Title: *Comparative Effectiveness of Famotidine in Hospitalized COVID-19 Patients*

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Multiple comparisons and analyses show no consistent effect of famotidine on death among COVID-19 hospitalized patients

INTRO:

- **Famotidine (Pepcid®), a histamine-2 receptor antagonist,, has been posited as a potential treatment for COVID-19**
- **Existing evidence ~~has~~ been limited to single-institutional explorations of small samples with varying statistical methods and inconsistent results**
- **Compared the incidence of COVID-19 outcomes among famotidine user's vs**
  - **Proton pump inhibitors (PPIs)**
  - **Hydroxychloroquine (HCQ), or**
  - **Famotidine non-users**

METHODS

- **A retrospective cohort study using data from COVID-19 Premier Hospital Database.**
- **The three exposure: Patients dispensed any medication containing one of the three drugs on the day of admission.**
- **Non-user group: Patients with no history of exposure to any drug with famotidine prior to or on the day of admission.**
- **Intention-to-treat: starting 1 day to 30 days after admission**
- **Fit a propensity score model through large-scale regularized logistic regression. And utilized diagnostics to evaluate potential bias.**

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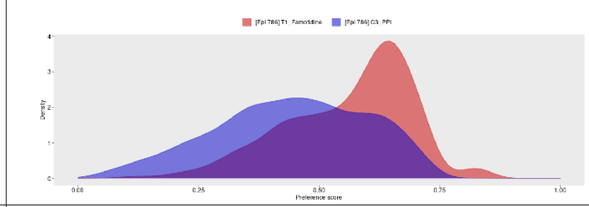
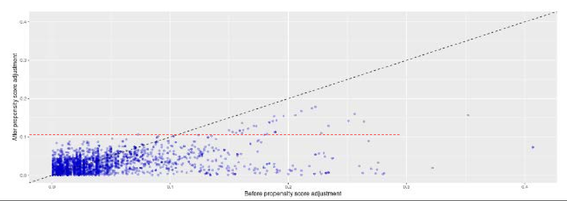
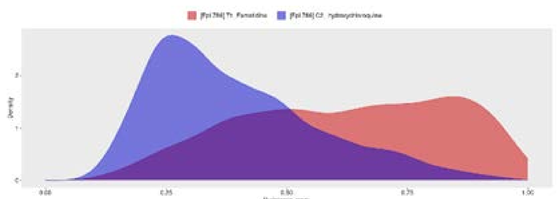
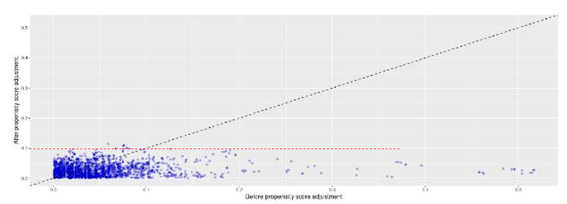
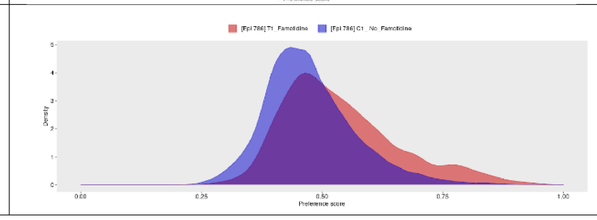
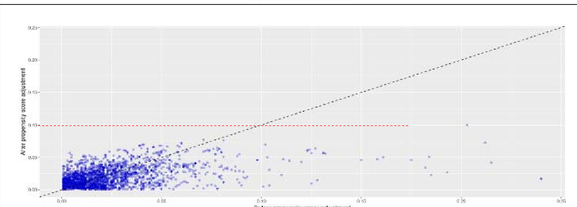
Comparator	Propensity score distribution	Covariate balance
PPI		
HCQ		
non-users		

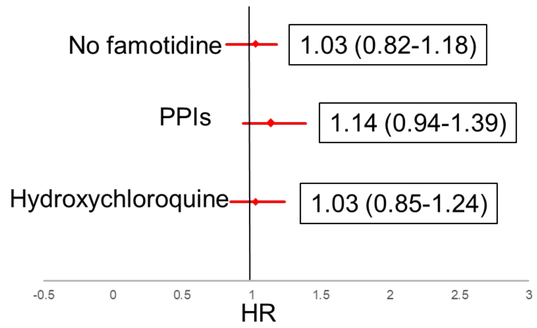
RESULTS

- **Diagnostics showed different covariate distribution across different exposure cohorts**
- **For example. compared to PPI users, prior to propensity score adjustment, famotidine users were younger and had fewer comorbid conditions.**

Table 1. Populations size

	Patients		death events	
	T	C	T	C
Famotidine vs. PPI	1,527	1,855	196	282
Famotidine vs. HCQ	1,186	5,047	159	686
Famotidine vs. non-users	1,623	24,404	214	3923

Figure2: Relative risk of death for famotidine after PS stratification



DISCUSSION:

- **Prior findings, both for positive and no association, could be potentially attributed to confounding and selection bias in comparator selection, two sources of systematic error that our study captured through diagnostics and sought to address through large scale PS adjustment.**