



# Predictors of Surgical Delay in Symptomatic Cholelithiasis



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## Introduction and Hypothesis

- Gallstone disease affects 20 million people yearly in the United States. However, some are unable to access timely follow-up.
- AIM:** To investigate independent factors that predict delayed cholecystectomy in patients presenting to the ED with symptomatic cholelithiasis.
- Hypothesis:** Social drivers of health contribute to patient's inability to access timely cholecystectomy

## Methods

- We performed a retrospective cohort analysis of patients discharged from the ED with symptomatic cholelithiasis using ICD-10 codes between 2017 and 2025.
- Variables included: sex, age, race, ethnicity, language, insurance and PCP status, social vulnerability index (SVI), OR time, and days to surgery.
- Patients were stratified into three groups by surgical timing: <2 days, between 2 and 31 days, and >31 days (delayed).
- ANOVA and chi-squared were performed for univariate analysis. A binomial regression was performed to predict delayed cholecystectomy.

## Results

- Of 1370 total patients who had surgery, 374 had surgery within <2 days, 467 were between 2 and 31 days, and 529 underwent delayed management.
- Univariate analysis demonstrated significant differences in PCP status ( $p < .01$ ), sex ( $p < .01$ ), primary language ( $p < .01$ ), insurance status ( $p < .04$ ), and SVI ( $p < .03$ ) between treatment groups.
- No significant differences were noted between age ( $p = .36$ ), OR time ( $p = .51$ ), and BMI ( $p = .95$ ) across groups.
- After adjustment, female sex (aOR: 1.45; 95% CI: 1.05-2.01;  $p = .03$ ), non-English speaking (aOR: 2.19; 95% CI: 1.41-3.42;  $p < .01$ ), non-Caucasian race (aOR: 1.53; 95% CI: 1.12-2.11;  $p < .01$ ), and no PCP (aOR: 0.65; 95% CI: 0.46-0.91;  $p = 0.014$ ) were associated with increased odds of delayed cholecystectomy (Figure 1).

## Conclusions

- Biliary disease is a common indication for surgery.
- Current standard of care fails many patients.
- These data support female sex, non-English speaking, and non-Caucasian race are independently associated with increased odds of delayed cholecystectomy.
- Not having a PCP was associated with lower odds of surgical delay.
- Social drivers of health should be incorporated into surgical decision making

## Future Directions

- Future research should investigate additional drivers of differences in surgical timing
- Future directions include development of risk stratification tool for patients at risk of delayed cholecystectomy
- Risk stratification tool should be developed and used by surgeons to guide decision making in which patients may/may not benefit from expedited cholecystectomy
- Qualitative interviews of patients with recurrent symptomatic cholelithiasis and its complications to gain insight into patients perspective

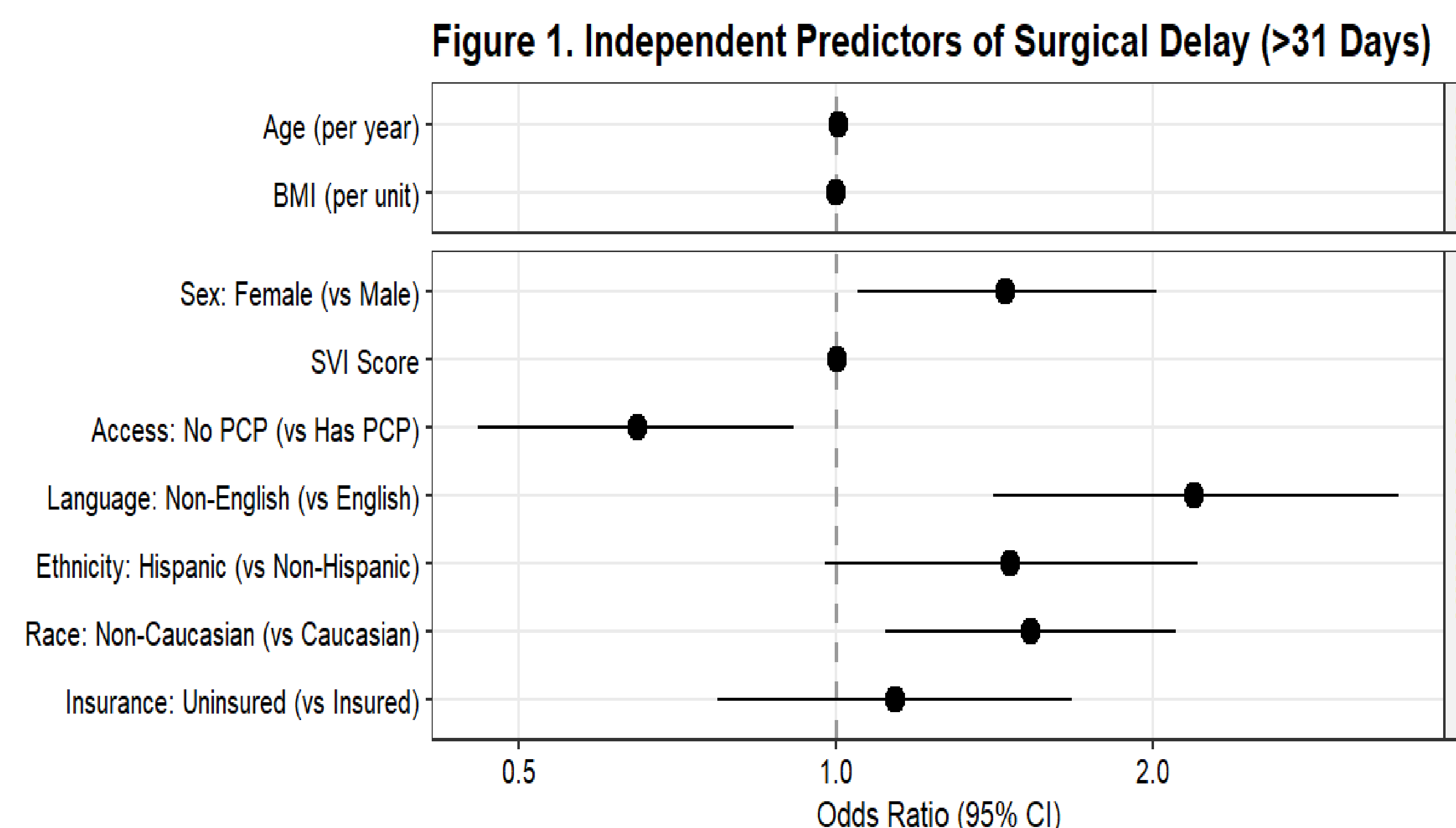


Figure 1. Forest Plot demonstrating clinical and socioeconomic factors independently associated with delayed Cholecystectomy