Table 1. Physician and Patient Characteristics, by Physician Sex[a]

Characteristic	Female Physicians (n = 18 751)	Male Physicians (n = 39 593)
Physicians		
Age, mean (SD), y	42.8 (9.4)	47.8 (11.4)
Years of experience since completion of residency, mean (SD), y	11.6 (8.7)	16.4 (10.9)
Credentials, No. (%)		
MD (allopathic)	17 174 (91.6)	36 823 (93.0)
DO (osteopathic)	1577 (8.4)	2770 (7.0)
Annual hospitalizations per physician, No.[b]	131.9	180.5
Patients		
No. of patients	415 559	1 200 296
Age, mean (SD), y	80.8 (8.5)	80.6 (8.5)
Female, No. (%)	258 091 (62.1)	722 038 (60.2)
Race/ethnicity, No. (%)		
White	336 879 (81.1)	973 507 (81.1)
Black	45 949 (11.1)	126 593 (10.6)
Hispanic	19 605 (4.7)	65 186 (5.4)
Other	13 126 (3.2)	35 010 (2.9)
Annual household income, mean (SD), $	59 570 (23 839)	55 841 (22 007)
Medicaid coverage, No. (%)	96 275 (23.2)	294 940 (24.6)
Coexisting conditions, No. (%)		
Congestive heart failure	82 693 (19.9)	241 113 (20.1)
Chronic obstructive pulmonary disease	101 966 (24.5)	315 736 (26.3)
Diabetes	131 640 (31.7)	388 833 (32.4)
Renal failure	91 745 (22.1)	261 492 (21.8)
Neurologic disorders	65 085 (15.7)	192 980 (16.1)
Cancer	30 469 (7.3)	83 704 (7.0)
Mental illness	65 286 (15.7)	182 815 (15.2)

[a] P < .001 for all comparisons.

[b] Estimated assuming that the proportion of Medicare beneficiaries with Medicare Advantage plans is 30%, and Medicare beneficiaries comprise 40% of all hospitalizations in the United States.

Table 2. Association Between Physician Sex and 30-Day Patient Mortality and Readmissions

Characteristic	No. of Hospitalizations (No. of Physicians)	Patient Outcomes, % (95% CI)		Adjusted Risk Difference, % (95% CI)[a]	P Value
		Female Physicians	Male Physicians		
30-d Mortality rate					
Model 1: risk-adjusted 30-d mortality rate[b]	1 583 028 (57 896)	10.82 (10.71 to 10.93)	11.49 (11.42 to 11.56)	-0.67 (-0.80 to -0.54)	<.001
Model 2: Model 1 + hospital fixed effects	1 583 024 (57 896)	10.91 (10.81 to 11.01)	11.46 (11.40 to 11.52)	-0.55 (-0.67 to -0.42)	<.001
Model 3: Model 2 + physician characteristics	1 283 621 (46 201)	11.07 (10.95 to 11.19)	11.49 (11.43 to 11.56)	-0.43 (-0.57 to -0.28)	<.001
30-d Readmission rate					
Model 1: risk-adjusted 30-d readmission rate[b]	1 540 797 (57 876)	15.01 (14.89 to 15.14)	15.57 (15.49 to 15.65)	-0.55 (-0.71 to -0.41)	<.001
Model 2: Model 1 + hospital fixed effects	1 540 797 (57 876)	15.00 (14.89 to 15.13)	15.57 (15.50 to 15.64)	-0.56 (-0.70 to -0.42)	<.001
Model 3: Model 2 + physician characteristics	1 249 210 (46 205)	15.02 (14.88 to 15.15)	15.57 (15.49 to 15.64)	-0.55 (-0.71 to -0.39)	<.001

[a] Adjusted risk differences between female and male phyisicans. SEs were clustered at the physician level.

[b] Risk adjustment using patients' age, sex, race, primary diagnosis, coexisting conditions (Elixhauser comorbidity index), median household income, Medicaid status, and year indicators.

Physician Sex and Patient Mortality

The final sample for the analyses of 30-day mortality rates included 1 583 028 hospitalizations treated by 57 896 physicians. Overall 30-day mortality for the entire sample was 179 162 (11.32%). Patients cared for by female physicians had lower 30-day mortality than did patients treated by male physicians (10.82% vs 11.49%; risk difference [RD], -0.67%; 95% CI, -0.80% to -0.54%; P < .001; number needed to treat [NNT] to prevent 1 death, 149) after accounting for patient characteristics (Table 2). The difference in mortality persisted after adjustment for hospital fixed effects (female physicians, 10.91% vs male physicians, 11.46%; adjusted RD, -0.55%; 95% CI, -0.67% to -0.42%;