

4 Crèche, schools, and other childcare settings

Cases of invasive Group A Streptococcus (iGAS) are rare in children, with children under 10 years of age constituting 13 to 16% of cases annually (80). A global systematic review and meta-analysis of iGAS infection in pregnant women and young children reported a pooled incidence rate of 0.09 per 1,000 person-years for children aged 0 to 5 years (49). The overall case fatality rate in this age group was 9% (49). In Ireland, between 2nd October 2022 and 2nd December 2023, 575 cases of iGAS were notified in Ireland (8). Of these, 234 (or 41%) were in children aged <18 years, of whom 204 were aged 0-9 years. This contrasts with the pre-pandemic years when approximately 25% of iGAS infections were in children aged < 18 years.

Among cases notified since October 2022, there have been 12 deaths in children (10 in children aged under 10 years old and two in children aged 10-17 years). So far in 2023, there have been 8 paediatric deaths reported (8).

4.1 Public Health Risk Assessment

If a reported iGAS case attended or worked in a crèche, school, or other childcare setting within 7 days of onset of symptoms, a Public Health Risk Assessment (PHRA) should be conducted. The threshold for action and communication with crèches is lower compared to schools with older children, as the risk of transmission is higher by nature of the setting and level of mixing amongst younger children. As mentioned in **Section 2.1**, children attending the same crèche, school or other childcare setting are **not** normally considered to be close contacts, but it may be possible to define a group within the setting in which extensive close contact takes place.

The PHRA should consider the following factors:

Are there any other children/ staff with:

- Group A Streptococcus (GAS) infection within the last 7 days

- Any other iGAS cases⁵ in the last 30 days
- Evidence of co-circulating chicken pox or influenza, as co-infection with either is associated with increased susceptibility to iGAS
- Other public health concern, (e.g. possible household-type contact a concern i.e. if the childcare setting is a childminder's home)

4.2 Public health actions: single case of iGAS

4.2.1 Control measures

- a) Add crèche or school context on available incident management system, so that any linked cases are easily identified by Area Public Health Team.
- b) Ask crèche or school to report new cases of GAS, iGAS, chickenpox and influenza of which they become aware of in the next 30 days. Evidence of ongoing infection, chickenpox or influenza in staff or children, should trigger the establishment of an Outbreak Control Team (OCT).
- c) Swabbing and antibiotic chemoprophylaxis is not routinely recommended for contacts of a single case of iGAS in crèches or schools; in situations where there is evidence of ongoing GAS transmission and chickenpox or influenza activity, see ([Section 4.3](#)).

4.2.2 Communication with Contacts & Others

The crèche, school, or other childcare setting should send the [Strep A \(Group A streptococcus\) factsheet](#) to parents and staff within the defined setting to provide information and raise awareness of the signs and symptoms of GAS/iGAS, particularly in vulnerable contacts (immunocompromised, high risk contacts).

The crèche, school, or other childcare setting should also send the [Information leaflet for contacts of patients with Invasive Group A Streptococcal infection \(iGAS\) factsheet](#) to identified close contacts.

⁵ Symptoms suggestive of invasive disease include high temperature, severe muscle aches or localised muscle tenderness, increasing pain, swelling and redness at the site of a wound, and/or unexplained diarrhoea or vomiting.

Recommendation 10: For a single case of iGAS in a creche, school or other childcare setting: establish if there are other cases of GAS within 7 days or iGAS within 30 days or co-circulating chickenpox or influenza in staff and children.

Send [Strep A \(Group A streptococcus\) factsheet](#) to staff and parents within defined setting to provide information and the '[Information leaflet for contacts of patients with Invasive Group A Streptococcal infection \(iGAS\)](#)' to identified close contacts.

Good practice point

4.3 Public health actions: outbreak of iGAS infection or one case of iGAS AND evidence of ongoing GAS, or chickenpox or influenza transmission

Crèches, schools, and other childcare settings have been the focus of clusters of iGAS disease. If, in the context of an iGAS case linked to a crèche, school or other childcare setting, the PHRA conducted by the Area Public Health Team suggests that there is evidence of ongoing GAS, or chickenpox or influenza transmission as well as a case of iGAS, an investigation should be started promptly. An OCT should be set up and the key facts established to inform all subsequent decisions and actions.

Outbreaks of iGAS infection are rare, and are highly sensitive situations, raising concerns among parents with likely interest from the media, particularly if there have been one or more deaths. Expert advice on investigation and management should be sought promptly.

4.3.1 Source of infection

Undertake epidemiological investigations, including review of microbiology and surveillance records for further GAS/iGAS cases usually over previous 6 months. This aims to identify any common source or link between cases if there are 2 or more iGAS cases.

4.3.2 Control measures

a) Convene an OCT

To coordinate the investigation and management of the outbreak (*include local microbiologist or IMSRL*)

b) Exclusion

As outlined in [Algorithm 2 Management of iGAS case linked to a crèche, school, or other childcare setting](#) staff and parents should be reminded that symptomatic children and staff should remain at home and not return to crèche, school, or other childcare setting until at least 24 hours after starting treatment with an appropriate antibiotic.

c) Personal hygiene

Personal hygiene remains important in preventing infections. Good hand hygiene should be enforced for all pupils and staff and a programme should be put into place that encourages children to wash their hands at the start of the school day, after using the toilet, after play, before and after eating, and at the end of the school day. It is important that hands are washed correctly. Liquid soap via a soap dispenser should be made available and there should be a plentiful supply of paper towels. Children and adults should be encouraged to cover their mouth and nose with a tissue when they cough and sneeze and to wash hands after sneezing and after using or disposing of tissues. Spitting should be discouraged. Breaching the skin barrier provides a portal of entry for the organism, therefore children and staff should be reminded that all scrapes or wounds, especially bites, should be thoroughly cleaned and covered.

d) Environmental cleaning

The environment can play a significant part in transmission as GAS can remain in dust as well as on furniture and equipment (81-86). Cleaning of the environment, including toys and equipment, should as a minimum be carried out daily during the outbreak and a very thorough terminal clean should be undertaken when the outbreak is declared over. Frequently touched points such as taps, toilet flush handles, and door handles, should be cleaned regularly throughout the day.

- **For cleaning of equipment, hard surfaces, hard toys, and sleep mats:** Physical clean using a detergent followed by disinfection with a chlorine-based product such as sodium hypochlorite or another appropriate disinfectant. Horizontal surfaces should be kept clear of unnecessary equipment and ornaments to facilitate thorough cleaning.
- **Carpets and soft furnishings** should be vacuumed daily. The vacuum cleaner should have a high efficiency filter on its exhaust. Single use cloths or paper towels should be used for cleaning. Where soft toys cannot be avoided, they should be machine washed; hard surface toys are more easily washed and disinfected. Consider replacing low-cost items that may be difficult to clean thoroughly, for example, pencils, crayons, play dough and plasticine.
- During the **terminal clean**, carpets and rugs should be cleaned with a washer-extractor. Curtains, soft furnishing covers, and all linen should be removed, and washed at the hottest compatible temperature (87, 88). Care should be taken when loading potentially contaminated items into the washing machine as direct contact with surfaces or excessive shaking will increase the risk of contaminating other environmental surfaces. The wash will be most effective where there is plenty of warm or hot water, detergent, and mechanical action. This can be increased by reducing the number of laundry items added to load (half to two-thirds full), increasing cycle times or temperatures, and avoiding low water or economy cycles. After laundering, clean items should not be placed in the same laundry basket or container that was used for the uncleaned items. Soft furnishings without removable covers should be steam cleaned taking care to hold the nozzle of the steam cleaner sufficiently close to the surface and for long enough for all surfaces (particularly contact areas) to ensure they heat up thoroughly. For more information, please see Volume 1, Section 3.1.3 of the [National Clinical Guideline No. 30: Infection Prevention and Control](#).

e) Ventilation

Specialist ventilation is not routinely required when managing GAS infections but background ventilation through good design and opening doors and/or windows (where appropriate) brings a variety of health benefits. This allows introduction and circulation of fresh air which dilutes and removes airborne contaminants which might otherwise cause harm, including co-

circulating viruses known to increase the risk of iGAS infection. For this reason, opportunities to improve ventilation should always be considered, as part of a wider strategy to limit indoor transmission of infectious diseases (89).

f) Seek expert advice

Seek expert advice and ensure local laboratory sends samples to the reference laboratory (IMSRL) as soon as possible to enable rapid typing of isolates.

g) Swabbing and chemoprophylaxis

Antibiotic chemoprophylaxis aims to eradicate carriage in those who may be at risk of infection or pose a risk to others through onward transmission. Chemoprophylaxis can be considered by the OCT in certain circumstances, based on the PHRA; factors to be considered include evidence of co-circulating chickenpox or influenza alongside GAS infections. Mass swabbing of children is not routinely recommended; however, it can be considered in exceptional circumstances by the OCT. There are scenarios where targeted swabbing may be helpful, for example to identify ongoing transmission or confirm aetiology of clinical reports. The recommended antibiotic regimen for chemoprophylaxis is detailed in **Section 2.4** and is the same as for treatment.

h) Varicella vaccination

Chickenpox has been identified as a risk factor for iGAS infection in anywhere between 15% to 25% of iGAS cases in hospitalised children in several different international studies (55, 90-92). Sentinel surveillance data for chickenpox and a sero-prevalence study (unpublished data) conducted in England show that by the age of 5, 65% of children will already have had chickenpox. Therefore, most children susceptible to chickenpox are in the younger age groups.

Chickenpox cases and outbreaks are more likely to occur in crèches, schools and other childcare settings serving children under the age of 5 years. An analysis of chickenpox mortality data from 2001 to 2007 in England and Wales reported 5 deaths where co-infection or secondary infection with GAS was a risk factor and all of these were in children under 5 years (unpublished data).

In Ireland, during 2023, a clear relationship between paediatric iGAS and varicella was evident, most especially during the summer months. Additional data from Computerised Infectious Disease Reporting (CIDR) indicated that as of December 2023, 30 children (28 aged 0-9 years and 2 aged 10-17 years) had a co-infection with iGAS and varicella (17% of all children); while 49 children (32 aged 0-4 years, 14 aged 5-9 years and three aged 10-17 years) with iGAS reported varicella as a risk factor (23%) (8). If chickenpox is co-circulating in a crèche or pre-school setting where an iGAS case has been notified, the OCT could consider post-exposure prophylaxis with varicella vaccine and will need to consider the chickenpox outbreak management aspect. Varicella vaccine administered within 3 days of exposure may be effective in preventing chickenpox (93) and its use has been documented in several iGAS outbreaks in this setting (59, 94). Children from 9 months of age and staff with no clear history of chickenpox could be offered 2 doses of varicella vaccine, 4 to 8 weeks apart (95, 96).

i) Antivirals and flu vaccination

Influenza has been identified as a risk factor for iGAS disease although there is limited quantitative evidence on this (60-63, 97). If influenza is suspected or confirmed to be co-circulating in a crèche, school, or other childcare setting where an iGAS case has been confirmed, this provides an opportunity to remind eligible children, including those in clinical risk groups who are at increased risk of severe disease, to take up their offer of influenza vaccination. Influenza vaccination is not routinely recommended as post-exposure prophylaxis in this context. Two weeks are required for the immune response to vaccination to develop and so this is unlikely to prevent secondary cases.

Detailed recommendations about the use of antiviral neuraminidase inhibitors (that is, 'antivirals') can be found in the [Guidance on the use of antiviral agents for the treatment and prophylaxis of Influenza](#) . A summary of clinical guidance is available [here](#). In keeping with current recommendations by [Irish Guidelines and NICE](#) (98, 99) HSE HPSC recommends the targeted use of antivirals as follows:

1. For treatment of uncomplicated influenza among specific at-risk groups (ideally within 48 hours of onset of symptoms).

2. Treatment of complicated influenza regardless of underlying individual risk factors.

There may be rare outbreak situations when wider use of post-exposure prophylaxis with antivirals in crèche, school, or childcare settings could be considered, such as in boarding schools. Ideally swabbing of a small number of recent cases should be used to confirm influenza and GAS circulation but may not be feasible if children are at home. Advice should be sought on a case-by-case basis.

j) Surveillance

After control measures are implemented and the outbreak declared over⁶ on OCT direction, maintain surveillance for an additional 6 months and ensure any laboratory isolates are saved.

4.3.3 Communication with contacts and others

In the event of an outbreak of iGAS the crèche, school, or other childcare setting should send [Strep A \(Group A streptococcus\) factsheet](#) to parents and staff, to raise awareness of the signs and symptoms of GAS/iGAS, particularly in vulnerable contacts (immunocompromised, high risk contacts).

The crèche, school, or other childcare setting should also send the [Information leaflet for contacts of patients with Invasive Group A Streptococcal infection \(iGAS\) factsheet](#) to identified close contacts.

⁶ For outbreak closure, a conservative approach of 60 days since last iGAS case (2 x 30-day period)

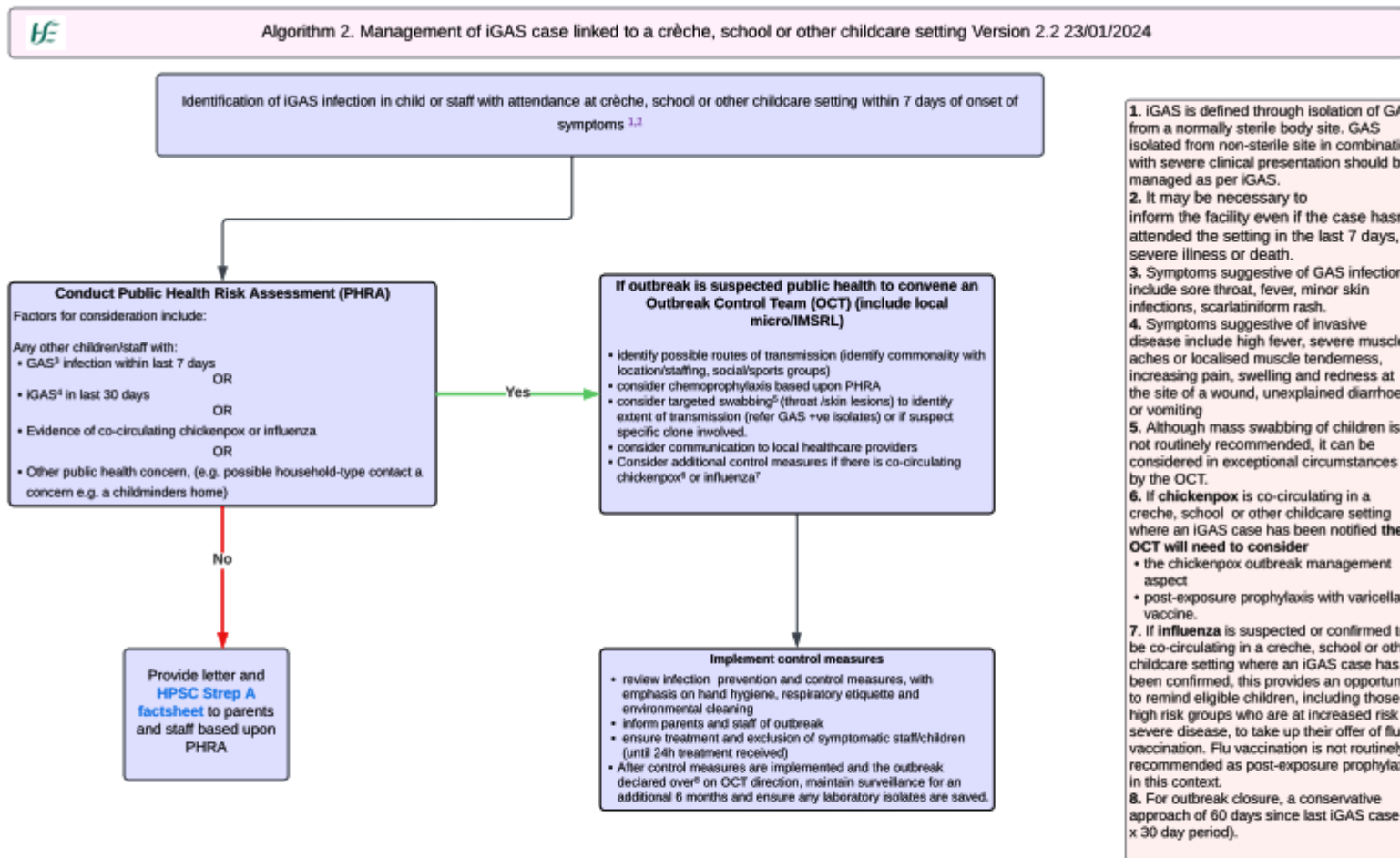
If there is co-circulating GAS, chickenpox or influenza, additional relevant information should be included in the information leaflet. The OCT should also communicate with local healthcare providers to alert them of the iGAS outbreak or situation to ensure prompt identification and treatment of cases.

Recommendation 11: In an outbreak of iGAS, or when there is evidence of ongoing GAS, or chickenpox or influenza transmission in a creche, school, or other childcare setting, the Guideline Development Group recommends:

- Setting up an OCT
- Following principles of outbreak investigation set out above
- Seeking expert advice on investigation and management

Good practice guidelines

Algorithm 2: Management of iGAS case linked to a nursery, school, or other childcare setting



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