

THE COMPUTERIZED ANESTHESIA RECORD AS A SELF ASSESSMENT AND PERFORMANCE IMPROVEMENT TOOL

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Introduction

We explored the use of the computerized anesthesia record as a self assessment tool leading to learning and performance improvement in practice.

The recent implementation of the ABMS Maintenance of Certification program has highlighted the need for effective self assessment and practice-based learning as part of physicians' ongoing continuing professional development. Given concerns that physicians have been shown to be relatively poor at self assessment, tools to support their self-assessment activities are needed.

A potential tool for self assessment is the electronic health record (EHR), such as a computerized anesthesia record. Because the EHR provides actual patient data in a malleable format, it may be possible to use it to help anesthesiologists identify concerns in their daily practice.

Recent approval by the AMA of Category 1 CME credit for performance improvement projects based on self assessment and practice data prompted us to combine newly acquired EHR technology in the OR with a pilot CME program, focused on established protocols for **timely administration of prophylactic antibiotics**.

Using the EHR for Self Assessment

Step 1: EHR systems administrator creates query to identify variances in administration of prophylactic antibiotics based on time entered in EHR vs. time frame in given protocols to examine performance over a number of weeks.

Step 2: Departmental compliance chart created and discussed at department meetings.

Step 3: All department members received blinded department overall performance data and their own data to compare relative ranking.

Step 4: Individual anesthesiologists received copies of their own EHR records for all cases out of compliance with protocols PLUS a worksheet. Worksheet guided review of data for accuracy, to capture and categorize reasons for non-compliance.

Step 5: Worksheet results were analyzed for trends and areas targeted for improvement.

Step 6: Learning packets were compiled by project management committee to address areas targeted for improvement, and distributed to individual anesthesiologists.

Step 7: Individual anesthesiologists identified key learning points and outlined actions to be taken to improve performance.

Step 8: After several months, the EHR systems administrator re-runs the query for a new, later time frame to generate comparison data. As before, departmental information is discussed and individuals receive their personal performance data.

Step 9: Comparisons are made, and the cycle begins anew, or another topic is selected for review.

The EHR provides data that forms the basis both for self assessment and for followup assessment of effectiveness of learning.

Using EHR projects for CME Credit

The process described above fits well into the AMA's Performance Improvement –CME model, and allows for up to 20 AMA PRA Category 1 Credits™ to be awarded to each participating anesthesiologist. The Department of Anesthesiology worked with the Office of CME to design and implement processes that facilitated the award of credit within the AMA requirement, and captured qualitative data on physician learning and its effectiveness.

Performance Improvement CME Requires

- Stated objectives
- A planned three stage process
- Documentation for each stage
- Evaluation

The Pilot Study

- 12 attending physicians volunteered for the pilot study
- For each stage described below, CME forms for data collection and documentation were utilized
- Data analysis through descriptive statistics and analysis of statements
- An improvement goal was set for the selected measure of timeliness of antibiotic administration

The AMA Three Stage Model

A : Learning From Current Practice

Stage A requires an assessment of current practice using standard performance improvement measures such as chart review. Participating physician should be involved in collection and analysis of the data.

B : Learning From Application of PI to Patient Care

Stage B requires implementation of an intervention based on the performance measures in Stage A. Participating physicians should receive guidance on appropriate parameters for applying an intervention and assessing performance change, specific to the performance measured and the physician's patient base.

C : Learning From Evaluation of PI Efforts

Stage C requires re-evaluation and reflection on the performance improvement from Stage B by comparing to the assessment done in Stage A and a summarization of any practice process and/or outcome changes that resulted from the PI activity.

Up to 20 AMA PRA Category 1 credits can be awarded for completion of all 3 Stages

Learning Objectives for this project

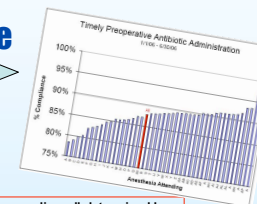
- The objectives of participating in this performance improvement project were for physicians to
- Assess his/her compliance rate for timely antibiotic administration.
 - Identify individual reasons for variance from standard protocols.
 - Review current protocols and/or clinical guidelines relating to timely antibiotic administration.
 - Reflect on practice behaviors relating to timely antibiotic administration.
 - Determine a course of action to change practice behavior relating to timely antibiotic administration to improve compliance.
 - Re-assess practice outcomes after three months to determine if compliance has improved

Timely Administration Antibiotics Stage by Stage

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
 - Antibiotic administered either too early or too late
 - Initial compliance range: 80-92%

88%



Volunteers received Antibiotic Worksheet and CME forms to guide their self assessment
Categorized reasons for non-compliance
Indicated relationship to specific core competency

Causes of "non-compliance" determined by physician's record review

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

Stage B : Intervention

Participants were provided with evidence-based educational packet and CME Worksheet for guided response and evaluation

- Identified what was learned
- Identified what will be changed and why
- Indicated relationship to specific core competency

What was learned

"Reinforced 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."
More aware of need to communicate with residents and nurses about timely admin..."

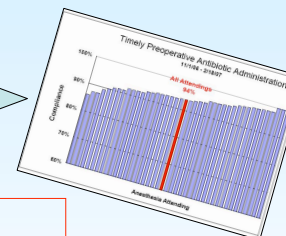
Core Competency areas determined by participants as needing improvement

System Based Practice	75%
Communications	17%
Patient Care	17%

Stage C : Re-Assessment

- Department compliance Nov. – Feb. reviewed
- Compliance at 94%
- Participants analyze change against prior data and intentions stated in Stage B
 - Factor leading to improvement
 - Factors preventing improvement

94%



Majority of participants reported:

- Seeking out additional information about the topic (67%)
- Success in implementing their intended changes (83%)
- Making additional changes to their practices (75%)

They categorized the changes made as primarily related to the competency of systems-based practice

Conclusions

The EHR is a source of practice data for self assessment and lifelong learning. A systems manager well versed in querying the EHR and developing reports is critical to success. Attending anesthesiologists were willing to examine their performance and complete the PI project. Future anesthesia record systems should be designed with a rich array to standardize reports that are evidence-based and important to patient outcomes in anesthesiology.

While there was an observed improvement in compliance rates (from 88% to 94%), it is difficult to attribute the increase solely to the intervention in Stage B.