



NO VACANCY: AN ANALYSIS OF HOSPITAL BED SUPPLY AND DEMAND IN ATLANTA

**A MORGAN HEALTHCARE CONSULTING, LLC WHITEPAPER
JUNE 2004**

MORGAN HEALTHCARE CONSULTING, LLC

SUITE 200
5555 GLENRIDGE CONNECTOR
ATLANTA, GEORGIA
30342

WWW.MHCPARTNERS.COM
770-698-0415

PARTNERS:

**KAY BROWN, RN, MPA
ROGER COCHRAN, PHD
KENT LEDERMAN, MBA
CHRISTOPHER E. PRESS, FACHE**

IN BRIEF...

39 Work on this whitepaper started in late 2003 with (what we thought was) a simple question: How could more than a million new residents be served by a
shrinking hospital system? It seemed peculiar to us that while Atlanta added a million and a half more people, it did not add a single hospital bed. Not only
42 did Atlanta not *add* beds—it *eliminated* them. Fewer beds and fewer hospitals were serving a much larger population. As we began our inquiry, our
objective was narrow: we just wanted to quantify the historical events we’d observed.

45 While we were conducting the analysis, the national trade papers, healthcare gurus, and academic journals increasingly predicted nation-wide inpatient
bed shortages.¹ As firm supporters of lemming laws, we tend to look askance at these often lemming-leading reports. But, given Atlanta’s history of
population growth and fewer beds, we wondered whether *Atlanta* would need beds. Whether the nation needed them was a question we set aside; we
48 believed an Atlanta-specific^a analysis of future bed need would be useful. So we expanded the scope of our inquiry from being entirely historical to include
a look to the future. So, we looked back to 1989 to see what had happened, and forward to 2010—and a touch beyond—to see what might happen.

51 In this whitepaper, we examine the supply and demand for beds in 1989—our base year—and 2002. We also examine the supply of beds in 2010 and, based
upon 2010 population forecasts, the demand for beds. We vary our assumptions about hospital demand rates. We examine the difference between supply
and demand. We calculate the approximate capital costs associated with remediating the shortage. We conclude with our observations and conclusions.

54 Typical of healthcare, we learned that the questions were simple; but the
answers quite complex—and rife with implications. If “it seems like déjà vu all
over again,”² we assure you it is not. Somewhat unexpectedly, we conclude from
57 the evidence that Atlanta is at the cusp of a remarkable bed shortage—and
hospital building boom—the seeds of which were planted so deeply in the 90s
that they could not be seen.

60 Among our key findings and conclusions:

- 63 » although metropolitan Atlanta had 56% more population in 2002 than
1989—an additional 1.5 million people—it had...
 - 9.6% fewer beds (1,000 fewer)
 - 11% fewer inpatients on any given day; that’s about 700 fewer
66 people in a hospital on any given day
- » from 2002 to 2010, over 800,000 additional residents are forecast to live
in the Atlanta area
- 69 » if that occurs, the population of Atlanta will have approximately

In this whitepaper...

...we examine the supply and demand for inpatient hospital beds in the Atlanta MSA in 1989—our base year—2002, and 2010. We vary our assumptions about hospital demand rates. We examine the difference between supply and demand. We calculate the approximate capital costs associated with remediating the shortage. We conclude with our observations and discussion.

Although 466 beds are in varying stages of approval or construction, we estimate the market needs those beds and 450-600 more by 2010. Providers could collectively add over 800 beds to address institution-specific capacity pressure. If the market maintains its current ratio of beds to population, over 1,300 more beds will be needed.

The range of capital investment *just for inpatient beds*, including those already “in the pipeline,” ranges from \$750 million to over \$1.3 billion. Only about half of the MSA’s hospitals reported a positive margin in 2002.

^a Unless otherwise noted, all references to “Atlanta,” and “metropolitan Atlanta,” and all figures cited, include and are compiled from the 20 counties that defined the Atlanta Metropolitan Statistical Area (MSA) as of December 31, 2002.

doubled in 21 years...and the number of hospital beds would have diminished

- 72 » since 2002, Certificate of Need applications have been submitted or approved for 634 additional beds; 168 are to be removed from service, for a net addition of 466 beds
- 75 » even taking into account proposed and pending additions to inpatient bed capacity, by 2010 the capacity will be inadequate. Our estimates of additional beds required range from 450 to 600
 - 75 ○ if the market seeks to maintain the current ratio of beds to population, more than 1,300 beds—in addition to the 466 in the pipeline—would be built
 - 75 ○ by some standards (which we question), the need could be as high as 3,100 additional beds
- 78 » as the shortage develops, some individual hospitals will face untenable bed shortages before the market as a whole reaches capacity
- 78 » emergency room diversions, cancelled surgeries and procedures, staff stress, and other operational interruptions will arise more frequently as rising population absorbs existing capacity
- 81 » 10 to 20 of the market's 43 hospitals are gripped by two opposing pressures: the first is to add capacity, the second is to conserve scarce capital
- 81 » hospitals have never faced such an enormous capital need in a risk-based, capital-strained marketplace; as a result, hospitals' responses will be unpredictable, untested, erratic, risky, right—and wrong. True: the increase in population alone will generate an inpatient revenue stream in the billions of dollars—and more for outpatient and physician care. Yet hospital operating margins are thin and, as an industry, hospitals thirst for capital *before* considering any need to add beds. The need for beds only worsens that capital thirst in Atlanta
 - 87 ○ the reported cost of inpatient hospital bed projects submitted or approved since 2002 is nearly \$750 million
 - 87 ○ the approximate cost of the additional required capacity we foresee is an additional \$340 to \$450 million, implying a prospective total inpatient bed expenditure of \$1.2 billion; this does not include spending for outpatient facilities, technology and other needs
 - 90 ○ during the last national bed shortage (during the mid-1900s), cost-plus reimbursement systems and federal Hill Burton Act incentives virtually eliminated hospitals' financial risk of adding beds. At that time, beds and related facilities were the preponderant capital demand. The prospective payment reimbursement systems that replaced cost-plus provide no such protection or incentives; hospitals bear the entire risk of adding beds
 - 93 ○ additional beds are just one of many enormous capital demands on hospitals
 - 96 ■ other capital demands include quality improvement, clinical technology, information technology, labor shortages, outpatient services, and physician shortages, to name but a few. How well—indeed, whether—additional beds, at costs of \$500,000 to \$1 million each, will successfully compete against other capital needs is unclear
- 99 » it appears that the Atlanta business community and health insurers are caught in a hospital cost "Catch-22;" they should expect intense and enduring upward price pressure for inpatient care
 - 99 ○ if the bed expansion ceases, providers will use scarcity to (attempt to) win higher prices
 - 99 ○ providers can be expected to seek higher prices to finance the \$750 million investment already in the pipeline
 - 99 ○ if providers continue to add capacity, they will seek higher prices to pay for it
- 102 » a period of extraordinary market instability could ensue as...
 - 102 ■ providers decide whether to add capacity

- 105 • many leading hospitals will feel acute bed pressure before the system does; they will face a complex strategic choice weighing the costs and benefits of adding beds
- business and insurers recoil against higher prices
 - 108 • hospitals must weigh whether business will seek to counter the price pressure by implementing consumer-driven healthcare plans and Health Savings Accounts
- requests for additional capacity are subjected to regulatory review and litigation for years before construction begins
 - 111 • The Emory/HCA Johns Creek CON was initially filed in 2000 and approved in 2001. Appeals delayed final approval until 2004. The opening is not scheduled.
- the market searches for its “equilibrium” number of beds
- 114 ▪ the sudden addition of capacity and providers’ intensified capital demands prompt widespread reassessments of strategic approaches to the marketplace
- » Amid the chaos is opportunity
 - 117 ○ Atlanta could use the increased population and investment as engines for international stature. There are several internationally renowned US medical cities, such as Boston, New York City, Cleveland, Baltimore, Houston, Los Angeles, and Rochester, MN.
 - Atlanta’s potential to be first among them is unrivaled with the proper investments and incentives
 - Ultimately, that could improve care and lower costs – benefits for both the business community and community as a whole

The pages on which detailed discussion may be found are as follows:

123	»Atlanta healthcare during the 90s: Surreal.....	5
	»Although metropolitan Atlanta had 56% more population in 2002 than 1989 – and additional 1.5 million people – it had.....	6
	○ 9.6% fewer beds (nearly 1,000 fewer beds).....	6
126	○ 11% fewer inpatients on any given day; that's about 700 fewer people in a hospital on any given day	6
	»Population growth continues to 2010	6
	»Supply of hospital beds in 2010	7
129	»If use rates rise even modestly, marketwide inpatient capacity by 2010 will be inadequate, despite proposed additions to inpatient bed capacity; our estimates of additional beds required ranges from approximately 450 to 600	10
	»As the shortage develops, hardships arise.....	12
132	»Capital requirements, capital competition, and hospital margins.....	14
	»Business and insurers should expect intense upward price pressure for inpatient care	15
	»A period of extraordinary market instability is ahead	16
135	»Where amid the chaos is there opportunity?	17
	»Appendix.....	19

138 *Atlanta healthcare during the 90s: Surreal*

139 With the late-80s arrival—some called it “invasion”—of veteran California HMO Kaiser-Permanente, with its physician group HMO model and limited
140 hospital panel, Atlanta began its convulsive, 10 year journey from genteel (in retrospect), provider-sponsored PPOs^b to no-holds-barred managed care. The
141 demand for inpatient care^c fell year after year, without any perceptible bottom; prices seemed to follow the same free fall trajectory. Amid epidemic over
capacity, hospitals cashiered inpatient beds—some willingly, some at the state’s cajoling—to secure Certificates of Need for new services, replacement
142 facilities, relocations, and ambulatory facilities. Inpatient bed Certificate of Need (CON) regulations enacted in 1983 weathered one attempted revision in
143 the early 90s, threatened repeal, and finally a revision adopted in April 2003.³ One new hospital was approved during this time.⁴ Several hospitals
converted from acute to specialty care, or rebuilt themselves *in situ* with equal or fewer beds.⁵ Polarizing hospital systems and federations emerged with
144 Promina as the first, though it dissolved in 2003. Columbia/HCA and Emory University Hospitals joint-ventured a network that survived
Columbia/HCA’s near-death experience. Of 48 sitting Atlanta hospital CEOs in 1989, only one remains today; none remain at any major insurer.⁶ Two
145 children’s hospitals merged (legend has it at the behest of others) after an acrimonious, and some believed destructive, competitive clash. Six hospitals
closed without reopening.⁷

150 Population exploded. In 1989, the population forecast for 2000 was 3,508,673,⁸ a torrid 25% increase. In 1989, such perpetual population looked possible, but
hardly certain. The 1996 Olympics might easily have been viewed at the time as a growth crest—but it was not. In the end, the forecasts were wrong. In
151 2000, the population eclipsed *the forecast* by 600,000 people—an
152 85% *underestimate* of the growth. Expert demographers were
“wrong” by roughly the equivalent of two Savannahs. From 1989
153 to 2002, population in Greater Atlanta increased 56%, from
154 2,802,269 to 4,366,480.⁹

155 This growth spawned extensive infrastructure additions
156 throughout the metropolitan area. The striking exception was
157 general inpatient hospital beds.¹⁰ While population increased more
than half, the number of general hospital beds declined by over
158 1,000. Nearly 4.4 million people had fewer beds available than did
159 2.8 million people 13 years before.

160 As the 00s opened (called by some the “Oh-Oh’s”) inpatient demand stopped falling. The typical number of people in a hospital on any given day (“average
161 daily census”) started climbing. And population forecasts were being revised—upward.

Common Terms & Abbreviations Used in This Report

ADC: average daily census; the average number of inpatients in a hospital, or in all hospitals, on a given day.
ALOS: average length of stay; the average number of days of patient, or population of patients, is hospitalized
CON: Certificate of Need; authority granted by the state to offer healthcare services
MSA: Metropolitan Statistical Area; a federal designation used for defining urban areas. See endnote 17 for the technical definition
NCHS: National Center for Health Statistics
OPB: Office of Planning and Budget, State of Georgia
Use rate: the rate at which a given population uses inpatient hospital services; also called the demand rate. Can be expressed as admissions/thousand population, discharges/thousand population, ADC/thousand population, patient days/thousand population, among others.

^b Preferred provider organization. Southcare was a pioneer, as was Bettercare in Cincinnati and several others across the United States.

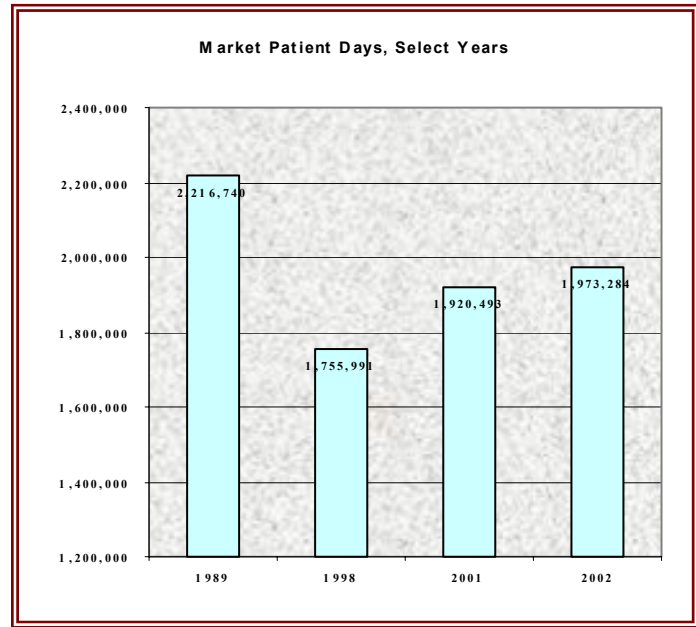
^c The demand for hospital services is a highly measured statistic called a *use rate*. The *use rate* depends upon two factors: population, and the rate at which the population uses beds. The rate at which the population uses beds is itself subject to two factors: how many people are admitted to hospitals (the admission rate) and how long they stay once they are admitted (the average length of stay, or ALOS).

180 *Although metropolitan Atlanta had 56% more population in 2002 than 1989—and additional 1.5 million people—it had*
 181 *9.6% fewer beds (nearly 1,000 fewer beds)*
 182 *11% fewer inpatients on any given day; that's about 700 fewer people in a hospital on any given day*

183 Population increased by 1,564,211, from 2,802,269 in 1989 to 4,366,480 in 2002¹¹ (56%). The most populous county in both periods was Fulton, with 673,004
 and 816,006, respectively. Gwinnett County added the most population, 371,294, during the period, increasing from 277,495 to 648,789. The 1989 forecast of
 Gwinnett County 2000 population was 455,364.¹² Actual Gwinnett County 2000 population exceeded this estimate by more than 130,000.

186 From 1989 through 2002, the net number of short-stay general hospitals decreased by five, from 48 to 43, the result of six closings and one new licensed
 hospital.¹³ Licensed bed capacity¹⁴ decreased 9.6%, from 10,410 in 1989 to 9,409 in 2002. The decrease is not entirely attributable to the closed facilities; some
 hospitals converted to other services or reduced licensed capacity.¹⁵ Since 2002, 634
 192 additional beds have been applied for or approved; 168 are scheduled to be closed upon
 the opening of one approved facility, making the net increase 466 beds.¹⁶

198 Inpatient days decreased 11%, from 2,216,740 in 1989 to 1,973,284 in 2002. Inpatient days
 ebbed in 1998 at 1,755,991. From 1989 to 2002 admissions increased 7.5%, from 377,813 to
 406,126. However, from 1990 through 1994, admissions decreased; they remained
 204 essentially unchanged from 1994 through 1998, when they reached the lowest level of the
 entire period, 359,997. From 1998 through 2002, admissions increased 12.8%. Inpatient
 admissions per thousand population decreased 31%, from 134.8 in 1989 to 93.0 in 2002.
 210 Average length of stay (ALOS) decreased 16.9%, from 5.87 days in 1989 to 4.86 days in
 2002. ALOS was lower than the prior year in every year except 2002, when it rose from
 4.82 to 4.86. Average daily census (ADC) decreased from 6,073 in 1989 to 5,406 in 2002.
 216 Average marketwide occupancy decreased slightly, from 58.3% in 1989 to 57.5% in 2002.



222 **Population growth continues to 2010**

From 2002 to 2010, nearly 800,000 additional residents are expected in the Atlanta area. Population has grown for so long in Atlanta, and by so much, it is easily taken for granted. By national standards, it is a very unusual phenomenon. Much is made of high population growth rates in places such as Las Vegas. But these impressive growth rates are the result of low base populations. When planning healthcare, rates of growth are of secondary importance to the absolute increase in population—the number of people. From 1990 to 2000, only the New York/New Jersey Metropolitan Statistical Area¹⁷ added more population than Atlanta—but to a base 5.5 times larger.¹⁸ The estimated 2002 population of the Atlanta MSA is 4,366,480.¹⁹ The 20-county region in our analysis added 97,720 people in one year, from 2002 to 2003²⁰—that's an increase of more than 11 people per hour, 24/7/365.

For 2010 population, we use estimates from the Governor’s Office of Planning and Budget (OPB), the statutory arbiter of population for the State Health Planning Agency. The State requires that its data be used in CON applications. A population forecast made by OPB in 2000 for 2010 was 4,799,646 people. In August 2002, OPB revised its Atlanta MSA population forecast for 2010 to 5,169,507 people.²¹ Compared to the 2002 estimate of 4,366,480, this suggests a population increase of 803,027 people. That increase equivalent to a population slightly smaller than the Fresno, California MSA, or about twice the size of the Fort Wayne, Indiana, MSA.²² We note that the Census Bureau reported 2003 population as 4,464,200. The difference between the Census Bureau estimate for 2003 and OPB estimate for 2010 is 705,307. This implies average annual growth of 100,758.

We believe this forecast is highly plausible; we do not rule out the need for a future upward revision. Census Bureau projections at the MSA level were not available. Census Bureau regional and state projections provide a basis to conclude that the population growth of the 80s will continue:

During the 1995 to 2025 period, the South and West are each expected to increase by more than 29 million persons. The South and West combined are projected to account for 82 percent of the 72 million persons added to the Nation's population over the next 30 years. This is essentially a continuation of trends began during the 1980's when the South and West accounted for 84 percent of the 22 million persons added to the Nation's population. The Midwest is projected to add 7 million persons during the period 1995 to 2025, while the Northeast adds approximately 6 million persons.²³

Supply of hospital beds in 2010

To estimate the adequacy of hospital beds in 2010, we estimated the supply of inpatient beds and marketwide estimate of operating capacity. We then developed several estimates of average daily census. We compared the supply and demand for beds. The result was a range of bed need in 2010.

To estimate the 2010 supply of beds:

- » we ascertained the total number of beds that existed in the market in 2002
- » to this total, we added the number of beds for which CONs have been granted since 2002, on the assumption they would all be on-line in 2010
- » to this total, we added pending CON applications for additional beds as if all were approved and available for use in 2010 (even though some may be subject to litigation that would result in disapproval or delay beyond 2010) and deducted beds removed from service since 2002

New Beds Proposed Since 2002 Included in 2010 Bed Inventory			
Provider	Number	Cost	Average Cost/New Bed
Emory Dunwoody Medical Center	(168)	na	na
WellStar Kennestone Hospital	140	\$ 93,500,000	\$ 667,857
Rockdale Hospital	31	\$ 60,000,000	\$ 1,935,484
Saint Joseph's Hospital	64	\$ 26,473,927	\$ 413,655
DeKalb Medical Center/Hilandale	100	\$ 65,000,000	\$ 650,000
Henry Medical Center	91	\$ 60,000,000	\$ 659,341
Joan Glancy Memorial Hospital	28	\$ 5,006,571	\$ 178,806
CHOA/Scottish Rite Campus	15	\$ 135,194,398	(2)
CHOA/Egleston Campus	55	\$ 208,781,598	(2)
Emory Johns Creek Medical Center	110	\$ 91,000,000	\$ 827,273
New beds applied for	634	\$ 744,956,494	\$ 710,958
Less: beds to be removed	168		
Net additional known beds in pipeline	466		
Licensed 2002 beds	9,409		
Beds closed in or after 2002 (1)	(93)		
Total estimated 2010 beds:	9,782		

(1) Emory/Parkway Medical Center had nominally 310 licensed beds. It was open one-third of 2002, so to account for its contribution to capacity, 93 beds were tallied in inventory. They are no longer available.
 (2) Project costs incomparable; include significant other construction.
 Beds are excluded from total average cost per bed

Source: Georgia Department of Community Health, Office of General Counsel, Certificate of Need Tracking and Appeals Report, March 29, 2004

Since 2002, there have been three approved inpatient bed CON applications. Henry Medical Center²⁴ sought and received authority to add 91 beds in two phases of 71 and 20. DeKalb Medical Center was authorized to construct South DeKalb Hospital, recently renamed DeKalb Medical Center of Hillandale. After opponents' efforts to appeal to the State Supreme Court were denied, Emory/HCA received authority to construct a new 110 bed hospital conditioned upon the closing of its West Paces Ferry facility and Dunwoody Medical Center. As noted, West Paces Ferry closed in 1999, and its beds were accordingly removed from the data, as were beds for Emory/Parkway Medical Center, which closed in early 2002. Emory/Dunwoody Medical Center remains open with 168 licensed beds in 2002, however, for purposes of estimating bed inventory for 2010, they were deleted from the inventory and the 110 Emory/Johns Creek beds were added. Joan Glancy Memorial Hospital applied for 28 beds and Saint Joseph's Hospital applied for 64 additional beds; both applications are pending. Children's Healthcare of Atlanta has applied for 70 additional beds among its two campuses, however the projects include other investments that confound comparison of these projects to others. The combined effect of these changes increases the 2002 licensed bed inventory of 9,409 to 9,782 (3.9% increase).

Calculating Inpatient Bed Demand

The demand for inpatient beds is a factor of many variables, including (among others) population age, gender, race and health, financial and geographic access to care, and clinical practice patterns. The demand for inpatient care is measured several ways. One measure is the total days of care ("patient days") generated by a population in a year. Another is the total number of admissions generated by a population in a year. The total days of care—patient days—divided by total admissions yields the average length of stay for a patient, or the duration of their hospitalization; longer stays generate higher demand, and shorter stays reduce demand, just as more admissions increases demand and fewer admissions decreases demand. Another measure is the average daily census of hospitalized patients, or ADC, which is derived by dividing patient days by the number of days in a year.

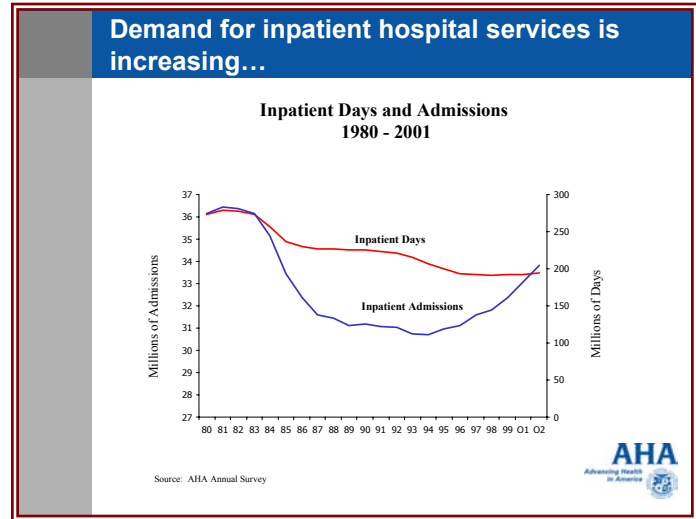
It is not possible for a single hospital or system of hospitals to operate at 100% of capacity. A conventional inpatient occupancy level, or "utilization standard," for a single general hospital is 75%. Indeed, this is the standard used by Georgia for urban adult hospitals. Adopting this facility-specific utilization standard for an entire market is problematic for several reasons.

The first reason is arithmetic; for the system to operate at 75% of capacity, each facility must either operate at that level, or for each facility over the standard there must be one or more below the standard by an offsetting amount. While this could happen from time-to-time, it is an improbable steady state. Second, there are 42 hospitals in the MSA, not one. Not all hospitals in a community would be equally available to all residents, whether because of physician admission privileges, managed care contracting arrangements, or geography. Hospitals in the northern- and southern-most areas of the MSA are more than 75 miles apart and are not interchangeable. Third, occupancy standards at the facility level imply a probability that the next randomly arriving patient can be seen with some expected delay—or lack of delay. They recognize that hospitals have units with different purposes and that admission may not be to the "hospital" as such, but rather to a specialized unit or area within the hospital. Fourth, because hospitals are not used consistently throughout the year, there is a seasonal effect. Fifth, because hospitals are not used equally every day of the week, Saturday and Sunday tend to be days when few tests or procedures are performed, having the effect of lowering average annual occupancy rates, thereby disguising the "peaks and valleys" of utilization. Sixth, hospitals have a diurnal cycle with beds being in use most between the hours of 7 am and 7 pm and having a daily minimum about midnight—the time census is conventionally recorded, understating mid-day utilization. Finally, laws requiring specific lengths of stay, as for deliveries, can affect the utilization of hospital beds.

As noted earlier, the demand for inpatient beds is a factor of many variables, including (among others) population age, gender, race and health, financial and geographic access to care, and clinical practice patterns. But the *deployment* of beds to satisfy that need is clearly influenced by demographic, behavioral, cultural, social, operational, political and economic forces. We believe 68% is a reasoned market-wide utilization standard for a large, complex, metropolitan market with hospitals of virtually every size, however; at this level of market utilization, some hospitals will exceed the 75% facility-specific standard. To the extent the 68% standard is too low, bed need is overstated. To the extent 68% is too high, bed need is understated.

Hospital demand rates in Atlanta are below US averages

Hospital demand rates in Atlanta are remarkably below the US national average; if they are unsustainably low, and rise even slightly by 2010, the compound effects of higher demand and increased population absorb all capacity in the market. As the American Hospital Association graph²⁵ nearby illustrates, from 1983 to 1987, US inpatient admissions fell sharply—by 4.5 million per year, a decline of 12.5%—before stabilizing from 1987 through 1997, when admissions varied little around an average of 31.1 million per year. Admissions per thousand and ALOS fell, respectively, from 126.1 and 7.2 days in 1989 to 118.7 and 5.7 days in 2001.²⁶ AHA reports admissions have increased every year from 1994 through its last reported year, 2001.²⁷ From 1989 to 1998, inpatient days in community hospitals fell by 34 million per year (15%) before rebounding slightly since.²⁸ Admission declines, shorter lengths of stay, and shifts from inpatient to outpatient treatment venues occurred as a result of legislation, purchaser action, economic incentives, clinical technique, technology, and pharmaceuticals.



By 1989 in Atlanta, the effects of prospective payment and managed care had begun; by 2002 they were in full bloom. ALOS in the MSA declined for nine consecutive years from 1989 through 1997, remaining unchanged from 1998 through 2000, falling in 2001 and rising slightly 2002. 1989's total admissions were not eclipsed until 2001.

Those falling use rates enabled 56% more population to rely on fewer inpatient beds. Without the population growth, Atlanta ADC would have declined to 3,470—a marketwide occupancy of 37%. The data show that admissions troughed in 1998—four years after the national bottom—and ALOS may have troughed in 2001.

1989 Statistic	Atlanta	National (NCHS)	National (AHA)
Days per 1,000 population	791.1	814.5	913.4
Discharges per 1,000 population	134.8	125.5	126.1
Average Length of Stay (ALOS)	5.87	6.5	7.2

Using OPB population data and Department of Community Health utilization data, we calculated the 1989 Atlanta MSA use rates²⁹ as approximately 135 admissions per thousand population, 791.1 days of care per thousand population and an ALOS of 5.87. The comparable 1989 national rates reported by The National Center for Health Statistics (NCHS) were 125.5, 814.5, and 6.5.³⁰ AHA reports the comparable values as 126.1, 913.4 and 7.2. Except for the AHA days per thousand, the national demand rates approximate the Atlanta rates. The NCHS rates closely approximate the Atlanta rates we calculated from state data.

378 We conducted a similar analysis for 2001, the last period for which reliable
 utilization data exists. We calculated Atlanta demand rates for 1989, 2001, and 2002.
 384 We next applied other sources' use rates to 2001 Atlanta demographics. Several
 other national and regional utilization rates yield much higher estimates of demand
 than were observed. When we adjusted Atlanta population and use rates for age or
 390 race, the results approximated our 2001 calculations of demand. The 2001 Atlanta
 total days and census compare closely to the published National Center for Health
 Statistics 1999 West regional rate, which is the lowest overall demand in the US.
 Although we did not extensively test the causality, that the age-adjusted rates more
 396 closely approximate the observed rates suggests that the comparatively young
 population of Atlanta contributes to low utilization.^d

402 That the overall Atlanta use rate compares to the lowest regional rate in the nation
 gives us pause. First, it suggests that lower rates are unlikely to be in the offing.
 Second, it calls into question whether they will stay at a low rate or rise – and if they
 408 rise, by how much?

414 *If use rates rise even modestly, marketwide inpatient capacity by 2010 will be
 inadequate, despite proposed additions to inpatient bed capacity; our estimates of
 additional beds required ranges from approximately 450 to 600*

420 In this section, we demonstrate that inpatient capacity is insufficient in 2010 even if
 use rates remain at their current, low levels. If use rates increase, the years ahead
 will be the polar opposite of the 13 years ending in 2002. Utilization declines will not
 shield providers from the effects of ballooning population. Instead, increased
 426 utilization will combine with the 1.5 million population increase from 1989-2002 and
 the 800,000 increase due by 2010 to create a spectacular stress on the system. The very condition that enabled hospitals to absorb the population will be
 dismissed and they will face demand that rises *faster* than population.

Average daily census (ADC) is a function of population, admissions per thousand population and ALOS. Using these variables, we modeled estimates of
 429 ADC for 2010.³¹ They are summarized in the table to the right.

Models of 2010 MSA-wide Average Daily Census, Percentage of System Utilization, & Bed Need or (Surplus) Based on Varied Populations & Use Rates						
		Various Use Rate Sources				
		Atlanta, 1989	Atlanta, 2002	US, NCHS, 2001	US, NCHS, 2001, Age Adjusted	AHA, 2001
Use rate:						
	days of care/1000 population	791.1	451.9	565.0	466.7	681.6
	admissions/1000 population (2)	134.8	93.0	115.3		
	ALOS (2)	5.9	4.9	4.9		
population value						
4,799,646	ADC for OPB population estimate for 2010 made in 2000	10,402	5,943	7,429	6,137	8,963
	System % utilization	106%	61%	76%	63%	92%
	Beds required for 68% average utilization	5,515	(1,043)	1,143	(757)	3,399
5,169,507	ADC for OPB population estimate for 2010 revised in 2002	11,204	6,403	8,002	6,610	9,654
	System % utilization	115%	65%	82%	68%	99%
	Beds required for 68% average utilization	6,694	(367)	1,985	(62)	4,414
5,829,812	ADC for OPB population estimate for 2010 made in 2000, adjusted (1)	12,635	7,218	9,024	7,454	10,887
	System % utilization	129%	74%	92%	76%	111%
	Beds required for 68% average utilization	8,799	833	3,488	1,180	6,228
	2002 ADC	5,406	5,406	5,406	5,406	5,406
	2010 Capacity	9,782	9,782	9,782	9,782	9,782
	NCHS is the National Center for Health Statistics					
	AHA is American Hospital Association					
	(1) this estimate was adjusted to reflect the same error rate as existed in the 1990 OPB estimate of 2000 population, 85%					
	(2) Atlanta figures are author estimates from Annual Hospital Questionnaires; US rates sourced as shown					
	<i>italicized values are calculated</i>					

^d We hasten to note that this is a two-edged sword: increased population, even if younger, will drive demand. However, as that younger population ages in place, its increasing rate of demand could “sneak up” on available capacity. We did not examine this effect here, since it appears to be more noteworthy beyond our 2010 time horizon, but it is a matter ripe for analysis.

432 *For 2010 capacity to be adequate the 2010 OPB population estimate must not be exceeded and use rates cannot rise above their comparatively low 2002*
levels. Assuming OPB 2010 forecast population and unchanged use rates, the system's 2010 capacity of 9,782 beds is nominally adequate to serve the
modeled ADC of 6,403; this is about 1,000 ADC higher than 2002 levels, and about 300 ADC higher than 1989 (at which time there were almost 1,000 more
licensed beds). With these conditions, the system would be at 65% utilization in 2010, slightly lower than the 68% standard.

435

The margin for upward change in use rates is unforgiving. If the OPB population forecast *is not exceeded*:

- 438 » By itself, a five basis point increase in admissions per thousand increases system demand to 69% of 2010 capacity (ADC = 6,749).
- » By itself, a half-day increase in ALOS increases system demand to 72% of 2010 capacity (ADC = 7,059).
- » The combined effect of these two increases is a demand rate to 525 days per thousand population. This rate is lower than the 1999 rates for the
Northeast (733.6 days/000), Midwest (532.6 days/000) and South (622.1 days/000). The result is 2010 occupancy of 76% (ADC = 7,440).
- 441 » At 552 days per thousand, ADC is 7,821 and the demand reaches 80% of system capacity. Although this days per thousand rate is 22% higher than
the 2002 Atlanta rate, it is lower than either of two National Center for Health Statistics 2001 US overall rates of 554.2 and 563.2.³² At an ADC of 7,821, the
market is taxed at 80% of 2010 licensed capacity. For the market to operate at 68% of that demand would require the addition of 1,720 beds.

444

We compared our estimates to another measure, inpatient beds per thousand population. Georgia has 12 health districts. In those districts, the number of beds per thousand population in
447 2001 ranged from slightly more than 2 to 5.1; the district in which the Atlanta MSA resides had
2.5, fourth lowest in the state.³³ To maintain the 2.5 beds per thousand ratio for the 2010 OPB
population would predict a need for 12,924 beds—3,142 more than the 9,782 used in our analysis
450 as the 2010 inventory. Such a supply could support an ADC of 8,788, which equates to a demand
rate of 620 days per thousand.

2010 capacity is only nominally adequate, and that adequacy is predicated on two conditions: that the 2010 OPB population estimate will not be exceeded, and use rates will not rise above their comparatively low 2002 levels.

453 We calculated the ratio of beds per thousand population for the area used in our analysis; our estimate is 2.15 in 2002. To maintain the ratio of 2.15 beds per
thousand for the 2010 OPB population predicts a need for 11,114 total beds. This is 1,332 more than the 9,982 used in our analysis as the 2010 inventory.
Such a supply could support an ADC of 7,558, which equates to a demand rate of 533 days per thousand. While these rates seem remarkably higher than
456 the current Atlanta rates, both are below the South regional rate from 1999, and the latter equates to the 1999 Midwest rate. We would note that, as a
reflection of the market "status quo" inventory of beds, it is reasonable to infer that there will be significant upward pressures from within the market
toward this number.

459

The Table on page 10 shows average demand rates and associated market-wide ADC for several population levels. Those which assume little or no change
from 2002 Atlanta use rates suggest that the proposed marketwide supply of beds will be—barely—adequate if the OPB population forecast is not
462 exceeded. If demand rates remain at 2002 levels but population estimates are low, the system will be at or above capacity. Applying other national average
demand estimates yields remarkably higher calculations of additional bed need.

465 We discarded the extreme estimates—i.e. that the market needs no beds and the market needs 4,000 or 6,000 beds. We also conclude that it is possible, but
improbable, that use rates would rise 20% by 2010. But we note that 2.6 million patient days for the entire market is plausible, compared to the 2010
468 demand of 2.34 million days that would arise from current use rates. 2.6 million patient days equates to a days per thousand population rate in the low 500s
and an ADC in the range of 7,100 to 7,300. 2002 Atlanta ADC per thousand population was 1.24; ADC of 1.39 per thousand population yields an ADC of
7,186.

471 We foresee somewhat higher use rates, and believe equilibrium 2010 ADC is in the low 7,000s. At 7,000 ADC, there is a need for 512 beds above and beyond
the 466 that are in the pipeline; at 7,200 ADC, there is a need for 806 more beds. The market will encounter provider-specific capacity-related hardships as
474 population growth alone—without increases in use rates—drives ADC from its 2002 level of 5,400 to a 2010 level of 6,400.

As the shortage develops, hardships arise

477 Although 68% is a reasoned standard for system occupancy, we noted earlier that it will cause some hospitals to operate over the facility-specific 75%
standard. Although 2002 system occupancy is at 57.5%, seven of the 42 hospitals (17%) in 2002 had occupancy rates of 74.6% or higher—an event not seen
480 since 1988. Five hospitals exceeded 75% occupancy, and three of those five are seeking
additional beds. However, because occupancy rates of individual institutions in the market
varied widely during 2002, from 14.9% to 81.2%,³⁴ the effects of rising ADC are unevenly
distributed.

*Because hospitals in the market have widely varying
occupancy rates, hospitals that are “full” will have
to add beds, even though the “system” has capacity.
The alternative is that some people will not be
admitted to their hospital of choice.*

483 We modeled the strain on individual providers. We held each hospital’s market share
constant at the 2002 rate on the belief that all providers will behave to at least maintain their
486 current shares. Proposed beds were added to the inventory for each provider as if approved,
constructed, and available to patients. We then increased marketwide ADC to 6,403—the level that results from 2010 OPB population and no change in use
rates. We compared facility-specific capacity to facility-specific demand and modeled the effects at 75% and 80% occupancy. The table below shows the
489 effects on individual providers when 2002 market share and ALOS are applied to 2010 ADCs of 6,403 and 7,200 under the more liberal 80% assumption.

At ADC of 6,403:

- 492 ▪ 10 of 43 hospitals would exceed 75% occupancy
- Four hospitals would exceed 87% utilization, which is unrealistic
- 24 of 43 would meet or exceed 60% occupancy; this compares to 16 in 2002.
- 495 ▪ Capping occupancy at 75% for those hospitals that would otherwise exceed it, 308 ADC are displaced from 10 hospitals, which would have to
cumulatively add 411 beds in order to remain at or below 75% occupancy³⁵
- By limiting any single provider to 80% of capacity, 166 ADC are displaced from six hospitals. For those six hospitals to absorb that volume (i.e.
maintain their current market shares) and achieve 80% occupancy, they would have to collectively add 211 beds

- 498 We repeated the modeling at 7,200 ADC; with a 2010 inventory of 9,782 beds the system would be at 74% of capacity. The facility-specific occupancy rate results are unrealistic, but instructive:
- 501 ▪ Two hospitals exceed 100%
 - 504 ▪ Two are at 99%
 - 504 ▪ 10 are between 99% and 75%
 - 504 ▪ Seven more are between 75% and 70%, placing them close to operating capacity
 - 507 ▪ By limiting any single provider to 75% of capacity, 688 ADC are displaced from at least 14 hospitals
 - 507 ▪ By limiting any single provider to 80% of capacity, 487 ADC are displaced from 11 hospitals. For those 11 hospitals to absorb that volume (i.e. maintain their current market shares) and achieve 80% occupancy, they would have to collectively add 609 beds
 - 507 ▪ To operate at 75% of capacity, the 11 hospitals face having to add 916 beds.

513 This is indicative of the pressure to add beds that originates from within, and is specific to, individual hospitals. It is apparent that there are remarkable and widespread facility-specific disruptions even though “the system” appears to have sufficient capacity. These pressures on occupancy inflict an array of unwelcome consequences. As the shortage develops, many individual hospitals will reach capacity before the market as a whole reaches capacity, and operational interruptions will arise that will be felt by the hospital and its customers. These include widespread seasonal bed shortages, cancelled surgeries and procedures, emergency room diversions, and no reserve for any unpredictable disease- or trauma-driven demand spikes (e.g. SARs, influenza, bioterrorism, or natural disaster). Staff and physicians will surely feel the effects. We conclude that 10 to 20 hospitals in the market—one fourth to nearly one half—will experience acute operating strains in the absence of additional beds, shorter lengths of stay, or better utilization of existing beds. As we discuss later, this pressure to build beds, coupled with economic risks and capital demands, present a complex strategic riddle for management and governance.

2010 MODELED ADC BY SELECTED HOSPITALS: CONSTANT 2002 MARKET SHARE AND ALOS									
Hospital	2010 ADC at 6,403 ADC	2010 Avg % Occup	80% capacity	"Displaced" ADC (ADC>80%)	2010 ADC at 7,200 ADC	2010 Avg % Occup	80% capacity	"Displaced" ADC (ADC>80%)	
Northside Hospital	422	95%	355	-67	475	107%	355	-119	
WellStar Cobb Hospital	284	94%	242	-42	319	106%	242	-77	
Piedmont Hospital	405	88%	366	-39	456	99%	366	-89	
Emory Eastside Medical Center	135	88%	122	-13	152	99%	122	-30	
Gwinnett Medical Center	245	82%	240	-5	275	92%	240	-35	
Newnan Hospital	61	81%	60	-1	68	91%	60	-8	
Emory University Hospital	470	80%		total:	529	90%	470	-59	
North Fulton Regional Hospital	133	79%		-166	149	89%	134	-16	
St Josephs Hospital Atlanta	322	79%			363	88%	328	-35	
Wesley Woods Geriatric Hospital	78	78%			88	88%	80	-8	
Crawford Long Hospital	374	73%			420	82%	409	-11	
Spalding Regional Hospital	113	71%			127	80%		total:	
WellStar Kennestone Hospital	437	69%			492	78%		-487	
DeKalb Medical Center	351	67%			395	75%			
Rockdale Hospital	91	66%			103	74%			
Tanner Medical Center/Carrollton	119	66%			134	74%			
Fayette Community Hospital	64	64%			72	72%			
Childrens Healthcare Atl Egles	158	63%			177	71%			
Southern Regional Medical Center	255	63%			287	71%			
Newton General Hospital	56	62%			63	70%			
Emory Peachtree Regional Hospital	39	62%			43	70%			

549 ***Capital requirements, capital competition, and hospital margins***

552 The capital required to construct additional hospital beds is but one of several capital demands
553 on hospitals—how additional beds, at costs of \$750,000 (and more) each, will successfully
554 compete against other capital needs—such as information technology, clinical technology,
555 quality improvement, labor shortages, outpatient services, and physician shortages, to name
556 but a few—is unclear. New beds reflect only one kind of capital demand among many,
557 including outpatient facilities, information technology, and clinical technology, to name but a
558 few.³⁶ The cost of an additional inpatient bed varies. The cost per bed of entirely new hospitals
559 can include the costs of land, ancillary and support departments, emergency rooms, operating rooms, and other “non-bed” costs. The addition of beds to an
560 existing facility may, or may not, include additional infrastructure. A new, state-of-the-art 120 bed hospital proposed for Dade County, Florida, was
561 reported to cost \$130 million, or \$1.1 million per bed.³⁷ BJC HealthCare, St. Louis has proposed construction of a new 72 bed hospital costing \$75 million
562 (\$1,042,000/bed).³⁸ Recent projects in Las Vegas include Spring Valley Hospital, costing \$70 million, for 176 beds (\$397,000/bed), Southern Hills Hospital
563 Medical Center, a 130 bed hospital costing \$140 million (\$1,077,000/bed).³⁹ Henry Ford Hospital, Detroit, recently proposed relocating 300 beds at a cost of
564 \$273 million (\$910,000 per bed)—a move that has been opposed by the Economic Alliance for Michigan, whose members include Ford Motor Company,
565 General Motors, DaimlerChrysler, and the United Auto Workers.⁴⁰ In California, where hospital reconstruction is being fueled by revised seismic standards,
566 El Camino Hospital reported a cost of \$298 million to replace 310 beds (\$961,290/bed).⁴¹ Within the Atlanta MSA, Gwinnett Health System announced a
567 plan to request 75 to 100 additional beds at the existing Gwinnett Hospital for \$55 million (\$733,000/ to \$550,000/bed), and a \$70 million complete
568 replacement of 90 bed Joan Glancy Hospital (\$778,000 / bed); a CON for 28 additional beds, costing \$5,006,571 is pending. Only formal CON applications
569 are included in the 2010 MSA inventory.⁴² Based on the recent applications from Wellstar Kennestone and Emory/Johns Creek, we used \$750,000 to
570 establish a range for the cost of additional beds. The estimated capital required to remediate the deficits ranges from \$340 million at 450 beds to \$450 million
571 at 600 beds.

The 43 hospitals in the MSA reported their patient care margins and their total margins for 2002. They reported a cumulative patient care margin of negative \$91.8 million in 2002, implying an average loss per hospital of \$2 million. This average conceals widely variant results.

572 During the last national bed shortage (during the mid-1900s), cost-plus reimbursement systems and federal Hill Burton Act incentives virtually eliminated
573 hospitals’ financial risk of adding beds. The prospective payment reimbursement systems that replaced cost-plus provide no such protection or incentives;
574 hospitals bear the entire risk of adding beds.

575 The 43 hospitals in the MSA reported their patient care margins and their total margins for 2002.⁴³ They reported a cumulative patient care margin of
576 negative \$91.8 million in 2002, implying an average loss per hospital of \$2 million. This average conceals widely variant results.

With regard to patient care margins:

- 579 » 25 of 43 hospitals (58% of hospitals and 59% of the market’s beds) reported an aggregate loss of \$244 million—a loss of nearly \$30,000 per hour.
- » On the other hand, 18 of 43 hospitals (42% of hospitals and 41% of the market’s beds) reported an aggregate gain of \$152 million.
- » The average “loser” lost \$9.8 million from patient care.
- 582 » The average “winner” earned \$8.4 million from patient care.

With regard to total margins:

- » 19 of 43 hospitals (44% of hospitals, 39% of beds) reported an aggregate total margin loss of \$165 million.
- » 24 of 43 hospitals (56% of hospitals and 51% of the market's beds) reported an aggregate total margin gain of \$247 million.
- » The average "loser" lost \$8.7 million, total margin.
- » The average "winner" earned \$10.3 million, total margin.

Of the eight hospitals adding and proposing to add beds at this time, one—Emory/Dunwoody Medical Center—reported losses on patient care margin and total margin during 2002. The proposed Hillandale hospital, naturally, has no operating results; however DeKalb Medical Center, Henry Medical Center, and WellStar Kennestone reported a loss from patient care but an overall positive margin. Children's Healthcare of Atlanta, Rockdale, Saint Joseph's Hospital, and Joan Glancy Memorial Hospital reported positive patient care and total margins.

Business and insurers should expect intense upward price pressure for inpatient care

whether due to scarcity or to build beds to remediate the shortage, we foresee providers resolutely seeking higher prices in the marketplace

This juxtaposition of mission and market is a difficult strategic equation for providers to solve. The solution for some is made: 466 beds are in the pipeline.

However, providers face a strategic conundrum. There are mainly two strategic options:

1. Add beds (and cost) in order to maintain or increase share.
2. Do not add beds, but rather seek to maintain or add share by increasing "throughput" on the bed chassis (at the risk of patient, staff, and physician dissatisfaction).

To underwrite the costs of the beds, hospitals will need existing or new capital—or both. Medicaid is an improbable source of capital infusion. According to a recent report in the Atlanta Business Chronicle, "State officials anticipate a Medicaid deficit of \$376 million for 2005. That amount includes \$217 million in 2004 Medicaid bills that will not yet be received or paid by the state by the end of this fiscal year, the loss of \$140.8 million in one-time federal funding for 2004 and \$17.9 million in unpaid Medicaid bills for fiscal year 2003."⁴⁴ Medicare is also an unlikely source, given the incremental burden of the prescription drug program and recent estimates that Medicare's unfunded liability now approaches \$66 trillion.⁴⁵

If hospitals conclude that the benefits of undercapacity exceed the benefits of additional capacity, the bed shortage will be amplified and the dislocations vastly more disruptive to the system, even if not to individual providers. This is an unnerving, but not irrational, result. Moreover, as revealed by Detroit's conflict, business has an enormous stake. We predict that business is likely to face higher prices regardless: either to underwrite increased capacity, or as a consequence of limited capacity. Business has tried to refocus providers' attention on quality improvement, through initiatives such as the Leapfrog Group, and on cost reduction, through managed care contracting and shifting costs to employees. Quality improvement and cost reduction ultimatums issued by business are not idle banter, yet the capital required to fund these initiatives competes with capital for many other purposes, including new beds. We could not be further removed from the prevalent conditions of last bed shortage, when cost-plus and Hill-Burton underwrote needed hospital construction.

A period of extraordinary market instability is ahead

Among all of the issues in the marketplace, we see none that inject stability. Each factor is confounding:

618 » Population forecasts are by nature uncertain; changes in age mix, or the rate of growth, can increase or diminish demand. While Atlanta is an attractive and welcoming community, transportation, roads, pollution, urban infrastructure, suburban infrastructure, and water supply must be effectively managed locally and regionally.

621 » There is unsettling ambiguity about what is the “right” use rate for Atlanta. It is difficult to foresee lower use rates. It is true that, compared to the nation, this market does not have the typical proportion of elderly. (That does not make it, as some characterize it, a “young” city; it is “not an old” city. A separate analysis is warranted beyond 2010 to examine the effect of Atlanta’s middle-aged population staying here to age in place.) But because the rate is so low, and population is growing so quickly, the burden on the system is especially vulnerable to increases in demand.

624 » 30 years ago, it would have been simple to conclude that the mere demand for beds would beget a supply of them. Although we believe that the leading hospitals in town will be pressured to add beds, it does not follow that they will do so. It is a maxim that growth takes cash, so those providers with healthy balance sheets and strong cash flows can entertain the strategic alternative of additional beds. That said, we have no recollection of a hospital willingly surrendering market share. The revenue value of one inpatient share point is in the range of \$35-40 million. The question for each provider is how much of the share point should be secured from increased efficiency, and how much from additional beds. If hospital economics reward high volume on concentrated asset bases, adding beds could depress cash flow and capital accumulation. For each provider, there is a point at which the costs and risks of additional beds outweigh the costs and risks of “too few” beds. If for too many hospitals the risk equation returns the answer “too few” beds is less risky, too little capacity could easily result. Likewise, the MSA is so large that we could have excesses in some areas – say, south – and shortages in others--say north. As noted, not all beds in the market are interchangeable.

Pressures on Hospitals Which Discourage and Encourage the Construction of Additional Beds	
Discourage	Encourage
Medicare and Medicaid reimbursement	To increase/preserve volume and market share
Competition for capital/capital scarcity	Mission
Inability to pass costs through to market	Combine bed renewal/replacement with bed additions
Short-term needs more acute than long term needs	Improve clinical conditions
Maximize return on already-deployed assets	Improve working conditions
Labor shortages	Seek productivity gains
Uncertainties around consumerism movement	Increase patient satisfaction
Biotech advances could reduce demand	Aging populations increase demand
Regulatory and litigational hurdles	Embed technology
100 bed minimum for urban hospitals	Physician recruitment/retention
	Employee recruitment/retention

651 » Asking for beds is not the same as having them. It is easily imaginable that a CON filed today would not yield additional beds by 2010 owing to the time required to complete litigation, financing, and construction.

654 » It is also true that the additional volume of patients in the marketplace could fuel capital accumulation among hospitals that can maximize utilization of their existing invested assets, or draw share by focusing scarce capital on clinical and quality investments.

657 » While pricing strength is returning to hospitals, it is no lay up. Is the rebellion by Detroit businesses an isolated skirmish, or the first of a new round of battles?

- » Should there be more beds or more hospitals?
- » There are additional issues to consider.

- 660 o Just as the tide lifts all boats, population lifts all hospital medical services. Inpatient beds are but one aspect of the infrastructure required to serve more inpatients. Among the additional “brick and mortar” resources prospectively needed (and the adequacy of which is unclear) to meet increasing demand are:
- 663 ▪ operating rooms
- 666 ▪ emergency rooms
- 666 ▪ ancillary diagnostic and treatment facilities and equipment for inpatient and outpatient (for pre- and post-hospitalization testing) care, such as imaging, laboratory, pharmacy, therapy, etc
- 669 ▪ medical office buildings
- 669 ▪ parking lots and parking decks
- 672 ▪ some hospitals have semi-private rooms, some of which are operated as private rooms, others of which are operated as semi-private rooms. It is reasonable to predict that, even without the need for additional beds, many hospitals will attempt to replace semis with private rooms. Our analysis considered the total number of beds needed, not whether existing beds needed to be replaced. In this regard, our economic estimates of capital required would be understated.
- » Add to all of this the national healthcare environment and all of its uncertainties.
- 675 o What will be the popularity –and effect–of Health Savings Accounts? Will they diminish demand? Will they increase bad debt? Will consumerism push prices down and service expectations up?
- 678 o Will the insurance industry continue to consolidate, perhaps offsetting some of the pricing power headed toward hospitals?
- 678 o Will the malpractice crisis resolve in an affordable way?
- 681 o If we build additional beds, can we find enough staff to open them?
- 681 o Will “boutique,” specialty hospitals proliferate?

681 ***Where amid the chaos is there opportunity?***

684 Opportunity is embedded within all instability. The future looks a bit chaotic, and it clearly is not just more of the past. The next six to 10 years will bear no resemblance to the past 15. Falling use rates and rising demand that had perfectly offset each other have vanished. Rising demand and rising population will compound each other. Even if use rates remain virtually unchanged, the current marketwide supply of inpatient beds is functionally inadequate to meet the inpatient demand based on the forecasts of 2010 population, and will encounter disruptive capacity strains before then. Given that the forecast population estimates are met or exceeded, and given a modest increase in demand, the result is a measurable shortage in the range of 450 to 600 beds, and, arguably, significant upward pressure by the marketplace as high as 1,000 or more, albeit offset by complex economic conditions. In addition, there is an unmeasured need for additional operating rooms, emergency facilities, replacement inpatient rooms, and additional infrastructure. Providers face difficult strategic choices for which the market will punish or reward them. Buyers face upward price pressure and spot shortages. A hostile, or confrontational, reaction from business, as distinguished from one which expects accountability among providers, could have unintended consequences.

690

693 Vicious cycles destroy. Virtuous cycles create. The compound effect of rising demand and rising population could be the rare fuel of a virtuous cycle that
ignites Atlanta as a medical beacon shining far beyond the South. 21 years—at least—of uninterrupted population growth, coupled with relatively
conservative physical investments for the past 15 years, sets the stage for an unmatched modernization of medical facilities and the attraction of
696 international medical and scientific talent. We know we're not the first to propose that Atlanta deliberately and strategically invest in medicine and science.
The market seems to be taking itself in that direction. The years ahead suggest that such a strategy has urgent relevance for Atlanta and its leadership—in
healthcare and beyond. Making it a declared objective could be final piece of the puzzle.

699



Appendix

702

The authors are partners in Morgan Healthcare Consulting, LLC, Atlanta.

Christopher E. Press, FACHE

705

Principal Author. Mr. Press has served community and faith-based hospitals and healthcare systems in various executive positions, principally as chief marketing, strategy, and planning officer. He is adjunct Assistant Professor, Health Policy and Management, Rollins School of Public Health at Emory University, Atlanta, where he teaches Master of Public Health candidates. A published author, he has served on the Editorial Board of *Frontiers of Health Services Management*, the faculty of The Estes Park Institute, and faculty of the American College of Healthcare Executives Congress on Healthcare Administration. He is on the board of directors of the Metropolitan Atlanta YMCA—the nation’s sixth largest, and fastest-growing, Y, where he served on the Y-2010 Long Range Planning Committee, and chaired the 2001 & 2002 Partner With Youth Annual Campaign. He is a Fellow in the American College of Healthcare Executives and a member of: American Association of Blood Banks; Georgia Hospital Association, Association of University Programs in Health Administration, and; AcademyHealth. He is listed in *Who’s Who in Healthcare and Medicine*, and *Who’s Who in America*.

708

711

714

He earned an MBA *summa cum laude* in Finance and Marketing from the University of Cincinnati and a BBA *summa cum laude* in Business Economics from Ohio University, Athens, where he was elected to Phi Kappa Phi and Beta Gamma Sigma. He moved to Atlanta in 1989 where he lives with his wife and youngest daughter.

717

Roger Cochran, PhD

Associate Author. Dr. Cochran has been an acknowledged healthcare expert for over 20 years. His experience includes service in market research, health planning agencies, providers, and consulting. His work for clients includes researching market position, image studies, physician studies, payer surveys, competitor assessments, opinion studies, focus groups, strategic planning, and service line planning. His research includes sample design, multivariate regression, logistic regression, and other problem-appropriate research techniques. He has prepared certificates of need in a variety of states and categories, provided litigation support for certificate of need cases and been an expert witness. He has performed market sizing studies, including the demand and need for various healthcare services. The breadth of his work extends to joint ventures, HMO applications, market-entry screening tools and market repositioning. He has experience in using data and methods to examine operational problems and intercede with operational remedies that are suited to the circumstances and supported by staff, management, and physicians.

720

723

726

Dr. Cochran is a conference speaker for market research and complementary medicine topics. He is active in civic and religious organizations where he has served as committee chair and officer. Dr. Cochran has been a Visiting Instructor at the Rollins School of Public Health at Emory University, Atlanta. His doctorate is in Medical Sociology and Gerontology from Georgia State University. He holds a Master of Science from Georgia Institute of Technology in Health Systems, a Master of Arts from the University of Colorado in Anthropology and a bachelor degree in Industrial Management from Georgia Institute of Technology. Raised in Atlanta, Dr. Cochran left to discover the world, found out it had moved to Atlanta while he was gone, and returned in 1984.

729

732

Kent Lederman

Associate Author. Mr. Lederman’s areas of expertise includes business unit planning and strategy, market research, decision support, database analysis and modeling, and service placement/market segmentation (mapping) -- even for industries beyond healthcare. He has developed market information functions at three hospitals, including development of internal and external data sources, the development of tools to analyze such data, and training others in their use. He has coached service line directors in business plan development, modeled hospital reimbursement strategies, managed various successful

735

738 certificate of need applications, and remained active in other regulatory matters. Mr. Lederman has been a conference speaker and writer on data sources
and usage and the application of geographic information system (mapping) technologies. He holds a BA degree in Psychology from Goshen (IN) College
and an MBA from the University of South Florida, with a Teaching Fellowship in Statistical Methods. Realizing his putter was going to be a life-long
nemesis, Mr. Lederman gave up the PGA professional program years ago and finds solace in casual golf and Little League baseball coaching. He also
741 serves on a local school board and in other charitable causes. He has lived in Atlanta since 1986.

Kay L. Brown

744 Associate Author. Ms. Brown has over 20 years experience in subacute, long-term and home health care. She regularly provides review for organizations
that are looking for funding or to acquire companies, and provides due diligence for companies and investors in the health care arena. Ms. Brown holds an
active nursing home administrator's license. She was a senior vice president for GranCare, one of the nation's innovators in subacute care, where she
747 developed post-acute networks, managed the contract therapy division, and headed the company's home health operations. As the company grew, she
served as head of corporate communication, including Investor Relations and Corporate Communication. Prior to GranCare, Ms. Brown was president and
CEO of Visiting Nurses Associations of America, where she created Visiting Nurse Preferred Care, a preferred provider network of over 250 home health
agencies that did direct contracting with payers. Ms. Brown is a health care conference presenter and author. She has published several recent articles on
750 developing post-acute networks for long-term and home health providers. She currently serves on the board of the National Hospice Organization
Insurance Agency, the Georgia Healthcare Marketers Council, and Healthmont, a private healthcare company. Ms. Brown holds an MPA from the
University of Colorado and a BSN from Creighton University. She has lived in Atlanta since 1995.

753 Acknowledgements & recommended citation

This report was underwritten by Morgan Healthcare Consulting, LLC, Atlanta. The authors acknowledge the assistance of Christine Gray, MPH candidate,
Rollins School of Public Health, Emory University, Atlanta, and John Schroer, MPH, Data Consultant, Bremerton, Washington, for their assistance in
756 preparation of this report.

759 Morgan Healthcare Consulting, LLC's focus is healthcare and human service. We have worked in all areas of healthcare including, hospitals and other
service providers, such as long term care and home health care, pharmaceutical manufacturers, distributors and service providers, physicians and physician
groups, home health, bio-agricultural, manufacturing, policy, investors, and regional health planning organizations. We have served governmental
organizations, community and faith-based not-for-profit organizations and agencies, as well as investor-owned organizations. We have served rural, small
762 town, suburban, and urban clients. We have served integrated and non-integrated providers.

765 This report is copyrighted. All rights reserved. Duplication for internal, private use in limited quantity is permitted. Quotation without attribution is
prohibited.

Recommended citation:

768 Press CE, Cochran RA, Lederman K, Brown KL. No Vacancy: An Analysis if Hospital Bed Supply and Demand in Atlanta. Atlanta, GA; Morgan
Healthcare Consulting, LLC; 2004.

771 Additional Adobe Acrobat (PDF) copies of the report may be obtained free of charge at our website, www.mhcpartners.com

774 6/18/2004 2:22:00 PM, C:\Documents and Settings\Christopher Press\My Documents\DATAFILES\CEP MAIN FILE\CEP DRAFTS\Articles\Atlanta MSA whitepaper final2hard reorder tnr.doc

TABLE ONE

Change from Atl 2002	Reference	Days of care per thousand population	Total Market Days	Increase in Days Compared to 2002	ADC	2010 Total Beds	0.68	Surplus (Deficit)	Capital Impact @ \$750,000 per bed
0.0%	Atl 2002	452	2,337,228		6,403	9,750	6,630	227	
1.1%		457	2,363,075	25,848	6,474	9,750	6,630	156	
2.2%		462	2,388,923	51,695	6,545	9,750	6,630	85	
3.3%	US Age Adjusted, 2001 (466.7)	467	2,414,770	77,543	6,616	9,750	6,630	14	
4.4%		472	2,440,618	103,390	6,687	9,750	6,630	(57)	\$ 42,468,358
5.5%		477	2,466,465	129,238	6,757	9,750	6,630	(127)	\$ 95,579,731
6.6%		482	2,492,313	155,085	6,828	9,750	6,630	(198)	\$ 148,691,104
7.7%		487	2,518,161	180,933	6,899	9,750	6,630	(269)	\$ 201,802,478
8.8%		492	2,544,008	206,780	6,970	9,750	6,630	(340)	\$ 254,913,851
10.0%		497	2,569,856	232,628	7,041	9,750	6,630	(411)	\$ 308,025,224
11.1%		502	2,595,703	258,475	7,112	9,750	6,630	(482)	\$ 361,136,597
12.2%		507	2,621,551	284,323	7,182	9,750	6,630	(552)	\$ 414,247,971
13.3%		512	2,647,398	310,170	7,253	9,750	6,630	(623)	\$ 467,359,344
13.7%		514	2,657,127	319,899	7,280	9,750	6,630	(650)	\$ 487,349,174
14.4%		517	2,673,246	336,018	7,324	9,750	6,630	(694)	\$ 520,470,717
15.5%		522	2,699,093	361,865	7,395	9,750	6,630	(765)	\$ 573,582,091
16.6%		527	2,724,941	387,713	7,466	9,750	6,630	(836)	\$ 626,693,464
17.7%	Midwest, 1999 (532.6)	532	2,750,788	413,561	7,536	9,750	6,630	(906)	\$ 679,804,837
18.8%		537	2,776,636	439,408	7,607	9,750	6,630	(977)	\$ 732,916,210
19.9%		542	2,802,483	465,256	7,678	9,750	6,630	(1,048)	\$ 786,027,584
21.0%		547	2,828,331	491,103	7,749	9,750	6,630	(1,119)	\$ 839,138,957
22.1%		552	2,854,178	516,951	7,820	9,750	6,630	(1,190)	\$ 892,250,330
23.2%		557	2,880,026	542,798	7,890	9,750	6,630	(1,260)	\$ 945,361,704
24.3%		562	2,905,874	568,646	7,961	9,750	6,630	(1,331)	\$ 998,473,077
24.5%	US 2001	563	2,908,695	571,468	7,969	9,750	6,630	(1,339)	\$ 1,004,271,548
37.6%	South, 1999	622	3,216,257	879,029	8,812	9,750	6,630	(2,182)	\$ 1,636,247,260
50.8%	AHA, 2001	682	3,523,872	1,186,644	9,654	9,750	6,630	(3,024)	\$ 2,268,332,877
62.3%	Northeast, 1999	734	3,792,712	1,455,484	10,391	9,750	6,630	(3,761)	\$ 2,820,743,836

780

TABLE TWO

TABLE OF KEY VALUES			
	1989	2002	2010
Population, total			
US Census Bureau Estimate	2,802,269	4,366,480	
Forecast in 1989 for 2000			
2000 forecast for 2010			4,799,646
2000 forecast for 2010 with error			5,829,812
OPB revised for 2010			5,169,507
Population in thousands			
Actual	2,802	4,366	-
Forecast in 1989 for 2000	-	-	-
2000 forecast for 2010	-	-	4,800
2000 forecast for 2010 with error	-	-	5,830
OPB revised for 2010	-	-	5,170
Average Occupancy	58.3%	57.5%	
Licensed beds	10,410	9,409	9,782
Licensed beds change, #		(1,001)	
Licensed beds change, %		9.6%	9,782
Admissions	377,813	406,126	
ADC	6.073	5.406	
	6073.3	5406.3	
change, 1989-2002		(667)	
change, 1989-2002		-11.0%	
ALOS			
Atlanta MSA	5.87	4.86	
Georgia	NA	6.1	
US	7.2	5.7	
US	6.5	4.9	
Patient days	2,216,740	1,973,284	
change, 1989-2002		-11.0%	
Beds per thousand population			
Atlanta MSA	-	2.15	
Ga (2001)	NA	2.87	
US (1989 and 2001)	3.78	2.90	
Admissions per thousand population			
Atlanta MSA	134.8	93.0	
US (1989 and 2001)	128.6	118.7	
US (1990 and 2001)	126.1	115.3	
Census per thousand population			
Atlanta MSA	2.17	1.24	
change, 1989-2002		-42.9%	
Patient days per thousand population			
Atlanta MSA	791.1	451.9	
change, 1989-2002		-42.9%	
US (1990 and 2001)	818.9	563.2	
change, 1990-2001		-31.2%	

TABLE THREE

CALCULATED AVERAGE DAILY CENSUS BASED ON OPB 2010 POPULATION ESTIMATE																		
ALOS																		
6.38	6,564	7,016	7,468	7,920	8,372	8,823	9,275	9,727	10,179	10,419	10,631	11,082	11,534	12,248	12,438	12,890	13,341	
6.28	6,462	6,906	7,351	7,796	8,240	8,685	9,130	9,575	10,019	10,255	10,464	10,909	11,353	12,056	12,243	12,688	13,132	
6.18	6,359	6,796	7,234	7,672	8,109	8,547	8,984	9,422	9,860	10,092	10,297	10,735	11,173	11,864	12,048	12,486	12,923	
6.08	6,256	6,686	7,117	7,547	7,978	8,409	8,839	9,270	9,700	9,929	10,131	10,561	10,992	11,672	11,853	12,284	12,714	
5.98	6,153	6,576	7,000	7,423	7,847	8,270	8,694	9,117	9,541	9,765	9,964	10,388	10,811	11,480	11,658	12,081	12,505	
1989 ATL MSA Rate	5.87	6,040	6,455	6,871	7,287	7,702	8,118	8,534	8,949	9,365	9,586	9,781	10,197	10,612	11,269	11,444	11,859	12,275
5.8	5,968	6,378	6,789	7,200	7,611	8,021	8,432	8,843	9,253	9,471	9,664	10,075	10,486	11,135	11,307	11,718	12,129	
5.68	5,844	6,246	6,649	7,051	7,453	7,855	8,258	8,660	9,062	9,275	9,464	9,866	10,269	10,904	11,073	11,475	11,878	
5.58	5,741	6,136	6,532	6,927	7,322	7,717	8,112	8,507	8,902	9,112	9,298	9,693	10,088	10,712	10,878	11,273	11,669	
5.48	5,638	6,026	6,415	6,803	7,191	7,579	7,967	8,355	8,743	8,949	9,131	9,519	9,907	10,520	10,683	11,071	11,459	
5.38	5,536	5,916	6,297	6,678	7,059	7,440	7,821	8,202	8,583	8,786	8,964	9,345	9,726	10,329	10,488	10,869	11,250	
5.28	5,433	5,807	6,180	6,554	6,928	7,302	7,676	8,050	8,424	8,622	8,798	9,172	9,546	10,137	10,293	10,667	11,041	
5.18	5,330	5,697	6,063	6,430	6,797	7,164	7,531	7,897	8,264	8,459	8,631	8,998	9,365	9,945	10,098	10,465	10,832	
5.08	5,227	5,587	5,946	6,306	6,666	7,026	7,385	7,745	8,105	8,296	8,465	8,824	9,184	9,753	9,903	10,263	10,623	
4.98	5,124	5,477	5,829	6,182	6,535	6,887	7,240	7,593	7,945	8,132	8,298	8,651	9,003	9,561	9,709	10,061	10,414	
2002 ATL MSA & 2000 US Rate (4.9)	4.88	5,021	5,367	5,712	6,058	6,403	6,749	7,095	7,440	7,786	7,969	8,131	8,477	8,822	9,369	9,514	9,859	10,205
4.78	4,918	5,257	5,595	5,934	6,272	6,611	6,949	7,288	7,626	7,806	7,965	8,303	8,642	9,177	9,319	9,657	9,996	
4.68	4,815	5,147	5,478	5,810	6,141	6,472	6,804	7,135	7,467	7,642	7,798	8,129	8,461	8,985	9,124	9,455	9,786	
4.58	4,712	5,037	5,361	5,685	6,010	6,334	6,658	6,983	7,307	7,479	7,631	7,956	8,280	8,793	8,929	9,253	9,577	
4.48	4,609	4,927	5,244	5,561	5,878	6,196	6,513	6,830	7,148	7,316	7,465	7,782	8,099	8,601	8,734	9,051	9,368	
4.38	4,507	4,817	5,127	5,437	5,747	6,057	6,368	6,678	6,988	7,153	7,298	7,608	7,918	8,409	8,539	8,849	9,159	
4.28	4,404	4,707	5,010	5,313	5,616	5,919	6,222	6,525	6,828	6,989	7,132	7,435	7,738	8,217	8,344	8,647	8,950	
4.18	4,301	4,597	4,893	5,189	5,485	5,781	6,077	6,373	6,669	6,826	6,965	7,261	7,557	8,025	8,149	8,445	8,741	
4.08	4,198	4,487	4,776	5,065	5,354	5,643	5,931	6,220	6,509	6,663	6,798	7,087	7,376	7,833	7,954	8,243	8,532	
3.98	4,095	4,377	4,659	4,941	5,222	5,504	5,786	6,068	6,350	6,499	6,632	6,913	7,195	7,641	7,759	8,041	8,323	
	72.65	77.65	82.65	87.65	92.65	97.65	102.65	107.65	112.65	115.30	117.65	122.65	127.65	135.55	137.65	142.65	147.65	
					2002 ATL MSA Rate					2001 National Rate				1989 ATL MSA Rate				

TABLE FOUR

		CALCULATED MARKETWIDE OCCUPANCY BASED ON OPB 2010 POPULATION ESTIMATE																	
ALOS																			
	6.38	67.1%	71.7%	76.3%	81.0%	85.6%	90.2%	94.8%	99.4%	104.1%	106.5%	108.7%	113.3%	117.9%	125.2%	127.2%	131.8%	136.4%	
	6.28	66.1%	70.6%	75.1%	79.7%	84.2%	88.8%	93.3%	97.9%	102.4%	104.8%	107.0%	111.5%	116.1%	123.3%	125.2%	129.7%	134.2%	
	6.18	65.0%	69.5%	74.0%	78.4%	82.9%	87.4%	91.8%	96.3%	100.8%	103.2%	105.3%	109.7%	114.2%	121.3%	123.2%	127.6%	132.1%	
	6.08	64.0%	68.4%	72.8%	77.2%	81.6%	86.0%	90.4%	94.8%	99.2%	101.5%	103.6%	108.0%	112.4%	119.3%	121.2%	125.6%	130.0%	
	5.98	62.9%	67.2%	71.6%	75.9%	80.2%	84.5%	88.9%	93.2%	97.5%	99.8%	101.9%	106.2%	110.5%	117.4%	119.2%	123.5%	127.8%	
	1989 ATL MSA Rate	5.87	61.7%	66.0%	70.2%	74.5%	78.7%	83.0%	87.2%	91.5%	95.7%	98.0%	100.0%	104.2%	108.5%	115.2%	117.0%	121.2%	125.5%
	5.8	61.0%	65.2%	69.4%	73.6%	77.8%	82.0%	86.2%	90.4%	94.6%	96.8%	98.8%	103.0%	107.2%	113.8%	115.6%	119.8%	124.0%	
	5.68	59.7%	63.9%	68.0%	72.1%	76.2%	80.3%	84.4%	88.5%	92.6%	94.8%	96.8%	100.9%	105.0%	111.5%	113.2%	117.3%	121.4%	
	5.58	58.7%	62.7%	66.8%	70.8%	74.9%	78.9%	82.9%	87.0%	91.0%	93.2%	95.0%	99.1%	103.1%	109.5%	111.2%	115.2%	119.3%	
	5.48	57.6%	61.6%	65.6%	69.5%	73.5%	77.5%	81.4%	85.4%	89.4%	91.5%	93.3%	97.3%	101.3%	107.5%	109.2%	113.2%	117.1%	
	5.38	56.6%	60.5%	64.4%	68.3%	72.2%	76.1%	80.0%	83.9%	87.7%	89.8%	91.6%	95.5%	99.4%	105.6%	107.2%	111.1%	115.0%	
	5.28	55.5%	59.4%	63.2%	67.0%	70.8%	74.6%	78.5%	82.3%	86.1%	88.1%	89.9%	93.8%	97.6%	103.6%	105.2%	109.0%	112.9%	
	5.18	54.5%	58.2%	62.0%	65.7%	69.5%	73.2%	77.0%	80.7%	84.5%	86.5%	88.2%	92.0%	95.7%	101.7%	103.2%	107.0%	110.7%	
	5.08	53.4%	57.1%	60.8%	64.5%	68.1%	71.8%	75.5%	79.2%	82.9%	84.8%	86.5%	90.2%	93.9%	99.7%	101.2%	104.9%	108.6%	
	4.98	52.4%	56.0%	59.6%	63.2%	66.8%	70.4%	74.0%	77.6%	81.2%	83.1%	84.8%	88.4%	92.0%	97.7%	99.2%	102.9%	106.5%	
	2002 ATL MSA & 2000 US Rate (4.9)	4.88	51.3%	54.9%	58.4%	61.9%	65.5%	69.0%	72.5%	76.1%	79.6%	81.5%	83.1%	86.7%	90.2%	95.8%	97.3%	100.8%	104.3%
	4.78	50.3%	53.7%	57.2%	60.7%	64.1%	67.6%	71.0%	74.5%	78.0%	79.8%	81.4%	84.9%	88.3%	93.8%	95.3%	98.7%	102.2%	
	4.68	49.2%	52.6%	56.0%	59.4%	62.8%	66.2%	69.6%	72.9%	76.3%	78.1%	79.7%	83.1%	86.5%	91.8%	93.3%	96.7%	100.0%	
	4.58	48.2%	51.5%	54.8%	58.1%	61.4%	64.8%	68.1%	71.4%	74.7%	76.5%	78.0%	81.3%	84.6%	89.9%	91.3%	94.6%	97.9%	
	4.48	47.1%	50.4%	53.6%	56.9%	60.1%	63.3%	66.6%	69.8%	73.1%	74.8%	76.3%	79.6%	82.8%	87.9%	89.3%	92.5%	95.8%	
	4.38	46.1%	49.2%	52.4%	55.6%	58.8%	61.9%	65.1%	68.3%	71.4%	73.1%	74.6%	77.8%	80.9%	86.0%	87.3%	90.5%	93.6%	
	4.28	45.0%	48.1%	51.2%	54.3%	57.4%	60.5%	63.6%	66.7%	69.8%	71.4%	72.9%	76.0%	79.1%	84.0%	85.3%	88.4%	91.5%	
	4.18	44.0%	47.0%	50.0%	53.0%	56.1%	59.1%	62.1%	65.1%	68.2%	69.8%	71.2%	74.2%	77.3%	82.0%	83.3%	86.3%	89.4%	
	4.08	42.9%	45.9%	48.8%	51.8%	54.7%	57.7%	60.6%	63.6%	66.5%	68.1%	69.5%	72.5%	75.4%	80.1%	81.3%	84.3%	87.2%	
	3.98	41.9%	44.7%	47.6%	50.5%	53.4%	56.3%	59.2%	62.0%	64.9%	66.4%	67.8%	70.7%	73.6%	78.1%	79.3%	82.2%	85.1%	
		72.65	77.65	82.65	87.65	92.65	97.65	102.65	107.65	112.65	115.30	117.65	122.65	127.65	135.55	137.65	142.65	147.65	
						2002 ATL MSA Rate					2001 National Rate				1989 ATL MSA Rate				

783 TABLE FIVE

CALCULATED MARKETWIDE ADDITIONAL DEMAND FOR NEW BEDS BASED ON 68% MARKETWIDE OCCUPANCY AND OPB 2010 POPULATION ESTIMATE																		
ALOS																		
6.38	(128)	536	1,200	1,865	2,529	3,194	3,858	4,522	5,187	5,539	5,851	6,516	7,180	8,230	8,509	9,173	9,838	
6.28	(280)	374	1,028	1,682	2,336	2,990	3,644	4,298	4,952	5,299	5,606	6,260	6,914	7,948	8,222	8,876	9,530	
6.18	(431)	213	856	1,500	2,143	2,787	3,430	4,074	4,718	5,059	5,361	6,005	6,648	7,666	7,936	8,579	9,223	
6.08	(582)	51	684	1,317	1,950	2,583	3,217	3,850	4,483	4,819	5,116	5,749	6,382	7,383	7,649	8,282	8,915	
5.98	(734)	(111)	512	1,135	1,757	2,380	3,003	3,626	4,248	4,579	4,871	5,494	6,117	7,101	7,362	7,985	8,608	
1989 ATL MSA Rate	5.87	(900)	(289)	322	934	1,545	2,156	2,768	3,379	3,990	4,315	4,602	5,213	5,824	6,790	7,047	7,658	8,269
5.8	(1,006)	(402)	202	806	1,410	2,014	2,618	3,222	3,826	4,147	4,430	5,034	5,638	6,593	6,846	7,450	8,054	
5.68	(1,188)	(596)	(5)	587	1,178	1,770	2,361	2,953	3,544	3,858	4,136	4,728	5,319	6,254	6,502	7,094	7,685	
5.58	(1,339)	(758)	(177)	404	985	1,567	2,148	2,729	3,310	3,618	3,891	4,472	5,053	5,972	6,215	6,796	7,378	
5.48	(1,490)	(920)	(349)	222	793	1,363	1,934	2,505	3,075	3,378	3,646	4,217	4,787	5,689	5,929	6,499	7,070	
5.38	(1,642)	(1,081)	(521)	39	600	1,160	1,720	2,280	2,841	3,138	3,401	3,961	4,521	5,407	5,642	6,202	6,763	
5.28	(1,793)	(1,243)	(693)	(143)	407	956	1,506	2,056	2,606	2,898	3,156	3,706	4,256	5,125	5,355	5,905	6,455	
5.18	(1,944)	(1,405)	(865)	(326)	214	753	1,292	1,832	2,371	2,658	2,911	3,450	3,990	4,842	5,069	5,608	6,148	
5.08	(2,095)	(1,566)	(1,037)	(508)	21	550	1,079	1,608	2,137	2,417	2,666	3,195	3,724	4,560	4,782	5,311	5,840	
4.98	(2,247)	(1,728)	(1,210)	(691)	(172)	346	865	1,384	1,902	2,177	2,421	2,939	3,458	4,278	4,495	5,014	5,532	
2002 ATL MSA & 2000 US Rate (4.9)	4.88	(2,398)	(1,890)	(1,382)	(873)	(365)	143	651	1,159	1,668	1,937	2,176	2,684	3,192	3,995	4,209	4,717	5,225
4.78	(2,549)	(2,052)	(1,554)	(1,056)	(558)	(60)	437	935	1,433	1,697	1,931	2,428	2,926	3,713	3,922	4,420	4,917	
4.68	(2,701)	(2,213)	(1,726)	(1,239)	(751)	(264)	224	711	1,198	1,457	1,686	2,173	2,660	3,431	3,635	4,123	4,610	
4.58	(2,852)	(2,375)	(1,898)	(1,421)	(944)	(467)	10	487	964	1,217	1,441	1,918	2,395	3,148	3,348	3,825	4,302	
4.48	(3,003)	(2,537)	(2,070)	(1,604)	(1,137)	(671)	(204)	262	729	977	1,196	1,662	2,129	2,866	3,062	3,528	3,995	
4.38	(3,155)	(2,699)	(2,242)	(1,786)	(1,330)	(874)	(418)	38	494	736	951	1,407	1,863	2,584	2,775	3,231	3,687	
4.28	(3,306)	(2,860)	(2,415)	(1,969)	(1,523)	(1,077)	(632)	(186)	260	496	706	1,151	1,597	2,301	2,488	2,934	3,380	
4.18	(3,457)	(3,022)	(2,587)	(2,151)	(1,716)	(1,281)	(845)	(410)	25	256	460	896	1,331	2,019	2,202	2,637	3,072	
4.08	(3,609)	(3,184)	(2,759)	(2,334)	(1,909)	(1,484)	(1,059)	(634)	(209)	16	215	640	1,065	1,737	1,915	2,340	2,765	
3.98	(3,760)	(3,345)	(2,931)	(2,516)	(2,102)	(1,688)	(1,273)	(859)	(444)	(224)	(30)	385	799	1,454	1,628	2,043	2,457	
	72.65	77.65	82.65	87.65	92.65	97.65	102.65	107.65	112.65	115.30	117.65	122.65	127.65	135.55	137.65	142.65	147.65	
					2002 ATL MSA Rate					2001 National Rate				1989 ATL MSA Rate				

TABLE SIX

CALCULATED MARKETWIDE CAPITAL DEMAND FOR NEW BEDS BASED ON 68% MARKETWIDE OCCUPANCY AND OPB 2010 POPULATION ESTIMATE																		
IN MILLIONS OF DOLLARS @ AVERAGE COST PER NEW BED OF \$750,000																		
ALOS																		
6.38	\$ (96)	\$ 402	\$ 900	\$ 1,399	\$ 1,897	\$ 2,395	\$ 2,894	\$ 3,392	\$ 3,890	\$ 4,155	\$ 4,388	\$ 4,887	\$ 5,385	\$ 6,173	\$ 6,382	\$ 6,880	\$ 7,378	
6.28	\$ (210)	\$ 281	\$ 771	\$ 1,262	\$ 1,752	\$ 2,243	\$ 2,733	\$ 3,224	\$ 3,714	\$ 3,974	\$ 4,205	\$ 4,695	\$ 5,186	\$ 5,961	\$ 6,167	\$ 6,657	\$ 7,148	
6.18	\$ (323)	\$ 159	\$ 642	\$ 1,125	\$ 1,607	\$ 2,090	\$ 2,573	\$ 3,056	\$ 3,538	\$ 3,794	\$ 4,021	\$ 4,504	\$ 4,986	\$ 5,749	\$ 5,952	\$ 6,434	\$ 6,917	
6.08	\$ (437)	\$ 38	\$ 513	\$ 988	\$ 1,463	\$ 1,938	\$ 2,412	\$ 2,887	\$ 3,362	\$ 3,614	\$ 3,837	\$ 4,312	\$ 4,787	\$ 5,537	\$ 5,737	\$ 6,212	\$ 6,686	
5.98	\$ (550)	\$ (83)	\$ 384	\$ 851	\$ 1,318	\$ 1,785	\$ 2,252	\$ 2,719	\$ 3,186	\$ 3,434	\$ 3,653	\$ 4,120	\$ 4,587	\$ 5,326	\$ 5,522	\$ 5,989	\$ 6,456	
1989 ATL MSA Rate	5.87	\$ (675)	\$ (217)	\$ 242	\$ 700	\$ 1,159	\$ 1,617	\$ 2,076	\$ 2,534	\$ 2,993	\$ 3,236	\$ 3,451	\$ 3,910	\$ 4,368	\$ 5,093	\$ 5,285	\$ 5,744	\$ 6,202
5.8	\$ (755)	\$ (302)	\$ 151	\$ 604	\$ 1,057	\$ 1,511	\$ 1,964	\$ 2,417	\$ 2,870	\$ 3,110	\$ 3,323	\$ 3,776	\$ 4,229	\$ 4,945	\$ 5,135	\$ 5,588	\$ 6,041	
5.68	\$ (891)	\$ (447)	\$ (3)	\$ 440	\$ 884	\$ 1,327	\$ 1,771	\$ 2,215	\$ 2,658	\$ 2,894	\$ 3,102	\$ 3,546	\$ 3,989	\$ 4,690	\$ 4,877	\$ 5,320	\$ 5,764	
5.58	\$ (1,004)	\$ (568)	\$ (133)	\$ 303	\$ 739	\$ 1,175	\$ 1,611	\$ 2,047	\$ 2,482	\$ 2,714	\$ 2,918	\$ 3,354	\$ 3,790	\$ 4,479	\$ 4,662	\$ 5,097	\$ 5,533	
5.48	\$ (1,118)	\$ (690)	\$ (262)	\$ 166	\$ 594	\$ 1,022	\$ 1,450	\$ 1,878	\$ 2,306	\$ 2,534	\$ 2,734	\$ 3,162	\$ 3,590	\$ 4,267	\$ 4,447	\$ 4,875	\$ 5,303	
5.38	\$ (1,231)	\$ (811)	\$ (391)	\$ 29	\$ 450	\$ 870	\$ 1,290	\$ 1,710	\$ 2,130	\$ 2,353	\$ 2,551	\$ 2,971	\$ 3,391	\$ 4,055	\$ 4,231	\$ 4,652	\$ 5,072	
5.28	\$ (1,345)	\$ (932)	\$ (520)	\$ (107)	\$ 305	\$ 717	\$ 1,130	\$ 1,542	\$ 1,955	\$ 2,173	\$ 2,367	\$ 2,779	\$ 3,192	\$ 3,844	\$ 4,016	\$ 4,429	\$ 4,841	
5.18	\$ (1,458)	\$ (1,054)	\$ (649)	\$ (244)	\$ 160	\$ 565	\$ 969	\$ 1,374	\$ 1,779	\$ 1,993	\$ 2,183	\$ 2,588	\$ 2,992	\$ 3,632	\$ 3,801	\$ 4,206	\$ 4,611	
5.08	\$ (1,572)	\$ (1,175)	\$ (778)	\$ (381)	\$ 15	\$ 412	\$ 809	\$ 1,206	\$ 1,603	\$ 1,813	\$ 1,999	\$ 2,396	\$ 2,793	\$ 3,420	\$ 3,586	\$ 3,983	\$ 4,380	
4.98	\$ (1,685)	\$ (1,296)	\$ (907)	\$ (518)	\$ (129)	\$ 260	\$ 649	\$ 1,038	\$ 1,427	\$ 1,633	\$ 1,816	\$ 2,205	\$ 2,593	\$ 3,208	\$ 3,371	\$ 3,760	\$ 4,149	
2002 ATL MSA & 2000 US Rate (4.9)	4.88	\$ (1,799)	\$ (1,417)	\$ (1,036)	\$ (655)	\$ (274)	\$ 107	\$ 488	\$ 869	\$ 1,251	\$ 1,453	\$ 1,632	\$ 2,013	\$ 2,394	\$ 2,997	\$ 3,156	\$ 3,538	\$ 3,919
4.78	\$ (1,912)	\$ (1,539)	\$ (1,165)	\$ (792)	\$ (419)	\$ (45)	\$ 328	\$ 701	\$ 1,075	\$ 1,273	\$ 1,448	\$ 1,821	\$ 2,195	\$ 2,785	\$ 2,941	\$ 3,315	\$ 3,688	
4.68	\$ (2,026)	\$ (1,660)	\$ (1,294)	\$ (929)	\$ (563)	\$ (198)	\$ 168	\$ 533	\$ 899	\$ 1,093	\$ 1,264	\$ 1,630	\$ 1,995	\$ 2,573	\$ 2,726	\$ 3,092	\$ 3,457	
4.58	\$ (2,139)	\$ (1,781)	\$ (1,424)	\$ (1,066)	\$ (708)	\$ (350)	\$ 7	\$ 365	\$ 723	\$ 913	\$ 1,080	\$ 1,438	\$ 1,796	\$ 2,361	\$ 2,511	\$ 2,869	\$ 3,227	
4.48	\$ (2,253)	\$ (1,903)	\$ (1,553)	\$ (1,203)	\$ (853)	\$ (503)	\$ (153)	\$ 197	\$ 547	\$ 732	\$ 897	\$ 1,247	\$ 1,597	\$ 2,150	\$ 2,296	\$ 2,646	\$ 2,996	
4.38	\$ (2,366)	\$ (2,024)	\$ (1,682)	\$ (1,340)	\$ (998)	\$ (655)	\$ (313)	\$ 29	\$ 371	\$ 552	\$ 713	\$ 1,055	\$ 1,397	\$ 1,938	\$ 2,081	\$ 2,423	\$ 2,766	
4.28	\$ (2,479)	\$ (2,145)	\$ (1,811)	\$ (1,477)	\$ (1,142)	\$ (808)	\$ (474)	\$ (139)	\$ 195	\$ 372	\$ 529	\$ 863	\$ 1,198	\$ 1,726	\$ 1,866	\$ 2,201	\$ 2,535	
4.18	\$ (2,593)	\$ (2,266)	\$ (1,940)	\$ (1,614)	\$ (1,287)	\$ (961)	\$ (634)	\$ (308)	\$ 19	\$ 192	\$ 345	\$ 672	\$ 998	\$ 1,514	\$ 1,651	\$ 1,978	\$ 2,304	
4.08	\$ (2,706)	\$ (2,388)	\$ (2,069)	\$ (1,750)	\$ (1,432)	\$ (1,113)	\$ (794)	\$ (476)	\$ (157)	\$ 12	\$ 162	\$ 480	\$ 799	\$ 1,303	\$ 1,436	\$ 1,755	\$ 2,074	
3.98	\$ (2,820)	\$ (2,509)	\$ (2,198)	\$ (1,887)	\$ (1,576)	\$ (1,266)	\$ (955)	\$ (644)	\$ (333)	\$ (168)	\$ (22)	\$ 289	\$ 600	\$ 1,091	\$ 1,221	\$ 1,532	\$ 1,843	
	72.65	77.65	82.65	87.65	92.65	97.65	102.65	107.65	112.65	115.30	117.65	122.65	127.65	135.55	137.65	142.65	147.65	
					2002 ATL MSA Rate					2001 National Rate				1989 ATL MSA Rate				

786

TABLE SEVEN

CALCULATED TOTAL DAYS OF INPATIENT CARE PER YEAR BASED ON OPB 2010 POPULATION ESTIMATE																	
ALOS																	
6.38	2,396,009	2,560,916	2,725,823	2,890,731	3,055,638	3,220,545	3,385,453	3,550,360	3,715,267	3,802,762	3,880,174	4,045,082	4,209,989	4,470,636	4,539,803	4,704,711	4,869,618
6.28	2,358,454	2,520,776	2,683,099	2,845,421	3,007,744	3,170,066	3,332,389	3,494,712	3,657,034	3,743,157	3,819,357	3,981,679	4,144,002	4,400,564	4,468,647	4,630,969	4,793,292
6.18	2,320,899	2,480,637	2,640,374	2,800,112	2,959,850	3,119,588	3,279,325	3,439,063	3,598,801	3,683,553	3,758,539	3,918,277	4,078,014	4,330,491	4,397,490	4,557,228	4,716,965
6.08	2,283,344	2,440,497	2,597,650	2,754,803	2,911,956	3,069,109	3,226,262	3,383,415	3,540,568	3,623,948	3,697,721	3,854,874	4,012,027	4,260,418	4,326,333	4,483,486	4,640,639
5.98	2,245,789	2,400,357	2,554,925	2,709,494	2,864,062	3,018,630	3,173,198	3,327,767	3,482,335	3,564,344	3,636,903	3,791,471	3,946,040	4,190,346	4,255,176	4,409,745	4,564,313
5.87	2,204,478	2,356,203	2,507,928	2,659,653	2,811,379	2,963,104	3,114,829	3,266,554	3,418,279	3,498,779	3,570,004	3,721,729	3,873,454	4,113,266	4,176,904	4,328,629	4,480,354
5.8	2,178,190	2,328,106	2,478,021	2,627,937	2,777,853	2,927,768	3,077,684	3,227,600	3,377,516	3,457,056	3,527,431	3,677,347	3,827,263	4,064,215	4,127,094	4,277,010	4,426,925
5.68	2,133,124	2,279,938	2,426,752	2,573,566	2,720,380	2,867,194	3,014,008	3,160,822	3,307,636	3,385,531	3,454,450	3,601,264	3,748,078	3,980,128	4,041,706	4,188,520	4,335,334
5.58	2,095,569	2,239,798	2,384,027	2,528,257	2,672,486	2,816,715	2,960,944	3,105,174	3,249,403	3,325,926	3,393,632	3,537,861	3,682,091	3,910,055	3,970,549	4,114,778	4,259,008
5.48	2,058,014	2,199,658	2,341,303	2,482,947	2,624,592	2,766,236	2,907,881	3,049,525	3,191,170	3,266,322	3,332,814	3,474,459	3,616,103	3,839,982	3,899,392	4,041,037	4,182,681
5.38	2,020,459	2,159,519	2,298,578	2,437,638	2,576,698	2,715,758	2,854,817	2,993,877	3,132,937	3,206,718	3,271,997	3,411,056	3,550,116	3,769,910	3,828,235	3,967,295	4,106,355
5.28	1,982,904	2,119,379	2,255,854	2,392,329	2,528,804	2,665,279	2,801,754	2,938,229	3,074,704	3,147,113	3,211,179	3,347,654	3,484,129	3,699,837	3,757,079	3,893,554	4,030,029
5.18	1,945,349	2,079,239	2,213,129	2,347,020	2,480,910	2,614,800	2,748,690	2,882,581	3,016,471	3,087,509	3,150,361	3,284,251	3,418,141	3,629,764	3,685,922	3,819,812	3,953,702
5.08	1,907,794	2,039,099	2,170,405	2,301,710	2,433,016	2,564,321	2,695,627	2,826,932	2,958,238	3,027,904	3,089,543	3,220,849	3,352,154	3,559,692	3,614,765	3,746,071	3,877,376
4.98	1,870,239	1,998,960	2,127,680	2,256,401	2,385,122	2,513,843	2,642,563	2,771,284	2,900,005	2,968,300	3,028,725	3,157,446	3,286,167	3,489,619	3,543,608	3,672,329	3,801,050
4.88	1,832,684	1,958,820	2,084,956	2,211,092	2,337,228	2,463,364	2,589,500	2,715,636	2,841,772	2,908,695	2,967,908	3,094,044	3,220,180	3,419,546	3,472,452	3,598,588	3,724,723
4.78	1,795,129	1,918,680	2,042,231	2,165,783	2,289,334	2,412,885	2,536,436	2,659,987	2,783,539	2,849,091	2,907,090	3,030,641	3,154,192	3,349,474	3,401,295	3,524,846	3,648,397
4.68	1,757,574	1,878,540	1,999,507	2,120,473	2,241,440	2,362,406	2,483,373	2,604,339	2,725,306	2,789,487	2,846,272	2,967,239	3,088,205	3,279,401	3,330,138	3,451,104	3,572,071
4.58	1,720,019	1,838,401	1,956,782	2,075,164	2,193,546	2,311,927	2,430,309	2,548,691	2,667,073	2,729,882	2,785,454	2,903,836	3,022,218	3,209,328	3,258,981	3,377,363	3,495,745
4.48	1,682,464	1,798,261	1,914,058	2,029,855	2,145,652	2,261,449	2,377,246	2,493,043	2,608,840	2,670,278	2,724,637	2,840,433	2,956,230	3,139,255	3,187,824	3,303,621	3,419,418
4.38	1,644,909	1,758,121	1,871,333	1,984,546	2,097,758	2,210,970	2,324,182	2,437,394	2,550,607	2,610,673	2,663,819	2,777,031	2,890,243	3,069,183	3,116,668	3,229,880	3,343,092
4.28	1,607,354	1,717,981	1,828,609	1,939,236	2,049,864	2,160,491	2,271,119	2,381,746	2,492,374	2,551,069	2,603,001	2,713,628	2,824,256	2,999,110	3,045,511	3,156,138	3,266,766
4.18	1,569,799	1,677,842	1,785,884	1,893,927	2,001,970	2,110,012	2,218,055	2,326,098	2,434,140	2,491,465	2,542,183	2,650,226	2,758,269	2,929,037	2,974,354	3,082,397	3,190,439
4.08	1,532,244	1,637,702	1,743,160	1,848,618	1,954,076	2,059,534	2,164,992	2,270,450	2,375,907	2,431,860	2,481,365	2,586,823	2,692,281	2,858,965	2,903,197	3,008,655	3,114,113
3.98	1,494,689	1,597,562	1,700,435	1,803,308	1,906,182	2,009,055	2,111,928	2,214,801	2,317,674	2,372,256	2,420,548	2,523,421	2,626,294	2,788,892	2,832,040	2,934,914	3,037,787
	72.65	77.65	82.65	87.65	92.65	97.65	102.65	107.65	112.65	115.30	117.65	122.65	127.65	135.55	137.65	142.65	147.65
					2002 ATL MSA Rate					2001 National Rate				1989 ATL MSA Rate			

789 TABLE EIGHT

CALCULATED DAYS OF INPATIENT CARE PER THOUSAND POPULATION BASED ON OPB 2010 POPULATION ESTIMATE																		
ALOS																		
6.38	463	495	527	559	591	623	655	687	719	736	751	782	814	865	878	910	942	
6.28	456	488	519	550	582	613	645	676	707	724	739	770	802	851	864	896	927	
6.18	449	480	511	542	573	603	634	665	696	713	727	758	789	838	851	882	912	
6.08	442	472	502	533	563	594	624	654	685	701	715	746	776	824	837	867	898	
5.98	434	464	494	524	554	584	614	644	674	689	704	733	763	811	823	853	883	
1989 ATL MSA Rate	5.87	426	456	485	514	544	573	603	632	661	677	691	720	749	796	808	837	867
5.8	421	450	479	508	537	566	595	624	653	669	682	711	740	786	798	827	856	
5.68	413	441	469	498	526	555	583	611	640	655	668	697	725	770	782	810	839	
5.58	405	433	461	489	517	545	573	601	629	643	656	684	712	756	768	796	824	
5.48	398	426	453	480	508	535	563	590	617	632	645	672	700	743	754	782	809	
5.38	391	418	445	472	498	525	552	579	606	620	633	660	687	729	741	767	794	
5.28	384	410	436	463	489	516	542	568	595	609	621	648	674	716	727	753	780	
5.18	376	402	428	454	480	506	532	558	584	597	609	635	661	702	713	739	765	
5.08	369	394	420	445	471	496	521	547	572	586	598	623	648	689	699	725	750	
4.98	362	387	412	436	461	486	511	536	561	574	586	611	636	675	685	710	735	
2002 ATL MSA & 2000 US Rate (4.9)	4.88	355	379	403	428	452	477	501	525	550	563	574	599	623	661	672	696	721
4.78	347	371	395	419	443	467	491	515	538	551	562	586	610	648	658	682	706	
4.68	340	363	387	410	434	457	480	504	527	540	551	574	597	634	644	668	691	
4.58	333	356	379	401	424	447	470	493	516	528	539	562	585	621	630	653	676	
4.48	325	348	370	393	415	437	460	482	505	517	527	549	572	607	617	639	661	
4.38	318	340	362	384	406	428	450	471	493	505	515	537	559	594	603	625	647	
4.28	311	332	354	375	397	418	439	461	482	493	504	525	546	580	589	611	632	
4.18	304	325	345	366	387	408	429	450	471	482	492	513	534	567	575	596	617	
4.08	296	317	337	358	378	398	419	439	460	470	480	500	521	553	562	582	602	
3.98	289	309	329	349	369	389	409	428	448	459	468	488	508	539	548	568	588	
	72.65	77.65	82.65	87.65	92.65	97.65	102.65	107.65	112.65	115.30	117.65	122.65	127.65	135.55	137.65	142.65	147.65	
					2002 ATL MSA Rate					2001 National Rate				1989 ATL MSA Rate				

792 NOTES

¹ D. Schactman, S. Altman, E. Eilat, K. Thorpe, "The Outlook for Hospital Spending," Health Affairs (Nov/Dec 2003):12-25; Health Care Advisory Board, "The New Economics of Care: Briefing for the Board and Health System Executives (Washington: Advisory Board Company, Fall 2001); B. Kirchheimer, "Full House: After Years of Decline, Inpatient Admissions Are Rising, Pushing New Construction," Modern Healthcare: (26 November 2001): 28-31; American Hospital Association, "Forces Driving Inpatient Utilization," Trendwatch (November 2001); N. Petersen, "Hospital: Demand Outpacing Services," Philadelphia Inquirer; 6 November 2001; "Overflow in Many U.S. Hospitals, Study Finds," Los Angeles Times, 9 April 2002; and R. Abelson, "Patients Surge and Hospitals Hunt for Beds," New York Times, 28 March 2002. B. Japsen, "Hospital Capacity Debate Heats Up: Aging Population Means Sharp Rise in Need, Study Says," Chicago Tribune, 17 July 2003

² Attributed to Yogi Berra.

³ Georgia State Health Plan, Component Plan, Short-Stay General Hospital Beds, Effective April, 2003, p.5.

⁴ Fayette Community Hospital opened in 1997

⁵ Example reconstruction projects include Crawford Long and Grady Memorial Hospitals. Windy Hill Hospital converted from general acute care to rehabilitation. See also note 15

⁶ James Tally, PhD, Children's Health Care of Atlanta

⁷ The following hospitals last reported data as follows: Bowden Area Hospital, 2000; Jesse Parker Williams Hospital, 1991; Midtown Hospital, 1998; West Paces Medical Center, 1999; Woodstock Hospital, 1993. Emory Parkway closed in 2002. Bolton Hospital closed in 1988.

⁸ *The Georgia County Guide*, 1989. Ed: Douglas C. Bachtel. The University of Georgia, Cooperative Extension Service, Eighth Edition

⁹ *The Georgia County Guide*, 1990. Ed: Douglas C. Bachtel. The University of Georgia, Cooperative Extension Service, Ninth Edition. *The Georgia County Guide*, 2003. Eds: Susan R. Boatright and Douglas C. Bachtel. Center for Agribusiness and Economic Development in the College of Agricultural and Environmental Studies, University of Georgia, 21st Edition

¹⁰ In Georgia, "short-stay general hospitals" includes adult acute care beds used for medical and surgical patients, pediatric beds in general community hospitals, and perinatal (obstetrical) beds. It excludes state and federal facilities, (e.g. Veterans Administration), bassinets and nursery beds, psychiatric and rehabilitation beds and hospitals. We have excluded LTAC hospitals, but not LTAC beds that have not been removed from short-stay hospital inventory.

¹¹ *The Georgia County Guide*, 1990. Ed: Douglas C. Bachtel. The University of Georgia, Cooperative Extension Service, Ninth Edition. *The Georgia County Guide*, 2003. Ed: Susan R. Boatright and Douglas C. Bachtel. Center for Agribusiness and Economic Development in the College of Agricultural and Environmental Studies, University of Georgia, 21st Edition

¹² *The Georgia County Guide*, 1989. Ed: Douglas C. Bachtel. The University of Georgia, Cooperative Extension Service, Eighth Edition

¹³ Unless otherwise noted, hospital and hospital utilization data presented throughout this report come from the Georgia Department of Health Planning Annual Hospital Questionnaires. Only non-federal, short-stay, acute care general and pediatric hospitals are included. (The data excludes specialty hospitals, such as rehabilitation or psychiatric). Calculations are by the authors. The following hospitals last reported data as follows: Bowden Area Hospital, 2000; Jesse Parker Williams Hospital, 1991; Midtown Hospital, 1998; West Paces Medical Center, 1999; Woodstock Hospital, 1993. Emory Parkway closed in 2002. Bolton Hospital closed in 1988. Fayette Community Hospital opened in 1997.

¹⁴ Because licensed beds are regulated by the state, and represent the maximum number that would be available, this value was used. Another measure is "staffed and set up" beds, which is always equal to or less than licensed beds. State approval is not required to operate at a lower capacity, or to "flex" capacity under the limits of the license. The number of inpatient days was unavailable for 1989; for this reason, inpatient days for both periods were calculated from available data.

¹⁵ Example changes in licensed capacity include: Emory Hospital, from 604 to 587; Georgia Baptist Medical Center/Atlanta Medical Center, 523 to 460; Crawford Long Hospital, 634 to 511; Grady Memorial Hospital, from 1,038 to 953; and Kennestone WellStar Hospital, from 539 to 455. All of these facilities exchanged beds in the course of securing regulatory approval from the State Health Planning Agency.

¹⁶ SHPA CON Tracking Reports; Morgan Healthcare Consulting calculations.

¹⁷ From the Office of Management and Budget *OMB Bulletin No. 03-04 Attachment, Metropolitan Statistical Areas Micropolitan Statistical Areas Combined Statistical Areas New England City And Town Areas Combined New England City And Town Areas 2003 Lists 1 through 8* at http://www.whitehouse.gov/omb/bulletins/b03-04_attach.pdf, the following definition of an MSA appears: "Metropolitan Statistical Areas have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. Micropolitan Statistical Areas - a new set of statistical areas - have at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. Metropolitan and Micropolitan Statistical Areas are defined in terms of whole counties (or equivalent entities), including in the six New England States. If the specified criteria are met, a Metropolitan Statistical Area containing a single core with a population of 2.5 million or more may be subdivided to form smaller groupings of counties referred to as Metropolitan Divisions. The classification includes about 93 percent of the U.S. population - about 83 percent in metropolitan statistical areas and about 10 percent in micropolitan statistical areas. (Previously, the classification included about 80 percent of the U.S. population.) Of 3,142 counties in the United States (the 3,141 counties at the time of the 2000 decennial census plus Broomfield, Colorado, which became a county in November 2001), 1,090 will be in the 362 metropolitan statistical areas in the United States and 674 counties will be in micropolitan statistical areas (1,378 counties will remain outside the classification). (Previously, the classification included 847 metropolitan counties.)"

¹⁸ Ranking Tables for Population of Metropolitan Statistical Areas, Micropolitan Statistical Areas, Combined Statistical Areas, New England City and Town Areas, and Combined New England City and Town Areas: 1990 and 2000 (Areas defined by the Office of Management and Budget as of June 6, 2003.) (PHC-T-29). Table 1a, Population in Metropolitan and Micropolitan Statistical Areas in Alphabetical Order and Numerical and Percent Change for the United States and Puerto Rico: 1990 and 2000, resorted for absolute population growth. <http://www.census.gov/population/www/cen2000/phc-t29.html>, accessed 4/5/04

¹⁹ Table 1: Annual Estimates of the Population for Counties of Georgia: April 1, 2000 to July 1, 2003 (CO-EST2003-01-13) Source: Population Division, U.S. Census Bureau, Release Date: April 9, 2004. 2003 population was reported as 4,464,200.

²⁰ *ibid*

²¹ Governor's Office of Planning and Budget. http://www.gadata.org/information_services/Census_Info/msaprojections.htm, accessed 2/9/04.

²² As of 2000. Source: Ranking Tables for Population of Metropolitan Statistical Areas, Micropolitan Statistical Areas, Combined Statistical Areas, New England City and Town Areas, and Combined New England City and Town Areas: 1990 and 2000 (Areas defined by the Office of Management and Budget as of June 6, 2003.) (PHC-T-29). Table 1a, Population in Metropolitan and Micropolitan Statistical Areas in Alphabetical Order and Numerical and Percent Change for the United States and Puerto Rico: 1990 and 2000, resorted for total 2000 population. <http://www.census.gov/population/www/cen2000/phc-t29.html>, accessed 4/5/04

²³ Campbell, Paul R., 1996, *Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025*, U.S. Bureau of the Census, Population Division, PPL-47at <http://www.census.gov/population/www/projections/ppl47.html#tr-size-regional>, accessed 4/9/04.

²⁴ Henry County Medical Center is a client of Morgan Healthcare Consulting, LLC. Morgan did not provide assistance with the CON application.

²⁵ "Overview of the US Healthcare System," Caroline Steinberg, vice president, Health Trends Analysis, AHA. Undated. Accessed 4/12/04 at <http://www.hospitalconnect.com/aha/nhcp/content/Overview.ppt>

²⁶ American Hospital Association, Trendwatch Chartbook 2003, Table 3.1, p82

²⁷ American Hospital Association, Trendwatch Chartbook 2003, Table 3.1, p82

²⁸ American Hospital Association, Trendwatch Chartbook 2003, Table 3.1, p82

²⁹ Our calculations use the relevant Atlanta MSA population and hospital statistics. Some patients in MSA hospitals do not reside in the MSA; they come from elsewhere in Georgia and, in some cases, from other states. Atlanta hospitals serve the entire state, and in some cases beyond, notably: Grady, Emory, and Children's Healthcare of Atlanta, to name but a few. Some of the demand for their beds originates among populations we have not considered. Some population within the MSA receives care outside the MSA. We assume that the inflow and outflow offset one another. It is more likely that immigration exceeds outmigration.

³⁰ Graves EJ, Kozak U. National Hospital Discharge Survey Annual Summary, 1989. National Center for Health Statistics. Vital Health Stat 13(109). 1992. Table A. Selected measures of short-stay hospital utilization: United States, selected years 1965-69

³¹ We constructed three matrices of ADC based on various admission rates per thousand, ALOS, and population estimates. For this study, we established the range of admissions per thousand from 77.04 to 157.04 and ALOS from 4.28 days to 6.38 days. This range was selected because the lows are less than the MSA's current observed rates and highs exceed 1989 observed rates, and the most recent national use rates, 116.5 discharges per thousand, 5.1 day ALOS, are within this range. Each matrix used the same scales of discharges per thousand and ALOS, but a different value for 2010 population. This created three levels of demand for beds expressed as ADC. The supply of 2010 licensed beds was kept constant at 9,843, the 2002 supply plus the number of pending beds. We estimated utilization of licensed beds for each population level. We next estimated the number of beds required for each respective level of demand (ADC) using the 68% utilization factor. The number of additional beds required was 9,843 minus (ADC/.68). We first calculated ADC using the 2010 population forecast of 4,799,646. At current use rates, ADC is 5,945, which is more than 2002 but less than 1989. Utilization would rise to 61%. At 1989 use rates, ADC is 10,463, or 107% of capacity. To examine this, we applied the same underestimation percentage as existed in the 1989 forecast of 2000 population. This generates higher population in 16 of 20 counties and MSA population of 5,829,812. Using this as a base, at 2002 use rates, ADC is 7,221 remarkably higher than 1989. Utilization is 74%. At 1989 use rates, ADC is 13,163; demand is 135% of capacity. For the final ADC matrix, Using this population with 2002 use rates, ADC is 6,403, which is higher than 1989. Utilization would rise to 67%. At 1989 use rates, ADC is 11,269. Utilization is 116% of capacity.

³² Freid VM, Prager K, MacKay AP, Xia H. Chartbook on Trends in the Health of Americans. Health, United States, 2003. Hyattsville, MD: National Center for Health Statistics. 2003. Table 89, page 270 and 273.

³³ Georgia State Health Plan, Component Plan, Short-Stay General Hospital Beds, Effective April, 2003, p.19

³⁴ Kennestone WellStar Hospital reduced its licensed bed capacity from 539 in 1989 to 455 in 2002. It has since petitioned the state to increase its licensed capacity to 633 by adding 140 beds.

³⁵ 2010 ADC/.75=2010 beds needed. 2010 beds needed - 2002 beds licensed = net 2010 beds needed by facility

³⁶ From The Wall Street Journal, 3/3/04: "Hospitals plan to boost capital spending by 14% annually over the next five years, a new survey shows, a move that could squeeze many hospital systems' already thin profits. Roughly three-quarters of the 460 U.S. hospitals surveyed said they expected to increase capital investment over the next several years. The big spending plans mark a turnaround from austere times: Hit by money-borrowing troubles in the late 1990s, hospitals increased capital spending by just 1% a year between 1997 and 2001."

³⁷ <http://www.miami.com/mld/miamiherald/business/7859471.htm>: Miami Herald, 2/3/04. "Homestead's design provides window into future of hospitals." John Dorschner

³⁸ <http://www.sltoday.com/sltoday/news/stories.nsf/News/St.+Charles/17AC3C21D2D2369886256E36001E2126?OpenDocument&Headline=Officials+spar+over+plan+for+hospital++> "Officials spar over plan for hospital." St. Louis Post-Dispatch, 02/09/2004. Judith VandeWater,

³⁹ http://www.reviewjournal.com/lvrj_home/2004/Feb-11-Wed-2004/business/23194261.html. "St. Rose Dominican breaks ground in LV.: Las Vegas Review Journal, 2/11/04. Matthew Crowley.

⁴⁰ <http://online.wsj.com/article/0,,SB107454982298405576,00.html?mod=health%5Fhome%5Fstories>. Subscription may be required. Wall Street Journal, 1/20/04. "Detroit Auto Makers Fight Local Hospitals' Building Plans." Lee Hawkins, Jr.

⁴¹ http://www.mv-voice.com/morgue/2003/2003_10_17_meads.html. Mountain View Voice, 10/17/03. "Hospital tax race heats up." Candice Shih

⁴² <http://www.gwinnettdailyonline.com/GDP/archive/article7074120CA01B4B9DBE30EAF92059AD8C.asp> Gwinnett Daily Post (undated) "Top Ten Health Stories [of 2003]." 1. Hospital expansions: Three major expansion projects were announced this year to bring the county's hospitals up to speed with the population explosion in Gwinnett. Because of the skyrocketing costs of caring for the indigent, the Gwinnett Health System's two projects will lead to the System facing a \$100 million shortfall over the next five years. The projects at area hospitals include: • Adding 75 to 100 beds to the Gwinnett Medical Center in Lawrenceville at a cost of about \$55 million • Building a \$70 million replacement hospital for the Joan Glancy Memorial in Duluth • Emory Eastside Medical Center is also working on a \$27 million expansion, which will add three floors to the back portion of the center in Snellville. On February 27, 2004 Shepherd Center, a facility for catastrophic and spinal injuries, announced a \$48 million expansion that would add 20 beds. Although the center's beds are classified as general acute care, because the facility is a specialty center it was excluded from the entire analysis of the market.

⁴³ Georgia Hospital Association, 2002 Hospital Financial Survey

⁴⁴ Atlanta Business Chronicle, 3/29/04, <http://atlanta.bizjournals.com/atlanta/stories/2004/03/29/newscolumn1.html?page=2>, accessed 4/9/04.

⁴⁵ Wall Street Journal, "Medicare Math," Jagadeesh Gokhale, Senior Fellow, the Cato Institute. 4/15/04