CASE WESTERN RESERVE UNIVERSITY
School of Medicine

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Impact of Metformin on Chronic Rhinosinusitis Development and Complications in Patients with Type 2 Diabetes

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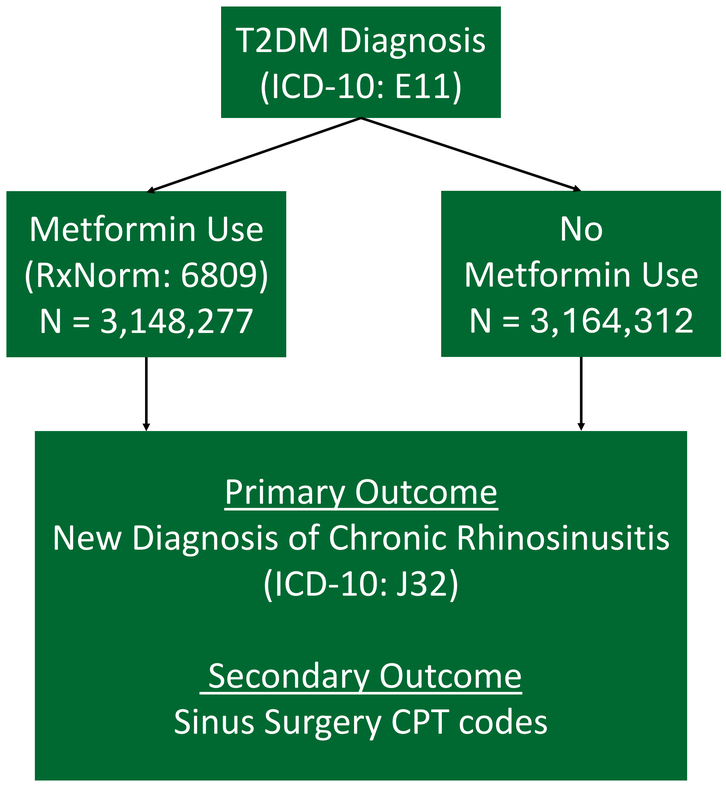
BACKGROUND

- Metformin is the most commonly prescribed medication for Type 2 Diabetes Mellitus (T2DM).
- The effects of Metformin on sinonasal mucosa and its relationship to Chronic Rhinosinusitis (CRS) are not well understood.
- *Objective: To evaluate how Metformin use influences the development and complications of CRS in patients with T2DM.*

METHODS

- Utilized TriNetX data from 2004-2024
- Identified patients utilizing ICD-10, RxNorm, and CPT codes
- Excluded patients with CRS prior to T2DM diagnosis
- Groups were matched via 1:1 propensity score matching based on age, sex, race, BMI, and HbA1c levels
- Analyses included Kaplan–Meier, log-rank, and Cox proportional hazards models

RESULTS



Metformin vs Controls	Hazard Ratio	p value
Development of CRS	1.20 (1.19-1.21)	< 0.0001
Sinus Surgery	0.90 (0.88-0.93)	< 0.0001

CONCLUSIONS

- T2DM patients on Metformin show a slightly increased risk of developing CRS. However, when CRS occurs, these patients are less likely to require surgery.
- Metformin may contribute to milder CRS manifestations or reduced disease progression, despite increased incidence. Therefore, Metformin may have a protective or modulatory effect on CRS severity.
- Future studies should investigate the mechanistic relationship between Metformin use and CRS severity, including its potential anti-inflammatory or immunomodulatory effects on sinonasal mucosa.

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