



JFK Medical Center Emergency Department Edison, NJ

This project was a reinvention of the Emergency Department, in response to rapidly increasing patient volume, a need to enhance the patient experience, increase through-put, and reduce “door to doctor time,” all while providing for the latest available technology.



◀ Before - Entry Lobby

▼ New Arrival Pavilion Interior



Project Size 18,000 SF Addition
20,000 SF Renovation

Project Type Occupied, phased renovation & addition

Project Location JFK Medical Center
65 James Street
Edison, New Jersey 08818

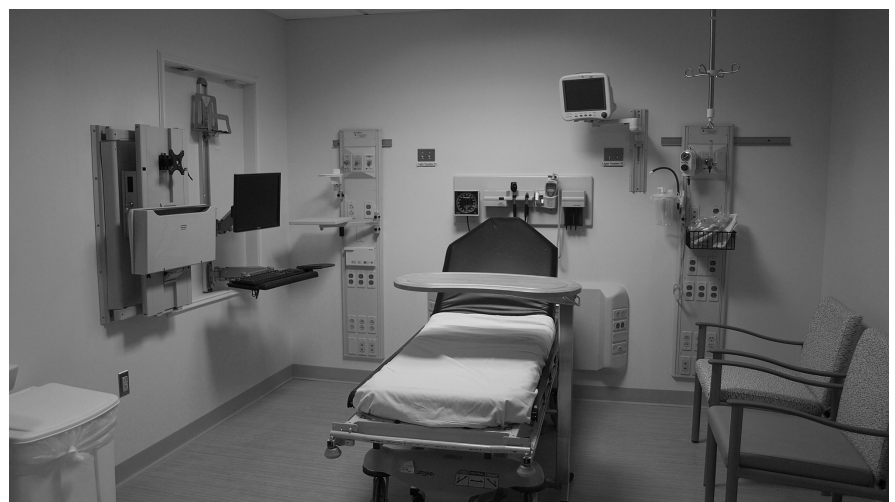
Project Cost \$17,060,000

Project Completion May 2014

Bob Ryan's longtime relationship with JFK Medical Center is what put DIGroup in the running for the overhaul of their Emergency Department. At the time, JFK met an adverse position, unable to manage the volume of patients, to navigate the facility effectively, and working with outdated technology. The treatment bays had no acoustical privacy, infection control, or adequate room for emergency personnel to maneuver during critical events. Annual emergency room visits had nearly doubled, exceeding 70,000 patients, making JFK desperate for space.

When we shadowed the doctors and nurses, we created a spaghetti diagram of movement to see what was working for them versus what was obstructing their processes.

-Bob Ryan



Existing Conditions:

- Tight spaces
- Outdated furniture, equipment and technology
- No acoustical privacy
- No infection control
- Inadequate signage & wayfinding

The proposal was submitted in 2009, packed with a team of industry experts including a consulting nurse practitioner specializing in strategic planning and Lean Six Sigma principles. JFK ran a blind design competition so the in-house reviewers could choose an architect based on their conceptual design approach rather than their relationship. Upon being awarded the project, DIGroup embarked on a 9-month design process; shadowing the clinical staff to gain insight

into their every day and every overnight flow of operations, conducting interviews, creating a mock-up of the space, and creating environmental graphics, signage, and wayfinding for the new E.D. Pavilion.

Bob reflects on the process, "Having previously completed multiple small modifications to the E.D., we were prepared for this much-needed thorough approach in order to construct a lasting solution.



▲ **Finished Pod**
with Custom Milled Furniture

◀ **Pod Concept**

When we shadowed the doctors and nurses, we created a spaghetti diagram of movement to see what was working for them versus what was obstructing their processes." This idea was not new to Bob given that he was an orderly at JFK Medical Center prior to his schooling. Seeing the 'frequent fliers' that liked to change rooms, the weekend sport injuries, Sunday bagel cuts, and working with the doctors and nurses in those critical moments, the navigation and operations were second nature.

From the schematic design, a life-size mock-up of the new E.D. was built in the conference center across the street for the doctors, nurses, and ancillary staff to test and provide feedback, including input on furniture. From the location of medical gases, electrical and data outlets to sink location and finishes, input was collected from the nursing staff, physicians, ancillary departments, and volunteer mock patients. Not only were design changes implemented in real time, but daily operations continued and prepped the user groups to be able to function in occupied, phased construction.



▲ Final Schematic Plan showing the different Treatment Pods



▲ **New Treatment Bays**

These are all self-contained units defined by true partitions and glazed sliding doors.

◀ **Wayfinding, Pod 1**

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The design of the Adult E.D. divided the space into three treatment “pods” to manage patient traffic and staffing flow. The Pediatric E.D. has its own (fourth) pod. Unsure that the projected increase in visits would be realized, the third adult treatment pod was designed to be either eliminated or scaled back based on need. Ultimately, the numbers allowed for a partial pod dedicated to the E.D. and the balance to house much-needed ambulatory services. The nurses stations were designed with an open concept arrangement of furniture that was custom milled at various heights and shapes allowing visibility to the surrounding patient rooms. A color scheme was created for each pod for effective wayfinding.




▲ **New Treatment Bays
& Circulation Desk**

▶ **Pediatric Waiting Room**



Elephant in Native Habitat



ELEPHANT

ROOM 58

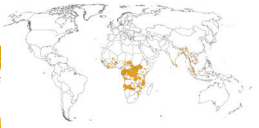
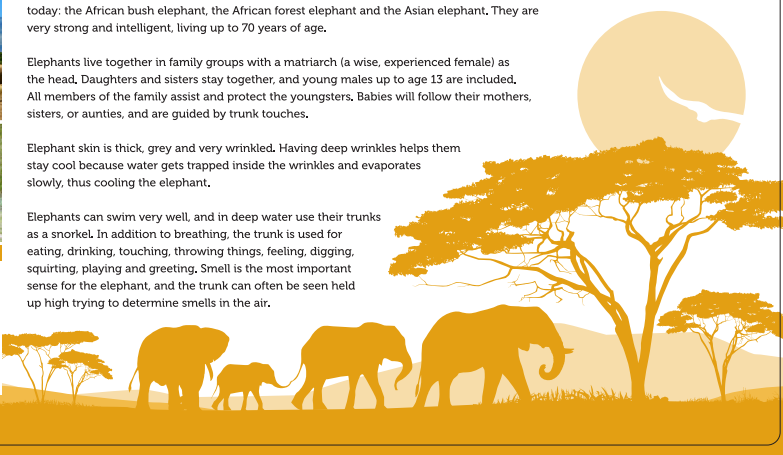
The elephant is the largest and heaviest mammal on land. Three species of elephant are living today: the African bush elephant, the African forest elephant and the Asian elephant. They are very strong and intelligent, living up to 70 years of age.

Elephants live together in family groups with a matriarch (a wise, experienced female) as the head. Daughters and sisters stay together, and young males up to age 13 are included. All members of the family assist and protect the youngsters. Babies will follow their mothers, sisters, or aunts, and are guided by trunk touches.

Elephant skin is thick, grey and very wrinkled. Having deep wrinkles helps them stay cool because water gets trapped inside the wrinkles and evaporates slowly, thus cooling the elephant.

Elephants can swim very well, and in deep water use their trunks as a snorkel. In addition to breathing, the trunk is used for eating, drinking, touching, throwing things, feeling, digging, squirting, playing and greeting. Smell is the most important sense for the elephant, and the trunk can often be seen held up high trying to determine smells in the air.

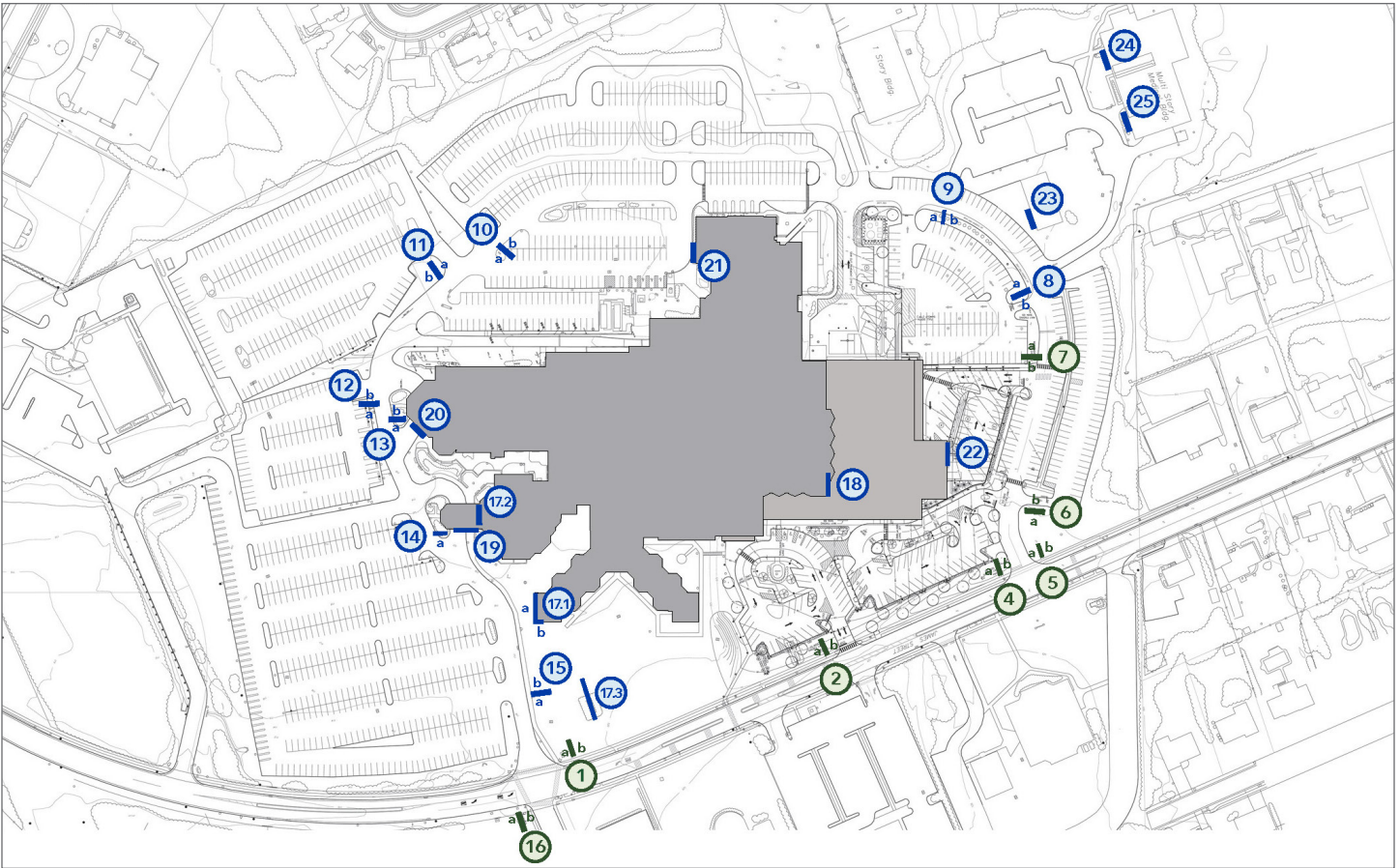
Elephant Range Map

- ◀ Elephant Room Design
- ▼ Finished Pediatric Environmental Graphics



The pediatric emergency pod received a treatment of environmental graphics and soft color scheme to ease anxiety and create a distraction for the young patients. Each room has a different color, animal theme, and letter of the alphabet. Each patient receives a wristband matching their room color and animal theme to help with wayfinding and security.



▲ **Exterior Wayfinding Site Map**

Both interior and exterior sign plans were implemented in phases and were reliant on the schedule of the emergency department renovations taking place.

► **Completed Installed Directional Signs**

Arrival

While the evidence in the design strategy proved critical in the pod treatment areas, the patient arrival pavilion is the medical center’s new “front door” and determines the initial steps for treatment. Included within is a specialized triage area designed to allow for “rapid treat and release” of patients that present with lower acuity levels. Additionally, attention to detail such as clear wayfinding, reduced visual stimulation, calming colorways and furnishings help to minimize the anxiety associated with a trip to the emergency room.



Specialty Spaces

In association with The Neuroscience Institute of New Jersey, JFK Medical Center is known for its advancement in the treatment of stroke patients. To ensure timely access to the treatment and equipment necessary, the new E.D. has a dedicated state-of-the-art CAT Scan suite. The suite is adjacent to the emergency radiology services allowing specialized clinical staff to be shared and these critical condition patients can be treated without interruption or delay.

There are three flex bays to address patients with multiple diagnoses, behavioral health patients, or overflow for standard acuity. Two fully equipped trauma rooms are also available.

Private attending physicians' space was also considered and implemented into the design. Outside of the first pod is a dedicated suite that acts as a 'touch down' area for physicians' needs including dining, lounge, reference library, and support services.

Experts included a consulting nurse practitioner specializing in strategic planning and Lean Six Sigma principles.



Exterior Design Features

Working with an existing all-brick facade, we utilized an aluminum panel system with lots of glass creating negative space and curved support columns to soften the rigid exterior. The use of curves also carries the theme seen inside the E.D. with sweeping custom milled furniture and partitions.



▲ Final Exterior Design

► Medical Surgical Units Plan





◀ Medical Surgical Unit Design

▼ Rendering with Added Floors



The Next Chapter

While the arrival pavilion and emergency department, site alterations, graphics, signage, and wayfinding were completed in 2014, and the new E.D. deemed the largest in the State, there is still more to come. Soon to be constructed are two (2) additional medical surgical units above the main floor, programmed and designed for 42 private bed units. Private patient medical surgical beds and telemetry beds, each with a 425 sf footprint, will include a family zone, patient zone, nursing zone, and address

senior centered care. Similar to the design of the emergency treatment space, the medical surgical floors are designed utilizing de-centralized nursing cores arranged around patient rooms which are divided into multiple “pods” or neighborhoods. This allows the clinical staff to spend more time with their patients by bringing care to the bedside, to provide their full attention to the patient. All HVAC and mechanical equipment was placed in the basement level, to facilitate the placement of the future patient units on the current roof.