

COVID-19 Exposure, Treatment Patterns, and Healthcare Utilization in US Long-Term Care Retrospective EHR Study

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Introduction:

- LTC residents are typically elderly, frail, and living with multiple chronic conditions
- ~75% of COVID-19 deaths occur in individuals ≥65 years old, a population projected to double in size by 2050
- Understanding gaps in care will help inform how to best deliver preventative therapy after COVID-19 exposure and ↓ mortality

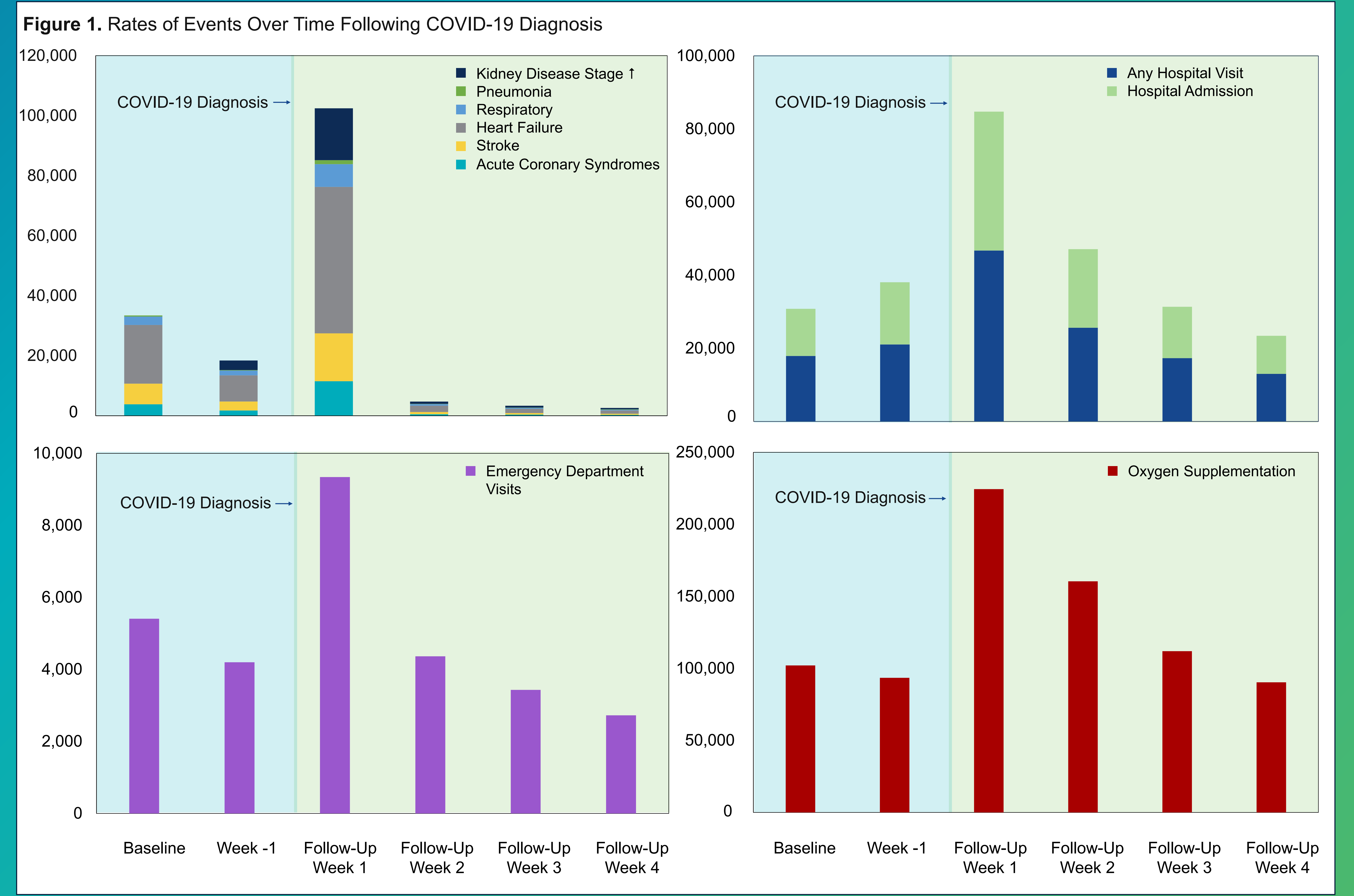
Methods:

- We used PointClickCare’s EHR clinical database of ~14M LTC residents in the US
- ICD codes for COVID-19 exposure (Z20.822) and COVID-19 diagnosis (U07.1 or U07.2) were used
- Medication orders were used to identify COVID-19 treatment and medication use
- Residency occupancy data was used to assess movement at the room/floor level
- SQL queries were performed to extract relevant data
- All variables were analyzed descriptively
- From 2022 to 2025:
 - 932,821 COVID-19 diagnosis events
 - 143,943 COVID-19 exposure events
 - 350,421 treatment events

Results:

	All Diagnosis Events N = 932,821
Treatment ≤2 Weeks of Onset, n (%)	
No	744,467 (79.81%)
Yes	188,354 (20.19%)
Paxlovid	142,386 (15.26%)
Molnupiravir	52,043 (5.58%)
Remdesivir	863 (0.09%)
Pemivibart	0

Data from up to 900,000 long-term care residents with COVID-19 show:
↑ disease burden: ↑ rates of MACE, hospital visits/admissions, emergency department visits & oxygen supplementation



Discussion:

- COVID-19 in LTC settings can increase burden to a facility and impact STAR ratings
- Several factors can cause barriers to optimal care for LTC residents: limited awareness or access to of appropriate drug therapies and challenges in managing outbreaks

Abbreviations: CDC=Centers for Disease Control and Prevention; COVID-19=coronavirus 2019; D=day; EHR=electronic health record; LTC=long-term care; MACE=major adverse cardiovascular events; OTC=over-the-counter; Q=quartile; Resp=respiratory; Rx=prescription; SD=standard deviation.

Additional Information:

Table 2. Demographic Characteristics			
	COVID-19 Exposure Events N = 143,943	COVID-19 Diagnosis Events N = 932,821	COVID-19 Treatment Events N = 350,421
Age at Incident			
Mean (SD)	72.2 (18.3)	77.2 (13.7)	78.8 (12.1)
Median (Q1, Q3)	75 (66, 84)	79 (70, 87)	80 (71, 88)
Sex, n (%)			
Male	65,166 (45.3%)	393,475 (42.2%)	134,102 (38.3%)
Female	78,740 (54.7%)	539,055 (57.8%)	216,294 (61.7%)
≥1 Diagnosis			
Mean (SD)	19.8 (10.1)	20.6 (10.0)	20.3 (10.3)
Median (Q1, Q3)	18 (13, 25)	19 (14, 25)	19 (13, 25)
≥1 OTC Order			
Mean (SD)	4.3 (3.4)	5.2 (3.6)	6.8 (3.5)
Median (Q1, Q3)	4 (1, 6)	5 (2, 7)	6 (4, 9)
≥1 Rx Order			
Mean (SD)	5.6 (4.5)	7.2 (4.9)	10.0 (4.5)
Median (Q1, Q3)	5 (2, 8)	7 (4, 10)	10 (7, 13)
Days Between Most Recent Vaccination and Incident			
≥1 Vaccine/Event	123,650 (85.9%)	850,001 (91.1%)	350,343 (100.0%)
Mean (SD)	129.9 (148.9)	181.8 (176.3)	202.4 (180.5)
Median (Q1, Q3)	84 (27, 173)	127 (54, 266)	147 (68, 302)
CDC High-Risk Factors for COVID-19			
Has ≥1 CDC High Risk	132,089 (91.8%)	895,421 (96.0%)	337,456 (96.3%)
Diagnosis	Mean (SD)	3.2 (1.9)	3.3 (1.8)
Median (Q1, Q3)	3.0 (2, 4)	3.0 (2, 4)	3.0 (2, 4)
<i>Most Common High-Risk Factors</i>			
Age ≥50	131,742 (91.5%)	902,222 (96.7%)	343,503 (98.0%)
Diabetes Type 2	53,857 (37.4%)	342,409 (36.7%)	122,045 (34.8%)
Heart Conditions	78,188 (54.3%)	540,212 (57.9%)	199,921 (57.1%)
Mental Health Conditions	76,535 (53.2%)	537,278 (57.6%)	209,289 (59.7%)

Table 3. Hospitalization Rates Within The First 2 Weeks Following COVID-19				
Total Diagnosis Events (Without Exposure)	Baseline (D -21 to D -7) N = 628,167	Lead Week (D -6 to D -1) N = 681,481	Follow-up Week 1 (D0 to D7) N = 908,330	Follow-up Week 2 (D8 to D14) N = 826,116
Any Hospital Visit, n (%)				
Mean (SD)	17,931 (2.9%)	21,068 (3.1%)	46,747 (5.2%)	25,643 (3.1%)
Median (Q1, Q3)	1 (1, 1)	1 (1, 1)	1 (1, 1)	1 (1, 1)
ED Visits, n (%)				
Mean (SD)	5,408 (0.9%)	4,199 (0.6%)	9,341 (1.0%)	4,365 (0.5%)
Median (Q1, Q3)	0 (0, 1)	0 (0, 0)	0 (0, 0)	0 (0, 0)
Hospital Admissions, n (%)				
Mean (SD)	12,887 (2.1%)	17,000 (2.5%)	38,007 (4.2%)	21,477 (2.6%)
Median (Q1, Q3)	1 (0, 1)	1 (1, 1)	1 (1, 1)	1 (1, 1)

Figure 2. Lag Time Between Exposure and Resident Movement by Location

