

Appendix

Appendix Table 1 shows the unadjusted mortality rates, separately for residents in the ECCP (Enhanced Care and Coordination Provider) group and those in the comparison group, for each of the seven states included in the CMS Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents (the Initiative), presented by year (2011-2016).

Appendix Table 2 shows the risk-adjusted mortality rates predicted from multivariate difference-in-differences regression models, separately for residents in the ECCP group and those in the comparison group, for each of the seven states included in the Initiative, presented by year (2011-2016).

Appendix Table 3 is a detailed version of **Exhibit 1** that includes information on *p*-values and 90% confidence intervals.

Appendix Table 4 shows estimates of the Initiative effects from a sensitivity analysis excluding the Initiative exposure variable as a robustness check.

Appendix Table 5 shows estimates of the 2016 Initiative effects from a sensitivity analysis including year-specific dummy variables and interaction terms as a robustness check.

Appendix Tables 6–12 display the resident- and facility-level variables that were included in the multivariate models to predict mortality, along with descriptive statistics for those variables—percentages for categorical variables and means and standard deviations for continuous variables, separately for each of the seven states included in the Initiative. In each table, the variables and descriptive statistics are presented by year (2011-2016) and by ECCP or comparison group status.

Appendix Table 1
Unadjusted Percentage of Long-Stay Residents Who Died Within 30 Days of the End of Their Initiative Eligibility in Each Year (2011-2016)

	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Alabama	25.1	25.7	25.2	25.0	26.8	25.2	24.1	25.5	24.8	23.9	25.2	25.1
Indiana	26.6	28.9	28.7	28.3	28.5	28.0	25.9	26.6	26.3	26.7	27.1	24.0
Missouri	26.3	26.9	27.8	27.3	26.8	25.8	24.0	25.7	24.9	25.8	27.4	26.4
Nebraska	29.2	30.5	30.8	29.1	30.4	28.0	28.2	28.9	27.6	25.6	26.7	29.4
Nevada	25.0	26.6	23.3	26.0	24.4	23.6	27.3	27.0	27.5	24.1	25.0	23.2
New York	22.2	23.6	23.0	23.4	23.5	22.2	22.9	25.1	24.7	24.2	24.1	23.2
Pennsylvania	28.1	29.4	27.6	27.2	26.0	25.4	28.6	28.8	28.3	27.2	25.0	24.2
All states combined	25.3	26.6	26.0	26.0	26.1	24.9	25.1	26.3	25.9	25.1	25.4	24.4

SOURCE: Authors' analysis of data (2011-2016) for long-stay nursing facility residents included in the evaluation of the CMS Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents.

NOTE: Percentages in this table are unadjusted mortality rates, separately for residents in the ECCP and comparison facilities.

Appendix Table 2
Risk-Adjusted Percentage of Long-Stay Residents Who Died Within 30 Days of the End of Their Initiative Eligibility in Each Year (2011-2016)

	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Alabama	25.6	26.3	25.5	24.7	26.0	25.5	21.9	24.6	23.6	22.4	23.7	22.7
Indiana	27.8	29.2	29.3	29.5	30.0	30.0	28.0	29.5	29.0	27.8	29.8	29.1
Missouri	23.8	25.3	25.1	24.2	25.5	25.0	23.0	25.1	23.3	23.6	24.6	23.4
Nebraska	25.0	25.4	25.6	23.8	25.6	24.2	24.9	25.3	24.1	23.2	24.2	23.1
Nevada	28.2	29.9	27.4	27.6	27.4	26.7	27.9	27.5	27.5	25.2	24.8	23.6
New York	26.7	28.5	27.7	27.6	28.0	27.1	26.3	28.6	28.0	26.8	27.7	27.0
Pennsylvania	26.7	27.9	27.1	26.1	26.2	25.3	26.2	26.4	25.1	24.8	23.9	22.6
All states combined	26.3	27.6	27.0	26.5	27.1	26.4	25.7	27.2	26.4	25.3	26.0	25.0

SOURCE: Authors' analysis of data (2011-2016) for long-stay nursing facility residents included in the evaluation of the CMS Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents.

NOTE: Percentages in this table are risk-adjusted mortality rates predicted from multivariate difference-in-differences regression models, separately for residents in the ECCP and comparison facilities.

Appendix Table 3**Effect of ECCP intervention on probability of mortality per resident per year during intervention period, 2014–2016**

ECCP state	Mean mortality rate, 2014-2016 (percent)	Effect estimate (percentage points)	90% Confidence Interval		p-value	Relative effect (% of the mean)
Alabama	25.4	0.3	-1.3	1.9	0.775	1.1
Indiana	27.5	0.5	-1.7	2.6	0.729	1.6
Missouri	26.6	1.5	-1.7	4.6	0.445	5.5
Nebraska	28.6	1.1	-1.7	3.8	0.528	3.7
Nevada	24.4	0.9	-1.7	3.5	0.564	3.7
New York	23.4	-0.8	-2.3	0.7	0.365	-3.5
Pennsylvania	26.0	0.4	-1.0	1.8	0.648	1.5
All states combined	25.4	-0.2	-0.9	0.5	0.670	-0.7
All states excluding NY	26.3	0.2	-0.7	1.1	0.690	0.8

SOURCE: Authors' analysis of data (2011-2016) for long-stay nursing facility residents included in the evaluation of the CMS *Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents*.

NOTES: The 2014–2016 mean is the unadjusted mean mortality rate across all ECCP and comparison residents during the three-year intervention period, weighted by the number of residents in each year.
ECCP = Enhanced Care and Coordination Provider.

Appendix Table 4

Effect of ECCP intervention on probability of mortality per resident per year during intervention period, 2014–2016: Sensitivity analysis excluding the Initiative exposure period control variable

ECCP state	Effect estimate (percentage points)	90% Confidence Interval	<i>p</i> -value	
Alabama	-1.1	-2.8	0.7	0.320
Indiana	0.1	-2.0	2.2	0.930
Missouri	2.2	-1.1	5.4	0.277
Nebraska	0.6	-2.6	3.8	0.755
Nevada	0.7	-2.1	3.4	0.690
New York	-1.2	-2.6	0.1	0.139
Pennsylvania	0.5	-1.0	2.1	0.594
All states combined	-0.6	-1.3	0.2	0.208

SOURCE: Authors' analysis of data (2011-2016) for long-stay nursing facility residents included in the evaluation of the CMS *Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents*.

NOTES: ECCP = Enhanced Care and Coordination Provider.

Appendix Table 5

Effect of ECCP intervention on probability of mortality per resident per year during intervention period, 2014–2016: Sensitivity analysis with year-specific dummies, for 2016 model

ECCP state	Intervention Year: 2016			
	Effect estimate (percentage points)	90% Confidence Interval		p-value
Alabama	1.5	-0.3	3.3	0.184
Indiana	-1.7	-4.0	0.7	0.241
Missouri	2.7	-1.3	6.7	0.259
Nebraska	3.4	-0.2	7.0	0.118
Nevada	1.0	-2.2	4.2	0.597
New York	-1.4	-3.4	0.7	0.272
Pennsylvania	0.8	1.3	2.9	0.521
All states combined	0.1	-0.8	1.0	0.886

SOURCE: Authors' analysis of data (2011-2016) for long-stay nursing facility residents included in the evaluation of the CMS *Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents*.

NOTES: ECCP = Enhanced Care and Coordination Provider.

Appendix Table 6
Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Alabama

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Resident Level:												
Exposure (Initiative-related days) ¹	247.5 (136.8)	233.1 (142.7)	240.8 (137.8)	250.3 (135.8)	247.7 (136.9)	252.2 (134.2)	237.4 (140.2)	236.4 (141.1)	236.7 (140.6)	238.9 (141.1)	229.6 (142.6)	233.0 (141.5)
Eligible due to no discharge plan	17.3	21.5	17.3	16.4	15.4	14.8	20.2	20.8	20.5	20.7	21.4	21.4
Dual eligible (any episode month)	75.7	74.1	76.7	76.3	78.2	79.0	73.9	74.4	75.5	75.4	75.1	75.2
MA plan (any episode month)	1.9	2.9	3.7	3.8	3.5	5.6	1.7	2.0	3.0	3.0	4.3	5.5
Male, < 65	5.2	5.8	5.9	6.4	6.5	6.8	5.2	5.8	5.9	6.4	6.3	6.3
Male, 65–69	3.7	3.5	3.8	4.1	4.3	4.6	3.6	3.6	4.1	4.2	4.5	4.8
Male, 70–74	3.5	4.1	4.2	4.0	4.1	4.2	4.3	4.1	4.4	4.5	4.8	4.4
Male, 75–79	4.9	4.8	4.8	4.4	4.5	3.7	4.7	4.9	5.0	4.9	5.0	4.9
Male, 80–84	4.7	5.1	4.7	4.9	5.0	4.3	5.4	5.3	5.0	4.6	4.6	4.9
Male, 85–89	3.5	3.2	3.8	3.6	3.4	3.9	4.1	3.8	3.9	3.7	3.6	3.5
Male, 90–94	1.8	2.2	1.7	1.4	1.3	1.4	2.3	2.1	1.8	1.8	2.1	1.9
Male, 95+	0.5	0.4	0.3	0.5	0.5	0.3	0.9	0.9	0.9	0.7	0.6	0.6
Female, < 65	5.3	5.6	5.7	5.7	6.2	6.5	4.9	5.2	5.4	5.3	5.4	5.2
Female, 65–69	4.3	4.0	4.9	5.2	4.8	4.9	4.2	5.1	4.9	5.5	5.3	5.7
Female, 70–74	6.7	6.4	6.4	6.6	6.3	6.6	5.7	5.7	5.7	6.4	7.0	7.3
Female, 75–79	9.9	10.3	10.1	10.0	9.8	9.2	9.0	9.1	8.9	9.0	8.2	8.5
Female, 80–84	14.7	13.3	12.4	13.0	13.5	14.0	13.6	13.4	13.3	12.5	12.4	12.1
Female, 85–89	16.2	15.7	16.4	15.5	14.4	14.6	16.4	15.4	15.4	14.8	14.3	14.1
Female, 90–94	10.9	10.9	10.2	10.3	10.4	10.1	10.7	11.1	10.8	11.3	11.3	10.8
Female, 95+	4.4	4.8	4.8	4.4	4.9	4.9	5.0	4.6	4.8	4.6	4.6	4.9

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Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 6 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Alabama

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
White, non-Hispanic	78.1	77.1	76.4	77.2	76.5	75.1	78.3	77.9	76.1	75.4	75.2	75.1
Black, non-Hispanic	20.9	21.7	22.1	21.4	21.9	23.6	20.6	21.1	22.6	23.0	23.8	24.0
Other race/ethnicity	1.0	1.3	1.4	1.4	1.6	1.3	1.1	1.0	1.3	1.5	1.0	1.0
Dementia	52.3	50.6	52.3	54.0	56.0	55.4	52.9	53.5	54.7	53.5	53.3	53.0
Anemia	23.9	26.7	28.3	30.2	31.0	27.3	27.4	28.3	29.8	30.3	30.2	29.2
BMI	26.7	26.8	26.6	26.7	26.8	26.9	26.4	26.5	26.6	26.8	26.7	26.7
	(7.3)	(7.4)	(7.3)	(7.5)	(7.6)	(7.8)	(7.4)	(7.3)	(7.3)	(7.7)	(7.8)	(7.8)
ADL Score	17.0	17.2	17.3	17.1	17.1	17.1	17.8	17.9	17.9	17.6	17.5	17.4
	(7.4)	(7.2)	(7.2)	(7.1)	(7.2)	(7.1)	(7.7)	(7.3)	(7.0)	(6.9)	(6.7)	(6.7)
Any hospice use in 2 months before episode period	6.2	6.7	7.2	7.4	7.9	8.0	6.6	6.7	7.1	6.3	7.0	7.3
HIV/AIDS	0.1	0.2	0.3	0.3	0.2	0.3	0.1	0.1	0.2	0.1	0.2	0.2
Septicemia/shock	6.6	5.8	7.0	7.9	6.9	6.8	5.8	5.5	6.1	6.3	6.3	6.3
Cancers	7.9	8.7	8.5	7.5	8.1	7.5	8.9	8.9	8.7	7.8	7.5	8.1
Diabetes with complications	14.8	16.1	16.0	14.8	17.0	17.9	14.6	14.9	15.8	17.2	18.2	18.0
Diabetes without complications	23.0	24.7	24.2	24.5	21.8	21.1	21.7	22.4	22.1	21.7	20.3	20.4
Liver problems	1.0	1.2	1.7	1.8	1.5	1.3	1.4	1.4	1.5	1.8	1.7	1.7
Intestinal obstruction/perforation	3.8	3.9	4.2	4.3	3.4	2.7	3.6	3.7	3.6	3.7	3.6	3.2
Pancreatic disease	1.8	1.5	1.5	1.6	1.3	1.4	1.4	1.4	1.8	1.5	1.4	1.6
Inflammatory bowel disease	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.5	0.7	0.6
Bone/joint/muscle infections/necrosis	1.5	1.8	1.8	2.3	2.1	2.0	1.5	1.5	2.0	1.9	2.0	2.0

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Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 6 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Alabama

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rheumatoid arthritis and inflammatory connective tissue disease	4.5	5.5	4.3	4.8	5.1	5.9	4.8	5.2	4.8	5.4	5.6	5.7
Severe hematological disorders	1.3	1.3	0.6	0.9	0.8	0.6	1.5	1.3	0.7	0.5	0.6	0.5
Disorders of immunity	0.4	0.9	1.2	1.4	1.5	1.4	0.5	0.8	1.3	1.2	1.3	1.3
Schizophrenia	3.8	4.3	5.2	4.5	4.7	4.8	4.2	4.4	5.0	4.9	4.9	5.0
Major depressive, bipolar, and paranoid disorders	6.5	7.3	6.6	9.5	9.8	10.3	8.7	8.8	9.2	9.5	10.8	11.0
Paraplegia, quadriplegia, other extensive paralysis, cerebral palsy, and other paralytic syndromes	2.2	2.7	3.0	3.1	3.0	3.4	2.8	2.7	3.0	3.3	3.2	3.5
Spinal cord disorders/injuries	1.2	0.8	1.1	1.2	1.3	1.0	1.1	0.9	1.2	1.2	1.1	1.0
Multiple sclerosis	0.7	0.8	1.0	0.9	0.8	0.7	0.7	0.6	0.8	0.9	0.9	0.8
Seizure disorders and convulsions	10.5	11.3	11.6	11.6	12.2	11.3	10.5	11.1	11.0	11.4	11.4	11.9
Coma, brain compression/anoxic damage	0.8	0.8	0.8	0.9	0.9	1.0	0.8	0.9	0.8	0.8	1.1	0.8
Respirator dependence/tracheostomy status	0.5	0.4	0.4	0.7	0.6	0.6	0.4	0.4	0.6	0.5	0.6	0.6
Cardio-respiratory failure and shock	9.5	10.2	11.1	10.2	11.4	11.3	9.4	10.1	10.5	10.4	10.5	10.9
Congestive heart failure	32.0	30.1	30.2	29.5	29.8	28.6	30.5	29.0	29.0	29.3	29.8	27.3
Acute myocardial infarction	3.1	3.1	2.8	2.7	2.7	2.6	2.3	2.3	2.4	2.4	2.3	1.8
Unstable angina and other acute ischemic heart disease	2.4	2.1	2.3	2.3	2.6	2.0	2.4	2.0	2.6	1.9	2.2	2.1

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Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 6 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Alabama

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Angina pectoris/old myocardial infarction	4.8	5.0	5.9	5.7	5.2	4.4	4.8	5.2	5.1	5.3	5.7	5.9
Specified heart arrhythmias	21.7	21.6	21.5	21.1	22.1	20.3	23.1	22.5	23.5	22.3	23.2	22.0
Ischemic or unspecified stroke	13.0	12.5	13.0	12.4	12.6	12.2	13.8	13.0	13.3	12.7	13.3	12.6
Vascular disease with complications	33.7	30.4	30.1	32.1	35.3	32.8	29.6	28.6	30.5	28.2	29.1	27.6
COPD	26.8	26.7	25.7	26.4	26.1	24.3	24.9	26.0	25.0	24.9	25.6	25.1
Aspiration and specified bacterial pneumonias, pneumococcal pneumonia, empyema, and lung abscess	4.5	4.9	4.8	4.3	3.7	3.8	5.0	4.3	4.9	4.5	4.5	4.2
Proliferative diabetic retinopathy and vitreous hemorrhage	0.8	0.8	1.0	1.0	0.8	0.7	0.6	0.8	0.6	1.0	0.9	1.0
Dialysis status	1.9	2.0	2.3	2.3	2.2	1.8	1.6	1.8	1.6	1.6	1.8	1.8
Renal failure	19.7	20.8	23.2	23.1	25.1	25.2	19.7	20.6	22.6	24.5	26.7	26.4
Decubitus ulcer of skin	6.9	8.2	8.7	9.4	8.1	7.1	7.3	8.0	9.3	8.4	7.7	7.0
Chronic ulcer of skin, except decubitus	4.3	4.3	4.6	4.5	4.5	4.5	3.8	3.7	3.7	4.1	3.6	3.7
Vertebral fractures without spinal cord injury	2.2	2.2	2.7	2.0	2.2	2.1	2.6	2.3	2.2	2.3	2.2	2.3
Hip fracture/dislocation	6.9	5.5	5.9	5.3	5.8	5.2	5.5	5.6	5.1	5.5	5.0	5.1
Major complications of medical care and trauma	6.1	5.1	5.5	4.9	5.8	5.0	5.8	5.1	5.4	5.2	5.3	5.2
Artificial openings for feeding or elimination	3.8	4.2	4.8	4.7	4.4	4.0	3.8	4.2	4.4	4.5	5.0	4.5
N (Residents)	3,500	3,579	3,332	3,288	3,282	3,297	7,130	7,168	7,059	7,038	6,979	6,781

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Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 6 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Alabama

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Facility Level:												
Any PA/NP in facility	43.5	47.8	47.8	47.8	60.9	65.2	34.8	41.3	43.5	45.7	56.5	73.9
RN staffing HPRD	0.36	0.36	0.40	0.41	0.42	0.40	0.32	0.35	0.35	0.40	0.39	0.39
	(0.15)	(0.16)	(0.19)	(0.17)	(0.20)	(0.18)	(0.14)	(0.15)	(0.16)	(0.16)	(0.14)	(0.18)
LPN staffing HPRD	1.02	1.00	1.00	0.99	0.92	0.86	1.01	1.03	1.03	0.98	1.07	0.95
	(0.36)	(0.38)	(0.32)	(0.32)	(0.33)	(0.32)	(0.22)	(0.36)	(0.37)	(0.22)	(0.44)	(0.24)
CNA staffing HPRD	2.70	2.57	2.23	2.58	2.55	2.54	2.52	2.49	2.45	2.50	2.56	2.41
	(0.68)	(0.78)	(1.17)	(0.73)	(0.60)	(0.65)	(0.44)	(0.49)	(0.66)	(0.55)	(0.42)	(0.63)
For profit	95.7	95.7	95.7	95.7	95.7	95.7	87.0	87.0	87.0	87.0	87.0	87.0
Chain	73.9	78.3	73.9	73.9	78.3	82.6	65.2	63.0	63.0	65.2	69.6	73.9
Percent Medicaid residents	65.0	68.0	68.8	69.1	66.8	68.9	67.7	67.0	66.2	68.5	68.4	69.3
	(15.9)	(10.6)	(11.3)	(9.5)	(9.6)	(10.9)	(10.2)	(13.6)	(14.2)	(14.5)	(12.4)	(13.0)
Percent Medicare residents	16.9	13.8	12.6	11.8	13.2	12.8	14.4	15.1	14.9	12.2	14.6	12.7
	(15.1)	(5.3)	(4.8)	(5.0)	(5.7)	(6.0)	(5.2)	(10.6)	(10.5)	(6.2)	(7.6)	(8.4)
Percent residents with advance directives	33.4	29.1	31.9	36.2	34.7	41.0	34.0	28.1	35.2	31.1	30.2	34.2
	(19.4)	(18.7)	(18.5)	(24.5)	(24.6)	(25.8)	(21.6)	(18.0)	(26.2)	(25.7)	(26.7)	(27.2)
Alzheimer's unit in facility	21.7	26.1	30.4	34.8	34.8	34.8	37.0	32.6	32.6	30.4	34.8	37.0
N (Facilities)	23	23	23	23	23	23	46	46	46	46	46	46

NOTES: Numbers in parentheses are standard deviations for continuous variables.

ECCP = Enhanced Care and Coordination Providers; MA = Medicare Advantage; BMI = Body Mass Index; ADL = Activities of Daily Living; PA = Physician Assistant; NP = Nursing Practitioner; RN = Registered Nurse; LPN = Licensed Practical Nurse; CNA = Certified Nurse Aide; HPRD = Hours Per Resident Day.

¹ Exposure (Initiative-related days) are measured in units of 10 days for inclusion in regression models; in count models the log of this variable is included.

SOURCE: RTI analysis of MDS, Medicare claims, and CASPER data (RTI program: av08/nhpah286).

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 7

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Indiana

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Resident Level:												
Exposure (Initiative-related days) ¹	206.2	210.9	204.2	216.4	214.5	215.4	227.9	225.0	224.0	225.6	223.2	218.3
	(137.8)	(138.6)	(140.1)	(138.5)	(137.2)	(137.4)	(138.7)	(140.3)	(140.0)	(138.0)	(139.0)	(140.1)
Eligible due to no discharge plan	23.9	22.6	24.4	23.2	20.4	21.2	20.9	21.2	19.7	19.5	20.4	21.9
Dual eligible (any episode month)	70.7	71.8	69.9	74.6	76.7	77.4	68.0	68.7	69.1	71.4	72.8	72.9
MA plan (any episode month)	1.4	2.9	3.1	3.8	4.6	6.8	2.4	2.7	3.1	3.0	4.0	6.3
Male, < 65	4.7	4.6	5.3	5.4	6.6	7.1	3.2	3.4	3.6	4.1	4.6	4.8
Male, 65–69	3.1	3.8	3.2	3.2	3.7	4.4	2.2	2.2	2.7	2.5	3.2	3.3
Male, 70–74	3.7	3.8	4.5	4.5	4.6	4.4	3.3	3.0	2.8	3.0	3.4	3.6
Male, 75–79	5.5	5.3	5.4	5.1	5.8	5.5	3.9	3.9	4.0	4.2	3.9	4.3
Male, 80–84	6.2	5.9	6.0	5.6	6.4	5.4	5.4	5.3	5.4	5.0	4.8	4.9
Male, 85–89	5.6	4.8	5.3	5.2	4.7	5.3	5.7	5.7	5.3	5.6	5.2	5.1
Male, 90–94	2.3	3.0	3.1	2.7	3.0	2.6	2.9	3.3	3.3	3.2	3.6	3.8
Male, 95+	0.8	0.7	0.8	0.9	0.9	0.8	0.9	1.1	0.9	1.1	1.1	1.4
Female, < 65	3.5	4.0	4.4	5.1	5.2	5.6	3.7	4.1	4.6	4.5	4.5	4.6
Female, 65–69	3.8	4.5	4.0	4.2	4.3	4.6	3.0	2.9	3.4	3.5	4.1	4.4
Female, 70–74	5.6	5.4	5.9	6.3	5.9	5.6	4.6	4.4	4.5	5.3	5.6	5.6
Female, 75–79	9.4	9.4	9.0	8.7	8.3	8.8	8.3	8.0	7.6	7.8	8.0	7.6
Female, 80–84	13.8	13.0	11.8	12.4	11.1	10.9	13.9	14.3	13.8	13.2	11.8	11.8
Female, 85–89	15.5	14.5	14.4	13.9	13.0	12.8	18.5	17.4	17.1	16.3	16.2	15.6
Female, 90–94	11.2	12.2	11.8	11.0	10.6	10.3	14.3	14.7	14.4	14.2	13.2	12.9
Female, 95+	5.4	5.1	5.3	5.9	5.8	5.8	6.3	6.2	6.5	6.5	6.6	6.4

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 7 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Indiana

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
White, non-Hispanic	75.9	76.7	77.7	74.6	73.6	73.2	84.3	84.0	84.5	83.2	82.3	81.6
Black, non-Hispanic	21.6	20.3	20.1	21.7	22.2	23.5	12.1	12.1	11.5	11.9	12.6	13.2
Other race/ethnicity	2.5	3.0	2.3	3.7	4.2	3.2	3.6	3.9	4.1	4.8	5.0	5.2
Dementia	56.1	54.4	53.8	55.0	55.8	55.2	52.3	53.0	53.6	53.3	53.0	53.1
Anemia	29.5	32.1	34.2	38.4	39.9	39.2	25.3	26.7	27.7	29.1	30.3	31.4
BMI	26.5	27.0	27.0	27.2	27.3	27.4	26.7	26.8	26.9	27.0	27.1	27.2
	(7.6)	(8.0)	(8.0)	(8.4)	(8.1)	(8.2)	(7.4)	(7.6)	(7.4)	(7.5)	(7.6)	(7.6)
ADL Score	17.8	18.3	18.6	18.7	19.0	19.0	17.4	17.9	18.1	18.3	18.3	18.1
	(5.9)	(5.0)	(4.5)	(4.2)	(4.1)	(4.1)	(6.0)	(5.6)	(5.1)	(5.0)	(4.7)	(4.7)
Any hospice use in 2 months before episode period	5.1	4.2	3.9	4.1	4.5	3.9	4.5	4.9	5.5	5.1	5.8	5.4
HIV/AIDS	0.3	0.2	0.2	0.3	0.3	0.4	0.1	0.1	0.2	0.1	0.2	0.2
Septicemia/shock	6.0	7.6	7.7	7.8	8.9	8.3	5.7	7.0	6.6	6.6	7.6	7.4
Cancers	9.5	9.7	9.9	9.8	9.5	9.2	9.7	9.8	10.0	9.5	10.1	9.8
Diabetes with complications	22.5	21.2	20.5	19.6	18.6	18.6	20.2	20.1	20.0	18.9	15.9	16.7
Diabetes without complications	15.1	16.5	15.3	17.7	18.1	19.2	15.4	15.5	16.8	18.5	21.2	20.7
Liver problems	1.8	1.5	1.4	1.6	2.0	1.9	1.2	1.1	1.3	1.2	1.6	1.7
Intestinal obstruction/perforation	3.5	2.9	3.2	3.6	3.3	3.5	3.2	3.5	3.2	3.3	3.3	3.0
Pancreatic disease	1.7	2.0	1.9	1.8	1.8	1.8	1.7	2.0	1.8	2.1	1.9	1.8
Inflammatory bowel disease	0.7	0.5	0.6	0.7	0.4	0.4	0.6	0.7	0.8	1.1	0.9	0.8
Bone/joint/muscle infections/necrosis	2.5	2.7	2.8	3.3	3.3	3.0	1.9	2.2	2.5	2.4	2.2	2.6

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 7 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Indiana

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rheumatoid arthritis and inflammatory connective tissue disease	3.6	4.7	4.9	5.1	4.3	4.1	4.4	4.8	5.0	4.9	5.1	5.4
Severe hematological disorders	1.6	1.9	0.9	0.8	0.8	0.7	1.6	1.5	0.9	1.1	0.7	0.5
Disorders of immunity	0.6	1.1	2.0	1.7	1.6	1.6	0.6	1.2	2.1	1.6	1.5	1.5
Schizophrenia	3.4	3.4	4.1	4.6	4.9	5.3	2.6	3.0	3.1	3.5	3.6	3.8
Major depressive, bipolar, and paranoid disorders	10.8	11.7	12.2	14.5	17.5	14.7	11.1	10.7	12.4	13.4	13.2	12.8
Paraplegia, quadriplegia, other extensive paralysis, cerebral palsy, and other paralytic syndromes	2.1	2.2	2.8	2.6	2.4	2.1	1.8	2.4	2.6	2.9	3.0	3.0
Spinal cord disorders/injuries	1.3	1.1	1.1	1.1	1.1	0.9	1.2	0.9	1.0	0.9	1.2	1.2
Multiple sclerosis	1.2	1.1	1.0	1.2	1.1	1.2	1.1	1.2	1.0	1.2	1.4	1.3
Seizure disorders and convulsions	10.1	9.9	10.1	10.0	10.8	10.4	7.8	7.9	8.3	8.5	8.2	8.1
Coma, brain compression/anoxic damage	1.1	0.6	0.7	1.0	1.0	0.9	0.5	0.9	0.8	0.9	1.0	0.6
Respirator dependence/tracheostomy status	0.8	1.0	1.2	1.2	1.1	0.9	0.5	0.9	0.6	0.5	0.6	0.6
Cardio-respiratory failure and shock	11.5	12.7	13.2	14.4	14.1	13.1	9.8	11.3	10.9	11.7	13.1	12.9
Congestive heart failure	30.4	30.1	29.8	31.0	30.5	29.9	30.5	30.6	31.4	31.5	30.9	29.9
Acute myocardial infarction	3.2	2.6	2.8	3.1	2.5	2.1	2.0	2.1	2.1	2.2	2.7	2.5
Unstable angina and other acute ischemic heart disease	3.4	2.7	2.5	2.8	2.6	2.2	2.2	2.4	2.5	2.7	2.4	2.7

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 7 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Indiana

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Angina pectoris/old myocardial infarction	5.3	6.2	6.2	7.3	6.5	7.1	5.9	6.6	7.3	6.7	6.9	6.5
Specified heart arrhythmias	24.0	23.4	24.0	24.4	23.6	22.4	23.2	24.0	24.4	25.5	25.6	25.1
Ischemic or unspecified stroke	12.6	13.4	12.3	11.7	12.2	11.9	12.0	12.8	12.6	13.1	13.1	12.6
Vascular disease with complications	45.9	44.5	45.2	45.5	43.3	40.0	47.4	50.2	49.2	47.0	45.3	43.5
COPD	24.5	26.0	25.2	26.8	24.6	23.0	22.5	22.8	22.4	23.8	24.4	24.0
Aspiration and specified bacterial pneumonias, pneumococcal pneumonia, empyema, and lung abscess	4.7	4.7	6.1	4.2	4.3	3.5	4.5	4.6	4.1	4.2	4.0	4.1
Proliferative diabetic retinopathy and vitreous hemorrhage	1.0	1.0	1.0	0.9	1.0	1.2	0.8	0.8	0.9	1.0	1.1	1.2
Dialysis status	2.0	2.2	2.7	2.7	3.4	2.9	1.4	1.8	2.1	2.1	2.1	2.2
Renal failure	24.4	25.6	26.0	28.5	28.2	27.3	21.7	23.2	24.0	26.5	28.2	28.6
Decubitus ulcer of skin	11.3	14.0	12.4	10.9	12.3	11.8	7.9	9.6	9.1	9.6	9.0	7.9
Chronic ulcer of skin, except decubitus	5.4	4.6	4.0	3.9	3.9	4.7	3.9	4.4	4.0	3.9	3.7	3.7
Vertebral fractures without spinal cord injury	2.8	2.9	2.7	2.6	2.4	1.9	3.0	2.7	2.8	3.3	3.0	2.9
Hip fracture/dislocation	4.8	5.2	5.2	4.4	4.9	4.0	5.4	6.0	5.7	5.5	5.2	5.2
Major complications of medical care and trauma	5.1	6.5	6.0	6.3	6.8	5.7	5.6	6.5	6.1	5.9	6.5	6.1
Artificial openings for feeding or elimination	2.6	3.4	3.2	4.2	3.5	3.2	2.9	3.7	3.5	3.4	3.6	3.4
N (Residents)	2,810	2,970	3,064	2,949	2,809	2,711	5,718	5,656	5,430	5,335	5,196	5,131

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 7 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Indiana

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Facility Level:												
Any PA/NP in facility	57.9	68.4	68.4	89.5	100.0	94.7	47.4	47.4	55.3	57.9	73.7	71.1
RN staffing HPRD	3.52 ^a (7.40)	0.46 (0.19)	0.41 (0.19)	0.51 (0.18)	0.55 (0.24)	0.46 (0.29)	0.99 (3.84)	0.41 (0.28)	0.41 (0.24)	0.48 (0.26)	0.43 (0.22)	0.39 (0.20)
LPN staffing HPRD	4.62 ^a (8.63)	1.03 (0.24)	1.08 (0.29)	0.96 (0.24)	0.89 (0.23)	1.36 (2.05)	1.55 (3.75)	1.00 (0.51)	0.99 (0.25)	1.00 (0.27)	0.95 (0.24)	0.94 (0.24)
CNA staffing HPRD	5.44 ^a (8.27)	2.01 (0.42)	2.30 (0.54)	2.29 (0.38)	2.20 (0.61)	2.83 (3.35)	2.61 (3.58)	1.97 (0.48)	2.10 (0.51)	2.27 (0.52)	2.21 (0.41)	2.15 (0.43)
For profit	36.8	31.6	31.6	15.8	10.5	10.5	44.7	36.8	23.7	36.8	31.6	23.7
Chain	89.5	89.5	100.0	100.0	100.0	94.7	55.3	71.1	71.1	81.6	86.8	89.5
Percent Medicaid residents	60.4 (19.0)	60.7 (10.1)	64.2 (11.4)	66.2 (9.8)	67.5 (8.4)	65.4 (9.7)	60.0 (17.1)	58.3 (18.4)	61.1 (16.3)	62.1 (16.2)	62.3 (14.9)	63.9 (15.1)
Percent Medicare residents	17.8 (11.3)	19.1 (7.6)	18.8 (10.8)	17.1 (5.3)	14.8 (5.0)	14.4 (6.1)	16.6 (9.1)	19.1 (11.8)	17.3 (11.5)	15.8 (9.3)	14.3 (7.6)	14.0 (8.3)
Percent residents with advance directives	56.8 (43.4)	29.0 (37.4)	19.6 (30.0)	35.4 (35.0)	23.4 (30.6)	32.4 (41.2)	57.7	31.3	53.3	51.5	53.8	59.8
Alzheimer's unit in facility	63.2	63.2	63.2	68.4	68.4	68.4	63.2	65.8	68.4	60.5	65.8	65.8
N (Facilities)	19	19	19	19	19	19	38	38	38	38	38	38

NOTES: Numbers in parentheses are standard deviations for continuous variables.

ECCP = Enhanced Care and Coordination Providers; MA = Medicare Advantage; BMI = Body Mass Index; ADL = Activities of Daily Living; PA = Physician Assistant; NP = Nursing Practitioner; RN = Registered Nurse; LPN = Licensed Practical Nurse; CNA = Certified Nurse Aide; HPRD = Hours Per Resident Day.

¹ Exposure (Initiative-related days) are measured in units of 10 days for inclusion in regression models; in count models the log of this variable is included.

^a The average HPRD is improbable high, driven by three outlier facilities in 2011. The three facilities are owned by the same organization. All of them reported having two residents in 2011 but their resident census jumped to over 100 in 2012 and 2013. Thus, in 2011 their high staffing HPRD resulted from having an extremely small number of residents in the denominator. Available information shows that all three facilities are new, which opened in 2011. They possibly first filled in with full staffing and later with residents.

SOURCE: RTI analysis of MDS, Medicare claims, and CASPER data (RTI program: av08/nhpah286).

Appendix Table 8**Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Missouri**

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Resident Level:												
Exposure (Initiative-related days) ¹	218.4 (145.4)	221.8 (144.8)	228.9 (140.6)	236.1 (139.5)	232.7 (139.4)	241.8 (138.1)	219.5 (143.6)	228.6 (141.4)	227.3 (142.3)	226.0 (141.7)	219.0 (142.7)	222.3 (142.0)
Eligible due to no discharge plan	28.4	25.6	22.2	20.8	20.5	18.5	26.1	22.2	21.1	23.0	24.2	23.5
Dual eligible (any episode month)	63.6	68.2	68.9	73.1	73.3	75.4	60.1	64.0	65.8	65.9	66.8	67.7
MA plan (any episode month)	4.2	4.1	4.5	3.9	4.9	8.7	2.8	2.9	2.9	3.4	3.1	4.7
Male, < 65	5.5	6.7	6.2	6.5	6.9	6.2	5.6	6.3	7.1	7.4	7.7	7.6
Male, 65–69	3.0	2.8	2.8	3.0	3.1	3.2	2.8	2.9	3.4	3.9	4.2	4.2
Male, 70–74	4.3	4.1	3.8	3.7	3.7	3.4	3.2	3.5	3.9	3.6	3.8	3.9
Male, 75–79	3.9	3.8	4.4	4.0	4.1	4.0	4.3	4.4	4.0	4.1	4.5	4.6
Male, 80–84	5.7	5.3	4.5	4.0	4.9	4.8	5.0	5.2	4.5	4.5	4.5	4.6
Male, 85–89	5.6	5.8	5.4	5.3	4.7	4.5	5.3	5.1	4.9	4.4	4.0	4.0
Male, 90–94	3.0	3.4	3.3	3.3	3.5	3.3	2.9	3.0	3.3	2.8	2.9	2.7
Male, 95+	0.6	0.9	1.1	1.3	0.9	1.3	0.9	0.7	0.8	0.7	0.9	1.0
Female, < 65	5.8	6.2	6.7	6.3	6.1	6.8	5.8	6.2	6.9	6.6	6.6	7.3
Female, 65–69	3.5	2.6	3.1	3.8	4.4	4.6	3.5	3.2	3.0	3.5	3.6	3.9
Female, 70–74	4.7	4.4	4.7	5.2	5.4	5.8	4.2	4.8	4.7	5.5	5.1	5.0
Female, 75–79	9.2	8.3	7.5	7.0	7.7	6.5	8.6	8.2	7.3	7.9	8.4	8.5
Female, 80–84	12.5	13.0	12.8	12.4	12.2	11.2	12.3	12.1	12.7	12.0	12.0	11.3
Female, 85–89	15.9	15.2	14.6	15.2	14.4	16.1	17.4	15.9	14.5	15.5	13.8	14.0
Female, 90–94	11.4	11.6	12.7	13.1	12.6	12.0	12.3	13.1	13.7	12.4	12.5	11.8
Female, 95+	5.6	5.9	6.6	5.8	5.7	6.2	5.9	5.5	5.4	5.5	5.4	5.6

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 8 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Missouri

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
White, non-Hispanic	83.8	87.3	87.4	87.0	85.2	84.8	86.0	86.2	85.4	84.6	84.2	84.8
Black, non-Hispanic	13.6	11.5	11.3	11.4	13.4	14.0	12.4	12.6	13.2	13.7	13.8	12.7
Other race/ethnicity	2.7	1.2	1.3	1.6	1.4	1.2	1.6	1.1	1.4	1.6	2.0	2.5
Dementia	46.3	50.0	48.2	48.6	47.4	48.4	49.7	52.2	50.1	48.1	46.0	47.6
Anemia	20.3	22.5	24.8	25.8	24.9	23.8	24.8	26.1	24.4	22.5	23.9	23.9
BMI	26.8	27.1	27.2	27.2	27.4	27.2	27.1	27.1	27.3	27.6	27.5	27.6
	(7.4)	(8.2)	(8.6)	(8.4)	(8.2)	(7.7)	(7.5)	(7.8)	(8.0)	(8.0)	(7.9)	(8.1)
ADL Score	15.7	15.6	15.2	15.2	15.0	14.8	14.4	14.5	14.4	14.5	14.6	14.5
	(7.3)	(7.2)	(7.4)	(7.4)	(7.3)	(7.4)	(7.6)	(7.5)	(7.7)	(7.6)	(7.5)	(7.5)
Any hospice use in 2 months before episode period	5.6	6.3	6.3	6.8	7.8	8.3	8.6	9.3	9.0	8.7	8.5	8.4
HIV/AIDS	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.4
Septicemia/shock	7.6	7.4	7.8	8.2	9.1	7.7	5.7	6.4	5.9	7.1	8.2	7.5
Cancers	12.2	11.6	12.0	10.5	11.3	11.4	9.6	9.8	9.2	9.4	9.5	9.2
Diabetes with complications	18.9	20.0	20.4	19.4	21.6	20.5	15.5	15.4	15.8	16.7	17.3	18.1
Diabetes without complications	17.0	17.5	16.0	16.5	14.5	15.5	18.1	18.1	18.6	18.1	18.1	17.7
Liver problems	1.0	1.4	1.2	1.9	1.4	1.2	1.1	1.2	1.9	2.0	2.2	2.2
Intestinal obstruction/perforation	3.7	4.2	3.5	3.4	3.9	3.3	3.2	4.1	3.7	3.4	3.0	3.3
Pancreatic disease	1.3	1.4	1.7	2.0	1.8	1.8	1.9	1.4	1.8	1.8	1.5	1.5
Inflammatory bowel disease	1.2	1.0	0.7	1.0	0.6	0.5	0.8	0.7	0.7	0.7	0.4	0.7
Bone/joint/muscle infections/necrosis	2.8	3.3	2.7	2.0	2.4	2.5	2.1	2.2	2.5	2.5	2.7	2.6

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 8 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Missouri

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rheumatoid arthritis and inflammatory connective tissue disease	5.4	4.8	5.4	4.9	5.9	6.3	5.1	4.9	4.5	4.2	4.6	4.9
Severe hematological disorders	1.7	1.6	1.1	0.7	0.5	0.4	1.3	1.2	0.8	0.7	0.7	0.6
Disorders of immunity	1.2	1.2	1.7	1.7	1.6	1.3	0.8	1.1	2.0	1.7	1.6	1.7
Schizophrenia	4.7	4.6	4.9	5.5	5.7	5.8	5.9	6.4	7.0	7.5	7.3	7.3
Major depressive, bipolar, and paranoid disorders	18.6	21.1	21.7	21.5	24.0	24.2	12.0	14.3	15.6	15.5	15.9	15.2
Paraplegia, quadriplegia, other extensive paralysis, cerebral palsy, and other paralytic syndromes	2.6	3.3	3.4	4.3	4.6	4.4	1.9	2.2	2.2	2.4	2.2	2.4
Spinal cord disorders/injuries	1.5	1.4	1.2	1.0	1.0	1.3	0.8	1.0	0.8	0.9	1.1	0.7
Multiple sclerosis	1.9	2.5	2.2	2.7	2.8	3.1	1.1	0.9	1.2	1.1	1.2	1.1
Seizure disorders and convulsions	8.0	9.9	10.2	11.4	11.6	11.0	8.1	10.1	10.5	10.9	10.4	9.4
Coma, brain compression/anoxic damage	0.8	1.4	1.2	0.9	1.4	1.1	0.6	0.6	1.0	0.9	0.9	0.7
Respirator dependence/tracheostomy status	0.8	0.7	0.9	0.9	0.6	0.5	0.4	0.6	0.7	0.8	1.1	0.8
Cardio-respiratory failure and shock	11.7	12.6	13.1	10.9	13.6	12.0	10.0	10.5	11.5	11.3	12.8	11.7
Congestive heart failure	34.0	35.8	35.3	34.1	35.7	32.8	27.0	26.9	27.4	26.2	26.5	25.4
Acute myocardial infarction	3.7	3.3	2.8	2.6	2.7	2.8	2.0	1.8	2.0	2.5	2.3	1.9
Unstable angina and other acute ischemic heart disease	4.2	3.7	2.8	3.1	3.1	3.1	1.9	1.7	2.0	1.5	1.9	1.6

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 8 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Missouri

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Angina pectoris/old myocardial infarction	6.8	6.3	6.8	5.7	5.2	5.5	5.3	6.1	6.1	6.6	5.4	6.3
Specified heart arrhythmias	27.0	28.3	28.7	26.2	28.7	25.5	22.2	22.7	23.8	23.3	24.1	23.0
Ischemic or unspecified stroke	12.6	12.9	11.5	11.7	11.2	11.0	11.8	11.9	10.9	10.5	9.1	9.0
Vascular disease with complications	39.6	40.8	41.4	42.3	42.4	38.3	38.9	38.3	46.4	46.0	49.5	46.2
COPD	23.4	23.9	23.3	23.1	24.5	22.4	23.5	26.1	26.5	25.1	25.0	24.7
Aspiration and specified bacterial pneumonias, pneumococcal pneumonia, empyema, and lung abscess	7.9	7.8	7.1	6.5	7.6	6.0	4.2	4.7	4.6	4.9	5.7	5.2
Proliferative diabetic retinopathy and vitreous hemorrhage	1.1	0.8	1.1	1.0	1.0	1.3	0.9	0.6	1.0	1.0	0.9	1.0
Dialysis status	1.9	1.9	1.8	1.8	2.3	2.1	1.2	1.5	1.9	2.3	2.2	2.2
Renal failure	26.8	30.2	31.5	31.3	32.7	31.2	21.0	22.8	23.0	24.3	25.4	24.3
Decubitus ulcer of skin	9.4	10.6	10.1	8.7	10.0	9.0	5.4	6.9	7.5	7.2	8.4	7.5
Chronic ulcer of skin, except decubitus	4.9	4.3	4.9	4.3	5.2	4.6	3.4	4.1	4.4	3.9	4.2	3.6
Vertebral fractures without spinal cord injury	2.8	2.8	2.9	2.0	2.5	3.0	3.1	2.8	3.1	3.2	3.3	2.7
Hip fracture/dislocation	5.4	5.1	6.4	5.7	6.0	5.7	4.7	5.9	5.9	4.7	5.1	4.7
Major complications of medical care and trauma	6.5	7.4	6.2	6.9	7.2	6.8	5.0	5.7	5.2	5.5	5.8	4.9
Artificial openings for feeding or elimination	2.8	4.7	4.0	4.1	4.5	3.7	2.5	3.2	3.3	3.3	3.5	3.4
N (Residents)	2,438	2,316	2,329	2,302	2,317	2,276	4,828	4,585	4,421	4,380	4,248	4,120

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 8 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Missouri

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Facility Level:												
Any PA/NP in facility	43.8	50.0	75.0	87.5	87.5	87.5	43.8	43.8	43.8	50.0	65.6	65.6
RN staffing HPRD	0.27	0.28	0.34	0.37	0.37	0.33	0.23	0.21	0.24	0.26	0.30	0.28
	(0.13)	(0.12)	(0.18)	(0.17)	(0.11)	(0.16)	(0.14)	(0.12)	(0.13)	(0.19)	(0.16)	(0.16)
LPN staffing HPRD	0.57	0.59	0.68	0.59	0.63	0.66	0.66	0.63	0.71	0.68	0.69	0.68
	(0.15)	(0.14)	(0.23)	(0.18)	(0.17)	(0.17)	(0.19)	(0.19)	(0.25)	(0.24)	(0.31)	(0.26)
CNA staffing HPRD	2.07	2.20	2.57	2.30	2.16	2.29	2.05	2.01	2.04	1.98	2.01	1.96
	(0.26)	(0.46)	(0.78)	(0.37)	(0.45)	(0.87)	(0.40)	(0.42)	(0.36)	(0.37)	(0.46)	(0.57)
For profit	87.5	87.5	87.5	87.5	87.5	87.5	71.9	71.9	71.9	75.0	75.0	75.0
Chain	87.5	87.5	87.5	87.5	87.5	81.3	46.9	40.6	34.4	37.5	37.5	37.5
Percent Medicaid residents	57.2	55.9	59.5	61.7	61.8	62.7	58.6	58.8	59.1	61.1	60.6	60.0
	(13.9)	(18.1)	(16.6)	(16.7)	(16.6)	(17.0)	(19.2)	(17.8)	(18.9)	(19.2)	(18.5)	(20.0)
Percent Medicare residents	16.4	14.6	13.7	12.3	9.4	8.1	11.2	11.4	10.6	11.2	10.7	10.1
	(10.0)	(10.5)	(8.2)	(6.6)	(4.2)	(4.0)	(7.9)	(8.7)	(9.5)	(8.7)	(8.6)	(9.0)
Percent residents with advance directives	42.8	37.8	41.1	36.6	37.0	30.0	56.3	63.2	67.3	59.1	53.6	58.1
	(27.3)	(26.9)	(27.7)	(22.6)	(31.5)	(22.7)	(32.2)	(29.9)	(30.3)	(35.7)	(31.2)	(35.2)
Alzheimer's unit in facility	50.0	56.3	56.3	62.5	62.5	62.5	46.9	46.9	37.5	43.8	40.6	40.6
N (Facilities)	16	16	16	16	16	16	32	32	32	32	32	32

NOTES: Numbers in parentheses are standard deviations for continuous variables.

ECCP = Enhanced Care and Coordination Providers; MA = Medicare Advantage; BMI = Body Mass Index; ADL = Activities of Daily Living; PA = Physician Assistant; NP = Nursing Practitioner; RN = Registered Nurse; LPN = Licensed Practical Nurse; CNA = Certified Nurse Aide; HPRD = Hours Per Resident Day.

¹ Exposure (Initiative-related days) are measured in units of 10 days for inclusion in regression models; in count models the log of this variable is included.

SOURCE: RTI analysis of MDS, Medicare claims, and CASPER data (RTI program: av08/nhpah286).

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 9

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nebraska

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Resident Level:												
Exposure (Initiative-related days) ¹	223.0	217.6	216.6	227.1	233.6	227.9	221.3	231.3	229.0	234.6	229.0	235.9
	(140.0)	(141.5)	(142.2)	(137.0)	(136.2)	(133.4)	(141.7)	(140.4)	(139.1)	(139.3)	(139.2)	(138.5)
Eligible due to no discharge plan	20.3	22.2	23.8	18.3	14.4	17.5	23.2	20.6	20.4	20.1	18.9	18.8
Dual eligible (any episode month)	71.8	71.2	72.0	72.9	73.7	75.0	62.5	65.7	66.2	66.0	65.5	67.5
MA plan (any episode month)	1.3	2.6	2.5	2.0	2.4	4.9	0.9	1.1	0.8	1.1	1.2	2.0
Male, < 65	8.3	7.9	7.6	8.2	8.6	9.4	6.1	6.8	6.5	6.8	6.8	7.2
Male, 65–69	3.5	4.5	5.2	4.7	4.7	5.7	3.6	4.1	4.1	4.3	4.2	4.9
Male, 70–74	4.4	4.0	4.3	5.0	4.1	5.2	3.2	3.6	4.3	4.2	4.6	4.9
Male, 75–79	4.9	5.4	5.9	5.5	5.4	4.8	5.2	4.1	4.2	4.6	4.5	4.3
Male, 80–84	5.3	5.3	4.6	6.0	5.3	5.1	7.1	7.2	6.7	6.1	6.8	5.9
Male, 85–89	4.5	5.1	5.1	4.1	5.6	6.3	6.5	7.2	7.1	6.5	6.5	6.8
Male, 90–94	2.5	2.6	2.2	2.6	3.2	2.9	3.0	3.4	3.0	3.6	3.9	3.9
Male, 95+	0.4	0.3	0.3	0.5	0.5	0.8	1.1	1.2	1.3	1.0	0.8	0.7
Female, < 65	7.7	7.8	7.9	8.0	7.4	8.1	6.1	6.6	6.8	6.9	5.8	6.5
Female, 65–69	4.7	5.0	5.5	5.2	5.3	4.5	3.8	4.0	3.7	4.1	4.6	4.8
Female, 70–74	5.2	5.7	6.2	6.0	7.2	6.4	5.0	4.8	4.8	5.1	5.0	5.4
Female, 75–79	7.7	8.0	7.3	7.6	7.0	6.6	7.7	7.4	7.6	7.0	7.3	7.0
Female, 80–84	10.2	9.8	10.6	10.0	9.5	9.4	10.9	10.8	10.2	10.0	9.6	9.5
Female, 85–89	13.1	12.0	11.6	11.8	11.9	11.3	14.4	13.6	13.4	13.5	13.1	11.8
Female, 90–94	11.6	10.8	9.5	9.4	9.5	9.0	10.7	10.2	10.8	10.9	11.0	10.9
Female, 95+	5.9	5.6	6.2	5.4	5.2	4.6	5.7	5.2	5.5	5.4	5.7	5.6

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 9 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nebraska

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
White, non-Hispanic	84.5	84.5	82.0	79.0	78.8	79.8	91.2	89.1	88.4	86.8	83.2	83.9
Black, non-Hispanic	13.0	13.2	13.6	13.6	13.6	13.7	4.2	4.3	3.7	3.6	4.4	4.3
Other race/ethnicity	2.5	2.3	4.4	7.4	7.7	6.5	4.6	6.6	7.9	9.7	12.4	11.8
Dementia	43.1	41.8	39.9	42.6	44.7	44.7	42.4	44.8	44.1	41.7	43.1	42.8
Anemia	21.4	24.6	23.8	25.9	26.9	24.9	18.8	20.0	19.9	21.4	21.9	23.4
BMI	27.8	27.8	27.9	28.6	28.5	29.2	27.5	27.7	27.8	28.1	27.9	28.1
	(8.6)	(8.3)	(8.8)	(9.1)	(8.8)	(9.6)	(7.6)	(7.7)	(7.6)	(7.9)	(8.0)	(8.2)
ADL Score	16.8	16.7	16.6	16.2	16.4	16.2	16.2	16.0	15.9	15.8	16.1	15.8
	(7.0)	(6.4)	(6.2)	(6.2)	(5.9)	(6.2)	(7.2)	(7.1)	(7.0)	(6.8)	(6.6)	(6.7)
Any hospice use in 2 months before episode period	5.6	5.3	7.1	6.6	7.4	8.8	6.1	6.2	7.9	7.7	6.7	7.1
HIV/AIDS	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Septicemia/shock	6.4	6.9	7.2	8.1	9.5	10.4	4.8	4.8	5.1	6.6	6.5	6.4
Cancers	10.4	10.5	11.0	9.7	10.5	10.8	10.2	10.8	10.0	8.8	9.9	9.2
Diabetes with complications	15.7	18.0	19.2	20.4	21.8	22.6	14.1	14.1	14.8	13.8	14.0	14.7
Diabetes without complications	16.8	17.8	16.7	16.5	16.5	16.0	19.0	19.6	20.1	19.3	19.4	18.8
Liver problems	1.5	1.8	2.1	1.5	1.8	1.8	0.9	1.2	0.9	0.9	1.2	0.8
Intestinal obstruction/perforation	5.2	4.1	4.1	3.6	3.9	3.5	3.1	4.1	3.7	3.4	3.2	3.0
Pancreatic disease	2.4	2.2	1.5	2.0	2.2	2.0	0.8	1.4	1.2	1.4	1.4	1.3
Inflammatory bowel disease	0.9	1.3	1.2	0.9	0.8	0.8	0.8	0.9	0.9	0.8	0.7	0.9
Bone/joint/muscle infections/necrosis	2.6	2.0	2.8	3.2	2.9	2.6	1.6	2.1	2.1	1.7	2.0	1.8

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 9 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nebraska

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Rheumatoid arthritis and inflammatory connective tissue disease	4.4	5.2	5.7	6.2	6.5	5.3	3.8	5.0	4.8	5.4	4.7	5.1
Severe hematological disorders	1.2	1.3	0.8	1.0	0.8	0.6	1.1	0.5	0.5	0.6	0.7	0.7
Disorders of immunity	1.0	2.0	3.1	1.5	1.9	1.8	1.4	1.4	1.9	2.2	1.8	1.8
Schizophrenia	4.8	4.8	5.6	6.2	6.3	6.1	6.7	7.1	7.1	6.7	7.3	7.4
Major depressive, bipolar, and paranoid disorders	10.6	12.3	13.3	15.7	16.6	15.4	9.7	10.8	10.7	12.0	12.7	12.6
Paraplegia, quadriplegia, other extensive paralysis, cerebral palsy, and other paralytic syndromes	2.8	3.3	3.9	4.3	5.0	4.6	3.4	3.1	3.6	3.8	3.2	4.0
Spinal cord disorders/injuries	1.4	1.6	0.6	1.2	1.2	0.9	1.0	0.8	0.5	1.0	0.7	0.7
Multiple sclerosis	2.3	2.1	2.5	2.8	2.7	2.8	1.8	2.0	1.8	2.0	2.0	2.2
Seizure disorders and convulsions	9.1	8.3	9.7	10.4	11.1	11.1	7.9	8.2	7.8	8.5	8.1	8.1
Coma, brain compression/anoxic damage	0.6	0.9	1.6	1.0	0.7	0.9	0.7	0.7	0.6	0.6	0.7	0.8
Respirator dependence/tracheostomy status	0.9	1.1	1.4	1.4	0.9	0.6	1.6	1.2	1.4	1.2	1.4	1.5
Cardio-respiratory failure and shock	12.1	13.6	13.9	13.4	14.0	14.0	11.3	12.1	13.1	13.7	14.1	12.8
Congestive heart failure	26.2	29.5	25.4	28.2	26.7	26.7	25.7	25.9	25.2	25.6	25.0	22.3
Acute myocardial infarction	2.4	2.0	1.3	2.6	1.9	1.7	1.7	1.9	1.3	1.9	1.8	1.6
Unstable angina and other acute ischemic heart disease	2.1	1.2	1.7	2.6	2.0	2.0	1.4	1.1	1.3	1.6	1.6	1.5

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 9 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nebraska

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Angina pectoris/old myocardial infarction	4.0	5.8	4.9	5.4	5.5	5.3	3.8	5.3	5.1	4.8	3.7	3.6
Specified heart arrhythmias	22.3	24.5	24.5	23.8	25.1	24.0	22.6	24.7	24.5	25.5	25.4	24.1
Ischemic or unspecified stroke	10.7	10.5	11.4	11.2	14.7	14.5	7.8	7.6	7.7	8.5	8.2	8.9
Vascular disease with complications	28.6	29.6	30.8	34.5	36.3	36.1	27.8	29.7	30.6	29.6	29.1	30.8
COPD	24.1	25.1	26.2	26.3	25.1	24.3	19.8	21.3	21.8	21.3	21.0	20.0
Aspiration and specified bacterial pneumonias, pneumococcal pneumonia, empyema, and lung abscess	4.2	4.2	3.9	3.1	4.1	3.2	4.1	4.4	3.4	3.8	3.9	3.5
Proliferative diabetic retinopathy and vitreous hemorrhage	1.3	1.4	1.1	1.2	1.5	1.8	0.9	0.6	1.0	1.0	1.2	1.0
Dialysis status	2.1	2.2	2.9	2.6	2.2	1.8	0.9	1.3	1.6	1.4	1.3	1.2
Renal failure	21.9	22.4	23.4	25.7	27.9	28.7	17.7	20.5	19.3	21.2	21.1	20.7
Decubitus ulcer of skin	7.8	8.1	8.6	11.5	11.4	11.2	6.8	7.4	6.7	7.1	7.5	7.1
Chronic ulcer of skin, except decubitus	5.6	5.8	5.9	6.0	5.0	4.6	5.0	6.0	4.8	4.8	5.4	5.1
Vertebral fractures without spinal cord injury	3.5	3.5	1.7	2.5	2.4	2.7	2.9	3.2	3.4	3.4	3.4	3.1
Hip fracture/dislocation	5.1	4.7	4.1	4.4	4.6	3.9	4.5	5.0	4.2	4.9	4.8	4.3
Major complications of medical care and trauma	7.4	9.4	7.3	8.3	8.4	6.8	5.9	7.4	5.9	6.2	5.5	5.0
Artificial openings for feeding or elimination	4.9	5.6	5.3	5.0	5.1	5.0	3.8	3.9	4.0	3.7	3.9	4.3
N (Residents)	1,637	1,594	1,555	1,478	1,238	1,260	3,610	3,375	3,309	3,211	3,186	3,046

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 9 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nebraska

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Facility Level:												
Any PA/NP in facility	53.3	46.7	60.0	73.3	85.7	78.6	36.7	36.7	43.3	48.3	41.4	41.4
RN staffing HPRD	0.35	0.39	0.43	0.46	0.44	0.43	0.52	0.53	0.55	0.56	0.53	0.48
	(0.17)	(0.17)	(0.20)	(0.26)	(0.23)	(0.21)	(0.41)	(0.41)	(0.37)	(0.48)	(0.30)	(0.29)
LPN staffing HPRD	0.84	0.87	0.81	0.80	0.84	0.78	0.85	0.90	0.87	0.81	0.75	0.77
	(0.29)	(0.29)	(0.25)	(0.17)	(0.22)	(0.19)	(0.60)	(0.63)	(0.54)	(0.55)	(0.57)	(0.57)
CNA staffing HPRD	2.05	2.12	2.00	2.20	2.20	2.14	1.99	1.96	1.99	1.90	1.88	2.04
	(0.38)	(0.29)	(0.35)	(0.37)	(0.54)	(0.37)	(0.82)	(0.87)	(0.82)	(1.00)	(0.80)	(0.78)
For profit	66.7	66.7	66.7	66.7	71.4	71.4	56.7	56.7	56.7	58.6	58.6	58.6
Chain	80.0	73.3	73.3	73.3	78.6	78.6	56.7	60.0	63.3	69.0	72.4	62.1
Percent Medicaid residents	62.6	63.9	61.5	65.2	63.9	69.3	62.4	61.8	61.6	62.2	58.8	63.8
	(16.1)	(13.6)	(15.1)	(14.9)	(14.4)	(14.5)	(15.1)	(15.9)	(14.2)	(14.6)	(16.4)	(15.9)
Percent Medicare residents	11.9	11.5	13.2	12.6	11.9	10.8	12.5	12.3	12.3	11.8	12.6	11.1
	(4.4)	(8.5)	(8.2)	(8.1)	(7.4)	(8.0)	(6.6)	(6.2)	(6.3)	(6.9)	(6.5)	(6.3)
Percent residents with advance directives	59.4	35.6	43.8	45.9	39.6	39.9	62.3	65.0	73.1	60.0	51.1	46.4
	(29.5)	(33.3)	(34.7)	(37.9)	(39.8)	(39.4)	(35.6)	(35.3)	(34.4)	(42.5)	(40.9)	(41.4)
Alzheimer's unit in facility	26.7	26.7	26.7	20.0	21.4	21.4	43.3	43.3	43.3	34.5	34.5	37.9
N (Facilities)	15	15	15	15	14	14	30	30	30	29	29	29

NOTES: Numbers in parentheses are standard deviations for continuous variables.

ECCP = Enhanced Care and Coordination Providers; MA = Medicare Advantage; BMI = Body Mass Index; ADL = Activities of Daily Living; PA = Physician Assistant; NP = Nursing Practitioner; RN = Registered Nurse; LPN = Licensed Practical Nurse; CNA = Certified Nurse Aide; HPRD = Hours Per Resident Day.

¹ Exposure (Initiative-related days) are measured in units of 10 days for inclusion in regression models; in count models the log of this variable is included.

SOURCE: RTI analysis of MDS, Medicare claims, and CASPER data (RTI program: av08/nhpah286).

Appendix Table 10
Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nevada

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2-16
Resident Level:												
Exposure (Initiative-related days) ¹	178.4	175.1	176.3	190.5	196.0	206.7	192.5	182.5	191.4	196.4	205.3	208.1
	(143.2)	(145.6)	(144.5)	(146.0)	(146.7)	(145.6)	(143.5)	(144.4)	(145.2)	(144.6)	(143.8)	(143.9)
Eligible due to no discharge plan	37.2	40.0	37.5	33.9	33.0	29.3	31.0	34.6	32.7	30.8	27.1	26.4
Dual eligible (any episode month)	61.0	60.1	58.5	63.6	64.6	70.3	64.2	62.8	62.1	65.0	65.7	65.7
MA plan (any episode month)	3.2	3.2	2.9	4.2	4.7	5.1	3.6	3.0	3.7	2.8	4.2	5.2
Male, < 65	5.8	6.8	7.1	7.7	8.3	9.0	8.8	8.9	9.0	9.9	10.1	10.0
Male, 65–69	4.4	5.6	5.3	6.0	5.5	5.7	6.7	6.5	6.1	7.8	7.8	7.5
Male, 70–74	4.7	5.5	6.0	6.4	5.8	6.5	5.6	6.4	6.7	6.8	7.5	8.1
Male, 75–79	6.9	6.6	6.4	6.4	6.3	6.5	6.7	7.3	6.3	6.5	8.3	8.0
Male, 80–84	6.3	6.5	6.0	5.3	5.5	4.9	7.2	8.0	6.4	7.1	6.8	7.9
Male, 85–89	5.8	5.5	4.7	4.8	4.9	4.5	6.3	6.0	6.8	6.4	7.1	6.4
Male, 90–94	3.0	2.5	2.7	2.1	2.4	2.2	2.5	3.2	3.0	3.7	3.5	3.5
Male, 95+	0.6	0.5	0.5	0.5	0.5	0.5	1.1	0.7	0.9	0.8	0.7	0.7
Female, < 65	5.9	6.2	6.1	7.2	7.3	8.2	6.0	6.2	6.9	6.7	5.3	5.6
Female, 65–69	5.4	5.0	5.5	5.8	6.1	6.1	5.0	5.3	5.5	5.6	5.5	5.6
Female, 70–74	5.2	6.1	6.9	7.4	7.9	7.3	5.9	5.6	6.0	5.8	5.4	5.8
Female, 75–79	8.3	8.4	8.9	8.1	8.6	9.0	6.9	6.8	8.1	6.5	6.1	5.9
Female, 80–84	11.6	11.2	10.9	9.9	9.5	8.8	10.0	9.2	8.0	8.3	8.7	7.6
Female, 85–89	13.6	12.6	11.4	11.3	10.1	10.3	10.8	10.3	10.3	8.6	7.9	7.0
Female, 90–94	8.9	8.1	8.3	7.8	7.9	7.0	7.7	6.6	6.8	6.5	7.1	7.4
Female, 95+	3.6	3.0	3.3	3.3	3.5	3.5	2.9	2.9	3.1	2.7	2.3	2.8

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 10 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nevada

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
White, non-Hispanic	79.3	76.9	75.5	71.6	70.6	72.3	77.5	77.9	77.5	75.0	75.4	73.3
Black, non-Hispanic	8.3	8.7	9.1	8.9	9.1	9.9	9.2	9.8	10.4	11.4	11.8	11.5
Other race/ethnicity	12.4	14.4	15.4	19.5	20.3	17.8	13.3	12.3	12.1	13.6	12.8	15.3
Dementia	41.8	41.5	38.7	36.2	34.2	36.2	40.0	41.4	38.2	38.5	39.2	36.9
Anemia	28.4	31.8	30.6	28.3	27.8	25.8	26.9	30.6	26.8	29.7	24.9	27.4
BMI	25.6	25.8	25.8	26.2	26.1	26.0	25.6	25.7	25.8	25.9	26.1	26.1
	(7.1)	(7.7)	(7.2)	(7.3)	(7.2)	(8.1)	(7.1)	(7.2)	(7.2)	(7.2)	(6.9)	(7.2)
ADL Score	18.0	18.0	18.1	17.9	18.0	17.8	18.4	18.4	17.9	17.9	18.0	18.1
	(6.2)	(6.0)	(5.8)	(5.6)	(5.4)	(5.8)	(6.9)	(6.9)	(6.9)	(6.8)	(6.7)	(6.3)
Any hospice use in 2 months before episode period	5.8	5.8	5.1	4.6	4.1	3.9	5.1	4.7	5.0	4.2	3.6	3.8
HIV/AIDS	0.2	0.2	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.5	0.5	0.6
Septicemia/shock	9.6	10.1	10.2	10.3	11.3	10.0	10.1	11.6	10.2	11.2	13.0	11.4
Cancers	10.8	10.9	11.1	9.7	9.8	8.9	8.5	9.6	9.1	10.2	8.7	6.8
Diabetes with complications	15.6	17.7	19.4	21.4	22.1	20.5	16.1	17.3	16.9	16.9	16.9	18.1
Diabetes without complications	16.7	16.8	16.3	15.5	15.8	17.4	17.1	17.4	17.0	17.9	19.7	18.9
Liver problems	1.5	2.5	2.1	2.5	2.5	2.4	2.5	2.7	3.0	3.4	3.0	2.6
Intestinal obstruction/perforation	4.5	4.6	4.3	4.2	4.3	3.7	4.5	4.7	4.7	3.9	3.9	4.4
Pancreatic disease	2.0	2.3	2.3	2.4	2.1	1.9	1.9	1.9	1.8	1.9	1.2	1.6
Inflammatory bowel disease	1.1	1.2	1.3	1.1	1.2	0.9	1.1	1.3	1.5	1.3	1.0	0.9
Bone/joint/muscle infections/necrosis	3.5	3.4	3.6	4.1	3.9	3.5	3.7	4.5	3.0	3.8	3.6	4.4
Rheumatoid arthritis and inflammatory connective tissue disease	5.2	5.3	5.2	5.6	4.9	4.3	3.0	4.0	3.7	3.8	3.3	3.3

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 10 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nevada

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Severe hematological disorders	2.1	2.0	1.0	1.0	1.0	0.8	2.1	1.9	0.7	0.7	0.8	0.6
Disorders of immunity	1.1	1.2	2.2	2.5	2.1	1.9	0.7	2.0	1.9	2.8	2.9	1.9
Schizophrenia	3.0	2.6	3.1	3.7	3.4	4.4	4.5	6.3	6.2	6.0	5.6	6.0
Major depressive, bipolar, and paranoid disorders	14.2	15.2	15.7	16.4	17.7	18.0	15.9	19.2	18.7	19.5	20.5	18.9
Paraplegia, quadriplegia, other extensive paralysis, cerebral palsy, and other paralytic syndromes	3.3	3.6	3.4	3.9	5.3	4.8	3.4	3.3	3.5	4.1	3.7	3.6
Spinal cord disorders/injuries	1.4	1.2	1.4	1.2	1.4	1.1	1.7	1.4	1.0	0.6	1.2	0.8
Multiple sclerosis	1.8	1.7	2.0	1.8	2.3	2.3	1.5	1.8	1.6	1.2	1.2	1.3
Seizure disorders and convulsions	9.9	11.2	11.5	13.2	13.7	13.0	9.6	12.4	11.9	12.8	12.7	12.8
Coma, brain compression/anoxic damage	1.5	1.7	1.8	1.8	2.0	1.5	1.7	1.6	1.3	1.5	2.1	1.5
Respirator dependence/tracheostomy status	3.5	4.7	4.3	4.7	5.1	4.1	5.6	7.5	5.2	6.5	6.7	5.1
Cardio-respiratory failure and shock	13.4	13.9	14.8	14.9	16.3	16.1	13.2	13.9	13.3	14.9	13.9	14.3
Congestive heart failure	29.3	28.0	28.8	28.2	27.5	25.6	28.9	28.2	26.8	28.1	26.1	24.5
Acute myocardial infarction	2.7	3.1	2.6	2.6	3.4	3.0	2.9	3.7	2.1	2.9	3.2	2.6
Unstable angina and other acute ischemic heart disease	2.3	2.2	2.5	2.8	2.9	2.8	2.6	2.4	2.8	2.8	3.3	2.8
Angina pectoris/old myocardial infarction	6.2	7.3	7.1	6.3	6.2	6.3	5.7	7.1	6.5	6.2	5.3	4.9

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 10 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nevada

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Specified heart arrhythmias	22.5	22.5	23.7	23.6	23.6	21.6	22.0	21.4	21.8	23.7	23.0	22.2
Ischemic or unspecified stroke	15.3	15.1	14.0	15.2	14.4	13.1	15.4	15.1	13.3	13.5	15.1	14.0
Vascular disease with complications	42.0	41.3	48.5	44.3	45.1	42.4	41.1	43.3	39.3	40.4	40.0	39.7
COPD	29.3	29.1	29.7	30.3	30.8	30.0	30.4	31.4	29.8	29.5	27.1	27.7
Aspiration and specified bacterial pneumonias, pneumococcal pneumonia, empyema, and lung abscess	7.3	7.2	7.9	7.8	7.5	6.2	8.7	8.5	7.2	7.9	9.5	6.6
Proliferative diabetic retinopathy and vitreous hemorrhage	0.8	1.2	1.1	1.2	1.4	1.2	0.8	0.7	1.3	0.9	1.0	0.6
Dialysis status	1.4	2.5	2.7	2.6	2.8	2.1	2.4	2.7	2.2	3.1	2.4	2.6
Renal failure	25.0	25.6	27.0	27.7	29.1	27.5	24.6	25.9	25.5	27.5	30.0	29.4
Decubitus ulcer of skin	12.1	14.4	13.5	14.2	14.0	12.8	12.9	15.6	14.2	15.2	15.7	13.1
Chronic ulcer of skin, except decubitus	4.1	3.7	4.2	4.2	3.9	3.4	3.7	3.3	3.9	3.9	3.7	4.2
Vertebral fractures without spinal cord injury	3.4	3.3	2.4	2.9	2.5	2.5	2.9	2.9	2.3	2.9	2.3	2.1
Hip fracture/dislocation	7.0	6.9	6.2	5.8	6.1	5.8	5.2	6.1	5.3	4.7	5.6	4.5
Major complications of medical care and trauma	7.4	8.7	8.0	7.9	8.4	7.2	9.3	9.3	7.1	8.4	8.3	6.7
Artificial openings for feeding or elimination	5.4	6.3	5.7	6.7	8.1	5.7	5.7	8.1	7.5	8.1	8.1	6.4
N (Residents)	3,800	3,889	3,820	3,463	3,354	3,094	2,075	2,079	2,035	1,955	1,796	1,753

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 10 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Nevada

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Facility Level:												
Any PA/NP in facility	25.0	41.7	66.7	66.7	62.5	62.5	52.4	57.1	52.4	57.9	63.2	63.2
RN staffing HPRD	0.50	0.59	0.69	0.63	0.59	0.54	0.84	0.82	0.94	0.94	1.05	0.89
	(0.24)	(0.31)	(0.32)	(0.26)	(0.27)	(0.25)	(0.57)	(0.64)	(0.77)	(0.74)	(0.95)	(0.80)
LPN staffing HPRD	0.64	0.65	0.65	0.80	0.78	0.81	0.83	0.87	0.94	0.83	0.97	0.87
	(0.27)	(0.29)	(0.25)	(0.46)	(0.37)	(0.35)	(0.42)	(0.43)	(0.46)	(0.35)	(0.66)	(0.37)
CNA staffing HPRD	1.53	1.85	2.04	1.95	2.03	2.11	1.97	2.08	2.05	2.25	2.24	2.44
	(1.02)	(0.93)	(0.72)	(0.95)	(0.64)	(0.36)	(1.24)	(1.04)	(0.97)	(0.68)	(1.02)	(0.81)
For profit	87.5	87.5	87.5	87.5	91.7	87.5	61.9	57.1	57.1	52.6	52.6	52.6
Chain	75.0	87.5	87.5	91.7	91.7	87.5	47.6	47.6	38.1	31.6	42.1	42.1
Percent Medicaid residents	56.5	60.6	59.1	56.9	59.2	58.4	52.4	54.0	51.6	54.5	56.6	64.8
	(17.3)	(16.6)	(16.8)	(15.5)	(15.9)	(18.3)	(31.0)	(28.1)	(26.0)	(22.3)	(18.9)	(18.8)
Percent Medicare residents	23.7	20.2	20.7	20.6	19.5	18.3	15.6	13.3	12.5	13.9	12.2	11.5
	(14.8)	(14.3)	(13.2)	(12.3)	(12.8)	(13.6)	(19.3)	(15.6)	(14.4)	(14.3)	(14.7)	(14.2)
Percent residents with advance directives	41.3	42.0	41.7	36.3	30.7	39.3	57.9	39.9	31.8	43.1	46.3	50.0
	(25.1)	(32.5)	(30.8)	(31.7)	(34.1)	(33.9)	(32.2)	(37.1)	(35.3)	(38.5)	(40.6)	(41.2)
Alzheimer's unit in facility	20.8	20.8	20.8	25.0	25.0	20.8	9.5	14.3	14.3	10.5	15.8	10.5
N (Facilities)	24	24	24	24	24	24	21	21	21	19	19	19

NOTES: Numbers in parentheses are standard deviations for continuous variables.

ECCP = Enhanced Care and Coordination Providers; MA = Medicare Advantage; BMI = Body Mass Index; ADL = Activities of Daily Living; PA = Physician Assistant; NP = Nursing Practitioner; RN = Registered Nurse; LPN = Licensed Practical Nurse; CNA = Certified Nurse Aide; HPRD = Hours Per Resident Day.

¹ Exposure (Initiative-related days) are measured in units of 10 days for inclusion in regression models; in count models the log of this variable is included.

SOURCE: RTI analysis of MDS, Medicare claims, and CASPER data (RTI program: av08/nhpah286).

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 11

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), New York

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Resident Level:												
Exposure (Initiative-related days) ¹	238.1	236.8	231.5	235.2	229.7	234.0	239.1	242.2	240.3	236.5	230.7	230.2
	(137.1)	(138.9)	(139.5)	(136.5)	(137.8)	(137.3)	(139.0)	(137.5)	(137.6)	(138.3)	(137.8)	(138.1)
Eligible due to no discharge plan	18.9	19.6	18.9	18.0	18.8	17.8	20.3	18.5	17.7	19.0	19.3	19.1
Dual eligible (any episode month)	80.0	82.7	81.4	82.6	81.7	80.4	80.9	82.5	82.3	82.1	82.0	80.4
MA plan (any episode month)	8.0	8.5	9.6	11.8	14.4	17.1	7.6	9.5	11.5	12.0	16.2	16.5
Male, < 65	5.0	5.3	5.8	6.4	5.8	5.5	4.5	4.5	4.6	4.8	5.1	5.1
Male, 65–69	3.7	3.6	3.9	4.2	4.9	4.9	3.9	3.8	4.1	4.1	4.6	5.0
Male, 70–74	4.2	4.1	4.4	4.9	5.0	5.2	4.3	4.3	4.3	4.6	5.1	5.1
Male, 75–79	5.3	5.5	5.6	5.5	5.8	5.1	5.1	5.1	5.5	5.2	5.4	5.4
Male, 80–84	6.9	6.7	6.2	6.0	6.6	6.6	6.4	6.2	6.3	5.8	5.8	5.7
Male, 85–89	6.4	6.8	7.0	6.4	7.0	7.0	5.8	6.1	5.9	6.2	5.7	5.8
Male, 90–94	3.6	4.2	4.5	4.6	4.3	4.7	3.5	3.7	3.8	3.6	4.2	4.0
Male, 95+	1.1	1.2	1.2	1.3	1.6	1.9	1.3	1.3	1.2	1.2	1.3	1.5
Female, < 65	3.5	3.7	3.6	3.9	3.9	4.0	3.0	3.2	3.3	3.8	3.6	3.6
Female, 65–69	3.2	3.6	3.3	3.8	3.8	3.7	3.5	3.4	3.4	3.6	4.0	4.2
Female, 70–74	4.3	4.2	4.4	4.7	4.7	4.5	4.4	4.5	4.4	5.1	4.8	5.2
Female, 75–79	6.7	6.7	6.7	6.7	6.2	6.3	7.0	6.5	6.9	6.9	7.0	7.0
Female, 80–84	11.6	11.1	10.6	9.4	9.3	9.5	11.5	11.6	11.2	10.7	10.3	10.1
Female, 85–89	16.1	14.9	14.9	14.1	13.0	12.5	16.3	16.3	15.4	15.2	14.3	13.9
Female, 90–94	11.9	11.9	11.5	11.8	11.9	12.0	13.0	12.6	12.6	12.3	12.2	11.9
Female, 95+	6.5	6.6	6.5	6.4	6.2	6.6	6.6	7.0	7.1	6.8	6.5	6.6

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 11 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), New York

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
White, non-Hispanic	61.8	60.4	59.8	58.1	56.7	56.2	63.8	62.3	61.9	61.0	59.9	60.6
Black, non-Hispanic	21.1	22.0	21.9	22.4	23.1	22.8	19.0	19.1	19.1	19.1	19.8	19.9
Other race/ethnicity	17.0	17.6	18.4	19.4	20.1	21.0	17.2	18.6	19.0	19.9	20.3	19.5
Dementia	53.8	56.9	54.0	54.8	54.4	53.0	55.5	58.4	58.7	57.9	56.1	53.7
Anemia	27.5	29.0	29.3	29.5	30.3	30.9	26.1	28.7	29.1	28.2	28.6	27.4
BMI	25.6	25.6	25.4	25.5	25.6	25.4	25.6	25.6	25.6	25.6	25.6	25.7
	(6.9)	(6.9)	(7.1)	(7.2)	(7.3)	(7.2)	(6.4)	(6.4)	(6.4)	(6.5)	(6.6)	(6.8)
ADL Score	19.4	19.6	19.6	19.6	19.8	19.8	18.7	18.8	19.0	19.1	19.2	19.2
	(6.3)	(6.3)	(5.9)	(5.6)	(5.3)	(5.1)	(7.0)	(6.9)	(6.7)	(6.4)	(6.1)	(5.8)
Any hospice use in 2 months before episode period	1.9	2.4	2.4	2.5	2.7	2.5	1.4	1.6	1.6	1.6	1.4	1.4
HIV/AIDS	1.7	1.9	2.4	2.8	1.8	1.6	1.1	1.0	1.1	1.4	1.5	1.2
Septicemia/shock	10.2	10.7	11.3	13.0	12.4	11.3	10.4	11.1	10.9	11.3	11.9	10.5
Cancers	13.1	13.3	13.4	12.7	12.6	13.0	12.7	12.9	12.6	13.4	13.2	12.5
Diabetes with complications	17.1	18.0	18.1	19.0	19.3	19.9	16.6	17.6	18.8	19.2	20.6	20.6
Diabetes without complications	18.8	19.7	19.8	18.7	18.7	17.6	20.1	20.0	19.3	18.5	18.4	16.8
Liver problems	2.3	2.5	2.4	2.7	2.4	2.2	2.2	2.3	2.5	2.9	2.7	2.6
Intestinal obstruction/perforation	4.2	4.1	4.3	4.0	4.2	3.9	3.8	4.4	4.2	4.1	3.7	3.2
Pancreatic disease	1.6	2.1	1.8	2.0	2.3	2.2	1.6	2.0	2.2	1.8	2.1	2.0
Inflammatory bowel disease	1.1	1.3	1.4	1.4	0.9	0.8	1.4	1.6	1.3	1.4	1.2	1.1
Bone/joint/muscle infections/necrosis	3.4	3.7	3.9	4.1	3.9	3.8	3.3	3.4	3.4	3.5	3.8	3.5
Rheumatoid arthritis and inflammatory connective tissue disease	4.2	4.5	4.8	4.3	4.6	4.6	4.2	4.8	4.7	4.6	4.7	4.9

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 11 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), New York

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Severe hematological disorders	2.0	1.7	1.1	1.3	1.1	1.0	1.9	1.7	1.1	1.2	1.1	1.1
Disorders of immunity	0.9	1.4	1.7	1.9	1.8	1.7	0.9	1.2	1.5	1.8	1.6	1.7
Schizophrenia	5.3	5.3	5.2	5.8	5.2	4.2	7.3	7.9	7.5	8.1	8.4	7.8
Major depressive, bipolar, and paranoid disorders	12.3	13.6	15.1	16.6	16.5	15.1	13.3	14.2	15.4	15.5	17.0	16.6
Paraplegia, quadriplegia, other extensive paralysis, cerebral palsy, and other paralytic syndromes	2.6	2.7	3.1	3.6	4.2	3.7	2.5	2.8	2.9	3.3	3.9	3.9
Spinal cord disorders/injuries	1.3	1.2	1.2	1.4	1.5	1.4	1.4	1.6	1.4	1.3	1.4	1.3
Multiple sclerosis	1.3	1.4	1.5	1.6	1.5	1.7	1.0	1.1	1.1	1.1	1.1	1.0
Seizure disorders and convulsions	11.8	12.1	12.0	12.7	12.4	11.7	11.0	11.5	11.5	12.4	12.3	11.6
Coma, brain compression/anoxic damage	1.3	1.7	1.6	1.4	1.6	1.5	1.1	1.1	1.2	1.3	1.5	1.4
Respirator dependence/tracheostomy status	1.9	2.4	2.3	2.4	2.5	2.4	1.3	1.6	1.4	1.4	1.6	1.4
Cardio-respiratory failure and shock	9.1	10.2	10.3	10.8	10.7	9.9	8.9	9.1	10.0	10.0	10.3	9.5
Congestive heart failure	34.2	34.1	32.7	33.2	31.7	31.2	34.5	34.3	33.5	32.3	31.7	30.1
Acute myocardial infarction	3.6	4.0	3.5	3.9	2.9	2.9	2.9	2.8	2.9	2.7	2.6	2.4
Unstable angina and other acute ischemic heart disease	4.4	4.6	4.3	4.1	5.0	4.4	4.0	4.2	3.9	3.6	4.1	4.0
Angina pectoris/old myocardial infarction	5.5	6.8	6.6	6.3	6.6	6.5	6.4	6.6	6.8	6.6	6.9	6.2

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 11 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), New York

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Specified heart arrhythmias	25.5	26.0	26.2	26.1	26.6	26.2	23.9	24.9	25.2	25.4	24.8	24.0
Ischemic or unspecified stroke	16.0	16.1	15.9	15.7	14.2	13.4	15.2	15.0	14.6	14.3	13.8	12.8
Vascular disease with complications	53.4	55.1	54.7	53.6	52.9	50.8	53.9	56.6	55.2	53.7	52.1	50.1
COPD	19.9	21.5	21.7	21.1	20.6	20.3	21.3	22.1	22.2	22.4	21.3	20.7
Aspiration and specified bacterial pneumonias, pneumococcal pneumonia, empyema, and lung abscess	5.7	6.5	6.6	7.4	6.4	6.1	5.4	5.8	5.8	6.1	5.9	5.5
Proliferative diabetic retinopathy and vitreous hemorrhage	1.5	1.3	1.5	1.5	1.5	1.6	1.5	1.4	1.3	1.5	1.4	1.4
Dialysis status	2.2	2.7	2.9	3.6	3.9	4.1	1.8	2.0	2.2	2.3	2.5	2.4
Renal failure	22.9	24.1	23.7	24.0	25.6	24.3	20.7	21.4	22.4	23.0	23.1	22.2
Decubitus ulcer of skin	14.7	16.9	16.4	17.9	16.5	15.4	14.0	16.5	16.4	16.3	15.7	14.7
Chronic ulcer of skin, except decubitus	8.0	7.3	7.0	7.0	7.5	6.8	6.6	6.6	6.2	5.8	5.6	5.8
Vertebral fractures without spinal cord injury	2.0	2.3	2.3	2.4	2.6	2.7	2.1	2.2	2.3	2.5	2.3	2.2
Hip fracture/dislocation	5.7	5.4	5.0	5.4	5.3	5.1	5.4	5.3	5.5	5.6	4.9	4.9
Major complications of medical care and trauma	7.7	8.3	8.0	8.8	8.0	7.5	6.1	6.0	6.5	6.4	6.8	6.3
Artificial openings for feeding or elimination	4.7	6.2	6.4	6.5	6.2	5.5	4.3	5.2	5.0	4.8	5.1	3.9
N (Residents)	8,552	7,909	7,643	7,033	6,859	6,582	13,330	12,895	12,684	11,932	11,701	11,305

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 11 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), New York

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Facility Level:												
Any PA/NP in facility	33.3	46.7	43.3	50.0	55.2	62.1	43.3	46.7	50.0	46.7	53.3	50.0
RN staffing HPRD	0.72	0.57	0.59	1.23 a	0.55	0.56	0.47	0.47	0.50	0.55	0.52	0.53
	(0.81)	(0.27)	(0.31)	(3.33)	(0.29)	(0.31)	(0.26)	(0.25)	(0.29)	(0.30)	(0.29)	(0.36)
LPN staffing HPRD	0.79	0.67	0.66	1.27 a	0.78	0.72	0.66	0.68	0.70	0.71	0.73	0.72
	(0.81)	(0.30)	(0.27)	(2.87)	(0.62)	(0.29)	(0.27)	(0.27)	(0.30)	(0.33)	(0.34)	(0.33)
CNA staffing HPRD	2.61	2.26	2.40	2.89 a	2.11	2.30	2.33	2.35	2.56	2.41	2.50	2.36
	(2.01)	(0.56)	(0.55)	(4.03)	(0.54)	(0.46)	(0.57)	(0.62)	(2.24)	(0.68)	(1.08)	(0.81)
For profit	33.3	33.3	33.3	46.7	41.4	41.4	48.3	50.0	55.0	50.0	55.0	56.7
Chain	10.0	10.0	6.7	3.3	0.0	0.0	10.0	15.0	15.0	10.0	8.3	8.3
Percent Medicaid residents	71.7	71.7	67.6	69.3	64.9	63.4	71.3	72.0	69.5	68.3	66.1	63.9
	(21.1)	(17.8)	(22.0)	(20.0)	(20.6)	(19.0)	(21.6)	(21.8)	(21.8)	(22.0)	(23.8)	(23.1)
Percent Medicare residents	11.6	12.6	12.4	13.7	14.4	14.4	12.0	11.9	12.9	13.2	14.3	16.8
	(8.2)	(7.5)	(8.9)	(10.5)	(11.9)	(10.5)	(11.7)	(13.0)	(13.0)	(13.5)	(14.2)	(18.0)
Percent residents with advance directives	58.7	61.4	58.6	63.0	61.2	64.9	65.6	67.0	65.9	63.1	63.6	61.4
	(23.5)	(24.6)	(25.6)	(25.7)	(22.9)	(22.7)	(23.8)	(24.2)	(24.4)	(26.9)	(28.9)	(30.6)
Alzheimer's unit in facility	16.7	16.7	13.3	13.3	20.7	17.2	8.3	8.3	10.0	10.0	6.7	6.7
N (Facilities)	30	30	30	30	29	29	60	60	60	60	60	60

NOTES: Numbers in parentheses are standard deviations for continuous variables.

ECCP = Enhanced Care and Coordination Providers; MA = Medicare Advantage; BMI = Body Mass Index; ADL = Activities of Daily Living; PA = Physician Assistant; NP = Nursing Practitioner; RN = Registered Nurse; LPN = Licensed Practical Nurse; CNA = Certified Nurse Aide; HPRD = Hours Per Resident Day.

¹ Exposure (Initiative-related days) are measured in units of 10 days for inclusion in regression models; in count models the log of this variable is included.

a The sudden hike in average staffing HPRD appears to be caused by one outlier, Rivington House. The resident census in this facility dropped abruptly from 163 in 2013 to just 2 residents in 2014 before the facility eventually closed in November 2014. Meanwhile, the facility still maintained 7.5 FTE RNs (down from 17 in 2013), 6 FTE LPNs (down from 15 in 2013), and 13 FTE CNAs (down from 59 in 2013). The substantial staff still available for just two residents translated into improbably high staffing levels in this facility right before its closure. This resulted in the substantial increase in ECCP-wide facility average staffing HPRD in 2014.

SOURCE: RTI analysis of MDS, Medicare claims, and CASPER data (RTI program: av08/nhpah286).

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 12

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Pennsylvania

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Resident Level:												
Exposure (Initiative-related days) ¹	240.3 (137.8)	241.1 (137.9)	242.3 (138.7)	243.8 (135.7)	248.8 (133.9)	256.9 (132.8)	246.4 (136.3)	247.3 (135.6)	242.1 (138.4)	243.1 (137.3)	241.4 (139.0)	244.9 (138.2)
Eligible due to no discharge plan	18.6	19.3	19.5	16.7	14.6	13.8	16.7	16.5	17.5	18.6	17.9	18.3
Dual eligible (any episode month)	78.1	78.0	78.0	80.0	81.6	83.0	77.7	78.4	77.4	77.4	78.9	79.4
MA plan (any episode month)	4.5	4.7	3.9	7.7	6.2	6.6	3.6	3.7	3.7	3.8	4.4	6.8
Male, < 65	5.4	6.2	7.2	7.9	9.0	9.3	6.0	6.3	6.9	6.8	7.4	7.0
Male, 65–69	3.3	4.1	4.6	4.8	4.5	5.7	3.0	3.1	3.6	4.0	3.9	4.4
Male, 70–74	3.7	4.0	4.6	4.1	4.9	4.6	3.9	4.2	4.2	4.5	4.5	4.3
Male, 75–79	4.5	5.1	5.4	5.9	5.2	5.6	4.6	4.6	4.6	4.7	4.8	5.0
Male, 80–84	5.5	5.4	5.6	5.4	4.9	5.2	6.2	6.1	5.6	5.3	5.0	5.5
Male, 85–89	6.0	5.4	5.2	4.8	5.0	4.4	5.7	5.8	5.5	5.7	5.3	5.0
Male, 90–94	3.1	2.7	2.6	2.6	2.9	2.9	2.8	2.7	2.9	2.8	2.9	2.7
Male, 95+	0.7	0.9	0.9	0.5	0.7	0.5	0.7	0.7	0.8	0.8	0.9	0.9
Female, < 65	5.6	5.2	5.2	5.7	5.6	6.1	4.9	5.5	5.5	5.5	5.7	5.8
Female, 65–69	3.4	4.1	4.1	4.5	4.4	4.6	3.5	3.6	4.4	4.3	4.6	4.6
Female, 70–74	4.5	4.9	5.3	6.0	6.0	5.6	5.0	5.1	5.2	5.2	5.7	5.8
Female, 75–79	6.0	5.8	6.3	6.3	7.4	7.1	7.7	7.5	7.2	7.7	7.7	7.4
Female, 80–84	13.4	12.9	11.1	11.0	9.8	9.7	13.0	11.9	11.2	10.7	10.1	10.3
Female, 85–89	16.2	15.8	14.9	13.2	13.9	12.0	15.9	15.4	14.8	14.4	14.5	14.3
Female, 90–94	13.0	12.2	11.9	12.0	10.5	11.0	11.5	12.0	11.8	12.2	11.7	11.4
Female, 95+	5.6	5.4	5.1	5.3	5.3	5.4	5.5	5.4	5.8	5.4	5.3	5.7

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 12 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Pennsylvania

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
White, non-Hispanic	92.5	92.6	90.6	89.5	89.1	89.0	91.1	90.6	90.4	89.5	89.3	89.2
Black, non-Hispanic	6.7	6.6	8.2	8.7	9.4	9.0	5.5	5.5	5.6	5.8	5.3	5.3
Other race/ethnicity	0.8	0.8	1.3	1.8	1.5	2.0	3.5	3.9	4.0	4.6	5.4	5.5
Dementia	49.1	47.0	50.0	48.7	48.6	48.6	51.9	51.6	51.0	50.4	50.5	51.0
Anemia	29.3	29.9	30.6	31.4	32.1	32.8	26.9	29.6	30.2	30.2	29.9	28.9
BMI	26.9	27.3	27.4	27.6	27.5	27.6	27.1	27.3	27.4	27.4	27.4	27.3
	(7.5)	(7.8)	(7.8)	(8.2)	(8.2)	(8.4)	(7.5)	(7.6)	(7.6)	(7.6)	(7.9)	(8.4)
ADL Score	17.9	17.8	17.5	17.1	16.7	16.5	18.2	18.1	17.8	17.5	17.3	17.1
	(6.3)	(6.1)	(6.2)	(6.5)	(6.5)	(6.5)	(6.0)	(6.0)	(6.1)	(6.2)	(6.3)	(5.9)
Any hospice use in 2 months before episode period	4.0	3.2	4.2	4.4	4.2	4.1	4.9	4.8	4.6	4.1	4.2	4.0
HIV/AIDS	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.2	0.1	0.2
Septicemia/shock	8.7	9.2	8.9	9.1	8.5	7.3	8.1	8.6	9.0	8.7	8.6	7.7
Cancers	10.9	10.4	9.7	10.4	10.1	9.1	11.2	10.9	11.0	10.9	10.7	10.4
Diabetes with complications	17.5	17.5	17.7	19.3	19.1	18.8	18.4	19.0	19.6	19.7	21.3	21.1
Diabetes without complications	21.0	21.1	22.8	21.0	19.9	19.4	18.7	19.3	17.9	17.4	16.9	16.2
Liver problems	1.1	1.6	2.2	2.3	1.9	2.1	1.2	1.4	1.5	2.0	1.7	1.9
Intestinal obstruction/perforation	5.8	5.3	5.7	4.8	4.1	3.7	4.1	3.8	3.9	3.5	3.9	3.4
Pancreatic disease	1.2	1.6	1.1	1.3	1.1	0.8	1.7	1.5	1.7	1.3	1.3	1.6
Inflammatory bowel disease	0.9	0.9	0.9	1.1	0.9	0.8	0.7	0.9	0.7	0.7	0.7	0.8
Bone/joint/muscle infections/necrosis	2.6	2.6	2.7	3.0	2.6	2.5	2.4	2.4	2.5	2.4	3.0	2.7
Rheumatoid arthritis and inflammatory connective tissue disease	4.2	4.5	4.4	4.9	5.3	4.1	4.6	4.5	4.8	4.6	4.6	4.8

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 12 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Pennsylvania

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Severe hematological disorders	1.4	1.7	0.8	1.0	1.1	0.6	1.6	1.5	0.9	0.7	0.7	0.7
Disorders of immunity	0.8	1.4	2.3	2.2	2.0	1.3	1.0	1.1	1.5	2.1	1.7	1.4
Schizophrenia	6.1	7.3	7.2	8.4	9.5	9.7	6.7	7.4	7.0	7.7	7.7	7.5
Major depressive, bipolar, and paranoid disorders	11.8	12.9	13.9	14.8	16.1	16.4	14.4	16.1	18.2	18.6	17.2	16.4
Paraplegia, quadriplegia, other extensive paralysis, cerebral palsy, and other paralytic syndromes	3.8	3.9	3.4	4.3	3.4	3.1	3.8	4.4	4.3	4.4	4.8	4.5
Spinal cord disorders/injuries	1.2	1.3	1.6	2.3	1.4	1.5	1.2	0.9	1.3	1.3	1.1	1.1
Multiple sclerosis	2.1	2.0	2.0	2.1	2.4	2.3	1.7	1.7	1.6	1.8	1.9	1.9
Seizure disorders and convulsions	11.9	12.0	12.9	13.8	13.5	13.3	10.7	11.5	11.4	11.5	11.6	11.7
Coma, brain compression/anoxic damage	1.6	0.9	1.1	1.2	1.5	1.4	1.0	1.3	1.3	1.0	1.5	1.2
Respirator dependence/tracheostomy status	1.3	1.7	1.1	1.9	0.9	1.0	1.4	1.5	1.6	1.7	1.9	1.6
Cardio-respiratory failure and shock	11.6	12.1	12.6	12.3	12.8	11.5	11.0	12.3	12.5	12.4	12.2	11.6
Congestive heart failure	31.5	31.9	29.4	28.6	28.3	26.6	29.9	28.8	27.8	27.6	27.7	26.9
Acute myocardial infarction	2.1	2.5	2.2	2.5	2.0	1.5	3.2	3.5	3.6	2.9	2.9	2.9
Unstable angina and other acute ischemic heart disease	3.5	2.0	2.7	2.0	2.0	2.0	2.9	2.6	2.5	3.0	3.4	2.8
Angina pectoris/old myocardial infarction	5.6	7.2	6.1	6.2	6.8	6.0	5.3	6.0	6.2	6.4	5.9	6.0

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 12 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Pennsylvania

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Specified heart arrhythmias	26.9	28.5	27.1	27.0	27.0	24.7	25.7	26.2	25.8	26.4	24.6	24.6
Ischemic or unspecified stroke	13.7	14.3	13.9	13.3	13.4	10.9	12.4	12.0	11.9	12.0	11.6	11.6
Vascular disease with complications	53.8	53.7	52.9	57.0	57.2	55.7	62.4	61.6	63.7	64.0	63.3	60.8
COPD	26.8	29.1	28.2	26.0	26.3	26.6	24.3	24.9	24.4	25.0	25.0	23.7
Aspiration and specified bacterial pneumonias, pneumococcal pneumonia, empyema, and lung abscess	7.1	7.1	6.3	7.0	5.5	4.9	5.6	5.9	6.0	5.0	5.2	4.6
Proliferative diabetic retinopathy and vitreous hemorrhage	1.3	1.3	1.6	1.5	1.6	1.3	1.2	1.3	1.0	1.2	1.3	1.5
Dialysis status	1.8	1.9	2.3	1.7	1.9	1.8	1.5	1.6	1.7	1.5	1.8	1.7
Renal failure	21.6	24.5	25.0	25.3	25.1	23.3	23.3	25.2	25.4	26.6	26.0	25.8
Decubitus ulcer of skin	16.4	13.8	12.9	13.4	11.9	10.9	8.1	9.6	10.0	9.6	9.0	7.8
Chronic ulcer of skin, except decubitus	6.0	5.5	5.2	5.0	4.4	4.4	5.6	4.9	4.6	4.8	5.2	4.8
Vertebral fractures without spinal cord injury	2.6	2.5	2.5	2.2	2.8	2.4	2.7	2.9	2.7	2.7	2.8	2.9
Hip fracture/dislocation	5.6	4.9	5.2	4.8	5.2	3.8	5.6	5.1	4.5	4.3	4.5	4.5
Major complications of medical care and trauma	7.5	7.5	6.8	6.8	6.8	6.1	6.2	6.1	6.6	5.9	6.1	5.8
Artificial openings for feeding or elimination	3.8	4.6	5.0	5.0	4.3	4.0	3.7	4.3	4.9	4.2	4.9	4.3
N (Residents)	2,782	2,721	2,659	2,731	2,583	2,409	6,336	6,228	6,191	6,240	6,088	5,962

(continued)

Nursing Facilities Can Reduce Avoidable Hospitalizations Without Increasing Mortality Risk For Residents

Appendix Table 12 (continued)

Resident and facility characteristics: Annual percentages (categorical variables) or means and standard deviations (continuous variables), Pennsylvania

Characteristic	ECCP						Comparison					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Facility Level:												
Any PA/NP in facility	5.3	26.3	57.9	57.9	57.9	77.8	42.1	47.4	42.1	42.1	63.2	73.7
RN staffing HPRD	0.42	0.44	0.47	0.44	0.46	0.47	0.43	0.43	0.46	0.48	0.48	0.48
	(0.13)	(0.11)	(0.15)	(0.19)	(0.12)	(0.13)	(0.19)	(0.18)	(0.21)	(0.22)	(0.24)	(0.23)
LPN staffing HPRD	0.91	0.82	1.02	0.76	0.87	0.84	0.87	0.83	0.88	0.87	0.87	0.84
	(0.34)	(0.26)	(1.16)	(0.23)	(0.32)	(0.24)	(0.20)	(0.18)	(0.25)	(0.23)	(0.24)	(0.21)
CNA staffing HPRD	1.89	1.98	2.07	1.82	1.90	1.97	2.10	2.13	2.16	2.18	2.14	2.07
	(0.89)	(0.57)	(0.29)	(0.65)	(0.75)	(0.59)	(0.58)	(0.53)	(0.40)	(0.48)	(0.42)	(0.52)
For profit	42.1	42.1	42.1	63.2	57.9	66.7	71.1	71.1	71.1	71.1	65.8	65.8
Chain	57.9	57.9	57.9	52.6	57.9	50.0	63.2	65.8	63.2	63.2	65.8	63.2
Percent Medicaid residents	72.2	71.9	75.3	75.7	74.3	79.6	74.5	75.4	73.3	72.8	74.6	74.2
	(10.4)	(10.9)	(8.0)	(9.1)	(10.2)	(11.5)	(10.7)	(10.5)	(10.8)	(12.4)	(11.6)	(11.7)
Percent Medicare residents	9.6	9.0	7.3	6.9	6.4	4.6	9.8	9.0	9.2	8.9	8.2	7.8
	(5.2)	(4.9)	(4.0)	(4.7)	(3.9)	(2.4)	(6.0)	(4.7)	(4.8)	(4.4)	(4.3)	(4.7)
Percent residents with advance directives	52.2	47.7	53.0	54.3	62.8	68.1	53.9	49.4	56.8	57.6	55.5	54.0
	(27.2)	(29.9)	(31.7)	(33.7)	(35.8)	(32.0)	(25.4)	(30.4)	(31.7)	(35.6)	(39.2)	(38.7)
Alzheimer's unit in facility	36.8	36.8	31.6	36.8	31.6	33.3	34.2	39.5	39.5	36.8	28.9	36.8
N (Facilities)	19	19	19	19	19	18	38	38	38	38	38	38

NOTES: Numbers in parentheses are standard deviations for continuous variables.

ECCP = Enhanced Care and Coordination Providers; MA = Medicare Advantage; BMI = Body Mass Index; ADL = Activities of Daily Living; PA = Physician Assistant; NP = Nursing Practitioner; RN = Registered Nurse; LPN = Licensed Practical Nurse; CNA = Certified Nurse Aide; HPRD = Hours Per Resident Day.

¹ Exposure (Initiative-related days) are measured in units of 10 days for inclusion in regression models; in count models the log of this variable is included.

SOURCE: RTI analysis of MDS, Medicare claims, and CASPER data (RTI program: av08/nhpah286).