

## Chapter 3: Supply and Utilization of New Jersey Acute Care Hospitals

### Key Points

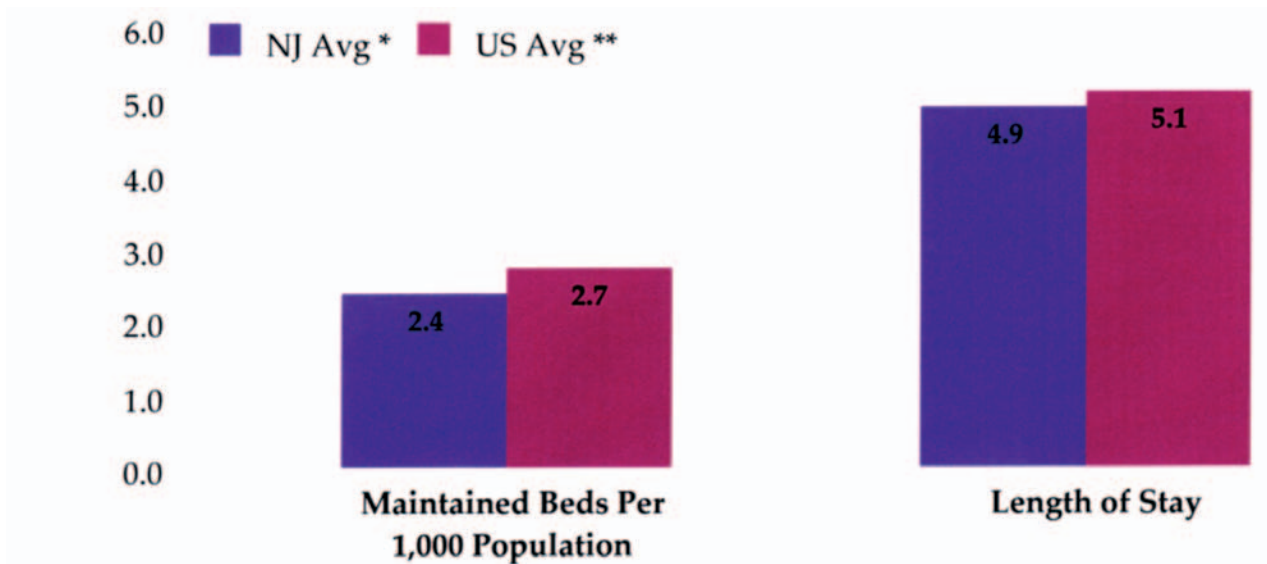
- While New Jersey’s supply of acute care hospital beds is less than the national average, there is considerable geographic variation across the state with some counties far above the national average.
- Hospital services are utilized at a higher level than much of the nation – this is evident in the overall number of admissions, physician consultations, and use of ICU care.
- For the purposes of analysis and planning, the Commission defined eight hospital market areas in New Jersey – these definitions are adapted from the highly regarded work of the Dartmouth Atlas Project.

### I. State-wide Supply of Acute Care Hospital Beds

In 2005, New Jersey had about 25,000 licensed beds in general acute care hospitals, of which only about 20,000 were “maintained,” that is, staffed for potential

occupancy.<sup>16</sup> That endowment represents about 2.4 beds per 1,000 population, compared to the U.S. average of 2.7 (Figure 3.1).

**Figure 3.1:**  
New Jersey Hospital Utilization - 2005 Data



**Source:** NJ Department of Health and Senior Services Quarterly Hospital Utilization Data and Kaiser State Health Facts. (Note: This graph contains additional average utilization statistics for NJ acute care hospitals compared to the national average. Maintained Beds and Length of Stay are common rate statistics that provide efficiency information. Generally, a lower statistic value is related to greater hospital efficiency. Maintained Beds is based on the number of beds maintained by a hospital for active use and is usually less than Licensed Beds. Hospitals often maintain fewer beds than licensed for flexibility in meeting demand while retaining the capacity for surge demand in the event of a large scale health crisis.)

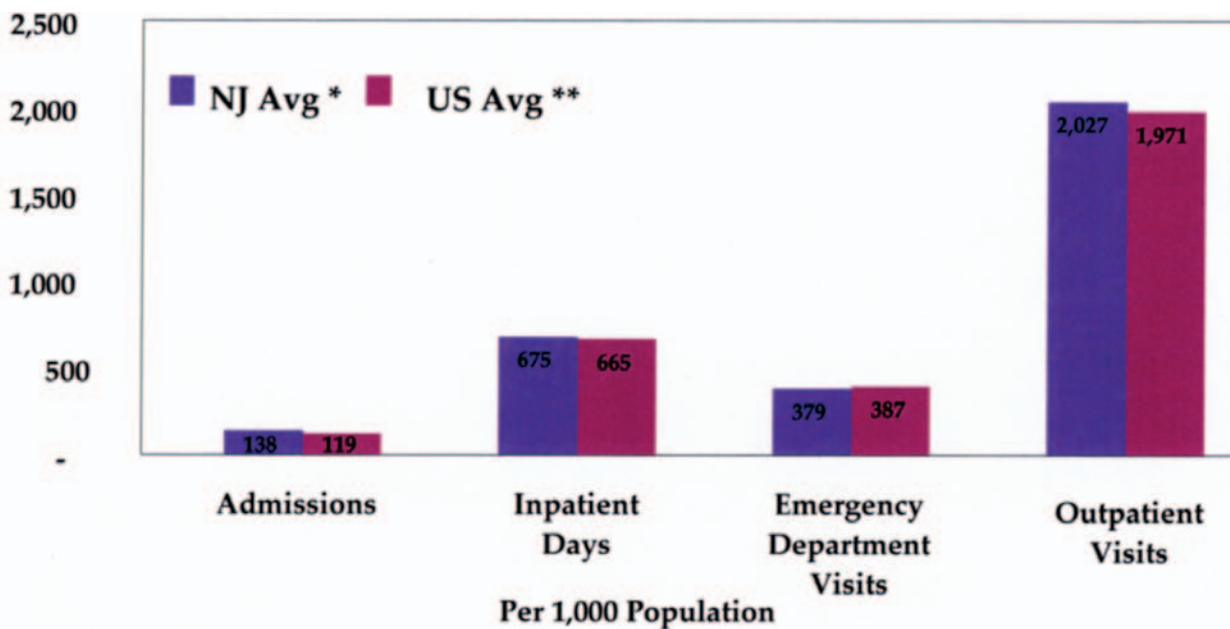
<sup>16</sup> Avalere Health LLC, 2006 *New Jersey Health Care Almanac – Summary* (2006); Figures 1.1 and 1.2

There was, however, considerable variation in this endowment across New Jersey. Essex-Union and Mercer Counties had 20% and 47% more maintained beds per capita than the State average, while Middlesex-Somerset, Cumberland-Gloucester-Salem and Warren-Hunterdon had about 25% fewer maintained beds per capita.<sup>17</sup>

In 2004, the average occupancy rate of maintained beds in New Jersey hospitals (74%) was 7 percentage points above the national average (67%), and has trended up gradually since 2001. That average rate, too, varies among regions in New Jersey and among hospitals within regions. In 2005, for example, the occupancy rate of maintained beds was close to 85% in Middlesex-Somerset, but only 60% or so in Mercer County.<sup>18</sup> The overall average per capita utilization of New Jersey hospitals is quite similar to the U.S. average, as is shown in Figure 3.1 and 3.2. A slightly shorter average length of stay appears to offset in part a higher number of admissions.

It bears emphasizing that the slightly lower bed-to-population ratio in New Jersey relative to the overall national ratio does not signify that New Jersey has a relative shortage of hospital beds. In fact, it has an overall hospital bed surplus, as does the nation as a whole. In 2003, the national average hospital occupancy ratio was only 65%, down from 80% in 1980, 73% in 1990 and 68% in 2000<sup>19</sup>. The current national ratio of 65% is much below the 80% to 85% considered among the expert to be “full occupancy” for a hospital ready to cope with normal day-to-day volatility in admissions<sup>20</sup>. While the overall average occupancy ratio of New Jersey hospitals is above the national average, it is still below the normative 80% to 85% range considered “full occupancy” in every hospital market area of New Jersey. It implies that in every hospital market area in New Jersey there is an overall surplus of hospital beds (see also Figure 4.13 of Chapter 4), which varies from market area to market area.

**Figure 3.2**  
New Jersey Hospital Utilization - 2005 Data



**Source:** NJ Department of Health and Senior Services Quarterly Hospital Utilization Data and Kaiser State Health Facts. (Note: This graph contains average utilization statistics for NJ acute care hospitals compared to the national average. Admissions, Inpatient Days, Emergency Department Visits and Outpatient Visits are common hospital utilization statistics that provide general volume information and are displayed as a per 1,000 population statistic. The data source for the NJ statistics is the B-2 form, a quarterly utilization report, except for Outpatient Visits for which the source is the B-6 form, an element of the annual cost report, all of which are submitted by every acute care hospital to the NJ Department of Health & Senior Services. The data source for the US statistics is the Henry J. Kaiser Family Foundation which sponsors a state health data website project at [www.statehealthfacts.org](http://www.statehealthfacts.org).)

<sup>17</sup> *Ibid.*: Fig. 1.3

<sup>18</sup> *Ibid.*: Fig. 2.11.

<sup>19</sup> See *Health, United States 2005*, Table 112;

<http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=healthus05.table.460>

<sup>20</sup> See [http://www.medscape.com/viewarticle/546181\\_4](http://www.medscape.com/viewarticle/546181_4)

The use of hospital care by Medicare beneficiaries, however, appears to be very high in New Jersey relative to the U.S. as a whole. Tables 3.1 and 3.2, based on data from the Dartmouth Atlas Project and cited in the previously referenced report by Avalere, illustrates this point. New Jersey seniors near the end of life are likely to spend more days in the hospital and intensive care units and see more physicians. Nearly four in ten

Medicare beneficiaries in New Jersey see ten or more physicians in the last six months of life. On most measures of utilization at the end of life, New Jersey ranks near or at the top of the 50 states. While these measures focus on the end of life, they most likely reflect general patterns of high health care utilization relative to the nation.

**Table 3.1:**

**Rank of New Jersey on Selected Characteristics of Hospital Care for Chronically Ill Medicare Beneficiaries (1999-2003)**

Measurement	New Jersey Rate	Rank Among All States
Hospital days* per Medicare decedent during the last two years of life	23.9 days	5 of 51
Hospital days* per Medicare decedent during the last six months of life	15.2 days	4 of 51
ICU days per Medicare decedent during the last two years of life	6.5 days	3 of 51
ICU days* per Medicare decedent during the last six months of life	4.6 days	3 of 51
Percent of Medicare decedents admitted to ICU during their hospitalization* in the hospital in which they died.	25.1%	1 of 51

\* Paid under Medicare Part A, including the District of Columbia. Source: The Dartmouth Atlas Project ([http://cesweb.dartmouth.edu/release1.1/datatools/profile\\_s1.php](http://cesweb.dartmouth.edu/release1.1/datatools/profile_s1.php))

**Table 3.2:**

**Rank of New Jersey Among All States on Selected Characteristics of Physician Care for Chronically Ill Medicare Beneficiaries. 1999-2003**

Measurement	New Jersey Rate	Rank Among All States
Total physician visits* per decedent during the last 2 years of life	75.9 visits	1 of 51
Medical specialist visits* per decedent during the last 2 years of life	42.7 visits	1 of 51
Primary care physician visits* per decedent during the last 2 years of life	27.3 visits	16 of 51
Total physician visits* per decedent during last 6 months of life	41.5 visits	1 of 51
Medical Specialist visits* per decedent during the last 6 months of life	25.0 visits	1 of 51
Primary care physician visits* per decedent during the last 6 months of life	14.0 visits	7 of 51
Percent of decedents seeing 10 or more different physicians* during the last 6 months of life	38.7%	1 of 51

\* Paid under Medicare Part A, including the District of Columbia. Source: The Dartmouth Atlas Project ([http://cesweb.dartmouth.edu/release1.1/datatools/profile\\_s1.php](http://cesweb.dartmouth.edu/release1.1/datatools/profile_s1.php))

Thus, it is not surprising that in 2002, the last year for which these data are conveniently available, total Medicare spending per Medicare beneficiary served in New Jersey (\$8,661) was 27% higher than the national average (\$6,823). The comparable number per beneficiary, served or not, was \$7,834 for New Jersey, which was 25% higher than the comparable national average (\$6,271).<sup>21</sup>

## II. Hospital Market Areas

During the course of its work, the Commission determined that for the purposes of assessing the supply of hospital beds and the “essentiality” of individual institutions, it was important to compare hospitals within defined geographic areas that reflect the population’s travel patterns for hospital services. Governmental or political unit boundaries such as cities or counties were considered for this purpose but not selected, as they are somewhat arbitrary definitions and typically do not reflect how and where people utilize health care services. Rather, the Commission used the Dartmouth Atlas Project’s *Hospital Service Areas and Hospital Referral Regions* as a starting point for defining relevant geographic areas. Developed by a research team at Dartmouth University, Hospital Services Areas and Hospital Referral Regions are well recognized by the health-services research community as reflecting actual travel patterns for hospitalization.

The Dartmouth Atlas Project’s work is based on analysis of Medicare patients’ use of local and regional hospital services, using the patient’s residence (zip code) as a basis for developing service areas and referral regions. Based on their analysis of patients’ residence zip codes and where patients were hospitalized, Dartmouth Atlas researchers identified 67 distinct Hospital Service Areas in New Jersey. They then aggregated these 67 Hospital Service Areas into ten Hospital Referral Regions based on Medicare patients’ patterns of use of cardiovascular

surgical and neurosurgery services. (See Appendix 1 for an illustration of the Dartmouth Atlas-defined Hospital Referral Regions for New Jersey.)

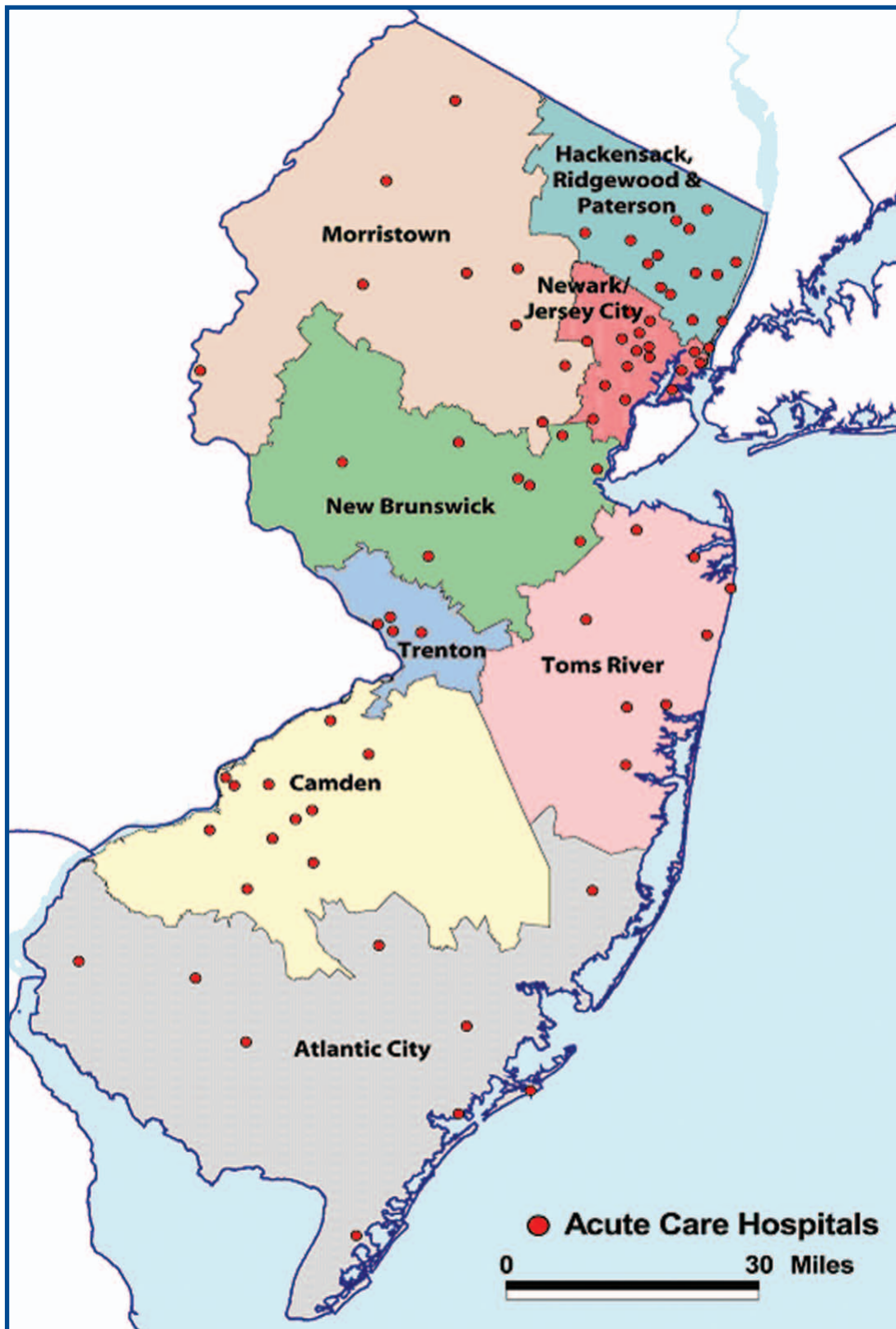
In a few of the Dartmouth Atlas-defined Hospital Referral Regions, the referral hospital or hospitals most often used by New Jersey residents of the region are in neighboring states. For example, New Jersey residents in some areas that border Pennsylvania use referral hospitals in Philadelphia and Allentown. Thus, to form defined geographic areas (which we termed “hospital market areas”) that are entirely within the State of New Jersey’s boundaries, the Commission reassigned New Jersey areas that are in a Dartmouth Atlas-defined Hospital Referral Region of a city in a neighboring state to a hospital market area in New Jersey. Reassignments were based on an analysis of where patients from the zip codes that comprise these areas were hospitalized, using 2005 UB-92 patient discharge data for patients in all payer categories discharged from New Jersey acute care hospitals. The analyses were updated using 2006 UB-92 data and there were virtually no differences from the 2005 results.

In addition, the very large Dartmouth Atlas-defined Camden Hospital Referral Region was divided into three hospital market areas (Toms River, Atlantic City, and Camden), and combined three Hospital Referral Regions in the north to form the Hackensack, Ridgewood and Paterson hospital market area, again based on an analysis of where patients from the zip codes that comprise these areas were hospitalized.

Appendix 2 provides a summary of the adjustments made to the Dartmouth Atlas-defined Hospital Referral Regions in forming hospital market areas for purposes of evaluating New Jersey hospitals in terms of essentiality. These adjustments resulted in eight defined geographic areas (“hospital market areas”) that reflect actual patient utilization of hospitals. Figure 3.2 illustrates these hospital market areas.

<sup>21</sup> The Henry J. Kaiser Family Foundation, [www.Statehealthfacts.org](http://www.Statehealthfacts.org)

**Figure 3.3:**  
New Jersey Hospital Market Areas



**Table 3.3:**  
**Acute Care Hospitals, Discharges and Market Share by Hospital Market Area**

<b>Hospital Market Area</b>	<b>Number of Acute Care Hospitals</b>	<b>2006 Discharges from Acute Care Hospitals in Market Area<sup>22</sup></b>	<b>Percent of Patients Hospitalized in the Market Area in which They Reside<sup>23</sup></b>
<b>Atlantic City</b>	<b>9</b>	<b>91,695</b>	<b>86%</b>
<b>Camden</b>	<b>11</b>	<b>152,602</b>	<b>96%</b>
<b>Hackensack, Ridgewood and Paterson</b>	<b>15<sup>24</sup></b>	<b>233,457</b>	<b>92%</b>
<b>Morristown</b>	<b>9</b>	<b>109,221</b>	<b>76%</b>
<b>New Brunswick</b>	<b>8</b>	<b>141,665</b>	<b>85%</b>
<b>Newark/Jersey City</b>	<b>16</b>	<b>218,994</b>	<b>85%</b>
<b>Toms River</b>	<b>8</b>	<b>144,862</b>	<b>89%</b>
<b>Trenton</b>	<b>4</b>	<b>43,691</b>	<b>87%</b>

Table 3.3 provides discharges and patient origin information for each of the hospital market areas based on 2006 data. (See Appendix 3 for a listing of acute care hospitals by market area.) As the percentages in the last column in the Table 3.3 indicate, the vast majority of New Jersey residents who remain in-state for their inpatient hospital care are hospitalized in the hospital market area in which they live. This leads us to conclude that the hospital market areas reflect the natural market areas where New Jersey residents

received inpatient care and, therefore, represent appropriately defined geographic areas for purposes of this analysis.

In addition to serving as the relevant areas within which hospitals can be compared in terms of their essentiality<sup>25</sup>, the hospital market areas also served as the areas for which we project future demand for inpatient hospital services in Chapter 4 of this report.

<sup>22</sup> Source: Analysis of New Jersey Department of Health and Senior Services 2006 UB-92 Patient Discharge Data; includes discharges of New Jersey and out-of-state residents. Also includes discharges from two hospitals, South Jersey Healthcare, Bridgeton and Irvington General, which have since closed.

<sup>23</sup> This analysis is based on New Jersey residents who are hospitalized in New Jersey hospitals only and does not include New Jersey residents who are hospitalized in other states.

<sup>24</sup> PBI Regional and St. Mary's Hospital Passaic are each counted separately.

<sup>25</sup> This analysis has limited applicability in the Atlantic City market area where, with the exceptions of the two hospitals in Atlantic City and Pomona, there is no hospital concentration and all the hospitals are distant from one another.

### III. Conclusion

This chapter summarized measures of hospital supply and utilization in New Jersey and defined hospital markets areas for the purposes of analysis and planning based on the pioneering work of the Dartmouth Atlas Project. The Commission found that the supply of hospital beds in New Jersey is slightly less than the national average although there is considerable geographic variation with some counties far above the national average. Notably, the intensity of services in the State is very high according to measures such as

numbers of total physician visits, the number of physicians seen by a patient in the prior year, and use of ICU level care. This seems to reflect an environment of high utilization of health services. In sum, the overall supply of hospitals is not alarmingly high relative to the nation; however, supply that exceeds national averages in certain counties combined with high rates of use of clinical services point to potential causes for high health expenditures in New Jersey.

