
- white coating on the tongue which peels a few days later, leaving the tongue looking red and swollen (known as 'strawberry tongue')
- swollen glands in the neck
- feeling tired and unwell
- flushed red face, but pale around the mouth. The flushed face may appear more 'sunburnt' on darker skin than lighter skin
- peeling skin on the fingertips, toes and groin area, as the rash fades

The usual treatment for scarlet fever is a 10-day course of antibiotic, ideally Phenoxyethylpenicillin (see below for guidance on other antibiotic options). The fever will usually subside within 24 hours of starting antibiotics.

Sore throat

Sore throat is a common and usually self-limiting condition. The majority of sore throats are caused by viruses, and the risk of progression to serious disease is low.

NICE guidance on sore throat (acute) currently recommends two clinical prediction rules (CPR), [feverPAIN](#) and Centor, to guide clinical decision making around people most likely to benefit from an antibiotic. According to the cumulative CPR score NICE recommends either no, delayed or immediate antibiotic prescriptions.

- Given the current high prevalence of GAS, and the increased likelihood of GAS as cause of sore throat in children, the current CPR sore has been adjusted, with a recommendation to prescribe antibiotics **to children** with a [feverPAIN](#) score of 3 or more (dose per BNFc). Continue to follow clinical judgement as usual. Adult guidance remains in place. For feverPAIN score of 2, advice remains per NICE guidance for adults “no antibiotic or prescribe a back-up (delayed)”

Modified feverPAIN score

- Fever (during previous 24 hours)
- Purulence (pus on tonsils)
- Attend rapidly (within 3 days after onset of symptoms)
- Severely Inflamed tonsils
- No cough or coryza (inflammation of mucus membranes in the nose)

Each of the FeverPAIN criteria score 1 point (maximum score of 5). Higher scores suggest more severe symptoms and likely bacterial (streptococcal) cause.

Consider taking a throat swab where there is diagnostic uncertainty, or concerns regarding antibiotic resistance.

Rapid antigen tests for Strep A are not currently recommended to guide antibiotic prescribing and future recommendations should be based on high quality research. Evaluations are being developed. Testing should be reserved for people being admitted to hospital or where a result is going to change management

Serious shortage protocol (SSP)

- Due to problems with antibiotic supply a Serious Shortage Protocol has been introduced by the Department of Health and Social Care. This protocol will allow pharmacists to supply a different formulation or alternative antibiotic in the event of non-availability of phenoxymethylpenicillin
- A tiered approach to alternative antibiotics has been sent to pharmacists as part of the [Serious Shortage Protocol](#). This means that families and patients will receive an appropriate antibiotic from their pharmacist. If there is a known reason why a patient cannot have one of the alternatives this should be added to the prescription. Clinicians do not need to change any practice, they can prescribe phenoxymethylpenicillin without considering the need for alternative option.

- Therefore, when a clinical decision has been made to treat a child with antibiotics please prescribe:
 - SORE THROAT: a 5-day course of phenoxymethylpenicillin
 - SCARLET FEVER: a 10-day course of phenoxymethylpenicillin
 - For children with penicillin allergy, prescribe:
 - SORE THROAT: a 5-day course of clarithromycin
 - SCARLET FEVER: a 10-day course of clarithromycin
- Doses remain per BNFC

Prescribers and local pharmacy teams should work together to understand availability of antibiotics and formulations locally and prescribe accordingly.

Guidance for secondary care when prescribing oral antibiotics for possible group A streptococcus:

- It is recognized that secondary care providers are not required to implement the serious shortage protocol, this guidance is intended to support prescribing within secondary care
- Phenoxymethylpenicillin remains first line due to its high effectiveness, no reported resistance, and narrow spectrum of activity. In the event of non-availability, amoxicillin, macrolides, flucloxacillin and cefalexin are alternative agents in decreasing preference.
- In non-severe-penicillin allergy, macrolides are the option of choice, with cefalexin as an alternative.
- In severe penicillin allergy, macrolides remain the option of choice. Co-trimoxazole is an option in the event of macrolide non-availability and penicillin anaphylaxis. A severe penicillin allergy is when there is a history of allergy to penicillin with effects that are clearly likely to be allergic in nature such as anaphylaxis, respiratory distress, angioedema or urticaria. Contraindicated with allergies to sulfamethoxazole, trimethoprim, sulphonamide medicines
- Both cefalexin, co-trimoxazole and co-amoxiclav are broad-spectrum agents that may promote the development of antimicrobial resistance. [Resistance to macrolides and co-trimoxazole is currently 7% and 10% respectively.](#)
- In the current circumstances clinicians should be aware that a five-day course is recommended for sore throat. A 10day course should be prescribed for children with a clinical diagnosis of scarlet fever.

Guidance on administering medicines to children can be found in the below resources:

- Children 5 years and above, may be able to swallow tablets/capsules. Videos and information leaflets for parents on how to administer tablet/capsules for children are available here: <https://www.medicinesforchildren.org.uk/advice-guides/giving-medicines/>. Prescribers and pharmacists can share the link with parents where appropriate
- For children aged 5 years and over, consider prescribing capsules and signposting to [pill swallowing resources](#); if the child is unable to swallow the capsule, the parent can [open the capsule and mix with liquid or soft food \(such as yoghurt\)](#).
- An e-learning session developed to help healthcare professionals and carers teach children and young people how to swallow pills is available here: <https://www.e-lfh.org.uk/programmes/kidzmed/>
- If required, NHS Specialist Pharmacy Service have provided advice on how to give doses by dispersing or crushing tablets, or opening capsules. Use in this way is outside the product license ('off-label'). <https://www.sps.nhs.uk/articles/using-solid-oral-dosage-form-antibiotics-in-children>

Invasive Group A streptococcus

This is a rare but severe disease and needs urgent referral and management to secondary care. Invasive GAS (iGAS) is an infection where the bacteria is isolated from a normally sterile body site, such as the blood, joints or the lungs.

- Maintain a low threshold for considering pulmonary complications of GAS, especially if presenting with an illness compatible with bacterial pneumonia, and concurrent or recent scarlet fever, or GAS infection or the patient was recently in contact with a case of scarlet fever/GAS infection. Prompt initiation of appropriate antibiotics remains key.
- Take a throat swab, blood cultures and other appropriate samples including respiratory culture, tissue and fluid samples.
- In the case of culture-negative fluid specimens, consider the use molecular diagnostics such as GAS-specific PCR or 16S rDNA PCR, as guided by microbiology specialists. Send all positive isolates (or DNA extract if molecular diagnosis only) to UKHSA reference lab for further typing and investigation.
- Treatment of suspected or confirmed iGAS should be as directed by local trust guidelines / or contact local microbiology for advice.

Notification to UKHSA Health Protection Teams

Clinicians are reminded of the importance of rapid notification by telephone of all cases of severe GAS infection (including pneumonic complications/ empyema) to Health Protection Teams (HPTs) to facilitate rapid assessment of contacts and identification of epidemiological links with other cases, according to [national public health guidelines](#). Details of HPTs are available at <https://www.gov.uk/health-protection-team>

Severe GAS cases encompass both cases of invasive disease defined through the isolation of GAS from a normally sterile site, plus additional cases where GAS is isolated from a non-sterile site in combination with clinical signs consistent with a severe infection (streptococcal toxic shock syndrome, pneumonia, necrotising fasciitis, puerperal sepsis, meningitis, septic arthritis). This includes cases diagnosed via culture or molecular methods.

In the event of a sudden death of a child potentially due to GAS infection, clinicians are asked to liaise with microbiology and histopathology colleagues to ensure appropriate post-mortem clinical specimens are taken to facilitate diagnosis.

In addition

UKHSA Health Protection Teams can be contacted for advice and incident management, especially for outbreaks.

For schools or early years settings, HPTs should be contacted when

- schools have one or more cases of chickenpox or Influenza in the class that has scarlet fever at the same time;
- experiencing an outbreak of scarlet fever in a setting / class that provides care or education to children who are clinically vulnerable;
- the outbreak continues for over 2 weeks, despite taking steps to control it;
- any child or staff member is admitted to hospital with any Group A Strep (GAS) infection (or there is a death);
- any issues that are making it difficult to manage the outbreak.

As per national guidance, prompt notification of scarlet fever cases and outbreaks to UKHSA HPTs, and exclusion of cases from school or work until 24 hours of antibiotic treatment has been received, remain essential tools to limit spread

Management of Contacts

Contacts will be identified by HPTs. HPTs will advise on who requires prophylaxis. For [information](#), the following individuals who are close contacts of cases are recommended for antibiotic prophylaxis due to higher risk of severe outcomes;

- pregnant women from ≥ 37 weeks gestation;
- neonates and women within the first 28 days of delivery
- older household contacts (≥ 75 years);
- individuals who develop chickenpox with active lesions either seven days prior to onset in the iGAS case or within 48 hours after commencing antibiotics by the iGAS case, if exposure is ongoing.

Close contact is defined as:

- Prolonged contact with the case in a household-type setting during the 7 days before onset of symptoms and up to 24 hours after initiation of appropriate antimicrobial therapy in the index case.