OBJECTIVES
Several studies suggest that taking proton pump inhibitors (PPIs) is associated with a number of serious adverse events that are associated with increased risk of death. The following analysis aims to estimate all-cause mortality among patients taking PPIs and histamine H2 antagonists (H2 blockers).

METHODS
Patients identified through a federated network of electronic medical records were required to have taken PPIs or H2 blockers. Among these two cohorts, patients were required to have two records of these treatments recorded in their medical history at least three months apart. Patients treated with PPIs were matched 1-to-1 with patients treated with H2 blockers on characteristics listed in Table 1, using a greedy nearest-neighbor algorithm. The risk of mortality was measured in the one year, five years, and ten years following treatment. All criteria were defined using ICD9-CM, CPT, and RxNorm terminology. Kaplan-Meier curves and risk ratios (95% CI) were used to compare the cohorts.

RESULTS
The mean age was 54.4 ± 18.8 (N=1,455,638) and 48.6 ± 22.7 (N=448,446) among PPI- and H2 blocker-treated patients. In the matched analysis (N=448,446), H2 blocker-treated patients were 0.89 (0.778,0.941), 0.8 (0.785,0.815), and 0.799 (0.786,0.812) more likely to die than PPI patients in the one year, five years, and ten years following treatment. The survival probability was 0.25%, 1.34%, and 2.35% higher in PPI-treated patients than in H2-treated patients in the one year, five years, and ten years following treatment (all with p<0.05).

CONCLUSIONS
Results suggest that taking H2 blockers is associated with a small increased risk of mortality. This burden is observed in patients with and without an indication for PPI or H2 blocker use. PPIs were not associated with an increased risk of death, in contrast to other studies. This difference may be due to a broader and less selective patient population or use of different controls. Further research is needed to understand underlying causes of mortality.