Impact of waiting room times on patient satisfaction in an era of emergency department (ED) overcrowding

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Background

Institute of Medicine: Committee on the Future of Emergency Care in the United States Health System

- "Future of Emergency Care" Series (published 2006)
  - 26% increase in ED visits from 1993-2003
  - Decline in the total # of EDs (425) and inpatient hospital beds (~200,000)
  - Overcrowding in EDs as a potential stress inducer on both patients and providers

http://www.iom.edu/CMS/3809/16107.aspx

Measurement of ED Patient Satisfaction

- Commercial Instruments:
  - Often focus on patients who have already been discharged
  - Data collected via mail-back survey
  - Limited ED specific literature on these instruments

- ED specific literature
  - Scarce literature in the public hospital setting
  - High variation in study design / methods of data collection
    - Multiple instruments
    - Multiple modes of administration

Measurement of ED Patient Satisfaction (cont)

There is no readily available, validated instrument to assess patient satisfaction in the ED setting

- Hospital Consumer Assessment of Healthcare Providers & Systems (**H-CAHPS**)
  - Inpatient survey developed since 2002 by various agencies including the Center for Medicare / Medicaid Services (CMS) and the Agency for Healthcare Research and Quality (AHRQ)
- Patient Satisfaction Questionnaire (**PSQ-18**)
  - Outpatient survey developed by Ron Hayes and available at www.rand.org

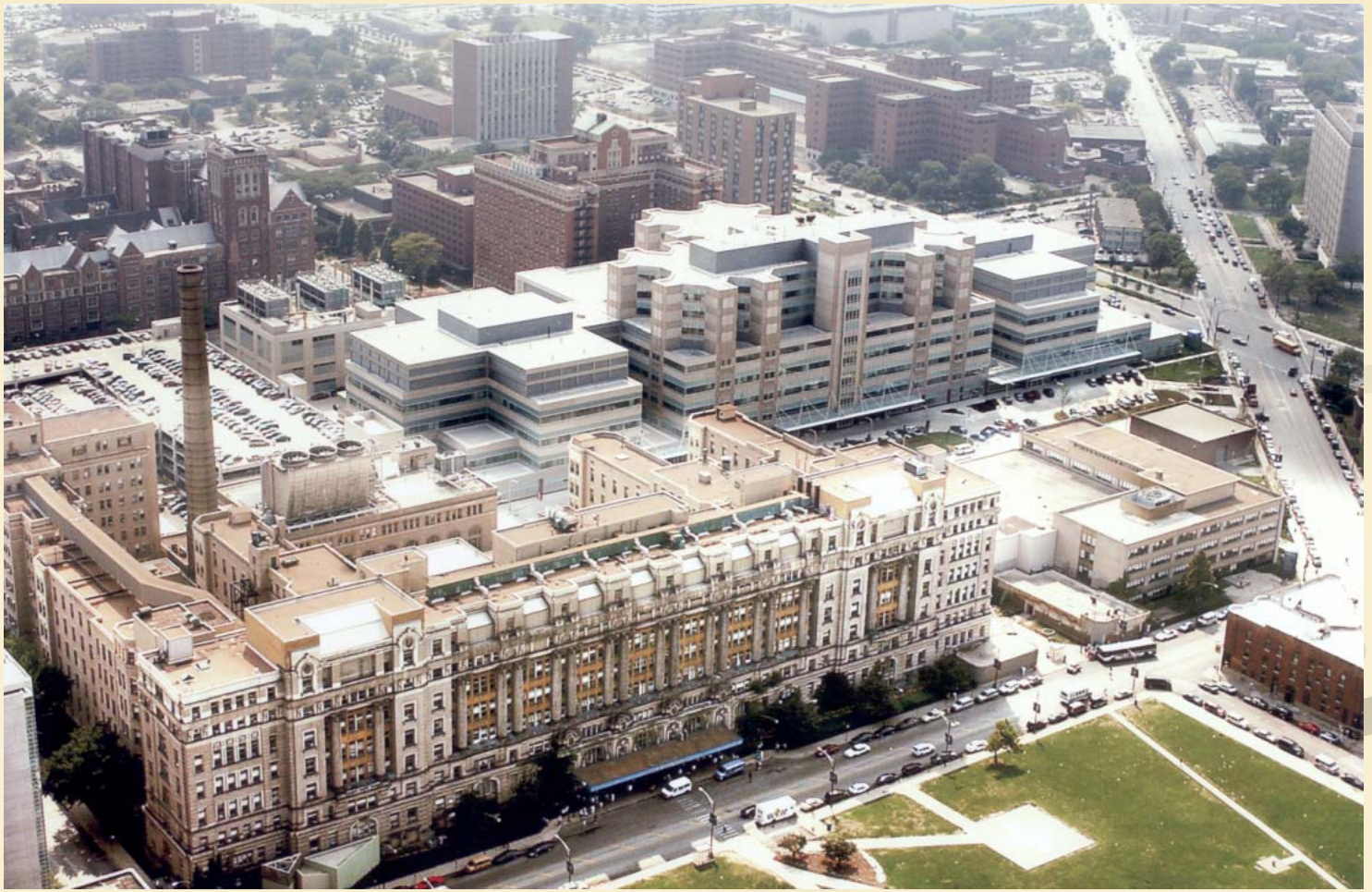
Objectives

1) To assess the effect of ED waiting room delays on patient satisfaction in a public hospital setting

2) To utilize instruments that have displayed consistent validity in other patient settings

Setting

- A large, urban public hospital with 20,000 hospital admissions/year and 500,000 clinic visits per year.



Adult ED

- 125,000 visits per year
  - Males: 55% of the ED population
  - African-American: 51% of the ED population
  - Age-range:

18-24	13.5%
25-44	41.5%
45-64	37.1%
>64	7.9%

Setting

- Beds / Patient Locations within treatment area
  - 53 patient rooms with beds
  - 9 chairs in asthma room
  - 25 hallway stations

Survey Methodology

- Use of previously validated non-proprietary instruments
  a) Hospital Consumer Assessment of Healthcare Providers & Systems (**H-CAHPS**)[1,2]

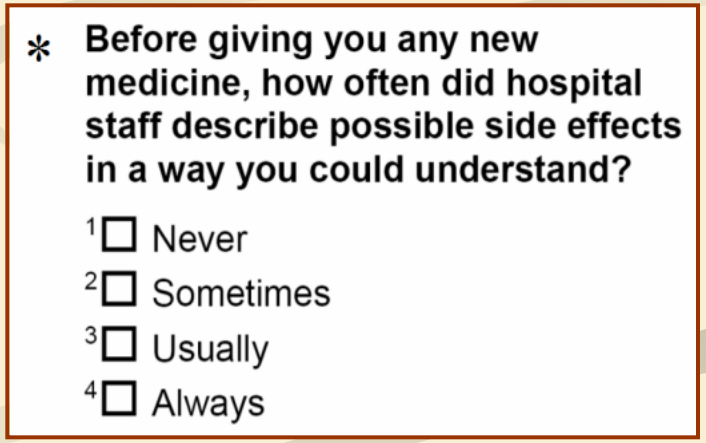
  b) Patient Satisfaction Questionnaire (**PSQ-18**) [3,4,5]

1 http://www.cms.hhs.gov/HospitalQualityInits/30_HospitalHCAHPS.asp
2 https://www.cahps.**ahrq**.gov/content/products/HOSP/PROD_HOSP_Intro.asp
3 http://www.rand.org/health/surveys_tools/psq/index.html
4 Ware JE, Jr., Snyder MK, Wright WR, Davies AR. Defining and measuring patient satisfaction with medical care. *Eval Program Plann* 1983; 6(3-4):247-263
5 Marshall GNHRD. The Patient Satisfaction Questionaire Short-Form (PSQ-18). 1994. Santa Monica, CA, RAND.

H-CAHPS

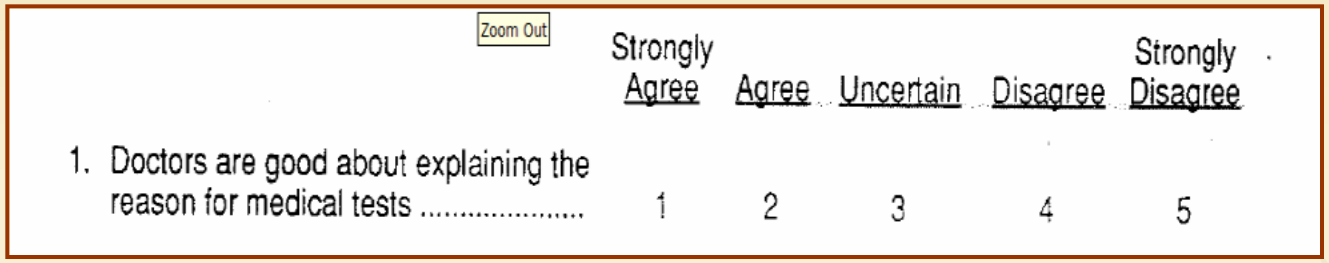
- Demographic information
- Global satisfaction
  - **ED Rating (1-10)**
  - **Recommend ED to family / friends?**

- Subscales:
  - Communication with doctors
  - Communication with nurses
  - Communication about medicines*
  - Responsiveness of staff
  - Hospital environment
  - Pain management.



PSQ-18

- Utilizes a 5-response answer set



	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. Doctors are good about explaining the reason for medical tests	1	2	3	4	5

- Subscales:
  - **General Satisfaction**
  - Technical Quality
  - Interpersonal Manner
  - Communication
  - Financial Aspects
  - Time Spent with Doctor
  - Accessibility & Convenience of Medical Care

Survey Adjustments

– Slight modifications made for the ED setting

– Example: H-CAHPS question # 4

■ "During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?"

► "During this emergency department visit, after you asked for assistance, how often did you get help as soon as you wanted it?"

Additional Data Collected

Collected Prior to Interview:

- Age
- Gender
- Triage Severity Score (1-5)
- Total length of stay (LOS)
- Total waiting room time
- Interview Privacy (Presence of family/friends)
- Site of Interview (Hallway vs. Room)
- Stage of Care (most results/plans made versus awaiting tests)
- Likely Disposition (Admit; Discharge; Observation)

Methods

Data Collection: The Interview

- All respondents interviewed by a medically trained individual who is not a hospital employee

- **Exclusion criteria:**
  1. Non-English speaking
  2. Cognitively impaired
  3. “Too Ill”

Methods

Data Collection Shifts

TIME OF SHIFT	MON	TUE	WED	THU	FRI	SAT	SUN	
4a-8a	1	1	0	2	1	0	1	6
8a-Noon	1	2	2	1	3	2	1	12
Noon-4p	3	2	3	5	1	1	1	16
4p-8p	3	2	2	1	2	1	1	12
8p-Mid	3	2	4	2	1	1	1	14
Midnight-4a	0	3	2	1	1	1	0	8
	11	12	13	12	9	6	5	**68 total**

- Systematic sampling
  - Approximate 2:1 ratio of day shifts to night shifts
  - Shift Length: 4-hours
  - Shifts were worked at all hours, 7 days/week
  - Total 68 four-hour shifts: 7/20/06 - 12/21/06

Results

- 455 patients met inclusion criteria
  - Completed Questionnaires: 387 (85.1%)
  - Interviewed late in care cycle: 299 (77.3%)

Interviewed vs. Not Interviewed

- No statistical difference between patients that were interviewed and those not interviewed with regard to:
  - AGE GROUP
  - GENDER
  - SEVERITY SCORE
  - STAGE OF CARE.

- PRIVACY:

  Patients who did not have friends/family present in the room were more likely to be interviewed ($p < 0.05$)

- PATIENT DISPOSITION:

  Patients who were going to be discharged were more likely to be interviewed ($p < 0.0001$)

Results – Global Satisfaction

- H-CAHPS
  - 30.8% of patients gave a top score of "10" when asked to rate this emergency department (63.8% gave a high score of 8-10)
  - 65.9% of patients answered "Definitely Yes" when asked "Would you recommend this ED to your friends and family?"
- PSQ-18
  - 61.9% of patients gave a positive score on the general satisfaction scale

Time Factors

- Total Length of Stay (LOS)
  - Range = 0:36 to 36:57
  - Average = 8 hours, 41 minutes
- Actual Waiting Room Time
  - Range = 0:00 to 18:22
  - Average = 3 hours, 56 minutes
- Perceived Waiting Room Time
  - Average = 3 hours, 53 minutes

**Patients in this public hospital emergency department were accurately able to estimate their waiting room time:

- Perceived vs. Actual wait time (r=0.80)

Time Factors vs. Overall ED Rating

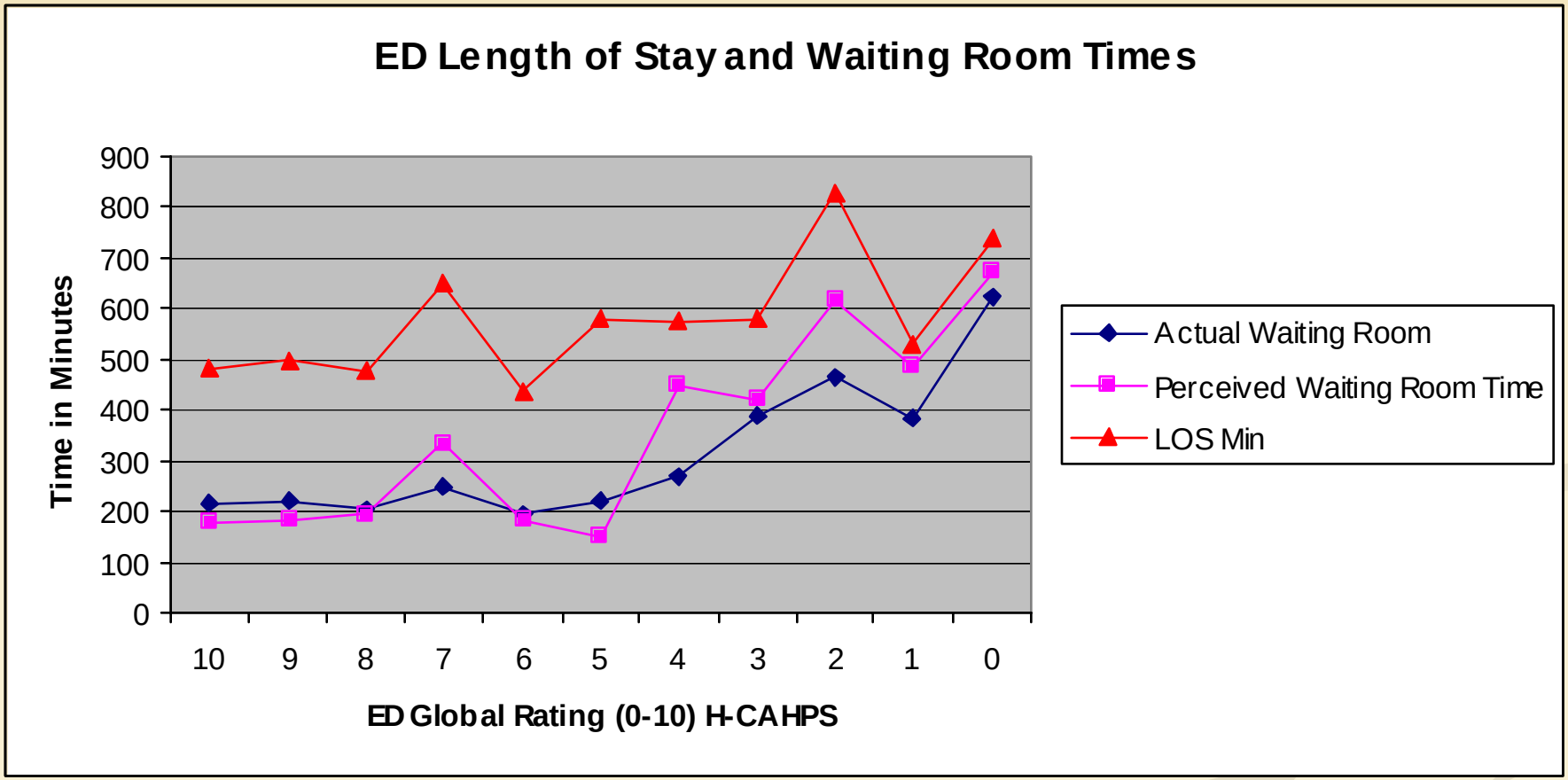
H-CAHPS (1-10) Rating vs…	r
Total LOS	-0.128
Actual Waiting Time	-0.228
Perceived Waiting Time	-0.31

Time Factors vs. Willingness to recommend this ED to others

H-CAHPS "Recommend this ED to others" vs…	r
Total LOS	-0.122
Actual Waiting Time	-0.279
Perceived Waiting Time	-0.331

Time Factors vs. PSQ-18 Satisfaction

PSQ-18 general satisfaction rating vs…	r
Total LOS	-0.147
Actual Waiting Time	-0.149
Perceived Waiting Time	-0.199



H-CAHPS Subscales (Composite % of those giving the highest rating of "4")	**%**	**95% CI**
- RN Communication	78.2	73.9 – 82.5
- MD Communication	87.0	83.5 – 90.5
- Staff Responsiveness	70.4	65.7 – 75.1
- Pain Control	50.4	45.2 – 55.6
- Communication on New RX	64.7	59.8 – 69.6
- ED Environment	59.4	54.3 – 64.5

H-CAHPS Subscales (Composite % of those giving the lowest rating of "1")	**%**
- RN Communication	2.5
- MD Communication	1.3
- Staff Responsiveness	9.5
- Pain Control	14.4
- Communication on New RX	33.3
- ED Environment	8.7

PSQ-18 Subscales

**FINANCIAL ASPECTS	N (%)	95% CI
4.5 – 5.0 (most satisfied)	50 (13.6)	10.0 – 17.2
3.5 – 4.4	182 (49.6)	44.4 – 54.8
2.5 – 3.4	104 (28.3)	23.6 – 33.0
1.5 – 2.4	15 (4.1)	0 – 1.1
1.0 – 1.4 (least satisfied)	1 (0.3)	0 – 0.9

PSQ-18 Subscales

**ACCESIBILITY & CONVENIENCE	N (%)	95% CI
4.5 – 5.0 (most satisfied)	10 (2.7)	1.0 – 4.4
3.5 – 4.4	143 (39.0)	33.9 – 44.1
2.5 – 3.4	158 (43.1)	37.9 – 48.3
1.5 – 2.4	39 (10.6)	7.4 – 13.8
1.0 – 1.4 (least satisfied)	3 (0.8)	0 – 1.7

Conclusions

- Gender, triage severity score, admission status, privacy of the interview or number of visits to this ED in the past year did not correspond to overall satisfaction scores
- Patients in the urban, public hospital setting are quite satisfied with their ED experience

Conclusions

- H-CAHPS and PSQ ratings indicate that longer LOS and waiting room time each correlate with decreased satisfaction

Questions?

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Correlation of Overall Satisfaction Score between H-CAHPS & PSQ-18

PSQ-18 General Satisfaction	N (%)	H-CAHPS ED Rating (0-10)
4.5 - 5.0 (most satisfied)	51 (14.4)	8.9 (8.5 – 9.4)
3.5 – 4.4	176 (49.7)	8.4 (8.1 – 8.7)
2.5 – 3.4	99 (28.0)	7.0 (6.5 – 7.4)
1.5 – 2.4	26 (7.3)	5.2 (4.2 – 6.2)
1.0 – 1.4 (least satisfied)	2 (0.6)	1.0 (0 – 13.7)
Spearman Coefficient		0.483

Correlation of Overall Satisfaction Score between H-CAHPS & PSQ-18 (contin.)

		H-CAHPS ED Rating (0-10)	PSQ-18 General Satisfaction
H-CAHPS Would you Recommend this ED?	N (%)	Mean (95% CI)	Mean (95% CI)
Definitely Yes	252 (67.0)	8.7 (8.5 – 8.9)	3.8 (3.7 – 3.9)
Probably Yes	74 (20.5)	7.4 (7.0 – 7.8)	3.4 (3.2 – 3.6)
Probably No	25 (6.9)	4.2 (3.3 – 5.1)	2.9 (2.5 – 3.3)
Definitely No	20 (5.5)	3.5 (2.3 – (4.6)	2.1 (1.8 – 2.5)
Spearman Coefficient		0.565	0.399

- Correlation is suggested between the H-CAHPS and PSQ-18 surveys
- Responses on the H-CAHPS consistently reported greater patient satisfaction.
- Global scores on the H-CAHPS and PSQ-18 correlated with the others with the strongest correlation between the H-CAHPS overall 0-10 rating and the willingness to recommend to family and friends (Spearman coefficient=0.56).

PSQ-18 Subscales

**GENERAL SATISFACTION	N (%)	95% CI
4.5 – 5.0 (most satisfied)	51 (14.4)	10.7 – 18.1
3.5 – 4.4	176 (49.7)	44.7 – 54.9
2.5 – 3.4	99 (28.0)	23.3 – 32.7
1.5 – 2.4	26 (7.3)	4.6 – 10.0
1.0 – 1.4 (least satisfied)	2 (0.6)	0.0 – 1.4

**TECHNICAL QUALITY	N (%)	95% CI
4.5 – 5.0 (most satisfied)	49 (13.4)	9.9 – 16.9
3.5 – 4.4	238 (64.9)	59.9 – 69.9
2.5 – 3.4	61 (16.6)	12.7 – 20.5
1.5 – 2.4	7 (1.9)	0.5 – 3.3
1.0 – 1.4 (least satisfied)	0	0.0 – 1.4

PSQ-18 Subscales (contin.)

**INTERPERSONAL MANNER	N (%)	95% CI
4.5 – 5.0 (most satisfied)	82 (22.3)	18.0 – 26.6
3.5 – 4.4	222 (60.5)	55.4 – 65.6
2.5 – 3.4	46 (12.5)	9.0 – 16.0
1.5 – 2.4	3 (0.8)	5.2 – 10.8
1.0 – 1.4 (least satisfied)	0	0.0 – 1.4

**COMMUNICATION	N (%)	95% CI
4.5 – 5.0 (most satisfied)	115 (31.3)	26.5 – 36.1
3.5 – 4.4	197 (53.7)	48.5 – 58.9
2.5 – 3.4	38 (10.4)	7.2 – 13.6
1.5 – 2.4	4 (1.1)	0 – 2.2
1.0 – 1.4 (least satisfied)	2 (0.5)	0 – 1.2

PSQ-18 Subscales

**TIME SPENT w/ DOCTOR	N (%)	95% CI
4.5 – 5.0 (most satisfied)	31 (8.4)	5.5 – 11.3
3.5 – 4.4	208 (56.7)	51.5 – 61.9
2.5 – 3.4	85 (23.2)	18.8 – 27.6
1.5 – 2.4	28 (7.6)	4.8 – 10.4
1.0 – 1.4 (least satisfied)	1 (0.3)	0 – 0.9

**FINANCIAL ASPECTS	N (%)	95% CI
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PSQ-18 Subscales cont.

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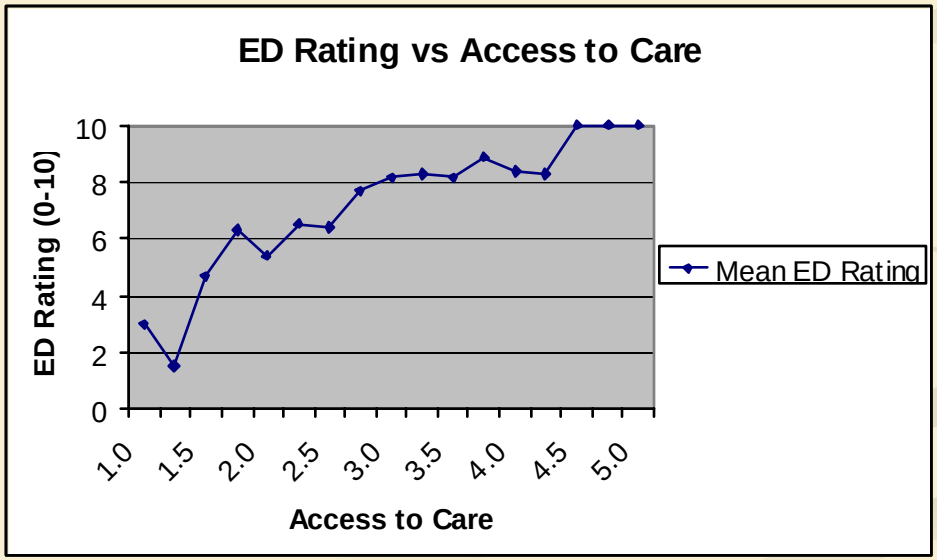

Survey Adjustments

– Slight modifications made for the ED setting

– Example: HCAHPS question # 4

■ "During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?"

► "During this emergency department visit, after you asked for assistance, how often did you get help as soon as you wanted it?"

– Example: PSQ-18 question # 4

■ "I think my doctor's office has everything needed to provide complete medical care."

► "I think this emergency department has everything needed to provide complete medical care."

Methods

Data Collection: The Interview

- All respondents interviewed by a medically trained individual who is not a hospital employee
- **Each ED station (including all patient rooms, hallway beds) was assigned a number**
- **Interviewer guided by a randomly generated number list:**
  - **If the indicated slot was vacant, a note was made and the interviewer moved on the next number**
- Interviewer guided by a randomly generated number list:
  - If the indicated slot was vacant, a note was made and the interviewer moved on the next number
  - Excluded were:
    1. Non-English speaking patients
    2. Cognitively impaired patients incapable of completed interviewed
    3. Patients otherwise thought to be “Too Ill”

Results

- 1093 locations randomly approached
  - Location occupied by patient: 580 (53.1%)
  - Location vacant or occupied by a patient already approached earlier during the shift: 513 (46.9%)
- 455 patients met inclusion criteria
  - Completed Questionnaires: 387 (85.1%)
  - Interviewed late in care cycle: 299 (77.3%)