

Using Performance Measures to Drive Improvement in Pediatric Emergency Care Webcast 11/2/2010

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Special Thanks

- **HRSA/MCHB EMSC program**
- **Pediatric Emergency Care Applied Research Network (PECARN)**
- **Investigative Team**
 - **Elizabeth Alpern, Jim Chamberlain, Rich Ruddy, Kathy Shaw, Marc Gorelick and Kartik Varadarajan**
- **Expert Panel Members**
- **EMSC Stakeholders**



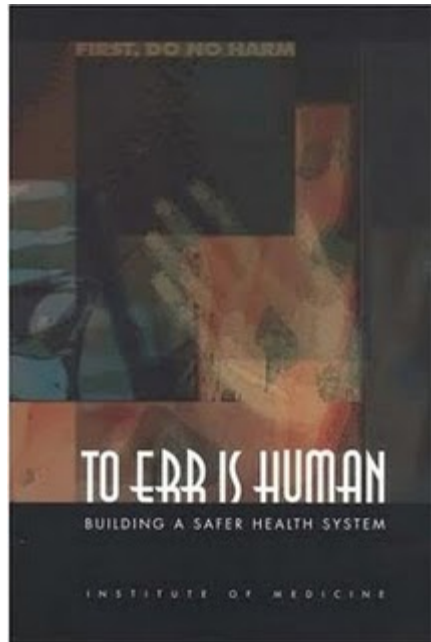
Agenda

- Importance and relevance of performance measurement in pediatric emergency care
- Use of a consensus development process to define a balanced report card for pediatric emergency care
- Integration of performance measurement into the electronic medical record
- Examples of how measures have been used to improve pediatric emergency care
 - Pain assessment and management
 - Marc Gorelick, Children's Hospital of Wisconsin
 - Effective treatment of pediatric asthma exacerbations
 - Kathy Shaw, The Children's Hospital of Philadelphia
 - Timely antibiotic administration for children with fever, neutropenia and central lines
 - Stephanie Kennebeck, Cincinnati Children's Hospital Medical Center

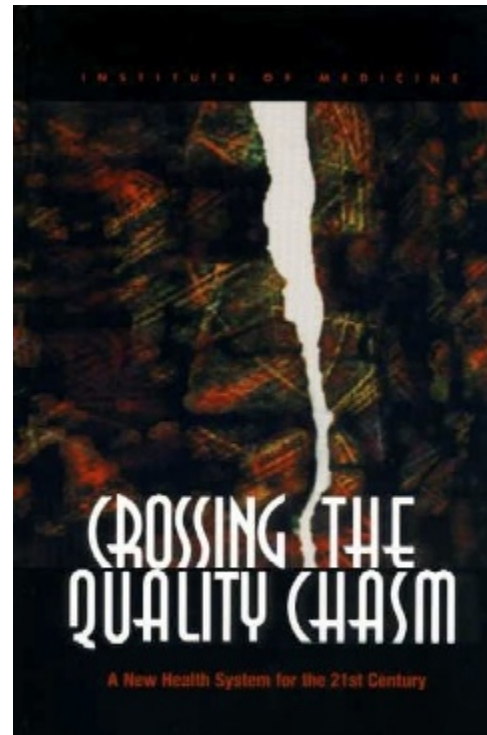
Why Measure Performance?

- **Improve, Innovate**
 - **Health and Healthcare**
 - For patients and populations
 - Within one ED or with one practitioner
 - Within networks of EDs or health systems
- **Inform**
 - **Transparency, consumer decision-making**
 - **Regionalization of care**
- **Incentivize**
 - **Pay for performance**
 - **National rankings**

Motivators: IOM Reports



1999

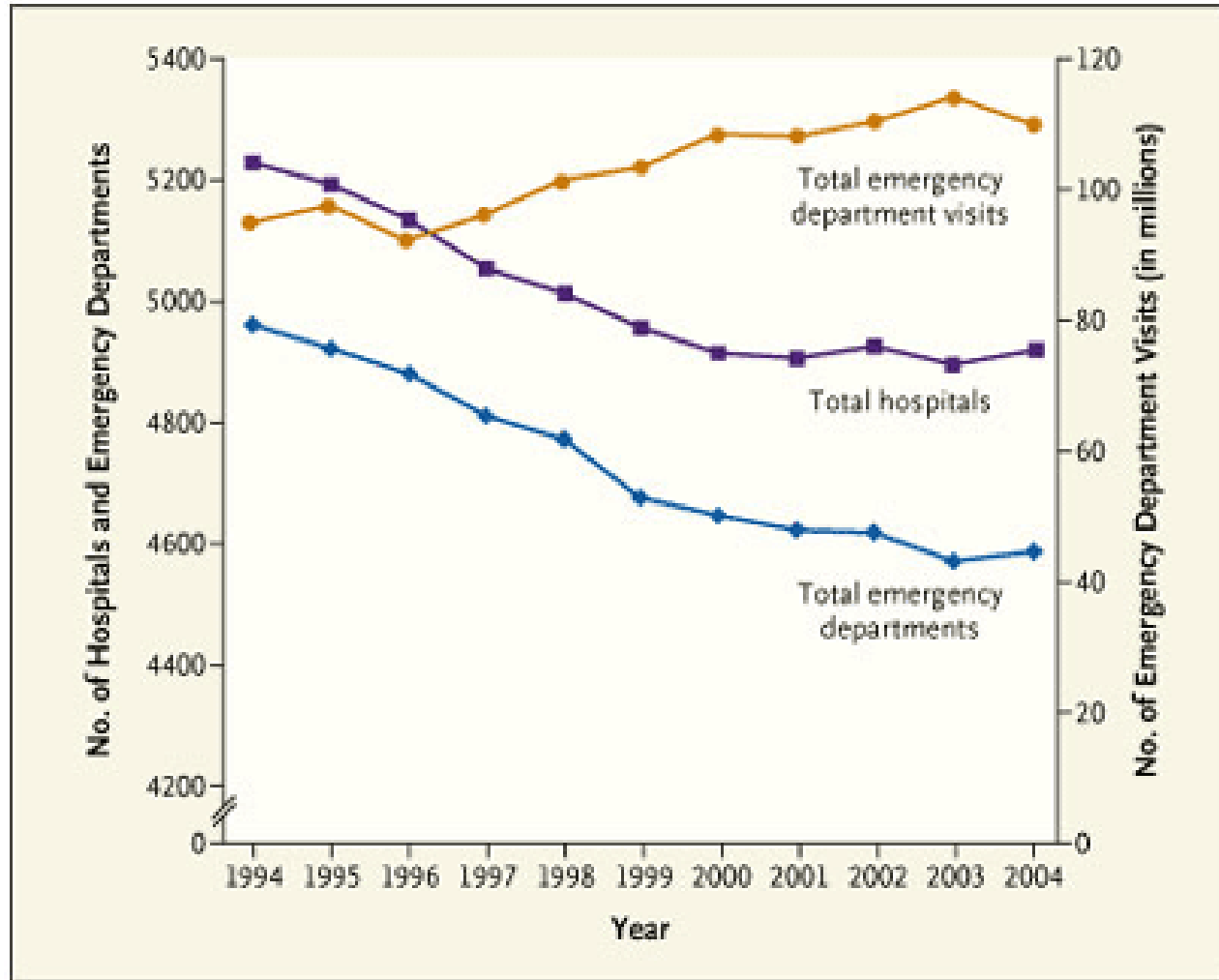


2001

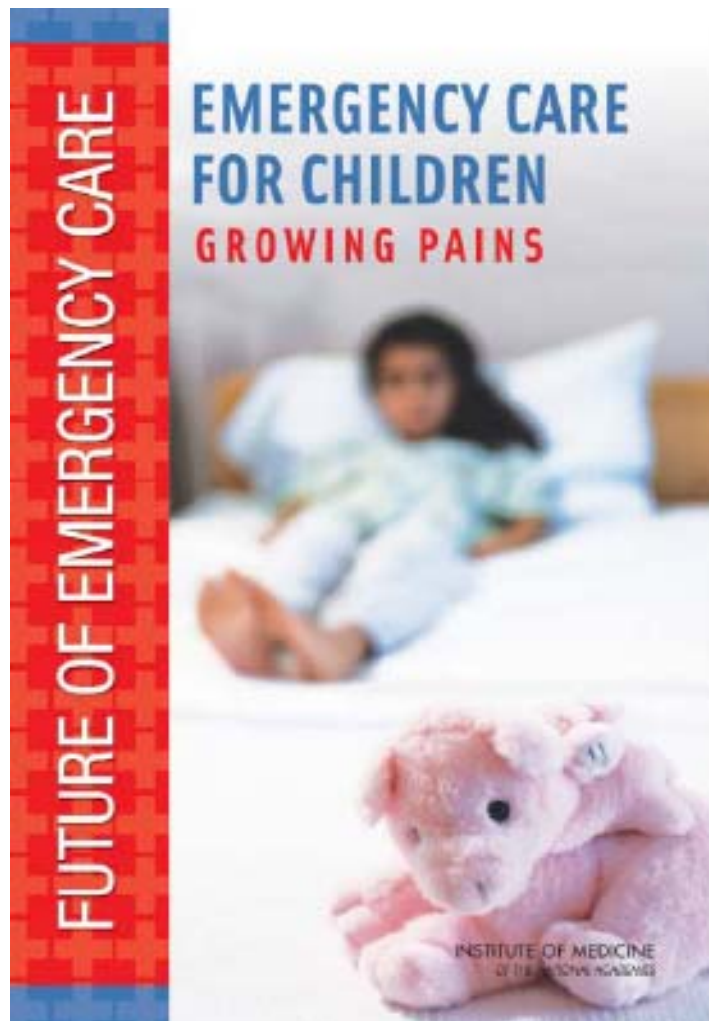


2005

Emergency Medicine: The Problem (The Opportunity?)

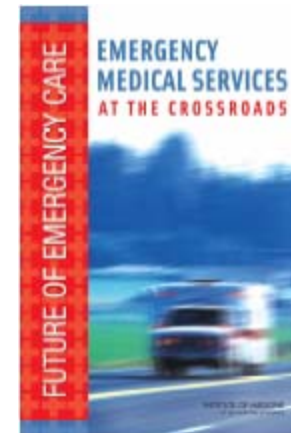
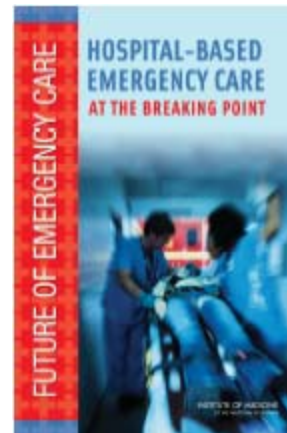


The Future of Emergency Care: 2006 IOM Report



If there is one word to describe pediatric emergency care in 2006, it is uneven

IOM Report p 41.

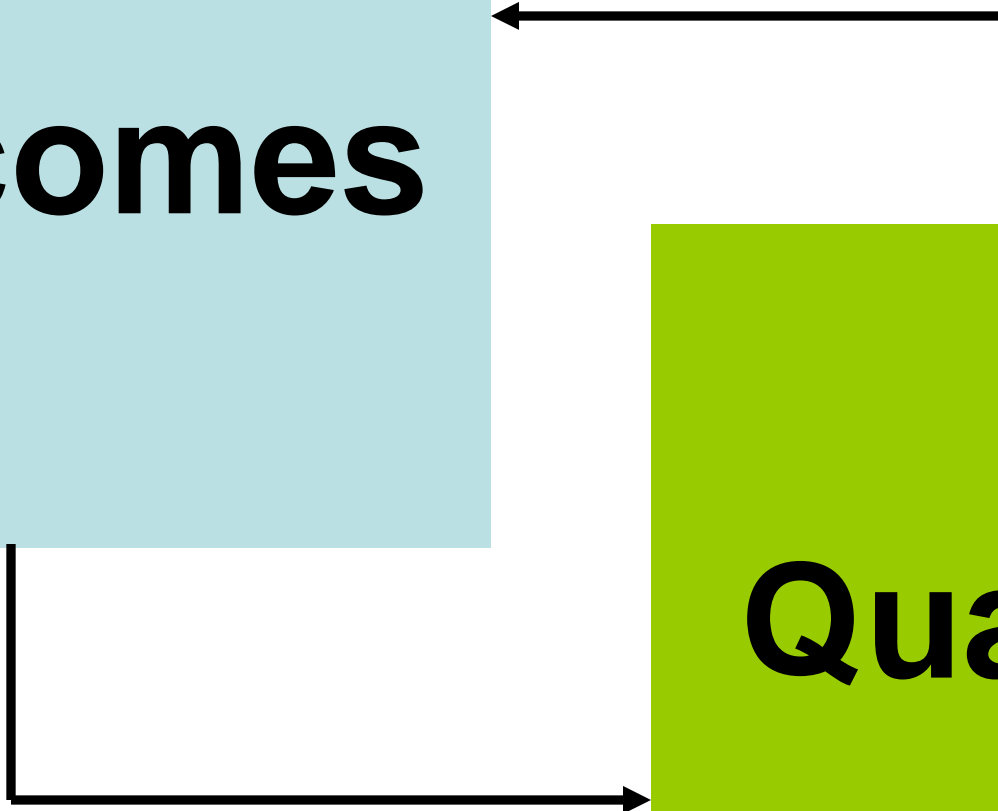


Motivators

- **IOM: The Future of Emergency Care**
 - **Achieving the Vision**
 - **Coordination**
 - **Regionalization**
 - **Accountability**
 - **Convene a panel with emergency care expertise to develop evidence-based indicators of emergency care system performance**
- **Healthy People 2010, Objective 1-14b**
 - **increase the number of States that have adopted and disseminated pediatric guidelines that categorize acute care facilities**
- **EMSC Research Agenda Consensus Committee**

Outcomes

Quality



Main Project Goal

To develop three EMSC deliverables

- **A comprehensive and balanced set of performance measures that form a quality report card for hospitals providing pediatric emergency care**
- **A prioritized list of data requirements that will inform development and maturation of ED health information systems planning to capture performance measures**
- **A prioritized list of key performance measures in need of further research to improve their evidence base**

Primary Aim

To identify quality performance measures that comprehensively reflect *hospital-based* pediatric emergency care through consideration of three important dimensions

- Institute Of Medicine quality domains
- Donabedian's structure, process and outcome framework for quality
- Pediatric emergency care disease frequency and severity (common, rare but high risk)

Rationale

Limitations of prior work

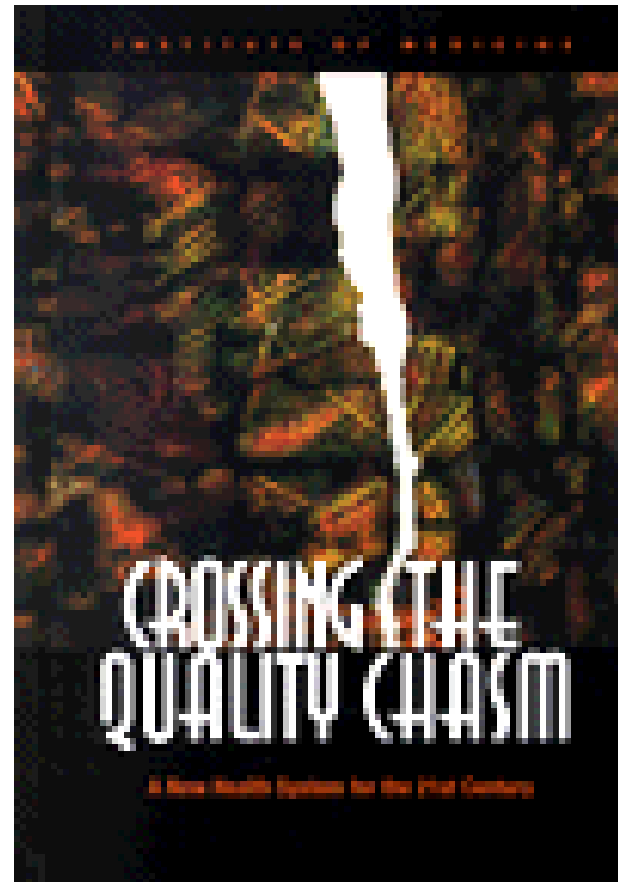
- Single centers or geographic locales
- Focus on condition-specific indicators
- Preponderance of process-oriented measures
- Benchmarks very focused on
 - Timeliness (through put)
 - Satisfaction (ceiling effect)
- Lack of comprehensiveness regarding spectrum of ED care
 - Lindsay et. al., AEM, 2002
 - Guttman et. al., Pediatrics, 2006

Meaningful use of electronic health records

Institute of Medicine Quality Domains

**Built around the core
need for health
care to be**

- **Safe**
- **Effective**
- **Efficient**
- **Timely**
- **Patient-centered**
- **Equitable**



Institute of Medicine Quality Domains

Safe

- **Health care avoids injuries to patients from the care that is intended to help them**

Effective

- **Health care provides services based on scientific knowledge to all who could benefit, and refrains from providing services to those not likely to benefit**

Institute of Medicine Quality Domains

Efficient

- **Health care avoids waste, including waste of equipment, supplies, ideas and energy**

Timely

- **Health care reduces waits and sometimes harmful delays for both those who receive and those who give care**

Institute of Medicine Quality Domains

Patient - centered

- **Health care provides care that is respectful of and responsive to individual patient preferences, need and values, and ensures that patient values guide all clinical decisions**

Equitable

- **Health care provides care that does not vary because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status**

Donabedian's Framework

Structure

- Indirect quality-of-care measures related to a physical setting and resources: Staff, space, supplies, equipment and financial resources

Process

- Measures evaluate the method or process by which care is delivered, including both technical and interpersonal components

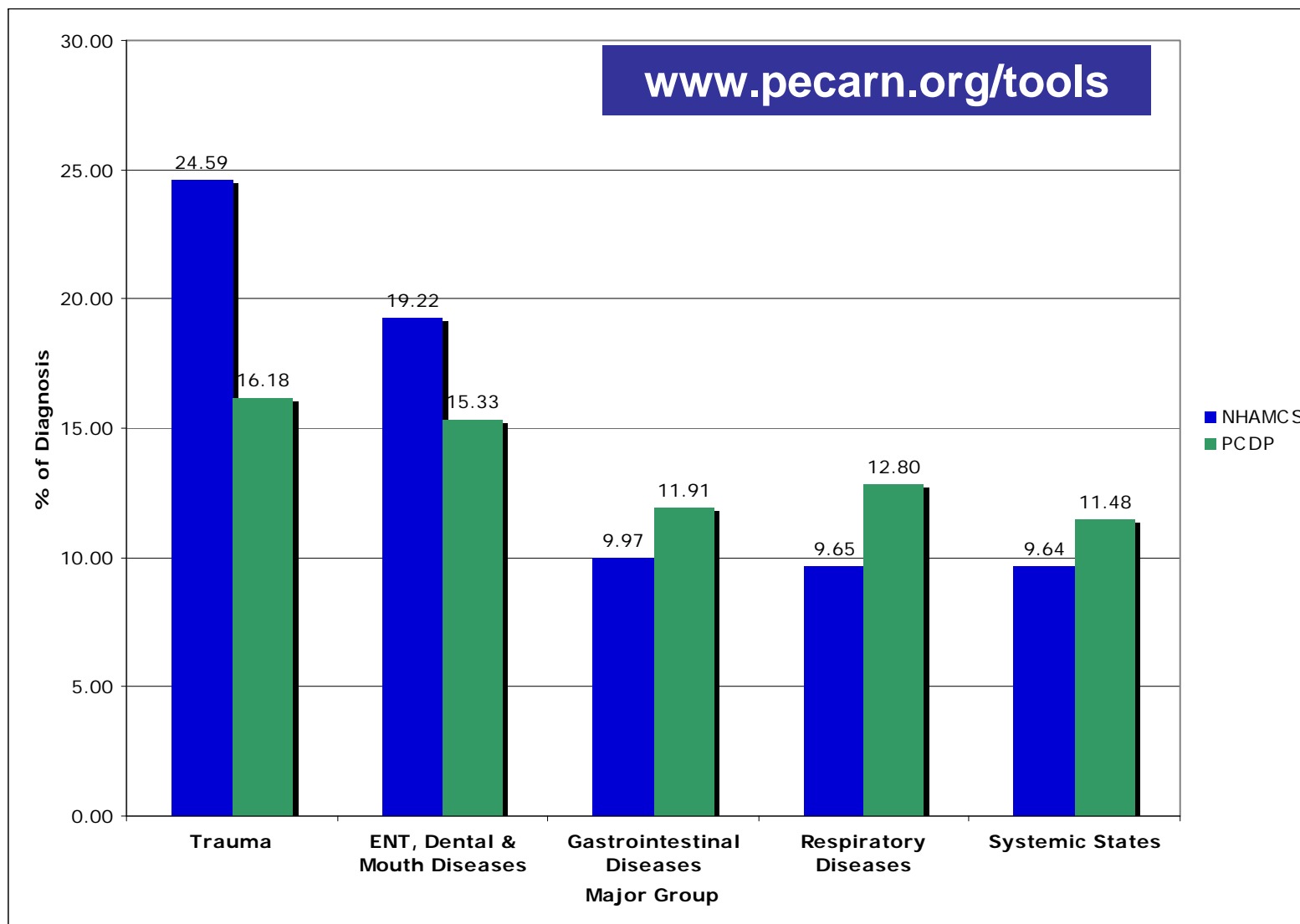
Outcome

- Outcome elements describe valued results related to lengthening life, relieving pain, reducing disabilities and satisfying the consumer

PEM Disease Frequency & Severity

- **Condition-specific**
 - **Proportion of patients with croup receiving corticosteroids**
- **General**
 - **Proportion of visits by patients <18 years of age with a weight in kilograms documented during the current ED visit**
- **Cross-cutting**
 - **Proportion of patients <18 yrs of age with an endotracheal tube whose placement is confirmed by the end tidal CO2 method**

Choosing Condition-Specific Measures

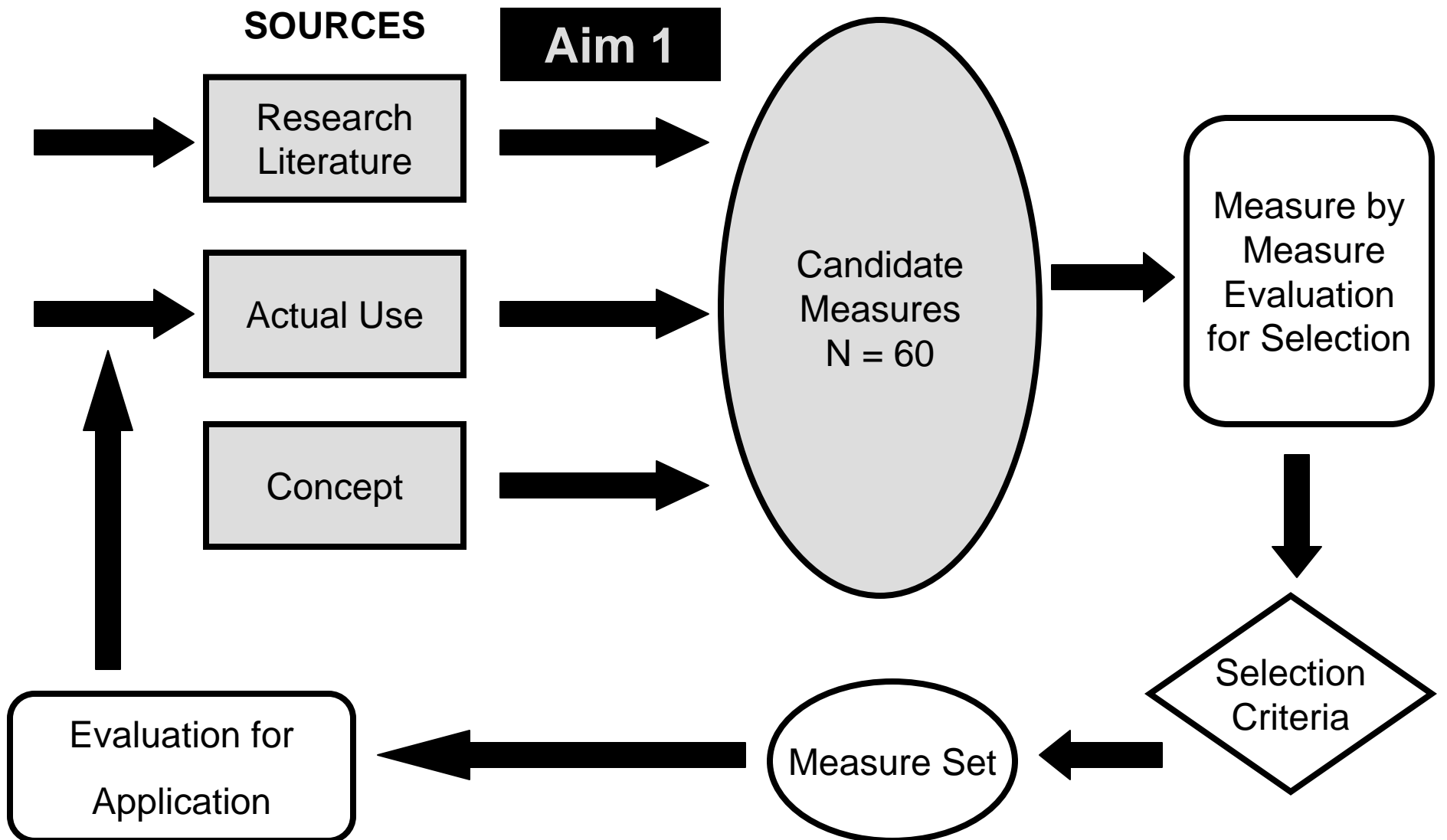


Alessandrini et.al., Academic Emerg Med; February 2010

Methods

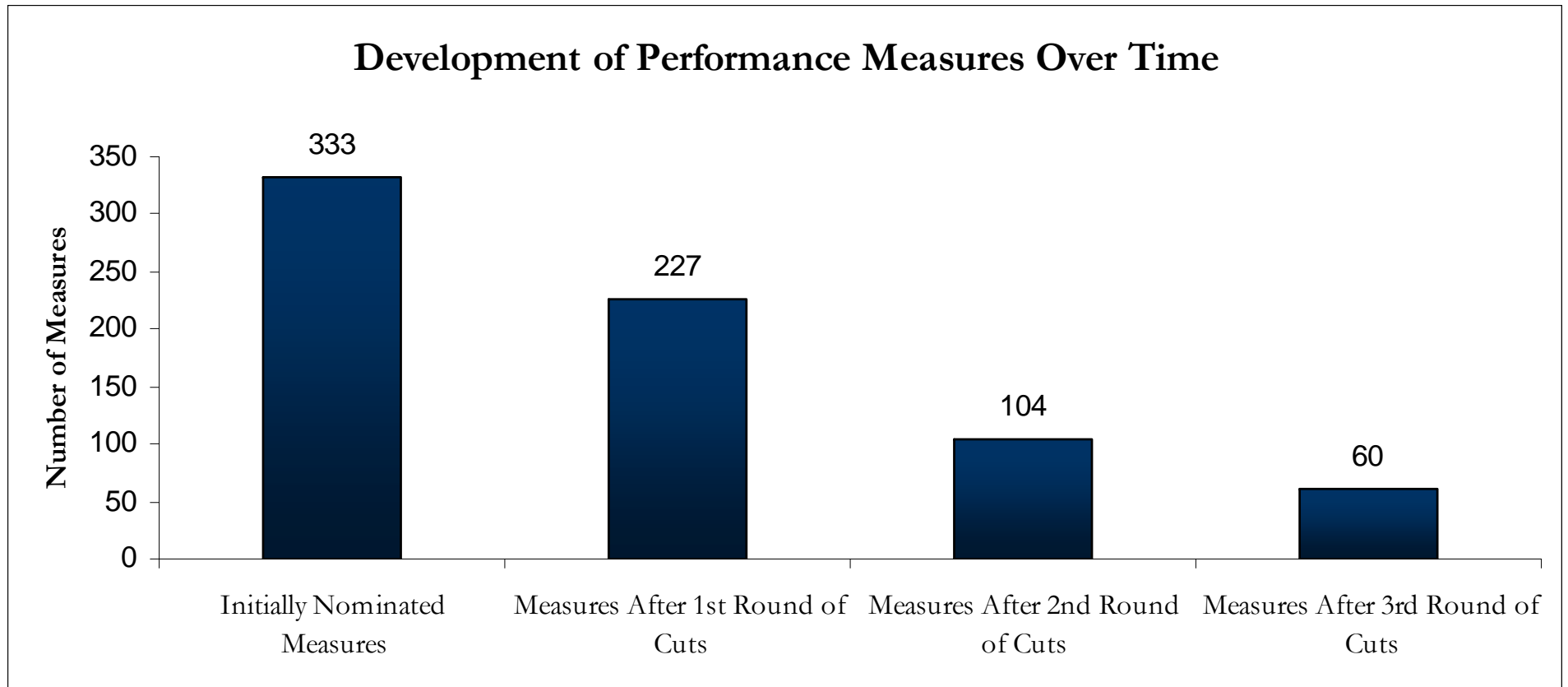
- **Identify existing performance measures**
 - Literature reviews
 - Health care quality organization websites
 - Interviews with leaders and experts
- **Secondary analysis of existing data sets**
 - PECARN Core Data Project
 - National Hospital Ambulatory Medical Care Survey
- **Formation of expert panel and stakeholder group**
- **Consensus techniques**
 - Nominal Group
 - Electronic Delphi surveys

Measure Development Process



Adapted from AHRQ PDI development process

Development and Elimination of Performance Measures Over Time



Measure Evaluation Criteria

Importance

- The measure reflects a priority or high impact aspect of healthcare
- The measure addresses outcomes or is strongly linked to improving outcomes
- The measure addresses an area of considerable variation or poor performance across providers or population groups

Measure Evaluation Criteria

Scientific Acceptability

- There is strong evidence for the specific measure focus, such as evidence based guidelines
- The measure is reliable, reproducible and accurately represents quality of care

Measure Evaluation Criteria

Usability

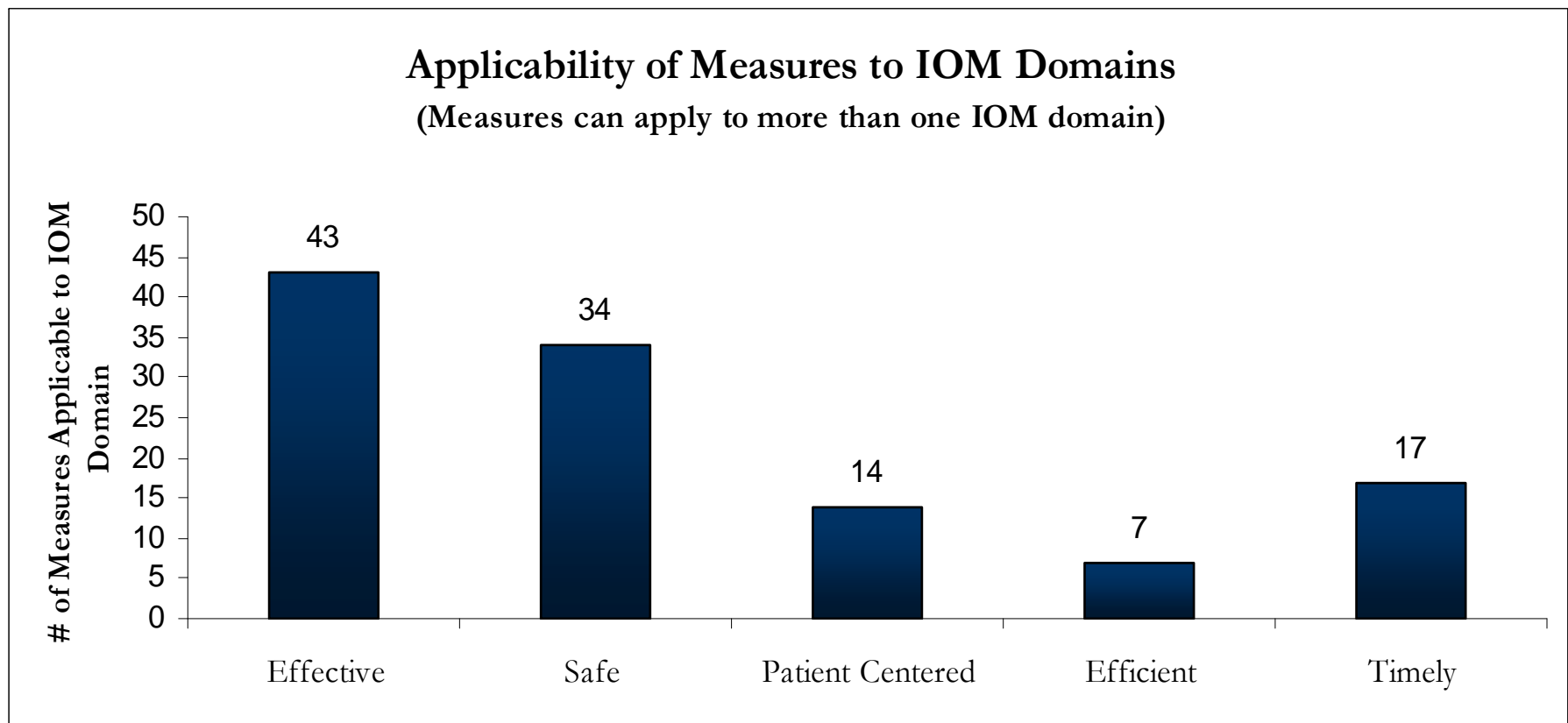
- The measure provides information that is actionable and can be used to make decisions that improve the quality of care
- The measure is meaningful and understandable

Measure Evaluation Criteria

Feasibility

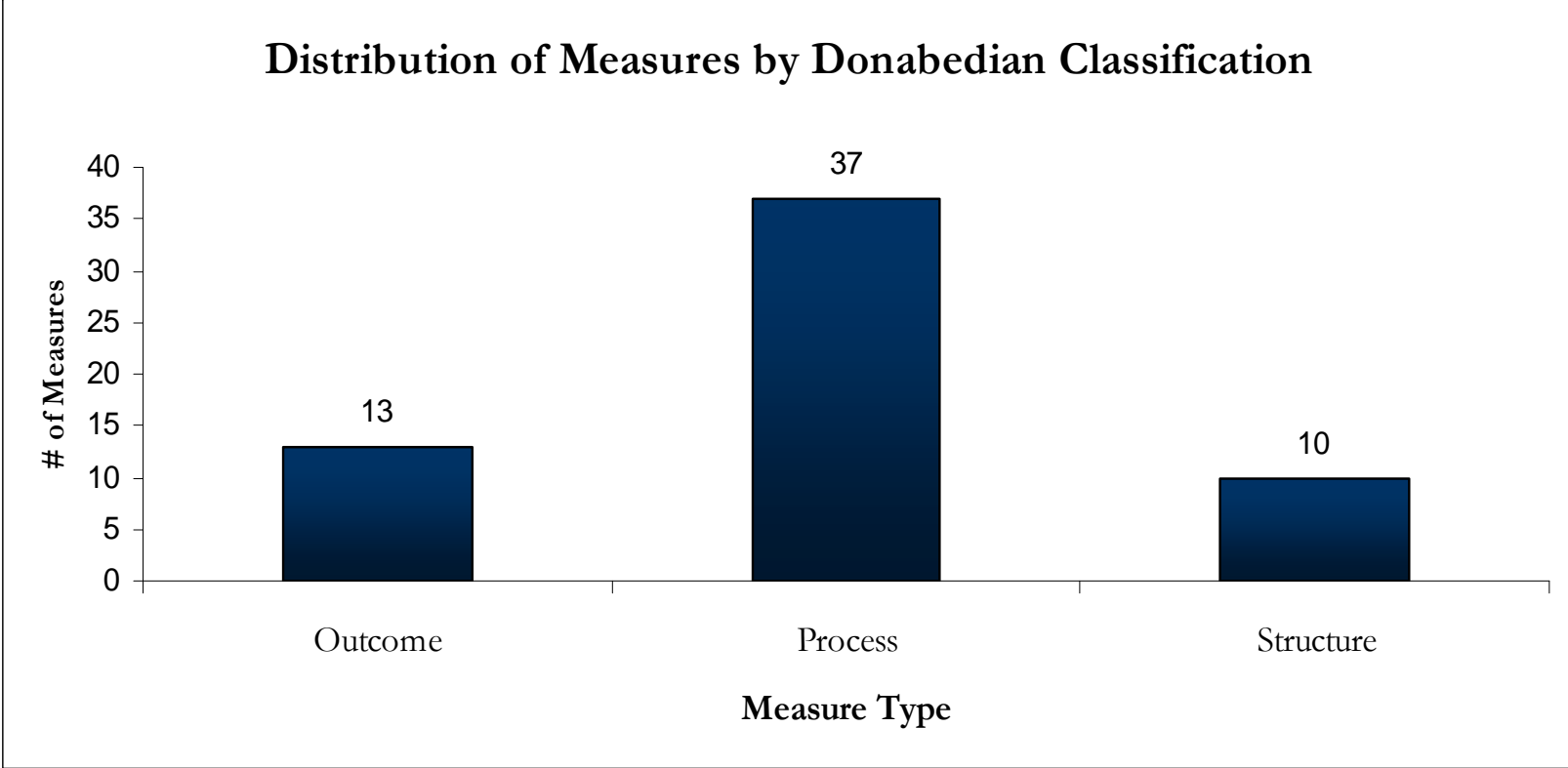
- Data for the measure is generated during care delivery and is available in the EHR or other electronic sources
- Data collection for the measure can be implemented
- The information provided outweighs the costs/burdens of collecting the data

Performance Measure Distribution by IOM Quality Domain

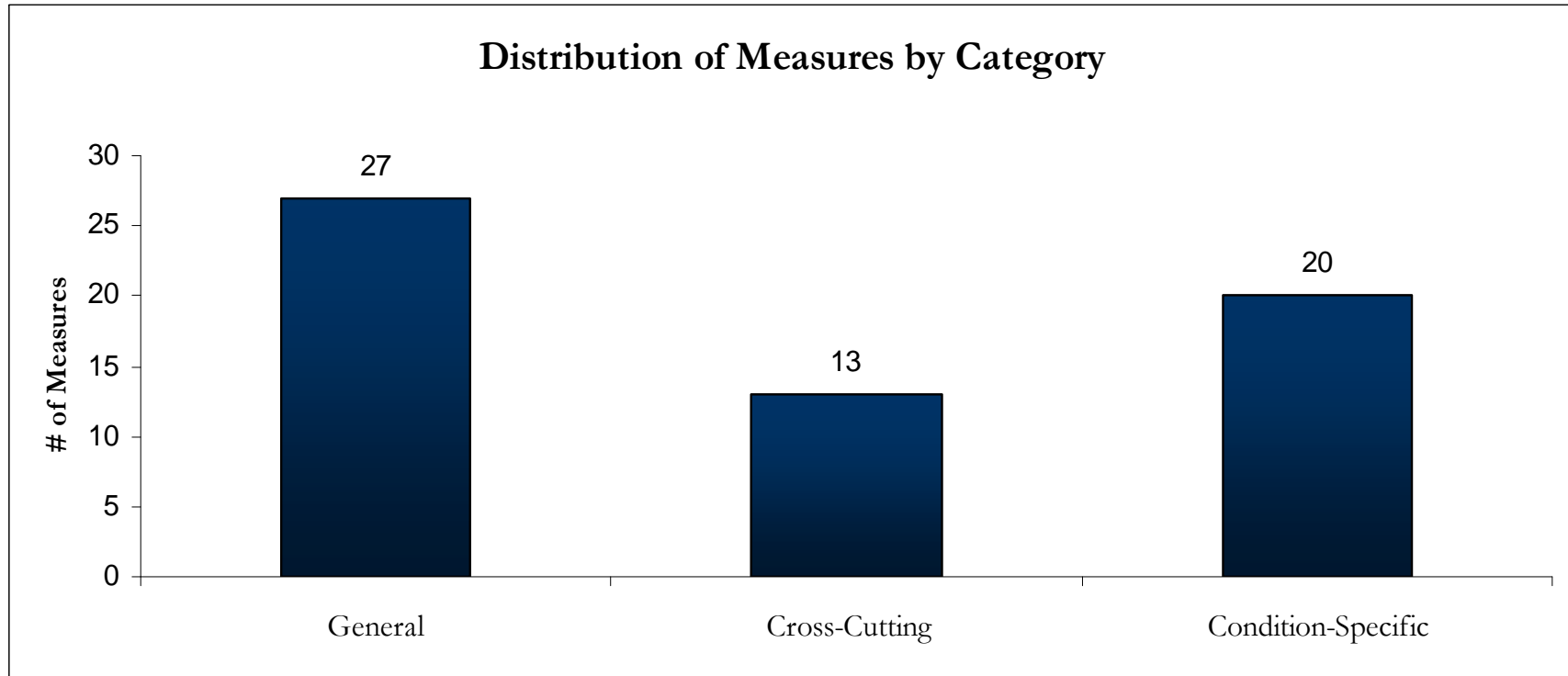


Equitable – measures stratified by gender, age, race, ethnicity and payor

Performance Measure Distribution by Donabedian Framework



Performance Measure Distribution by Diagnosis Type

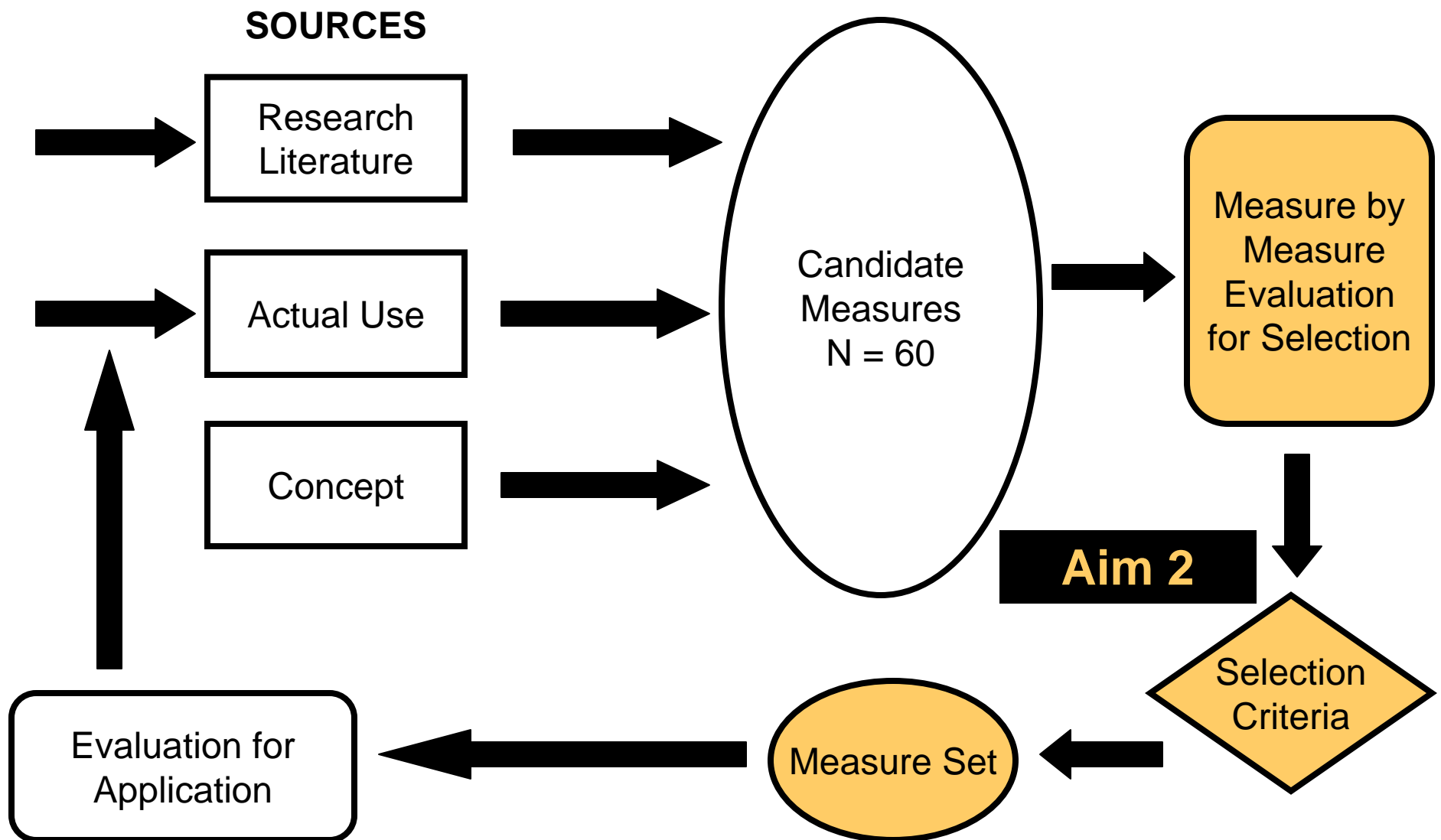


Cross-cutting measures include pain/sedation, severe illness, diagnostic testing and medication management

Measure Content Areas

Content Area	Number of measures
1. Initial care for every ED patient	(6)
2. ED infrastructure and personnel	(8)
3. Patient-centered ED care	(6)
4. ED flow	(6)
5. Pain and sedation	(5)
6. Severe illness	(5)
7. Trauma	(6)
8. Respiratory diseases	(5)
9. Other conditions	(2)
10. Childhood infections	(5)
11. Quality and safe care for all patients	(6)

Measure Development Process



Adapted from AHRQ PDI development process

Stakeholder Groups

American Academy of Pediatrics

Executive Committee of the Section on Emergency Medicine
Committee on Pediatric Emergency Medicine (COPEM)

American College of Emergency Physicians

Pediatric Emergency Medicine Subcommittee
Quality and Performance Committee
Quality Improvement and Patient Safety Section

Society of Academic Emergency Medicine – Clinical Guidelines Committee

Emergency Nurses Association – Quality and Patient Safety Work Team

Society of Trauma Nurses

American College of Surgeons - Committee on Trauma

Emergency Medical Services for Children Stakeholder Group

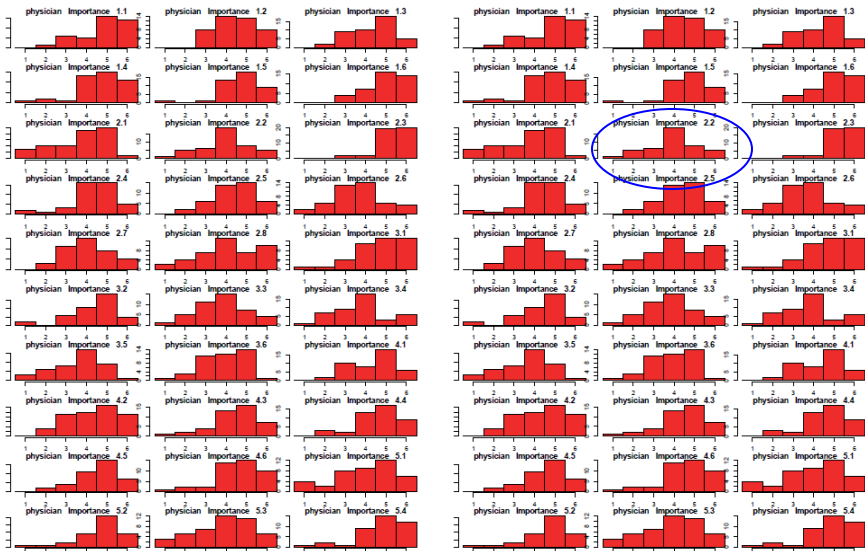
Family Advisory Network of EMSC State Partnership Grants

EMCare Emergency Physicians Group (community physician group)

Agency for Healthcare Research and Quality (AHRQ)

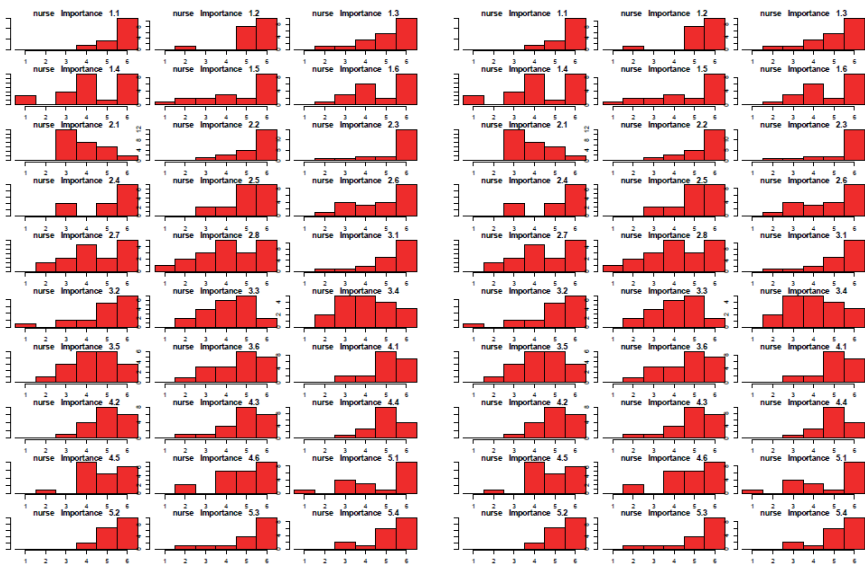
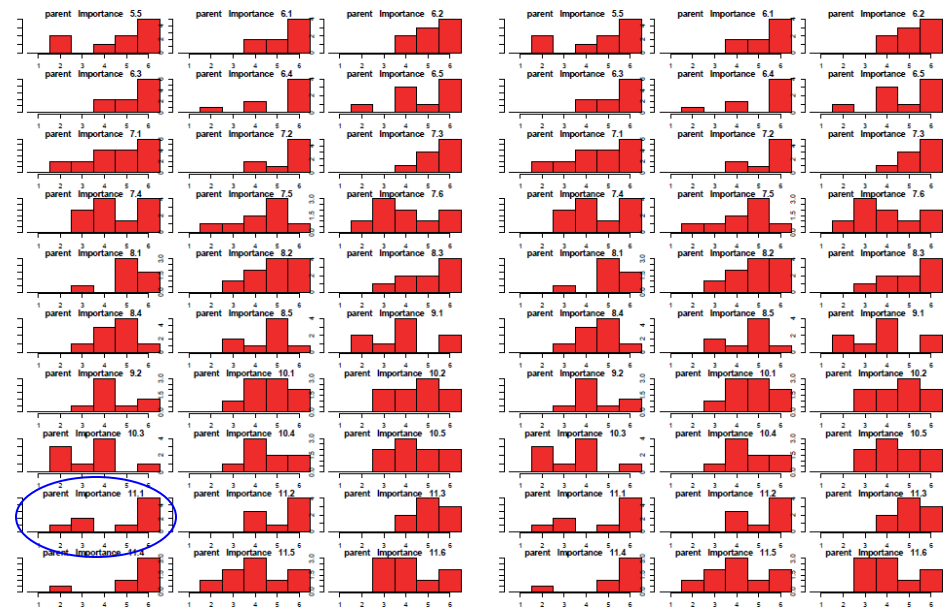
PECARN Steering Committee

Stakeholder Evaluation Results



Academic Physicians

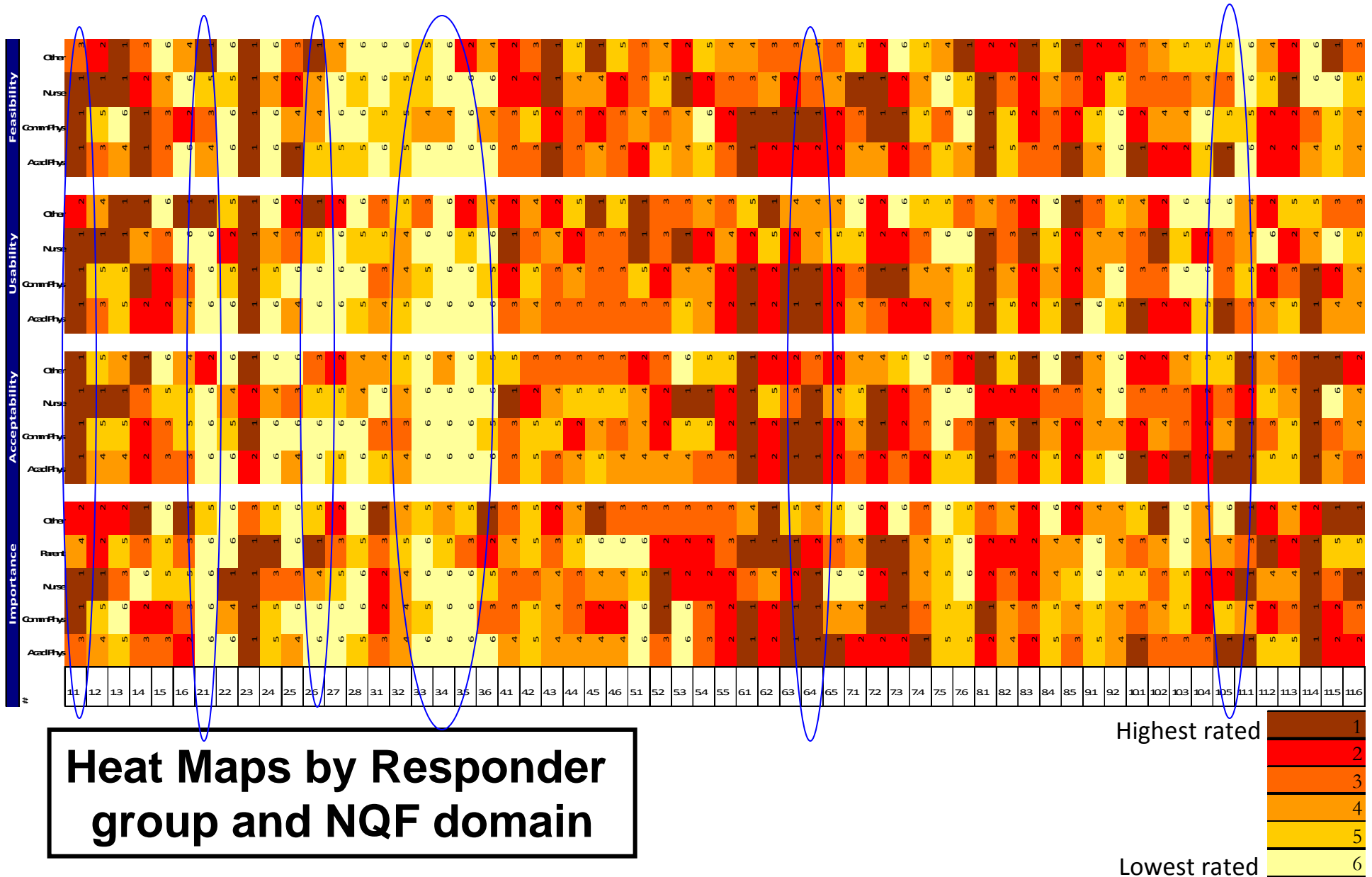
Parents



Nurses

Distribution of Importance Scores

Stakeholder Evaluation Results



Rank	#	Name	Donabedian Framework	IOM Domain(s)	Diagnosis Category
1	6.3	Timely administration of fluids in patients with septic shock	Process	Timely, Effective	cross-cutting (severe illness)
2	2.3	All pediatric equipment present in the ED (per ACEP, AAP, ENA policy statement)	Structure	Effective, Safe	general
3	6.1	Confirming endotracheal tube placement by the End Tidal CO2 method	Process	Safe, Effective	cross-cutting (severe illness)
4	6.4	Timely treatment with anti-epileptic drugs for patients in status epilepticus	Process	Timely, Effective	seizure
5	11.4	Medication error rates	Outcome	Safe	cross-cutting (medications)
6	7.2	Early definitive airway management in children with head trauma and a GCS < 8	Process	Effective, Safe	head trauma
7	7.3	Protocol for suspected child abuse in place	Structure	Effective, Safe	child abuse
8	8.1	Systemic corticosteroids in asthma patients with acute exacerbation	Process	Effective	asthma
9	1.1	Measuring weight in kilograms for ED patients <18 years of age	Process	Safe, Effective	general
10	11.1	Hand-washing rates	Process	Safe	general

Measure Rank 9

(1.1) Measuring weight in kilograms for ED patients <18 years of age

IOM Domains = Effective, Safe

Donabedian = Process

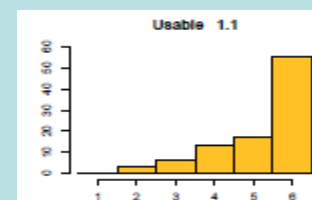
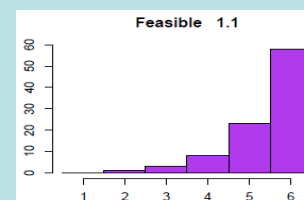
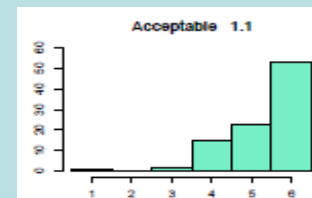
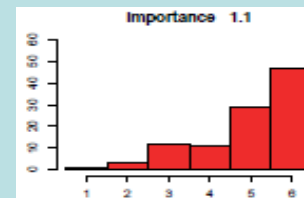
Diagnosis Group = General

Importance Data

Mean Importance Score = 5.0

Percent of stakeholders giving highest score = 45.6%

Stakeholder Survey Evaluation



Prioritized 15 Performance Measures

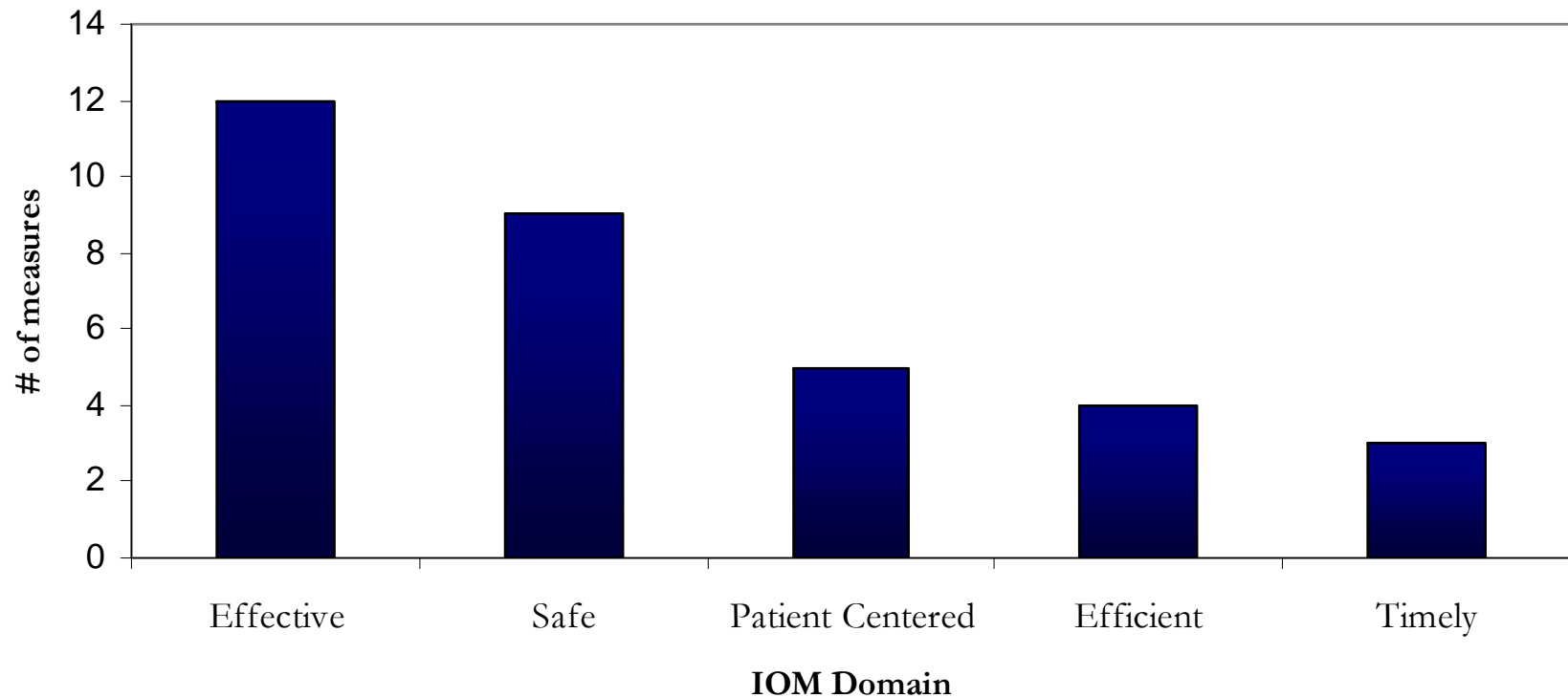
1. Measuring Weight in Kilograms for ED Patients <18 yrs of age
2. All Pediatric Equipment Present in the ED (per ACEP, AAP, ENA policy statement)
3. Reducing Pain in Children with Acute Fractures
4. Systemic Corticosteroids in Asthma Patients with Acute Exacerbations
5. Medication Error Rates
6. Parent/Caregiver Understanding of ED Discharge Instructions
7. ED Door to Provider Time

Prioritized 15 Performance Measures

8. Presence of Method to Identify Age Based Abnormal Pediatric Vital Signs
9. ED Return Visits within 48 hours resulting in admission
10. Total ED Length of Stay
11. Evidence Based Guideline for Bronchiolitis in place
12. Reducing Antibiotic use in Children with Viral Illnesses
13. Children with Minor Head Trauma (GCS 14,15) receiving a Head CT Scan
14. Protocol for Suspected Child Abuse in Place
15. Presence of on-site Pediatric Coordinator

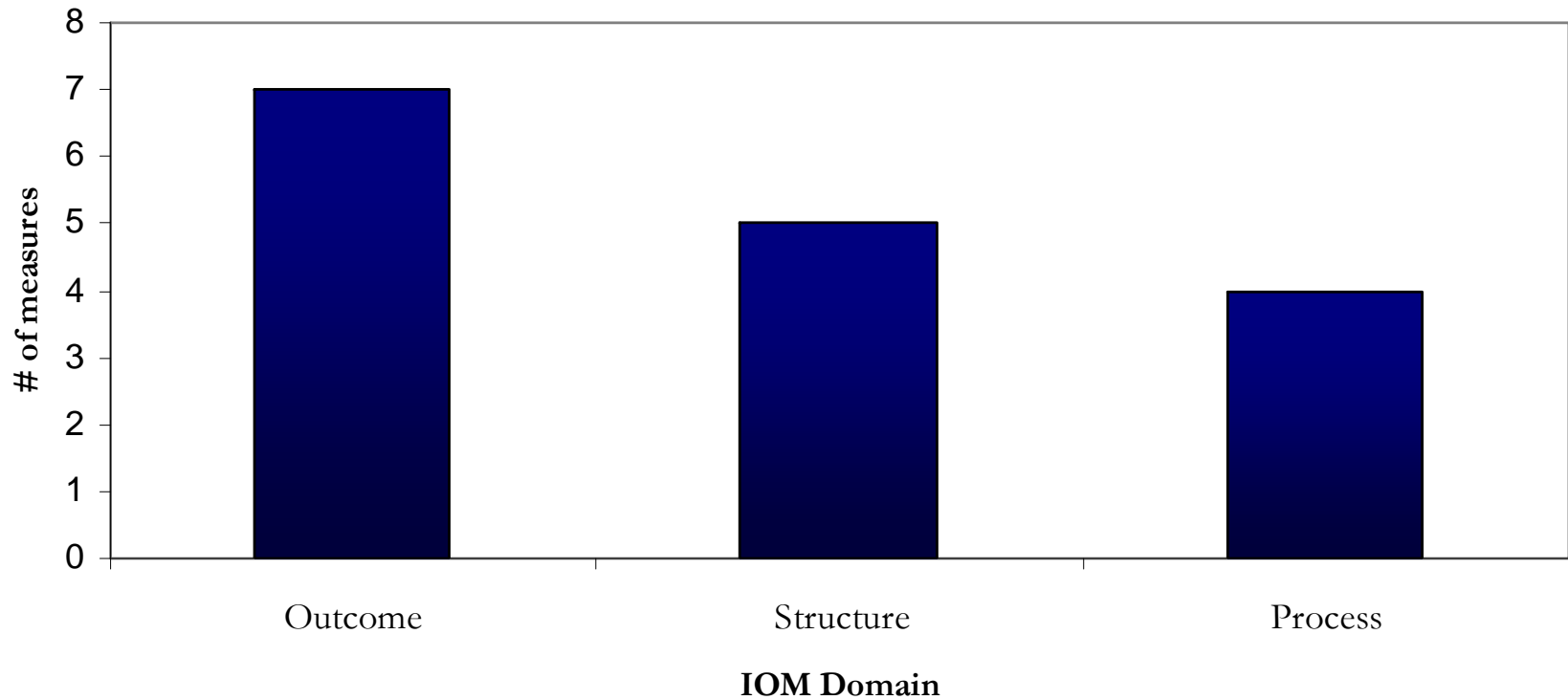
Prioritized 15 Performance Measures

**Distribution of Final 15 Measures by IOM Dimension
(measures may apply to more than one dimension)**

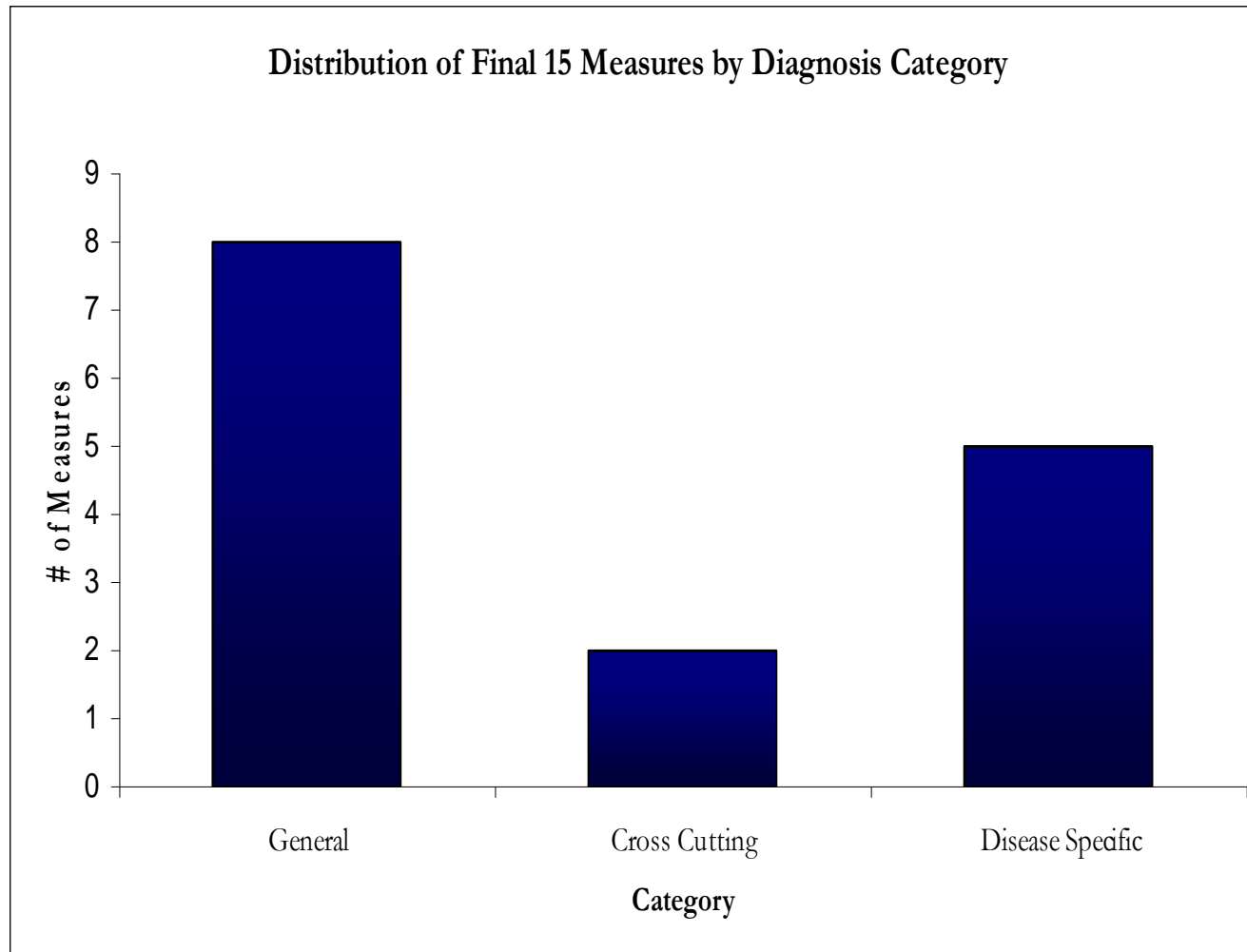


Prioritized 15 Performance Measures

Distribution of Final 15 Measures by Donabedian Structure/Process/Outcome Domain



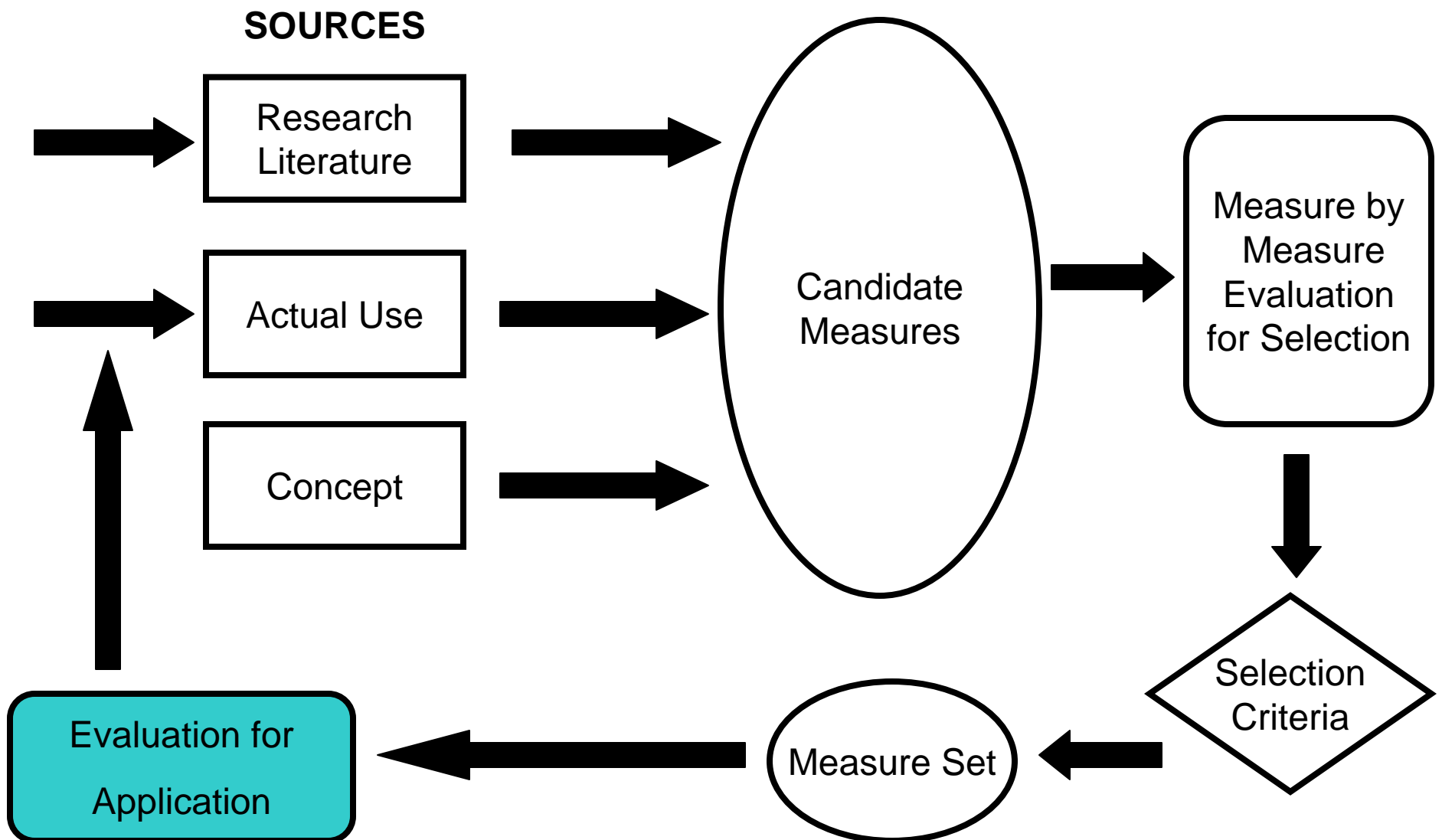
Prioritized 15 Performance Measures



Disease Specific Categories Represented

- Asthma
- Bronchiolitis
- Viral Illness
- Head Trauma
- Child Abuse

Measure Development Process



Adapted from AHRQ PDI development process

Data Availability

Aim

- **To assess the current and future status of data availability for performance measures through a survey of stakeholder hospitals**

Rationale

- **Using electronic health records to collect data will allow us capture larger quantities of data with less time and effort**

Measure Data Availability

Element Identification Process

- Operational definitions for 60 measures created
- Measures broken down into individual data elements
- Data elements separated into 5 categories
 1. Elements required for all measures
 2. Elements likely to be found in an electronic medical records system
 3. Numeric, non clinical encounter oriented data collected at regular intervals (eg. Quarterly or yearly)
 4. Data requiring sampling or possibly not collected in an EMR system
 5. Data collected manually, requiring discrete responses
- PECARN hospitals surveyed
 - Data element availability and quality

Measure	Elements	Category of Element
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Category 1 elements

Unique visit Identifier

ED arrival time

ED discharge time

Category 2 elements

Head CT complete time

ICD9 code

GCS score

Children with minor head trauma (GCS 14 or 15) receiving a head CT scan



- Unique visit identifier
- ED arrival time
- ED discharge time
- Head CT complete time
- ICD9 code (head trauma)
- Glasgow Coma Scale (GCS) score



Measure	Elements	Category of Element
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Category 1 elements

- Unique visit Identifier
- ED arrival time
- ED discharge time
- Date of birth/Age

Category 2 elements

- ICD9 code
- Medication name
- Medication received time

Percent of Asthma patients with acute exacerbation receiving systemic corticosteroids



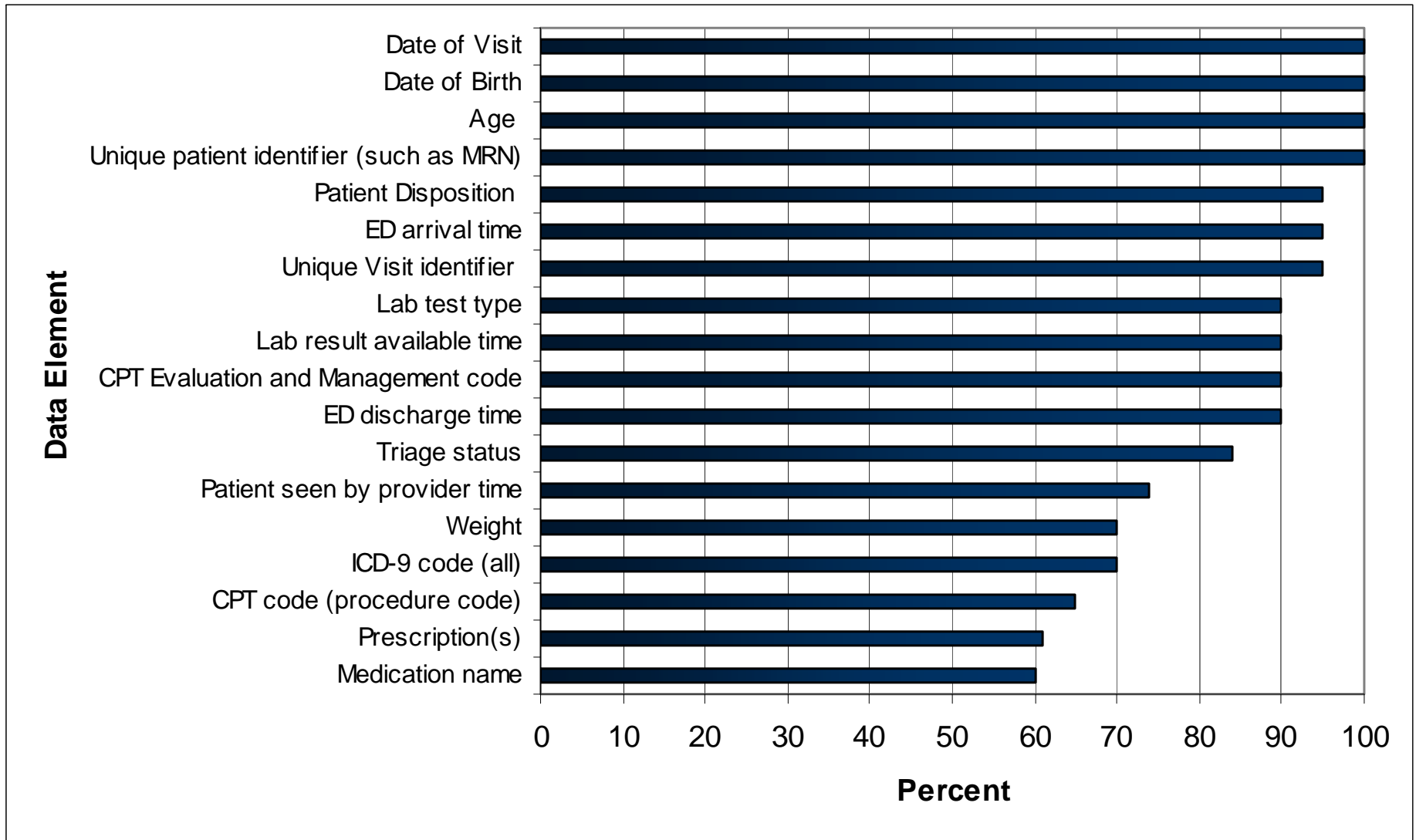
- Unique visit identifier
- ED arrival time
- ED discharge time
- Date of birth or Age
- ICD9 code (asthma)
- Medication name
- Medication received time



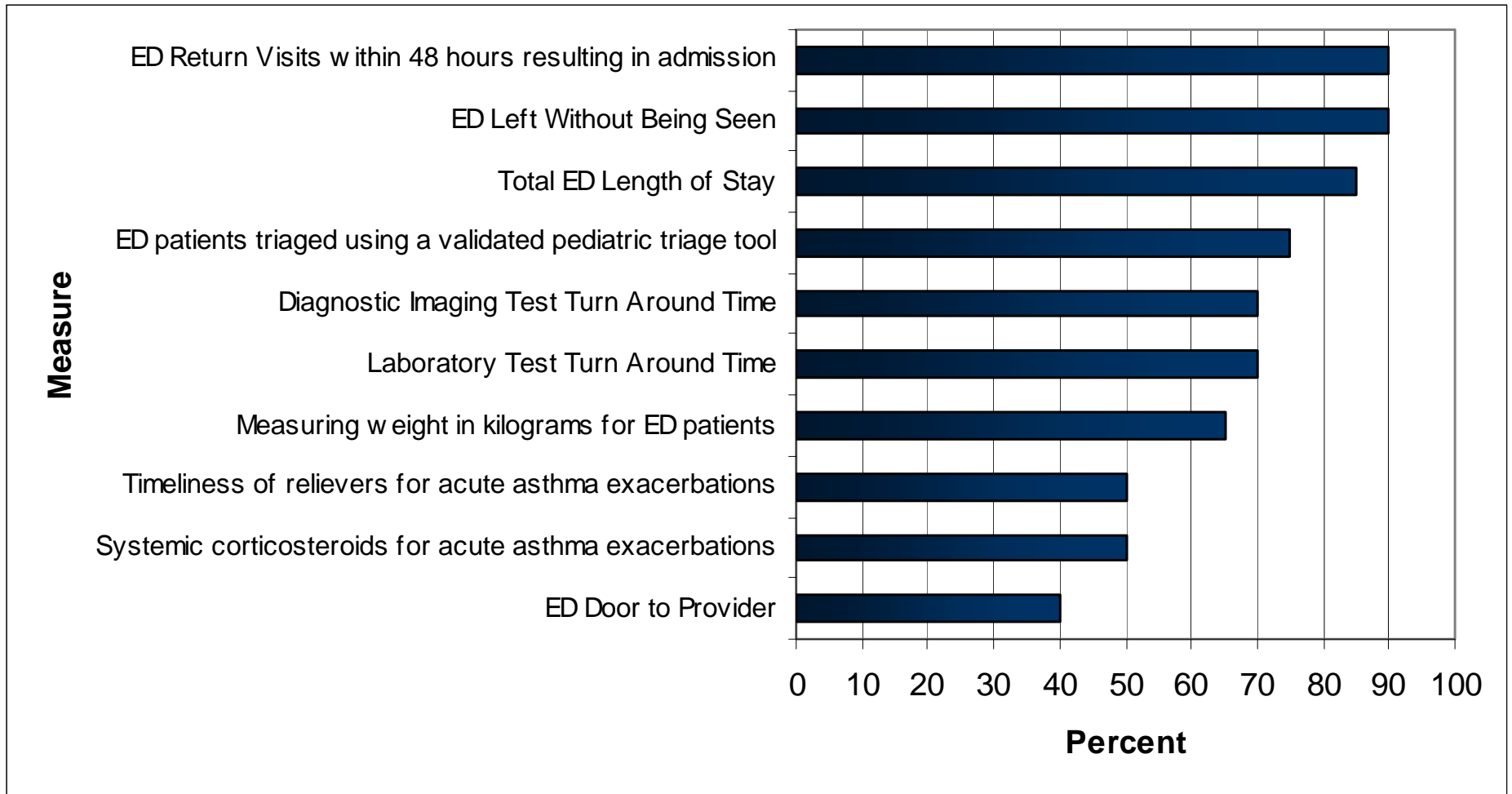
Data Availability

- 90% or more of sites indicate the ability to electronically capture category 1 elements
- Ability to electronically capture other expected elements was between 7% and 95%
- Median ability to capture category 2 data elements was 63%

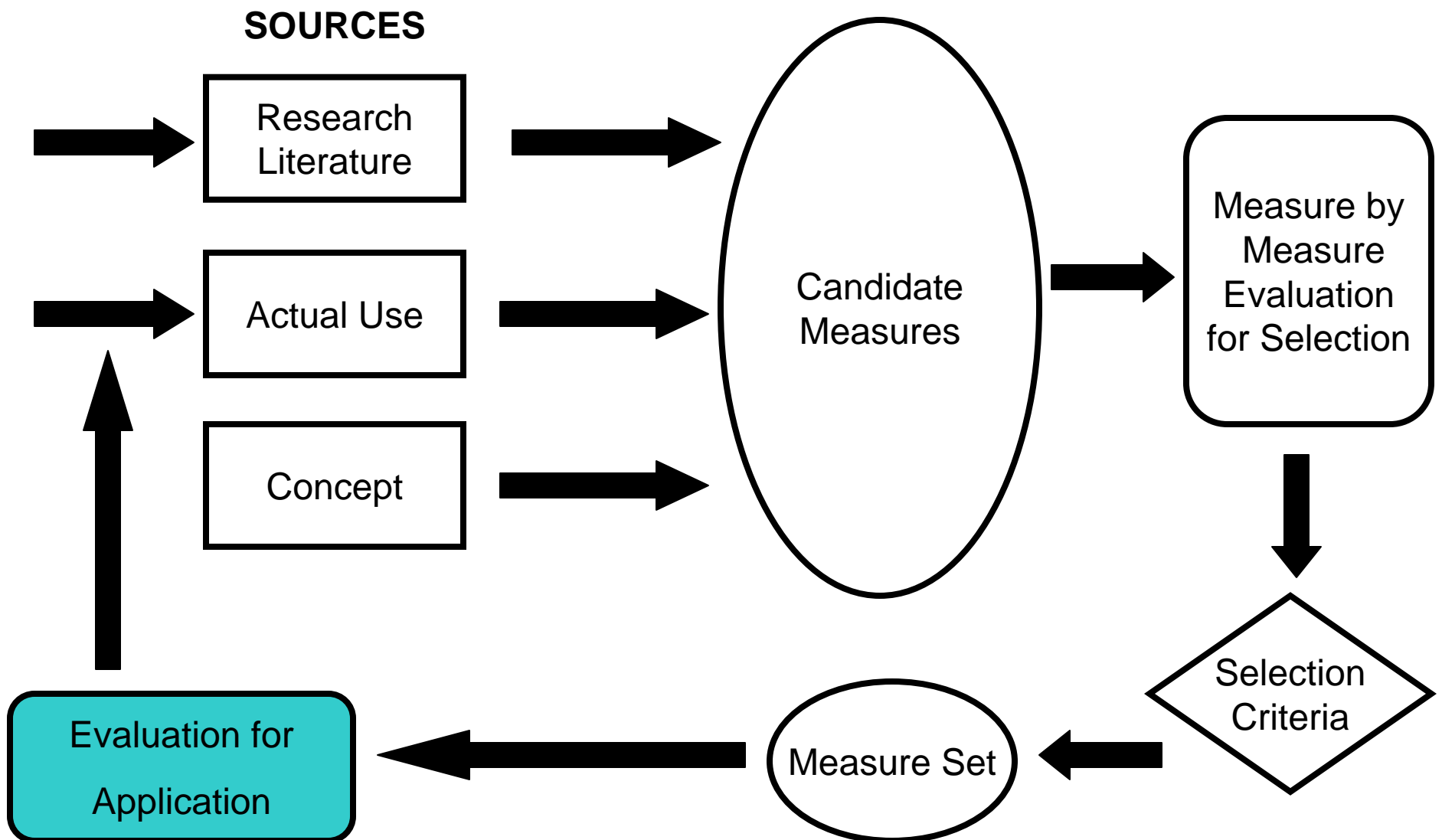
Electronic Availability of Data Elements



Electronic Availability of Measures



Measure Development Process



Adapted from AHRQ PDI development process

Improving Analgesic Administration for Children with Painful Conditions

Marc Gorelick, MD
Children's Hospital of Wisconsin

Rationale:

- **Pain is one of the most common presenting complaints for child ED visits**
- **Timely delivery of analgesics can reduce morbidity and improve satisfaction**
- **CHW has established pain reduction as a hospital-wide goal**

Specific Improvement Aim

Overall Outcome/Global Aim

- Provide timely relief for children presenting with pain

Specific Aim

- By April 2008 (12 months) we will improve the rate of analgesic administration for children pain in triage by 15% (relative increase)

Measure Rank 14

(5.5) Reducing pain in children with acute fractures

IOM Domains = **Effective**, Patient-Centered, **Timely**

Donabedian = **Process**

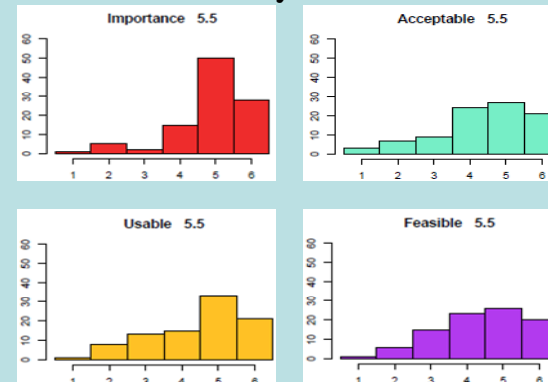
Diagnosis Group = Cross Cutting (Pain), Fractures

Importance Data

Mean Importance Score = 4.9

Percent of stakeholders giving highest score = 27.7%

Stakeholder Survey Evaluation



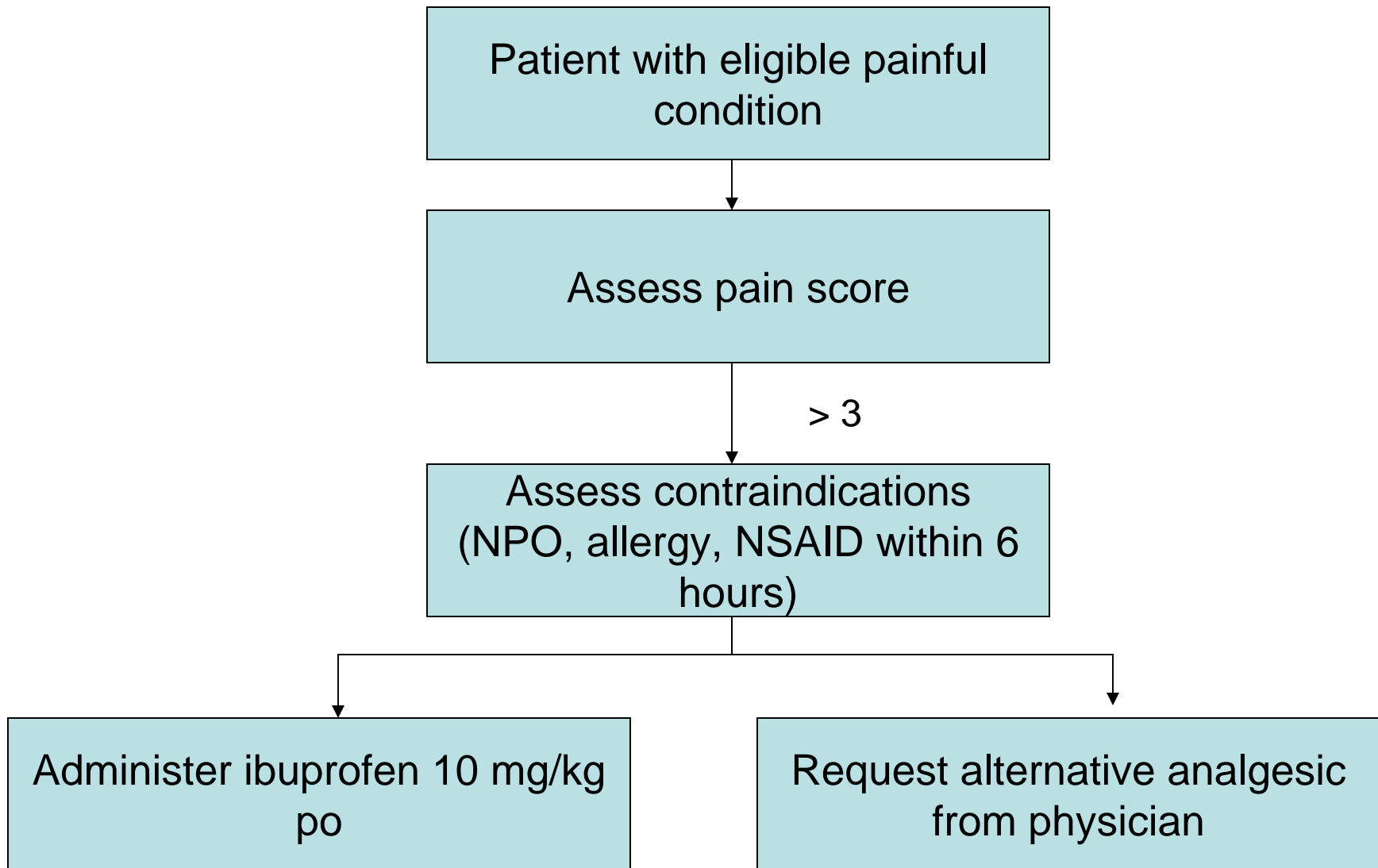
Reducing pain in children with acute fractures

- Numerator- Number of patients < 18 years of age with pain assessed and reassessed using the same age-appropriate pain scale who show documented improvement in pain score within 90 minutes of arrival
- Denominator- Number of patients < 18 years of age with acute long-bone fractures
- Notes- Examples of age appropriate pain scores include; NPASS, FLACC, Biering faces pain scale and verbal analogue scale (VAS).

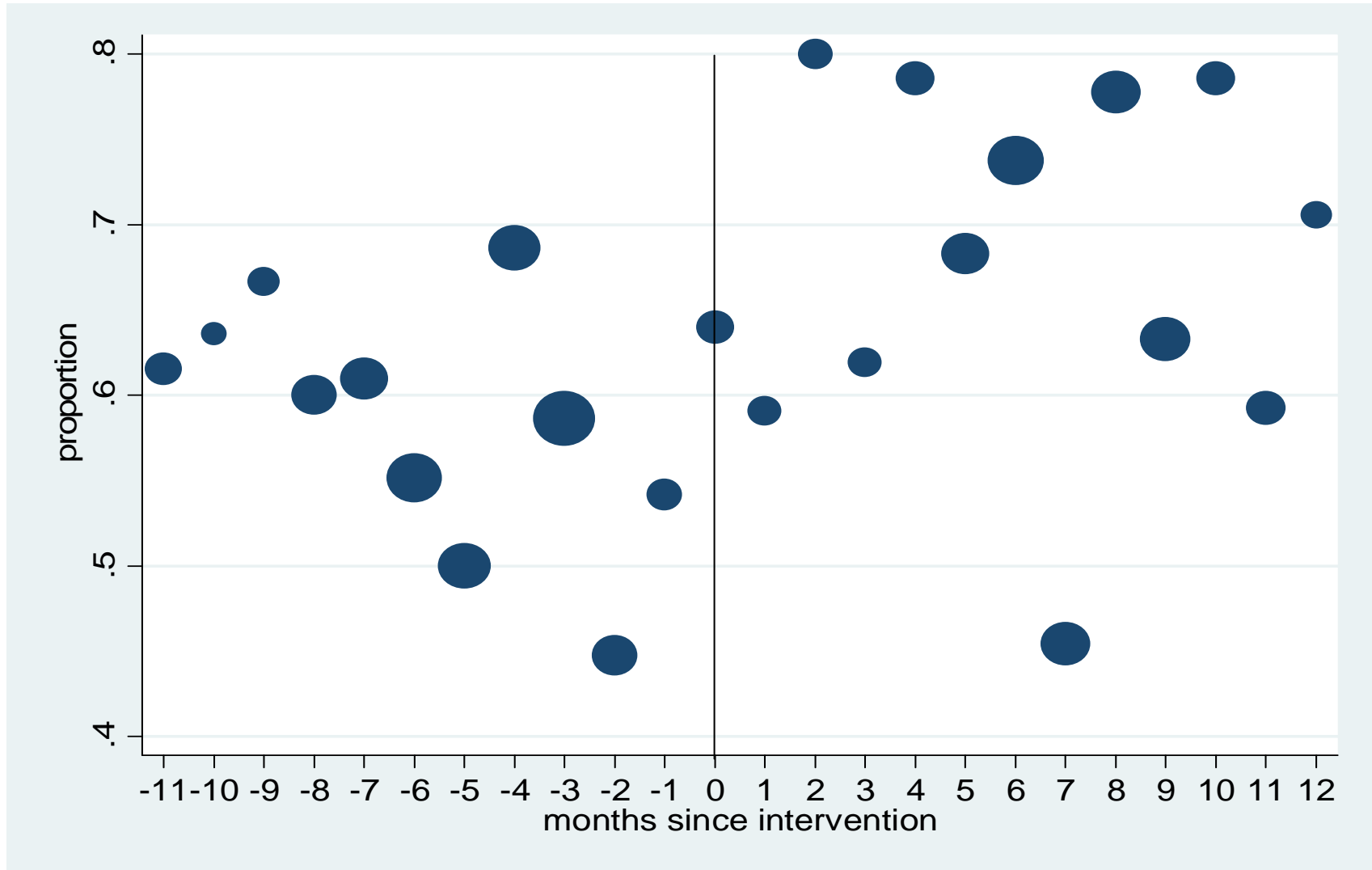
Data Capture

- Eligible patients:
 - Manual review of ED logs to identify eligible diagnoses/electronic query of discharge diagnoses from billing data
 - Manual review of triage sheets for pain scores and chief complaints
 - Manual review of nursing notes/electronic query of MAR for analgesic administration

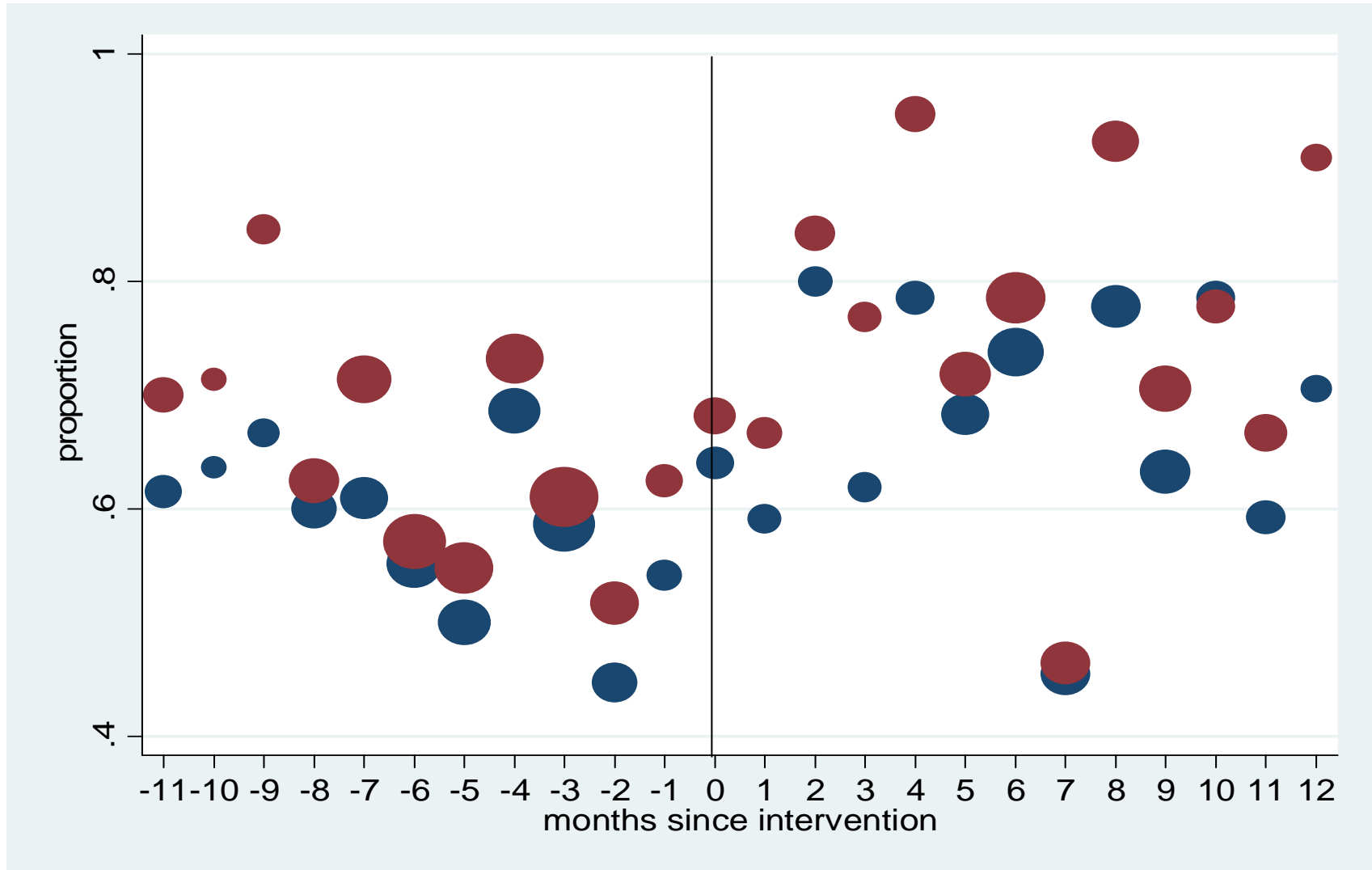
Interventions to Improve



Proportion Receiving Analgesic Arm Fracture Patients



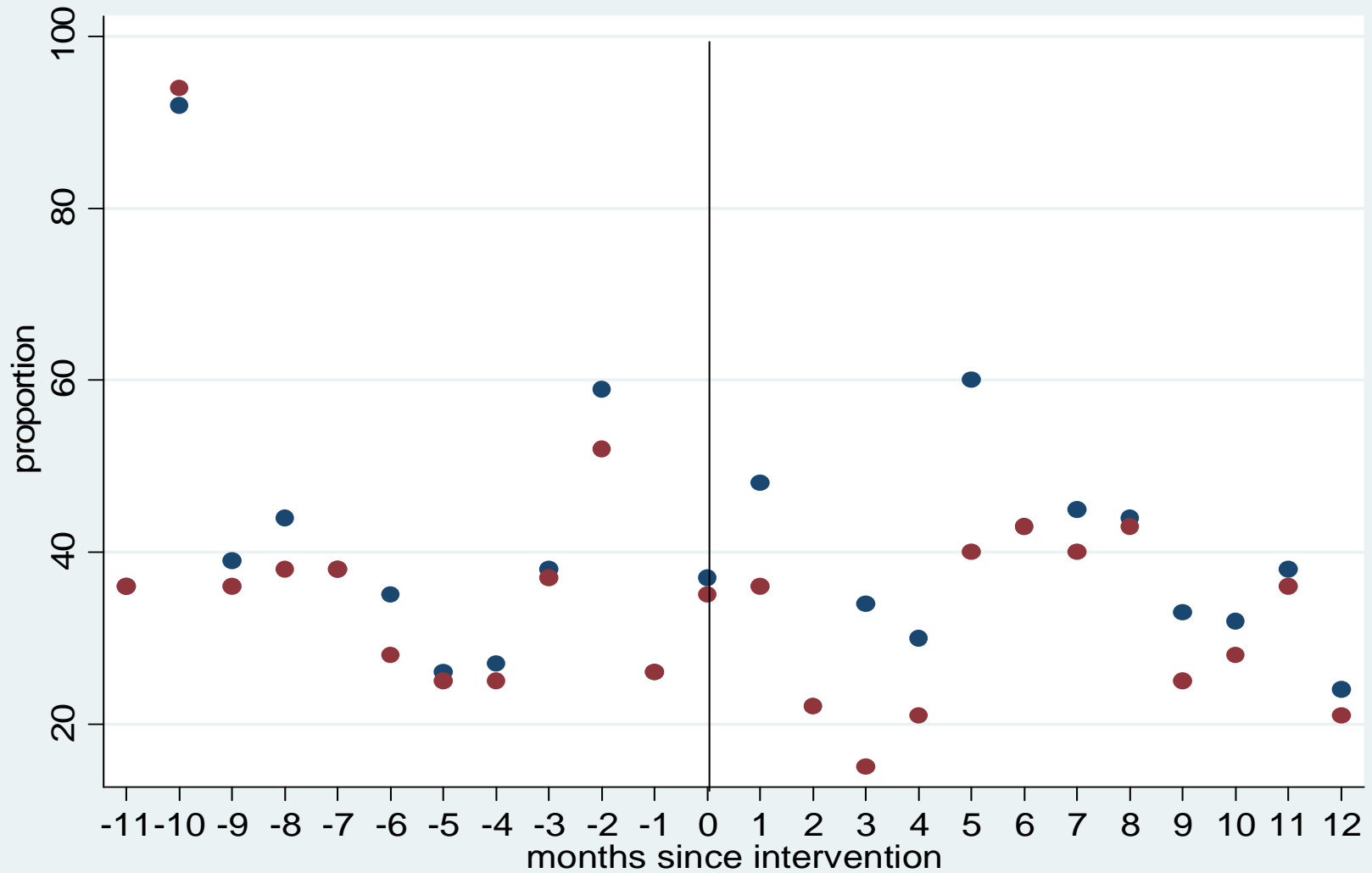
Proportion Receiving Analgesic Arm Fracture Patients



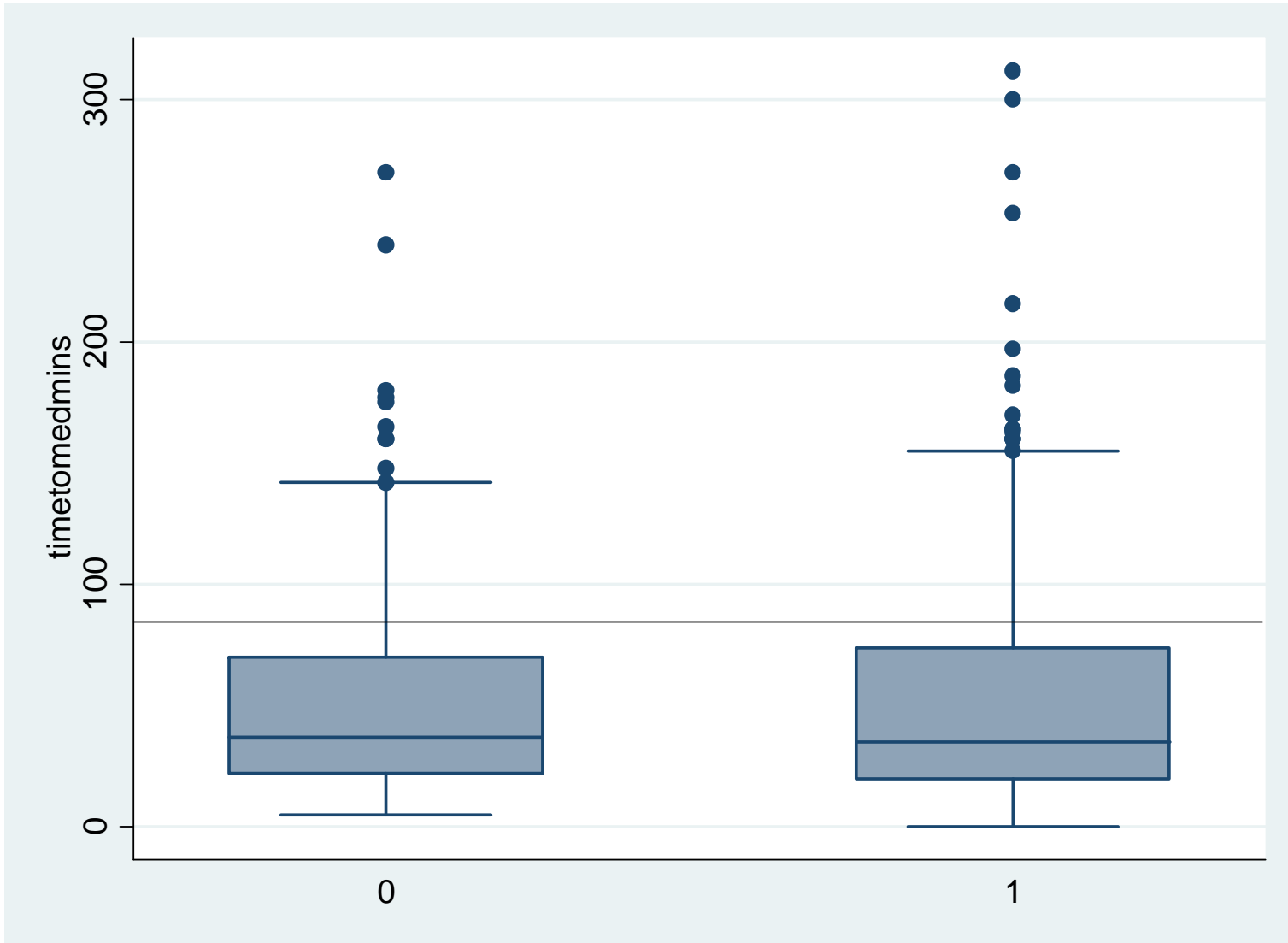
Proportion Receiving Analgesic

	Pre-intervention	Post-intervention	Change (95% CI)
All fracture patients	58.2%	67.8%	9.6% (3.1, 16.0)
Fracture patients with pain score >3	63.6%	75.2%	11.6% (4.5, 18.7)

Time to Analgesic



Time to Analgesic



Conclusions

- Modest improvement in rate of analgesic administration for children with fractures
- No real change in timeliness (but both pre- and post- median was close to 30 minutes)
- Huge amount of effort to obtain data!
 - QI considerations, especially around pain/analgesics, informing adoption of EHR

Improving the Timeliness of ED Care for Asthma Patients

Kathy Shaw, MD, MSCE

The Children's Hospital of Philadelphia

Rationale:

- **Asthma is the most common childhood illness resulting in hospitalization from the ED**
- **Timely care with bronchodilators and corticosteroids has been shown to reduce hospitalization rates**
- **CHOP has automated tracking of time to treatment to evaluate interventions such as co-location of asthma patients in a Respiratory Cohort**

Specific Improvement Aim

Aim

- Increase the proportion of patients receiving bronchodilators and corticosteroids within one hour of ED arrival

Overall Outcome/Global Aim

- Decrease total ED length-of-stay and asthma hospitalization rates by providing timely, reliable and effective care to patients

Measure Rank 15

(8.3) Timeliness of reliever treatment for patients with acute asthma exacerbation

IOM Domains = Effective, Timely

Donabedian = Process

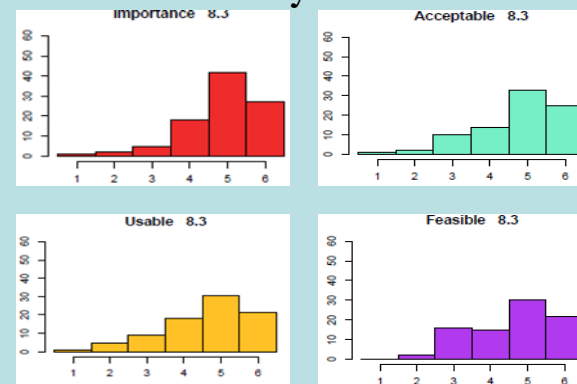
Diagnosis Group = Asthma

Importance Data

Mean Importance Score = 4.9

Percent of stakeholders giving highest score = 28.4%

Stakeholder Survey Evaluation



Measure Rank 8

(8.1) Systemic corticosteroids in asthma patients with acute exacerbation

IOM Domains = **Effective**

Donabedian = **Process**

Diagnosis Group = Asthma

Importance Data

Mean Importance Score = 5.1

Percent of stakeholders giving highest score = 33%

Stakeholder Survey Evaluation



Operational Definition:

Bronchodilator and Corticosteroid Treatment

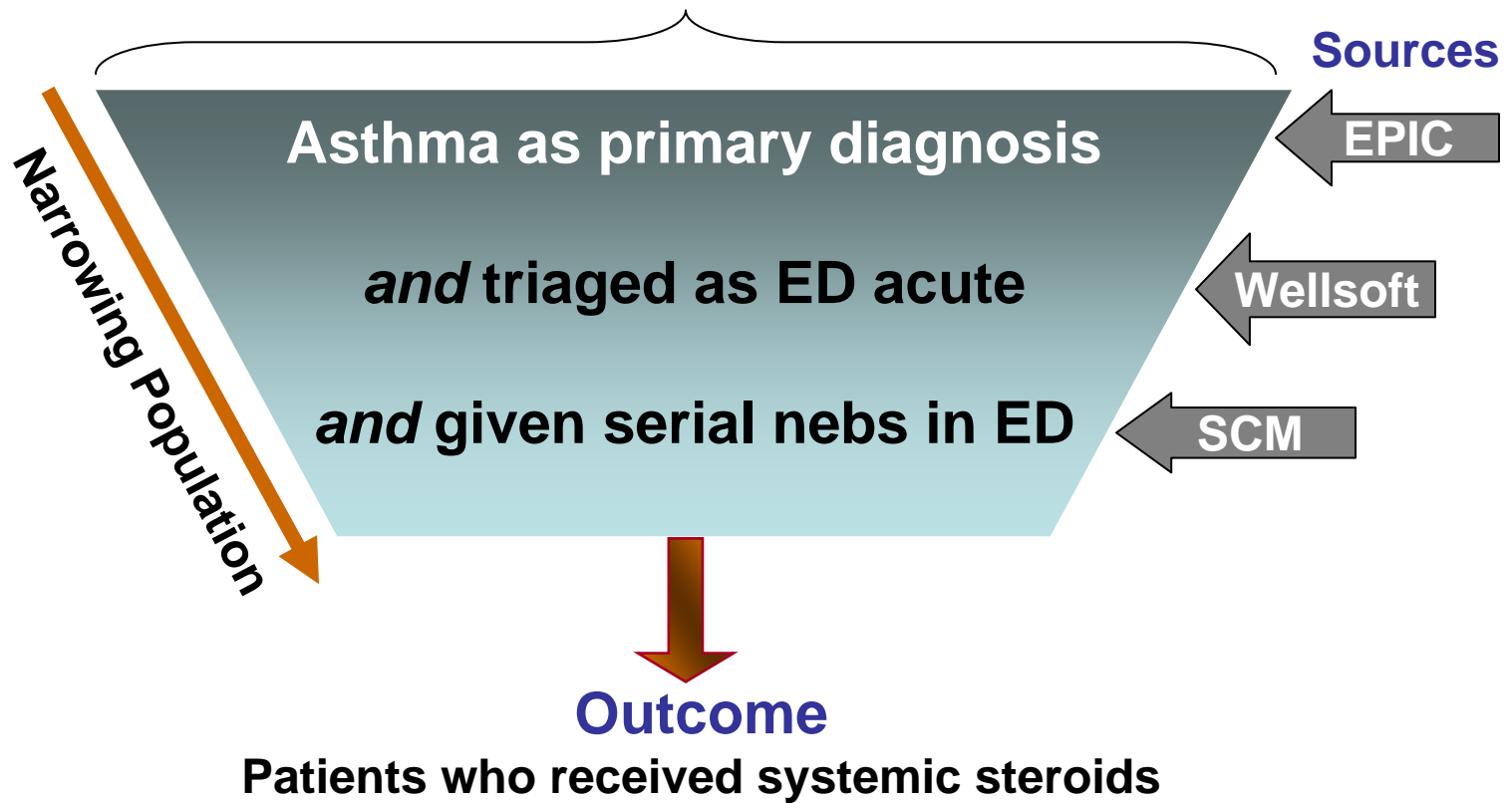
- Denominator-Number of patients with :
 - Primary diagnosis of asthma (493.XX)
 - 2 years or older
 - Triage as Acute (level 2 in 5-level triage system)
 - Received more than 1 bronchodilator in the ED
- Numerator- Number of eligible patients receiving medication within 1 hour from arrival

Data Capture

Data captured using a combination of information systems:

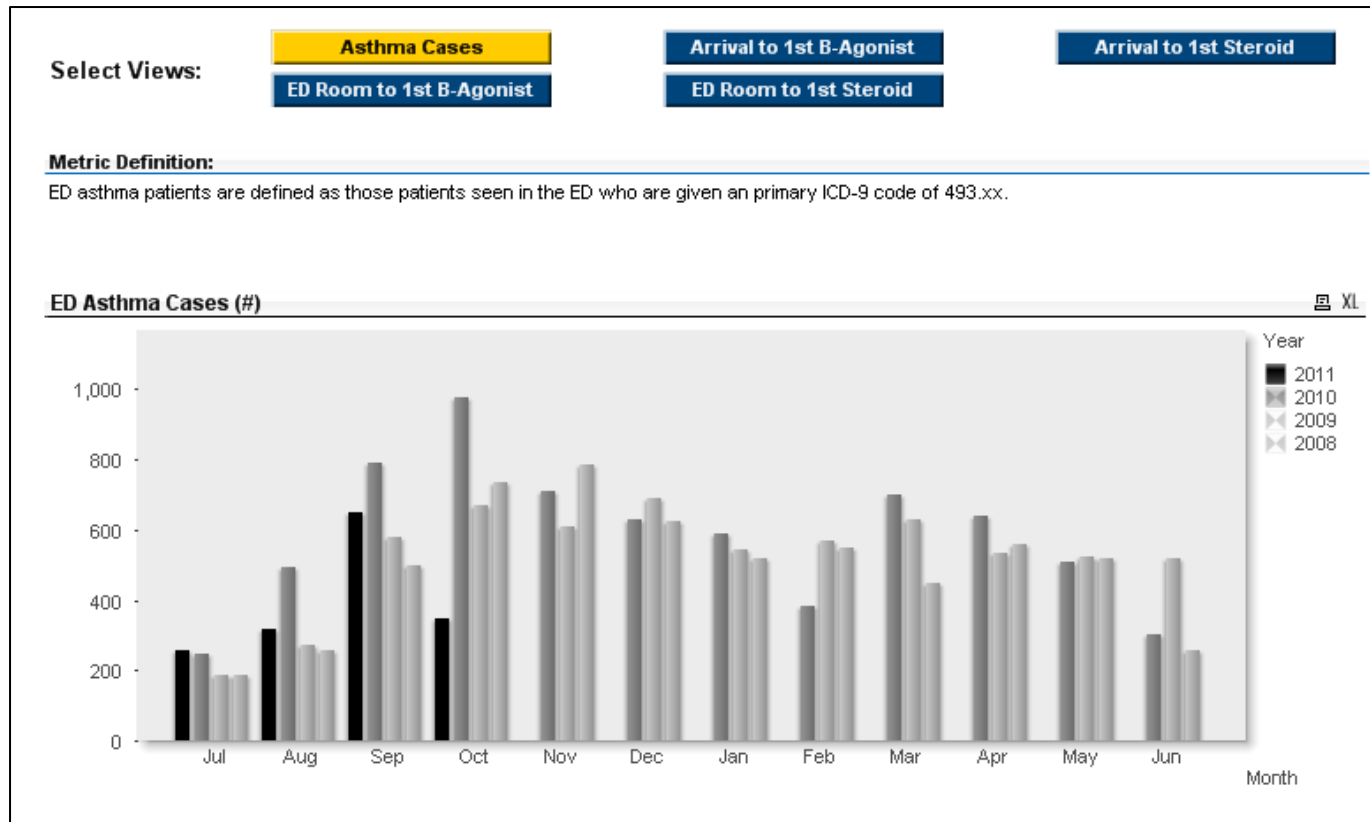
- Arrival: Registration system notes time of first contact of patient with greeter at ED front desk
- Medication administration: Time of administration documented by Respiratory Therapist or RN in computerized order system

Definition



Data Capture

- Hospital data warehouse identifies eligible patients from diagnosis, age and triage codes and displays trends interactively



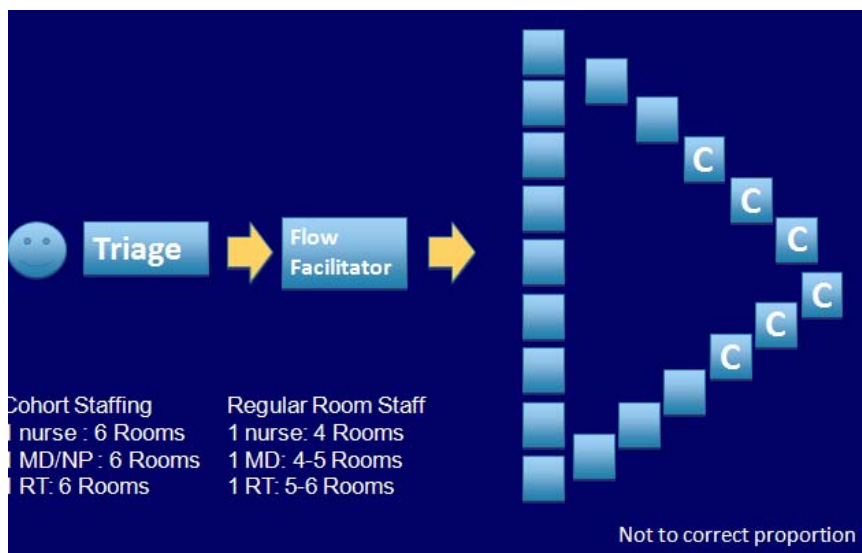
Intervention to Evaluate

Overall goal

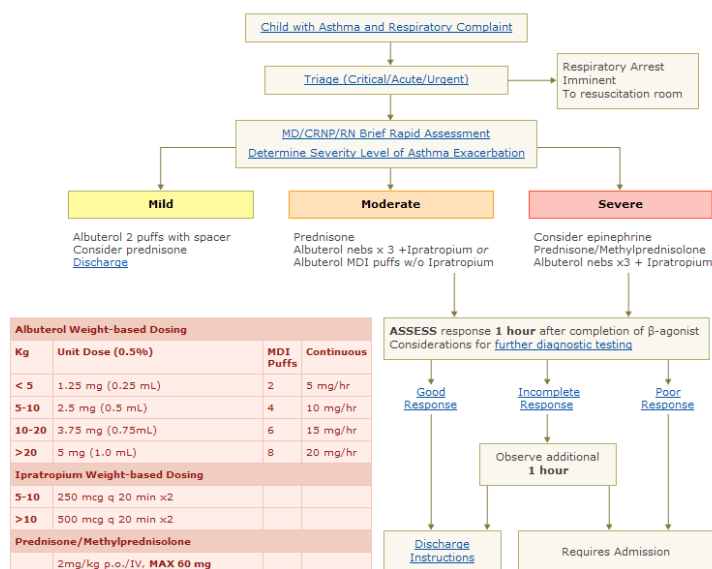
- Reduce time to corticosteroid administration for Acute patients

Intervention

- Co-location of asthma patients in Respiratory Cohort
- Team approach with MD/NP, RN and RT
- Focus on one disease process
- Existing web-based pathway and computerized order sets



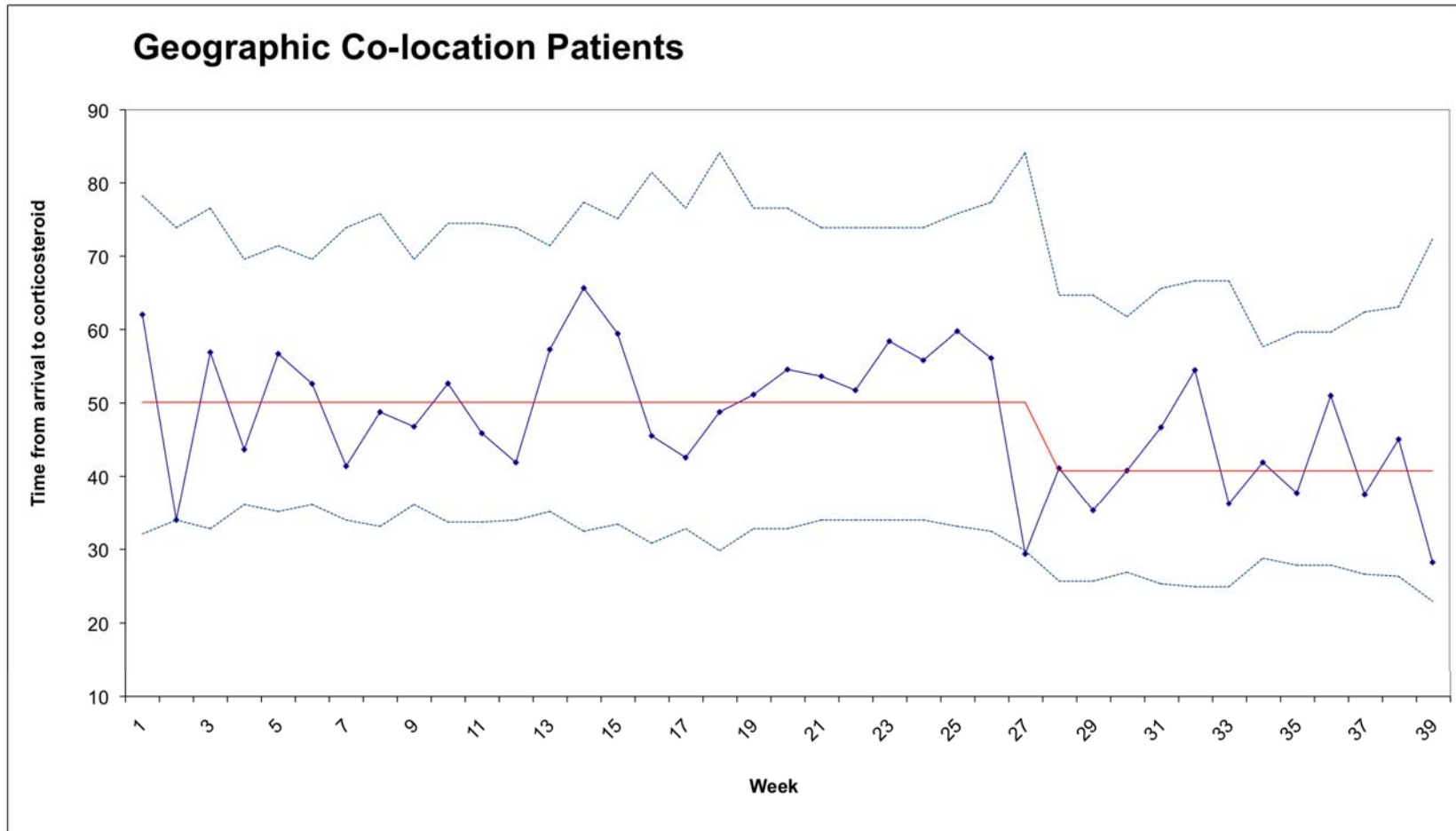
ED Pathway for Evaluation/Treatment of Children with Asthma



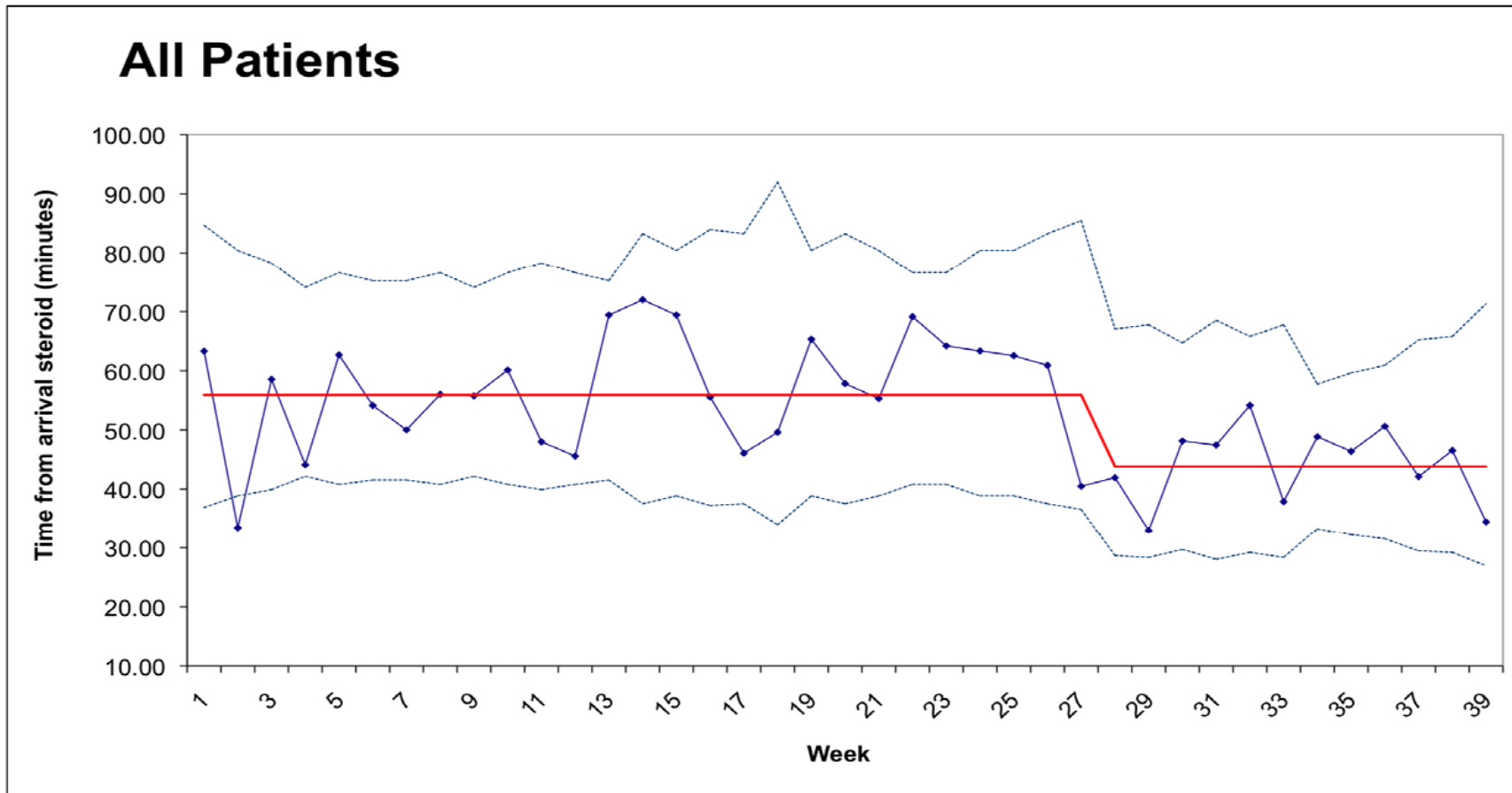
Learn More

- [Links to Evidence and Metrics](#) (PDF)
- [RN Learning Module](#) (PDF)
- [RN Knowledge Assessment](#) (PDF)
- [Asthma Intranet Site](#)
- Journals & Articles**
- [Efficacy and time of action of oral steroids in the ED](#)
- [Follow-up Care after an ED visit](#)
- Related Links**
- [CHOP Asthma educational materials](#)
- [MDI vs. Neb for Families](#) (PDF)
- [National Heart Lung and Blood Institute Asthma Guidelines](#) (PDF)

Mean Time to Steroid: Geographic Co-location



Mean Time to Steroid: All Patients



Time to Inhaled Beta Agonist (IBA) and Corticosteroid (CS)

Outcome	Non-cohort, N	Cohort, N	Non-cohort, minutes (IQR)	Cohort, minutes (IQR)	P value*	Median diff., minutes (95% CI)	% Change
Time to IBA from ED arrival	364	905	66 (41-101)	47 (31-71)	<.0001	-17 (-22,-31)	-29%
Time to CS from ED arrival	364	905	69 (42-108)	47 (31-70)	<.0001	-19 (-24,-15)	-31%
Time to IBA from room placement	341	801	36 (23-59)	28 (19-45)	<.0001	-7 (-9,-4)	-21%
Time to CS from room placement	341	801	39 (24-66)	29 (19-45)	<.0001	-9 (-12,-6)	-26%

*Wilcoxon Rank Sum for p values
Hodges-Lehman Estimate for median difference and 95%CI*

ED Length of Stay (LOS) and Discharge Rate

Outcome	Non-cohort, N	Cohort, N	Non-cohort, minutes (IQR)	Cohort, minutes (IQR)	P value	Median diff., minutes (95% CI)	% Change
ED LOS (all patients)	364	905	273 (223-353)	251 (207-317)	<.0001	-19 (-23,-14)	-8%

Outcome	Non-cohort, N (%)	Cohort, N (%)	P value
Discharged	174 (47.8%)	432 (47.7%)	1

*Wilcoxon Rank Sum or Chi for p values
Hodges-Lehman Estimate for median difference and 95%CI*

Conclusions

- Data about timeliness can be automated and used to track interventions to improve quality of care

Further work

- Other interventions to reduce admissions
- Methods to provide data back to staff in real time

Improving the Timeliness of ED Care for Cancer Patients with Fever, Central Lines and Neutropenia

Stephanie Kennebeck, MD

Cincinnati Children's Hospital Medical Center

Rationale:

- **Cancer patients with fever and central lines have a high likelihood of becoming seriously ill due to infection**
- **Timely delivery of evidence-based care, including antibiotics, reduces morbidity and mortality**
- **The CCHMC strategic plan includes reducing ED length-of-stay by 20%**

Specific Improvement Aim

Aim

- By March 2011, we will increase the proportion of oncology patients with cancer and a line with neutropenia who receive their first antibiotic within 90 minutes of ED arrival from 20% to 90%

Overall Outcome/Global Aim

- Decrease total ED length-of-stay by providing timely, reliable and effective care to patients

Measure 1- Operational Definition:

Did patients with fever, line and neutropenia receive antibiotics in the ED? (Yes, No)

- Numerator-Number of eligible children receiving antibiotics during Emergency Department visit
- Denominator-Number of children <18 years of age with fever, central line and neutropenia

Notes

- Fever: History or documentation of fever greater than or equal to 38.5°C (101.3°F) anytime within 24 hours prior to presentation or during ED visit
- Neutropenia: ANC less than or equal to 500

Measure Rank 19

(10.1) Antibiotic treatment for children with sickle cell disease or documented neutropenia

IOM Domains = **Effective**, **Safe**

Donabedian = **Process**

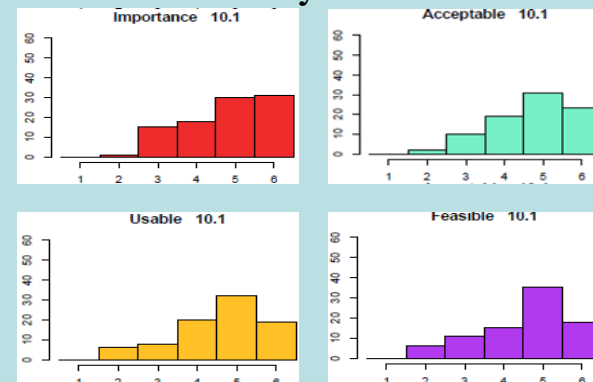
Diagnosis Group = Fever, Immunosuppression

Importance Data

Mean Importance Score = 4.8

Percent of stakeholders giving highest score = 32.6

Stakeholder Survey Evaluation



Historical Data

November 2009 – June 2010

- 81 fever, line and neutropenia patients identified
- 100% received antibiotics in ED
- Average age: 8.1 years
- Average time to MD: 21.5 min
- Average time to Antibiotic - 179 min (3 hrs)
- Average Length of Stay 336 min (>5 hrs)

Measure 2-Operational Definition:

Time to antibiotic treatment for children with fever, line and neutropenia

- Time from arrival in ED to administration of first antibiotic
- Sample: Number of patients < 18 years of age with neutropenia and fever who received antibiotics
- What is the best way to report the outcome?
 - Median time with interquartile range
 - Proportion of patients meeting a defined goal (< 90 minutes)

Measure Rank 23

(10.2) Time to antibiotic treatment for children with sickle cell disease or documented neutropenia

IOM Domains = Effective, Timely

Donabedian = Process

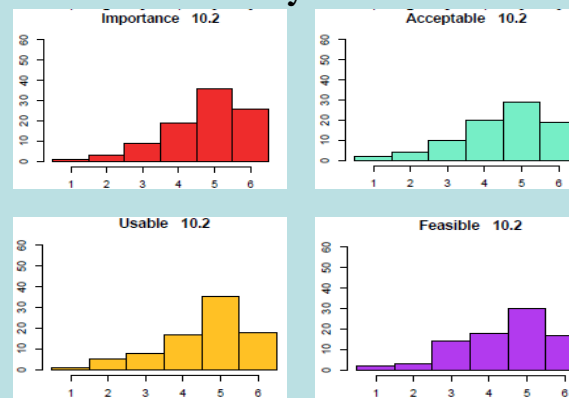
Diagnosis Group = Fever, Immunosuppression

Importance Data

Mean Importance Score = 4.7

Percent of stakeholders giving highest score = 27.7%

Stakeholder Survey Evaluation



Rapid Data Capture for Improvement

Modified Operational Definition

- Identified all ED patients admitted to the bone marrow transplant / oncology service from the ED who received antibiotics
- Use of this proxy makes data capture easier-but still clinically relevant
- Time stamps
 - Arrival at front desk of ED
 - Administration of antibiotics (Zosyn, ceftriaxone, vancomycin)

KEY DRIVER DIAGRAM

Project: ED Care of Neutropenic Patients with Fever and Line

Project Leader: Evie Alessandrini

Initial Date: 07-01-2010
Revised: 09-13-2010

KEY DRIVERS

INTERVENTIONS (Reliability level)

By March 2011,
increase % of
patients with F/L/N
who receive their first
antibiotic within 90
minutes of ED arrival
from 20% to 90%

GLOBAL AIM

Providing timely,
effective care to
patients with
fever/line/neutropenia
will decrease total ED
length-of-stay

Rapid identification and
segmentation of eligible patients

Treatment team knows the
correct therapy

Treatment team reliably
implements the correct therapy

Correct supplies, equipment and
personnel readily available

*ED and Oncology staff are
aware of, accept and participate
in the treatment plan

Patient and families are aware
of, accept and participate in the
treatment plan

Greeter desk questions
Oncology patient "blue card"

Standardizing Care (Level 2)
• Oncology referral checklist
• ED referral Smartphrase
• Epic Order Sets

Team communication of accountability for
roles, responsibilities and plan (Level 1)
• Team huddle in patient room upon arrival

Patients informed
• Reminder by oncology at time of referral
• Family advisory council brochure

Supply cart to collect all specimens,
access lines and antibiotics

Awareness of performance (Level 1)
• Feedback reports and ED dashboards
• ED QI board with posted results

Key
Green shaded = what we're working on right now

Interventions to Improve

Overall goal

- 90% of patients receive their FIRST antibiotic within 90 minutes of ED arrival

Standardizing Care and Early Order Entry

- Oncology fellow check list
- ED Order set
- Referral Smartphrase

Awareness of Performance

- Posting run charts
- Quality debrief at division meetings

Interventions to Improve

Type **.EDONCREFERRALNOTE** in the note

The screenshot shows a software interface for a 'Pre Arrival' visit on 9/8/2010. The patient's age and sex are 11 y.o./F, and the PCP is HSU, JORDAN C. IC. The interface includes sections for 'Meds (0): None', 'Allergies (0): No Known Allergies', and 'Problems (1): Tia (transient Is*)'. A 'Referral Notes' window is open, displaying a list of abbreviations and their expansions. The entry '.EDONCREFERRALNOTE' is highlighted in blue. The list includes:

Abbrev	Expansion
EDFLOW	
EDHPI	{ED HPI:16000140}
EDINTERP	Displays order interpretations
EDLABS	ED Labs - Ordered and Resulted for this Visit
EDLACERATION	Laceration examination: {workup laceration:317397}.
EDMEDS	ED Medications - ordered and administered for this ...
.EDONCREFERRALNOTE	ED/Onc Referral Note Time of Referral: @NOW@ ...
EDORD	Displays order interpretations
EDPROCEDURE	{ED Procedures:16000116}
EDPTMEDCHANGE	Display patient's outpatient medications that were ...
EDPTMEDCONT	Display patient's previous medications

At the bottom of the window, there are buttons for 'Share', 'Pend', 'Accept', and 'Cancel', along with keyboard shortcuts for 'Previous F7' and 'Next F8'. The taskbar at the bottom shows several open applications including Novell GroupWise, Kennebeck_S_2010..., Document2 - Micros..., Epic Hyperspace - CCM E..., and Promotion Documents, with the system time at 3:11 PM.

Interventions to Improve SmartPhrase for Oncology Referrals

Pre Arrival (Contact Date: 9/8/2010)

Pre Arrival | Charting | Disposition | Med Advice | Tx Team | References | Print AYS

Meds (0): **None** | Allergies (0): **No Known Allergies** | Problems (1): **Tia (transient Is*)**

Referral Notes

Cosign Required | Date: 9/8/2010 | Time: 1511 | Service:

100% | Times New Roman | 12 | B I U S A

ED/Onc Referral Note
Time of Referral: 3:11 PM
Estimated Time of Arrival in ED: ***

... is a 11 y.o. female with history of ***. she is managed by the *** service. she (IS/IS NOT:28622) high risk. she (IS/IS NOT:28622) expected to be neutropenic.
The presenting complaints today include: ***.

Orders:
Use ED Immunocompromised Febrile Heme/Onc order set at conclusion of call. In addition to standard labs (CBC, Renal, Blood Cultures from all lumens), please also get ***.

No Known Allergies
Oncology suggested antibiotics: {abx:18259}. Start antibiotics prior to lab results known? **{YES/NO:29823}**

Share | Pend | Accept | Cancel

Restore | Close F9 | Previous F7 | Next F8

Navigator Hotkeys | [Scroll Back to Top](#)

Novell GroupWise - ... | Kennebeck_S_2010... | Document2 - Micros... | Eps Hyperspace - CCM E... | Promotion Documents | 3:12 PM

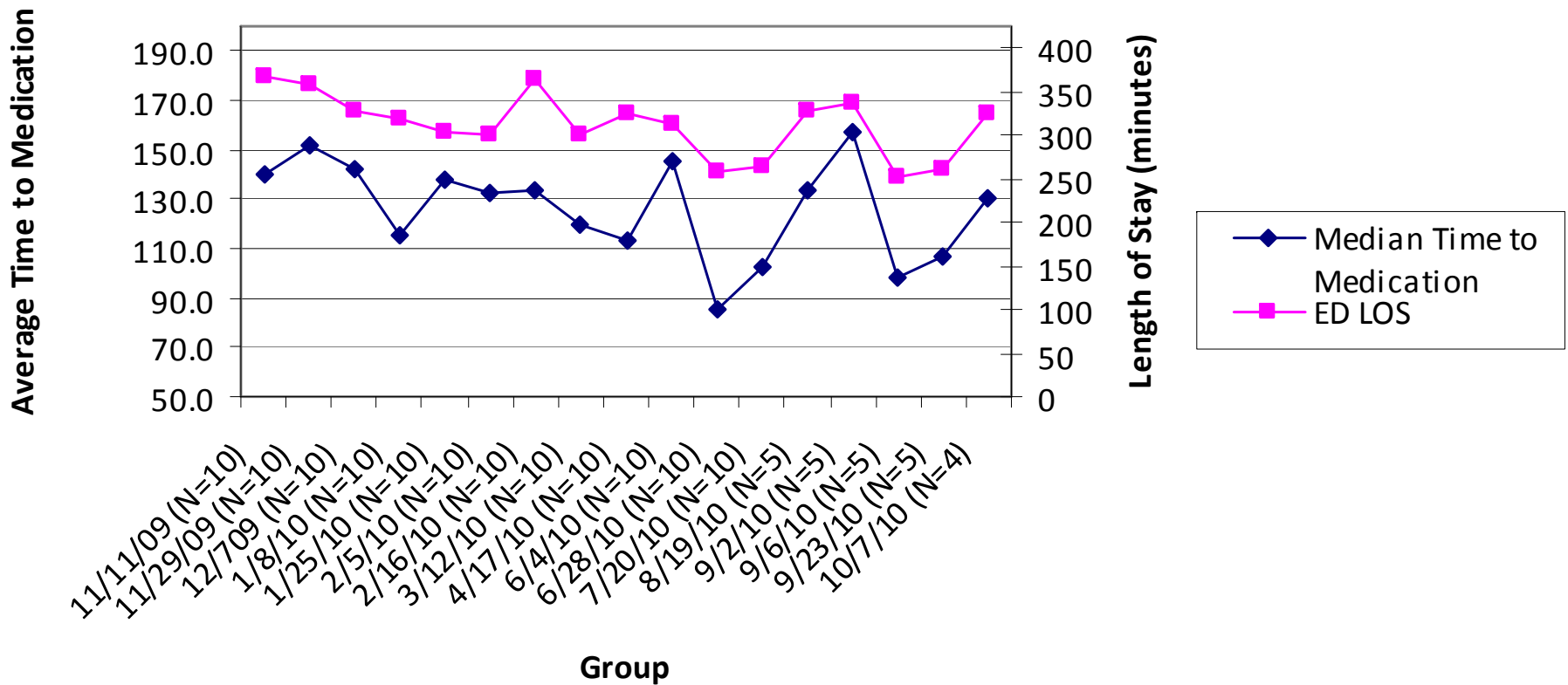
Data Over Time

Median Time to Antibiotics

Median Time to Medication Taken vs. Average LOS (arrival to departure)

N=145, 11/11/09-10/11/10

(patients placed in groups of 10 thru 8/17/10 then groups of 5, ordered by arrival date)



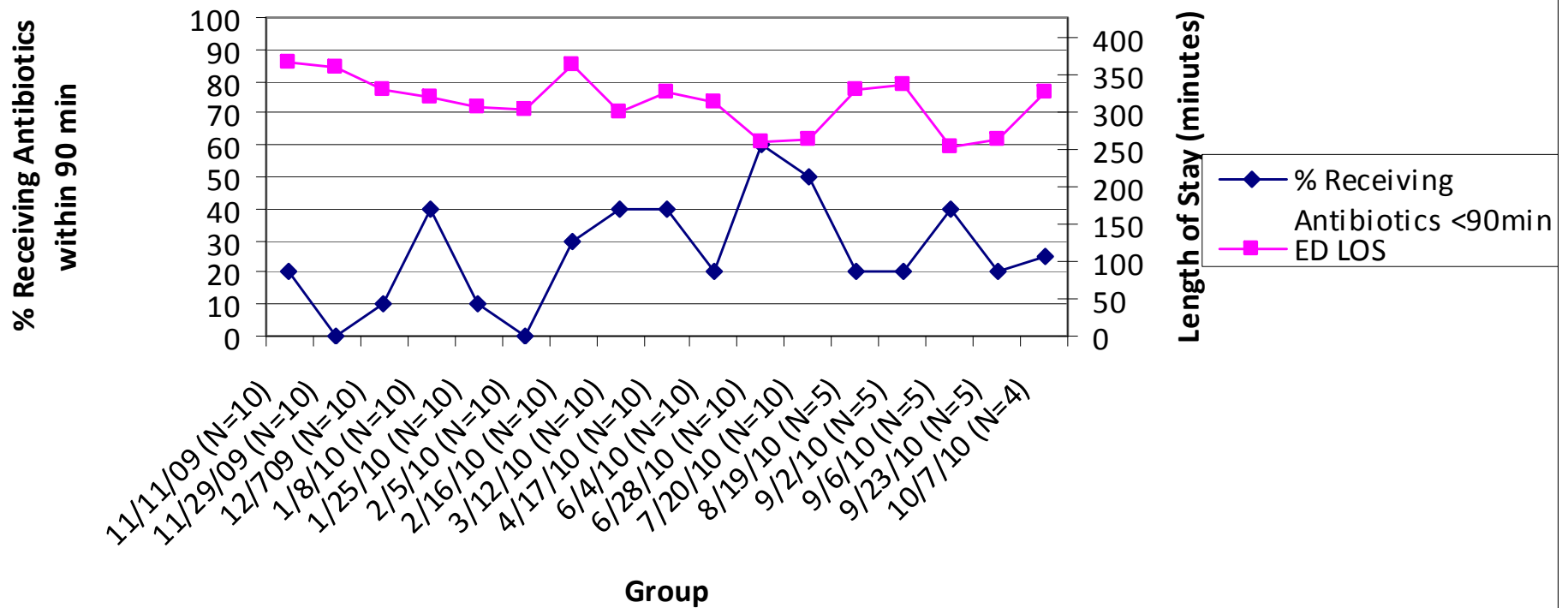
Data Over Time

% Receiving Antibiotics within 90 Minutes

Proportion of Patients Receiving Antibiotic within 90 minutes of arrival vs. LOS
(arrival to departure)

N=145, 11/11/09-10/11/10

(patients placed in groups of 10 thru 8/17/10 then groups of 5, ordered by arrival date)



Are we fixing anything?

	Prior to intervention	Start of process	First Interventions
Proportion of patients getting ABX <90m	18%	33%	41%
Number of patients	70	30	36

Conclusions

- Use of the proxy can make data capture easier and decrease need to review all charts
- Expecting individuals to “remember” a protocol on low frequency events doesn’t work
- Annotating run chart can provide useful feedback on specific interventions
- Question data points that do not make sense- data isn’t always perfect

Overall Summary

- Work toward improving pediatric emergency care
 - Decrease the “unevenness”
- It’s a three step process
 - The first step toward achieving quality is convening expert members across the healthcare industry, including patients to define quality with uniform standards and measures that apply to the many facets of care patients receive.
 - Second, information gleaned from measuring performance is reported and analyzed to pinpoint where patient care falls short.
 - Third, caregivers examine information about the care they are providing and use it to improve.

Measure. Report. Improve.

References

- AAP Policy Statement: Principles for the Development and Use of Quality Measures
 - Pediatrics 121 (2), February 2008, pp 411-418
- Pediatric Clinics of North America “Pediatric Quality”: Quality Measures in Pediatrics
 - Volume 56 (4), August 2009, pp 816-829
- Institute of Medicine Report: Performance Measurement, Accelerating Improvement
 - December 2005
 - www.iom.edu/Reports/2005/Performance-Measurement-Accelerating-Improvement.aspx
- Joint Policy Statement—Guidelines for Care of Children in the Emergency Department
 - *Pediatrics* 2009;124:1233–1243

- Questions and Answers
- Thank you for attending this event. Please complete the evaluation directly following the webcast. An archives of this events will be posted at *<http://www.mchcom.com>*