

---

# **A Pilot Study in Performance Improvement CME: Using an Electronic Health Record for Guided Self Assessment and Learning**

Joseph L. Seltzer, MD

Jeanne G. Cole, MS

Nothing to disclose

# Timely Administration of Pre Op Antibiotics

- Evidence Based
- Pay for Performance Measure
- Easy to Identify Variances

# Background

---

- Anesthesia EHR installed in OR Nov 2005
- Directly records physiologic data to the record
- Manual input of drugs (Time & Dose)
- Creates standardized print out - easy to review

# Purpose

---

- To improve compliance rate of antibiotic administration within academic clinical anesthesiology practice
- To gain experience with the PI-CME process
- To gain experience using EHR for self assessment for the PI-CME process

# Methods

- EHR queried by systems administrator (Jan to July 2006) – departmental compliance rate: 88.25%
- All department members received blinded department overall performance and their own data
- Volunteers for pilot recruited via announcements made at departmental meetings
- Volunteers received copies of Anesthesia records of their “missed cases”

# Study Volunteers

Anesthesiology Dept Faculty 12/50 (24%)

- Yrs in practice

— <5	17%
— 11-15	8%
— >15	75%

- Academic rank

— Instructor:	17%
— Assist Professor:	17%
— Assoc Professor:	33%
— Professor:	33%

- All board certified

# EHR Pilot Study CME Process

Infrastructure developed to comply with AMA

- Oversight
  - CME committee + planning committee
- Clear instructions to physicians
  - Detailed cover info developed for each stage
- Validate depth of physician participation
  - Documentation encourages reflection and validates participation
- Provide adequate background information on PI
  - Anesthesiology grand rounds and department meetings discussed PI, EHR and Abx issues

Follow AMA PI-CME 3 Stage Model

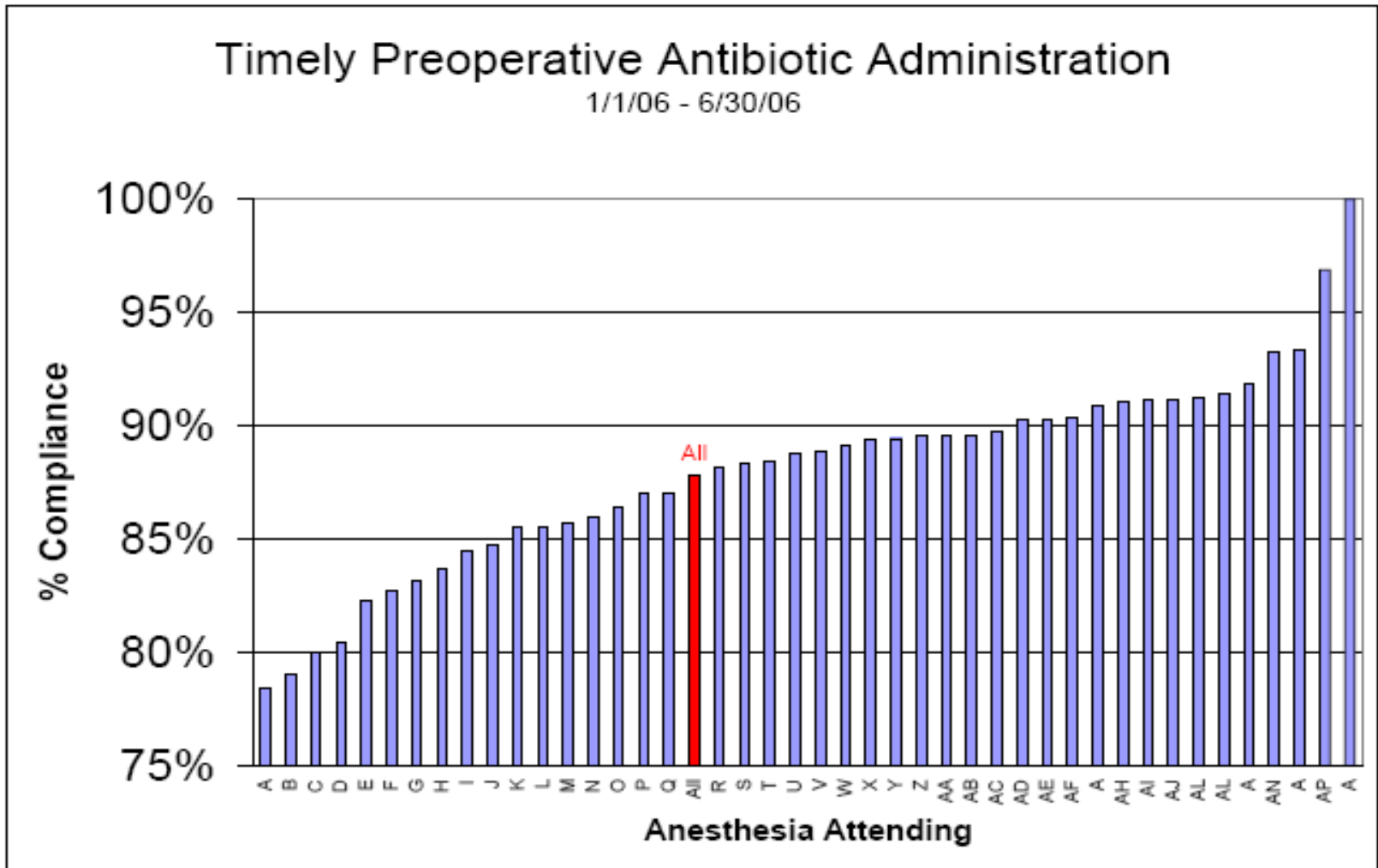
Assess, Intervention, Reassess

# Stage A: Assess current practice

---

- Initial query indicated departmental compliance at 88.25%
  - Dept set goal of 95% compliance
- EHR records of 12 volunteers queried
  - 116 cases identified as out of compliance
    - Either too early or too late
    - Initial compliance range: 80-92%

# Departmental Compliance



# Stage A: Participant Self Assessment

---

- Individual analyzed personal performance vs department
- Completed chart audit
- Compliance worksheet
  - Reasons for non-compliance
  - Pre-coded and open ended option

# Stage A: Participant Self Assessment

---

- Completed CME Worksheet/Documentation
  - Performance Prediction
  - Demographics
  - Categorize reasons for variance
  - Performance relation to core competencies
  - Attitude towards need to change

# Stage A: Documentation

---

- Process evaluation
  - Time/effort
  - Value as a PI process
  - Open ended comments

# Stage A: Results

## Why Noncompliant?

- Error on record 22.4%
- Neglected to give in time 19.8%
- Underestimated time to incision 17.2%
- Surgeon requested none be given 11.2%
- Pt receiving antibiotics in hospital 9.5%

# Stage A: Self Assessment Ratings\*

---

Predicted performance vs peers:	3.36
Rating of performance after data review:	3.92
Rating of accuracy of performance prediction:	4.17

*\*Self rating on 1 (low) to 5 (very high) scale*

# Stage A: Evaluations

---

## Performance relation to core competencies \*

- 75% Systems
- 33% Communications
- 25% Patient Care

*\*Total >100% due to multiple answers*

# Stage B: Intervention

---

Participant required to...

Review, Reflect, Respond

- Evidence based educational packet provided
- Evaluation
  - Guided response form
  - Process evaluation

# Stage B: Documentation

## Questions asked of participants

- Need and commitment for improvement
- Value of education packet as PI
- Performance improvement areas related to competencies
- Additional educational actions taken
- Attitude towards change
- CME documentation
- Value of Stage B as CME
- Required Open Ended Questions: “What I’ve learned”; “What I’ll change” “What else can I look at using EHR”

# Stage B: Results

---

- **Performance improvement areas related to core competencies**

83%      Systems

17%      Communications

17%      Patient Care

# Stage B: Results

## Additional Educational Actions Taken by 83% (10/12) of participants

*Including.....*

Literature review	33%
Review EHR documentation process	25%
Discuss w/ peers	17%

# Stage B: What I've learned....

---

*“Reinforced our current practice...”*

*“Importance of pre-op antibiotics. Barriers to compliance predominantly systems based”*

*“Evidence is compelling that antibiotic admin w/in 2 hrs prior to incision reduces incidence of surgical wound infection”*

## Stage B: What I'll change...

*“More aware of need to communicate with residents and nurses about timely admin...”*

*“Will specifically plan the timing of abx admin in cases that require long preparation time... verify time stamps before closing case...”*

*“Be sure to confirm appropriate admin...”*

*“Prepare antibiotic solution early... make sure dose/time properly documented...”*

*“I will risk changes to my practice... because it has been shown to be best for patient care...”*

# Stage B: Comments/Suggestions...

---

*“Excellent project, this type of activity brings awareness about practical yet extremely important issues”*

*“Enjoyed the process. Focused learning about important topic”*

# Stage C: Reassess

---

- To be completed Spring 2007
- Plan to reproduce individual reports
- Participants will analyze improvement
  - Factors leading to improvement
  - Factors preventing improvement

# Participant Suggestions for Additional Studies Using EHR

*“Post op antibiotic administration”*

*“Adequate maintenance of patient temperature”*

*“Blood management such as PRBC’s transfusion  
FFP”*

*“Duration of anesthesia in correlation with incidence  
of hypoxia...”*

*“Change in blood pressure with induction of  
anesthesia”*

*“Time to orientation after anesthesia”*

# Lessons Learned to Date - CME

---

- More than just PI - collaboration needed to add CME
- CME development may be difficult for individuals
- Templating of forms useful, but customization will be needed for each project
- Stage B is the hardest to develop, do case by case
- There are costs incurred both for development and for each project

# Lessons Learned to Date- Self Assessment

- Reports from EHR can provide data to guide physician self assessment
  - Reports will only be as good as what's recorded
- May be difficult for individuals to query their EHR for customized reports
- Better suited to group practices?

# EHR Self Assessment

---

- Routine reports could be built into EHR
- Reports should be evidence based measures
- A rich array of standard reports will be necessary to meet all individuals' practice patterns

# Future Plans

- Each faculty practice has a PI project under JUP Clinical Care Committee
  - Collaboration to develop as PI-CME projects
- Hospital project: Compliance “Dashboard”
  - Real-time individualized data
  - Tied to education/CME credit



# Questions/comments?

[joseph.seltzer@jefferson.edu](mailto:joseph.seltzer@jefferson.edu)

[jeanne.cole@jefferson.edu](mailto:jeanne.cole@jefferson.edu)

- 
- Additional informational slides

# Development Costs -

---

- MD time
  - In planning committee
  - Generating individual data reports and case packets for Stage A
    - Utilized existing technology to generate reports from EHR

# Development Costs - CME

- Overall Policy/Procedure Development\*
- Project planning
- Documentation planning and creation of forms\*\*
- CME accreditation compliance
- Materials duplication/distribution
- Data Collection and entry
- Data Analysis
- Participant records

*\*one time cost*

*\*\*template forms customized for each project*