

UC San Diego Health

Revision rates after endoscopic sinus surgery: a large database analysis

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Background

- Chronic rhinosinusitis (CRS) is common, direct/indirect cost: 23 billion.
- U.S. epidemiological/prevalence data for endoscopic sinus surgery (ESS) and **revision ESS** is limited, despite impact on quality-of-life and costs.
- We used data from Healthcare Cost and Utilization Project (HCUP), specifically the **State Ambulatory Surgery and Services Database (SASD)** to better understand:
 - (1) **rate of revision ESS**
 - (2) **time to revision** and
 - (3) **relevant patient characteristics** associated with revision.



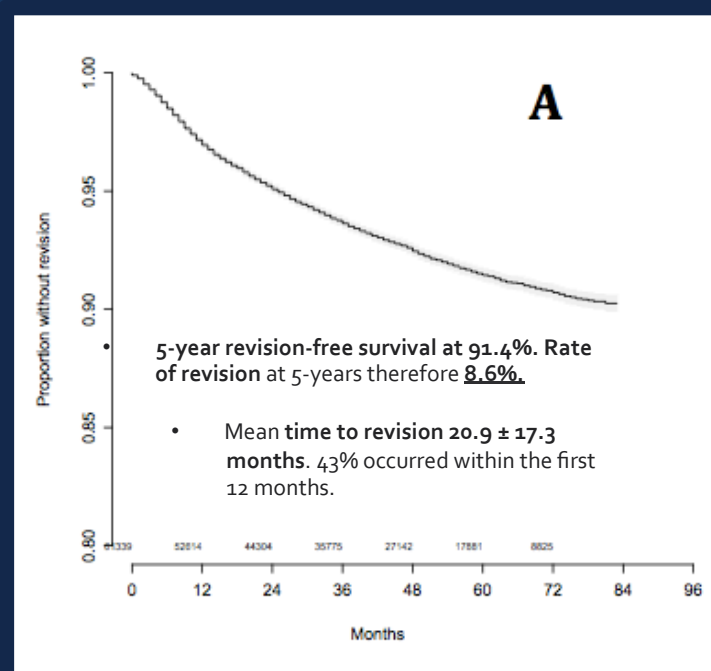
Objective: to characterize the true burden of revision ESS and highlight associated contributing factors.

Results

Table 1. Baseline characteristics. Patient data split by those who underwent a revision surgery vs. those who did not. Data presented as the number of patients, and percentage of total (i.e. 30.92% of patients who did not have revision surgery had nasal polyps). T-test was performed for age. All other analyses are logistic regression yielding odds ratios with 95% confidence intervals.

Parameter	Total (N=61,339)	No revision (N=57,261)	Revision (N=4,078)	OR (95% CI)	P-value
Nasal Polyps - no. (%)	19093 (31.1)	17703 (30.9)	1390 (34.1)	1.16 (1.08-1.24)	<0.001
Age - yr (mean ± SD)	49.21 ± 14.77	49.20 ± 14.81	49.35 ± 14.20		0.512
Female sex - no. (%)	28310 (46.2)	26259 (45.9)	2051 (50.3)	1.19 (1.12-1.27)	<0.001
Ethnicity - no. (%)					
White	38863 (63.4)	36260 (63.3)	2603 (63.8)	1.02 (0.96-1.09)	0.517
Black	1310 (2.1)	1213 (2.1)	97 (2.4)	1.13 (0.91-1.39)	0.267
Hispanic	6289 (10.3)	5917 (10.3)	372 (9.1)	0.87 (0.78-0.97)	0.014
Asian	3002 (4.9)	2820 (4.9)	182 (4.5)	0.90 (0.77-1.05)	0.187
Native	26 (.04)	26 (.05)	0	NA	0.174
Other	11849 (19.3)	11025 (19.3)	824 (20.2)	1.06 (0.98-1.15)	0.137
Insurance - no. (%)					
Public	12696 (20.7)	11841 (20.7)	855 (21.0)	1.02 (0.94-1.10)	0.662
Private	46609 (76.0)	43545 (76.0)	3064 (75.1)	0.95 (0.88-1.02)	0.188
Income - no. (%)					
First quartile	9431 (15.4)	8828 (15.4)	603 (14.8)	0.95 (0.87-1.04)	0.281
Second quartile	13665 (22.3)	12797 (22.4)	868 (21.3)	0.94 (0.87-1.02)	0.115
Third quartile	16235 (26.5)	15115 (26.4)	1120 (27.5)	1.06 (0.98-1.13)	0.135
Fourth quartile	20791 (33.9)	19385 (33.9)	1406 (34.5)	1.03 (0.96-1.10)	0.416
Urban setting	55979 (91.3)	52221 (91.2)	3758 (92.1)	1.13 (1.01-1.28)	0.037

Significant differences ($P < 0.05$) in bold type



Discussion

Nasal Polyps

- Supports literature that the presence of **nasal polyps increase the rate of revision surgery**.
- Unclear if it is due to the pathophysiology of disease or if there are variables within the surgeons control (ie. extent of surgery).

Gender

- Asthma literature demonstrates gender **differences in health care utilization, with women seeking care sooner** and with **more clinic visits**.
- Female gender may impart **increased disease severity**, prior studies postulate influence of estrogen on the immune response (CRSwNP).

Ethnicity

- Prior research (Soler 2012) has shown that Hispanics are:
 - Less likely to be insured.
 - Less likely to see a specialist.
 - More likely to delay medical care due to cost.

- ⁴ • **Suggests inherent systemic issues** irrespective of the above that need to be further studied.

Summary

- **61,339** patients were identified who underwent outpatient ESS in CA between 2005-2011.
- **4,078** patients underwent revision ESS. *Largest study to date.*
- Revision-free survival at 5 years was **91.4%**, or revision rate of **8.6%**.
- Patient with **nasal polyps** and **women** were *more likely* to undergo revision surgery.
- Patients of **Hispanic** ethnicity were *less likely* to undergo revision surgery.
- Findings illustrate the need for further investigation in *cultural and gender-based differences in CRS and ESS within the U.S. health system.*

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Thank you!

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