Overcapacity Protocols for Hospital Access Block

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The Face of Access Block

- **A 37 yr old female with presents with chest pain. At triage she seems stable. There are 24 admitted patients in the ED and no available stretchers so she is triaged back to the waiting room.**
- **After ~ 6 hrs, just as she is being moved to a stretcher, she complains of sudden dyspnea and collapses.**
- **Respirations agonal, P=144, BP=50 and O_2 sat = 82%.**
- **Resuscitation unsuccessful. Diagnosis: Massive PE**

Access Block = Inability to provide timely care

Introduction

- Hospital access block is the main cause of ED access block
- Hospital and Emergency access block (a.k.a. crowding) are associated with multiple adverse outcomes
- Overcapacity protocols (OCP) that ‘push’ admitted patients to inpatient units during overcrowding can reduce delays to inpatient care and free up ED stretchers for arriving sick patients

Concept: Program Accountability?

1. **Timely assessment and disposition**: e.g. . .
   - ED is accountable for EMS patients, referred patients and walk-in patients
   - Hospital programs accountable for patients referred for admission
   - Community/Long-term care programs accountable for ALC patients

2. Provide **budget, space, nursing care** for pts requiring admission

3. Have **contingency plans** addressing volume surges, off-hours care needs and access challenges

4. **Queue management**: If access is a program accountability, programs are responsible to manage their queue

Queue Management ??

Management by Closing Doors
("SORRY ! We're Full . . .")

Systematic downloading of pt care to less effective, more expensive locations is a form of *accountability failure*

Wrong-service queuing is a sign of system failure to be corrected

Key Concepts in Hospital Flow

ED LOS for Admitted Patients

In an ED with 20,000 admitted pts/year:

-4 hour LOS = 80,000 ED stretcher hours

-8 hour LOS = 160,000 ED stretcher hours

-12 hr. LOS = 240,000 ED stretcher hours

-16 hr. LOS = 320,000 ED stretcher hours

-20 hr LOS = 400,000 ED stretcher hours

Concept: Appropriateness

Who's in?

- Uncle Bob: Day 5 on tele. Stable. Waiting for thallium scan
- Aunt Audrey: Stroke-day 4 / facial droop / getting education
- Clive: Refusing Discharge to LTC facility
- Mabel: Cant go home: has 3 stairs to get into her house
- Elderly with behavioural problems- unacceptable to LTC
- Young man: IV antibiotics for osteo –smoking outside hospital

Who cant get in?

- AMI-needs emergent revascularization
- Necrotizing fasciitis – needs rapid surgical debridement
- Massive PE – needs heparin/lytics
- Subdural – needs CT and surgical evacuation

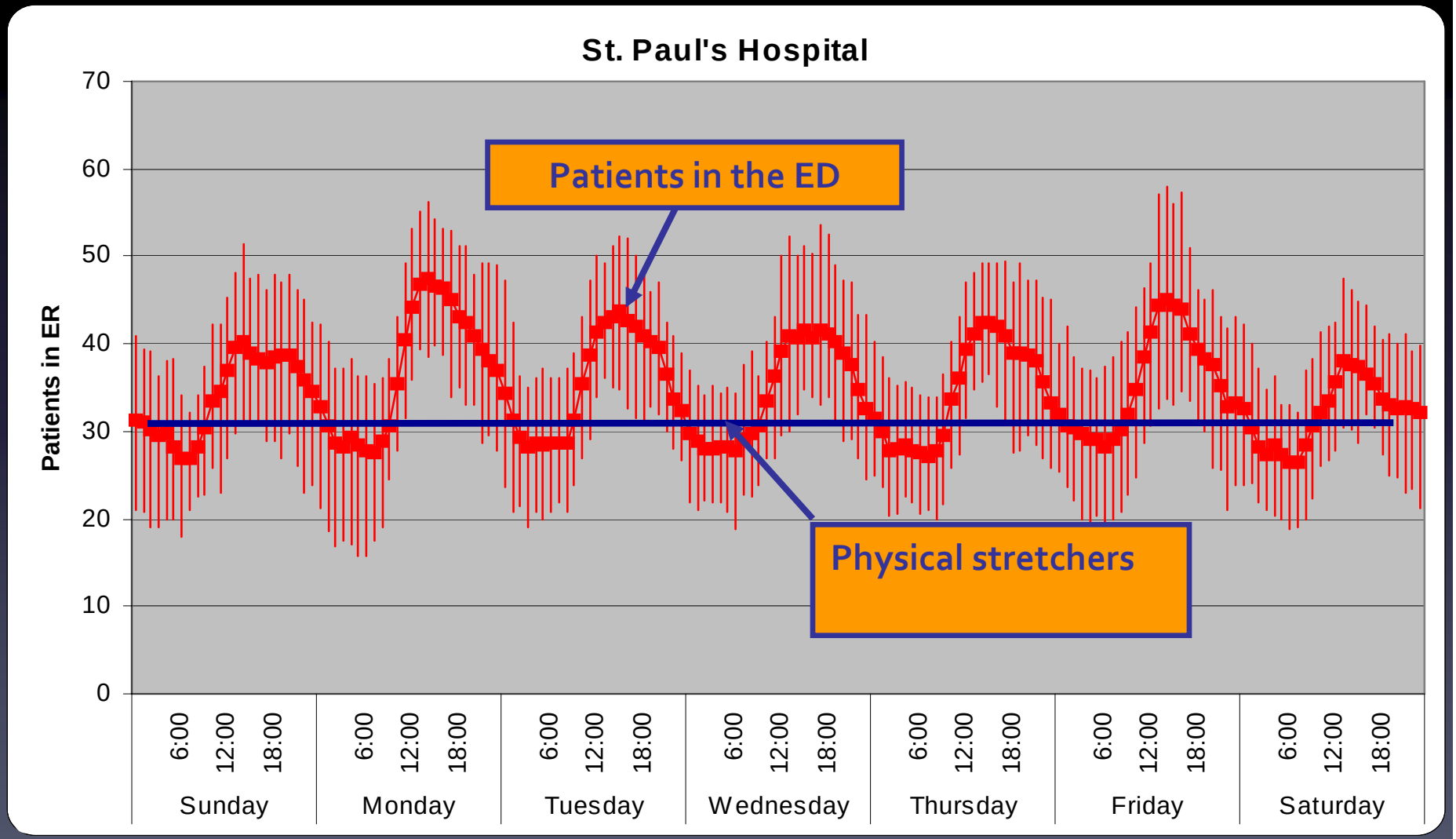
Match Resources to Need

Perverse allocation of resources

- Hallways and waiting rooms for seriously ill, undiagnosed untreated patients
- Beds, nurses and excellent care for stabilized patients who no longer require hospital-based care

The sickest patients (who need acute hospital-based care) should have priority for acute care spaces

#1 Problem: Compromised flow



Flow Models: “Push” or “Pull”

Pull System: (current)

-Pts wait outside. Providers ‘pull’ when ‘ready’

-Readiness is based on perceived capacity under preferred operating conditions – not on patient need

Provider-focused: Pts suffer the consequences of program shortfalls

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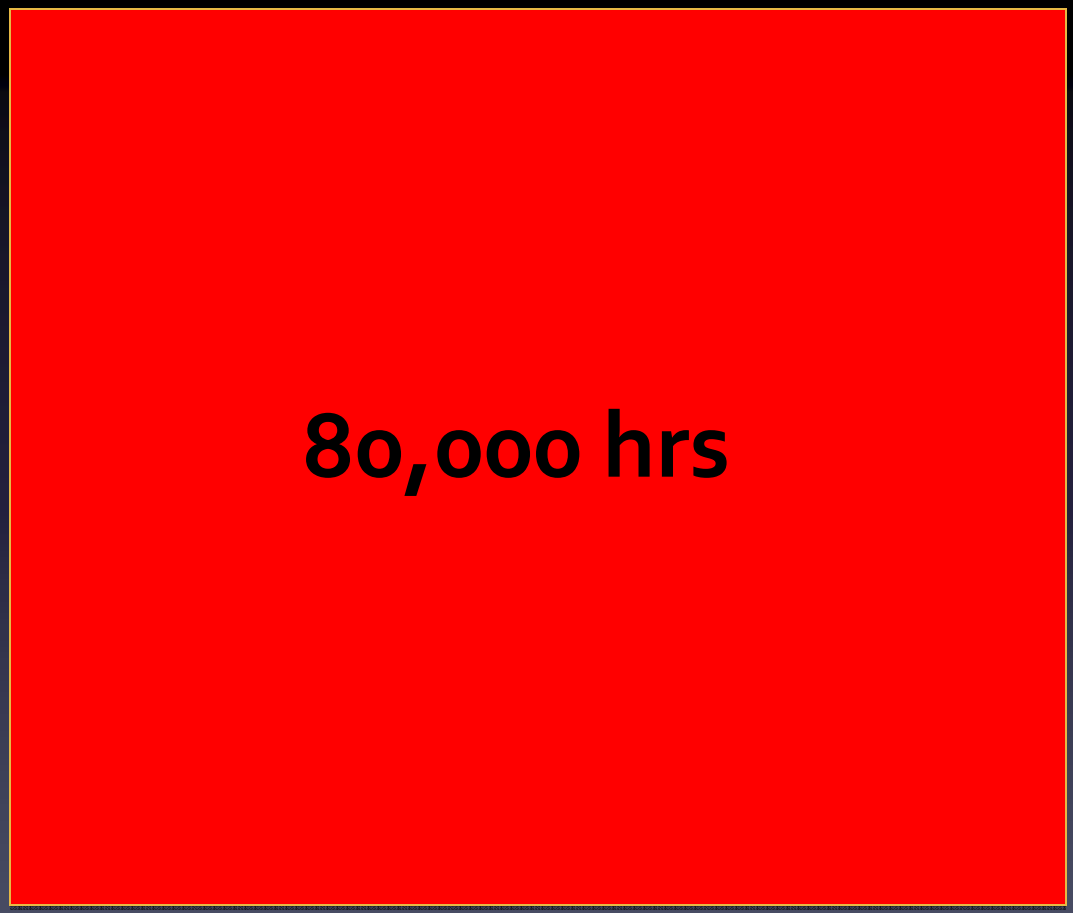
Push System: (Patient need drives flow)

-The patient becomes the accountability of the “right program” when they need that program’s care

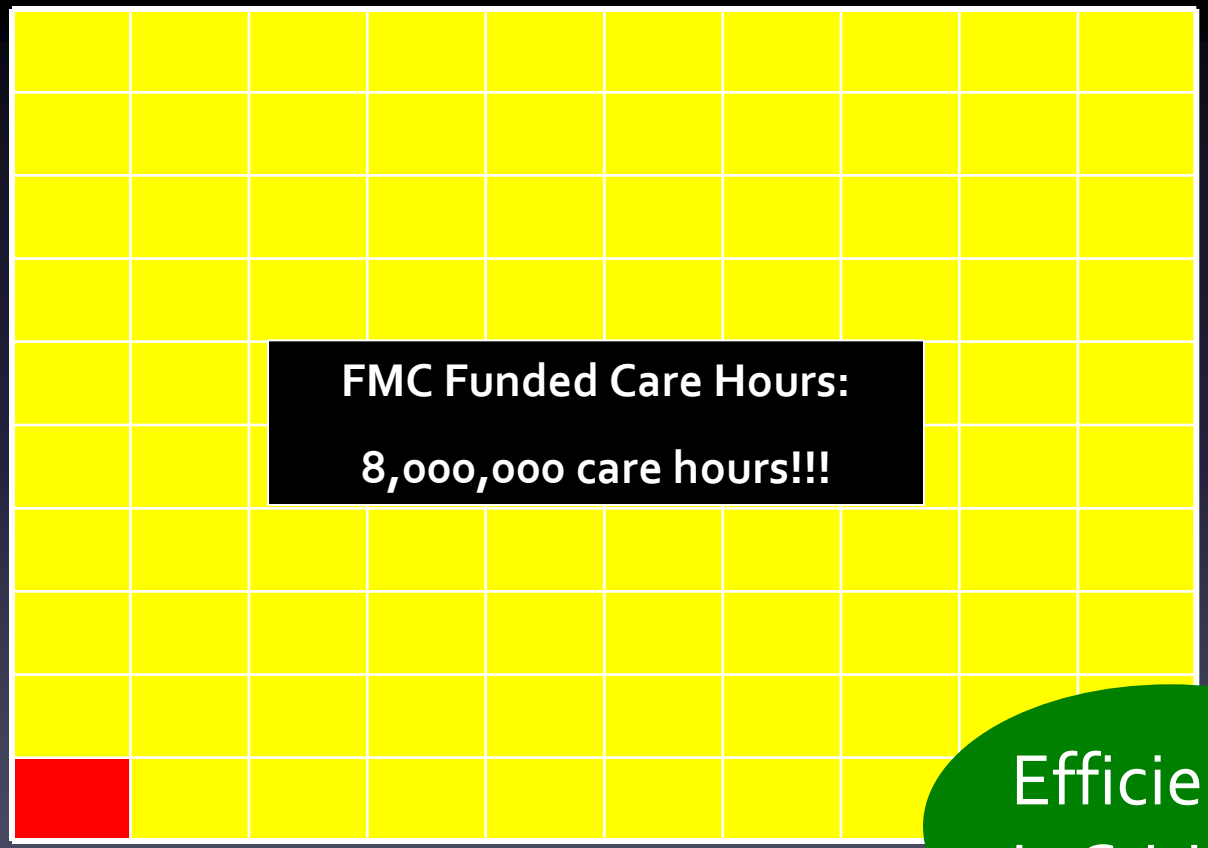
Patient-focused: Programs adapt to meet patient needs

Push systems provide evolutionary stress necessary to drive system change

How Big is the Problem? (ED Access Block at FMC)



How big is the solution? (Funded care hours at FMC)



ED Access Block:
80,000 hrs

Efficiency is Critical!

The Perfect Access Solution would

- Drive program **accountability** for patient care
- Increase **appropriateness:** sick pts in; stable pts through
- Reduce **risk**: Move sick patients out of hallways
- Enhance rapid **FLOW** during peak periods
- Be an evolutionary stressor to drive **efficiency**
- Be an **overcapacity plan** for high demand periods

Alberta Provincial Overcapacity Protocol

OCP simplified

ED Inflow:

1)Arriving CTAS 2/3 patients will move within 15/30 min into an ED acute care space.

2)If no ED space available, patients will move to an ED overcapacity or intake space so care can be initiated.

Hospital Inflow: If . . .

a)ED is overcapacity by 10%, and

b)35% of ED stretchers are blocked, and

c)arriving patient needs stretcher-based care

The most stable admitted patients go to OCP spaces on the most appropriate inpatient units

OCP Implementation Sites

Alberta
(Pop: 3,650,000)

Fort McMurray
(Pop: 62,000)

Grande Prairie
(Pop: 75,000)

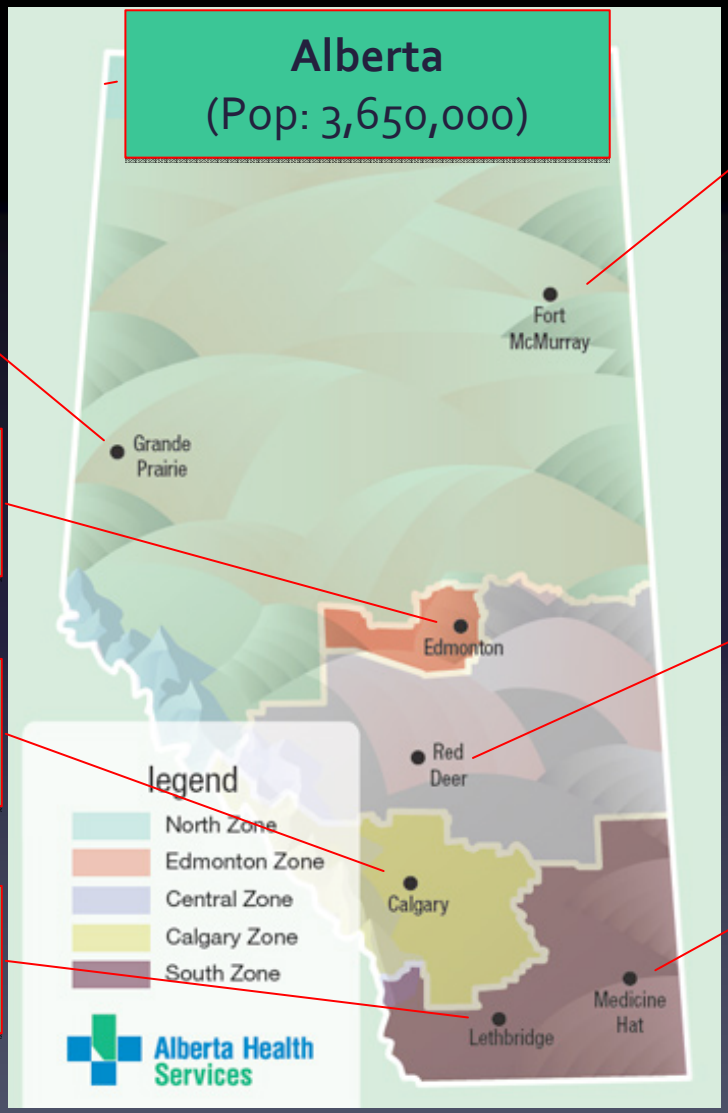
Edmonton
(Pop: 1,160,000)

Red Deer
(Pop: 92,000)

Calgary
(Pop: 1,220,000)

Medicine Hat
(Pop: 60,000)

Lethbridge
(Pop: 85,000)



Research Overview

Population: all adult ED patients in 14 urban or regional hospitals

Intervention: Post-OCP (Feb.1-Sep 30, 2011).

Control: Pre-OCP (Feb.1-Sep 30, 2010).

Outcome: ED LOS (ADM pts); # boarded patients; left without being seen (LWBS); patient satisfaction

Design: Before-after multi-center study.

Results

~1.2 Million patient visits studied

	Pre-OCP	Post-OCP
Volume	579,071	615,787
Admission rate	12.9%	13.1%
EMS arrival %	17.9%	18.3%
% CTAS 1-3	62.5%	63.2%
Hospital AvLOS (d)	7.0 d	6.8 d

Results

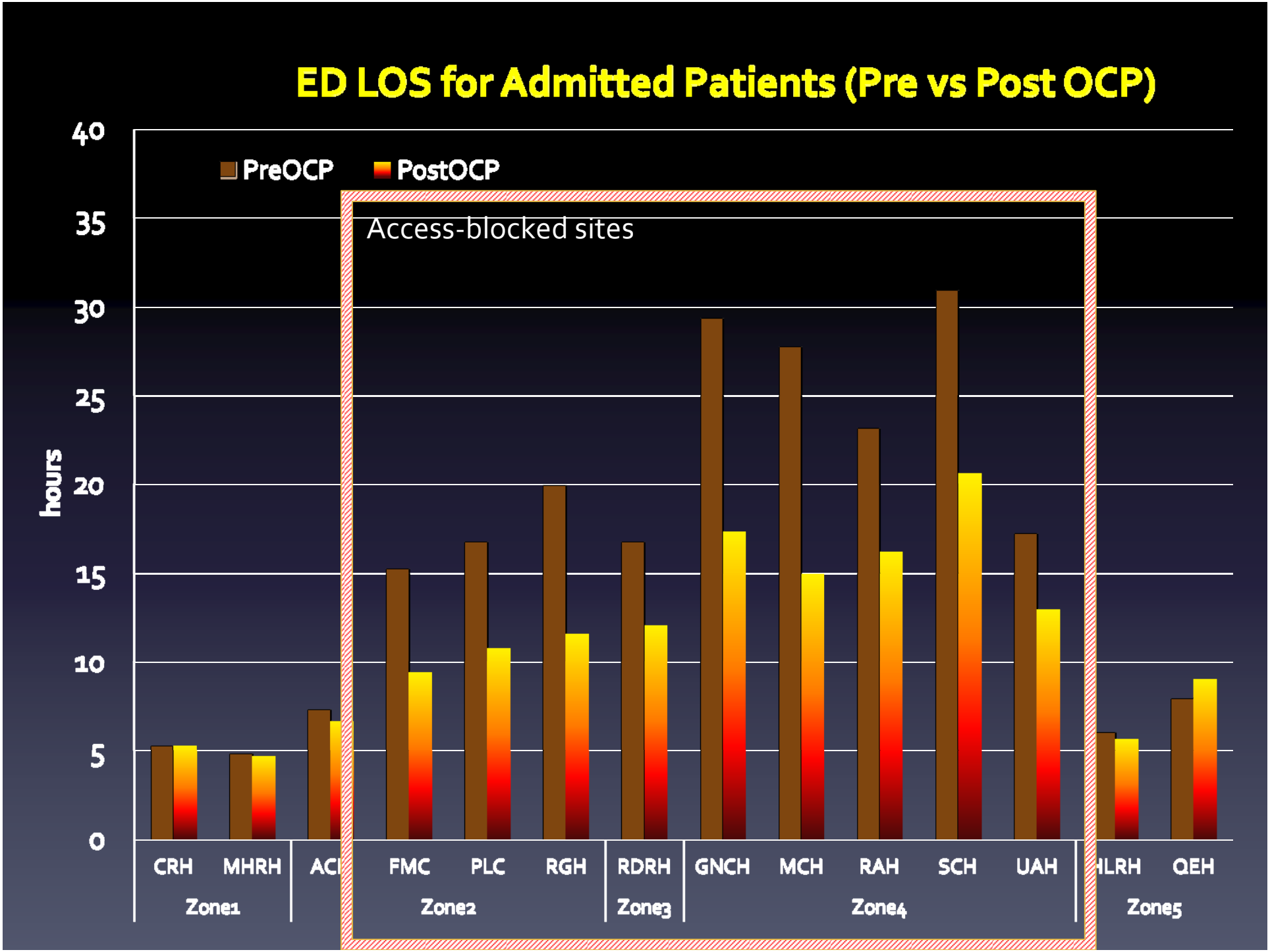
Primary outcomes:

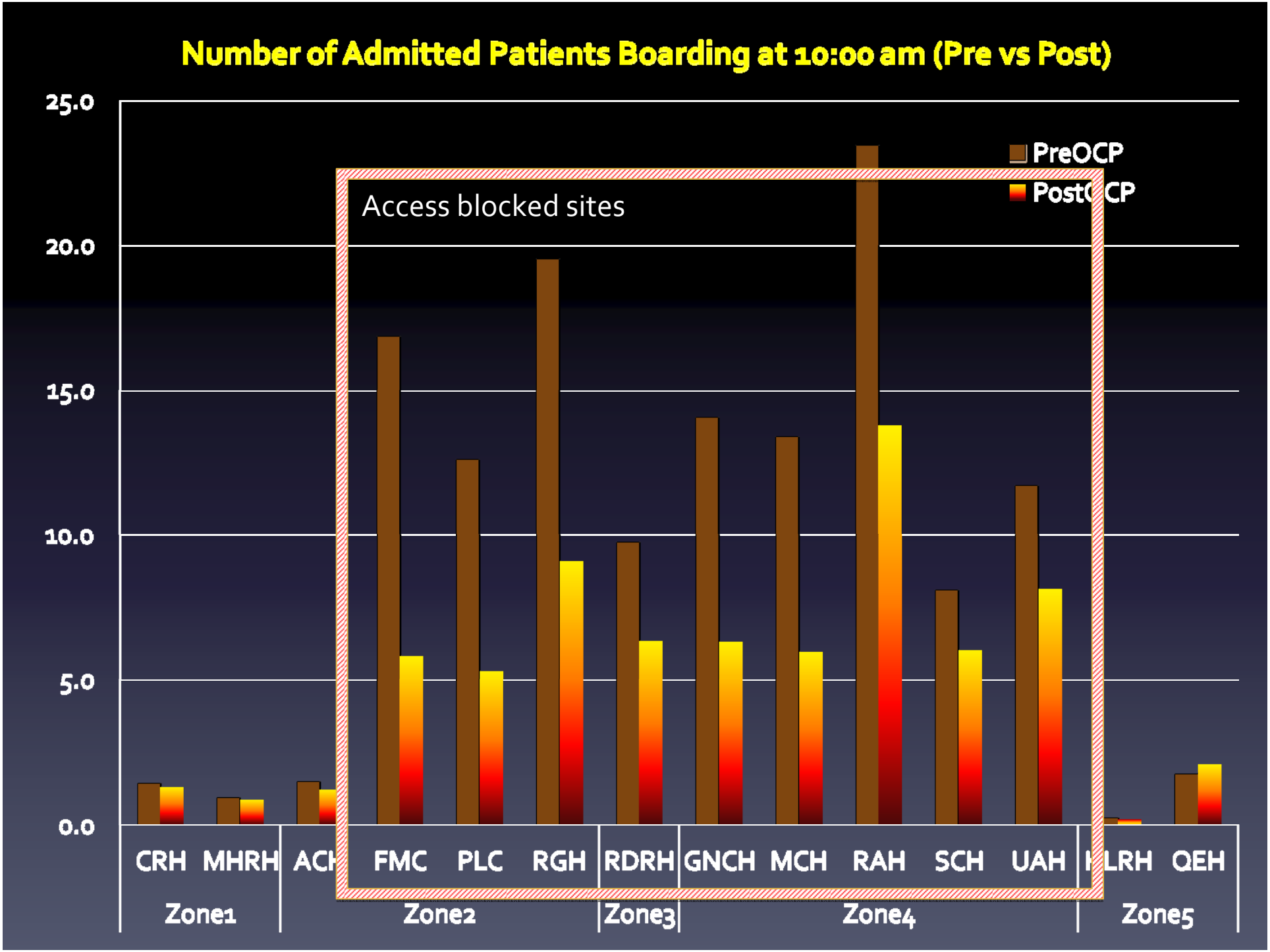
- Mean ED LOS (ADM pts) fell by 33% (17.2 to 11.6 hr.)
- Mean # of admitted pts at 10am fell by 46% (11.3 to 6.1)

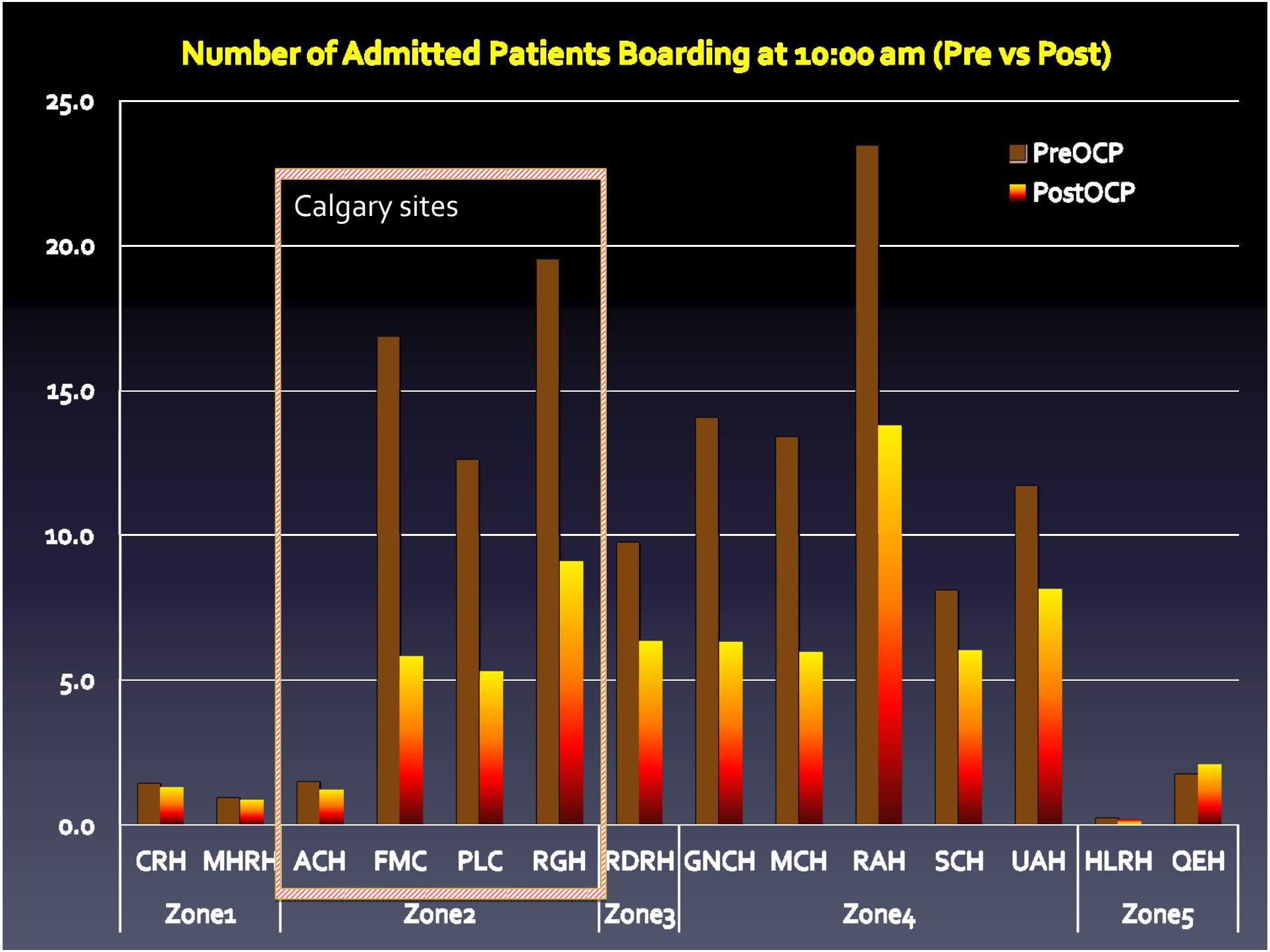
Secondary outcomes:

- Wait time to MD fell from 113.2 min to 99.3 min
- LWBS rate fell from 4.0% to 3.8%.
- OCP effects sustained over time; but varied by site

*All differences significant at $p<0.001$ (sample size)


ED LOS for Admitted Patients (Pre vs Post OCP)
PreOCP
PostOCP
Access-blocked sites
hours
40
35
30
25
20
15
10
5
0
CRH
MHRH
AC
FMC
PLC
RGH
RDRH
GNCH
MCH
RAH
SCH
UAH
HLRH
QEH
Zone1
Zone2
Zone3
Zone4
Zone5


Number of Admitted Patients Boarding at 10:00 am (Pre vs Post)
25.0
20.0
15.0
10.0
5.0
0.0
PreOCP
PostOCP
Access blocked sites
CRH
MHRH
ACH
FMC
PLC
RGH
RDRH
GNCH
MCH
RAH
SCH
UAH
LRH
QEH
Zone1
Zone2
Zone3
Zone4
Zone5


Number of Admitted Patients Boarding at 10:00 am (Pre vs Post)
25.0
20.0
15.0
10.0
5.0
0.0
PreOCP
PostOCP
Calgary sites
CRH
MHRH
ACH
FMC
PLC
RGH
RDRH
GNCH
MCH
RAH
SCH
UAH
HLRH
QEH
Zone1
Zone2
Zone3
Zone4
Zone5

Mean admitted patient ED LOS (at 9 sites with pre-existing access block)

	Admissions Pre OCP		Admissions Post OCP		Access benefit	
	N	Mean LOS	N	Mean LOS	Delta (hrs)	Stretcher Hrs
FMC	10976	15.2	12215	9.4	5.8	70,608
PLC	6904	16.7	7315	10.7	5.9	43,419
RGH	8435	19.9	9505	11.5	8.3	79,258
RDRH	5248	16.7	5588	12.0	4.7	26,139
GNCH	4060	29.3	4349	17.3	12.1	52,518
MCH	3497	27.7	3718	14.9	12.8	47,469
RAH	8463	23.1	9187	16.1	7.0	63,981
SCH	1949	30.9	2249	20.5	10.4	23,289
UAH	11403	17.2	11981	12.9	4.3	51,189
All	**60,935**	**21.8**	**66,107**	**13.9**	**7.9**	**522,741 ***

*Stretcher hours freed up for ED inflow = ΔLOS (per admitted pt) x Number of admissions

Mean N of admitted patients held (at 9 sites with pre-existing access block)				
	Pre-OCP	**Post-OCP**	**Delta**	**%**
FMC	16.8	5.8	11.0	-65.6%
PLC	12.6	5.2	7.3	-58.3%
RGH	19.5	9.1	10.4	-53.5%
RDRH	9.7	6.3	3.4	-35.2%
GNCH	14.0	6.3	7.7	-55.2%
MCH	13.4	5.9	7.4	-55.6%
RAH	23.4	13.7	9.7	-41.3%
SCH	8.1	6.0	2.1	-25.8%
UAH	11.7	8.1	3.6	-30.6%
All	**14.4**	**7.4**	**7.0**	**-48.6%**

Discussion

- All flow-access measures improved after OCP
- Major benefit at sites with pre-existing access block:
  - 7.9 hr reduction in ADM LOS (range 4.3-12.8)
  - 48.6% reduction in boarded pts (range 26% - 66%)
  - 523,000 ED stretcher hours freed up for incoming patients (range 23,000-79,000 hours by site)
  - ~10% increase in ED volumes (?improved access)
- No OCP effect at sites already meeting 8-hour target
- No increase in bounce-back readmission
- Modest improvement in patient experience

OCP Mechanism of action
NOT: ‘sharing the pain’

- Drives appropriateness: pushes unstabilized acutely ill pts into hospital (and others out?)
- A plan for when there are more pts than beds
- Opens the door: right pt to right place (faster)
- Drives flow
- **An evolutionary stressor** (efficiency / LOS?)

Demand-driven OCP plans:

- address actual patient need
- Balance necessary overcapacity care across the institution, moving more pts to the “right” place.

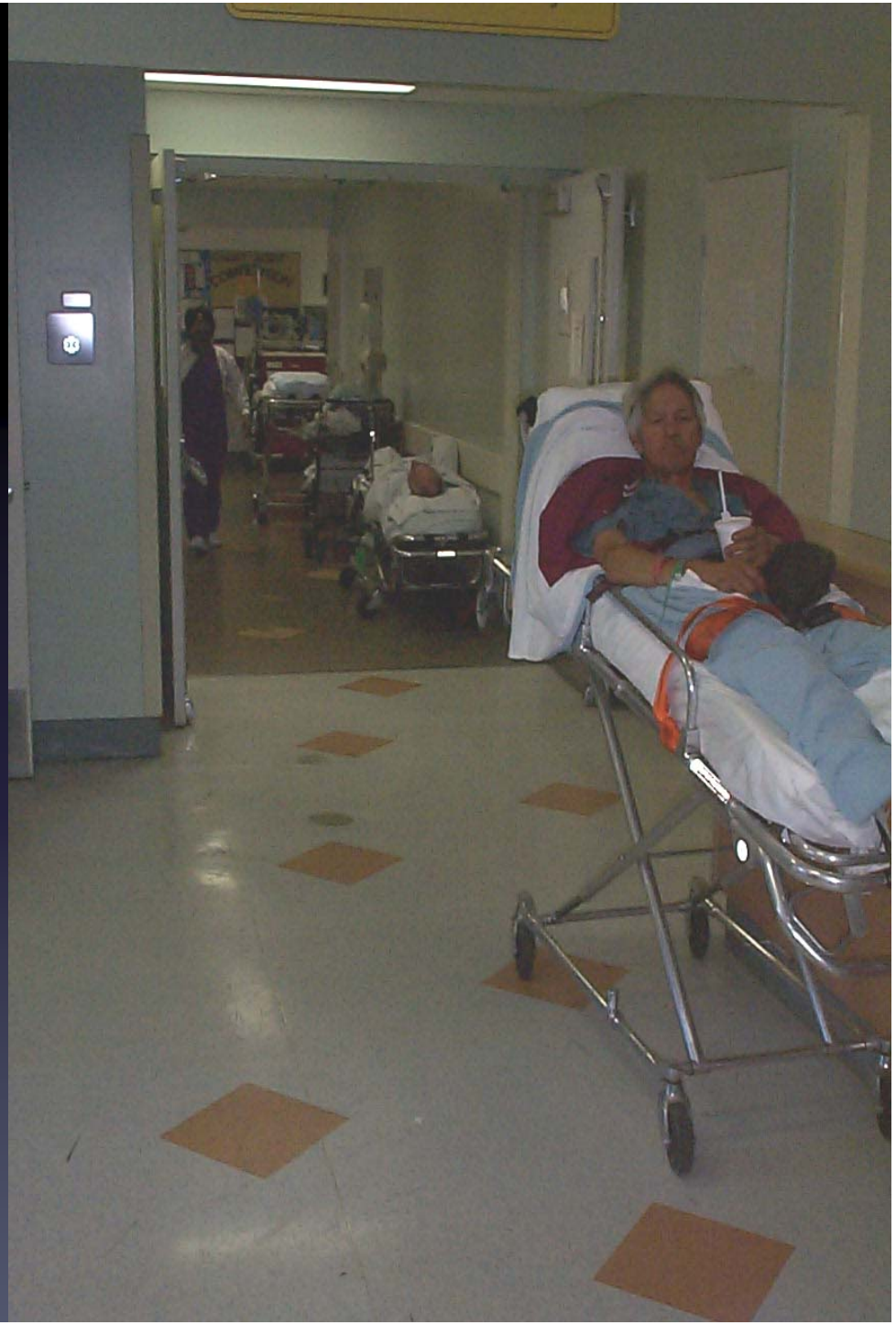
Supply-driven OCP plans:

- often compromise flow
- limit patient care and exclude patients in need

Five philosophical tenets of an effective OCP

1. The same care standards apply throughout the hospital, from patient arrival to discharge
2. Overcrowding (access block) is addressed by the entire system
3. Best outcomes and efficiencies occur when patients are matched to the right program and provider ASAP
4. All programs have important care missions and require reasonable access to their resources in order to provide acceptable care and meet performance targets
5. Hallways are undesirable locations for patient care

Questions?



Study Sites

	Name	Location	Zone	Type
CRH	Chinook Regional Hospital	Lethbridge	1	Regional
MHRH	Medicine Hat Regional Hospital	Medicine Hat	1	Regional
ACH	Alberta Children's Hospital	Calgary	2	Pediatric
FMC	Foothills Medical Centre	Calgary	2	Tertiary
PLC	Peter Lougheed Centre	Calgary	2	Community
RGH	Rockyview General Hospital	Calgary	2	Community
RDRH	Red Deer Regional Hospital	Red Deer	3	Regional
GNCH	Grey Nuns Community Hospital	Edmonton	4	Community
MCH	Misericordia Community Hospital	Edmonton	4	Community
RAH	Royal Alexandra Hospital	Edmonton	4	Tertiary
UAH	University of Alberta Hospital	Edmonton	4	Tertiary
SCH	Sturgeon Community Hospital	St. Albert	4	Community
NLRH	Northern Lights Regional	Ft. McMurray	5	Regional
QEH	Queen Elizabeth II Hospital	Grande Prairie	5	Community

Background: OCP Implementation

May-Aug, 2010: Presentations to medical dept heads, admin leaders, access committees, senior executives

Jul-Sep 2010: Proposal percolates into admin hierarchy

Nov 2010: AMA Section of EM releases details re 200 adverse outcomes in ED waiting rooms.

Nov-Dec 2010: Media Frenzy. CEO, board and Sr. Leadership move into damage control mode.

Dec 2010: Mandate to implement OCP within 30 days

Build it and they will come?