B. Alan Whitson

Fix Hospital Bed Shortages

The need for acute-care hospital beds will reach critical levels in the near future. Part of the solution lies in making improvements and changes to existing facilities.

Photo: Gary L. Parr

Demand for acute-care beds in U.S. hospitals will grow 46% by 2027, requiring an additional 238,000 beds. According to a 2004 study by Solucient LLC, Evanston, IL, long-term demographic shifts in the U.S. population are driving this growth. Total acute-care admissions are projected to increase by 13 million cases from a 2002 baseline—a 41% increase in the number of national admissions.

Among the demographic factors contributing to this growth are aging of the baby-boom generation, increasing life expectancy, rising fertility rates, and continued immigration. However, these factors do not affect each market equally. Demand will grow fastest in the Western and Southern states and more slowly in Midwestern and Northeastern states. Yet, even in slower-growing communities, the aging population will prompt a hospitalization growth rate that will outpace growth of the total population.

These growth predictions come at a time when many medical institutions are already experiencing increases in hospitalizations, capacity constraints, and an unprecedented boom in hospital construction and expansion projects. Yet, according to research by the Healthcare Financial Management Association (HFMA), Westchester, IL, hospitals are falling behind on capital spending.

On average, capital spending increased 1% per year between 1997 and 2001. In contrast, hospital admissions grew by 7.7% and outpatient visits increased by 19.6% during that period. HFMA also found 41% of hospitals are not investing enough capital to keep ahead of asset depreciation, which could compromise the ability to build or renovate facilities, expand products and services, and/or maintain profitable growth.

Despite the need for more beds, the current surge in hospital construction is being restrained by rising construction costs. According to Gary Collins, an architect with Anshen+Allen, San Francisco, and president of the International Facility Management Association's (Houston) healthcare council, inflation is a major issue everywhere, but is completely out of control on the West Coast, greatly affecting needed program space and, in some cases, eliminating the entire project. A material shortage due to Hurricane Katrina and a building boom in Japan are also putting pressure on healthcare projects.

There is an ironic twist to this hospital capital-spending deficiency. Medical institutions can improve their levels of patient care and their bottom lines by increasing capital expenditures. In 1984, Roger Ulrich, Texas A&M Univ., College Station, TX, completed a study of patients recovering from gallbladder surgery. He found that those with views of trees recovered better than those looking at brick walls. In fact, those who could view/interact with nature went home almost a day sooner, had $550 lower costs per case, used fewer heavy medications, had fewer minor complications, and showed better emotional well-being.

The work of Ulrich and others has led to evidence-based design, which is showing that good design choices can improve medical outcomes, enhance staff satisfaction, and save money. This research offers a solid rationale for spending more money on single-occupancy rooms; larger in-room windows with views of nature; comfortable accommodations for families in patient rooms and waiting areas; energy-saving, environmental-management systems; and amenities such as art and healing gardens.

Leading the research in this area is the Center for Health Design, Concord, CA, a non-profit organization that, in the late 1990s, started the Pebble Project. Currently 34 Pebble Project hospitals are gathering outcome-related data before and after construction of new healthcare facilities.

The Pebble Project's goal is to uncover and share the best practices in healthcare design. Project partners are finding that good design can have a positive impact on the delivery, experience, and cost of healthcare. Some of the findings to date:

- Patients are moved, often as many as six times, during a typical visit. Every move increases the risk of error by 75%. At Methodist Hospital, Indianapolis, making improvements in patient room layout and equipment integration has reduced patient transfers 90%.
- Larger bathrooms reduce patient falls by providing caregivers with sufficient space to provide assistance. Cost to a hospital of a non-litigated patient fall is $10,000.
- Instances of hospital-based infections, which kill more than 100,000 U.S. patients annually, can be reduced by using single-patient rooms, high-quality air filtering, and convenient hand-washing stations. Adding these features resulted in an 11% decline in infection rates at Bronson Methodist Hospital, Kalamazoo, MI.
- Designing efficient floor layouts helps address the nursing shortage. A pleasant, efficient physical environment appeals to more than just patients. It also improves staff morale, recruitment, and retention. Staff turnover at Parrish Medical Center, Titusville, FL, is at 13%, a year after the new building opened. It was in the 20%-to-25% range in the old facility. Cost to replace one nurse is $64,000.
- Medical errors are responsible for more than 100,000 patient deaths annually. Errors, especially those involving medications, can be reduced by improving lighting, reducing noise, and providing adequate staff workspace. The Barbara Ann Karmanos Cancer Institute, Detroit, has reduced errors 30% by implementing changes in these areas.
- Enhancing the physical environment reduces patient self-administered pain medication as much as 16%, providing better care and saving money.
- Patients in pleasant, stress-free environments go home sooner. Shorter stays mean hospital resources are available to more patients.

Enhancing patient care is the overriding benefit of implementing these types of changes. But these changes also allow healthcare providers to compete for patient healthcare dollars. At Bronson Methodist Hospital, market share is up 6%, occupancy rate has risen to 87%, and overall patient satisfaction has increased to 96.7%. Simply stated, investing more today per hospital bed can advance patient care, improve the bottom line, and fund the future demand for additional beds.

The overwhelming demand for acute-care beds

City	Additional beds needed by 2027	2002 baseline bed demand	Percentage increase
Phoenix	4,653	3,374	73%
Riverside, CA	4,874	3,548	73%
Orange County, CA	3,791	2,686	71%
San Diego	3,830	2,711	71%
San Francisco	2,944	2,066	70%
Los Angeles	16,628	11,474	69%
Dallas	5,262	3,505	67%
Houston	7,134	4,676	66%
Tampa, FL	5,369	3,556	66%
Atlanta	6,410	4,043	63%
Raleigh, NC	1,703	1,006	59%
Miami	5,047	2,905	58%
Washington	7,619	3,551	47%
Boston	11,009	3,689	34%
St. Louis	5,136	1,658	32%
Chicago	16,167	4,899	30%
New York	24,371	5,796	24%
Philadelphia	11,757	2,732	23%

Source: Solucient LLC

Acute-care bed needs will grow much more rapidly in the West and Southwest than in other parts of the country.

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