

# MEASURES OF DISEASE SEVERITY IN CRSwNP

## CRSwNP

CRSwNP, chronic rhinosinusitis  
with nasal polyposis.

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# NASAL CONGESTION/ OBSTRUCTION (NC) SCORE

## NC SCORE: PATIENT-REPORTED ASSESSMENT OF SYMPTOM SEVERITY<sup>1</sup>

The NC score is a patient-reported evaluation of nasal polyp symptom severity, with a focus on congestion and obstruction, recalled over the past 24 hours. Patients are asked to record their symptom severity for the previous day in a diary, using a 0 to 3-point scale.

### HOW THE NC IS SCORED

Patients evaluate their symptoms of congestion/obstruction from the previous day using the NC scale

Scale	Symptoms
0	No symptoms
1	Mild symptoms (symptoms clearly present, but minimal awareness and easily tolerated)
2	Moderate symptoms (definite awareness of symptoms that are bothersome but tolerable)
3	Severe symptoms (symptoms that are hard to tolerate, cause interference with activities of daily living)

Higher scores indicate worse congestion/obstruction

# BILATERAL ENDOSCOPIC NASAL POLYP SCORE (NPS)

## NPS: PHYSICIAN-REPORTED ASSESSMENT OF EXTENT OF NASAL POLYPS<sup>1,2</sup>

NPS is a physician-reported tool to grade the extent/severity of nasal polyps based on evaluation by nasal endoscopy. Each nostril is scored on a scale of 0 to 4, with the total score being the sum of left and right nostril scores (range: 0-8).

### HOW NPS IS SCORED

1

Physicians evaluate their patients' bilateral endoscopy findings



Right nostril



Left nostril

Patient score			
	Right	Left	Total score
	3	3	6






Example for illustrative purposes only.

Large nasal polyps may also be assessed by routine anterior rhinoscopy<sup>2</sup>

2

Physicians assess polyp extent using the NPS scoring system

The total NPS is the sum of scores from the right and left nostrils.

Polyp size/ location					
Anatomical description	No polyps	Small polyps in the middle meatus not reaching below the inferior border of the middle turbinate	Polyps reaching below the lower border of the middle turbinate	Large polyps reaching the lower border of the inferior turbinate or polyps medial to the middle turbinate	Large polyps causing complete obstruction of the inferior nasal cavity
Score	0	1	2	3	4

DAILY LOSS OF SMELL: PATIENT-REPORTED ASSESSMENT OF SYMPTOM SEVERITY<sup>1</sup>

Daily Loss of Smell is a patient-scored test evaluating the severity of loss of sense of smell, recalled over the past 24 hours (usually in the morning). Patients are asked to assess their loss of smell for the previous day and record it in a diary.

HOW DAILY LOSS OF SMELL IS SCORED

Patients evaluate their symptoms from the previous day using the Daily Loss of Smell scale

Score	Symptoms
0	No Symptoms
1	Mild Symptoms
2	Moderate Symptoms
3	Severe Symptoms

Higher Daily Loss of Smell scores indicate greater severity

UPSIT: PATIENT-REPORTED ASSESSMENT OF OLFACTORY FUNCTION<sup>1,3,4</sup>

UPSIT is a rapid, quantitative olfactory function “scratch and sniff” test that consists of 4 booklets containing 10 odorants (1 per page), each associated with a multiple-choice question; patients receive a score ranging from 0 to 40 (total anosmia to normal). There are variations of the test that take into account cultural differences. Norms from nearly 4000 people can be used to provide a basis for comparative ranking.

HOW UPSIT IS SCORED

Patients complete the scratch-and-sniff test from the UPSIT booklet



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Score	Outcome
<18	Anosmia (complete loss of smell)
19-25	Severe microsmia
26-30	Moderate microsmia
31-34	Mild microsmia
35-40	Normosmia (normal smell appreciation)

Microsmia, diminished sense of smell.

Lower scores indicate worse smell appreciation

LOSS OF SMELL/  
UPSIT

## SNOT-22: PATIENT-REPORTED ASSESSMENT OF SYMPTOM BURDEN ON QUALITY OF LIFE<sup>1,5</sup>

SNOT-22 is a 22-item health-related quality of life (HRQoL) evaluation with each item scored on a Likert scale ranging from 0 (“No problem”) to 5 (“Problem as bad as it can be”).

On this global 110-point scale, a change in score of 8.9 is the smallest change that is considered clinically important, corresponding to the validated minimal clinically important difference defined by the developer.

Higher scores indicate more severe disease

## HOW SNOT-22 IS SCORED

Patients are asked to recall their experience over a period of 2 weeks, and rate their symptoms on a severity scale from 0 to 5. They are also requested to identify up to 5 items that have the greatest impact on their health.

0	1	2	3	4	5
No problem	Very mild problem	Mild or slight problem	Moderate problem	Severe problem	Problem as bad as it can be

The SNOT-22 questionnaire addresses 22 symptoms related to sino-nasal and auricular function, sleep quality, psychological impact, and productivity.

To see the full SNOT-22 questionnaire, go to <https://www.canvasc.ca/pdf/SNOT22.pdf>

# LUND-MACKAY COMPUTED TOMOGRAPHY (LMK-CT)

## LMK-CT: PHYSICIAN-REPORTED ASSESSMENT OF SINUS OPACIFICATION<sup>1,6</sup>

The Lund-Mackay (LMK) system assesses sinus opacification on CT scans using the following grading system:

- 0 = normal, 1 = partial opacification, 2 = total opacification. These points are then applied to the maxillary, anterior ethmoid, posterior ethmoid, sphenoid, and frontal sinus on each side
- The osteomeatal complex (OC) is graded separately as 0 = not occluded or 2 = occluded, deriving a maximum score of 12 per side

The LMK-CT is a composite score, ranging from 0 to 12 per side, with a maximum of 24 for both sides, with higher scores indicating more severe disease

## HOW LMK-CT IS SCORED

### 1 Physicians evaluate CT scans of their patients' sinus system



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### 2 Physicians grade opacification by LMK-CT

The total LMK-CT score is the sum of scores from the right and left sinuses.

Sinus system	Right	Left	Total score
Maxillary			
Anterior ethmoidal			
Posterior ethmoidal			
Sphenoidal			
Frontal			
Osteomeatal complex			
Total score			

#### LMK-CT scoring system

For all sinus systems, except the osteomeatal complex: 0 = normal; 1 = partial opacification; 2 = total opacification. For the osteomeatal complex: 0 = not occluded; 2 = occluded.

# IN SUMMARY, A RANGE OF CLINICAL AND PATIENT-REPORTED TOOLS ENABLE MEASUREMENT OF THE SIGNS AND SYMPTOMS OF CRSwNP

- **Nasal Congestion/Obstruction (NC) Score:**  
Patient-reported assessment of symptom severity
- **Bilateral Endoscopic Nasal Polyp Score (NPS):**  
Physician-reported assessment of size and extent of nasal polyps
- **Daily Loss of Smell:**  
Patient-reported assessment of size and symptom severity
- **University of Pennsylvania Smell Identification Test (UPSIT):**  
Patient-reported assessment of olfactory function
- **Sino-Nasal Outcome Test (SNOT-22):**  
Patient-reported assessment of symptom burden on quality of life
- **Lund-Mackay Computed Tomography (LMK-CT):**  
Physician-reported assessment of sinus opacification

**Download this reference tool and learn more about CRSwNP at: [type2inflammation.com/crswnp](http://type2inflammation.com/crswnp)**

**References:** 1. Data on file, Sanofi US. CSR SAR231893/REGN668, EFC14146. 2018. 2. Scadding G, Hellings P, Alobid I, et al. Diagnostic tools in rhinology EEACI position paper. *Clin Transl Allergy*. 2011;1(1):1-39. 3. Doty RL, Shaman P, Kimmelman CP, Dann MS. University of Pennsylvania Smell Identification Test: a rapid quantitative olfactory function test for the clinic. *Laryngoscope*. 1984;94(2):176-178. 4. Doty RL. Olfactory dysfunction and its measurement in the clinic. *World J Otorhinolaryngol Head Neck Surg*. 2015;1(1):28-33. 5. Sino-Nasal Outcome Test (SNOT-22). St Louis, MO: Washington University; 2006. 6. Lund VJ, Kennedy DW. Staging for rhinosinusitis. *Otolaryngol Head Neck Surg*. 1997;117(3 pt 2):S35-S40.