COVID-19–Associated Hospitalizations among Long-Term Care Facility Residents Ages ≥65 Years — COVID-NET, 14 U.S. States, March 2020–January 2022

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BACKGROUND

Adults ages ≥65 years and those with underlying medical conditions, including residents of long-term care facilities (LTCF), are at increased risk for COVID-19–associated hospitalizations and other severe outcomes.

OBJECTIVE

To describe COVID-19–associated hospitalizations among LTCF residents ages ≥65 years.

METHODS

COVID-NET POPULATION

The COVID-19–Associated Hospitalization Surveillance Network (COVID-NET) conducts population-based surveillance for laboratory-confirmed COVID-19–associated hospitalizations in 99 counties across 14 states. Epidemiologic, demographic, and clinical data are collected from more than 300 acute-care hospitals who provide care to residents of a pre-defined surveillance catchment area. COVID-19–associated hospitalizations are defined as a positive clinician-ordered real-time reverse transcription-polymerase chain reaction or rapid antigen detection test result for SARS-CoV-2 during hospitalization or within the 14 days preceding hospitalization.

Patients who test positive for SARS-CoV-2 solely as the result of a patient (self)-administered rapid antigen test without further confirmatory clinical testing do not meet the case definition.

DATA COLLECTION and SAMPLING

Data on age, sex, site, and positive SARS-CoV-2 test date were collected by trained surveillance officers on hospitalized patients of all ages who met the case definition. Clinical and some demographic data, including LTCF residency, underlying medical conditions, discharge diagnoses, code status, and discharge disposition (including death), were collected from an age- and site-stratified random sample of cases.

STATISTICS

A Poisson regression model adjusting for age, race/ethnicity, underlying medical conditions, vaccination status, month of admission, and do-not-resuscitate/intubate-or-provide-comfort-measures-only (DNR/DNI/CMO) code status examined the relationship of LTCF residency to death during COVID-19-associated hospitalization. All percentages presented were weighted to account for sampling and nonresponse.

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Long-term care facility residency is a weak, but significant, independent risk factor for death during COVID-19–associated hospitalization.

RESULTS

Among 11,091 COVID-19–associated hospitalizations among adults ages ≥65 years, 1 in 4 (2,965) were LTCF residents.

- Of those, 54% resided in nursing homes and 27% in assisted living facilities (Table 1)
- LTCF residents were more likely to be female, non-Hispanic White, and ≥85 years of age compared with adults ages ≥65 years who did not reside in a LTCF

Compared to non-residents, LTCF residents were more likely to have ≥3 underlying medical conditions (Figure). Conditions significantly more common among hospitalized LTCF residents included cardiovascular disease, congestive heart failure, neurological conditions, dementia, and renal disease. Non-residents were more likely to have obesity.

TABLE 1. Weighted Percentages of Characteristics among Adults Ages ≥65 Years Hospitalized with Lab-Confirmed COVID-19 by Long-Term Care Facility Residency — COVID-NET, 14 States, March 2020–January 2022

Characteristic		LTCF Residents n=2,965 Weighted % (95% CI)	Non-residents n=8,936 Weighted % (95% CI)
Age group	65–74 years	28.5 (25.2–31.9)	48.8 (46.9–50.7)
	75–84 years	30.7 (27.7–33.9)	34.2 (32.4–36.0)
	≥85 years	40.8 (37.2-44.5)	17.0 (15.6–18.6)
Sex	Male	42.4 (38.8–46.0)	51.6 (49.7–53.5)
	Female	57.6 (54.0–61.2)	48.4 (46.5–50.3)
Race/Ethnicity	White, NH	70.3 (66.7–73.7)	57.8 (55.8–59.7)
	Black, NH	19.0 (16.1–22.1)	21.4 (19.8–23.1)
	American Indian/ Alaska Native, NH	0.5 (0.2–1.0) *	1.2 (0.8–1.6)
	Asian/ Pacific Islander, NH	3.3 (2.0–5.1)	5.4 (4.5–6.4)
	Multiracial, NH	0.7 (0.2–1.8) *	0.6 (0.3–1.2) *
	Hispanic (any race)	4.5 (2.8–6.8)	9.6 (8.6–10.7)
Residence type	Nursing home	53.8 (50.2–57.4)	
	Assisted living	26.8 (23.5–30.3)	
	Rehabilitation	6.4 (4.9–8.2)	
	LTACH	0.1 (0.0–0.3) *	
	Group home	5.8 (4.4–7.5)	
Code status	DNR/DNI/CMO	39.4 (35.7–43.1)	13.4 (12.2–14.7)
Outcome status	In-hospital death	22.8 (20.0–25.9)	14.4 (13.2–15.7)
Vaccination status	Received primary vaccine series	39.0 (32.0–46.3)	30.6 (28.1–33.2)
	Unvaccinated	50.4 (43.0–57.8)	64.7 (62.1–67.3)

Abbreviations: CI = confidence interval; NH = non-Hispanic ethnicity; LTACH = long-term acute care hospital
Not all categories for all variables are shown; some percentages will not sum to 100%.
* Relative standard error >30%.

CONCLUSIONS

In a statistical model accounting for multiple potential confounding factors, LTCF residency in adults ages ≥65 years increases the risk of in-hospital death by 3% and is a weak, but statistically significant, independent risk factor for death during COVID-19–associated hospitalization.

FIGURE. Weighted Percentage of Adults Ages ≥65 Years Hospitalized with Laboratory-Confirmed COVID-19 with Underlying Medical Conditions by Long-Term Care Facility (LTCF) Residency Status — COVID-NET, 14 States, March 2020–January 2022
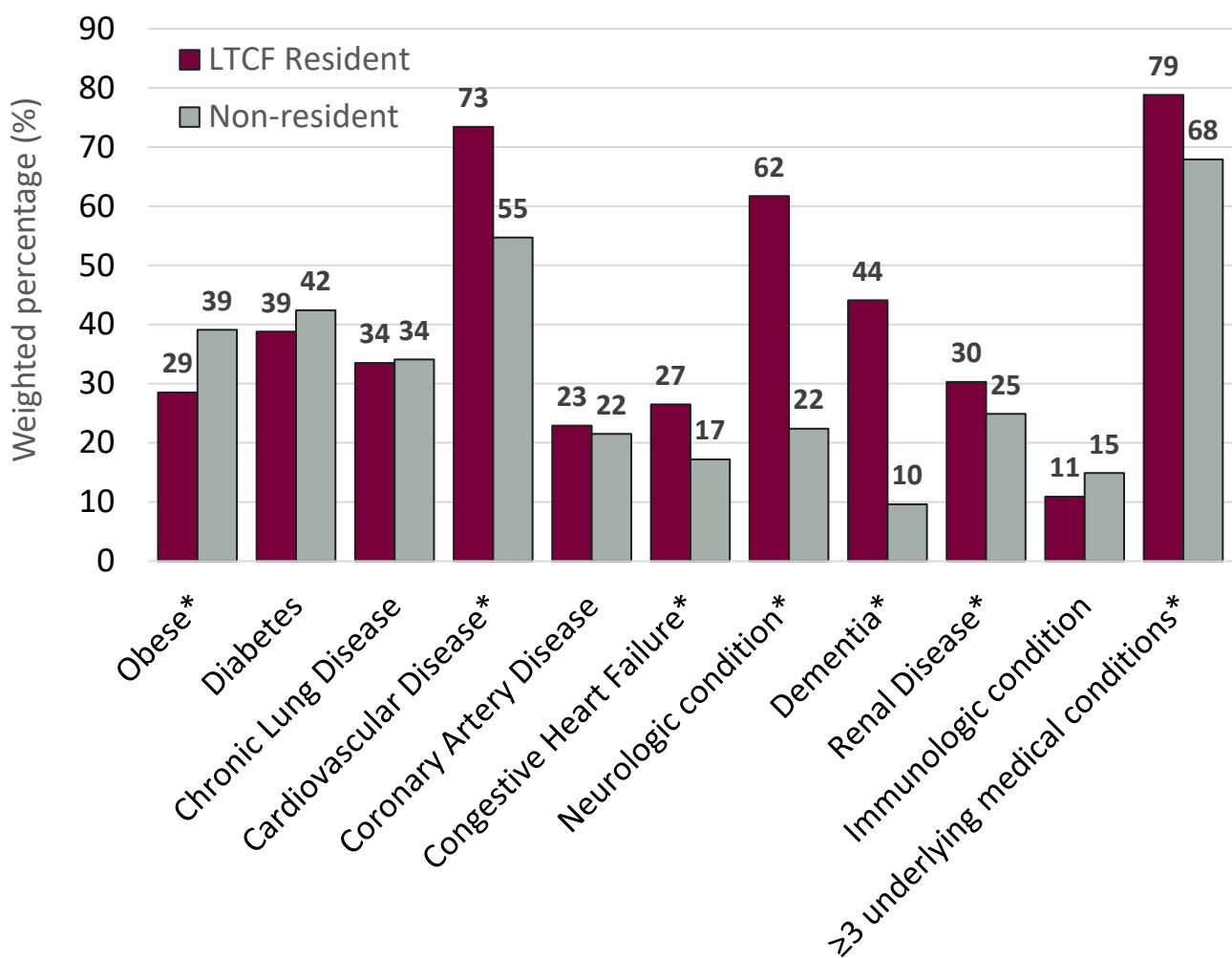
* p-value <0.05

TABLE 2. Poisson Regression Model Examining In-Hospital Death Outcome among Adults Ages ≥65 Years Hospitalized with Lab-Confirmed COVID-19 — COVID-NET, 14 States, March 2020–January 2022

Characteristic		Regression Coefficient (95% CI)	p-value
LTCF Resident		1.03 (1.01–1.05)	<0.01
Age group	65–74 years	ref	
	75–84 years	1.00 (0.99–1.02)	0.95
	≥85 years	0.99 (0.97–1.01)	0.24
Race/Ethnicity	White, NH	ref	
	Black, NH	1.00 (0.99–1.01)	0.86
	Asian/Pacific Islander, NH	0.97 (0.95–0.99)	0.01
	Other/unknown, NH*	0.97 (0.94–1.00)	0.02
	Hispanic (any race)	0.96 (0.93–0.98)	<0.01
Comorbidities	None	ref	
	≥3	1.01 (0.98–1.03)	0.69
Code status	Full code	ref	
	DNR/DNI/CMO	0.97 (0.95–0.98)	<0.01
Month of admission		1.00 (1.00–1.00)	0.02

Abbreviations: CI = confidence interval; LTCF = long-term care facility; NH = non-Hispanic ethnicity; DNI/DNI/CMO = do not resuscitate/do not intubate/comfort measures only

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