

# A descriptive analysis of demographic and clinical characteristics of surgical and non-surgical patients with chronic rhinosinusitis with nasal polyps (CRSwNP) within US clinical practice

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## Background & Objective

- Chronic rhinosinusitis with nasal polyps (CRSwNP) is an inflammatory disease of the nasal sinuses that is frequently associated with recurrent and uncontrolled symptoms.
- Topical and oral corticosteroids (OCS) are standard treatments for CRSwNP, though OCS use is associated with substantial adverse side effects and cost.<sup>1,2</sup>
- While sino-nasal surgery can improve quality of life, efficacy is limited and many patients require revision surgery.<sup>3</sup>
- There is ambiguity as to which patients are candidates for surgery, and this is further complicated by the lack of disease severity definitions and control criteria.<sup>3</sup>
- Using a real-world ear, nose, and throat (ENT) dataset, this study describes characteristics of patients who get surgery compared to those managed non-surgically.

The objective of this real-world study was to characterize demographic and clinical characteristics of CRSwNP patients in the US based on their surgery status post-diagnosis.

## Methods

- This retrospective longitudinal study used Lynx.MD's electronic medical record (EMR) data from ENT specialists covering more than 250,000 CRS patients in the northeast United States (US)
- Patients with a CRSwNP diagnosis were identified between 07/2018-12/2022. The first visit for nasal polyps with an otolaryngologist was the index date.
- Inclusion criteria: Patients ≥12 years old at index with ≥3 physician visits and ≥12-months follow-up post-index.
- Exclusion criteria: Patients with a previous CRSwNP diagnosis or evidence of sino-nasal surgery prior to the first diagnosis.
- Patients were stratified by receipt of sino-nasal surgery during follow-up.
- Descriptive assessments of demographic and clinical characteristics across surgical and non-surgical groups were performed. Between groups differences were evaluated using chi-square and t-tests.

## Results

- Mean follow-up time was similar for surgical (897.2 [SD 392.4] days) and non-surgical groups (907.8 [SD 381.7] days).
- Among those who had surgery, the average time to surgery from NP diagnosis was 270.83 (SD 312.92) days.
- Relative to the non-surgical group, those in the surgical group were younger (47.4 [SD 16.1] vs 51.5 years [SD 17.0]; p<0.001) primarily male (55.8% vs 48.8%; p<0.001). Age and race distribution are shown in Figures 2 & 3, respectively.
- Relative to the non-surgical group, the surgical group had more patients insured commercially and by Medicaid. The non-surgical group had more patients insured by Medicare.

## Results Cont.

Figure 1: Patient Attrition Diagram

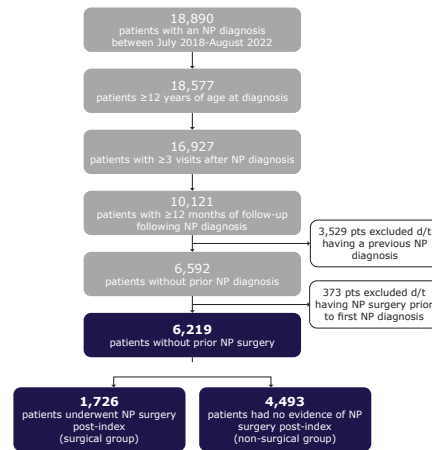


Figure 4: Presence of atopy-related comorbidities in surgical vs non-surgical patients

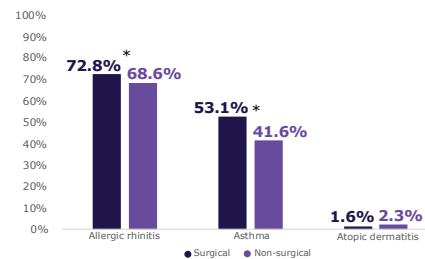
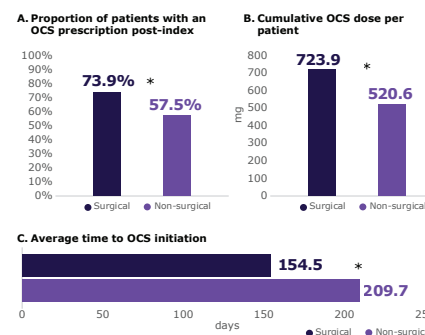


Figure 6: OCS use among surgical vs non-surgical patients



Excludes perioperative use of OCS. A: Proportion of patients with an OCS prescription post-index (n=1,275 in surgical group; n=2,582 in non-surgical group). B: Of those with OCS prescription, average cumulative OCS dose (mg) per patient. C: Average time to OCS initiation post-index (days) among those who received an OCS prescription (n=1,275 in surgical group; n=2,582 in non-surgical group). Mean follow-up time was 897.2 days for surgical and 907.8 days for non-surgical groups.

\*Indicates significant difference between surgical and non-surgical groups

Figure 2: Age distribution for surgical and non-surgical patients

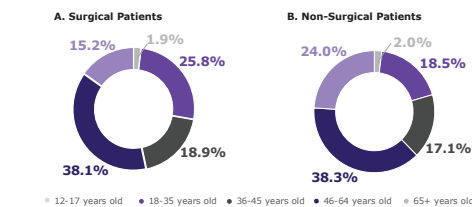


Figure 3: Race distribution for surgical and non-surgical patients

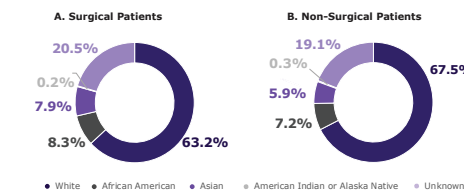


Figure 5: Presence of symptoms in surgical vs non-surgical patients post-diagnosis

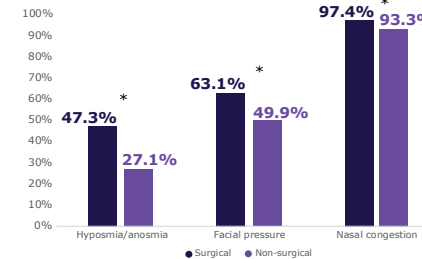
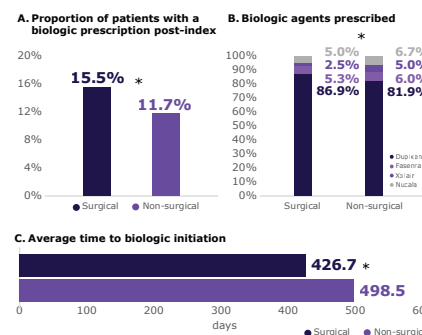


Figure 7: Biologic use among surgical vs non-surgical patients



A: Proportion of patients with a biologic prescription post-index (n=268 in surgical group; n=526 in non-surgical group). B: Biologic use as a proportion of total biologic prescriptions (n=282 in surgical group; n=565 in non-surgical group). Note: patients could be prescribed more than 1 agent during the study period. Biologic agents with <1.0% use are not shown. C: Average time (days) to biologic initiation post-index among those who received a biologic

## Limitations

- Data is from EMRs in specialty clinics. Encounters that occurred outside of these clinics are not captured, which could lead to underestimation of NP surgery and other procedures.
- Some data were extracted from clinical notes using natural language processing, which may lead to misclassification and underreporting.
- The dataset used may not be generalizable to the broader US population.

## Conclusion

- CRSwNP patients who underwent surgery were younger on average and more likely to be male.
- This analysis highlights increased comorbidities, OCS use, and biologic use in CRSwNP patients who underwent surgery in the US compared to those who did not.
- Use of OCS was more prevalent and occurred sooner in surgical patients, and these patients had a cumulative dose of nearly 2.5 times more than non-surgical patients.
- Use of biologics occurred more often and were initiated sooner in surgical patients. The majority of biologic prescriptions in both surgical and non-surgical patients were for Dupixent.

## REFERENCES

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## ABBREVIATIONS

CRSwNP: chronic rhinosinusitis with nasal polyps  
EMR: electronic medical record  
ENT: ear, nose, and throat  
NP: nasal polyps  
OCS: oral corticosteroids  
SD: standard deviation  
US: United States