

Part I: 2016 Delaware Nursing Home Utilization Report

Part II: 2017 – 2022 Nursing Home Bed Projections



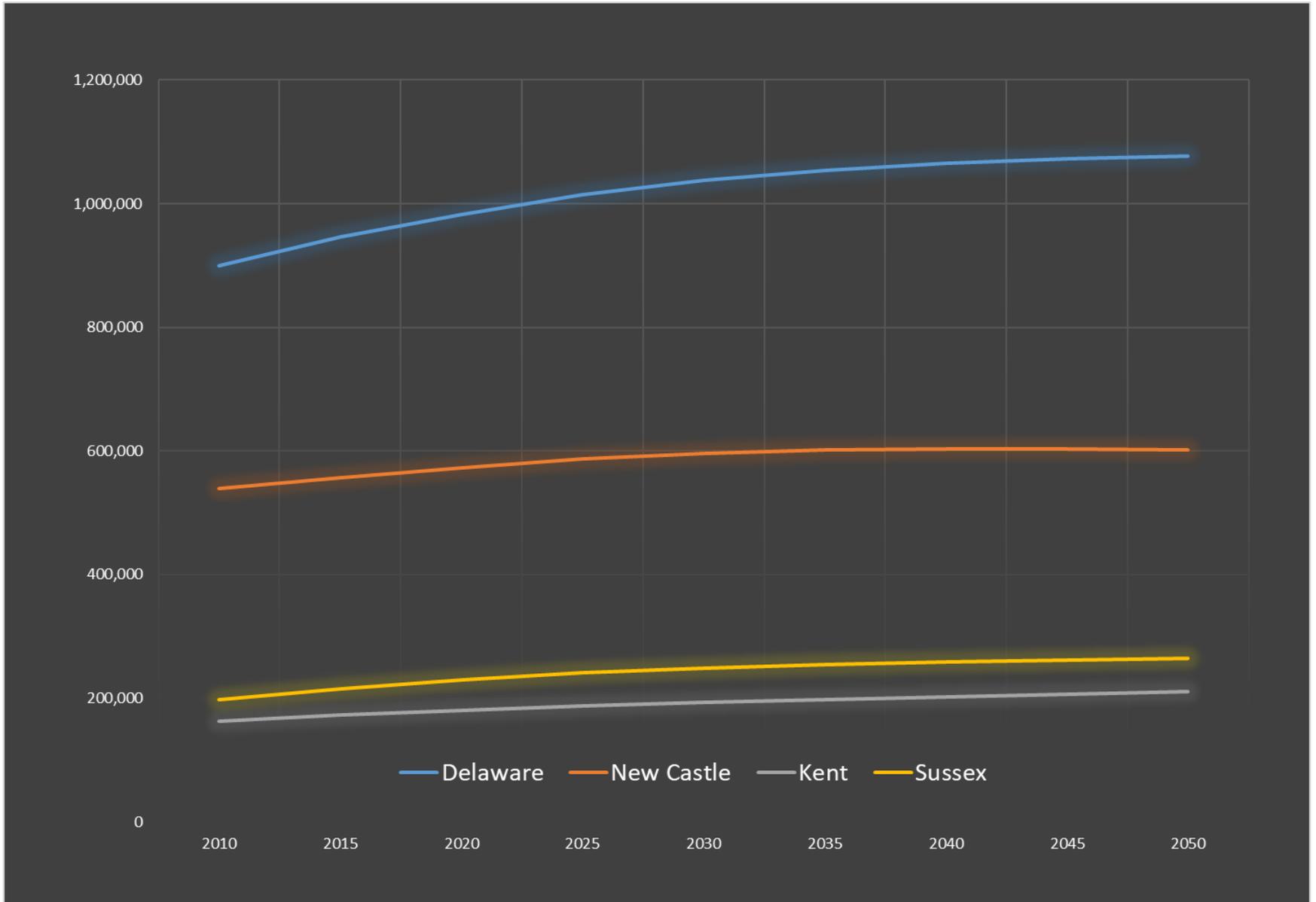
Part I: 2016 Delaware Nursing Home Utilization Report

- **2016 Delaware Nursing Home Utilization Report**
 - Data Year 2016 (January – December 2016)

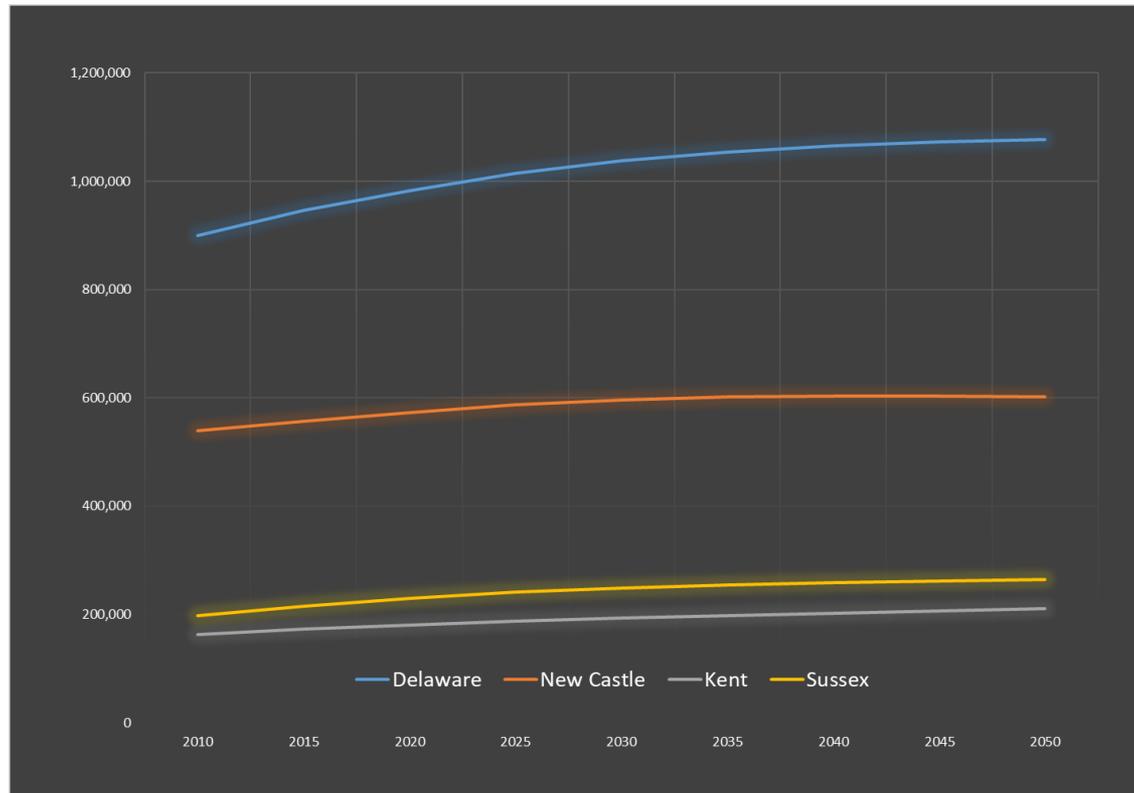
 - 2017 data currently being submitted by Delaware nursing homes

 - Most recently-available Delaware population projection data
 - Delaware Population Consortium (DPC)

OVERALL Population Growth in Delaware



OVERALL Population Growth in Delaware

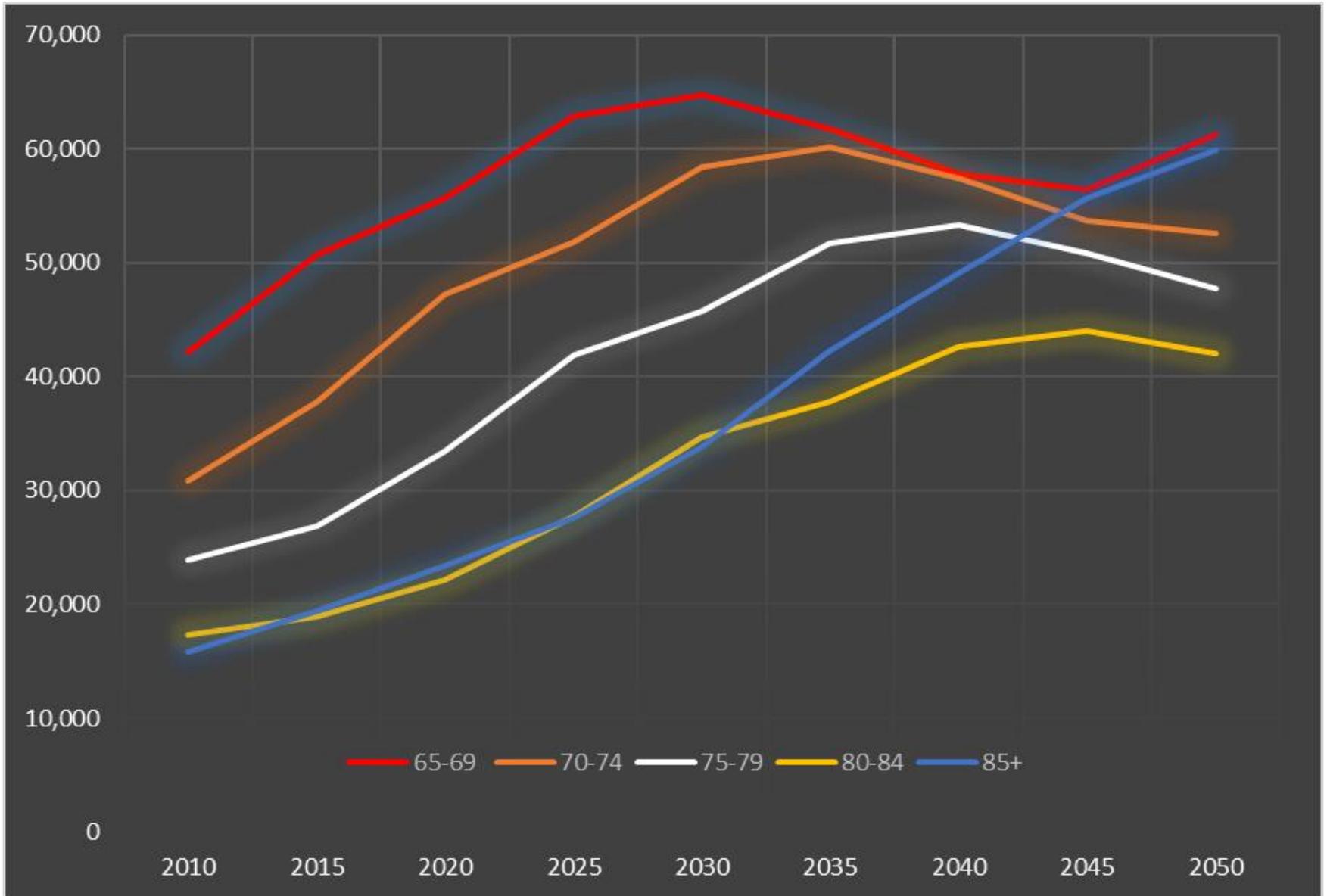


	2010	2015	2020	2025	2030	2035	2040	2045	2050	2010-2050 Percentage Increase
Delaware	899,778	945,937	983,211	1,014,667	1,037,512	1,054,093	1,065,168	1,072,325	1,076,924	19.7%
New Castle	538,912	556,786	572,820	586,643	595,664	601,298	603,677	603,523	601,292	11.6%
Kent	162,978	173,529	180,912	187,199	193,038	198,264	202,731	206,665	210,262	29.0%
Sussex	197,888	215,622	229,479	240,825	248,810	254,531	258,760	262,137	265,370	34.1%

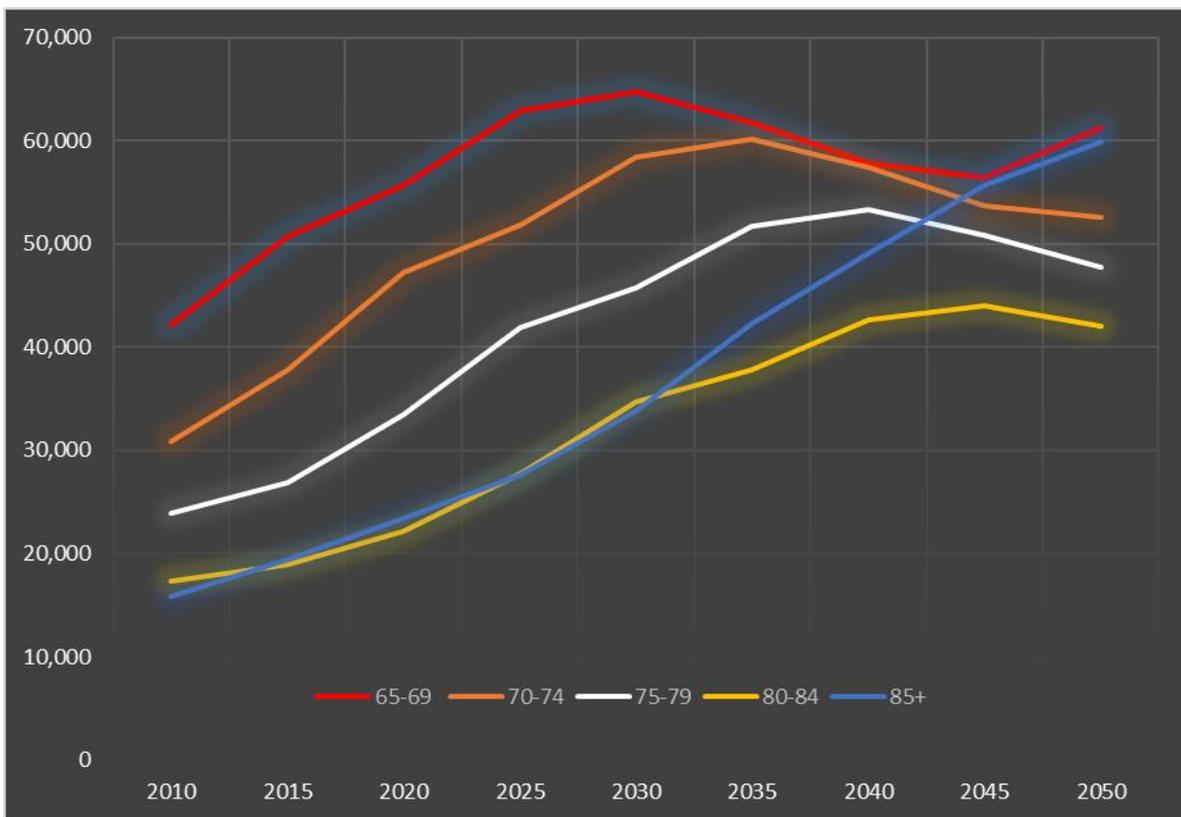
Source: Annual Population Projections, Delaware Population Consortium, Version 2016.0, October 2016

Source: Delaware
Population
Consortium, 2016

65+ Population Growth in Delaware



65+ Population Growth in Delaware



	2010	2015	2020	2025	2030	2035	2040	2045	2050	2010-2050 Percentage Increase
65-69	42,159	50,660	55,668	62,919	64,783	61,774	57,788	56,390	61,233	45.2%
70-74	30,884	37,798	47,261	51,792	58,415	60,204	57,368	53,739	52,619	70.4%
75-79	23,932	26,908	33,511	41,939	45,800	51,663	53,285	50,794	47,702	99.3%
80-84	17,269	18,889	22,193	27,732	34,679	37,806	42,655	44,064	42,056	143.5%
85+	15,893	19,419	23,400	27,657	33,860	42,324	49,075	55,727	59,907	276.9%

Source: Annual Population Projections, Delaware Population Consortium, Version 2016.0, October 2016

Source: Delaware Population Consortium, 2016

65+ Population Growth in Delaware

DELAWARE		2010	2020	2030	2040	2050	2010-50 % Increase
	65-69	42,159	55,668	64,783	57,788	61,233	45.2%
	70-74	30,884	47,261	58,415	57,368	52,619	70.4%
	75-79	23,932	33,511	45,800	53,285	47,701	99.3%
	80-84	17,269	22,193	34,679	42,655	42,056	143.5%
	85+	15,893	23,400	33,860	49,075	59,907	276.9%
NEW CASTLE		2010	2020	2030	2040	2050	2010-50 % Increase
	65-69	20,780	30,982	36,198	31,175	33,985	63.5%
	70-74	14,946	24,468	32,314	31,187	28,720	92.2%
	75-79	12,108	16,032	24,656	29,062	25,405	109.8%
	80-84	9,452	10,604	17,366	23,058	22,615	139.3%
	85+	9,270	12,133	15,857	24,920	32,147	246.8%
KENT		2010	2020	2030	2040	2050	2010-50 % Increase
	65-69	7,320	7,582	9,688	11,379	10,389	41.9%
	70-74	5,510	6,110	8,173	9,963	9,575	73.8%
	75-79	4,238	4,799	5,964	7,656	8,991	112.2%
	80-84	2,682	3,344	4,214	5,688	6,943	158.9%
	85+	2,432	3,208	4,438	5,808	7,685	216.0%
SUSSEX		2010	2020	2030	2040	2050	2010-50 % Increase
	65-69	14,059	17,104	18,897	15,234	16,859	19.9%
	70-74	10,428	16,683	17,928	16,218	14,324	37.4%
	75-79	7,586	12,680	15,180	16,567	13,306	75.4%
	80-84	5,135	8,245	13,099	13,909	12,498	143.4%
	85+	4,191	8,059	13,565	18,347	20,075	379.0%

Delaware Nursing Homes (2016)



- **46 total facilities**

- 44 private
- 2 public

- **New Castle County:**

- 27 private facilities
- 1 public facilities (GBHC)

- **Sussex County:**

- 11 private facilities

- **Kent County:**

- 6 private facilities
- 1 public facility (DHCI)

Delaware Nursing Home Licensed Bed Counts

Year	Private Facilities								Public Facilities		All Facilities	
	New Castle		Kent		Sussex		Total Private					
	Homes	Beds	Homes	Beds	Homes	Beds	Homes	Beds	Homes	Beds	Homes	Beds
2005	27	2,516	5	521	10	1,133	42	4,170	4	652	46	4,822
2006	26	2,427	5	530	10	1,144	41	4,101	4	655	45	4,756
2007	27	2,523	6	642	10	1,143	43	4,308	4	626	47	4,934
2008	26	2,498	6	642	12	1,323	44	4,463	4	626	48	5,089
2009	26	2,519	6	642	11	1,234	43	4,395	4	626	47	5,021
2010	26	2,519	6	642	11	1,234	43	4,395	3	591	46	4,986
2011	26	2,519	6	642	11	1,234	43	4,395	3	591	46	4,986
2012	27	2,569	6	672	11	1,264	44	4,505	3	576	47	5,081
2013	27	2,649	6	672	11	1,264	44	4,585	3	522	47	5,107
2014	27	2,649	6	672	11	1,264	44	4,585	3	375	47	4,960
2015	27	2,646	6	672	11	1,264	44	4,582	3	312	47	4,894
2016	27	2,647	6	678	11	1,264	44	4,589	2	287	46	4,876

Measure of Utilization:

BILLABLE PATIENT DAYS

- Billable Patient Day: a unit of time (i.e., one day) during which the facility's services are used by one patient.
- For example, if a nursing home has 100 patients on a particular day, the facility has generated 100 billable patient days for that particular 24-hour period.
- Billable patient days tell us about broad utilization, but don't provide insight into more detailed patterns of use
 - **Scenario A:** 50 patients stay 20 days each → **1,000 billable days / month**
 - **Scenario B:** 500 patients stay 2 days each → **1,000 billable days / month**

Measure of Utilization:

BILLABLE PATIENT DAYS

- If a facility's number of billable patient days increases from one time period to the next, it is an indication that the facility is
 - a. Caring for more patients
 - b. Caring for patients for longer periods of time, or
 - c. A **combination** of these two factors.

Delaware Nursing Home Billable Patient Days

Year	Private Facilities				Public Facilities	All Facilities
	New Castle	Kent	Sussex	Total Private		
2005	800,955	176,226	367,391	1,344,572	135,622	1,480,194
2006	809,733	175,027	373,221	1,357,981	144,357	1,502,338
2007	830,921	179,315	371,520	1,381,756	142,893	1,524,649
2008	833,344	208,235	387,715	1,429,294	143,640	1,572,934
2009	824,262	219,019	404,234	1,447,515	137,584	1,585,099
2010	838,037	218,593	402,188	1,458,818	137,824	1,596,642
2011	829,974	219,302	398,550	1,447,826	131,675	1,579,501
2012	843,039	219,558	403,842	1,466,439	114,177	1,580,616
2013	860,924	218,651	404,942	1,484,517	98,108	1,582,625
2014	871,456	224,370	419,167	1,514,993	87,792	1,602,785
2015	867,015	226,841	412,646	1,506,502	76,993	1,583,495
2016	862,050	224,549	409,052	1,495,651	71,111	1,566,762

Historical trends in billable patient day data mirrors increases / decreases in licensed bed counts.

Occupancy Rates

- The proportion of nursing home beds in use during the course of a 12-month period
- Calculation Steps:
 1. Obtain total number **actually-used** billable patient days (for the year) for each facility
 2. Multiply each facility's average annual bed count by 365 to obtain the total number **possible** billable patient days for each facility
 3. Divide: Occupancy Rate = (number **actually-used** BPD) / (number **possible** BPD)
- In Delaware, occupancy rates for private facilities ranged from **57.2% - 98.8%**
 - Median: 90.2%

Delaware Nursing Home Occupancy Rates

Year	Private Facilities				Public Facilities	All Facilities
	New Castle	Kent	Sussex	Total Private		
2005	87.2%	92.7%	88.8%	88.3%	57.0%	84.1%
2006	91.4%	90.5%	89.4%	90.7%	60.4%	86.5%
2007	90.2%	76.5%	89.1%	87.9%	62.5%	84.7%
2008	91.4%	88.9%	80.3%	87.7%	62.9%	84.7%
2009	89.6%	93.5%	89.7%	90.2%	60.2%	86.5%
2010	91.1%	93.3%	89.3%	90.9%	63.9%	87.7%
2011	90.3%	93.6%	88.5%	90.3%	61.0%	86.8%
2012	91.1%	89.5%	87.5%	89.8%	54.3%	85.8%
2013	89.0%	89.1%	87.8%	88.7%	51.5%	84.9%
2014	90.1%	91.5%	90.9%	90.5%	64.1%	88.5%
2015	89.8%	92.5%	89.4%	90.1%	67.7%	88.7%
2016	89.2%	90.7%	88.7%	89.3%	67.8%	88.0%

2013 U.S. Avg. NH Occupancy Rate: 82.2%

(<http://www.cdc.gov/nchs/data/hus/hus13.pdf#110>; Table 110)

Nursing Facility Occupancy Rates, 2015

	United States	82.0%
1	District of Columbia	93.0%
2	North Dakota	92.0%
2	South Dakota	92.0%
4	Rhode Island	91.0%
5	Maine	90.0%
5	New York	90.0%
7	Alaska	89.0%
7	Delaware	89.0%
7	New Hampshire	89.0%
7	Pennsylvania	89.0%
11	Florida	88.0%
11	Maryland	88.0%
13	Connecticut	87.0%
13	Kentucky	87.0%
13	Minnesota	87.0%
13	Mississippi	87.0%
13	South Carolina	87.0%
13	Virginia	87.0%
13	West Virginia	87.0%
20	Alabama	86.0%
20	California	86.0%
20	Massachusetts	86.0%
23	New Jersey	85.0%
24	Georgia	83.0%
24	Hawaii	83.0%

24	Michigan	83.0%
24	North Carolina	83.0%
24	Ohio	83.0%
29	Vermont	82.0%
30	New Mexico	80.0%
30	Washington	80.0%
30	Wisconsin	80.0%
33	Colorado	79.0%
33	Iowa	79.0%
33	Kansas	79.0%
36	Nebraska	77.0%
36	Tennessee	77.0%
36	Wyoming	77.0%
39	Illinois	76.0%
39	Nevada	76.0%
41	Louisiana	75.0%
42	Indiana	74.0%
43	Arkansas	72.0%
43	Missouri	72.0%
45	Texas	71.0%
46	Arizona	70.0%
47	Idaho	66.0%
47	Montana	66.0%
47	Oklahoma	66.0%
50	Oregon	65.0%
51	Utah	64.0%

Source: University of California, San Francisco and Kaiser Family Foundation analysis of On-line Survey, Certification, and Reporting system (OSCAR) and Certification and Survey Provider Enhanced Reports (CASPER) data.

Delaware Nursing Home Admissions

Year	Private Facilities				Public Facilities	All Facilities
	New Castle	Kent	Sussex	Total Private		
2005	5,442	618	2,001	8,061	68	8,129
2006	5,652	870	2,250	8,772	145	8,917
2007	5,358	755	2,246	8,359	156	8,515
2008	5,709	954	2,279	8,942	113	9,055
2009	5,835	1,066	3,242	10,143	126	10,269
2010	5,928	1,164	3,088	10,180	90	10,270
2011	6,406	1,353	3,247	11,006	119	11,125
2012	6,654	1,493	3,563	11,710	65	11,775
2013	6,566	1,696	3,477	11,739	31	11,770
2014	6,816	1,726	3,983	12,525	50	12,575
2015	6,544	1,612	3,672	11,828	64	11,892
2016	6,238	1,666	3,576	11,480	33	11,513

Delaware Nursing Home Admissions, by Race and Age, 2016

	Age Groups				Total Admissions (by Race)
	Under 65	65-74	75-84	85+	
White (N=9,100)	13.1%	21.1%	31.5%	34.4%	79.0%
Black (N=2,164)	29.2%	27.0%	25.3%	18.5%	18.8%
Other (N=249)	18.5%	30.1%	32.1%	19.3%	2.2%
Total (by Age) (N=11,513)	16.2%	22.4%	30.3%	31.3%	100.0%



- White patients represented 79% of all DE NH admissions 2016
- Age is positively correlated with proportion of admissions
- Discharge trends mirror admission trends

Delaware Nursing Home Discharges, by Destination, 2016

Facility Type	Discharge Destination						
	Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Death	Other
Private (N=10,940)	60.7%	20.7%	3.2%	2.6%	0.5%	10.9%	1.3%
Public (N=37)	10.8%	16.2%	2.7%	5.4%	5.4%	54.1%	5.4%
All facilities (N=10,977)	59.5%	21.5%	3.2%	2.6%	0.9%	11.0%	1.3%

How Has the Private Nursing Home Care Changed In Delaware?

2006 – 2016 Percentage Difference in Utilization Measures

	New Castle (private)	Kent (private)	Sussex (private)	Total Private
Bed Count	9.1%	27.9%	10.5%	11.1%
Billable Pt Days	6.5%	28.3%	9.6%	10.1%
Admissions	16.4%	120.7%	59.2%	37.3%
Occupancy	2.6%	-0.2%	-0.4%	1.8%

- **Increases in Bed Counts and Billable Pt Days were strongly correlated across all three counties**
- **Admissions increased at a higher rate than would be expected by bed expansion alone**
 - Private NH facilities caring for more patients for shorter periods of time
- **Occupancy rates maintained after bed expansion (new beds being filled)**



Part II: Delaware Nursing Home Bed Projections

1. Obtain annual billable patient day data (by state and county)

a. For public facilities, allocate proportion of billable patient days to each county according to admission patterns

- Example: 57.6% of 2016 admissions to public NHs were from NCC
- 57.6% of the billable patient days generated by public NHs are appropriated to NCC

i. Proportion of Billable Patient Days Attributable to Each County: 2014-2016

	2014 Data <i>(2015-2020 Projections)</i>	2015 Data <i>(2016-2021 Projections)</i>	2016 Data <i>(2017-2022 Projections)</i>
New Castle	39.8%	44.1%	57.6%
Kent	25.7%	21.3%	24.2%
Sussex	32.7%	34.6%	18.2%

b. DVH considered a public facility for projection purposes only



Part II: Delaware Nursing Home Bed Projections

2. **Calculate projected population growth factors by age group (by state and county)**
 - a. Most-recently available Delaware Population Consortium Data
 - b. Population growth factors calculated for the most immediate 5-year projection period (i.e., 2017-2022)

3. **Calculate the proportion of NH admissions by age group (<65, 65-74, 75-84, and 85+) and use these proportions to calculate a weighted sum of population growth factors**



Part II: Delaware Nursing Home Bed Projections

4. **Multiply weighted population growth factor by current year billable patient days to obtain projected billable patient days for the last year of the projection period (i.e., for 2020 or 2021)**

5. **Divide projected billable patient days by 365 to obtain projected bed need**

6. **Calculate the difference in current and projected bed need to obtain the projected shortage / surplus of NH beds (by state and county)**

2017 – 2022 Delaware Nursing Home Bed Projections

Delaware			
	Current Beds (2016 Calcs)	Projected Bed Need	Shortage / Surplus
2017-2018	4,876	4,918	-42
2017-2019	4,876	5,077	-201
2017-2020	4,876	5,221	-345
2017-2021	4,876	5,369	-493
2017-2022	4,876	5,515	-639
Kent			
	Current Beds (2016 Calcs)	Projected Bed Need	Shortage / Surplus
2017-2018	634	650	-16
2017-2019	634	668	-34
2017-2020	634	688	-54
2017-2021	634	705	-71
2017-2022	634	720	-86
New Castle			
	Current Beds (2016 Calcs)	Projected Bed Need	Shortage / Surplus
2017-2018	2,899	2,902	-3
2017-2019	2,899	2,982	-83
2017-2020	2,899	3,054	-155
2017-2021	2,899	3,132	-233
2017-2022	2,899	3,213	-314
Sussex			
	Current Beds (2016 Calcs)	Projected Bed Need	Shortage / Surplus
2017-2018	1,344	1,364	-20
2017-2019	1,344	1,421	-77
2017-2020	1,344	1,472	-128
2017-2021	1,344	1,522	-178
2017-2022	1,344	1,573	-229



NH Bed Projections: Summary Points

- ❑ Latest projections predict shortages in NH beds that increase over time
- ❑ The magnitude of bed shortages largest in New Castle and Sussex Counties
- ❑ However, when considered in the context of beds missing per 1,000 persons age 65+, in 2022:
 - ❑ **New Castle County:** **0.47** beds short per 1,000 persons age 65+
 - ❑ **Kent County:** **0.54** beds short per 1,000 persons age 65+
 - ❑ **Sussex County:** **0.98** beds short per 1,000 persons age 65+

END