

2016

Commissioning guide:

Chronic Rhinosinusitis

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Glossary

Term	Definition
VAS	Visual Analogue Scale
2WW	2 week wait
CRS	Chronic Rhinosinusitis
CRSwNP	Chronic Rhinosinusitis with nasal polyps
CRSsNP	Chronic Rhinosinusitis without nasal polyps
ARIA guidelines	Allergic Rhinitis and its impact on Asthma (ARIA) guidelines
INCS	Intranasal corticosteroids
SNOT	Sinonasal Outcome Test
ESS	Endoscopic Sinus Surgery
QOL	Quality of Life
PPV	Positive predictive value
NPV	Negative Predictive Value

Introduction

Rhinosinusitis is defined as inflammation of the nose and paranasal sinuses. In acute rhinosinusitis, there is complete resolution of symptoms within 12 weeks of onset; persistence of symptoms for more than 12 weeks is categorised as chronic rhinosinusitis. Acute rhinosinusitis usually has an infective aetiology. The aetiology of chronic rhinosinusitis is largely unknown but is likely to be multifactorial, with inflammation, infection and obstruction of sinus ventilation playing a part.

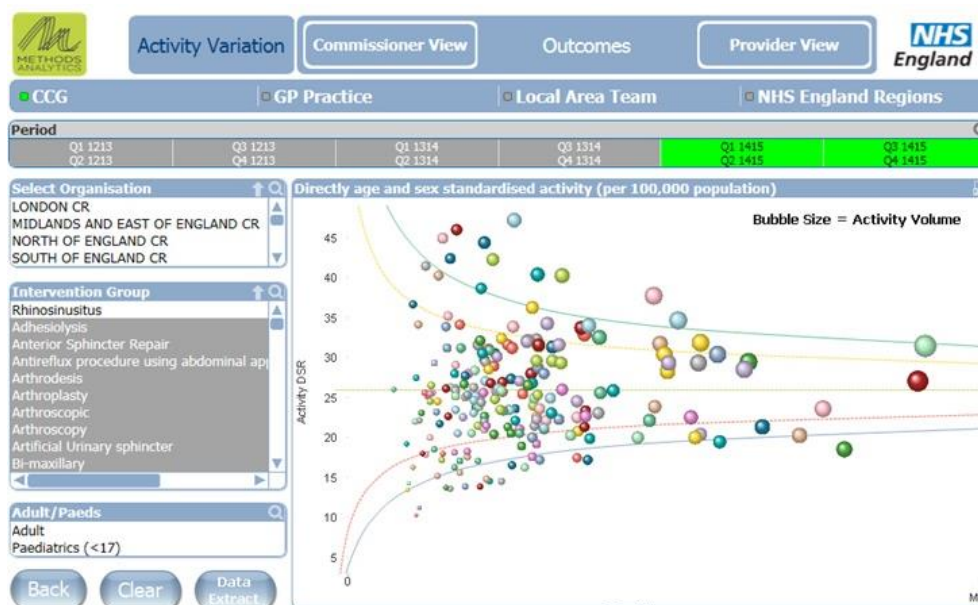
Chronic rhinosinusitis is a highly prevalent condition affecting 10% of the UK adult population. It is associated with significant reduction of quality of life, high health-care utilisation and significant absenteeism/presenteeism.

Diagnosis is made by the presence of two or more persistent symptoms for at least 12 weeks, one of which should be nasal obstruction and/or nasal discharge, and/or facial pain/pressure or anosmia ¹

Chronic rhinosinusitis is sub-categorised by the presence or absence of nasal polyps (CRSwNP or CRSsNP respectively)

Treatment entails a trial of maximum medical therapy, with surgery reserved for recalcitrant cases, after the diagnosis is confirmed by radiology and after an appropriate trial of treatment. Current evidence suggest that the benefits of surgery are greatest in patients undergoing surgery at an early stage in their disease; therefore once medical therapy has been deemed to have failed there should be no further delay in referral (2). Patients undergoing surgery within 12 months of onset of symptoms that fail to respond to maximum medical therapy, achieve significantly better measured outcomes in terms on improvements in SNOT-22 than those undergoing surgery at a later stage. Health care utilisation is significantly lower in first 2 years following surgery in patients undergoing surgical intervention compared with those having surgery at a later stage.

There is over 8 fold variation in procedure rates for sinus surgery per 100,000 population by CCG across England. In patients with CRSwNP nearly 50% of patients undergoing surgery report having received more than one operation, with a mean number of 3.3 procedures per patient (range 2–30).



The image above shows all surgical procedures carried out per CCG, for Chronic Rhinosinusitis in England between 1/5/14 to 30/4/15 (<http://rcs.methods.co.uk/pet.html>)

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Web: www.entuk.org

1. High Value Care Pathway for Chronic Rhinosinusitis in adults

1.1 Primary Care

Primary care assessment

- Take a history documenting the symptoms included in the diagnostic criteria below with 2 or more persistent symptoms for at least 12 weeks, one of which should be nasal obstruction and/or discharge and/or must include: facial pain/pressure or anosmia
- Assessment of severity of symptoms into mild or moderate/severe. This can be facilitated by using a 10cm Visual Analogue Scale (VAS) to categorise into mild (VAS 0 – 3) or moderate/severe (VAS >3)³
- Examination of anterior nasal cavity, using headlight or otoscope
 - Any unilateral findings should raise suspicion of neoplasia

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- Look for visible nasal polyps (consider turbinate hypertrophy in differential diagnosis)
- Consider diagnosis of allergic rhinitis in patients (especially those with family history of atopy) with associated epiphora, itching, sneezing in addition to rhinorrhoea – manage according to ARIA guidelines⁴, non-allergic rhinitis (congestion and clear rhinorrhoea), drug-induced rhinitis, structural deformity and other aetiologies (see BSACI guideline)
- Assess for lower airway symptoms and control of asthma⁵
- Consider alternate diagnosis in presence of unilateral symptoms, cacosmia, crusting, epistaxis, serosanguinous or blood-stained discharge, orbital symptoms (diplopia, reduced visual acuity, globe displacement, peri-orbital oedema) or neurological symptoms (severe frontal headache, signs of symptoms of meningism, neurological signs) – consider urgent/ 2WW referral in these cases
- There is no role for plain X-ray in assessment of CRS (plain X-ray, despite low cost and availability, has limited usefulness due to underestimation of bony and soft tissue sinus pathology).¹ CT imaging is usually reserved for those who fail medical therapy as an aid to surgical management or have complicated infection/more serious conditions and should not be used routinely in primary care.

Offer all patients

- Saline irrigation⁶: commercially available positive pressure squeeze bottles or irrigation jugs (Netti pots) available to aid douching. High volume irrigation more effective than saline sprays (Appendix 1)
- Intranasal corticosteroids (INCS):^{7,8} advise on correct application technique. Bioavailability varies between INCS – negligible with mometasone and fluticasone. It is essential to explain correct technique (see Appendix 1) and the need for compliance
- Informed choice over treatment options is essential; patients should be provided with written information on rhinosinusitis (e.g. NHS Choices or equivalent) and actively engaged in treatment decisions

In isolated cases of purulent nasal discharge it is reasonable to prescribe a single course of antibiotics. We do not recommend repeated use of antibiotics for CRS in primary care¹, due to limited evidence of efficacy in unselected groups, low specificity of symptomatic diagnosis without endoscopy or imaging and risks of increasing antibiotic resistance.⁹ In particular, use

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of prolonged courses of macrolide antibiotics is not recommended in primary care, due to the risk of cardiac toxicity¹⁰ and limited evidence of benefit found only in selected CRS patient groups.

If bilateral large nasal polyps visible on anterior rhinoscopy:

- Consider trial of oral prednisolone (0.5mg/kg for 5 – 10 days) followed by topical drops (fluticasone propionate 400mcg bd or beclamethasone tds) applied in the head upside down position, review after 4 weeks of treatment and refer if no improvement^{11,12}
- If symptomatically controlled, prescribe maintenance of mometasone spray (2 squirts, each side BD). Beclamethasone drops may be prescribed for a maximum of 4 months in a 12 month period and systemic steroids given 6 monthly. Consider referral if requiring rescue medication more frequently
- Reassess symptom control after 3 months of treatment with INCS and saline irrigation
- For mild symptoms (VAS 0 -3) – continue with medical treatment as outlined above, emphasise need for compliance

For persistent moderate /severe symptoms at 3 months:

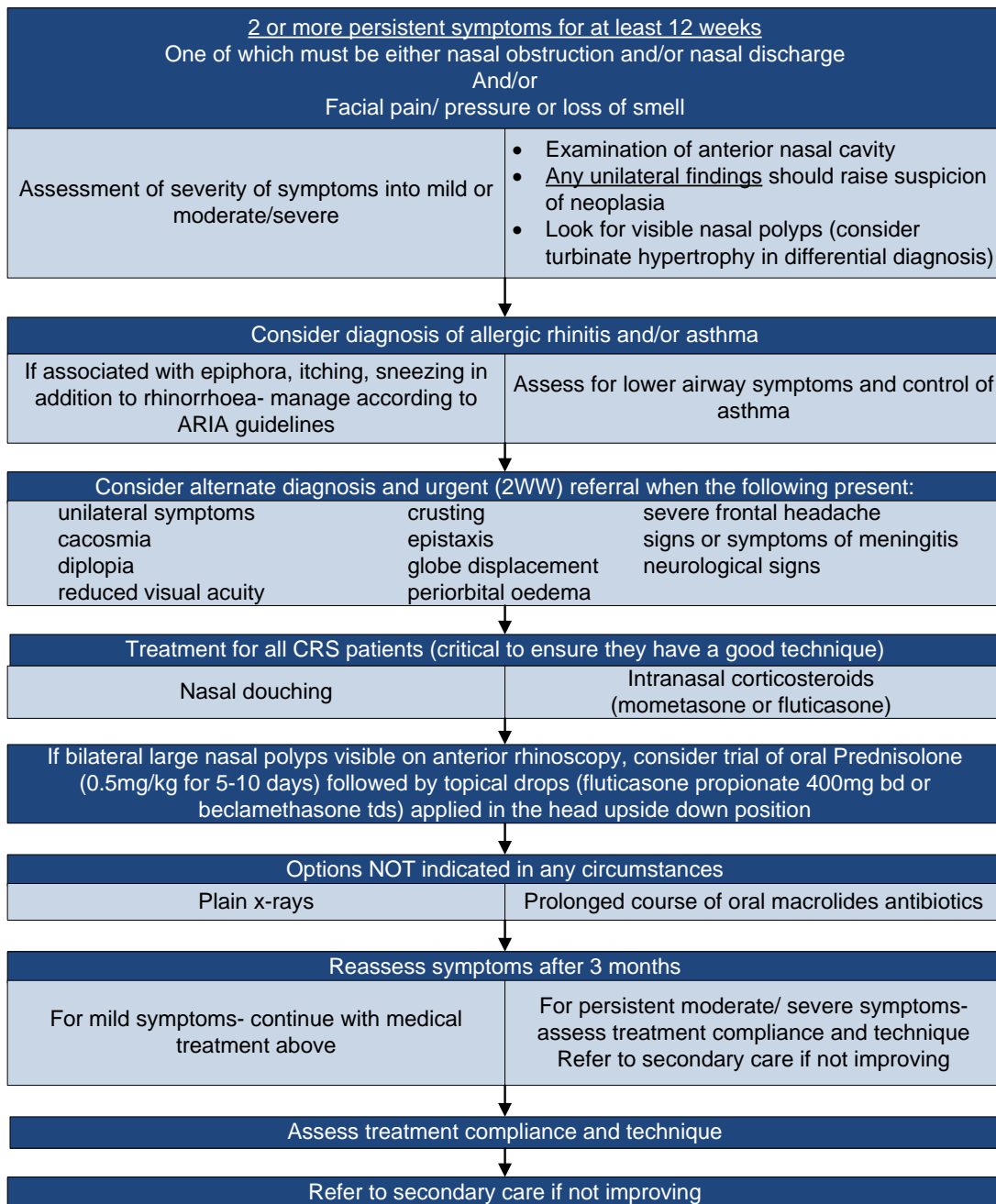
- Assess treatment compliance and technique
- Refer to specialist community or secondary care provider for nasal endoscopy and further investigation if persistent symptoms of CRS despite compliance with medical therapy^{1,2}
- A recent study¹³ shows that 34% of patients fail medical management within 3 months of treatment. Disease specific QOL then stagnates or worsens until crossover into surgical treatment. This supports referral at 3 months, as non-responders are unlikely to respond at a later stage and will suffer deterioration in symptoms
- Avoid repeated courses of antibiotics and unnecessary delay in referral
- Confirmation of diagnosis by supported findings on either endoscopy or CT imaging is recommended for both EPOS and AAO-HNS definitions of CRS, as symptoms alone have a sensitivity of 89% but a specificity of only 12%, PPV of 49% and NPV of 54%. Therefore, we are unable to recommend escalation of care pathway without either endoscopy or CT, particularly as this would entail prolonged courses of

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antibiotics in a significant number of patients unlikely to benefit from such treatment, in the face of increasing antibiotic resistance

- Either a Community Specialist or Secondary Care Specialist may perform endoscopic examination
- CT imaging is normally reserved for patients selected for surgical management in order to minimize risk from exposure to ionizing radiation, and therefore not recommended for use in primary care or at this stage of the treatment pathway

Recommended Primary Care Pathway



1.2 Secondary care

- Assessment (see above) and consider diagnosis and treatment of co-morbidity – Allergy, ASA triad, systemic conditions (vasculitides, eosinophilic granulomatosis with polyangiitis, sarcoidosis), immune deficiency etc.
- Endoscopy – nasal purulence, presence of polyps or oedema in middle meatus supportive of diagnosis of CRS
- Consider nasal culture – endoscopically guided middle meatal culture
- Disease-specific Patient Reported Outcome Measure to assess symptom severity and response to treatment – 22 item Sinonasal Outcome Test (SNOT-22)^{14,15}
- Consider CT when neoplasia or complications of CRS suggested (presence of orbital or neurological signs as above). Up to 40% of patients with symptoms of CRS and normal endoscopy have radiological evidence of CRS¹⁶ and CT is therefore recommended if the diagnosis remains uncertain and endoscopy is not supportive¹⁷

For CRSwNP, and moderate/severe symptoms (VAS>3, SNOT-22>20)

- Continue nasal saline irrigation
- Short course oral steroids (0.5mg/kg 5 - 10 days)¹¹
- Consider topical drops (fluticasone propionate 400mcg bd or beclamethasone tds) or continue intranasal corticosteroid spray
- Consider doxycycline (100mg od 3 weeks)¹⁸
- Review after 3 months for moderate disease, 1 month for severe disease

For CRSsNP, and moderate/severe symptoms (VAS>3, SNOT-22>20)

- Continue nasal saline irrigation
- Continue intranasal corticosteroid spray
- Consider long term macrolide antibiotics (most likely to be effective when IgE levels NOT elevated).¹⁹ Do not use macrolides in patients with significant history of cardiorespiratory disease or those taking statins¹⁰
- Review after 3 months

For both CRSwNP and CRSsNP

- Consider endoscopic sinus surgery after failure of maximum medical therapy above and persistent moderate/severe symptoms²⁰

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- Patients failing to respond to medical treatment are unlikely to benefit from further prolonged courses of medical treatment²¹ and benefit from ESS is greatest in those receiving 'early' surgery. There is little benefit in delaying surgery for patients who fail medical treatment and are fit for surgery. However, for those who respond to medical treatment, there is no need to offer surgery as outcomes have been shown to be equivalent^{22,23}
- CT mandatory before surgery if not performed earlier in care pathway (does not need to be repeated if no intervening surgical intervention)
- When LM<4 alternate diagnosis should be considered and ESS not usually indicated²⁴
- ESS not indicated if no evidence of sinus disease on CT (LM=0)
- Informed choice over treatment options is essential; patients should be provided with written information on rhinosinusitis (e.g. ENT-UK leaflets on rhinosinusitis and FESS or equivalent) and actively engaged in treatment decisions. This should include discussion of potential complications of surgery which include post-operative bleeding and infection, scar tissue formation, rarely CSF leak and significant orbital injuries and the potential need for revision surgery.
- There is insufficient evidence to inform as to the optimum extent of surgery, instrumentation to be used or post-operative packing materials
- In suitable patients, endoscopic sinus surgery may be performed in an ambulatory setting
- Patients should be discharged with written information regarding symptoms of post-operative complications to look out for including significant nasal bleeding, purulent discharge, clear rhinorrhoea, headaches, visual disturbances, persistent pain or general malaise

Post-operative care

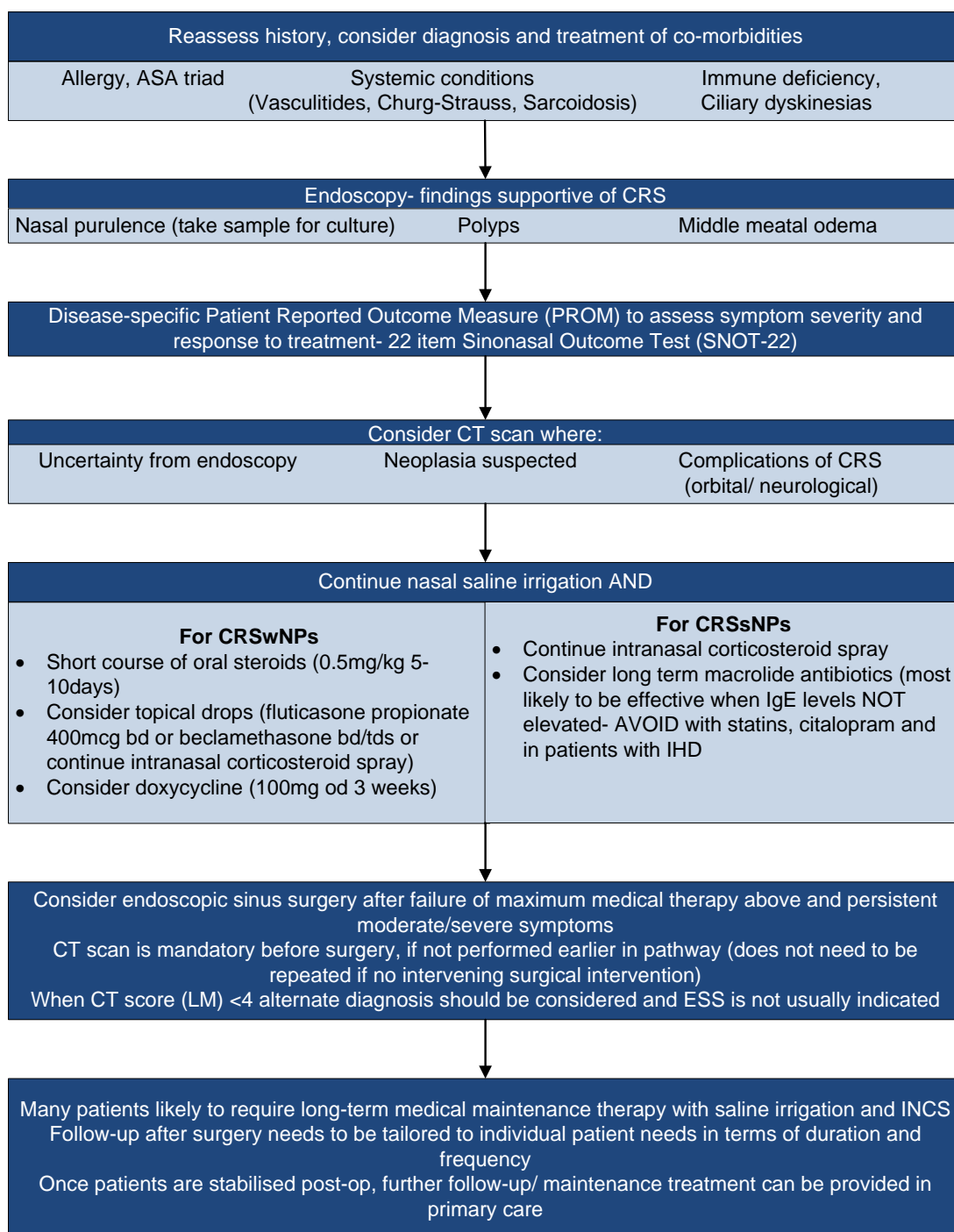
- Many patients are likely to require long-term medical maintenance therapy with saline irrigation and INCS. Use of INCS is shown to reduce risk of polyp recurrence²⁵ and is safe for long term use.
- Surgical intervention does allow enhanced delivery of medical treatment in topical forms (e.g. douching, steroids).
- Follow-up after surgery should be tailored to individual patient needs in terms of duration and frequency and may be influenced by other factors such as atopy and

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co-morbidity. There is no significant evidence to support the use of frequent post-operative debridement of the sinus cavities

- Once patients are stabilized post-op, further follow-up/maintenance of treatment can be provided in primary care

Recommended Secondary Care Pathway



2. Procedures explorer for chronic rhinosinusitis in adults

Users can access further procedure information based on the data available in the quality dashboard to see how individual providers are performing against the indicators. This will enable CCGs to start a conversation with providers who appear to be 'outliers' from the indicators of quality that have been selected.

The Procedures Explorer Tool is available via the [Royal College of Surgeons](http://www.rcs.org) website.

3. Quality dashboard for chronic rhinosinusitis in adults

The quality dashboard provides an overview of activity commissioned by CCGs from the relevant pathways, and indicators of the quality of care provided by surgical units.

The quality dashboard is available via the [Royal College of Surgeons website](http://www.rcs.org).

4. Levers for implementation

4.1 Audit and peer review measures

The following measures and standards are those expected at primary and secondary care. Evidence should be able to be made available to commissioners if requested.

		Measure	Standard
Primary Care	<i>Assessment</i>	Use VAS to assess severity and measure response to treatment	Do not offer investigation or treatment to patients not meeting diagnostic criteria Do not use plain X-ray for investigation
	<i>Referral</i>	Do not offer referral before a trial of conservative management, or those in whom medical treatment achieve adequate control of symptoms	

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<i>Referral</i>	Reduction in repeated use of antibiotics Avoidance of use of prolonged macrolide antibiotics in primary care
<i>Provision of patient information</i>	Written advice should be provided to all patients undergoing endoscopic sinus surgery
Secondary Care	Time from referral to surgery
	Major complication rate Improvement in SNOT-22 scores

4.2 Quality Specification/CQUIN

Measure	Description	Data specification (if required)
<i>Length of stay</i>	Provider demonstrates a mean LOS of <2 days	Data available from HES
<i>Day Case Rates</i>	Provider demonstrates >80% day case rate for ESS procedure	Data available from HES

5. Directory

5.1 Patient Information for chronic rhinosinusitis in adults

Name	Publisher	Link
<i>Functional Endoscopic Sinus Surgery (FESS)</i>	ENT-UK	https://entuk.org/ent_patients/no_se_conditions/fess
<i>Sinusitis</i>	NHS Choices	http://www.nhs.uk/conditions/sinusitis/pages/introduction.aspx
<i>Loss of sense of smell</i>	Fifth Sense	http://www.fifthsense.org.uk/

5.2 Clinician information for chronic rhinosinusitis in adults

Name	Publisher	Link
<i>ERS/EAACI guidelines for acute and chronic rhinosinusitis with and without nasal polyps based on a systematic review</i>	Rhinology	http://www.rhinologyjournal.com/supplement_23.pdf
<i>Rhinosinusitis – Map of medicine</i>	NHS Choices	http://healthguides.mapofmedicine.com/choices/map/rhinosinusitis1.html
<i>Sinusitis - Clinical Knowledge Summaries</i>	NICE	http://cks.nice.org.uk/sinusitis

6. Benefits and risks of implementing this guide

Consideration	Benefit	Risk
<i>Patient outcome</i>	Ensure access to effective treatment	Increased costs of earlier surgical intervention but likely to cost-effective in longer term
<i>Patient safety</i>	Reduce chance of missing sinonasal malignancy or complication of CRS	Increased referral rates
<i>Patient experience</i>	Improve access to patient information, support groups	
<i>Equity of Access</i>	Improve access to effective treatment	
<i>Resource impact</i>	Reduce unnecessary referral, investigation and intervention	Resource required to provide saline irrigation on prescription

7. Further information

7.1 Research recommendations

- Aetiology of CRS, role of allergy
- Assessment – Better phenotyping of subgroups of CRS, implications for treatment options and outcomes
- Comparative effect of medical versus surgical treatment for both CRSwNp and CRSsNP-
- Role of long-term antibiotics in management of both CRSwNP and CRSsNP
- Novel therapies for chronic rhinosinusitis

7.2 Other recommendations

- Improved coding of procedures for endoscopic sinus surgery reflecting developments in surgical technique
- Need for national database to collect epidemiology data, PROMs and operative activity, to further knowledge base and provide individual surgeon outcome data.

7.3 Evidence base

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Evidence identified by literature search but not incorporated into care pathway:

Krespi YP, Kizhner V. Phototherapy for Chronic rhinosinusitis: n=23 2 treatment arms both show symptomatic benefit, but no control arm, therefore unacceptable risk of bias and needs further evaluation before use can be recommended.

7.3 Guide development group for rhinosinusitis

A commissioning guide development group was established to review and advise on the content of the commissioning guide. This group met once, with additional interaction taking place via email and teleconference.

Name	Job Title/Role	Affiliation
Claire Hopkins	Chair, Consultant ENT surgeon	Guy's and St Thomas' Hospitals, London
Carl Philpott	Honorary Consultant ENT Surgeon,	Norwich Medical School
Sean Carrie	Consultant ENT Surgeon, President British Rhinological Society	Freeman Hospital, Newcastle
June Blythe	Independent patient representative	

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Mike Thomas	Professor of Primary Care Research	University of Southampton
Paul Little	Professor of Primary Care Research	University of Southampton
Glenis Scadding	Medical Rhinologist and Respiratory Physician	University College Hospitals London NHS Foundation Trust
Valerie J Lund CBE	Professor of Rhinology	University College Hospitals London NHS Foundation Trust
Sarah Wilkes	Independent patient representative	
Andrew Swift	Consultant ENT surgeon and Rhinologist	Aintree University Hospital NHS Foundation Trust
Hesham Saleh	Consultant ENT Surgeon, President RSM section of Rhinology and Laryngology	Charing Cross Hospital, London

7.4 Funding statement

The development of this commissioning guidance has been funded by the following sources:

- The Royal College of Surgeons funded the costs of the literature searches and provided central support
- ENT-UK provided staff to support the guideline development and funding for meetings

7.5 Conflict of interest statement

Individuals involved in the development and formal peer review of commissioning guides are asked to complete a conflict of interest declaration. It is noted that declaring a conflict of interest does not imply that the individual has been influenced by his or her secondary interest. It is intended to make interests (financial or otherwise) more transparent and to allow others to have knowledge of the interest.

The following interests were declared by members:

Name	Job Title/Role	Interest
Claire Hopkins	Chair, Consultant ENT surgeon	<ul style="list-style-type: none"> • Fees for consultancy • Funds for research • Fees for speaking at meeting/

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		<p>symposium</p> <ul style="list-style-type: none"> • Employed by NHS Trust which may gain increased referrals
Carl Philpott	Honorary Consultant ENT Surgeon,	<ul style="list-style-type: none"> • Fees for consultancy • Trustee of Fifth Sense Charity
Valerie J Lund CBE	Professor of Rhinology	<ul style="list-style-type: none"> • Fees for consultancy • Fees for speaking at meeting/ symposium • Trustee: ENK UK, BRS, Rhinology and laryngology research fund

Appendix 1

Saline irrigation recipe

How to make 1 pint of salt solution

1. You will need:
 - salt (sea salt, canning, or pickling salt)
 - baking soda
 - nasal irrigation pot
 - measuring spoon (1 teaspoon, 1/2 tsp)
 - pint container
2. Mix the solution:
 - Measure 1 tsp of salt and 1/2 tsp of baking soda into the pint container
 - Add one pint (570ml) of cooled boiled water (lukewarm tap water may be safe in some areas)
 - Stir
 - From one-pint container of solution, fill nasal pot

Correct technique for using intranasal sprays

The aim is to deliver the spray throughout the nasal cavity. This is best done by tilting head forward slightly and directing the nozzle away from the midline (use opposite hand to nostril). Avoid taking a really deep sniff in, but breathe in gently after spraying. If using in conjunction with saline washes, do the wash first and wait at least 15 minutes before using the spray.

Steroid sprays work best if used regularly; they do not work well if used occasionally as a rescue medication.

Correct technique for using nasal drops

Avoid tipping the head backwards and putting the drops in the nose, as they usually pass straight into the back of the throat. A good position is to lie on a bed with your head hanging back over the edge. Stay like this for two minutes after putting in the drops before getting up. This is so that the liquid does not immediately run out of your nose or down the back of your throat but stays for a while in the nasal cavity. Kneeling or bending forwards is an alternative, but it is harder to stay like this for two minutes after putting in the drops.

1. 510K Premarket Notification. Available at:
<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmn.cfm>. Accessed January 2013.