



### Prevalence, Treatment, and Outcomes Associated With OSA Among Patients Hospitalized With Pneumonia

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e-Table 1. List of charge codes used to identify mechanical ventilation and vasopressors

Noninvasive Mechanical Ventilation	Invasive Mechanical Ventilation	Vasopressors
CIRCUIT CPAP/BIPAP	CIRCUIT VENTILATOR	DOPAMINE
MASK CPAP	TUBING VENTILATOR	EPINEPHRINE
BIPAP SETUP	VENTILATOR HI FREQUENCY SETUP	VASOPRESSIN
CPAP SETUP	VENTILATOR SETUP	NOREPINEPHRINE
PILLOW BIPAP VENT L	VENTILATOR PRESSURE SETUP	PHENYLEPHRINE
PILLOW BIPAP VENT M	VENTILATOR PER DAY	
PILLOW BIPAP VENT S	VENTILATOR FIRST DAY	
MASK BIPAP	VENTILATOR INITIAL SHIFT	
BIPAP INITIAL SHIFT	VENTILATOR SUBSEQUENT DAY	
BIPAP PER HR	VENTILATOR HI FREQUENCY PER HR	
BIPAP PER SHIFT	VENTILATOR 3 HR	
BIPAP/CPAP CHECK	VENTILATOR PER SHIFT	
CPAP INITIAL SHIFT	VENTILATOR PER HR	
CPAP PER DAY	PF VENTILATOR FIRST DAY	
CPAP TREATMENT	PF VENTILATOR SUBSEQUENT DAY	
CPAP W/AEROSOL PER SHIFT		
CPAP PER SHIFT		
CPAP INITIATION/MANAGEMENT		
CPAP 3 HR		
CPAP PER HR		

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e-Table 2. Full model output from mortality regression model

Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-2.18	0.05	-2.28	-2.08	-43.09	<.0001
Sleep apnea	-0.10	0.04	-0.18	-0.03	-2.62	0.0088
HCAP	0.64	0.02	0.60	0.67	38.66	<.0001
CAP	Referent					
<i>Age group</i>						
18 - 24 years	-1.93	0.13	-2.18	-1.67	-14.79	<.0001
25 - 34 years	-1.69	0.09	-1.85	-1.52	-19.78	<.0001
35 - 44 years	-1.25	0.06	-1.37	-1.14	-21.97	<.0001
45 - 54 years	-0.95	0.04	-1.03	-0.88	-24.02	<.0001
55 - 64 years	-0.58	0.03	-0.64	-0.52	-18.30	<.0001
65 - 74 years	-0.40	0.02	-0.45	-0.35	-16.14	<.0001
75 - 84 years	-0.18	0.02	-0.22	-0.14	-8.40	<.0001
85+ years	Referent					
<i>Gender</i>						
Male	0.09	0.02	0.06	0.13	5.71	<.0001
Female	Referent					
<i>Marital status</i>						
Single	0.03	0.02	0.00	0.07	1.86	0.0633
Other/Missing	0.12	0.04	0.05	0.19	3.22	0.0013
Married	Referent					
<i>Insurance payor</i>						
Medicaid	0.16	0.04	0.09	0.23	4.33	<.0001
Managed care	-0.11	0.03	-0.17	-0.04	-3.34	0.0008
Commercial-Indemnity	-0.04	0.05	-0.14	0.05	-0.86	0.3872
Other	0.04	0.04	-0.04	0.13	0.95	0.3403
Medicare	Referent					
<i>Admitting physician specialty</i>						
Critical Care Medicine - Pulmonary diseases	0.68	0.03	0.62	0.75	20.13	<.0001
Family Practice						
Internal and Geriatric medicine	-0.09	0.03	-0.16	-0.03	-2.94	0.0032
Hospitalist	-0.15	0.03	-0.20	-0.10	-5.76	<.0001
Other specialty	-0.17	0.03	-0.23	-0.10	-5.01	<.0001
	Referent					

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### Comorbidity

Congestive heart failure	0.31	0.02	0.26	0.35	14.51	<.0001
Valvular disease	-0.31	0.03	-0.37	-0.24	-9.13	<.0001
Pulmonary circulation disease	0.28	0.03	0.22	0.35	8.34	<.0001
Peripheral vascular disease	0.06	0.03	0.00	0.13	1.92	0.0544
Hypertension	-0.70	0.02	-0.74	-0.66	-36.67	<.0001
Paralysis	0.18	0.05	0.09	0.27	3.90	<.0001
Chronic pulmonary disease	-0.22	0.02	-0.25	-0.19	-13.47	<.0001
Diabetes	-0.22	0.02	-0.27	-0.18	-10.29	<.0001
Hypothyroidism	-0.24	0.03	-0.30	-0.19	-8.83	<.0001
Liver disease	0.59	0.05	0.49	0.69	11.72	<.0001
Lymphoma	0.06	0.06	-0.07	0.18	0.90	0.3676
Metastatic cancer	1.01	0.04	0.94	1.08	28.65	<.0001
Solid tumor without metastasis	0.34	0.04	0.26	0.43	8.30	<.0001
Arthritis	-0.19	0.05	-0.28	-0.09	-3.69	0.0002
Obesity	-0.14	0.04	-0.22	-0.06	-3.54	0.0004
Weight loss	0.72	0.03	0.67	0.78	27.80	<.0001
Deficiency anemias	-0.20	0.02	-0.25	-0.16	-9.86	<.0001
Drug abuse	-0.52	0.09	-0.70	-0.34	-5.59	<.0001
Psychoses	-0.31	0.05	-0.41	-0.21	-6.10	<.0001
Depression	-0.36	0.03	-0.42	-0.30	-11.46	<.0001
Renal failure	0.33	0.02	0.29	0.38	13.58	<.0001
Atrial fibrillation	0.38	0.02	0.34	0.41	20.37	<.0001

### Hospital bed size

≤200 beds	-0.15	0.05	-0.24	-0.06	-3.33	0.0009
201-400 beds	0.04	0.04	-0.03	0.12	1.15	0.2504
≥401 beds	Referent					

### Hospital region

Northeast	0.08	0.04	0.00	0.17	1.91	0.0567
Midwest	-0.17	0.04	-0.25	-0.09	-4.11	<.0001
West	-0.03	0.04	-0.12	0.05	-0.70	0.484
South	Referent					

### Hospital teaching status

Teaching	0.13	0.04	0.05	0.20	3.40	0.0007
Non-teaching	Referent					

AUROC = 0.74



e-Table 3. Full model output from late intubation regression model

Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr >  Z
Intercept	-3.53	0.06	-3.65	-3.41	-56.40	<.0001
Sleep apnea	0.52	0.04	0.44	0.60	13.07	<.0001
HCAP	0.30	0.02	0.25	0.34	12.78	<.0001
CAP	Referent					
<i>Age groups</i>						
18 - 24 years	0.16	0.12	-0.07	0.39	1.35	0.18
25 - 34 years	0.38	0.08	0.23	0.54	4.80	<.0001
35 - 44 years	0.48	0.07	0.35	0.61	7.35	<.0001
45 - 54 years	0.79	0.05	0.69	0.89	15.20	<.0001
55 - 64 years	0.81	0.05	0.72	0.90	17.21	<.0001
65 - 74 years	0.71	0.04	0.63	0.79	17.40	<.0001
75 - 84 years	0.51	0.04	0.43	0.58	13.19	<.0001
85+ years	Referent					
<i>Insurance payor</i>						
Medicaid	0.05	0.05	-0.04	0.14	1.16	0.25
Managed care	-0.14	0.04	-0.22	-0.07	-3.69	0.00
Commercial-Indemnity	0.02	0.06	-0.10	0.13	0.28	0.78
Other	-0.19	0.05	-0.30	-0.09	-3.64	0.00
Medicare	Referent					
<i>Admitting physician specialty</i>						
Critical Care Medicine - Pulmonary diseases	0.50	0.05	0.41	0.60	10.17	<.0001
Family Practice						
Internal and Geriatric medicine	-0.13	0.04	-0.22	-0.05	-2.99	0.0028
Hospitalist	-0.12	0.04	-0.19	-0.04	-3.15	0.0016
Other specialty	-0.14	0.05	-0.23	-0.05	-3.02	0.0025
	Referent					
<i>Comorbidity</i>						
Congestive heart failure	0.23	0.03	0.17	0.29	7.30	<.0001
Pulmonary circulation disease	0.35	0.05	0.26	0.44	7.81	<.0001
Hypertension	-0.83	0.03	-0.88	-0.77	-29.46	<.0001
Paralysis	0.21	0.07	0.08	0.34	3.17	0.00
Neurological disorders	-0.34	0.04	-0.42	-0.25	-7.72	<.0001
Chronic pulmonary disease	-0.02	0.02	-0.06	0.02	-0.90	0.37
Diabetes	-0.20	0.03	-0.26	-0.14	-6.56	<.0001
Hypothyroidism	-0.39	0.04	-0.47	-0.31	-9.21	<.0001
Liver disease	0.34	0.07	0.21	0.46	5.14	<.0001
Solid tumor without metastasis	-0.27	0.07	-0.41	-0.13	-3.87	0.00
Arthritis	-0.25	0.07	-0.38	-0.12	-3.65	0.00
Weight loss	1.08	0.04	1.01	1.15	30.57	<.0001

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Blood loss	0.48	0.11	0.27	0.70	4.40	<.0001
Deficiency anemias	0.00	0.03	-0.06	0.05	-0.14	0.89
Psychoses	-0.16	0.06	-0.28	-0.04	-2.60	0.01
Depression	-0.42	0.04	-0.51	-0.34	-9.60	<.0001
Renal failure	0.30	0.04	0.23	0.37	8.19	<.0001
Atrial fibrillation	0.49	0.03	0.43	0.54	17.43	<.0001
<i>Hospital bedsize</i>						
≤200 beds	-0.34	0.06	-0.46	-0.22	-5.49	<.0001
201-400 beds	0.04	0.05	-0.06	0.13	0.77	0.44
≥401 beds	Referent					
<i>Hospital urban/rural status</i>						
Rural	-0.35	0.07	-0.48	-0.22	-5.13	<.0001
Urban	Referent					

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AUROC = 0.71