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Healthcare Facilities: Current Trends and Future Forecasts

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Donald McKahan, AIA
McKahan Planning Group
Del Mar, California

Photos/Charts

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The staid and predictable health-care industry of the past no longer exists. Hospitals are going through a self-transformation of institutional form and purpose.

Over the last ten years the hospital fraction of total insurance premium dollars has dropped by 33 percent. Over the same period, almost 500 acute care hospitals have been shut down. Average inpatient census has declined by 23 percent, leaving most of our nation's hospital beds empty half of the time. These grim statistics would predict that the design and construction of healthcare facilities is plummeting, but such is not the case.

While new hospital construction has declined over the last five years, hospital renovations have increased 10 percent and the total square footage of all healthcare facility construction has remained steady at the 70 to 75 million square feet range. The U.S. Commerce Department is actually forecasting 4 percent annual growth for healthcare construction through 1999.

How can the construction of healthcare facilities be increasing while total hospital revenues and inpatient census is declining? To paraphrase Arthur C. Clarke, the future of healthcare isn't what it used to be. Medical care organizations are no longer investing in the traditional patient care facilities of the past. Hospitals, nursing homes and clinics are retooling their facilities as the healthcare industry reinvents itself for the future.

Despite the decline in inpatient census, new and renovated healthcare facilities are being created for:

- Hospitals attempting to reduce operating costs, or position themselves for managed care contracts
- Investing in new types of buildings and healthcare services
- Rebuilding hospitals for an increasing number of outpatient services
- Upgrading existing healthcare facilities to accommodate medical technologies
- Creating therapeutic healthcare environments · Creating

health facilities to increase patient satisfaction.

This paper addresses some of these medical megatrends, demonstrating how the new strategies and philosophies of healthcare will translate into the next generation of medical care facilities.

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The staid and predictable healthcare industry of the past is no more. "Hospitals are going through a self-transformation of institutional form and purpose" (1).

Over the last 10 years, the hospital fraction of total insurance premium dollars has dropped by 33 percent (2). Over the same period, almost 500 acute-care hospitals were closed. Average inpatient census has declined by 23 percent, leaving most of our nation's hospital beds empty half of the time (3). These grim statistics would indicate that interest in design and construction of healthcare facilities is plummeting, but such is not the case.

While new hospital construction has declined over the last 5 years, hospital renovations have increased 10 percent and the total square footage of all healthcare facility construction has remained steady at 70 to 75 million square feet (4). The U.S. Department of Commerce is actually forecasting 4 percent annual growth for healthcare construction through 1999 (5). How can the construction of healthcare facilities be increasing while total hospital revenues and inpatient census are declining? To paraphrase Arthur C. Clarke, the future of healthcare is not what it used to be.

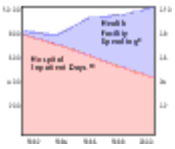

Figure 1: Forecast of Hospital Inpatients vs. Health Facility Spending

Medical care organizations are no longer investing in the traditional patient-care facilities of the past. Hospitals, nursing homes, and clinics are retooling their facilities as the healthcare industry reinvents itself for the future.

Despite the decline in the number of inpatients, new and renovated healthcare facilities are being created for the following types of clients:

- Hospitals attempting to reduce operating costs, position themselves for managed care contracts, and expand patient access into new medical care markets
- Investors in new types of buildings and healthcare services, including subacute-care facilities, freestanding ambulatory care centers, hospice and home care centers, medical hotels, and primary and preventive care centers
- Hospitals that are rebuilding to accommodate the increasing number of outpatient services (hospital-based outpatient

services are predicted to increase another 30 percent over the next 5 years [3])

- Existing healthcare facilities that wish to accommodate new, more cost-effective medical technologies
- Clients seeking to create therapeutic healthcare environments to improve medical outcomes for a variety of patient populations
- Clinics in hospitals seeking to use their facilities as "quality improvement tools" to increase patient satisfaction levels, support medical staff, and upgrade their public image.

Abstract Next

Editor's Note: This Paper is an edited version of Chapter 1, "Current Trends and Future Forecasts" from Planning Design and Construction of Healthcare Environments, published by the Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace IL, 1997. Reprinted with permission. For further information contact: (630) 792-5800

Responding to Managed Care

Managed Care, Trends and Statistics

The healthcare industries of the 1970s and 1980s grew and prospered in a virtual "field of dreams." New medical enterprises flourished, the supply of patients was abundant, and it was common knowledge that "if you build it, they will come."The arrival of managed care and capitated reimbursement has radically altered the medical marketplace of the 1990s. Managed care and integrated health systems have little interest in creating health facilities as profit centers. Their world is focused on patient outcomes, exploring new clinical pathways, and reducing costs without sacrificing quality.

69% of rural hospitals and 95% of urban/ suburban medical centers now have contracts with HMOs.
Source: Deloitte & Touche Survey, 1996

Figure 2: Growth of Managed Care

The impact of managed care on hospital budgets has been dramatic. Over the last 25 years,the hospital component of all healthcare expenses has dropped from 60 to 40 percent of the total premium dollar (2). As discounting of hospital services continues, healthcare facilities will have to become extremely efficient, providing better patient care for less cost (6).

How Reimbursement Strategies Affect Facility Design

The move to managed care and capitated reimbursement has resulted in a paradigmatic shift that changes most strategies for health facility planning and design. The most fundamental shift is a major reduction in the use of hospital beds. In mature managed care markets such as California, inpatient hospitalizations over the past 5 years have dropped 60 percent. Almost every major city in the United States has 30 to 50 percent more beds than the market requires.

Paradigm Shift		
Past Fee for Service Health Facilities		**Future Managed Care Facilities**
Facilities to increase market share	>	Facilities to serve a defined patient population
Capital costs reimbursed	>	Facilities as overhead cost
Designed as Profit Centers	>	Designed for productivity

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Centralized medical campuses	-->	Decentralized Health Services
Facilities for medical intervention	-->	Facilities for disease prevention

A recent study on inpatient nursing facilities predicted that 42 million square feet of hospital inpatient space will be abandoned by the year 2000 (7). Rather than walk away from these valuable buildings, hospitals are learning to "recycle" their existing facilities, converting space to new and more productive uses. For example, existing inpatient nursing towers may be successfully converted to any of the following:

- Skilled nursing and hospital-based subacute units
- Co-op care nursing units (i.e., units in which subacute patients are assisted by friends or family members during hospitalization);
- 23-hour observation units;
- Chemical dependency and rehabilitation units;
- Inpatient hospice care;
- Long-term care or assisted living units;
- Medical hotels;
- Health education and wellness centers;
- omprehensive outpatient rehabilitation facilities (CORFs); or
- Physician/clinical offices.

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Creating the "Lite" Hospital

To survive in today's managed care marketplace, hospitals will continue to reshape themselves, dropping a great deal of excess baggage along the way. Hospitals can be expected to sell off surplus medical technologies (equipment acquired during the medical "arms race" of the 1980s) to healthcare providers outside the United States (8). Health plans will replace many hospital departments—including administration, billing, information management, and purchasing functions with regionally based administrative centers (6).

Case Study: Methodist Medical Center North

Other cost reductions have been found in off-site warehousing; use of central reference labs; outsourcing of laundry services, security, food services, transcription and billing, housekeeping, and building maintenance; reduction of operational costs with automated transport systems; and streamlining maintenance procedures and implementation of new energy management programs. All of these efforts will go toward reducing the inherently high overhead and operational costs of hospital care.

Alternative Sites for Patient Care

The financial pressures created by the managed care revolution have caused healthcare providers to develop new systems of affordable and accessible medical care. The goal is to provide the best quality patient care, delivered at the lowest cost in the most appropriate setting. Often these alternative sites do not include traditional hospital facilities.

Alternative for Inpatient Nursing Care

Patient Care	Cost Per	Length of	Patient	Facility	New Construction
Hosptial	$1200/$1800	1/7 days	Acute Medically Unstable - Intensive	Hosptial	$200/$300
Hosptial Nursing	$800/$1200	3/7 days	Medically Unstable 24-hour M.D.	Hosptial Based	$150/$200
Sub-Acute	$400/$600	10/40 days	Medically Stable Predictable Course	Freestanding	$100/$150
Skilled	$100/$200	Over	Medically Stable Typically Over	Freestanding	$100/$150
Surgical Recovery	$500/$700	1/3 days	Short Stay, Acute Care	Freestanding Ambulatory	$150/$250

Source: AHA 95/96 Hospital Statistics, McKahan Planning Group 1995, US Dept. of Health

Integrating Healthcare Services and Facilities
Hospitals Seeking Synergies

Integrated healthcare delivery systems are continuing to grow in size and number. Recent surveys have shown that 45 percent of

medical group practices, and over 60 percent of surveyed hospitals, plan to become part of integrated delivery systems (IDS) in the near future [(9)]. The move toward such systems is driven primarily by managed care. "The ability to assume risks, provide comprehensive care and remain profitable under capitated payment plans will be easier for systems that can control every element—the insurance, hospital and physician components" [(10)]. Integrated health and hospital systems are created for several reasons:

- To provide economies of scale by eliminating the duplication of services and facilities
- Attract regional managed care contracts
- Gain access to new patient markets
- Prevent providers from being "locked out" of a consolidating market.

Integration may be horizontal (merging a group of hospitals or physician offices), or vertical (integrating hospitals, physicians, nursing homes, and insurance functions to provide a comprehensive continuum of patient care). IDS are cost-conscious and expect high value from all of their health facility investments. Each new or renovated facility must meet the following objectives:

- Provide value by reducing operating or staffing costs
- Help position the delivery system for managed care contracting
- Expand patient access to existing or new markets
- Provide flexibility and growth for ambulatory care programs
- Improve patient satisfaction ratings
- Become a physical symbol of a given health system's public image and mission.

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Operational Restructuring

One of the greatest cost and quality incentives behind hospital integration is the consolidation and streamlining of the patient care process. Operational restructuring, or patient-focused care (PFC), is aimed at redesigning hospital-based patient care, which has used the same basic operating principles for the last 60 years. The four basic tenets of PFC programs in hospitals are:

- Moving more services closer to the patient
- Simplifying the care process and streamlining paperwork
- Grouping similar patient populations
- Broadening staffing skills and responsibilities. (6)

The new operational structure of PFC units often requires renovated facilities to support the new system of care. The following lists operational changes and corresponding facility impacts.

Facility Impact from Operational Restructuring

Operational Change	Facility Impact
Decentralize Transport Services to Nursing Units	Increase storage space for gurneys and wheelchairs near Nursing Units
Patient Focused Care Team.	Replace Nurse Station with decentralized Staff Workstation.
Cross-train and decentralize Support Associates.	Add Housekeeping, Maintentance & Clerical Workrooms on Nursing Units.
Provide "Just-in_Time" & "Stockless" Systems of Supply.	Reduce Central Supply capacity, Increase Loading Docks and Cart Storage on Nursing Units.
Outsourcing Laundry, Security and Food Services.	Increase central Loading Docak and Cart Capacity.
Decentralize Medical Support Services to Nursing Units.	Create "Satellite Units" for Lab Services, Pharmacy, Food Services and Physical Therapy.
Increase patient care at the bedside.	Create larger, multifunction patient rooms with Nurse SErvers and Bedside Computer Terminals.
Implement Electronic Medical Records.	• Rightsize & redeploy Medical Dept. • Provide computer terminals and Personal Digital Assistants (PDA's) throughout the facility
Cross-trained Outpatient Services Center.	Create multifunction Registration, Testing, Exam/Treatment and Teaching Rooms.

Continued Growth of Outpatient and Ambulatory Care Services

Current Statistics

It is predicted that by 2000, 85 percent of all healthcare services in the United States will be delivered either at home or in ambulatory care settings. Between 1984 and 1994, the volume of hospital ambulatory care patients increased by 81 percent. While inpatient days continue to decline, hospital-based outpatient visits are predicted to increase 40 percent between 1992 and the year 2000 (11).

Hospital-Based Outpatient Facilities

To succeed in the next era, hospital facilities must be planned for declining inpatient use and a substantial increase in hospital-based outpatient services. The ability to adapt traditional inpatient departments to serve the outpatient marketplace is an important strategy for hospital master planning. Many medical tests and procedures such as invasive cardiology, imaging studies, endoscopy, and morning surgical admissions have large proportions of both inpatient and outpatient customers.

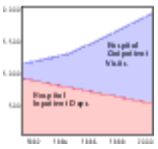

Figure 4: Outpatient vs. Inpatient

As the acuity and complexity of outpatient procedures continues to increase, it is likely that more of those complex ambulatory cases will migrate to hospital-based programs where higher patient volumes can offset the fixed costs of specially trained staff, new technologies, and emergency back-up. Successful hospital outpatient programs should share staffing and medical equipment between both inpatient and outpatient populations, and should serve both outpatients and inpatients with the same level of expeditious medical care. Outpatients should not be treated as secondary to a hospital's traditional inpatient customers. However, outpatients do need to be physically segregated from acute inpatients through the use of separate service corridors and waiting rooms.

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Freestanding Ambulatory Care Facilities

The increase in freestanding ambulatory care facilities is driven by new medical technologies, cost constraints of managed care, and issues of patient convenience and accessibility. The number of freestanding surgical centers increased by 8.4 percent between 1994 and 1995, creating a total of 2,314 facilities doing over 4.2 million surgical procedures per year (12). Cost containment and managed care contracts often require that outpatient procedures be reimbursed only if they are performed in freestanding ambulatory centers. These stipulations are based on the perception that patients receive better and more cost effective care in freestanding outpatient centers than they do in hospital-based outpatient centers. The perception of managed care priorities is that outpatients receive better and more cost-effective care in such setting, than in hospital-based outpatient Ccnters. Some smaller, unlicensed ambulatory surgical centers are now being driven out of the market as managed health plans elect to contract only with larger and better equipped facilities that are accredited or licensed by the state (13).

Much of the growth of outpatient services has been outside the traditional hospital campus. Of all ambulatory care visits in 1993, 82 percent were delivered in physician offices and freestanding centers (18). Proximity to medical offices, access to parking or public transportation, and decreased traffic problems are all patient satisfaction issues that promote the growth of freestanding ambulatory centers.

New medical technologies are also allowing more patient procedures to be performed in freestanding facilities:

- Minimally invasive procedures, such as endoscopic exams and laparoscopic surgery, result in less trauma and quicker recoveries in outpatient settings
- New drugs and quick reversing anesthetic agents are reducing post-procedure complications
- Improved imaging equipment and faster scanning devices are replacing hospital-based invasive procedures.

Location, Location, Location

Determining the best location for the delivery of ambulatory care services is a difficult but important decision. The following is a list of facility planning questions that should be answered before a hospital-based or freestanding site is selected:

- Which site will deliver the highest level of patient satisfaction: easy access, streamlined care, creature comforts, and a supportive physical environment?
- How many of these outpatient procedures could end up as hospital inpatient admissions?

- Is there a large outpatient percentage in the hospital's current diagnostic and treatment departments?
- Do local managed care contracts mandate that certain procedures be done only in freestanding facilities?
- Does a freestanding facility require duplication of staff and medical equipment? What are the annual operating costs associated with that duplication?
- Can this healthcare facility provide for the future growth of outpatient services?
- Does the geographic location of this ambulatory center allow you to maintain or grow your outpatient market share?

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Becoming a Road Warrior

To improve community outreach, many hospitals are taking their show on the road. Outpatient oriented hospitals such as Indiana Hospital in Pennsylvania and Mercy Mobile Health Program in Atlanta, Georgia, have created medical motor pools using mobile diagnostic vans. These new high-tech "road warriors" travel a regular circuit between hospitals, schools, nursing homes, retail centers, and the workplace (14).

As the home healthcare industry continues to grow at almost 10 percent annually, hospitals are now creating or partnering with existing home health organizations (Apria Healthcare, the nation's largest home health provider, recently created a partnership with Columbia/HCA to serve 84 hospitals in its system). Integrated home care systems will often bring central nursing offices, medical supplies, pharmaceuticals, and durable medical equipment into office warehouse complexes. These facilities are rarely found on hospital campuses, but are geographically distributed in a hub and spoke arrangement around the patient communities they serve (15).

The Hospital as a Healing Environment

In an effort to humanize their healthcare facilities, hospitals are implementing new interior and architectural design concepts. Following are suggestions for creating therapeutic patient environments.

Windows, Daylighting, and Access to Nature

Research indicates that natural lighting, indoor plantscaping, rooftop gardens, solariums, and small atria have a healthy impact on hospital staff and can improve the feeling of well being in patients. Views of nature and landscaping can be maximized from all patient environments, and the use of skylights, interior transom windows, and full-spectrum light sources can be increased. Patients can be given bedside remote controls to adjust the blinds or draperies in their rooms.

Acoustical Environments

The acoustical environment of the traditional hospital can be unsettling, with its frequent announcements, medical equipment sounds, and the bustle of hospital staff and visitors. A healing hospital environment provides adequate sound buffering for privacy and quiet, but also gives patients control over their sound environment, and even options for entertainment and relaxation. For example, pillow or headwall speakers can be installed for listening to books and environmental sounds on tape, as well as selected music channels. Demising walls and doors in all exam rooms, treatment areas and patient rooms should be sound-insulated. Overhead announcements can be kept to a minimum through increased use of pocket pagers or video digital displays for paging staff.

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Artwork and Color

Much research has revealed the healing benefits of soothing colors and shapes in the visual environment. Patient surveys done at the University of Michigan Hospital showed a strong preference for artwork focused on natural subjects, such as animals, water, valleys, and mountains [(17)]. With these preferences in mind, strong geometric patterns should be avoided in room finishes, because they may be disorienting to medicated patients. Specific hues and color tones should be selected to support each type of patient care environment (see Healing Through Color by T. Kimber [16]). Innovative programs could be developed, such as an "Art Cart" that uses hospital volunteers to rotate therapeutic art pieces throughout the healthcare facility.

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Family-Centered Healthcare

When we hospitalize a patient, we are also hospitalizing the patient's family. As patients are discharged "quicker and sicker" these days, family care givers must receive training in basic medical care before the patient returns home. Co-op nursing care units are designed for family or friends to assist patients as care partners to work with, and learn from, the professional nursing staff. Family care partners provide basic care and comfort to patients, including assistance with meals, medications, using the toilet, bathing, and changing dressings while the patient is still in the hospital. These family members are thus more prepared for additional training to give some care at home during recovery or as part of an at-home hospice arrangement.

Case Study: Rhode Island Hospital, Cooperative Care Center

Medical Technology and Healthcare Facilities

Technology and Its Role in Health Facility Design

During the last century medical technology has shaped the modern hospital, serving as the primary driver of health facility planning and design. Because research funding doubled between 1986 and 1993, new medical technologies continue to emerge every day (18). Simeon A. Rubenstein, Medical Director of Group Health Cooperative of Puget Sound, Washington, predicts,"an explosion of new medical, diagnostic and communication devices over the next decade that will improve the healthcare industry's efficiency and productivity" (19).

Unfortunately, the life cycle of most medical technologies is far shorter than the buildings in which they are used. The techno-explosion of the 1990s requires healthcare facilities with more flexibility that use modular building components and have more accessible mechanical and electrical systems.

The Well-Wired Workplace

The integration of medical technologies and communication systems means that all future healthcare technology will be interconnected. Hospital systems lag far behind other U.S. industries in the development and implementation of information technologies. It is predicted that over the next 10 years, our health systems will invest almost $15 billion in new clinical information systems. Expenditures for patient-centered computing will increase 22 percent annually through the year 2000 (20). These large investments in computer driven communication systems may redirect project dollars from bricks and mortar to chips and modems.

New information systems will serve as the foundation for

telemedicine, clinical decision making, outcomes management, electronic medical records, and the virtual integration of all healthcare providers and hospital departments.

The well-wired healthcare facility must be planned to have more communication closets, cable trays in the ceilings, and sophisticated, uninterrupted, power systems.

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Conclusion

The sweeping changes in healthcare's philosophy, technology, markets, and management have now outpaced the architectural evolution of most medical care facilities. This paper has attempted to review and forecast the impact of a few of these medical megatrends:

- Managed care is driving the creation of new outpatient centers, home care, subacute and recovery care facilities
- Integrated health systems create facilities for increased operational efficiency and improved patient satisfaction levels
- The revolution in patient-centered care redefines healthcare facilities as "high-push" healing environments
- Breakthroughs in medical technology, telemedicine, robotics, imaging, and surgical techniques continue to reshape our hospitals and healthcare systems.

The driving force behind each of these changes is evolution. As explained by Dr. Randolph Nesse of the University of Michigan, "advances in medicine would be even more rapid if medical professionals were as attuned to Darwin as they have been to Pasteur" (14). Hospital systems and their healthcare facilities are now works in progress. As the form and function of our medical care organizations evolve, the physical archetype of hospitals, clinics and nursing homes will also undergo an evolutionary transformation. The ideas and innovations described in this paper —combined with the visionary skills of individuals—can help us envision, plan, and create the next generation of healthcare facilities.

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Case Study 1

Methodist Medical Center North

Exterior
(23k)

To meet the needs of a growing managed care population and better utilize the support services at their existing main hospital, Methodist Medical Center of Jackson, Mississippi created the new Methodist Center North. This 64 bed hospital/medical center operates primarily five days a week, providing low acuity elective surgery, inpatient medical care, obstetrics, pediatrics and ambulatory services. Inpatient nursing units are designed to downsize on the weekends and increase to full census Monday through Friday. By outsourcing support services (dietary, materials management, central lab, pharmacy, etc.) to the main hospital 25 miles away, overhead and staffing costs have been reduced to a minimum. (Under three FTEs per bed.)

The 165, 00 square foot facility is physically integrated with physician's medical offices and an active outpatient service center. Methodist Medical Center North provides its' tertiary care parent hospital with:

- Access and referrals to new patient populations.
- Higher volumes and efficient use of support departments in the existing main hospital
- Reduces operational and staffing costs while increasing patient utilization of this new satellite hospital and medical center.

Programming & Functional Planning: Metis Associates, Ltd., Chicago, IL
Project Architect: Dean & Dean Associates, Jackson Mississippi.

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Case Study 2

Rhode Island Hospital, Cooperative Care Center


Exterior (25k)


Interior (27k)

Completed in 1994, the Rhode Island Hospital, Co-op Care center is a 74-bed unit serving a variety of low risk patients. Admission to the unit requires the patient to be accompanied by a "care partner" (family member or friend) who will assist the patient throughout their course of stay. Each patient's room has two hotel beds, ADA accessible toilet, refrigerator and homelike furnishings. While physicians and nurses are available in the facility, there is no central nurse station on each floor. The first floor of the facility contains traditional medical supports of exam rooms, pharmacy, lab and recovery rooms. The remainder of the nursing facility has the residential inviting feel of a first class hotel. Patient satisfaction levels for the new unit are at 93%. Census levels remain lower than originally expected, due to physician referral and admission patterns. Staffing costs, per diem, are 30% lower than other nursing units at the hospital--attributable to the concept of family assisted patient care. Construction cost for this 70,000-sq. ft. facility was $9 million, or $125 per square foot.

Architect: Robinson, Green Beretta, Providence, Rhode Island

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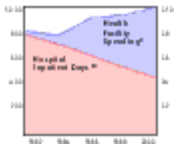
Figure 1
(6k)

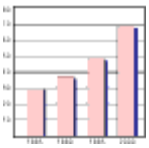
Figure 2
(3k)


Figure 3
(23k)

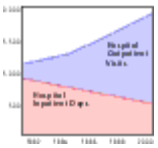
Figure 4
(4k)


Figure 5
(25k)


Figure 6
(27k)

Healthcare Facilities: Current Trends and Future Forecasts

Abstract

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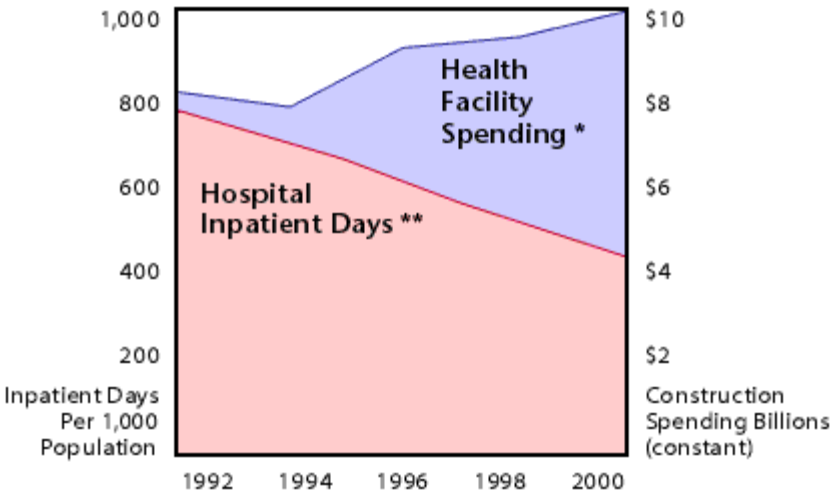
Figure 1: Forecast of Hopital Inpatients vs. Health Facility Spending



Source:
(1) Forecast of Total Health Facility Spending by U. S. Dept. of Commerce, 1996, (constant 1987 dollars).
(2) Forecast of Hospital Inpatient Days by Moser Associates, 1995.

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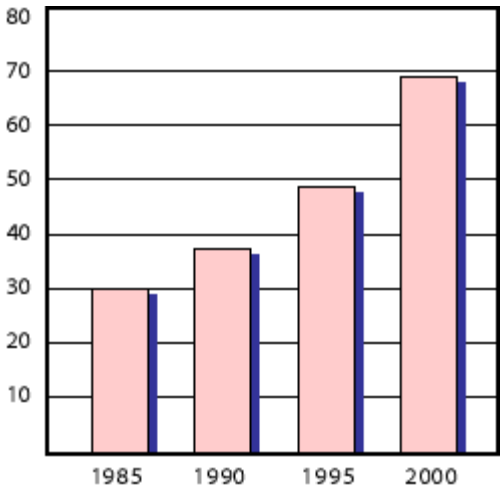
Figure 2: Growth of Managed Care



Source: U.S. Dept. Health & Human Services, 1995

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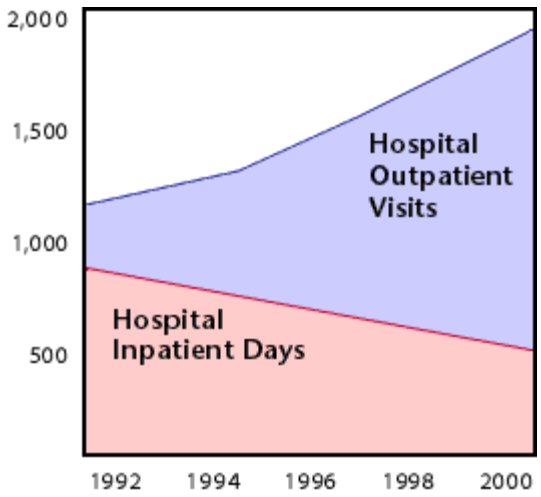
Figure 4: Outpatient vs. Inpatient
Hospital Utilization per 1,000 Population



Source: Moser Associates, 1995

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Case Study 2

Rhode Island Hospital, Cooperative Care Center

Figure 5: Exterior view

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Figure 6: Interior Patient Room

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