

## Supplementary Material

### Identification of ED Visits

We only included events that occurred while the resident was in AL (eg, ED visits that occurred while the resident was in a nursing home were not incorporated in the analysis). Multiple claims can be submitted for one ED visit; for example, separate claims can be generated for radiographs and physician services. To account for this, we removed claims with the same hospital provider number and the same patient ID that were generated within a single 72-hour period.

We identified ED visits based on a hospital outpatient claims with revenue center codes 0450–0459, 0981 or a hospital inpatient claim with an ED charge of more than \$0. We also included observation stays, which we define as revenue center codes (0760 or 0762) or Healthcare Common Procedure Coding System codes: G0378; G0379).

### Classification of ED Visits

The NYU algorithm is a validated measure that was created by researchers at NYU in consultation with a team of expert emergency physicians. The researchers used medical records from a sample of 6 hospitals in Bronx, New York to compile a set of probabilistic weights according to each patients' primary ED diagnostic code at discharge.<sup>4</sup> The original algorithm used ICD-9 codes; we used a patch that incorporated ICD-10 codes. Visits were assigned a weight for 8 categories based on type and potential severity of the diagnosis. These categories included (1) non-emergent; (2) emergent, primary care treatable; (3) emergent, ED care needed, but preventable/avoidable; and (4) emergent, ED care needed, not preventable/avoidable; (5) injuries; (6) mental health (7) alcohol use and (8) substance abuse, injuries, mental health, alcohol use, and substance abuse were carved out as a separate, mutually exclusive category and were, therefore, given a weight of 1 on a scale of 0 to 1. For this analysis, we focused specifically on injuries and all-cause ED use.

### Calculation of Risk-Adjusted Rate

We calculated the risk-adjusted rates of each outcome, by state, as the ratio of observed events over expected events in each state, multiplied by the national rate. The observed number of events is simply the sum of ED visits in each state, divided by the number of person-years spent in AL, and multiplied by 100. To obtain the expected values, we estimated a negative binomial regression model at the person level with the number of ED visits in 2017 as the outcome, predicted by age group, sex, dual status, and the number of and prevalence of chronic conditions. Using that model, we calculated the predicted number of events for each individual. A state's expected events were the sum of predicted events among persons living in that state in AL. We divided this number by the number of person-years spent in AL, and multiplied by 100. To obtain the national rate, we summed the total events observed in the national sample, divided by the sum total of person-years spent in AL, and multiplied by 100. Thus rates, are expressed as a state's risk-adjusted ED visits per 100 AL person-years.

We calculated bootstrapped CIs for our adjusted rates using sampling with replacement to create 400 replications of the full dataset. For each replication, we calculated the states' risk-adjusted averages as described in the methods section. For each state, the 2.5% and 97.5% values among the 400 estimates were reported as the 95% CI for the estimate.

### Calculation of AL Person Years

We measured the number of AL person-years for each state by calculating the number of days within the 2017 calendar year that a person spent in AL. To accomplish this, we subtracted the number of days a person was an inpatient or under observation status in a hospital, in a nursing home, in a zip code that was not an AL community, or was not alive from 365. We used the Residential History File to identify the number of days a person spent in a nursing home or in a hospital. Using the outpatient claims, we identified the number of days a resident spent under observation status. Utilizing the MBSF, we calculated the number of days a person was not alive in 2017. The remainder represented the number of days a person spent in AL. This number was divided by 365 to obtain the proportion of a year that was spent in AL and then summed for each state.

**Supplementary Table 1**

Unadjusted and Adjusted\* Rates and 95% Bootstrapped CIs of Numbers Displayed in Figure 1

States	All-Cause ED Visits per 100 AL Person-Years		Injury-Related ED Visits per 100 AL Person-Years	
	Unadjusted Rate	Adjusted Rate (95% CI)	Unadjusted Rate	Adjusted Rate (95% CI)
Nation	135.3	134.2	28.7	28.5
AL	125.6	130.7 (124.8, 137.3)	28.7	29.7 (28.6, 31.5)
AR	173.1	157.9 (150.5, 166.3)	33.7	31.1 (30.0, 33.0)
AZ	116.0	127.7 (124.5, 131.0)	24.9	26.8 (26.3, 27.7)
CA	126.6	130.3 (128.5, 132.1)	26.7	28.2 (27.9, 28.8)
CO	130.8	141.6 (137.0, 145.7)	26.8	28.2 (27.6, 29.3)
CT	133.4	133.6 (127.0, 142.6)	23.7	26.4 (23.5, 26.3)
DE	116.0	125.8 (116.1, 134.8)	22.8	23.7 (22.5, 25.7)
FL	147.1	127.6 (125.8, 129.5)	33.0	29.2 (28.9, 29.9)
GA	129.0	138.9 (135.2, 143.4)	30.2	31.2 (30.4, 32.5)
IA	134.8	144.2 (140.0, 148.9)	26.2	27.2 (26.5, 28.1)
ID	124.4	135.4 (129.0, 142.6)	24.9	26.7 (25.5, 28.2)
IL	147.1	145.1 (142.3, 148.2)	31.1	29.9 (29.4, 30.9)
IN	145.9	129.7 (125.0, 134.8)	30.6	28.8 (28.0, 30.3)
KS	137.0	125.6 (120.0, 131.1)	35.2	31.3 (30.1, 32.8)
KY	157.4	150.8 (144.2, 157.7)	31.1	30.8 (29.5, 32.5)
LA	129.0	134.0 (126.3, 141.2)	26.2	26.7 (25.4, 28.7)
MA	156.9	151.6 (148.0, 155.3)	30.1	28.6 (28.1, 29.5)
MD	95.6	108.7 (105.8, 111.9)	20.4	22.4 (21.9, 23.2)
ME	155.9	139.7 (134.2, 146.4)	31.3	28.7 (27.6, 30.3)
MI	128.3	130.8 (127.3, 134.8)	25.9	26.4 (25.7, 27.3)
MN	124.8	138.4 (135.3, 142.1)	22.6	26.4 (24.0, 25.3)
MO	127.6	126.3 (122.8, 129.9)	25.6	26.0 (25.4, 26.9)
MS	136.6	137.8 (131.2, 146.2)	29.8	29.6 (28.3, 31.3)
MT	137.9	151.3 (142.6, 160.3)	26.7	27.7 (26.2, 29.8)
NC	174.2	146.5 (142.5, 150.8)	40.7	36.8 (36.0, 38.1)
ND	129.5	130.9 (123.5, 139.3)	22.0	21.9 (20.7, 23.3)
NE	121.7	121.9 (117.4, 126.1)	25.1	24.5 (23.8, 25.5)
NH	107.3	127.5 (121.4, 134.3)	25.1	27.9 (26.5, 29.5)
NJ	124.6	115.6 (112.7, 118.6)	29.2	26.5 (26.0, 27.3)
NM	85.9	102.3 (95.3, 111.6)	17.3	19.8 (18.3, 21.6)
NV	149.5	150.3 (141.2, 160.8)	30.0	30.3 (28.4, 32.7)
NY	185.2	145.5 (142.9, 148.5)	32.7	28.9 (28.4, 29.7)
OH	129.3	129.4 (126.9, 132.0)	28.3	28.0 (27.6, 28.8)
OK	157.9	152.3 (146.9, 158.5)	34.1	33.4 (32.5, 35.1)
OR	150.0	158.7 (153.9, 163.9)	28.8	30.2 (29.5, 31.4)
PA	113.8	123.3 (121.5, 125.2)	24.3	26.0 (25.8, 26.7)
RI	176.5	167.2 (157.6, 179.6)	35.1	32.6 (30.8, 35.0)
SC	116.5	134.0 (129.6, 137.9)	26.2	29.7 (28.9, 31.0)
SD	111.2	120.7 (113.8, 129.4)	20.4	21.4 (20.3, 23.0)
TN	129.4	132.7 (128.6, 138.1)	29.5	29.7 (28.9, 31.1)
TX	137.6	131.7 (129.3, 134.1)	31.1	29.3 (28.9, 30.0)
UT	102.9	117.2 (110.0, 125.1)	25.0	27.1 (25.7, 28.9)
VT	126.9	131.8 (122.0, 149.2)	23.7	23.2 (21.5, 24.4)
WA	124.9	142.3 (139.2, 145.2)	25.0	27.6 (27.2, 28.4)
WV	137.5	133.1 (120.7, 148.8)	29.7	27.5 (25.4, 31.3)
WI	135.8	142.3 (139.0, 145.7)	26.8	28.0 (27.0, 28.4)
WY	153.0	159.4 (145.0, 178.4)	28.5	29.3 (26.6, 32.8)

Data come from the 2016 and 2017 Medicare Master Beneficiary Summary File and Chronic Conditions, the inpatient Medicare Provider Analysis and Review file, and the Medicare outpatient claims.

\*Rates adjusted for age, race, sex, dual-eligibility, and chronic conditions.