PS senza Triage?

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•ABC News July 2010: Fast Treatment Rare in Emergency Departments, Survey Says. *While ERs in Some States Improve, Others Leave Patients Waiting Eight Hours or More*

- *"The AHA reports that 69% of urban hospital EDs…are operating at or over capacity. Wait times to being treated by a physician has the most powerful association with satisfaction."*[1]

- *"The need for improvement in emergency departments (EDs) with respect to the cost of care, the speed of service, crowding, and patient safety is now widely accepted. In an attempt to achieve broad improvement, health care organizations worldwide increasingly adopt an approach called "lean thinking."*[2]

1 *Optimizing Emergency Department Front-End Operations*, Annals of Emergency Medicine, Volume 55, No. 2, February 2010

2 *Lean Thinking in Emergency Departments: A Critical Review*, Annals of Emergency Medicine, Volume 57, No. 3, March 2011

RAYMOND HENRY
chef du service des urgences, centre hospitalier d'Alençon

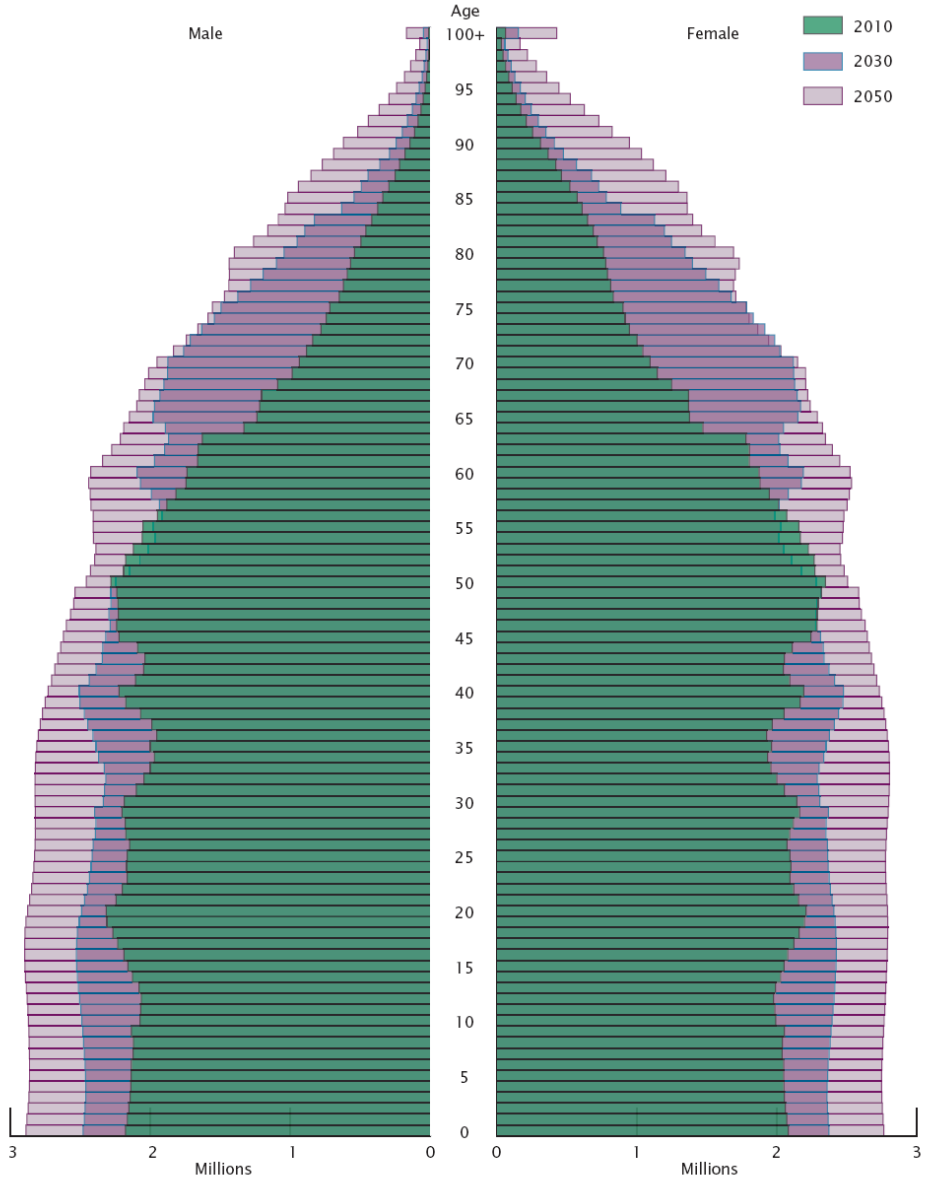
● « Nous avons en permanence de 15 à 25 personnes dans les couloirs. Pendant la canicule, il y en a eu jusqu'à 35. »

FRÉDÉRIC DEGARDIN
chef du service des urgences, centre hospitalier de Boulogne-sur-Mer

● « Pour être urgentiste, il faut être passionné ou... fou. Actuellement j'ai zéro candidature. »

Figure 1.

Age and Sex Structure of the Population for the United States: 2010, 2030, and 2050



Source: U.S. Census Bureau, 2008.

Accessi al PS

- America del Nord:
  - 40 accessi/100 soggetti/anno
    - Incremento di circa 1,5%/anno

- Europa:
- “I have no knowledge of a French or European document annually updated…”
    - Prof. M Wargon, University of Paris

The ER, 50 Years On

Arthur L. Kellermann, M.D., M.P.H., and Ricardo Martinez, M.D.

acute problems. When asked "to what do you attribute the change in use of the emergency room?," nearly half of responding hospitals cited "the inability of patients to reach physicians on weekends, nights or holidays for either emergency or urgent appointments and the orientation of the public to the hospital as a place where one can receive aid at all times." Twenty percent of respondents attributed growth in ER use to an increase in accidents, particularly car crashes (this study preceded the auto-safety movement); 13% stated that physicians were "using the emergency room for procedures formerly performed in their offices"; and 11% cited "third party payment for emergency-room care."

1. Shortliffe EC, Hamilton TS, Noroian EH. The emergency room and the changing pattern of medical care. N Engl J Med 1958; 258:20-5.

TABLE 1. Explicit Definitions of ED Overcrowding

1. ED factors
   - Real-time computerized tracking of waiting times, treatment times, and current census of actual patients in the ED being treated or waiting to be seen[5]
   - Number of visits >120/d (840/wk)[16]
   - Lack of capacity in observation area[17]
   - *Response of nurses' and physicians' opinions of ED overcrowding and telling of being rushed[18]
   - ED bed ratio, acuity ratio, provider ratio, demand value[19]
   - *Patients wait >30 min, or all ED beds filled >6 h/d, or patients placed in ED hallway, or physicians rushed[20]
   - *Patients wait >30 min, patients wait >60 min, ED beds filled >6 h/d, patients placed in hallways >6 h/d, waiting room filled >6 h/d, physicians feel rushed >6 h/d[21]
   - *Patients wait >60 min to see physician, ED beds full >6 h/d, patients placed in ED hallways >6 h/d, emergency physicians feel rushed >6 h/d, waiting room filled >6 h/d[22]

2. Hospital factors
   - When there are no available in-hospital beds for patients admitted from the ED[23]
   - †ED crowding occurs when ED patients are ready but unable to be admitted to either a floor or an ICU bed and are held in the ED[24]
   - Reduction of inpatient beds and a critical shortage of health care professionals[25]
   - †When admitted ED patients cannot leave the department because all staffed inpatient and ICU hospital beds are occupied and no beds are available in neighboring facilities for transfer[26]
   - From boarding inpatients already admitted to the hospital for hours to several days[27]
   - When patients needing admission cannot leave the ED because of unavailability of inpatient beds[28]
   - †When admitted ED patients cannot leave the department because all staffed inpatient and ICU beds in the hospital are occupied and no beds are available in neighboring facilities for transfer[29]
   - When acute care beds become filled[30]
   - When the delay in transfer of admitted patient to a hospital bed is longer than 4 h[31]
   - (Admitted) patients held overnight in the ED[32]
   - Too many sick patients, and too many admitted patients[33]

3. External factors
   - Periods of ambulance diversion[34]

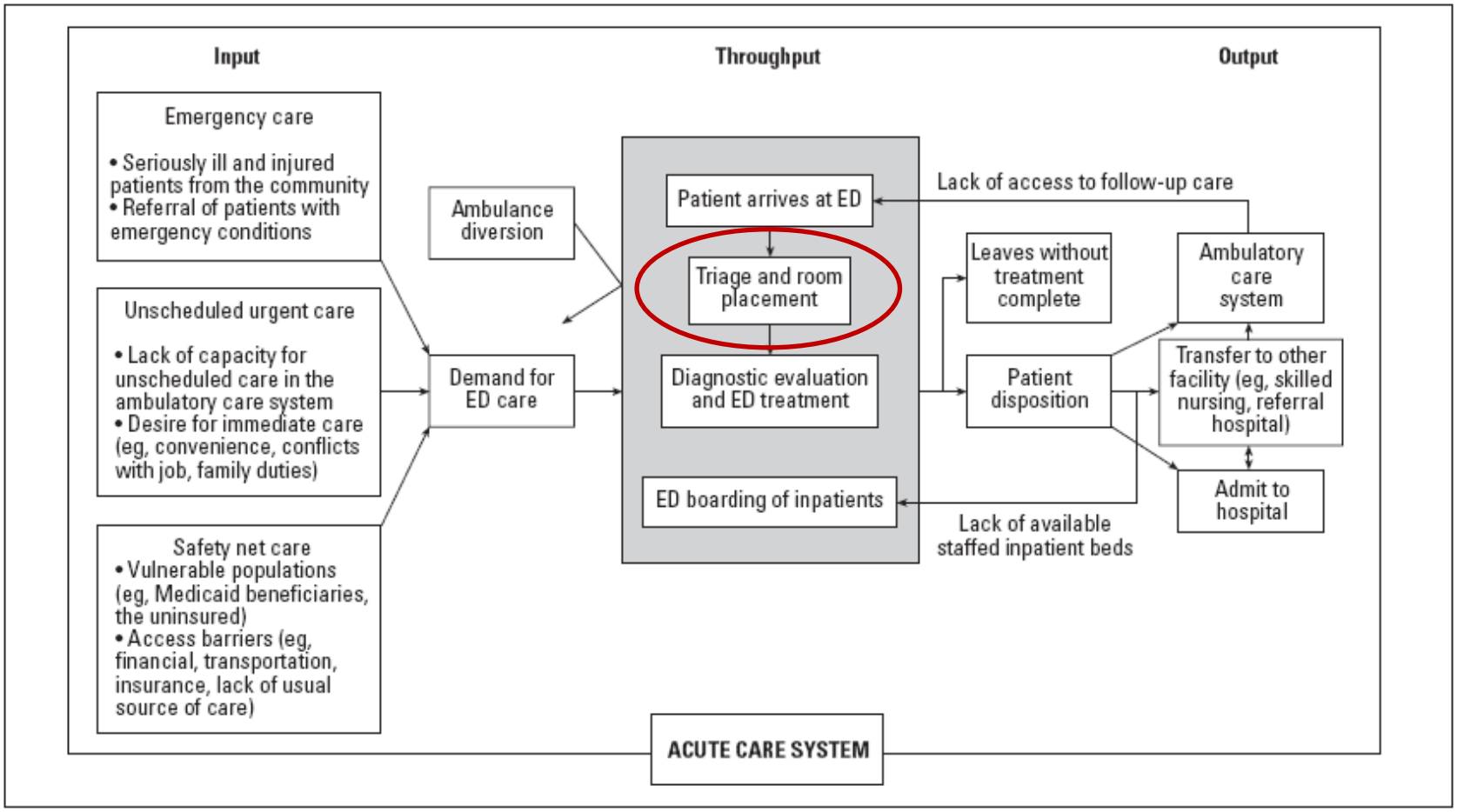
4. Combination of factors
   - Patients wait >90 min, ED beds filled >6 h/d, >30% ED beds filled with admitted patients, patients in hallway >6 h/d, full waiting room >6 h/d[35]
   - Registered ED patients who Leave Without Being Seen (LWBS), and frequency and duration of EMS diversion[36]
   - Staff shortages, lack of available beds, poor operational process, increased number of patients who seek care, lack of universal access, shortage of inpatient beds, and hospital closures[37]

*A group of authors publishing similar criteria.
†A (different) group of authors publishing similar criteria.


EMERGENCY ROOM
AMBULANCE

Figure 2.

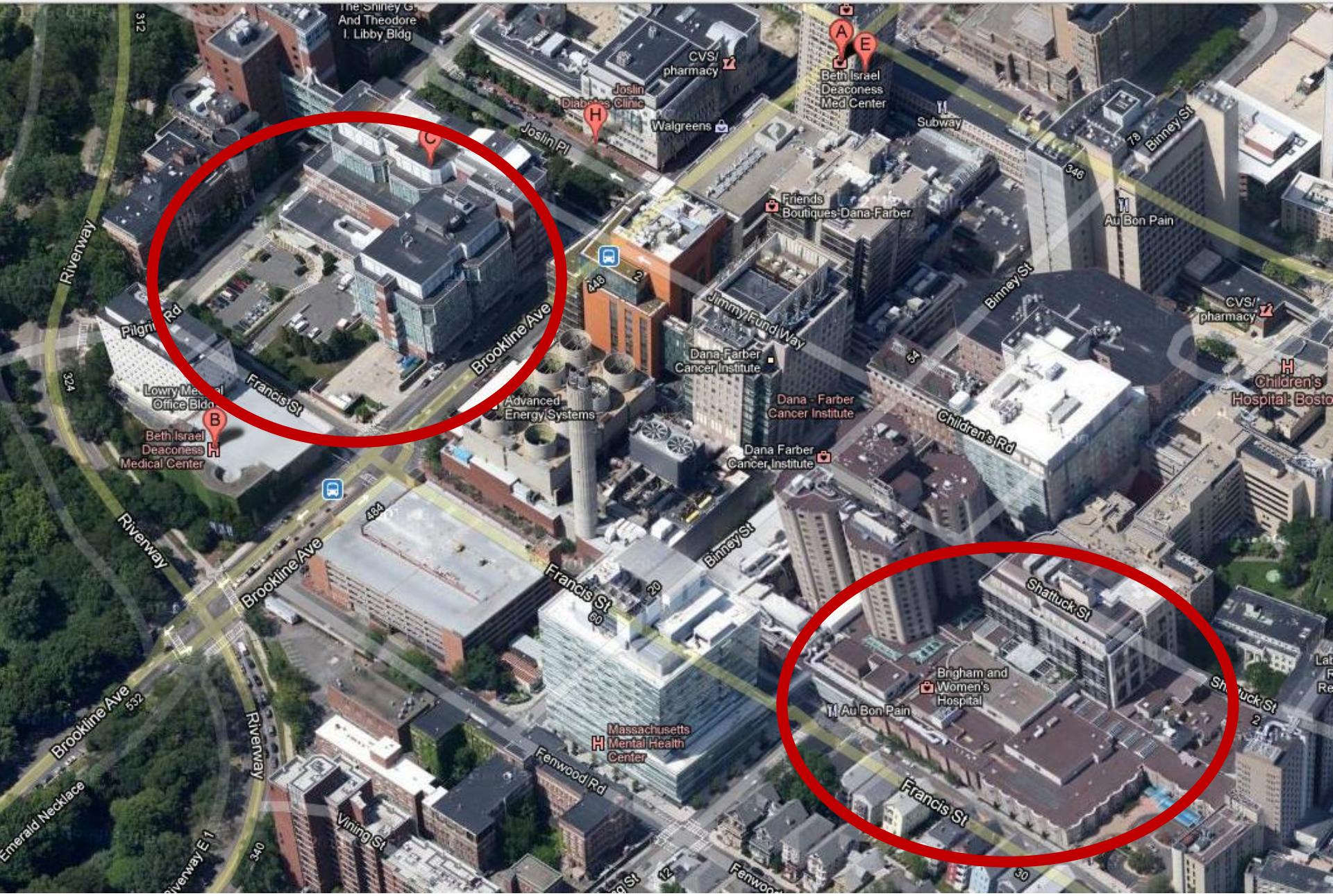
The input-throughput-output conceptual model of ED crowding.



Ann Emerg Med. 2003;42:173-180.

Affollamento del PS

- Input: Accessi
- Throughput: Processo
- Output: Disposizione


The Shirley G. And Theodore I. Libby Bldg
CVS/ pharmacy
Joslin Diabetes Clinic
Walgreens
Beth Israel Deaconess Med Center
Subway
Joslin Pl
Friends Boutiques-Dana-Farber
Au Bon Pain
Binney St
Riverway
Brookline Ave
Jimmy Fund Way
Dana-Farber Cancer Institute
Francis St
Lowry Medical Office Bldg
Beth Israel Deaconess Medical Center
Advanced Energy Systems
Dana - Farber Cancer Institute
Children's Hospital Boston
Children's Rd
Dana Farber Cancer Institute
Shattuck St
Brigham and Women's Hospital
Massachusetts Mental Health Center
Fenwood Rd
Vining St
Emerald Necklace

Beth Israel Deaconess Medical Center

A teaching hospital of Harvard Medical School

- ✓ Teaching Hospital affiliato con la Harvard Medical School
- ✓ Centro di primo livello per la gestione del trauma
- ✓ **452** posti letto
- ✓ **46** letti in ED
- ✓ **55.000** accessi/anno in ED
- ✓ Tasso di ricovero **40%**
- ✓ Tasso di ricovero in area critica **10%**

La Sala d'Attesa


EXIT
DO YOU HAVE A COLD, FLU OR OTHER RESPIRATORY ILLNESS?

Il triage

- aperto alla sala d'aspetto per i pazienti con autopresentazione con 2 postazioni dotate di strumenti per la rilevazione dei parametri vitali

- 1 postazione per i pazienti che giungono dall'EMS


EXIT


EXIT


← Triage
EMERGENCY MED
EMT
Panasonic
TRAUMA TEAM ACTIVATION CRITERIA
STAT
BASIC
Shock, confirmed systolic blood pressure <90 at any time
GSW to the head, neck, chest or abdomen
Severe head injury with coma, GCS <8 with mechanism attributed to trauma
Respiratory compromise or obstruction
Pre-hospital intubation (from the scene)
At the Emergency Physicians discretion
Interfacility Transfers
Receiving blood to maintain vital signs
Intubated patients with ongoing respiratory compromise or obstruction
Injuries
Moderate head injury (GCS 9-12) or deteriorating LOC
Two or more proximal long bone fractures
Crushed, disglocated or mangled extremity
Amputation proximal to wrist or ankle
Suspicion of spinal cord injury (Paralysis)
Proximal extremity GSW
Stab wounds of the head, neck, chest or abdomen not associated with hypotension
Mechanisms
Blunt thoracic trauma
Fall >20 feet
Motor vehicle crash with intrusion >12 inches in passenger compartment or >18 inches anywhere
CODE
RED
YELLOW
GREEN
CDU
TRIAGE
RESOURCE
PT LIAISON
Missing Person
Tatyana Nakashima
mentally handicapped
Caucasian
6' 2" 120 lbs
Section 12

L’area del Pronto Soccorso

Room_no

CC-01C07

Net_Area

939

CC_name

Emergency Unit

CC_no

8657

Category

Circulation Area

Use

Corridor

Building

Clinical Center

Last_update

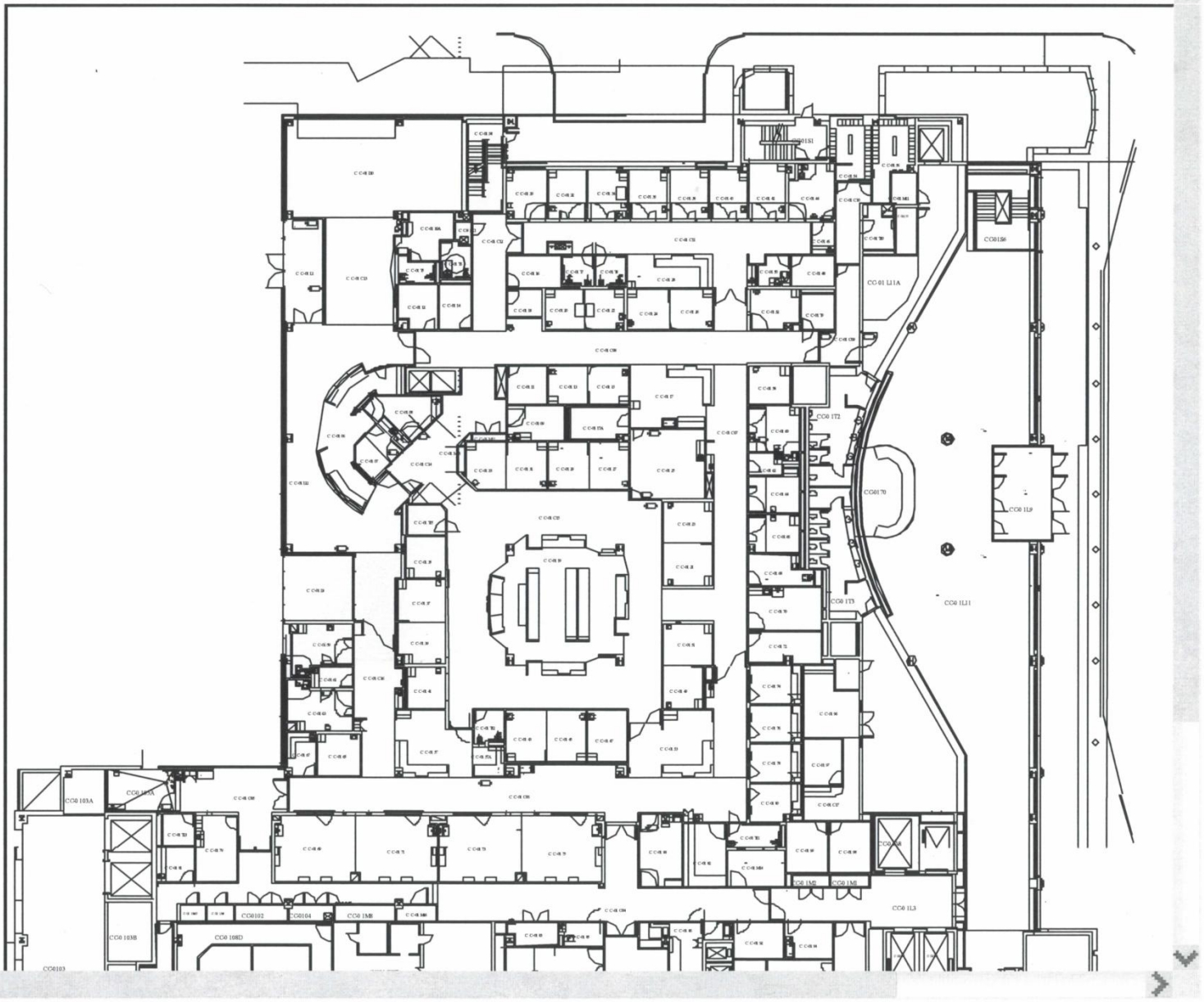
03/19/07

Occupant(s)

Title(s)

VP

Jayne Sheehan



Esiste una suddivisione tra area di bassa priorità ed area critica

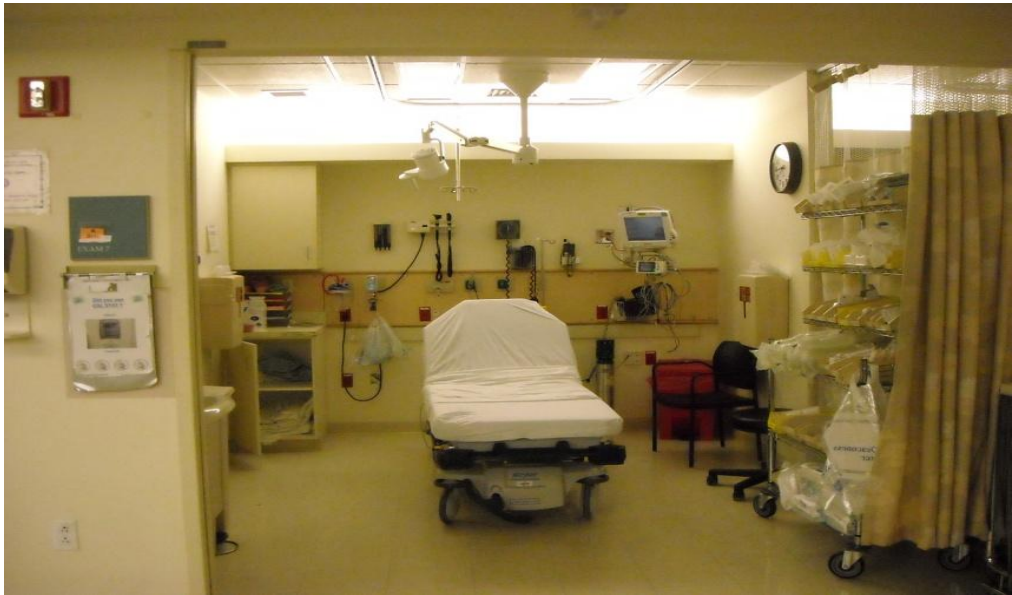
‘the core’

L’area dedicata ai pazienti critici è costituita da una zona centrale

…attorno alla quale sono disposti i box visita…

Secondo uno schema ad anelli concentrici

I box visita sono tutti forniti di monitor ed attrezzati per un esame obiettivo approfondito,
compreso lo spazio per i familiari



ORGANIZZAZIONE

Area critica ("Core")

- **20 box** visita singoli
- **4 box** in Red Zone (Resuscitation rooms) + **1** uno dedicato alla gestione del trauma)

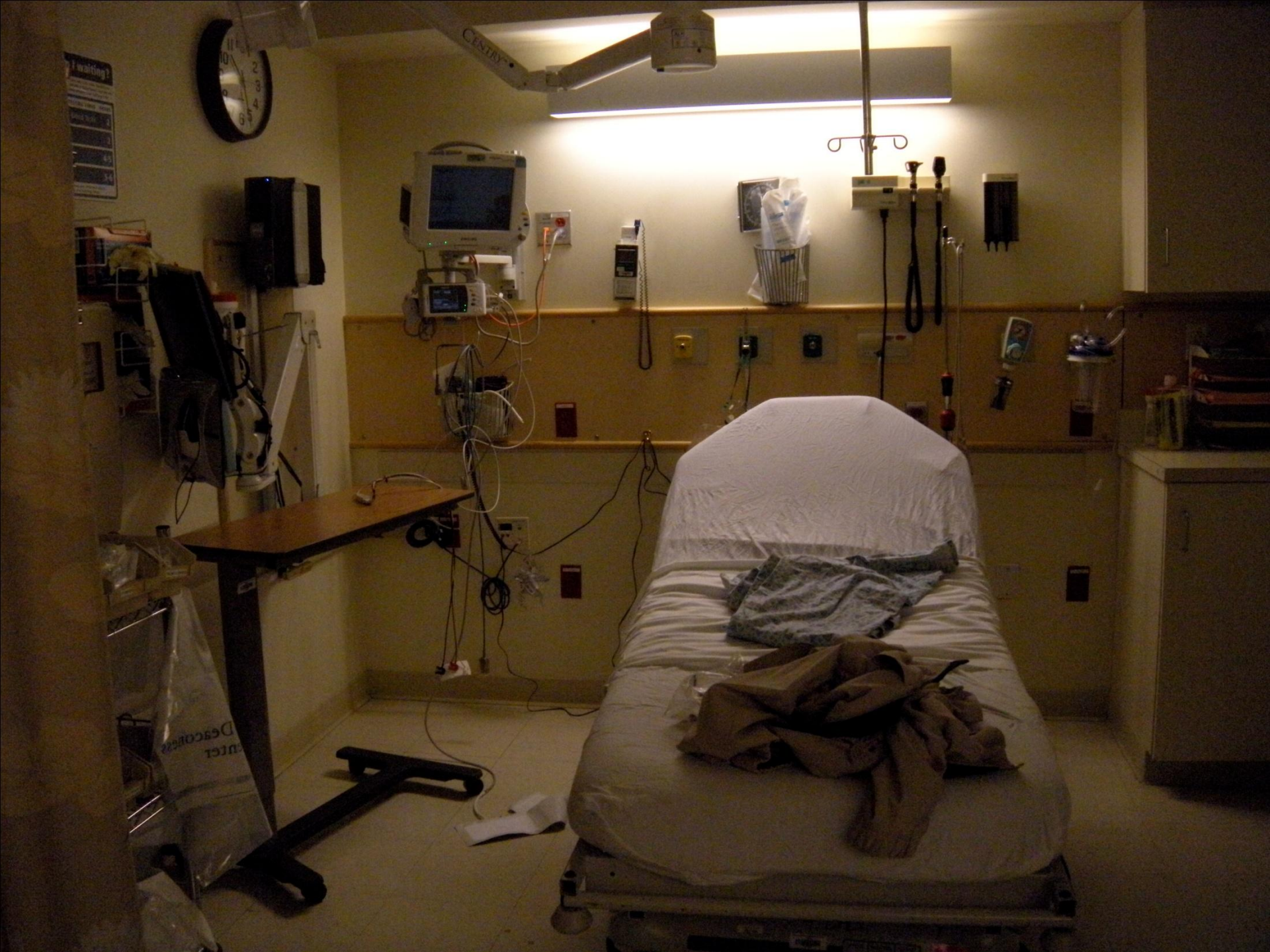
Area di bassa priorità ("Periphery")

- **14** box visita singoli destinati alle patologie minori (incluse intossicazioni e patologie psichiatriche)

Area di Osservazione ("Clinical Decision Unit, CDU")

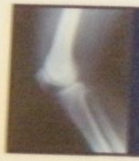
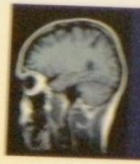
- **8** stanze di osservazione

Stanza Visita del Core



Why am I waiting?

Some aspects of your care may take time. Conditions change quickly in the Emergency Department and we will do our best to accurately predict your waiting time.

APPROXIMATE TESTING TIMES	HOURS
 Routine Blood Work	2
 X-Rays	2
 CT Scans	4-5
 MRI	5-6

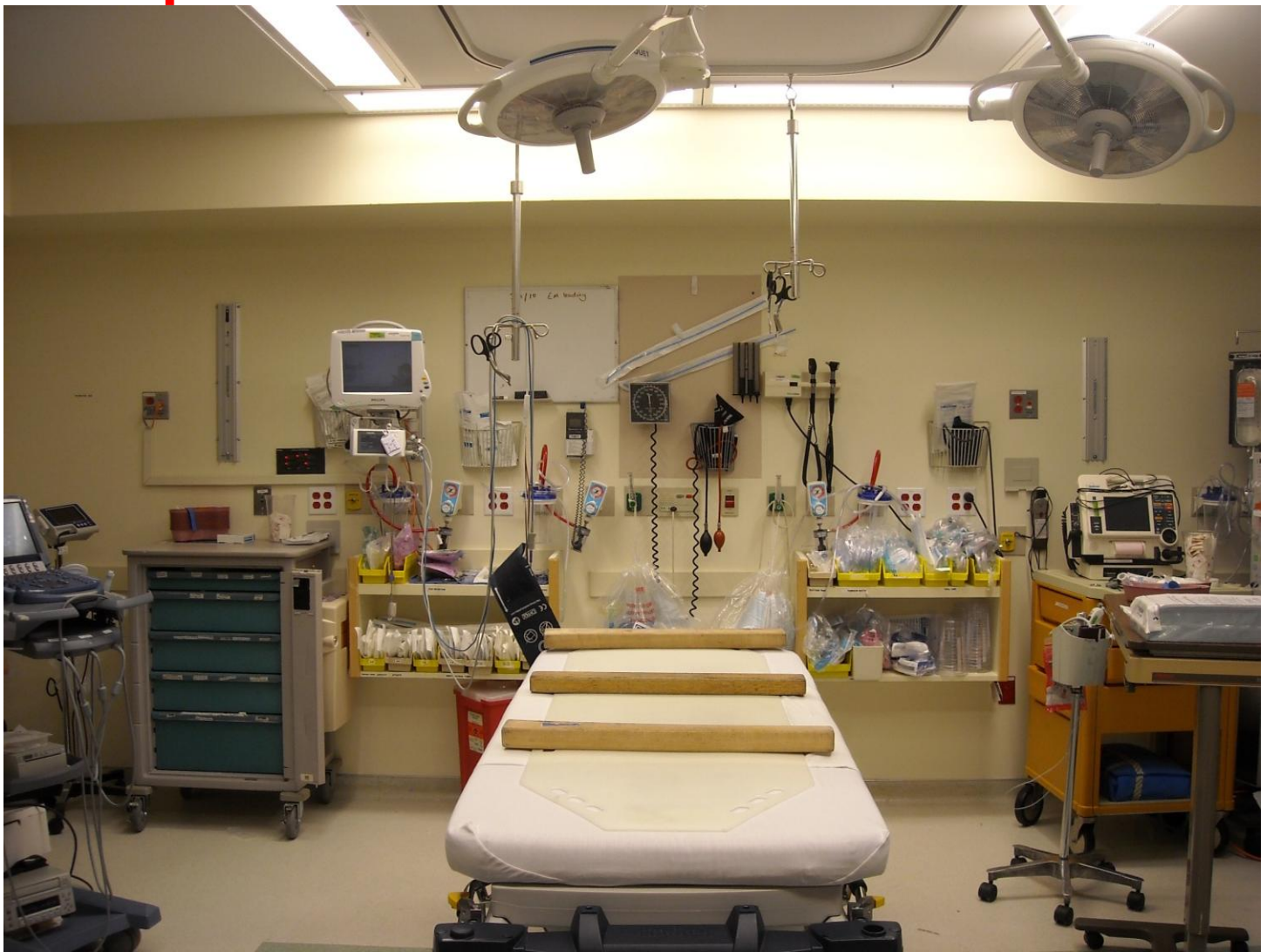
ED staff will keep you informed about next steps and waiting times.

Shock Room

Le “resuscitation rooms”

4 +1 dedicata per il trauma

Sono l’equivalente della nostra “stanza rossa”



L’area di osservazione “CDU” (Clinical Decision Unit)

8 stanze singole attrezzate in modo tale da fornire gli strumenti diagnostico-terapeutici utili a consentire, da parte del personale medico ed infermieristico, l’osservazione in un ambiente efficiente, sicuro e confortevole per il paziente.

Tempo massimo di permanenza 24 ore.

Organizzazione del lavoro

ORARIO:

Nell' area "Core" si lavora su 3 turni di otto ore ciascuno (7-15; 15-23; 23-7)

Personale medico composto da:

- ✓1 strutturato
- ✓1 pgy3
- ✓1 pgy2
- ✓1 pgy1
- ✓2 sp medicina interna

Dalle ore 14 alle ore 20 in aggiunta:

1 strutturato + 1 pgy2

Nell'area di bassa priorità si lavora su due turni di otto ore ciascuno (8-16; 14-22)

Personale medico per turno composto da:

- ✓1 strutturato
- ✓2 pgy1

CONSEGNE:

- **Ad ogni cambio turno passaggio di consegne di tutti i pazienti presenti nell'area "core"**

CARTELLA INFORMATIZZATA:

Con sistema di collegamento a database anche di MMG ed eventuali specialisti

COMUNICAZIONI:

Interne: medico di ps/consulente medico di ps/infermiere di ps tramite cercapersone

Esterne: comunicazione diretta via radio con personale di soccorso territoriale (EMS) per i pazienti critici

Sono circa 100 gli infermieri (RN) che lavorano in PS

L'orario di lavoro è flessibile secondo le esigenze personali ed organizzative

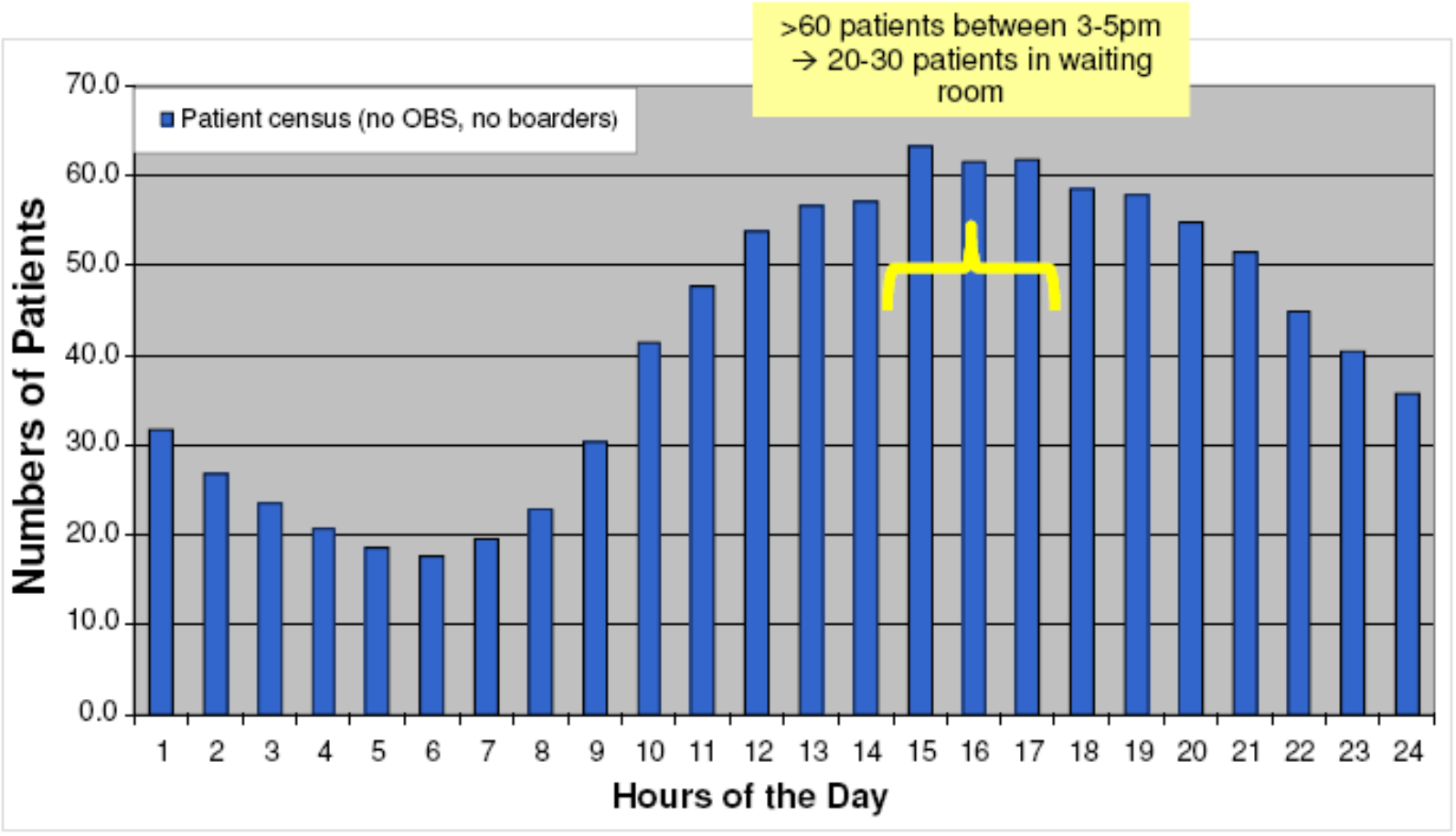
Ci vogliono circa 6 mesi per addestrare un infermiere ad essere autonomo in tutte le postazioni

Una figura strategica nell'organizzazione del PS è l'infermiera "*supervisor*"

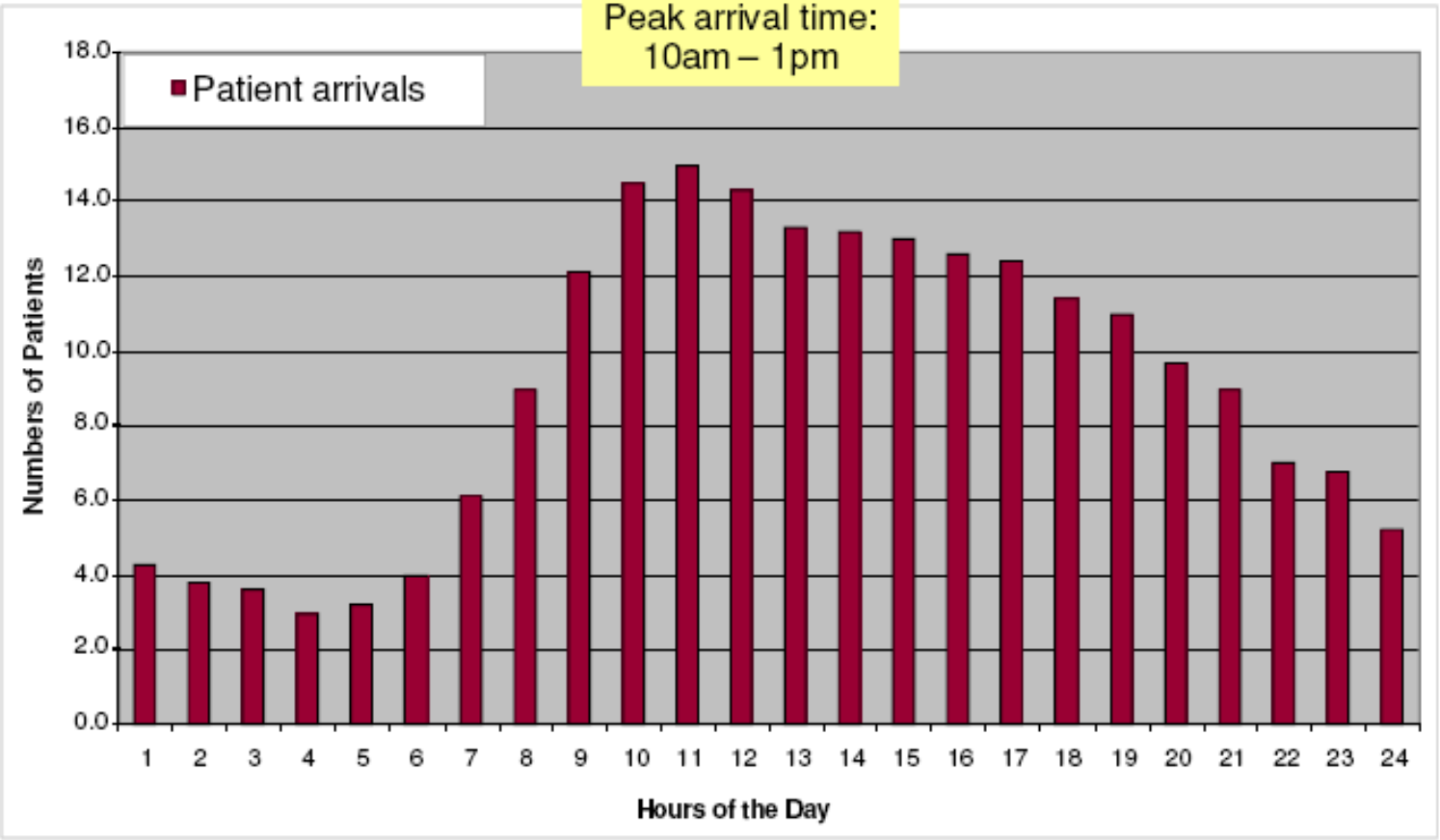
What is “Triage”?

- French word that originally referred to sorting coffee beans
- Applied to the battlefield by Napoleon’s chief surgeon, Baron Dominique-Jean Larrey
- Assumption: medical need exceeds available resources

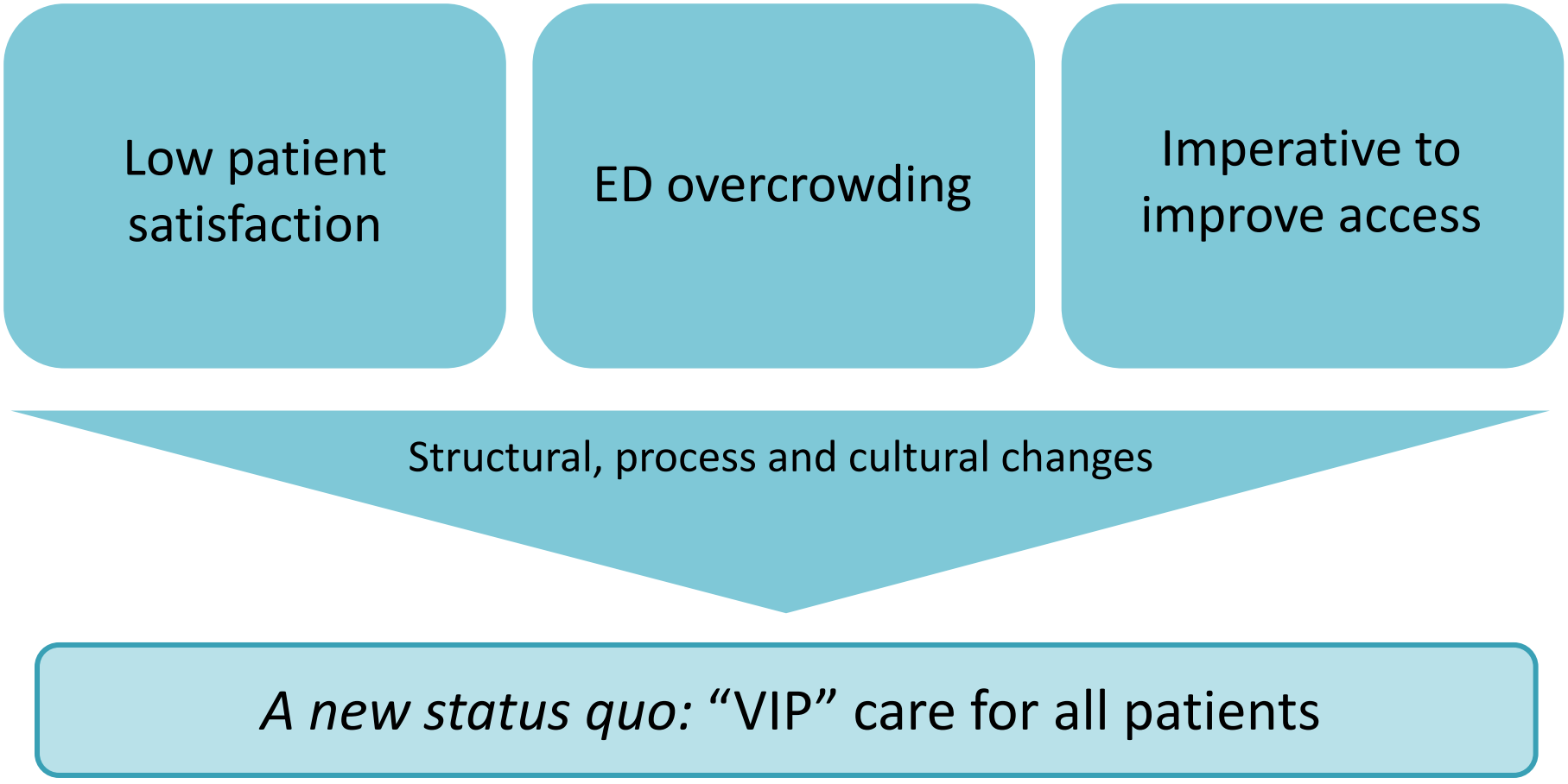
ED Patient Census



ED Patient Arrivals



Drivers for change



Measuring success: redesign metrics

Goal	Baseline (FY09)
Reduce ALOS	5.0 hours *(overall)*
Improve "door-to-doc" time	70 min *(average waiting room time)*
Reduce walkouts	3.3%
Improve patient satisfaction	Ranged between 6th and 40th percentiles*
Increase volume	57,532 *(FY09)*

**among Level I trauma centers with 30K+ visits annually*

47

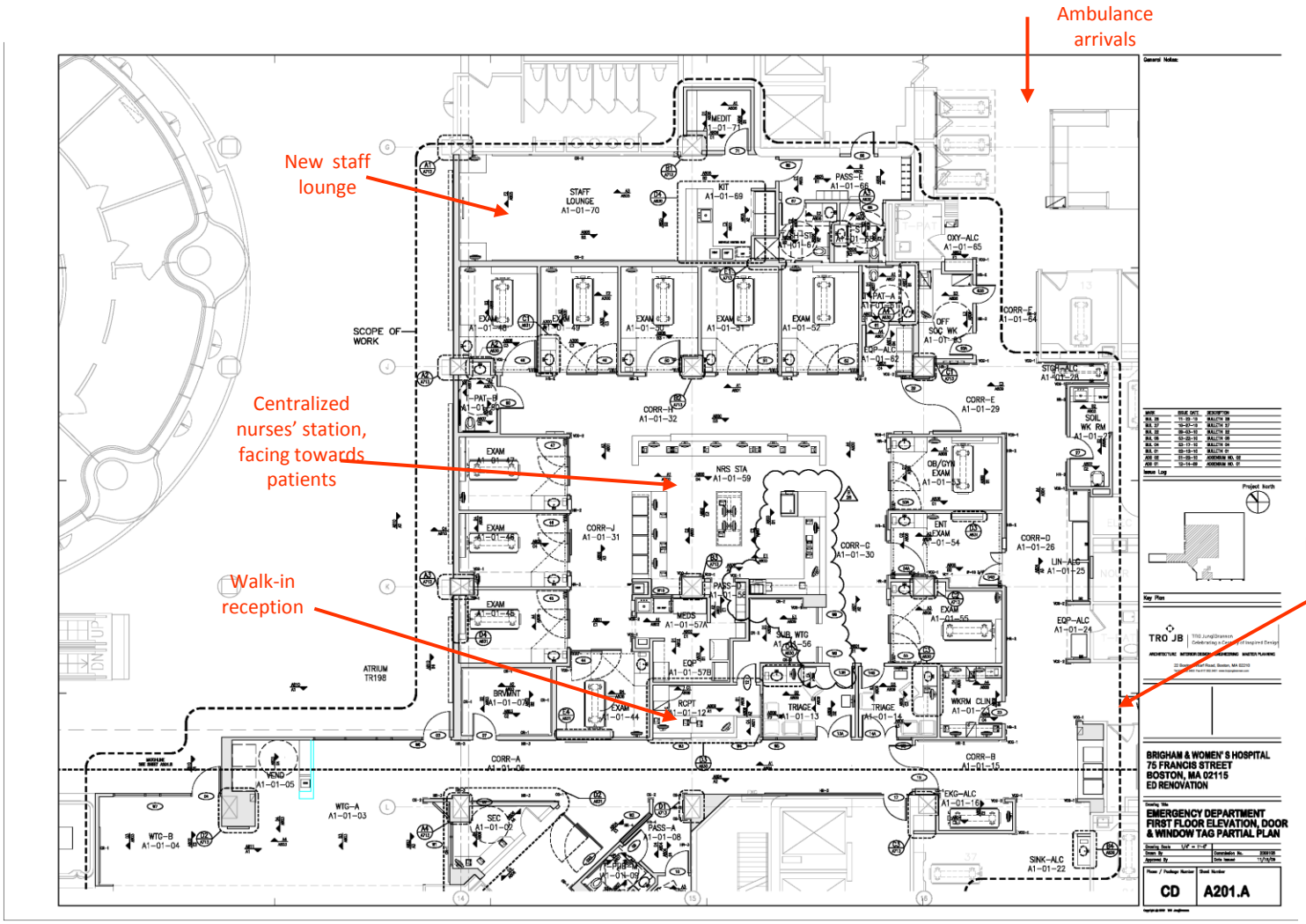
Vision: Improve the patient experience by eliminating non-value added wait time

2,500 square feet of space for an expansion of its ED

New, more efficient processes were essential

Transform waiting room space into clinical care space, and the physical setting would support and enhance the re-engineered process.

Physical Redesign



The ED redesign process has been phased

DESIGN THE NEW PROCESS

VALIDATE THE NEW PROCESS

WORK-OUTs

March – September 2010

All-day events at which ED staff worked together to design the new ED processes.

TABLE TOPs

Summer 2009, April – Dec. 2010

Patient flow simulations

TESTING

November 2010 – April 2011

Weekly testing, then daily testing, of process segments

Role of flow manager

Patient transfer to pod

Team-based care

Informal simulations

Formal simulation

2010

2010 - 2011

Six key components of the redesign addressed using "Lean" concepts

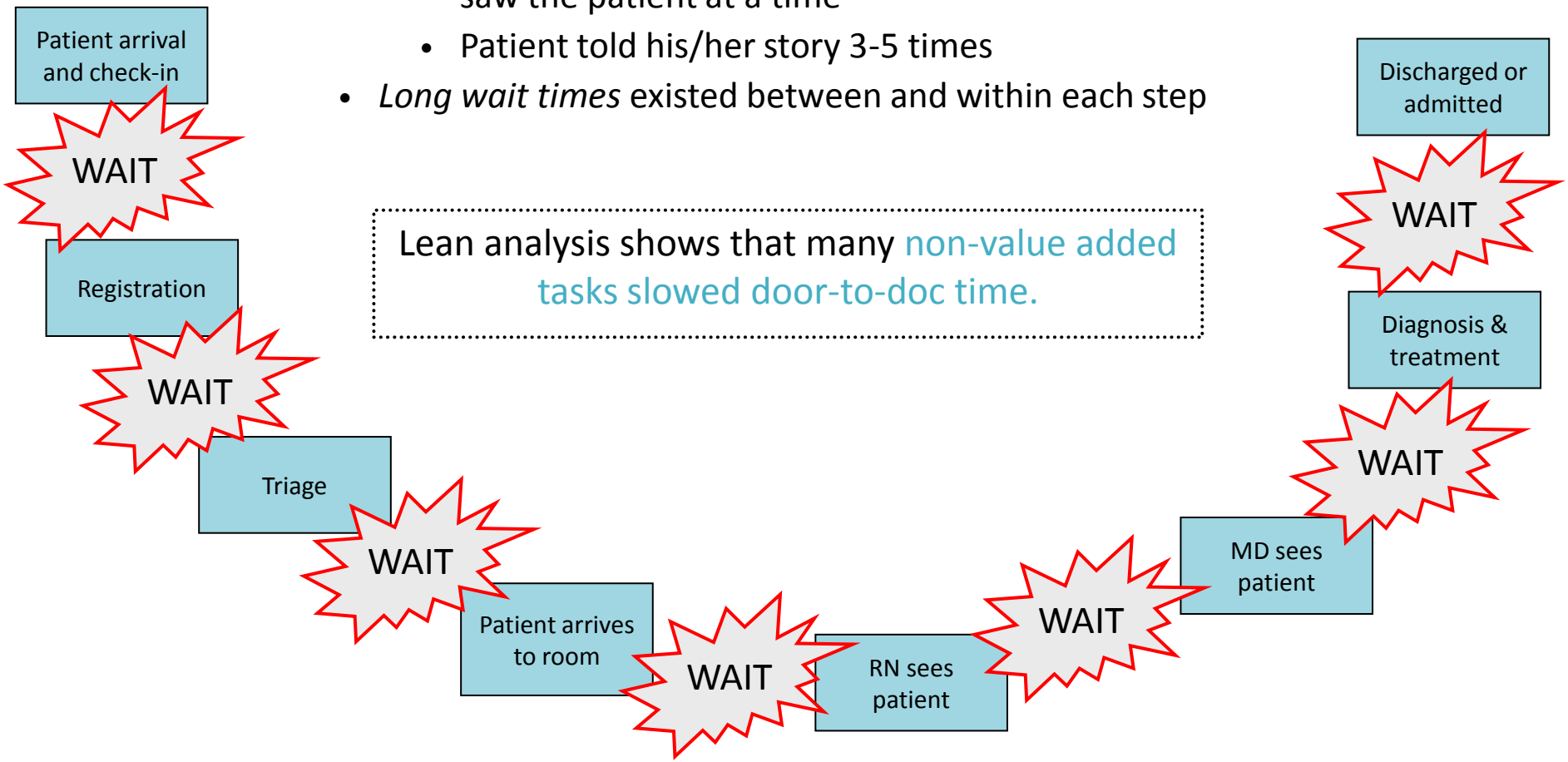
Focus Area	Lean Concept
Process improvement	**Patient-centered focus** (*Design a system around the most valued components*)
Registration	**Check-in at arrival; full registration at bedside** (*Prioritize "value enabling" steps*)
Triage/waiting room	**Eliminate steps when a bed is available** (*Remove "non-value added" steps*)
Pod capabilities	**Any patient in any pod - patient can go to the next available bed** (*Standardize processes*)
Team assignment	**"A bed ahead" – team always prepared to take the next arriving patient** (*Promote continuous flow*)
Oversight	**Flow manager role** (*Provide real-time response*)

The traditional journey through the ED

The traditional process – which occurred daily and affected all patients – included:

- *Serial processing*
  - Providers worked individually; only one provider saw the patient at a time
  - Patient told his/her story 3-5 times
- *Long wait times* existed between and within each step

Lean analysis shows that many non-value added tasks slowed door-to-doc time.



The staff designed the future state process, which would be tested in segments

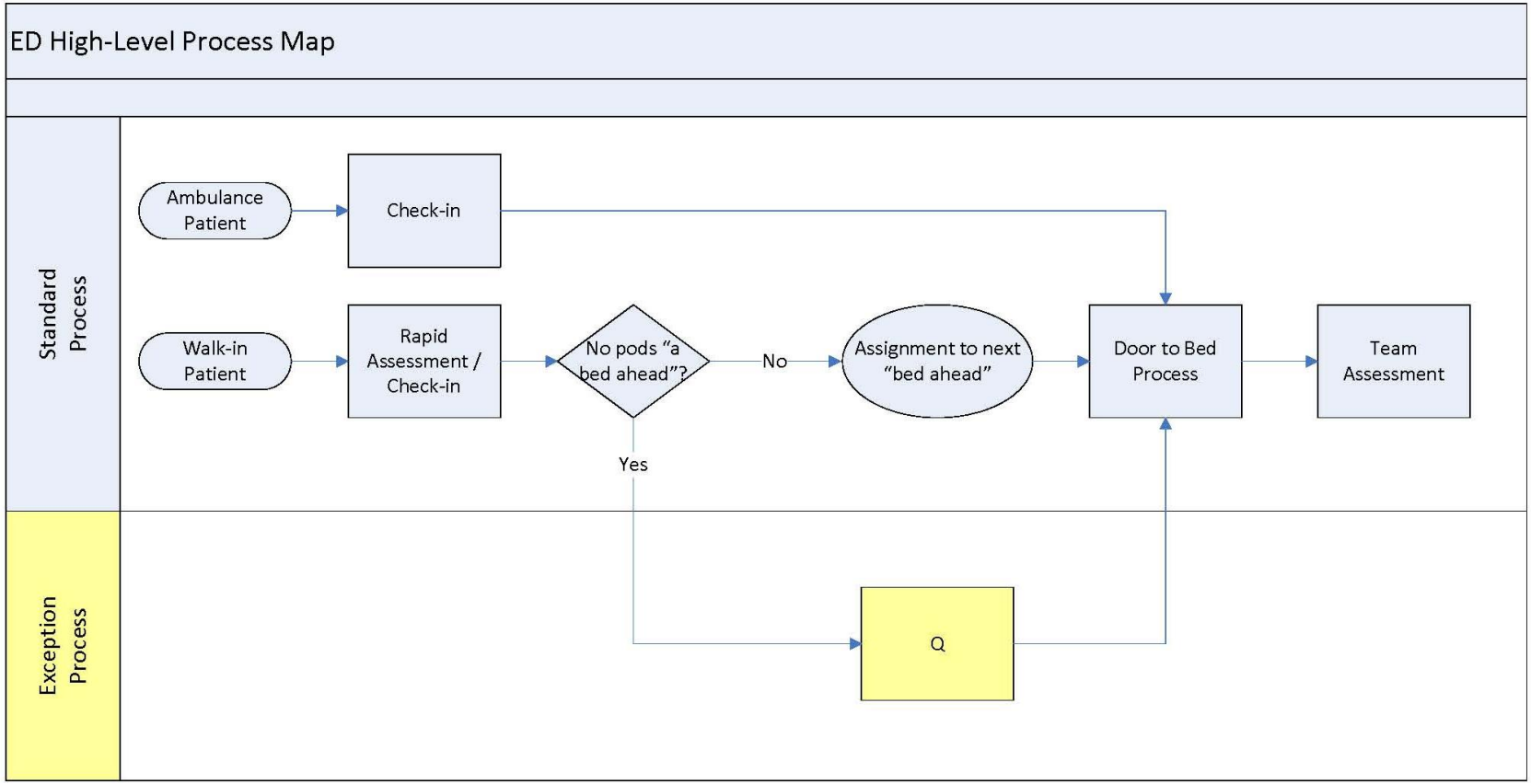
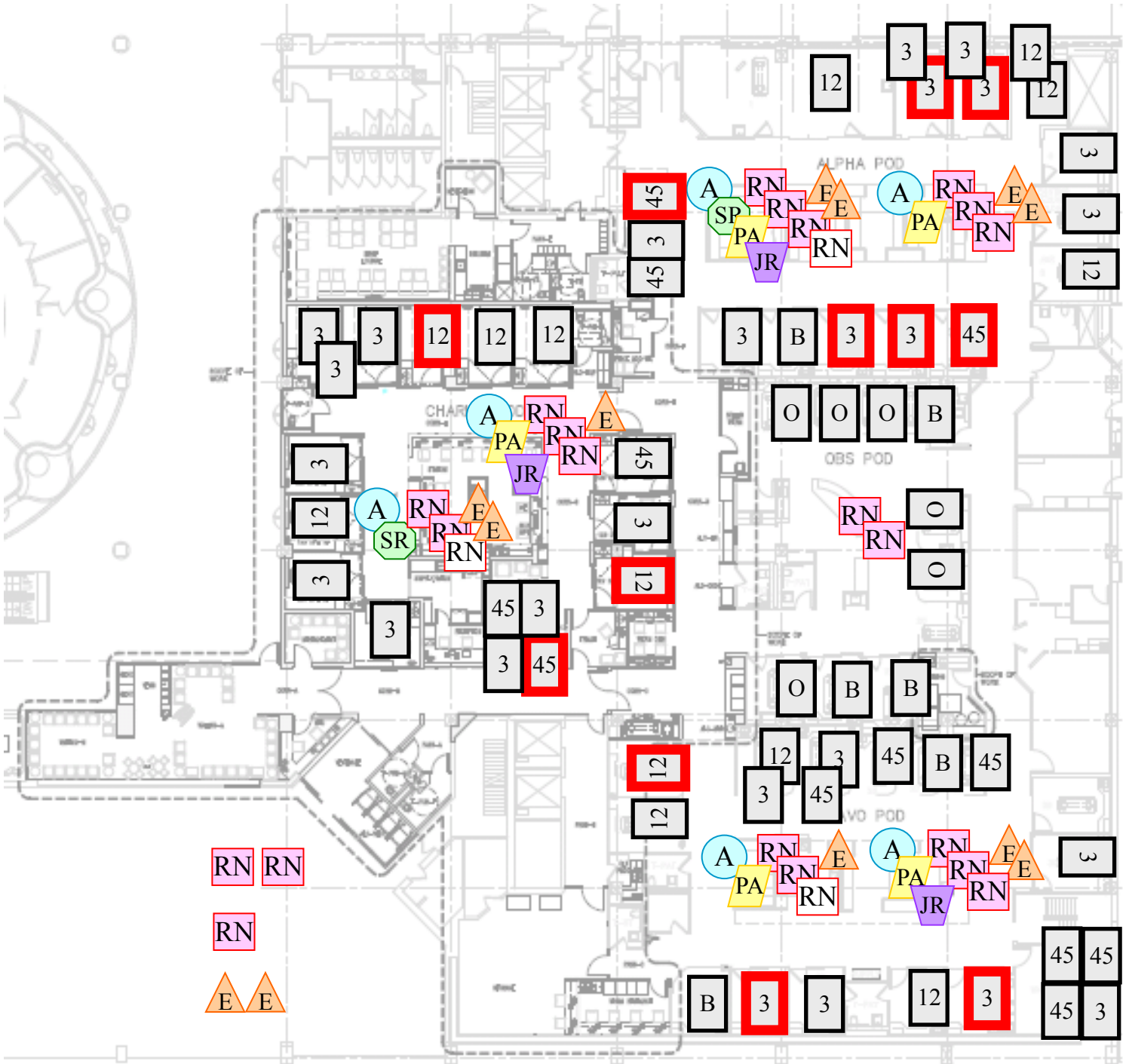


Table-top sessions



4pm

85th Percentile

Arrivals: 12

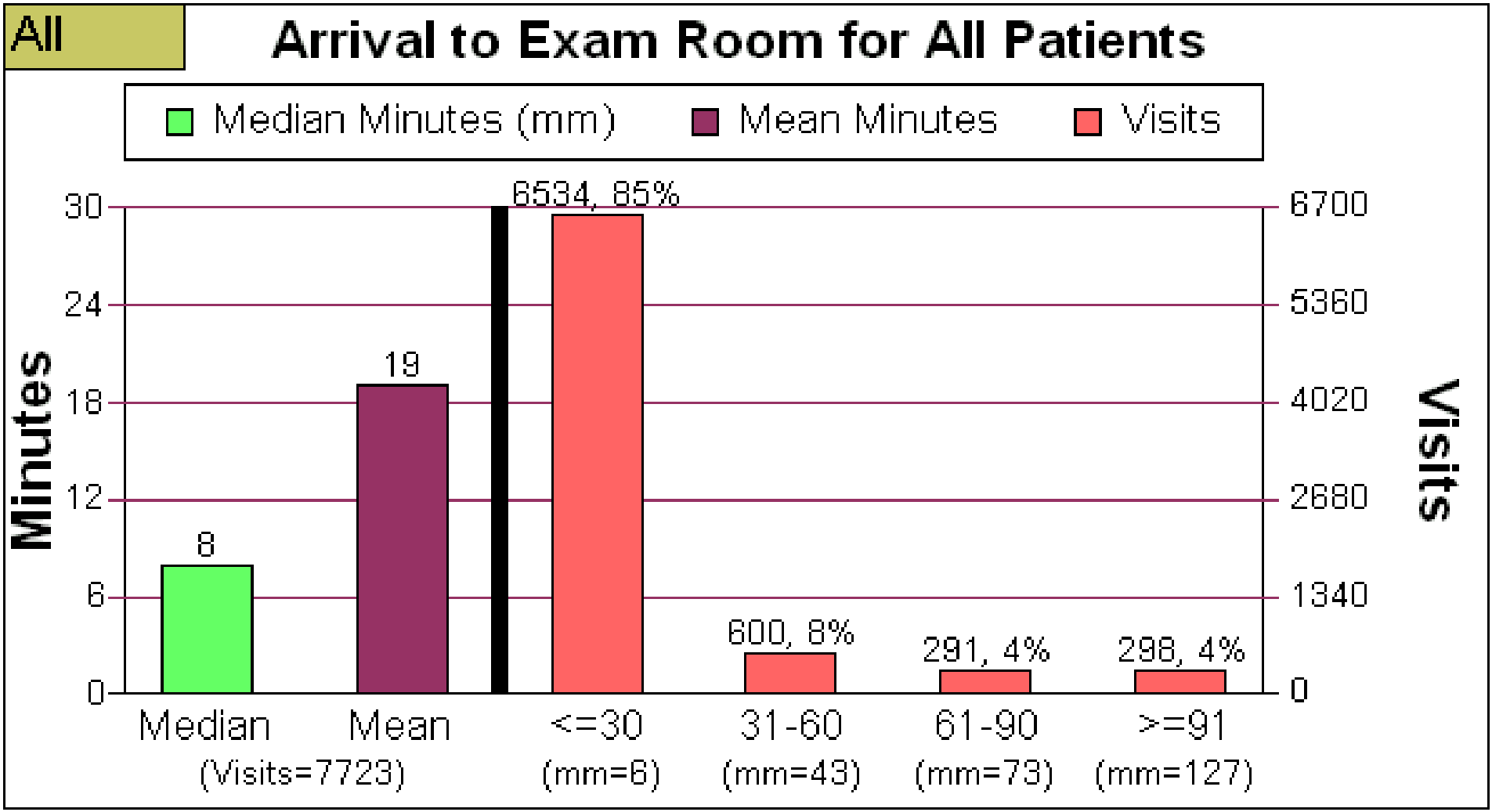
ED Census: 51

Active Teams: 6

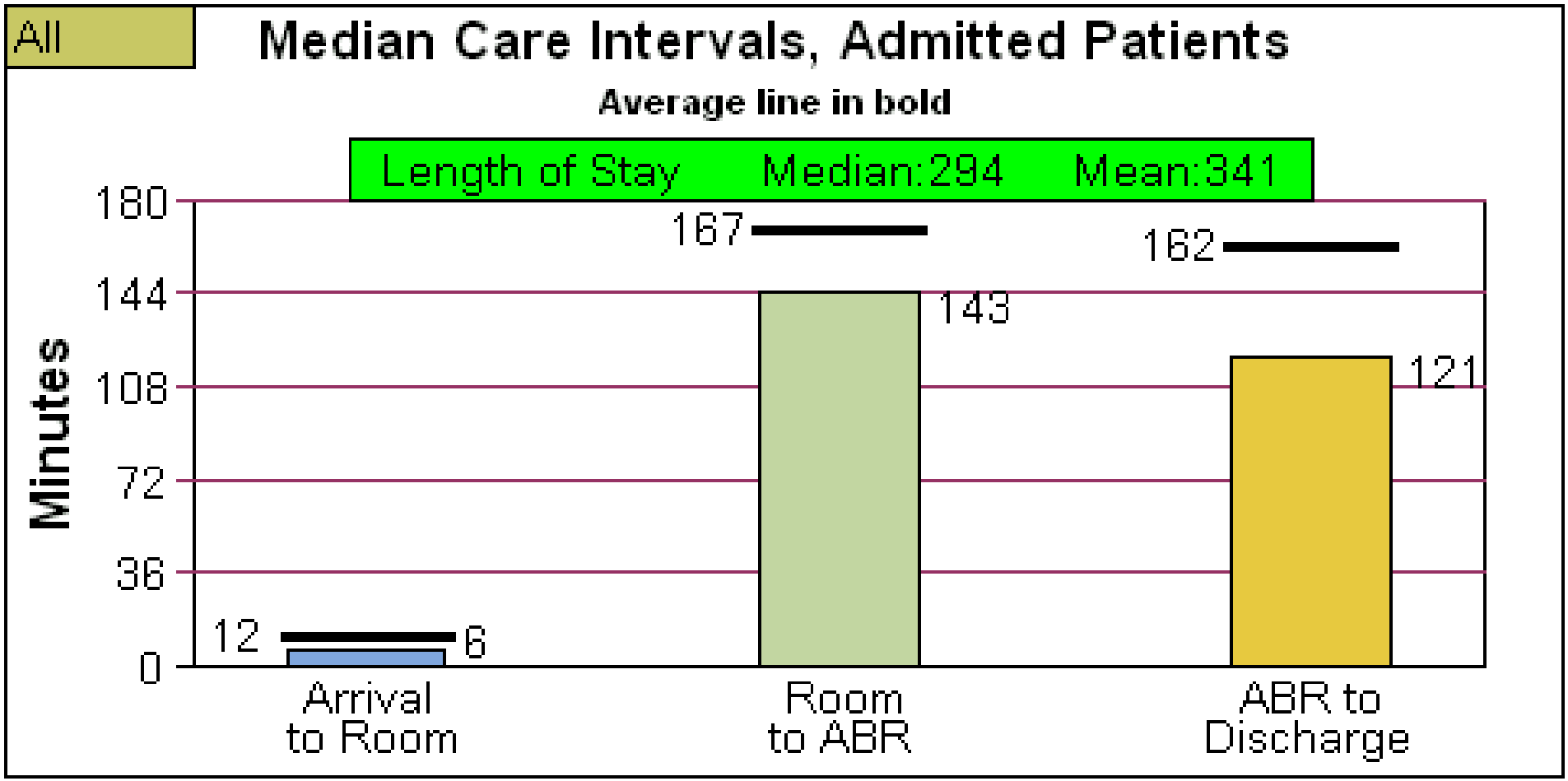
Legend

Attending	A
RN	RN
PA	PA
PGY3/4	SR
Jr. Res.	JR
ESA	E
New Patient & ESI	3
Patient & ESI	3

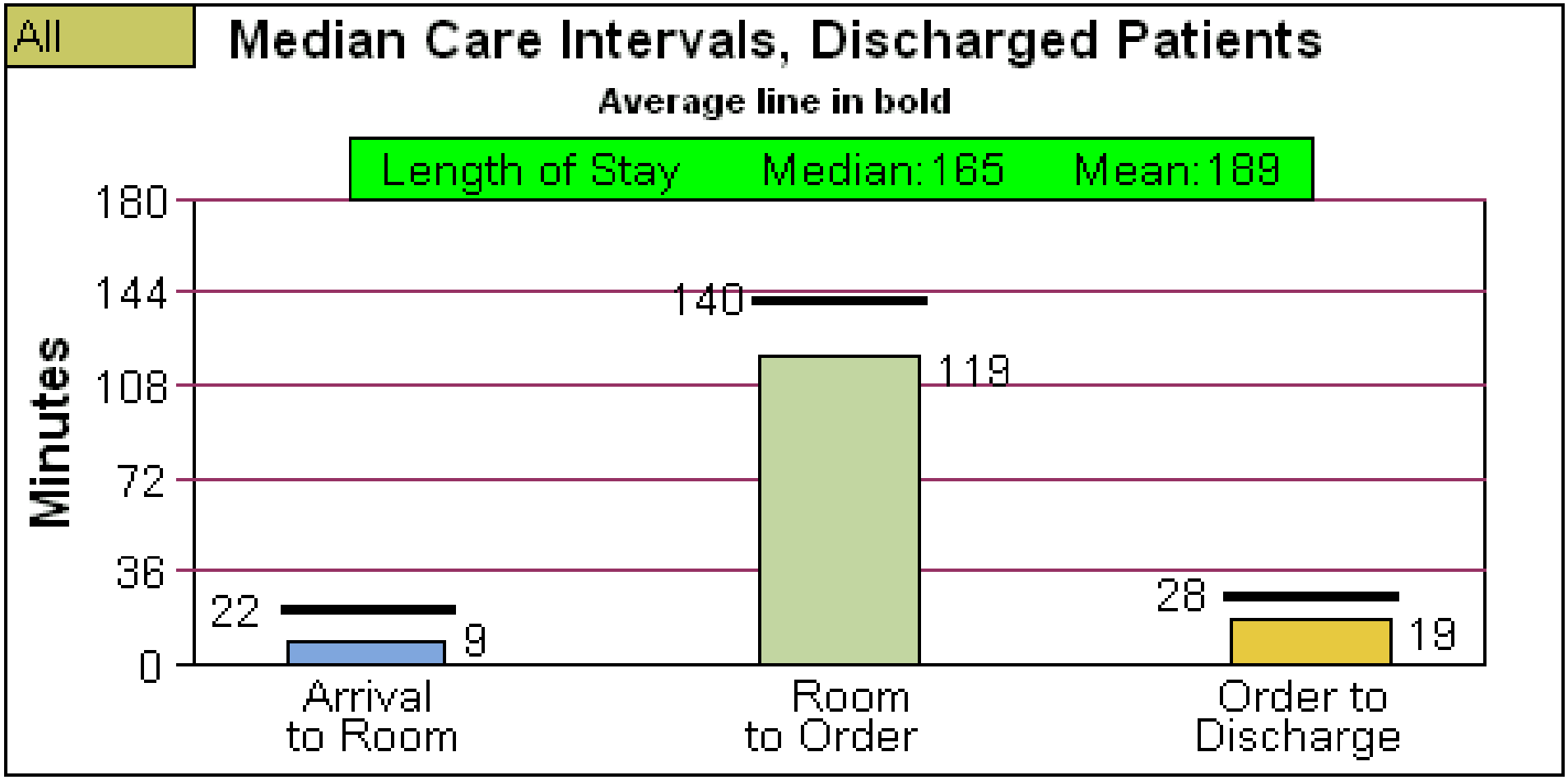
Time-intervals



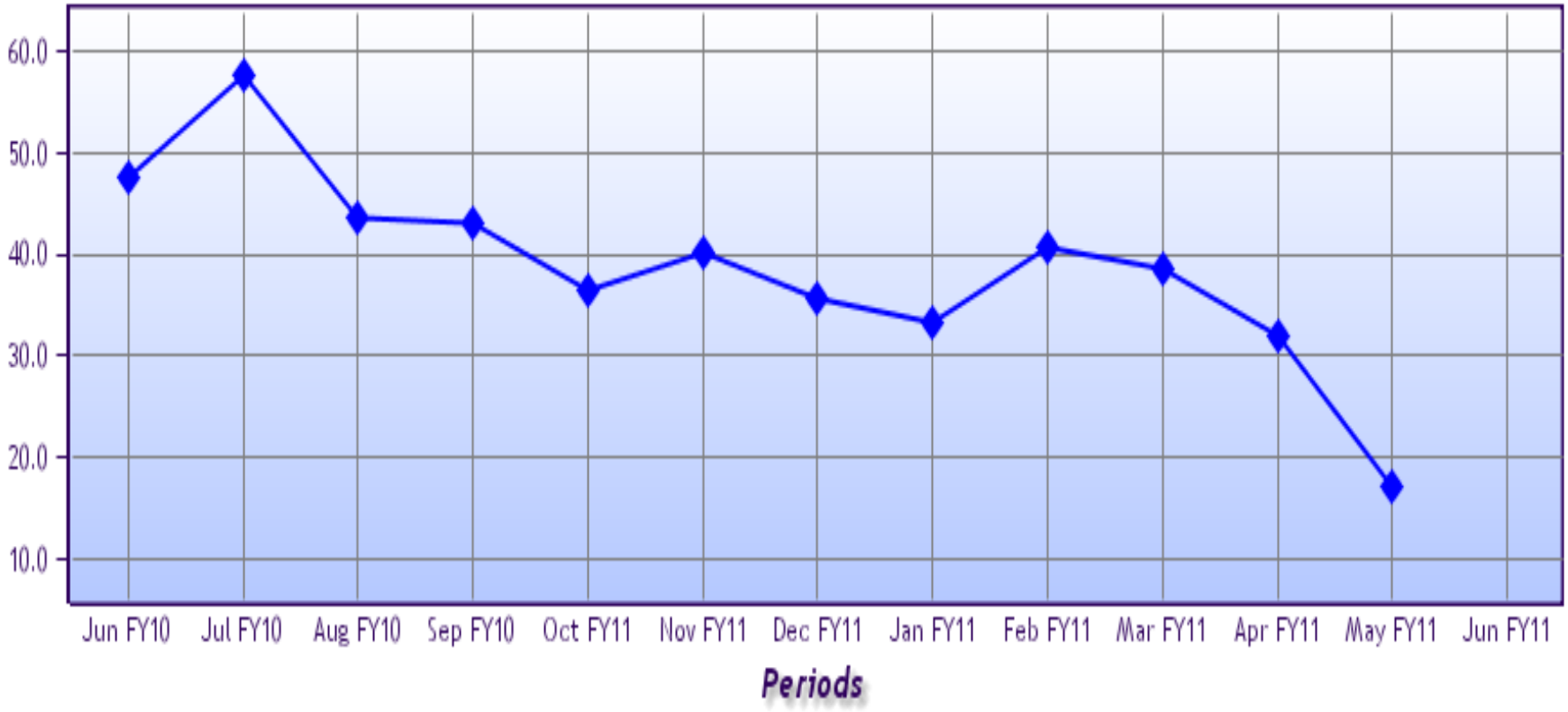
Time-intervals



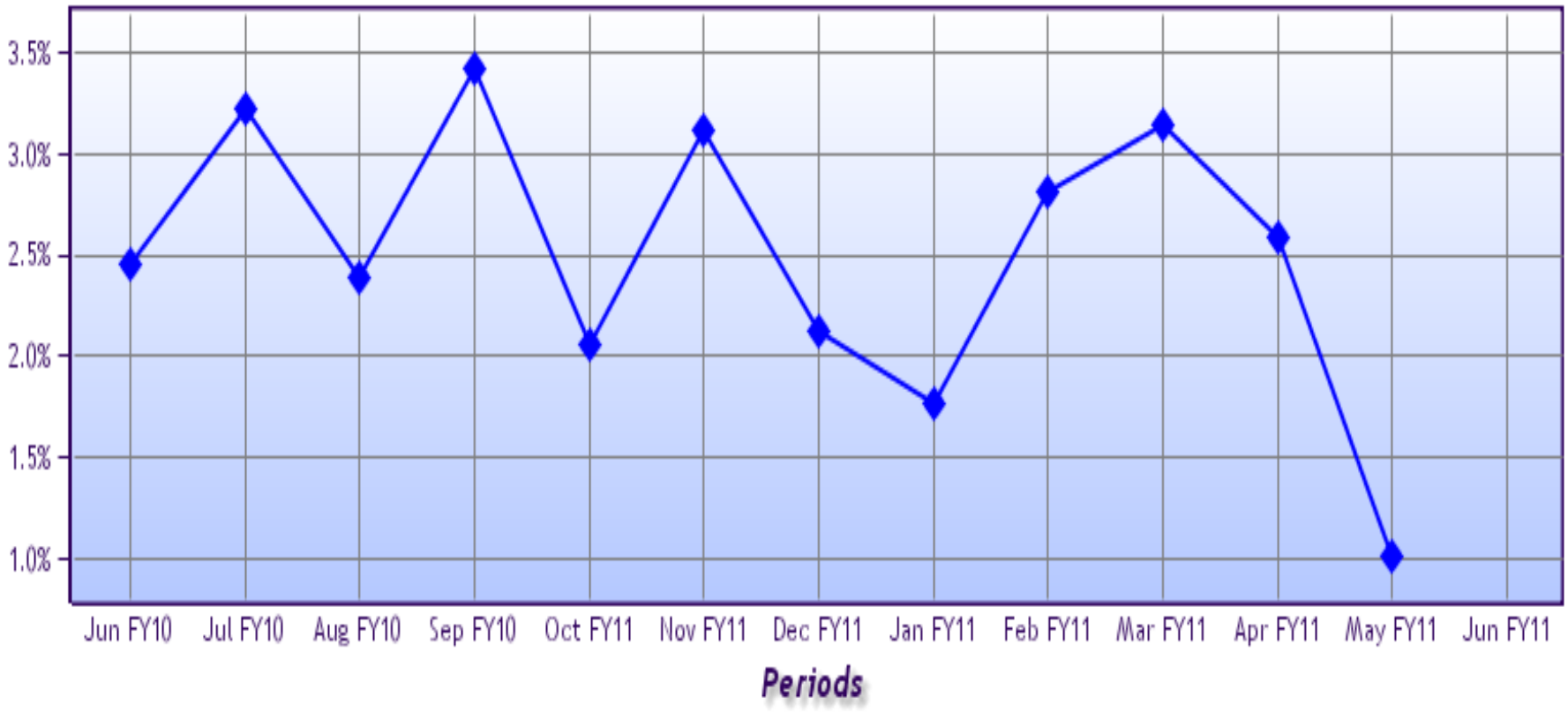
Time-intervals



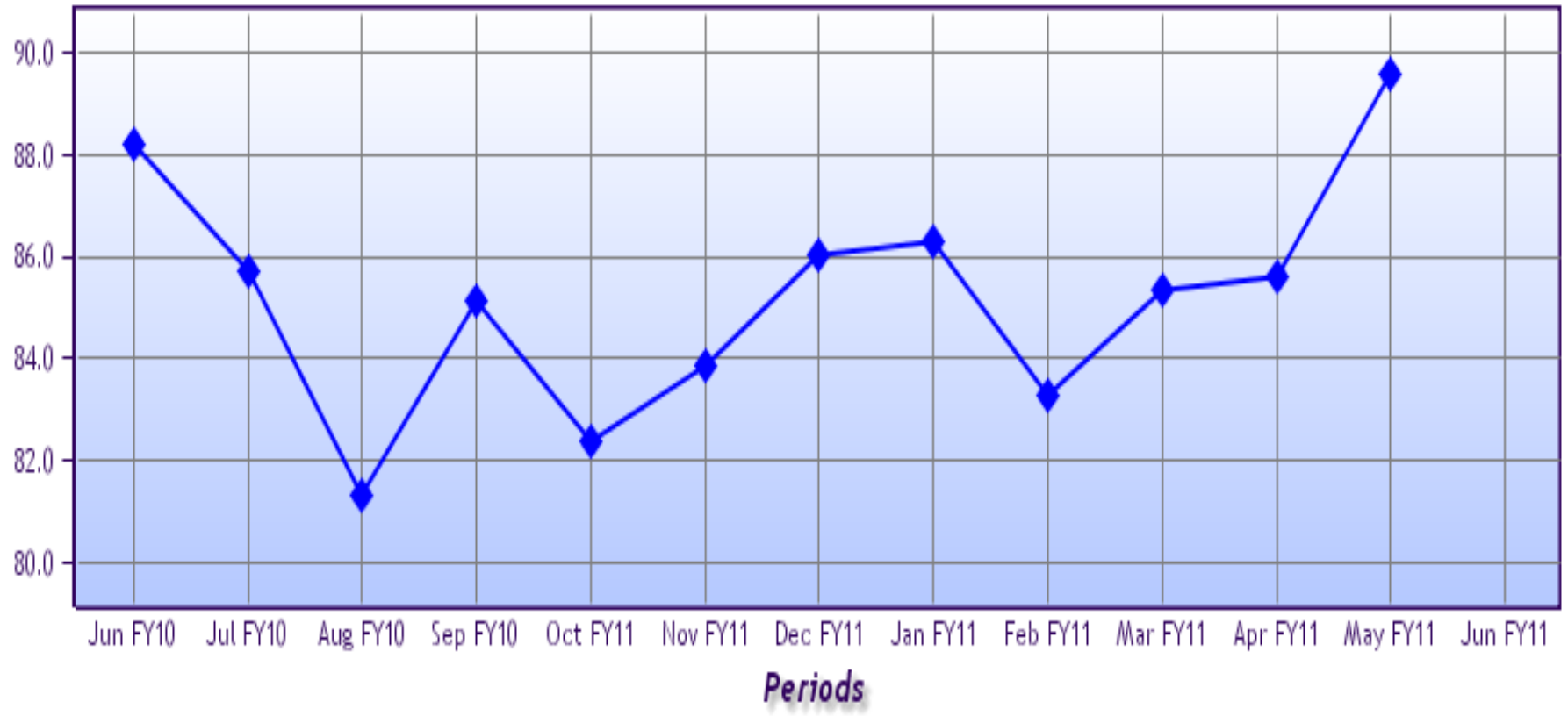
Waiting-room time (mean)



Walk-out rate



Patient satisfaction



Take-home messages:

- Stessa città
- Stessa Università
- Numero simile di accessi

↓

Modelli organizzativi del PS

↓

2 soluzioni organizzative ***molto*** diverse

Ringraziamenti

- **J. Stephen Bohan**, MS, MD, FACP, FACEP
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  Brigham and Women's Hospital
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  Boston, MA, USA
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  Clinical Director, Department of Emergency Medicine
  Brigham and Women's Hospital
  Assistant Professor, Harvard Medical School
  Boston, MA, USA
- **Elke Platz**, MD
  Department of Emergency Medicine
  Brigham and Women's Hospital
  Boston, MA, USA
- **Richard Wolfe**, MD
  Harvard Medical Faculty Physicians
  Boston, MA, USA

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