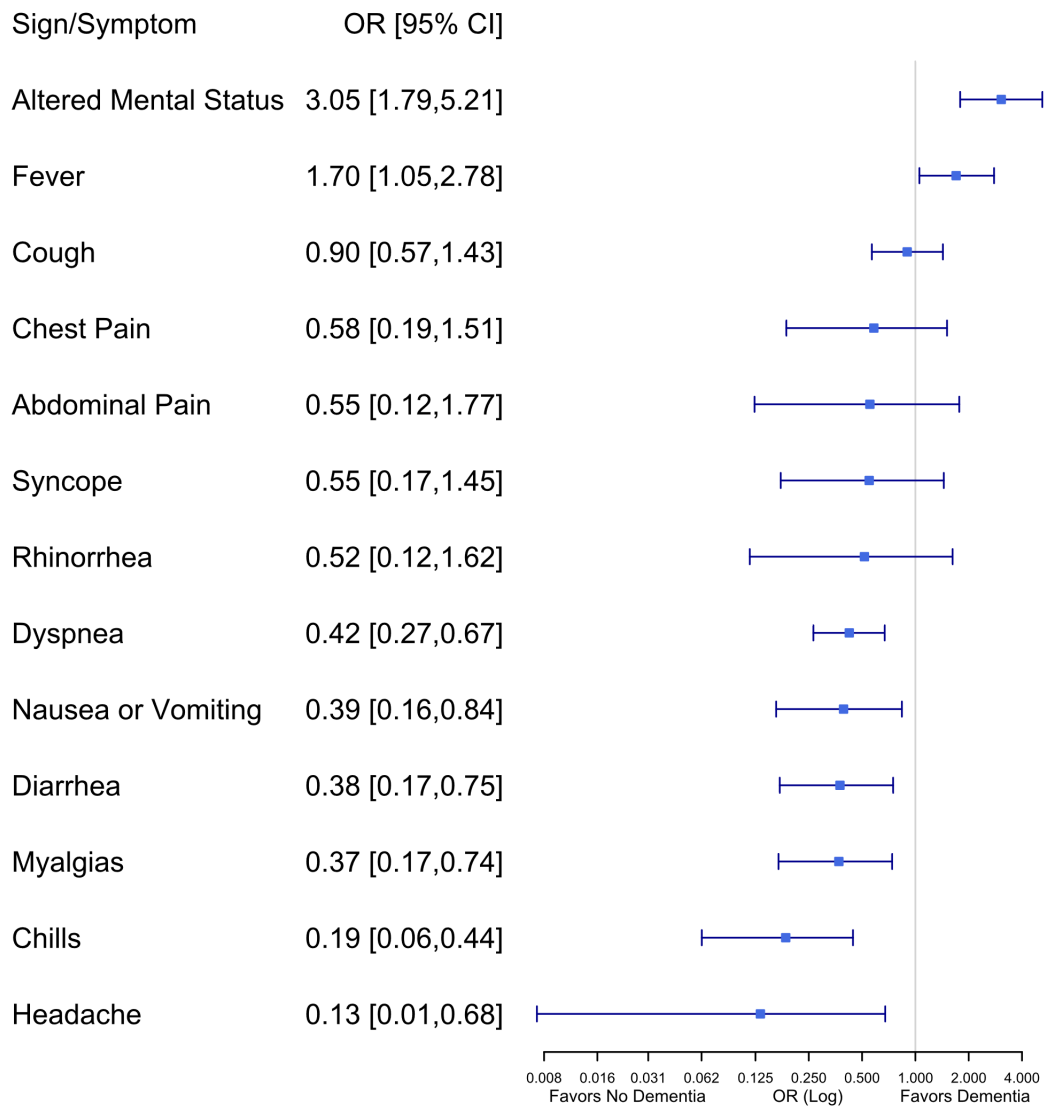# Supplementary Material

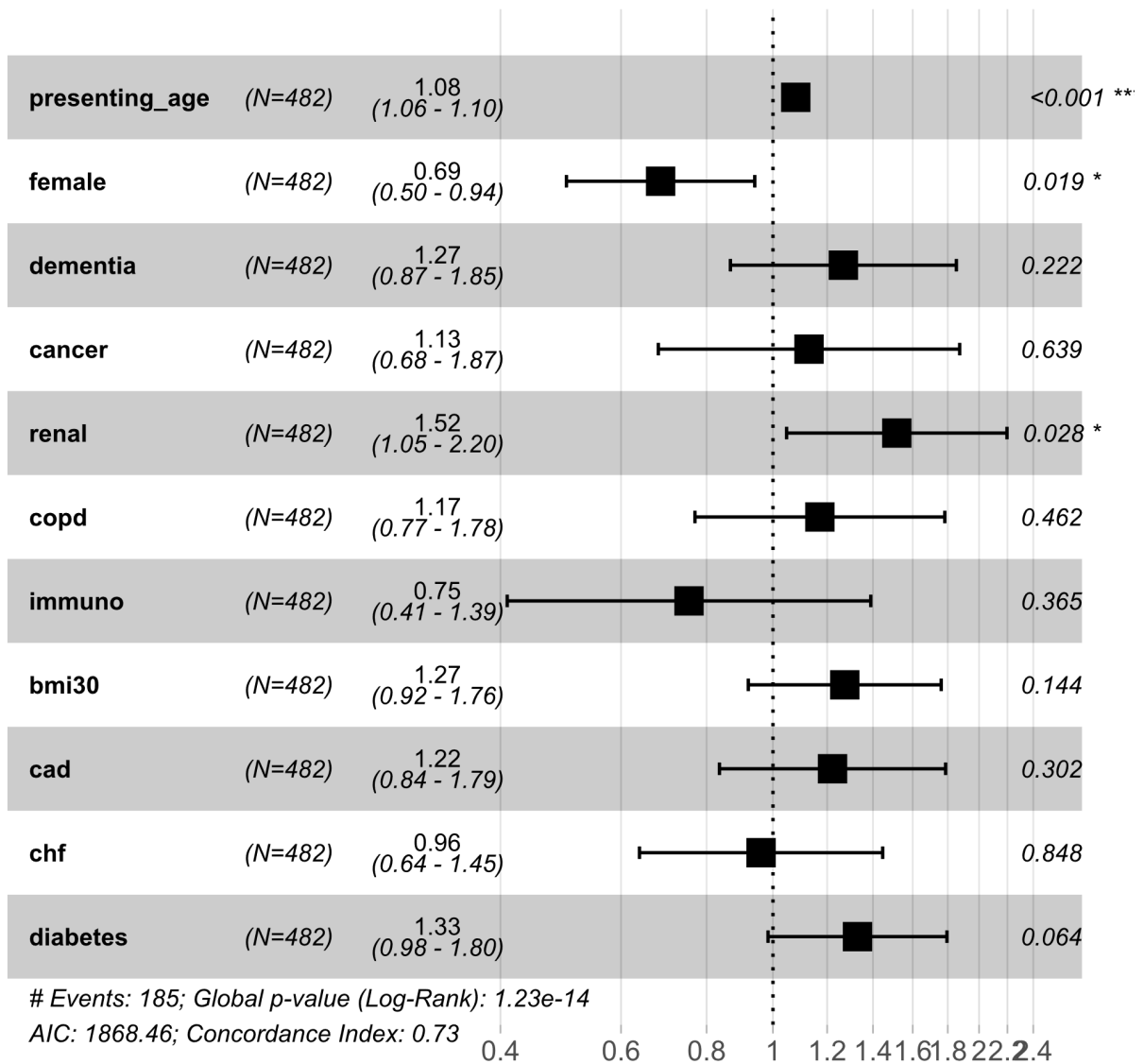**Clinical Features and Outcomes of Patients with Dementia Compared to an Aging Cohort Hospitalized During the Initial New York City COVID-19 Wave**

Supplementary Figure 1. Odds of COVID-19 Symptoms Relative to Dementia History, Adjusted for Age and Sex

Sign/Symptom	OR [95% CI]
Altered Mental Status	3.05 [1.79,5.21]
Fever	1.70 [1.05,2.78]
Cough	0.90 [0.57,1.43]
Chest Pain	0.58 [0.19,1.51]
Abdominal Pain	0.55 [0.12,1.77]
Syncope	0.55 [0.17,1.45]
Rhinorrhea	0.52 [0.12,1.62]
Dyspnea	0.42 [0.27,0.67]
Nausea or Vomiting	0.39 [0.16,0.84]
Diarrhea	0.38 [0.17,0.75]
Myalgias	0.37 [0.17,0.74]
Chills	0.19 [0.06,0.44]
Headache	0.13 [0.01,0.68]

0.008 0.016 0.031 0.062 0.125 0.250 0.500 1.000 2.000 4.000
Favors No Dementia   OR (Log)   Favors Dementia
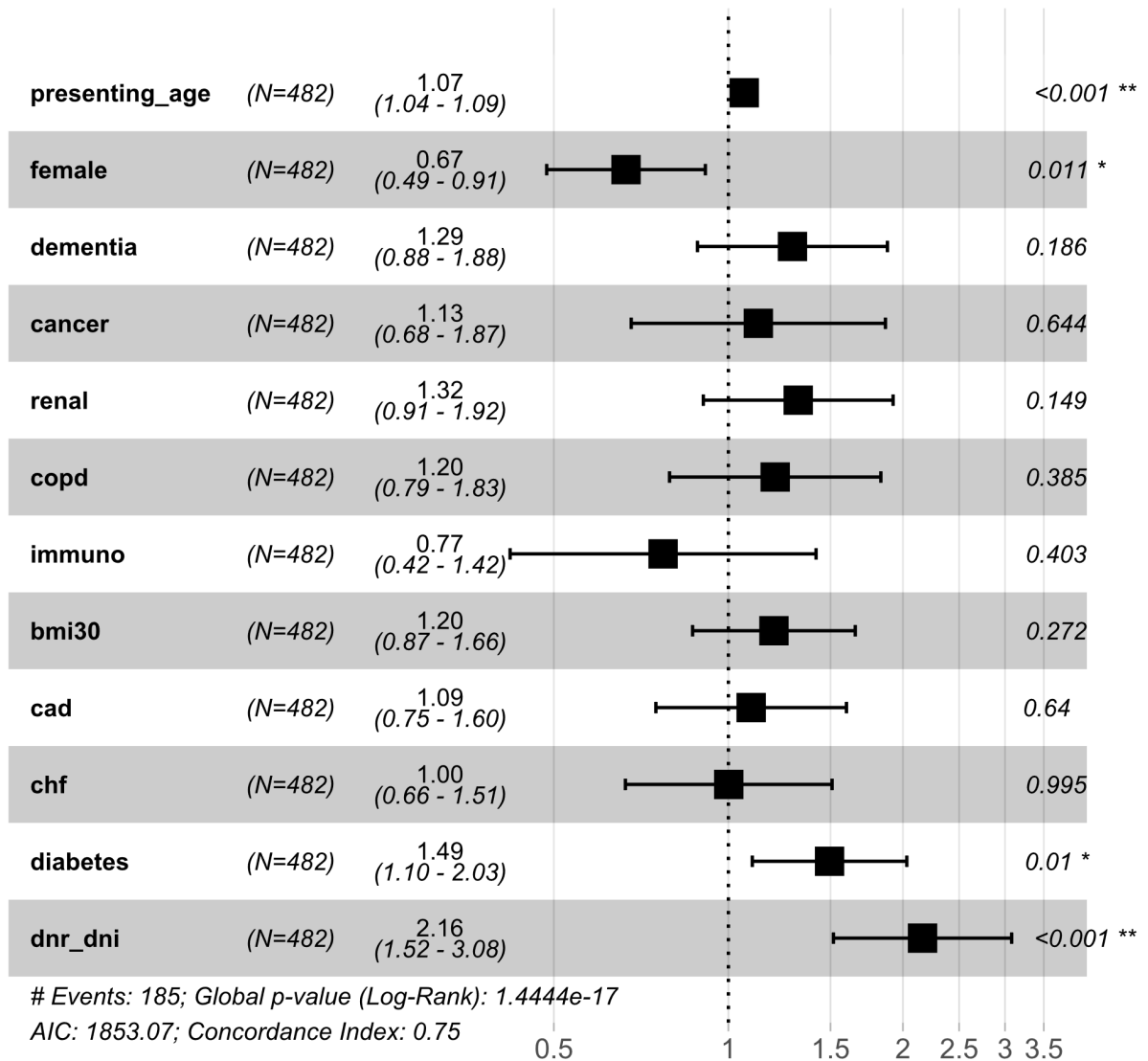
Post-hoc multiple logistic regression for each sign and symptom as the outcome after adjusting for age, sex, and dementia status is presented in a forest plot. Signs and symptoms are ordered from highest to lowest odds ratios with 95% profile confidence intervals. Delirium (altered mental status) was approximately 3 times more likely in patients with previously diagnosed dementia after adjusting for age and sex.

Supplementary Figure 2. Forest Plot of Hazard Ratios for In-Hospital Mortality Following COVID-19, Adjusted for Age, Sex, and CDC-Defined Comorbidities of Increased Risk for Serious COVID-19 Illness (Model 3)

presenting_age	*(N=482)*	1.08 (1.06 - 1.10)		*<0.001 ***
female	*(N=482)*	0.69 (0.50 - 0.94)		*0.019 **
dementia	*(N=482)*	1.27 (0.87 - 1.85)		*0.222*
cancer	*(N=482)*	1.13 (0.68 - 1.87)		*0.639*
renal	*(N=482)*	1.52 (1.05 - 2.20)		*0.028 **
copd	*(N=482)*	1.17 (0.77 - 1.78)		*0.462*
immuno	*(N=482)*	0.75 (0.41 - 1.39)		*0.365*
bmi30	*(N=482)*	1.27 (0.92 - 1.76)		*0.144*
cad	*(N=482)*	1.22 (0.84 - 1.79)		*0.302*
chf	*(N=482)*	0.96 (0.64 - 1.45)		*0.848*
diabetes	*(N=482)*	1.33 (0.98 - 1.80)		*0.064*

 # Events: 185; Global p-value (Log-Rank): 1.23e-14
AIC: 1868.46; Concordance Index: 0.73
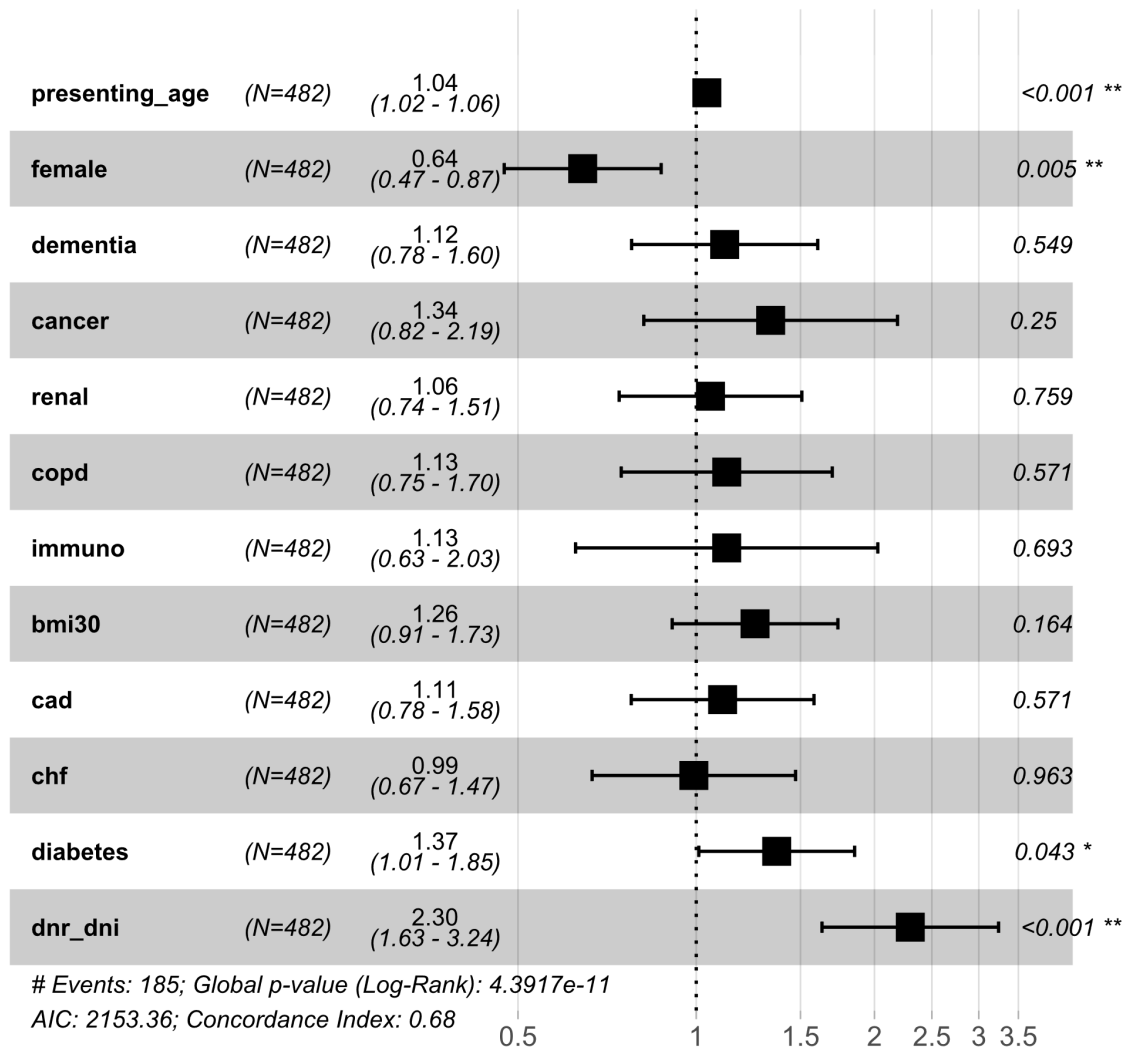
0.4   0.6   0.8   1   1.2 1.4 1.6 1.8 2 2.2 2.4

Hazard ratios from our multivariate Cox model without code status are presented with 95% confidence intervals and p-values in a forest plot. Presenting age (per year), male sex, and chronic kidney disease/end-stage renal disease were significantly associated with in-hospital mortality. presenting_age, integer age of patient at presentation to the emergency department; renal, chronic kidney disease/end-stage renal disease; copd, chronic obstructive pulmonary disease; immuno, immunosuppression; bmi30, obesity; cad, coronary artery disease; chf, congestive heart failure

Supplementary Figure 3A. Forest Plot of Hazard Ratios for In-Hospital Mortality Following COVID-19, Adjusted for all Covariates of Model 3 and Consistent DNR/DNI Status (Fully Adjusted, Model 4)

presenting_age	(N=482)	1.07 (1.04 - 1.09)	<0.001 **
female	(N=482)	0.67 (0.49 - 0.91)	0.011 *
dementia	(N=482)	1.29 (0.88 - 1.88)	0.186
cancer	(N=482)	1.13 (0.68 - 1.87)	0.644
renal	(N=482)	1.32 (0.91 - 1.92)	0.149
copd	(N=482)	1.20 (0.79 - 1.83)	0.385
immuno	(N=482)	0.77 (0.42 - 1.42)	0.403
bmi30	(N=482)	1.20 (0.87 - 1.66)	0.272
cad	(N=482)	1.09 (0.75 - 1.60)	0.64
chf	(N=482)	1.00 (0.66 - 1.51)	0.995
diabetes	(N=482)	1.49 (1.10 - 2.03)	0.01 *
dnr_dni	(N=482)	2.16 (1.52 - 3.08)	<0.001 **

 # Events: 185; Global p-value (Log-Rank): 1.4444e-17
AIC: 1853.07; Concordance Index: 0.75

Hazard ratios from our multivariate Cox model with code status are presented with 95% confidence intervals and p-values in a forest plot. Presenting age (per year), male sex, diabetes, and consistent Do-Not-Resuscitate/Do-Not-Intubate status were significantly associated with in-hospital mortality. presenting_age, integer age of patient at presentation to the emergency department; renal, chronic kidney disease/end-stage renal disease; copd, chronic obstructive pulmonary disease; immuno, immunosuppression; bmi30, obesity; cad, coronary artery disease; chf, congestive heart failure; dnr_dni, consistent Do-Not-Resuscitate/Do-Not-Intubate status

Supplementary Figure 3B. Sensitivity Analysis of Model 4

presenting_age	(N=482)	1.04 (1.02 - 1.06)		<0.001 **
female	(N=482)	0.64 (0.47 - 0.87)		0.005 **
dementia	(N=482)	1.12 (0.78 - 1.60)		0.549
cancer	(N=482)	1.34 (0.82 - 2.19)		0.25
renal	(N=482)	1.06 (0.74 - 1.51)		0.759
copd	(N=482)	1.13 (0.75 - 1.70)		0.571
immuno	(N=482)	1.13 (0.63 - 2.03)		0.693
bmi30	(N=482)	1.26 (0.91 - 1.73)		0.164
cad	(N=482)	1.11 (0.78 - 1.58)		0.571
chf	(N=482)	0.99 (0.67 - 1.47)		0.963
diabetes	(N=482)	1.37 (1.01 - 1.85)		0.043 *
dnr_dni	(N=482)	2.30 (1.63 - 3.24)		<0.001 **

Events: 185; Global p-value (Log-Rank): 4.3917e-11
AIC: 2153.36; Concordance Index: 0.68

0.5   1   1.5   2   2.5   3 3.5

Hazard ratios from our final multivariate Cox model with code status after sensitivity analysis are presented with 95% confidence intervals and p-values in a forest plot. Discharged alive patients were considered event-free in this model and only censored at the maximum length of stay value in this study, which was approximately 100 days. Although the hazard ratio magnitudes varied from Supplementary Figure 3A, presenting age (per year), male sex, diabetes, and consistent Do-Not-Resuscitate/Do-Not-Intubate status were still significantly associated with in-hospital mortality in this sensitivity analysis. presenting_age, integer age of patient at presentation to the emergency department; renal, chronic kidney disease/end-stage renal disease; copd, chronic obstructive pulmonary disease; immuno, immunosuppression; bmi30, obesity; cad, coronary artery disease; chf, congestive heart failure; dnr_dni, consistent Do-Not-Resuscitate/Do-Not-Intubate status