

## EP<sup>3</sup>OS 2007: European position paper on rhinosinusitis and nasal polyps 2007. A summary for otorhinolaryngologists\*

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### INTRODUCTION

Rhinosinusitis is a significant health problem, which seems to mirror the increasing frequency of allergic rhinitis and which results in a large financial burden on society<sup>(1-3)</sup>. Data on (chronic) rhinosinusitis are limited and the disease entity is badly defined. Therefore, the available data are difficult to interpret and extrapolate.

The last decade has seen the development of a number of guidelines, consensus documents and position papers on the epidemiology, diagnosis and treatment of rhinosinusitis and nasal polyposis<sup>(4-7)</sup>. In 2005 the first European Position Paper on Rhinosinusitis and Nasal Polyps (EP<sup>3</sup>OS) was published<sup>(8,9)</sup>. This first evidence based position paper was initiated by the European Academy of Allergology and Clinical Immunology (EAACI) to consider what was known about rhinosinusitis and nasal polyps, to offer evidence-based recommendations on diagnosis and treatment, and to consider how we can make progress with research in this area. The paper has been approved by the European Rhinologic Society.

Since the preparation of the first EP<sup>3</sup>OS document an increasing amount of evidence on the pathophysiology, diagnosis and treatment has been published (Figure 1).

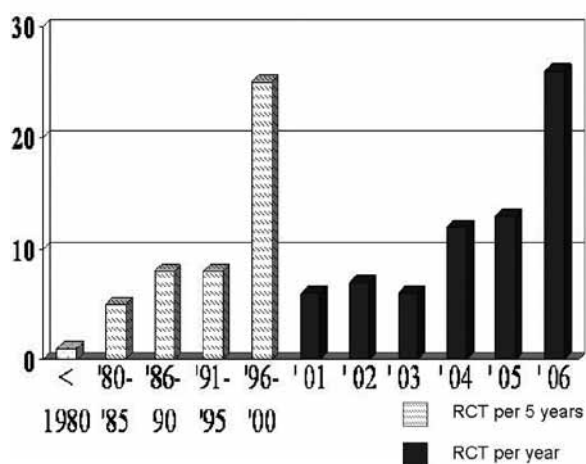


Figure 1. Randomized controlled trials in chronic rhinosinusitis with or without nasal polyps. The number of trials in the last 5-6 years equals the number ever published before.

In the 2007 revision<sup>(10)</sup> new data have led to a considerable increase in amount of available evidence and therefore to considerable changes in the schemes for diagnosis and treatment. Moreover, the whole document has been made more consistent, some chapters, like the one on surgery, are significantly extended and others are added. Last but not least contributions from many other parts of the world have attributed to our knowledge and understanding.

This summary indicates the main differences between the first EP<sup>3</sup>OS document and the EP<sup>3</sup>OS 2007 with emphasis on definition, diagnosis and treatment of CRS by otorhinolaryngologists.

### RHINOSINUSITIS DEFINITION

Rhinitis and sinusitis usually coexist and are concurrent in most individuals; thus, the correct terminology is now 'rhinosinusitis'. The diagnosis of rhinosinusitis is made by a wide variety of practitioners, including allergologists, otolaryngologists, pulmonologists, primary care physicians and many others. Therefore, an accurate, efficient, and accessible definition of rhinosinusitis is required. The paper again gives different definitions for epidemiology, first line and second line treatment and for research. Here we summarize the relevant changes for otorhinolaryngologists.

#### *Clinical definition of rhinosinusitis*

Rhinosinusitis (including nasal polyps) is defined as inflammation of the nose and the paranasal sinuses characterised by two or more symptoms, **one of which should be either nasal blockage/obstruction/congestion or nasal discharge (anterior/posterior nasal drip)**, ± facial pain/pressure, ± reduction or loss of smell; and either endoscopic signs of polyps and/or mucopurulent discharge primarily from middle meatus and/or; oedema/mucosal obstruction primarily in middle meatus, and/or CT changes showing mucosal changes within the ostiomeatal complex and/or sinuses.

The definition has been sharpened by indicating that at least nasal blockage/obstruction/congestion or nasal discharge (anterior/posterior nasal drip) should be a symptom of rhinosinusitis.

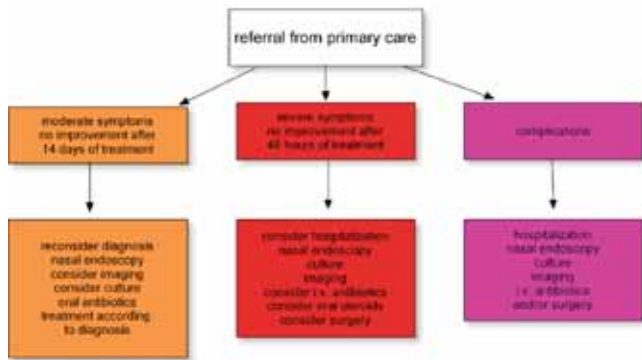


Figure 2. Management scheme for ENT specialists for adults with acute rhinosinusitis.

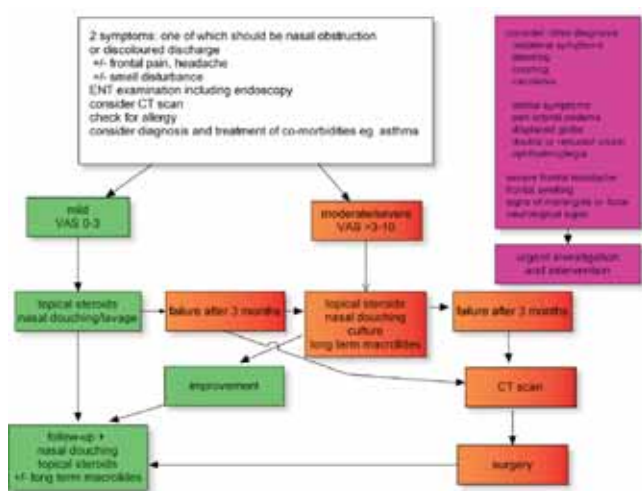


Figure 3. Management scheme for adults with CRS without NP for Otorhinolaryngologists.

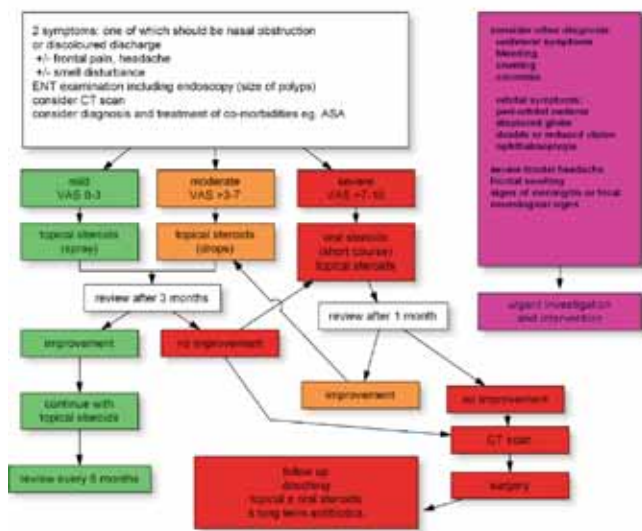


Figure 4. Management scheme for adults with CRS with NP for Otorhinolaryngologists.

Table 1. Treatment evidence and recommendations for adults with acute rhinosinusitis.

Therapy	Level	grade of recommendation	Relevance
oral antibiotic <sup>(32)</sup>	Ia	A	yes: after 5 days, or in severe cases
topical corticosteroid <sup>(33)</sup>	Ib	A	yes
topical steroid on top of oral antibiotic <sup>(34, 35)</sup> combined	Ib	A	yes
oral corticosteroid <sup>(36)</sup>	Ib	A	yes reduces pain in severe disease
oral antihistamine <sup>(37)</sup>	Ib	B	yes, only in allergic patients
nasal douche <sup>(38)</sup>	Ib (-) <sup>#</sup>	D	no
decongestant <sup>(39, 40)</sup>	Ib (-) <sup>#</sup>	D	yes, as symptomatic relief
mucolytics <sup>(41)</sup>	none	D	no
phytotherapy <sup>(42)</sup>	Ib	D	no

# : Ib(-) study with a negative outcome

Table 2. Treatment evidence and recommendations for adults with chronic rhinosinusitis without nasal polyps.\*

Therapy	Level	grade of recommendation	relevance
oral antibiotic therapy short term < 2 weeks <sup>(43)</sup>	Ib (-)	C	no
oral antibiotic therapy long term > 12 weeks <sup>(44, 45)</sup>	Ib	A	yes
antibiotics - topical <sup>(46)</sup>	III	D	no
steroid - topical <sup>(47)</sup>	Ib	A	yes
steroid - oral	no data	D	no
nasal saline douche <sup>(48, 49)</sup>	Ib	A	yes
decongestant	no data	D	no
oral / topical mucolytics <sup>(50)</sup>	III	C	no
antimycotics - systemic <sup>(51)</sup>	Ib (-) <sup>#</sup>	D	no
antimycotics - topical <sup>(52, 53)</sup>	Ib (-) <sup>#</sup>	D	no
oral antihistamine in allergic patients	no data	D	no
proton pump inhibitors	no data	D	no
bacterial lysates <sup>(41)</sup>	Ib	A	no
immunomodulators <sup>(54)</sup>	Ib (-) <sup>#</sup>	D	no
phytotherapy	Ib (-) <sup>#</sup>	D	no
anti-leukotrienes	III	C	no

\* Some of these studies also included patients with CRS with nasal polyps

\* Acute exacerbations of CRS should be treated like acute rhinosinusitis

# : Ib(-) study with a negative outcome

*Severity of the disease*

The disease can be divided into mild (VAS 0-3), moderate (VAS > 3-7) and severe (VAS > 7-10) based on total severity visual analogue scale (VAS) score (as indicated by the patient). A VAS > 5 affects patient QOL<sup>(11)</sup>.

*Duration of the disease*

Acute RS means symptoms or signs of RS for less than 12 weeks with complete resolution of symptoms. Chronic RS means symptoms or signs of RS for more than 12 weeks without complete resolution of symptoms. Chronic rhinosinusitis may also be subject to exacerbations.

**EVIDENCE BASED SCHEMES FOR DIAGNOSTIC AND TREATMENT**

The tables (Table 1-3) and schemes (Figure 2-4) for diagnosis and treatment are the result of a critical evaluation of the available evidence. The tables give the level of evidence for studies with a positive outcome and well powered studies with negative outcome. Ib (-) in this tables means a well-designed (Ib) study with a negative outcome. The grade of recommendation for the available therapy is given. Under relevance, the group of authors indicate whether they think this treatment to be of relevance in the indicated disease. The references given in the summary are examples of studies of the highest level. If many studies are available only a few recent studies are referred. The full list of references can be found in the full document<sup>(10)</sup>.

**EVIDENCE BASED SURGERY FOR RHINOSINUSITIS**

In EP<sup>3</sup>OS 2007 systematic reviews on sinus surgery efficacy in CRS are presented, followed by a description of comparative trials of sinus surgery with medical treatment. The role of various surgical modalities is briefly reviewed, and reports on the effects of concomitant diseases on sinus surgery outcomes are detailed.

It is difficult to generalise about sinus surgery studies because surgery is indicated in the full document selected patients who are not sufficiently responsive to medical treatment. Moreover, only a few publications on sinus surgery qualify for evidence based evaluation<sup>(12)</sup> and frequently studies included in systematic reviews are assigned low evidence levels<sup>(13-15)</sup>. This is in part due to specific problems in conducting surgical trials. In general, surgery is difficult to estimate or standardize, particularly in multi-centre trials, and the type of treatment is difficult to conceal (blinding). Randomization may pose ethical problems unless narrow inclusion criteria are set<sup>(16)</sup>.

In addition, a variety of confounders make it difficult to obtain homogenous patient groups with comparable therapeutic procedures for unbiased evaluation of sinus surgery outcomes. Possible relevant surgical factors include whether an external or endonasal approach is chosen, whether a functional or conventional surgical procedure is selected, if the extent of the surgical intervention is limited, extended or radical, and what kind of instruments are employed. Patient-dependent factors

include age, extent and duration of disease, previous surgery, presence of polyps, concomitant diseases such as ASA-intolerance, asthma, or cystic fibrosis, and particular aetiologies including dental, autoimmune, immune, and fungal disease<sup>(17-20)</sup>. Moreover, mode and duration of pre- and post-operative drug therapy may alter the outcome.

Taken these limitations into account, however, a significant amount of data is available on the efficacy of surgery in CRS with or without nasal polyps. One major outcomes research study (level II) and more than a hundred reviewed case series (level IV) with highly consistent results suggest that patients with CRS with and without polyps benefit from sinus surgery. Major complications occur in less than 1%, and revision surgery is performed in approximately 10% within 3 years. However, in the majority of CRS patients, appropriate medical treatment is as effective as surgical treatment. Sinus surgery should be reserved for patients who do not satisfactorily respond to medical treatment (level Ib). Functional endoscopic surgery is superior to minimal conventional procedures including polypectomy and antral irrigations (level Ib), but

Table 3. Treatment evidence and recommendations for adults with chronic rhinosinusitis with nasal polyps. \*

Therapy	level	grade of recommendation	relevance
oral antibiotics	no data	D	no
short term < 2 weeks			
oral antibiotic long term > 12 weeks	Ib	A	yes, for late relapse
topical antibiotics	no data	D	no
topical steroids <sup>(55, 56)</sup>	Ib	A	yes
oral steroids <sup>(57, 58)</sup>	Ib	A	yes
nasal douche	Ib, no data in single use	A	yes, for symptomatic relief
decongestant topical/oral	no data in single use	D	no
mucolytics	no data	D	no
antimycotics – systemic <sup>(59)</sup>	Ib (-)#	D	no
antimycotics – topical <sup>(52, 53)</sup>	Ib (-)	A	no
oral antihistamine in allergic patients <sup>(59)</sup>	Ib (1)	A	yes, in allergy
capsaicin <sup>(60)</sup>	II	B	no
proton pump inhibitors <sup>(61)</sup>	II	C	no
furosemide <sup>(62)</sup>	II	C	no
immunomodulators	no data	D	no
phytotherapy	no data	D	no
anti-leukotrienes <sup>(63, 64)</sup>	III	C	no

\* Some of these studies also included patients with CRS without nasal polyps

# : Ib(-) study with a negative outcome

superiority to inferior meatal antrostomy or conventional sphenoethmoidectomy is not yet proven.

In CRS patients not previously operated, extended surgery does not yield better results than limited surgical procedures (level Ib). Although not evidence-based, the extent of surgery is frequently tailored to the extent of disease, which appears to be a reasonable approach. In primary paranasal surgery, surgical conservatism is recommended.

Revision endonasal sinus surgery is only indicated, if medical treatment is not sufficiently effective. Substantial symptomatic improvement is generally observed in both, CRS with and without polyps, though the improvement is somewhat less than after primary surgery. Complication rates and particularly the risk of disease recurrence are higher than after primary surgery.

#### EVIDENCE BASED MANAGEMENT SCHEME FOR ADULTS WITH ACUTE RHINOSINUSITIS FOR ENT SPECIALISTS

##### *Diagnosis*

Sudden onset of rhinosinusitis symptoms as described above with signs of inflammation using nasal endoscopy and exclusion of dental infection. A plain X-ray is not recommended and CT-Scan is also not recommended unless additional problems exist such as very severe disease, immunocompromised patients or signs of complications.

#### EVIDENCE BASED MANAGEMENT SCHEME FOR ADULTS WITH CHRONIC RHINOSINUSITIS WITHOUT NP FOR OTORHINOLARYNGOLOGISTS

##### *Diagnosis*

Symptoms as described above present longer than 12 weeks. The severity of symptoms should be assessed because it is relevant for the choice of treatment<sup>(11)</sup>. Nasal endoscopy can be completed if necessary with imaging<sup>(21)</sup>, culture<sup>(22)</sup>, mucociliary clearance testing<sup>(23)</sup>, allergy testing, nasal airway assessment<sup>(24,25)</sup>, testing of olfaction<sup>(26,27)</sup> and/or signs of immunodeficiencies. Attention should be given to the lower airways<sup>(28)</sup>. QOL measurements can be relevant especially for evaluation of treatment<sup>(29-31)</sup>.

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