

Document Conception	
Document type	Principles
Document name	Best Practice Recommendations - GROMMETS PATHWAY
Document Audience	All tertiary and secondary centre staff involved in the pathways for children (under 16 years) undergoing grommet insertion procedures: adult ENT surgeons in secondary care settings operating on children and paediatric ENT surgeons, anaesthetists, day surgery and paediatric ward nurses.
Summary	Paediatric grommet insertion is among the most common elective children's surgery in the UK. The document provides a reference for what is considered best practice across the South Thames region.
Reason for development	There is a lack of guidance in routine elective ENT procedures particularly with regard to minimum age and weight; these are the most frequently quoted reason for referral to a tertiary centre.
	In recent years there has been a significant change in UK practice of Paediatric ENT surgery with many more children being referred to tertiary centres. This strategy has a number of unintended consequences. Patients and families are travelling further for treatment, incurring both social and financial costs and has an impact on the day case rate which falls very significantly with distance from home.
	A huge backlog of Paediatric ENT patients has accumulated on both admitted and non-admitted waiting lists, and this is the principal cause for concern in the Elective Recovery effort for CYP nationally. All efforts to make the Grommets Pathway as efficient as possible are crucial in the effort to increase activity and efficiency in this speciality.
	There is much National level scrutiny into the numbers of Grommet Insertion procedures performed. The pathway seeks to define when Grommet surgery is necessary and beneficial, and when surgery could be avoided and the pathology treated in alternative ways.
	To optimise the before-and-after care of children undergoing tube insertion.
Document Benefits	
Key Improvements / Benefits	The predictable nature of paediatric ENT surgery and large numbers involved allow hospitals to develop regular paediatric surgical services
	Anaesthetists can maintain their competency in paediatrics
	The hospital is far better placed to deal with emergencies when they arise, particularly the occasional case where immediate transfer is not possible
	Families have the advantage of local care which they value very highly
	Clearly defined discharge criteria and timings to maximise efficiency within the pathway
	Children do not undergo an anaesthetic and surgery unnecessarily
	Families aren't inconvenienced by additional time in hospital or an overnight stay, where not necessary
Project Evaluation	
Evaluation	% of uncomplicated patients $\geq 2$ years or $\geq 12$ kg operated in local hospital
	Percentage of conservative/ non-surgical management vs. grommet insertion
	Percentage of recurrent otitis media cases that ultimately result in grommet insertion
	Clinical outcomes:- audiology outcomes (normal hearing resumed/ complications), reduction/resolution of Recurrent Acute Otitis Media (RAOM), reoccurrence or persistence of the OME, or other complications (persistent perforation rates)
	Number of grommets performed (activity)
Implementation / Recommendations: Next Steps	
Overview: In order for the implementation of the Grommets Pathway recommendations to be impactful across the network we need to ensure they are circulated widely across the whole network, to ensure all clinical staff performing these procedures are familiar with the agreed standards to be following. The Network would provide	

support through education and training to centres who aren't meeting expected standards. Reviewing the current data and repeating the process each year will allow us to ensure the principles are having the intended outcomes.

Step 1	Each Trust should align local guidelines and policies with the principles set in this document.
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Step 2	STPN collects data on and discuss with the STPN ENT working group
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Step 3	STPN identifies training and workforce needs.
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## Best Practice Recommendations

# GROMMETS PATHWAY

<b>SETTING FOR STAFF</b>	South Thames Paediatric Network (STPN) All tertiary & secondary centre staff involved in the pathways for children (under 16 years) undergoing grommets procedures.
<b>PATIENTS</b>	Children who are being considered for grommets procedures in organisations across the STPN region.

This document provides a reference for what is considered best practice across the South Thames region. It is best practice guidance only and is subject to clinical discretion.

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## LOCATION OF TREATMENT

### Overview

In recent years there has been a significant change in UK practice of Paediatric ENT surgery with many more children being referred to tertiary centres. This strategy has a number of unintended consequences. Patients and families are travelling further for treatment, incurring both social and financial cost. This section of this document is to provide clarity on when secondary centres should treat patients for their grommet insertion.

**All secondary centres-** > 2 years, >12 kg, no BMI extremes, no co-morbidities

**Secondary centres confident in anaesthetising under 2s-** 1-2 years, < 12kg, no BMI extremes, well controlled co-morbidities

**Tertiary Centres-** <1 year, BMI extremes, severe cerebral palsy, achondroplasia, neuro muscular disorders, mucopolysaccharidosis, other significant comorbidities

## EVIDENCED BASED DECISION MAKING

Many children with a fluid build-up (otitis media with effusion, or OME) in the middle ear (behind the eardrum) get better on their own, especially when the fluid is present for less than three months (1).

Grommet insertion is indicated however for:

- The management of OME- related hearing loss in children that persists for greater than 3 months (1).
- Recurrent Acute Otitis Media (RAOM)- There is variable evidence and practice around when grommets are indicated in RAOM. From an STPN perspective we would advocate a clinician based decision on a case by case basis for the use of grommets in recurrent acute otitis media.

By example though; the American Academy of Otolaryngology Head and Neck Surgery (AA-HNS) suggests grommets when there are 3 or more episodes over 6 months or 4 episodes over 12 months. (2) The STPN feel strongly that clinicians are allowed the freedom to consider the impact of the RAOM on the child and family in their decision making.

## Use of Prophylactic Antibiotics in RAOM

Prophylactic antibiotics are an option for children with RAOM. A Cochrane review in 2006 concluded that prophylactic antibiotics reduced RAOM episodes from 3 to 1.5 per annum, with likely larger benefits in higher risk children (3). Based on our survey of practice across the STPN, prophylactic antibiotics are used frequently (but the specific antibiotic used and dosing protocol does vary).

Azithromycin and trimethoprim tend to be the most commonly used antibiotics in our region. The evidence for both is variable in the literature. Azithromycin has the advantage of working at a low dose, and can be given as 3 single daily doses over a 2-week period which may make it easier for parents to administer.

We would therefore suggest clinicians do consider use of prophylactic antibiotics on a case by case basis as an alternative to watchful waiting or grommets.

## ADJUNCTS/ALTERNATIVE TO SURGERY

The two main alternatives to surgery are the use of the otovent device and hearing aids.

The otovent device is licensed for children aged 3 and above. There is good evidence that it helps to clear glue ear in the short term and carries a low risk of complications. The otovent should therefore be considered as a treatment option in the initial watchful waiting stage when a child is diagnosed with glue ear (4).

Hearing aids (particularly in the form of bone conduction aids e.g. BAHA (bone anchored hearing aid) on a softband, also referred to as soft band hearing aids) are useful at amplifying sound in children with glue ear and hearing loss. Given the long waits for surgery across the region, they should be offered to parents as a non-invasive option where available. Both to support hearing while the child waits for surgery, *or* as an alternative entirely. Hearing aids *can* preclude the need for surgery, which *may* be in the best interests of the child. The following decision support tool, is available to support families, alongside their clinician(s), to make the right decision for them: [Making a decision about glue ear \(england.nhs.uk\)](https://www.england.nhs.uk/decision-support/making-a-decision-about-glue-ear/)

Soft band hearing aids are very effective and in the context of long wait lists for surgery these should always be offered to parents as an option given their ease of use.

The Hear Glue Ear App is a free of charge application that can also support a child, while waiting for surgery. The main aim of the app is to deliver specific NICE guidance by advising “on educational and behavioural strategies to minimise impact of hearing loss” (Recommendation 1.3.2, CG60). The app allows children to work on educational strategies to prevent them falling behind with speech, language, listening skills and learning when they have glue ear, whilst providing parents with up- to-date “evidence based written information “as suggested in NICE CG60, and behavioural strategies (5). The app is provided free of charge.

There is also the possibility of using the app in conjunction with novel technologies such as the BAHA soft band hearing devices (above), or even simple bone-conducting headsets, via Bluetooth. This further benefits children with the most severe conductive hearing losses (6, 7). The network strongly supports any Integrated Care Board or Trust who are prepared to fund the provision of such integrated hearing aids (BAHA) or the headsets, the cost of which is minimal in comparison to undertaking grommet surgery.

## PRIORITISATION

We support increasing the priority for patients from the following groups:

- Children with Downs Syndrome or cleft palate, who are suspected to have otitis media with effusion (OME) (1).
- Children with significant speech delay/ other developmental disorders or neurodiversity.
- Children with persistent or foul-smelling discharge suggestive of a possible cholesteatoma.
- Children with significant recurrent ear infections where prophylactic antibiotics have not improved symptoms.

## SURGERY VALIDATION

For patients waiting more than 6 months there should be a mechanism to revalidate the need for surgery. For children undergoing grommet insertion for Glue Ear there should be a hearing assessment or at least a tympanogram within 2 to 4 weeks before surgery – if normal, then the surgery should be cancelled and a clinic consultation booked to discuss (SW ICS agreement). A hearing test should be performed within 3 months prior to grommet insertion for recurrent ear infections.

A robust preassessment service can help with this process.

## DAY CASE PATHWAY

The majority of children can be safely operated in day case units unless there are anaesthetic risks from comorbidities (8).

The following recommendations are designed to support centres across the South Thames Network in optimising their day case pathways to achieve this. This section is intended to provide a reference for what is considered best practice across the South Thames region and should be viewed alongside any locally agreed Standard Operating Procedures (SOPs), which should be followed at all times by local clinical teams.

### Patient Selection

1. All departments must have an approved day case pathway for children undergoing grommet insertion which meets existing published standards
2. All children  $\geq 12\text{kg}$ ,  $\geq 2$  years old and without significant comorbidity should be considered to have their procedure as a day case. The referral criteria for inpatient care are:

<12kg and/or <2 years of age  
 BMI >99.6<sup>th</sup> centile or <0.4<sup>th</sup> centile  
 Severe Cerebral Palsy  
 Achondroplasia  
 Neuromuscular Disorders  
 Mucopolysaccharide diseases  
 Significant co-morbidity (uncorrected  
 CHD, home oxygen, severe cystic fibrosis,  
 severe asthma  
 Need for onsite tertiary speciality  
 (metabolic, haematology, cardiology)  
 Clinically suspected severe obstructive  
 sleep apnoea – prolonged apnoeas,  
 sternal recession

## Preassessment

All children undergoing a procedure and an anaesthetic should be triaged and assessed by a preassessment service. This can be virtual, but the child and family should be offered a face to face preassessment appointment, if they'd like one. The purpose is to review medical history and overall health, to share information and to support the psychological preparation of children pre-operatively (9).

## Day of Surgery

Children undergoing Grommet insertion can be booked onto both morning and afternoon ENT theatre sessions, and day cases can still be facilitated regardless of the time scheduled. A post-operative stay of a minimum of **only 1-2 hours** is required post op.

## Observation

Routine post op observations for a minimum 1-2 hours after surgery (10).

## Discharge

Grommet Insertion

1-2 hours post surgery

Assuming standard discharge criteria are met:

- Early Warning Score 0 on discharge
- Pain controlled with non-opiate analgesia
- Tolerating oral intake
- No active vomiting
- No oxygen requirement
- (Reliable) caregiver confidence to continue observations at home
- Mobilised (10)

## Analgesia

Appropriate analgesia should be administered during the perioperative period and in recovery to ensure appropriate timely discharge is achieved.

Analgesia should continue to be administered regularly for the first 24- 48 hours, then as required. Paracetamol is often sufficient, and ibuprofen can be given in addition if pain is not well controlled. The STPN advocate for the dispensing of analgesia for the child on discharge, and parents should be provided with clear dosing information.

## Antibiotics Drops After Grommet Insertion

Antibiotic drops are commonly prescribed after grommet insertion to prevent blockage of the tubes. Our STPN consensus was that blockage of grommets is underestimated in incidence after grommet insertion, and benefit of drops outweighs the risks. We would therefore suggest clinicians take a case-by case approach with their use.

If indicated; Ciprofloxacin ear drops are recommended (surgeons may have their own specific protocol for frequency and duration of the drops).

Ordering analgesia and ear drops during preassessment or keeping a ward supply for dispensing is an efficient way to ensure that discharge can occur in a timely manner.

## Parental Instructions

Supply appropriate instructions to the parents at discharge. We recommend:

- To provide analgesia as required over the next 1-2 days. Clear instructions on dosing and intervals.
- To use any ear drops prescribed, with instructions on how to administer.

Water precautions:

- Whilst there is no strong evidence in the literature to suggest use of water precautions following surgery (e.g. swimming plugs and caps), our STPN consensus is to empower clinicians to provide advice they felt was appropriate on a case-by case basis (with regards to when to return to swimming and extent of water precautions used).
- **The first 4 weeks are the most critical period**, as the grommet heals in place. Also, there may be specific cases where greater water precautions are required e.g. children with significant recurrent ear infections, if the child has an active ear infection with the grommet in situ and children who experience pain/discomfort on swimming (2, 11).
- However, if it is felt difficult to discourage children from complete submersion, exerting pressure in the ear, then swimming should be discouraged for a period of time post grommet insertion.
- Advise parents that a slight clear discharge from the ear is normal in the first day or so, but if this discharge continues, becomes thick, smelly or blood stained, to contact their GP.
- If their child becomes unwell or develops a temperature, then they should contact their GP.
- Infections with purulent discharge from the middle ear can be treated with topical antibiotic drops (ciprofloxacin).

## Follow Up and Return to School Recommendations

As per NICE Guidelines:

- Perform a postoperative hearing test ideally no later than 6 weeks after surgery for OME, and if the hearing loss has resolved, discharge and advise parents and carers to seek a reassessment by the audiology service involved in their child's care if they are concerned about a possible recurrence of OME-related hearing loss at a later date
- Consider a 1-year follow up with a hearing test if there are concerns a potential recurrence of hearing loss could be missed (social factors) **or**
- Consider an individualised follow-up plan if the child has an increased risk of unrecognised OME with hearing loss (for example, children with craniofacial anomalies). If there continues to be hearing loss, this needs to be investigated (1). ENT follow up can be provided as PIFU (Patient Initiated Follow Up), for the parent to action if there are persistent ear infections, persistent otorrhoea, worsening of hearing, or if a perforation is noted by other healthcare professional.
- Children with neurodevelopmental disorders- will require a longer term follow up, especially where they are unable to communicate discomfort or a hearing reduction.

## Audit

As part of the STPN, departments should participate in audit of the Grommets Pathway for children, against these recommendations to identify opportunities to improve safety, quality and performance. Metrics to measure against will be:

- Percentage of uncomplicated patients  $\geq 2$  years  $\geq 12$ kg operated in local hospital
- Percentage of conservative/ non-surgical management vs. grommet insertion
- Percentage of recurrent otitis media cases that ultimately result in grommet insertion
- Audiology outcomes
- Reoccurrence or persistence of the OME
- Reduction/resolution of recurrent otitis media
- Complications- persistent perforation rates



## References

1. NICE guideline: <https://www.nice.org.uk/guidance/ng233/chapter/Recommendations>
2. Rosenfeld et al., Clinical practice guideline: tympanostomy tubes in children (update), [Clinical Practice Guideline: Tympanostomy Tubes in Children \(Update\) - Richard M. Rosenfeld, David E. Tunkel, Seth R. Schwartz, Samantha Anne, Charles E. Bishop, Daniel C. Chelius, Jesse Hackell, Lisa L. Hunter, Kristina L. Keppel, Ana H. Kim, Tae W. Kim, Jack M. Levine, Matthew T. Maksimoski, Denee J. Moore, Diego A. Preciado, Nikhila P. Raol, William K. Vaughan, Elizabeth A. Walker, Taskin M. Monjur, 2022 \(sagepub.com\)](#) (2022), American Academy of Otolaryngology-Head and Neck Surgery Foundation (AAO-HNSF)
3. Leach AJ, Morris PS. Antibiotics for the prevention of acute and chronic suppurative otitis media in children. *Cochrane Database Syst Rev.* 2006 Oct 18;(4):CD004401.
4. <https://www.nice.org.uk/advice/mib59>
5. [NICE glue ear care pathway delivered with a free, award winning application \(App\) called Hear Glue Ear | NICE](#)
6. Holland Brown T, Salorio-Corbetto M, Gray R, et al. Using a bone-conduction headset to improve speech discrimination in children with otitis media with effusion. *Trends Hear* 2019; 23: 29. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
7. [An evaluation of the Hear Glue Ear mobile application for children aged 2–8 years old with otitis media with effusion - PMC \(nih.gov\)](#)
8. Safe Delivery of Paediatric ENT Surgery in the UK: A National Strategy. A Report of a Combined Working Party of the British Association for Paediatric Otolaryngology (BAPO), ENT UK, The Royal College of Anaesthetists (RCOA) and the Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI)
9. Best Practice Guidance: Pre-assessment services for children undergoing surgery or procedures. RCOA (2022).
10. South West London ENT Best Practise Summit, April, 2023
11. Antonio Moffa, Lucrezia Giorgi, Valeria Fiore, Peter Baptista, Michele Cassano, Manuele Casale, [Water protection in paediatric patients with ventilation tubes: Myth or reality? A systematic review - ScienceDirect](#), *Acta Otorrinolaringologica (English Edition)*, Volume 73, Issue 4, July–August 2022, Pages 246-254