pared with never users. Cumulative use was not associated with increased odds of acute pancreatitis (P for trend among users = .49). Use of other antiarrhythmic drugs was not associated with acute pancreatitis (Table 2).

Discussion | In this study of health care utilization data, use of amiodarone but not of other antiarrhythmic drugs was associated with a 50% increased odds of acute pancreatitis among patients with NVAF. The odds were almost doubled in the 12 months after amiodarone therapy initiation and did not depend on cumulative use of amiodarone. Considering an incidence of acute pancreatitis of 3 to 4 cases per 10,000 adults per year, the observed association would result in approximately 1 to 2 additional cases of acute pancreatitis per 10,000 amiodarone users per year. A few isolated case reports of acute pancreatitis possibly linked to amiodarone use have been described in the literature. The mechanisms responsible for this association are unknown, although direct cytotoxicity or immune-mediated pathways, as described for amiodarone-related pulmonary toxic effects, could be potential explanations.

Strengths of our study include the prospective assessment of medication use, the large sample size, and the availability of information on comorbidities and use of other medications potentially associated with increased risk of acute pancreatitis. Limitations are related to the use of health care utilization data: limited information on the validity of claims for acute pancreatitis, absence of clinical variables that characterize severity of the episode (eg, blood markers of acute pancreatitis), and the select group of patients included in this database.

Our results indicate that acute pancreatitis could be an adverse effect of amiodarone use, an effect that may not be shared by other antiarrhythmic drugs. Even though the absolute risk of acute pancreatitis in the general population is low, health care professionals should be aware of this potential association in the treatment of patients with NVAF or acute pancreatitis. Further research should replicate our findings and determine potential mechanisms.

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Falls and Fractures With Atypical Antipsychotic Medication Use: A Population-Based Cohort Study

Antipsychotic medications are commonly used in elderly persons to treat dementia and other behavioral disturbances. Several articles have linked these medications to an increased risk of fracture. It is unclear whether this fracture risk is limited to older conventional antipsychotic medications or if the risk extends to newer atypical antipsychotics because the newer drugs remain associated with orthostatic hypotension, gait abnormalities, and sedation (all of which may increase the risk of falling). We conducted a population-based study to better understand the risk of falls and fracture associated with atypical antipsychotic medications.

Methods | We used linked health care administrative databases housed at the Institute for Clinical Evaluative Sciences in the province of Ontario, Canada, which provides universal health care for its citizens. Hwang et al recently examined the association between the use of atypical antipsychotics and kidney injury (the study methods are fully described in that article); we used this same cohort for the current study. In brief, adults 65 years and older who received a new outpatient prescription for an oral atypical antipsychotic (quetiapine, risperidone, or olanzapine) between June 1, 2003, and December 31, 2011, were matched 1 to 1 with individuals who did not receive such a prescription. The cohort was followed up for 90 days to assess fracture and fall outcomes with hospital presentation, identified by diagnosis and procedure codes in hospital discharge, same-day surgery, and ambulatory care databases. We followed a prespecified protocol that was approved for this study, which was supported by the National Institutes of Health Center (Dr Alonso).
In this population-based study of older adults, we confirm that risk exists among the atypical antipsychotic class. Although previous results have been mixed, several articles5-8 have identified fall and fracture risk as complications of new antipsychotic medication use. Our findings complement these articles and confirm the association with a large study involving almost 200 000 individuals. Similarly, there has been previous disagreement about the type of antipsychotic medications associated with fracture risk6-8; we confirm that risk exists among the atypical antipsychotic class.

We identified a similar increase in hospital visits with falls and osteoporotic fractures. Atypical antipsychotic medications have been found previously to be associated with hypotension, sedation, and gait abnormalities5-6; therefore, it is possible that falls are the mechanism by which these drugs increase fracture risk.

Our large population-based study provides estimates of associations with narrow 95% CIs. Although this study was limited in that the 2 groups were matched (on baseline morbidity and severity of psychiatric medication was associated with a 52% increased risk of a serious fall and a 50% increased risk of a nonvertebral osteoporotic fracture.

### Results
A total of 195 554 individuals were studied. As described previously, matching resulted in 2 well-balanced groups that showed no meaningful differences in 91 measured baseline characteristics. Additional characteristics relating to fracture risk were also well balanced (Table 1). New outpatient atypical antipsychotic medication use was associated with an increased 90-day risk of nonvertebral osteoporotic fracture, hip fracture, a broader definition of fractures, and hospital visit with a fall (Table 2; see footnote for outcome definitions). Subgroup analyses found that the risk of fracture and falling was unaffected by the specific atypical antipsychotic medication used, high vs low dosage, or whether the individual lived in a long-term care facility or in the community.

### Discussion
In this population-based study of older adults, we found that receiving a new prescription of an atypical antipsychotic medication was associated with a 52% increased risk of a serious fall and a 50% increased risk of a nonvertebral osteoporotic fracture.
Orders for Intravenous Proton Pump Inhibitors After Implementation of an Electronic Alert

Proton pump inhibitors (PPIs) are highly effective in treating gastric acid–related disorders but are often overused.1 Intravenous (IV) PPIs are expensive compared with oral PPIs and have few absolute indications; more than half of hospitalized patients prescribed IV PPIs could instead receive oral PPIs.2 Health information technologies have the potential to improve physician ordering of medications but have not been applied to IV PPIs.3

Methods | This study was approved by the institutional review board of Columbia University with a waiver of consent. On October 21, 2011, our institution (Columbia University Medical Center) introduced an alert that was triggered by all IV PPI orders, excluding continuous infusion PPIs. Esomeprazole is our institution's only formulary PPI; therefore, the alert applied only to orders for esomeprazole. The alert explains that oral PPIs cost one-tenth as much as IV PPIs, yet they are 90% bioavailable. The response of health care professionals to the alert was automatically captured. Our primary outcome was a change in the proportion of all PPIs given intravenously during 1 year before the alert compared with 1 year after the alert, which we assessed retrospectively using an interrupted time-series analysis.4 No other interventions were made related to PPI ordering during the study period. Multivariable logistic regression modeling was performed to assess predictors of an IV compared with an oral PPI order, stratified by alert period. To characterize orders in terms of indications, we randomly selected 50 medical records from before alert implementation and 50 medical records from after alert implementation. We then classified IV PPI orders as indicated or not indicated based on criteria derived from current guidelines.

Results | During the 2-year study period, there were 65,078 completed orders for PPIs, including 10,050 of 33,520 orders (30.0%) for IV PPIs before alert implementation and 7,247 of 31,558 orders (23.0%) for IV PPIs after implementation ($\chi^2$ test, $P < .001$), representing a 7.0% absolute and 23.4% relative reduction in the proportion of IV PPIs (Figure). During the year before the alert, the proportion of IV PPI orders completed decreased a mean of 0.7% monthly ($P = .049$). After adjusting for the trend in IV PPI use before the alert, the proportion of IV PPI orders completed remained significantly decreased after implement-