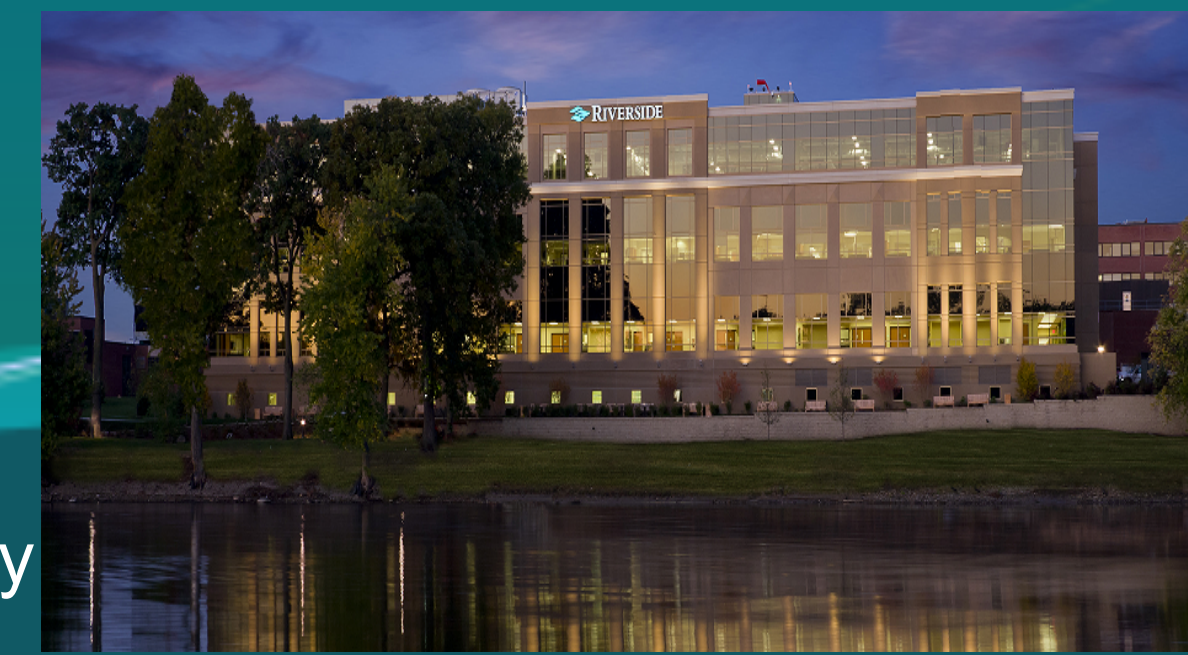




Changes in Tobacco Usage in Patients Taking GLP-1 Receptor Agonists or GIP/GLP-1 Receptor Agonists

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Background

Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) were FDA-approved for type 2 diabetes (T2D) management in 2005 and later for weight management in 2014. Since their introduction, GLP-1 RAs have demonstrated benefits beyond diabetes and obesity, including improved cardiovascular, renal, and metabolic health, such as nonalcoholic steatohepatitis.^{1,2} The newer GIP/GLP-1 RA class offers expanded treatment options for T2D and obesity. Moreover, the presence of GLP-1 receptors in the brain suggests that GLP-1 RAs may offer even further benefits, such as aiding in smoking cessation.³

Mechanisms of Action²

- Delays gastric emptying
- Inhibits glucagon production in a glucose-dependent manner
- Direct and indirect effects on the central nervous system (CNS) impacting satiety

Role in Smoking Cessation

Nicotine use, regardless of delivery method, remains a significant global health concern, with 49.2 million users in the US and 7.7 million deaths globally.^{8,9} Despite the desire of nearly 68% of cigarette smokers to quit, the success rate remains below 10% even with pharmacological interventions.³

GLP-1 RAs may offer a novel approach to managing tobacco use disorder. By acting on dopaminergic neurons in the ventral tegmental area, GLP-1 RAs suppress nicotine-induced dopamine release in the nucleus accumbens, thereby reducing its rewarding effects.⁴

Proposed Benefits for Smoking Cessation

- Reduction in withdrawal induced hyperphagia
- Reduction of post-cessation weight gain (PCWG)
- Reduce nicotine cravings

Purpose

To evaluate the effectiveness of GLP-1 and GIP/GLP-1 RAs in promoting smoking cessation in real-world setting.

Disclosure Information Nothing to disclose

Study Design

Methods: Retrospective chart review of patients prescribed GLP-1 RA or GIP/GLP-1 RA for obesity or T2D from 12/01/2016 – 09/01/2024 and receiving care at Riverside Medical Group.

Objectives:

- Primary: To determine if there is a significant change in tobacco usage in patients taking GLP-1 or GIP/GLP-1 RAs
- Secondary: Time to tobacco use cessation, weight change, and to identify predictors for smoking cessation.

Inclusion	Exclusion
<ul style="list-style-type: none">• ≥ 18 years• Prescribed one of the five GLP-1 or GIP/GLP-1 RAs (semaglutide, liraglutide, dulaglutide, exenatide, tirzepatide)• Documented to be taking and adherent to medication for ≥ 1 month• Documented tobacco use (chewing tobacco, cigarette, cigar)	<ul style="list-style-type: none">• No documentation of medication adherence• No documentation of tobacco usage• Repeat patients• No follow up appointment or consistent medication adherence within 6 months of starting medication

Data Collection

Data Collection – Age, race, sex, baseline weight, medication prescribed, date medication initiation, indication, route, dose, baseline smoking status, concomitant smoking cessation medications, previous smoking cessation attempts, tobacco/nicotine product used



Tobacco Use & Weight Documentation Intervals:

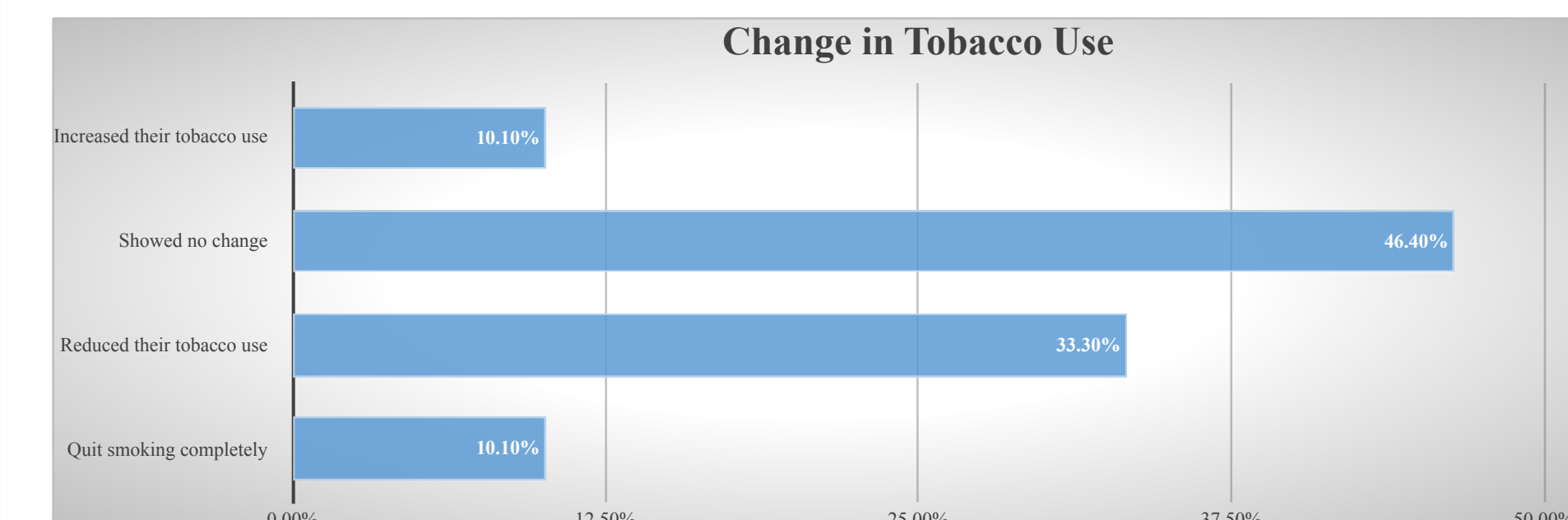
- 1-2.9 months
- 3-5.9 months
- 6-8.9 months
- 9-11.9 months
- 12 months

Results

Enrollment: 300 charts identified from 12/01/2016 – 09/01/2024. 69 charts met inclusion criteria.

- **Medications:** semaglutide (n = 30); dulaglutide (n = 28), liraglutide (n = 9), and others (n = 2).

Primary Outcome: Reduction in tobacco use from baseline (0.72 PPD) to final follow-up (0.54 PPD), with a mean decrease of 0.18 PPD [0.18 (0.08, 0.28) p < 0.001].



Secondary Outcomes:

- Time-to-Cessation: Kaplan-Meier analysis showed an 87% probability of continued smoking at 10.5 months (95% CI: 0.79–0.96).
- Weight Change: Mean weight change was - 4.43 kg.
- No significant predictors of smoking cessation were identified via Cox proportional hazards model.

Conclusions

Treatment with GLP-1 and GIP/GLP-1 receptor agonists led to a significant 25% reduction in daily tobacco use, though cessation rates remained low (87% still smoking at 10.5 months). Patients lost an average of 4.43 kg, avoiding the typical weight gain seen with cessation. Prescribing limitations, including the exclusion of tirzepatide and exenatide, were likely influenced by RMC documentation, insurance, and cardiovascular trials. Incomplete smoking status documentation restricted the study's scope, potentially underestimating the medications' impact. Standardized reporting is essential for more accurate future research.

References

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