

# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)

## Emergency Departments: The New Front Door



Beth Leslie Glasser, AIA  
Principal  
Anshen+Allen, Architects  
San Francisco/Los  
Angeles/Baltimore/London

With the dramatic rise in emergency department utilization there is an increased focus on the importance of the Emergency Department (ED). The ED has become the new Front Door to the hospital--equally important as the lobby and other "high end" areas in creating an overall impression of an institution, its attitude towards its patients, and the quality of the care offered.

Several forces are driving change within the department. They range from what is, literally, "micro" level-infectious diseases like tuberculosis -- to the most "macro" levels -- the federal government and its regulatory and economic controls.

Good design addresses these changes. Good planning using historical data can project the types of patients that will be seen and their acuity level. In so doing, adequate space can be provided for each type of patient (emergent, trauma, pediatric, and so on). Physical design can play a part in the development of new operational models for effective triage and treatment of patients. Staff and patient flow can be analyzed and addressed in the arrangement of spaces. And changes in technology need to be understood so that the impact on space (i.e., square footage, placement in the ED) can be incorporated up front in the planning process.

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

[Photos/Charts](#)

[Go to Article](#)

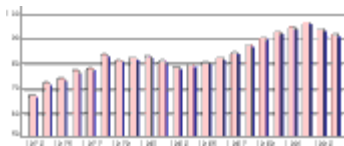
# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)

## Emergency Departments: The New Front Door

Beth Leslie Glasser  
AIA Principal  
Anshen+Allen, Architects  
San Francisco/Los Angeles/Baltimore/London

A dramatic rise in the use of emergency departments (EDs) has focused attention on their importance. According to Modern Healthcare's 1998 Construction & Design Survey, published in March 1998, construction starts of new emergency centers increased 25 percent from 1996 to 1997. The same period showed a 34 percent increase in the number of emergency centers on the drawing boards. Nationwide, 14 percent of ED visits result in hospital admissions; many urban hospitals receive upwards of 45 percent of their admissions through the ED. The statistical rise in ED use can be seen in Figure 1, which



[Figure 1](#): Nationwide ED Utilization  
1973-1994

demonstrates use over the past 20 years. The ED has come to be seen by many as the new Front Door of the hospital—as important as the lobby and other high-end areas in creating an overall impression of an institution, its attitude toward its patients, and the quality of the care offered.

[Abstract](#)

[Next](#)

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

# The Academy Journal

HOME CONTENTS ARCHIVES CALL FOR PAPERS

Page 2 of 9

## Forces of Change

What forces are driving change within the ED? They range from those on the micro level, such as containment of infectious diseases like tuberculosis, to forces on the most macro of levels—including the federal government's regulatory and economic controls. For clarity, we have identified four clusters of issues: infection; violence; access to care and escalation of costs; and competition, regulation, and consumerism. In this paper, we examine issues in each of these four clusters and the operational changes developed in response. We will also examine their physical implications.

## Infection

Tuberculosis (TB) showed a steady decline of about 5 percent annually from the mid-1950s to the mid-1980s, but incidences have risen in recent years, with a 15.8 percent increase in reported cases between 1985 and 1990 (although data from the Centers for Disease Control indicate that this trend has halted). Occupationally acquired TB is still relatively uncommon (only eight verified cases from 1988 to 1991), but the presence of TB in general and the identification of new, drug-resistant strains has alarmed many health care providers.

The ED, with its large, open waiting room, has been targeted as an area that could contribute to TB contamination. Many providers are developing protocols to identify potential carriers and isolate them from the general ED population. Control and containment are the keys to preventing the spread of disease.

## Violence

We are all aware of the violence that besets inner-city neighborhoods. In addition to treating the victims of this violence, who represented 5.5 percent of all ED visits in a 1992 Centers for Disease Control study, hospitals must also deal with the presence of gang members and others in their EDs' public areas. Many providers have focused on increasing security to remove the potential for violence within the ED.

## Access/Cost

The cost of health care and health insurance has reduced access to care for many people. The nationwide response has been the development of managed care, which provides a structure to control access to and provision of services. Anecdotal evidence from states testing managed care models suggests that ED visits do decrease when primary care is available.

The phenomenon of the uninsured patient using the ED as an entrance into the health care system is not new. But with the growth in the size of the uninsured population, the number of individuals who delay treatment and rely on the ED as their primary source of care is remarkable.

## Emergency Departments: The New Front Door

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

### **Competition/Consumerism**

As managed care continues to grow, the health care industry is observing a phenomenon we normally do not associate with hospitals and doctors—price competition. Worcester, Massachusetts, with one of the nation's highest concentrations of employed workers covered by HMOs (60 percent), witnessed a price war that dropped monthly premiums by almost half. Some HMOs have been known to resort to tactics more common to retailing to attract customers, such as offering the first month of coverage free.

To address the strict cost containment of the managed care market and attract private paying consumers, many providers are decentralizing ambulatory services and establishing satellite locations. Another approach used to attract private paying patients has been to offer more focused subspecialty centers and more individual, private care. This segregation of specialties within the ED is not only intended to improve the timely delivery of appropriate care, but also to make patients' visits as pleasant as possible.

[Previous](#)

[Next](#)

# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)

Page 3 of 9

## Impact on ED Design

Good ED design addresses the changes indicated by these four issue clusters. With a reliance on historical data, good planning can project the types of patients that will be seen and their acuity level, allowing adequate space to be provided for each type of patient (emergent, trauma, pediatric, and so forth). Physical design can play a part in the development of new operational models for effective triage and treatment of patients. Staff and patient flow can be analyzed and addressed in the arrangement of spaces. And changes in technology need to be understood so that the effect on space (square footage, placement in the ED) can be incorporated up front in the planning process.

## New Concepts in ED Planning and Design

The oft-quoted phrase, "the more things change, the more they remain the same," holds true to a large extent in the ED. Certain aspects of the planning and layout of ED remain constant: the need for maximum visibility, the presence of emergent or trauma patients, and the imperative of quick response to a variety of conditions and situations. These concerns are care-driven—accommodating them supports service that is effective in terms of both quality and cost. But other aspects of ED design have changed.

[Previous](#)

[Next](#)

**Emergency  
Departments:  
The New  
Front Door**

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)

Page 4 of 9

## **Bigger Is Not Better**

To address the growing concern about infection control, many hospitals are exploring ways to provide better separation for patients and visitors. For many years, hospitals moved toward more open, flexible treatment cubicles, with curtains or folding doors separating bays. Now that trend is being reversed. In many new EDs, all the treatment stations in the emergent care areas are completely enclosed. Glass break-away doors maintain the required visibility while allowing the space to comply fully with current standards for ventilation and pressurization. Good design places all the fittings in the room off of the floor, allowing more thorough cleaning. Humidity and temperature can also be better modulated in a smaller area, which is important for infection control because it prevents condensation in ductwork that could provide a breeding ground for bacteria and fungi.

Another related concept is the creation of smaller, more separate waiting areas. At Anshen+Allen's new ED for Sinai Hospital of Baltimore, instead of the traditional large open waiting room serving the entire ED, each specialty center has its own waiting area. Fully enclosed rooms and partly enclosed alcoves separate the main waiting room into blocks of no more than 150 square feet, and private waiting rooms open off a larger common area. These private rooms also allow a more intimate setting for doctors to confer with family members, for children to play without disturbing other families, and for families enduring a long stay to have some privacy and get some rest. Each private room is equipped with individually controlled radio and television.

This arrangement provides a benefit similar to that afforded by enclosed treatment rooms. Achieving the recommended air changes in smaller room modules will be easier than dealing with the huge volume of air in a typical large waiting room.

Both of these approaches offer flexibility in isolating patients or suspected carriers. Because of the large number of enclosed rooms, it is not necessary to selectively screen individuals or call attention to their need for isolation in a public area.

[Previous](#)

[Next](#)

## **Emergency Departments: The New Front Door**

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)

Page 5 of 9

## "Crips Versus Bloods"

Many options are available to planners to address concerns about controlling violence in the ED. Location within the hospital may affect planning choices. Proximity to the hospital's main security office, to the street, even to public police stations, all have their impacts. The use of certain techniques is often guided by the preferences of hospital security officers (i.e., what is known to them and what they believe to be most effective). Administrators and ED staff may have other opinions, guided in part by the message they want to send to visitors. For example, by obviously placing metal detectors and traffic-control bulletproof entrance vestibules at the walk-in entrance, a hospital may scare off people who are frightened by its fortress-like appearance. Others, however, may be reassured by the same devices.

The menu of possibilities ranges from high-profile interventions to subtle operational and design devices. The high-profile items (metal detectors, bulletproof vestibules, and triage enclosures) are easy to incorporate into an ED, but are problematic in terms of enforcement. Who is responsible for removing guns, knives, and such from individuals who set off the metal detector? Where are they kept? And how does the security officer or triage nurse evaluate whether an individual is "safe" enough to be allowed into the triage station or main waiting room?

Many hospitals are opting to use less aggressive security controls—although no less effective, in many people's view. Under-counter silent alarms and audiovisual surveillance are found in most hospitals, with links to a central monitoring station. But these devices can be incorporated in very different ways. One hospital may choose to combine its audiovisual surveillance with its information desk. The public remains largely unaware of the monitors behind the counter. Another, by contrast, may establish the main security office for the entire hospital as a central outpost visible between the walk-in and ambulance entrances to the ED. Whether a satellite security station is located in the ED itself is a function of the size and layout of a facility and the location of the security office relative to the ED.

[Previous](#)

[Next](#)

## Emergency Departments: The New Front Door

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

# The Academy Journal

HOME CONTENTS ARCHIVES CALL FOR PAPERS

Page 6 of 9

## Unclogging the System

Triage has traditionally been used to evaluate the urgency of a patient's need for care. In the new model ED, triage is being used not only for this function but to assign patients to different care options—to "unclog the system" by moving nonurgent patients out of the emergent care area and into more appropriate (and less costly) settings. One large hospital near Los Angeles has developed a large interview and triage area to form a hub from which to sort patients to the walk-in clinic on one side and the emergent care area on the other. Assessment of walk-in patients can be accomplished in very small cubicles, in the range of 40 to 50 square feet.

Assessment may be part of primary care or fast-track clinics on or off site, observation units, or specialty modules for pediatrics, cardiac care, or psychiatric observation and treatment. Zoning of uses is critical. Good planning places low-intensity activities near the main walk-in entrance and the emergent/urgent care area directly adjacent to the ambulance entrance. Very distinct zoning of express care and pediatrics may facilitate moving patients through to the most appropriate treatment location in the least amount of time. If placed in a middle zone, these functions can swing to provide overflow capacity to more critical care areas, depending on demand.

The fast-track concept allows a hospital to deal with nonurgent patients in a setting similar to a primary care office. A recent CDC survey reports that 55 percent of visits to hospital EDs were for nonurgent care. By providing only the basics for diagnostic and treatment of minor illnesses and injury rather than the highly specialized support for trauma and emergent patients, the hospital can save a great deal of money when dealing with these patients. Visits can also be charged at lesser rates and are therefore more likely to be paid by the patient or reimbursed by the insurer. Also worth noting is that more and more centers are referring patients to urgent care centers, which by virtue of their physical differences from EDs can be run more like clinics, at lower cost than the hospital setting allows (the issue here, however, is to insure that the urgent care center has a strong enough relationship to the ED to avoid the perception that the hospital is "dumping" patients or has refused treatment. In one prominent case in Pennsylvania, a large hospital lost millions of dollars in a lawsuit when it sent patients off-site to a lower-cost urgent care center.

New ED design often incorporates observation units into the plans. This middle ground offers a way to deal with patients whose symptoms may be under control but who require monitoring (e.g., asthma or diabetes patients), or patients who need to be watched to determine the severity of an injury. Observation units, like fast-track areas, offer an opportunity to

## Emergency Departments: The New Front Door

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects



provide care in a separately staffed environment specifically designed for this purpose. These units can save money by reducing the number of admissions and by allowing for quicker discharge, as patients are monitored on an hourly basis with more frequent physician visits than is typical on a medical/surgical inpatient unit. Observation units can be open or enclosed, and each should have its own dedicated staff, so that these areas are not simply used as a "dumping ground" where patients are then left unattended.

[Previous](#)

[Next](#)



# The Academy Journal

HOME CONTENTS ARCHIVES CALL FOR PAPERS

Page 7 of 9

Historically, observation has been classified as 23-hour care. In some places, observation has been extended to cover up to 72 hours of care. In these cases, the observation unit often serves as a backup for outpatient surgery or cardiac catheterization units as well as for the ED. Whether it is most appropriate to place such a unit within the ED or elsewhere in the hospital obviously depends on the anticipated volumes generated by each area and local licensing regulations.

If historic data support sufficient volume, some EDs are providing other specialty areas as well. Pediatrics specialty areas are fairly common; others that tend to be seen less often are psychiatric observation, industrial medicine, and chest pain units. In all of these cases, the goal is to provide specially designed areas with trained staff that can address the specific needs of certain patient populations and move them out of the trauma and emergent care areas.

In the United Kingdom, several hospitals have begun to experiment with radically different operational and physical models to address the phenomenon of an overwhelming emergency patient workload. Figure 2 illustrates one idea, encompassing a completely distinct assessment unit, backed up with a large complement of diagnostic areas (radiology, cardiac catheterization, endoscopy, and lab). This model has identified an 18-hour length of stay, taking all emergency patients who cannot be immediately diagnosed and putting them in an area with the sole mission of diagnosing them, and then either treating, discharging, or admitting them to an appropriate bed with a care protocol already in place.



Figure 2: Assessment Unit Model

A second model, shown in Figure 3, takes the Figure 2 model one step further. After analyzing its length-of-stay data, one of our hospital clients recognized that many of its patients are in the hospital for fewer than three days, and require relatively quick and urgent treatment. Their model establishes a separate "acute take" area, effectively functioning as an emergency hospital in concert with the accident and emergency departments and the required diagnostic and treatment functions. Only chronic patients and elective patients move on to the specialty wards elsewhere in the hospital, thus protecting the elective workload from being overtaken by emergency demands.

Figure 3: Acute Take Model

## Emergency Departments: The New Front Door

Published by The Academy of Architecture for Health

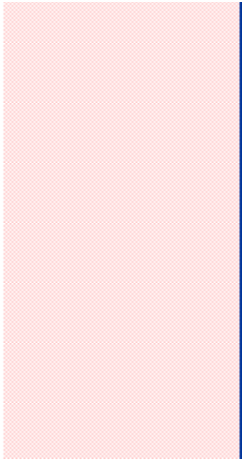
A Professional Interest Area of The American Institute of Architects



Both of these models are in their infancy, but suggest ways that the ED and associated activities may, in fact, continue to grow and change into totally new forms to deal with the pressures of modern medicine. The lesson here is to think creatively about what really constitutes an ED.

[Previous](#)

[Next](#)



# The Academy Journal

HOME CONTENTS ARCHIVES CALL FOR PAPERS

Page 8 of 9

## A New Model Realized: ER-7

One example of a new model is Anshen+Allen's Emergency Department at Sinai Hospital of Baltimore. This ED, named ER-7 after its organizational structure of seven specialized emergency rooms under one roof, demonstrates a new ED design both in its physical form and in its methods of operation.

Patients proceed through ER-7 in a very different way than they do through the traditional ED. At the reception desk, a triage nurse asks enough questions to determine the nature of the ailment. The patient is then taken to one of the seven specialized emergency centers:

- Pediatric Care Center,
- Urgent Care Center,
- Emergent Care Center,
- Observation Center,
- Chest Pain Evaluation Center,
- Fast-Track Center, or
- Trauma Center.

With this organizational structure, a patient is taken to an area staffed and equipped to deal directly with the type of ailment that presents, all within minutes of arriving at the hospital. As doctors and technicians begin to attend to a patient's needs, staff members take insurance and biographical information at bedside. Making patient care a higher priority than paperwork is intended to reduce patient frustration.

The separation of services into discrete units accomplishes many goals. One of the most important units, from a business point of view, is the Fast Track Center. Here, nonemergency patients (e.g., those with sore throats) are given the same prompt access to treatment as their more critical counterparts, but in a much less costly setting.

The Pediatric Care Center allows pediatric emergency patients to be shielded from the often chaotic and frightening atmosphere of the adult ED.

The Chest Pain Evaluation Center provides a facility for those complaining of chest pain to be monitored by specialists. The center is equipped with state-of-the-art monitoring equipment with which patients can be watched for up to 24 hours on an outpatient basis.

In the Urgent Care Center, patients suffering from moderately critical emergencies such as broken bones or urgent obstetrical problems can receive treatment without being mixed in among the victims of automobile accidents or shootings, which are dealt

## Emergency Departments: The New Front Door

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

with by the Trauma Center. Treatment bays in all centers are built with full-height partitions, providing much greater privacy than the traditional cubicle curtain separation. Bays are arranged around central staff stations to allow direct observation of all patients.

[Previous](#)

[Next](#)



# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)

Page 9 of 9

## Conclusion

Ultimately, the goal of the ED is to efficiently deliver care to patients in need. In today's world of escalating health care costs, increased management of care by third parties, and changing patient needs, we would like to suggest a motto that restates the mission of today's ED: Appropriate Care Delivered in the Most Economical Setting. Response remains an unchanged mandate—needs must be addressed without delay. Thinking back to the United Kingdom models and some of the evolving ideas about specialty emergency care (for observation, chest pain, and so on), it is clear that the "one size (and type) fits all" ED is no longer viable. Quality of care is paramount, both for patients' well being and for the hospital's reputation. Efficiency of care, in our increasingly cost-conscious environment, may very well dictate whether the already overburdened ED is able to stay afloat financially and continue its important role as the hospital's new front door. 🐼

[Previous](#)

[Photos/Charts](#)

## Emergency Departments: The New Front Door

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)



[Figure 1](#)  
(3k)



[Figure 2](#)  
(19k)



[Figure 3](#)  
(31k)



[Figure 4](#)  
(6k)



[Figure 5](#)  
(7k)

## Emergency Departments: The New Front Door

### [Abstract](#)

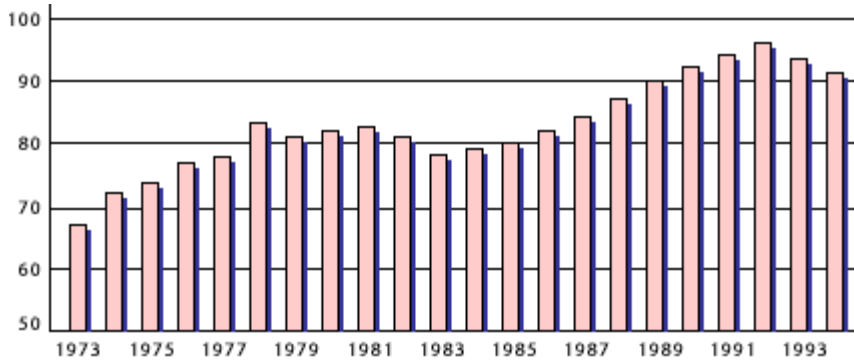
Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)

 **Figure 1: Nationwide ED Utilization 1973-1994**



## Emergency Departments: The New "Front Door"

[Back to Photos/Charts](#)

[Back to Article](#)

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

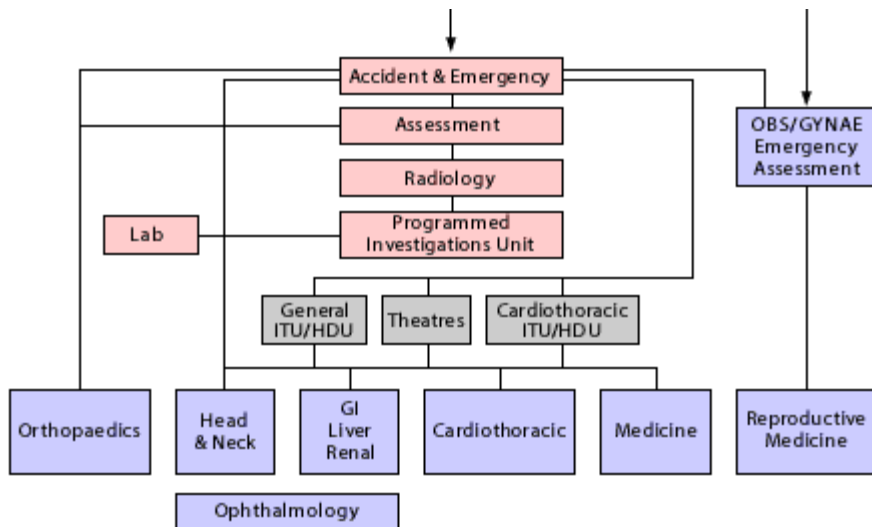


# The Academy Journal

HOME CONTENTS ARCHIVES CALL FOR PAPERS



Figure 2: Assessment Unit Model



Emergency Departments: The New "Front Door"

[Back to Photos/Charts](#)

[Back to Article](#)

Published by The Academy of Architecture for Health

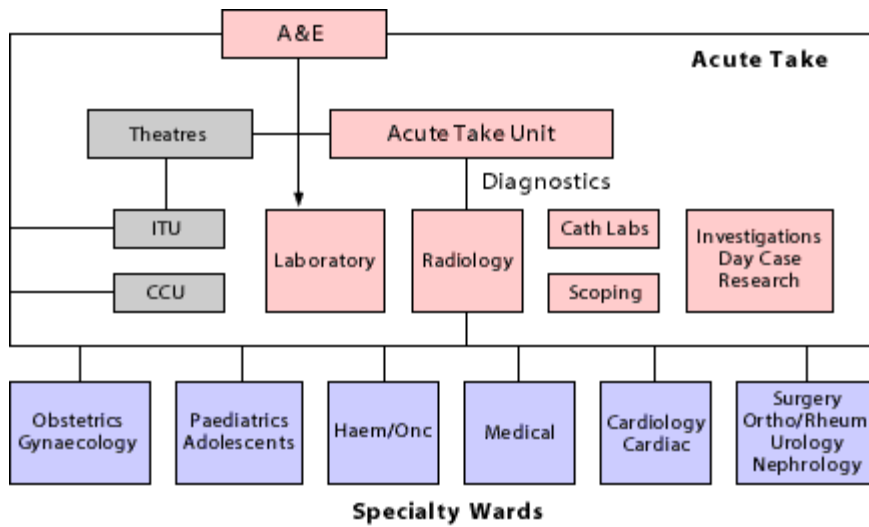
A Professional Interest Area of The American Institute of Architects

# The Academy Journal

HOME CONTENTS ARCHIVES CALL FOR PAPERS



Figure 3: Acute Take Model



Emergency Departments: The New "Front Door"

[Back to Photos/Charts](#)

[Back to Article](#)

Published by The Academy of Architecture for Health

A Professional Interest Area of The American Institute of Architects

# The Academy Journal

HOME   CONTENTS   ARCHIVES   CALL FOR PAPERS

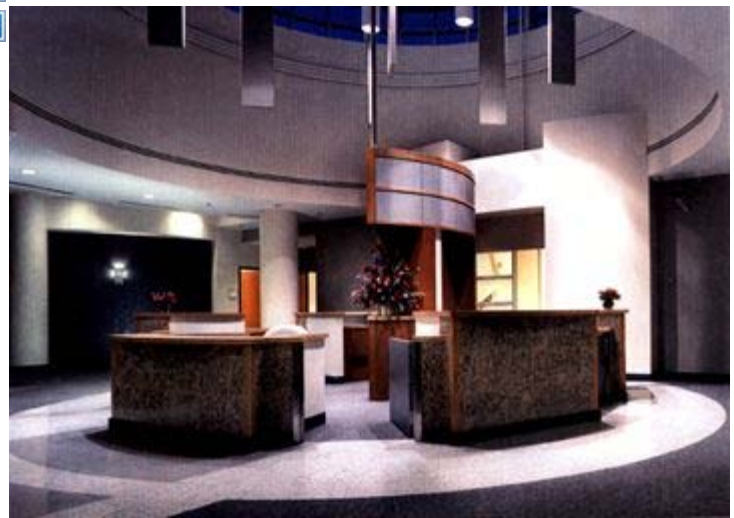


Figure 4

## Emergency Departments: The New "Front Door"

[Back to  
Photos/Charts](#)

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

# The Academy Journal

[HOME](#)   [CONTENTS](#)   [ARCHIVES](#)   [CALL FOR PAPERS](#)



Figure 5

## Emergency Departments: The New "Front Door"

[Back to  
Photos/Charts](#)

Published by  
The Academy  
of Architecture  
for Health

A Professional  
Interest Area of The  
American Institute  
of Architects

*The Academy Journal* is published by the AIA Academy of Architecture for Health (AAH). The Journal is the official publication of the AAH and explores subjects of interest to AIA-AAH members and to others involved in the fields of healthcare architecture, planning, design and construction. [www.aia.org/aah](http://www.aia.org/aah)

This article originally appeared in *The Academy Journal*, published by the AIA Academy of Architecture for Healthcare (volume 1, part 1 – October 1998).