

MOCA PART 4: IMPROVEMENT IN MEDICAL PRACTICE (IMP) HOW TO COMPLETE A CASE EVALUATION

All diplomates enrolled in the Maintenance of Certification in Anesthesiology Program (MOCA) are required to satisfactorily complete the MOCA Part4: Improvement in Practice requirement. One component of the program is a four-step case evaluation as described below:

- 1) **Collect:** The diplomate collects a meaningful sample of data, over an extended period of time, from one of the following:
 - Clinical outcomes data on patients from a specific period of time or group of patients
 - Feedback from patients that relates to clinical care given
- 2) **Compare:** The diplomate compares the outcomes with guidelines approved by professional societies such as the ASA; ideally those guidelines should be evidence-based. Alternatively, the diplomate may compare outcomes with results from meta-analyses or Cochrane reviews. If such guidelines are not available, the diplomate may compare outcomes with consensus opinion or peer (inside and/or outside group) data to determine areas for improvement.
- 3) **Implement:** The diplomate designs and implements a plan to improve outcomes in one of four selected areas:
 - Clinical or point-of-care decision support
 - Personal education and care change
 - System or process modification
 - Clinical pathway creation and implementation

The development of a practice improvement plan may be an individual or group effort, and implementation may be done by a group or by the diplomate. If the group approach is used, it must be possible to extract the individual diplomate's data from the group data. Currently, the AMA PRA Category 1 Practice Improvement credit meets these criteria provided all stages are completed. Information is available on the AMA website at <http://www.ama-assn.org/resources/doc/cme/practice-improvement-booklet.pdf>.

- 4) **Evaluate:** The diplomate collects new data, compares the latest outcomes to the chosen guidelines or goals, and determines the degree of change since the original assessment. The goal is for the diplomate to improve or to maintain a high standard of practice.

SUBMITTING A CASE EVALUATION TO THE ABA:

At the end of the four-step process, diplomates prepare a summary of the four steps (see examples next). While most Case Evaluation summaries should include all four steps, some system modification projects undertaken to address gaps in patient care or readiness may necessarily omit the "Collect" step (see Sample #4). Diplomates are advised not to make reference to any identifiable protected health information, patient identifiers, or the name/location of the institution or practice in the case summaries.

When the document is complete, please submit it to moca@theABA.org. All Case Evaluations are subject to audit and review.

If you have any questions, please contact the ABA Communications Center at (866) 999-7501 or coms@theABA.org.

MOCA PART 4: CASE EVALUATION SAMPLES

These sample case evaluations are not intended as guidelines for recommended care, but rather as templates for diplomates to reference in constructing their own practice improvement evaluation and improvement activity.

SAMPLE # 1: NAUSEA AND VOMITING

The Chair of an anesthesiology department regularly reviews comments received by the hospital about patient satisfaction. S/he notes what s/he believes to be an unusually high number of complaints about nausea and vomiting (N/V) after ambulatory surgery. S/he asks that the Quality committee of the department look into the issue.

The Quality committee meets and discusses how this issue should be approached. The committee decides to collect data about the incidence of N/V, including information regarding the surgical procedure, length of procedure, anesthesiologist, anesthetic agents administered, airway management, analgesic use in the PACU, and unplanned hospital admissions.

After collecting 3 months of retrospective data, the committee's initial analysis identified factors that were associated with a higher than average incidence of N/V. The committee reviewed the current literature to determine both the incidence of N/V in large scale studies and proposed best practices for prevention and management of N/V, as a basis to compare these results. The committee then reported its results and recommendations to the whole department. Their department had a higher incidence of vomiting for patients having surgery considered high risk for vomiting, but a normal incidence for patients having surgery considered low risk. However, three members of the department were identified as having a much higher incidence of N/V in their patients. Their cases were separately analyzed. It was noted that one had a higher incidence of nausea when mask ventilation was used for the airway management of the case, and the other two had practices employing greater opioid administration in the post-anesthesia care unit.

Based on this analysis, the department agreed to implement what it felt represented a best practice for prevention of N/V. Among the several elements of the best practice, prophylactic antiemetics were to be ordered for all high risk cases, including patients with a past history of N/V. In addition, it was suggested that mask ventilation appeared to also be associated with a higher incidence of vomiting. Lastly, a clinical protocol for postoperative analgesia in outpatient surgery and for treatment of N/V was developed and communicated to anesthesia, nursing and surgical staff.

After 6 months of the new protocol, data was collected for a month to evaluate the incidence of N/V against previous data and national figures. The incidence of N/V fell below previous levels and below national averages for all practitioners except one. In evaluating the practice of the remaining outlier, it was noted that s/he continued to use mask ventilation to a much greater degree than his colleagues. When this was pointed out to them, s/he consciously changed their practice. The committee again collected data 6 months later, and confirmed that the improvement in the incidence of N/V persisted for all staff.

SAMPLE # 2: SURGICAL SITE INFECTIONS/PERIOPERATIVE GLYCEMIC MANAGEMENT

The Chief Quality Officer for the hospital notes that the hospital has a high rate of surgical site infections compared to other regional hospitals. S/he asks the Chair of Anesthesiology to examine whether anesthetic care may be a contributing factor.

The Chair of Anesthesiology asks the department's Quality Committee to address this question. The Committee meets and discusses how to approach this issue. The committee decides to collect data on three quality measures: 1) timing and drug choice for prophylactic antibiotic administration, 2) patient body temperature on arrival in the PACU, and 3) perioperative glucose control.

After collecting three months of retrospective data for the department in the aggregate and by individual physician, the Quality Committee performs an analysis. The data confirm that previous interventions to improve performance with prophylactic antibiotic guidelines have been effective, and sustained compliance rates over 98% are found. In addition, no pattern of hypothermia on admission to the PACU is noted.

However, that the data demonstrated that a substantial number of patients, including insulin-dependent diabetics, did not have a preanesthetic blood glucose determination, and three anesthesiologists were identified as being less likely to determine the preanesthetic blood glucose measurement than other members of the Department. The committee also noted that some patients with a high preoperative blood glucose measurement did not receive insulin. The Committee members reviewed recent studies and guidelines for perioperative glucose control.

The Quality Committee then reported its results and suggestions of how to implement its recommendations for improvement in practice to the entire Department. The committee established standing orders for preoperative blood glucose determination in preoperative patients. Committee members were reluctant to establish specific target guidelines for perioperative blood glucose control, although they do recommend the use of a continuous insulin infusion to maintain blood glucose levels between 150 and 200 mg/dL in patients undergoing cardiac surgery. The Department agreed to implement these recommendations and to reevaluate outcome measures after six months.

Six months later, the Quality Committee collected data to evaluate the results of implementation of earlier recommendations. The Committee documented substantial compliance with the standing orders to obtain a preoperative blood glucose measurement, and noted that a higher percentage of patients with a preoperative blood glucose greater than 200 mg/dL received insulin than during the previous assessment period. Use of an insulin infusion protocol was seen in all cardiac surgical patients with documented hyperglycemia, with the exception of a single anesthesiologist.

The Chair of the Anesthesiology Department presented these results to the hospital's Chief Medical Officer and Chief Quality Officer. Concurrently, these administrators observed a reduction in the hospital's overall rate of surgical site infections, and the reduction was most pronounced in patients undergoing sternotomy for heart surgery.

The Committee collected data again six months later and confirmed that the anesthesiologist who previously had poor compliance improved to a level similar to that of other members of the Department.

SAMPLE # 3: HYPOTHERMIA

I noticed that many of my patients were shivering when I took them to the post-anesthesia care unit. When a patient with cardiovascular disease who had undergone a lumbar fusion developed a postoperative myocardial infarction, I decided to prospectively collect temperature data on every patient that I took care of for the next 3 months.

During those 3 months, I provided anesthesia for 75 patients undergoing a variety of neurosurgical procedures. Fifteen of these patients received sedation (deep brain stimulation for Parkinson's' Disease, awake craniotomy and vagal nerve stimulator generator change). The remaining 50 received general anesthesia for intracranial vascular procedures, intracranial tumor resection or spinal instrumentation.

The patients who received general anesthesia ranged in age from 18 to 88, with a median age of 62 years. Their surgical procedures lasted from 95 minutes to 8 ½ hours. On admission to the post-anesthesia care unit, their average temperature was 35.4° C (range 34.8 – 35.9). With the exception of 6 patients, all were extubated while still in the operating room.

After defining the degree of hypothermia that my patients had after their anesthetics, I did a PubMed literature search and identified articles relevant to prevention of hypothermia (see the attached list). In addition to

reading these articles, I attended The PGA scientific panel “Temperature monitoring to improve perioperative outcomes,” as well as other lectures at the ASA related to the importance of perioperative normothermia.

Since then, I have changed my practice in the following ways:

- For patients who will receive general anesthetic, I routinely place forced air warming blankets in the preoperative holding area and continue their use in the operating room.
- I keep the operating rooms where I work warmer until after the patient has been prepped and draped.
- I no longer routinely administer a room temperature intravenous fluid load in the preoperative holding area and always use a fluid warmer in the operating room.

In the 6 weeks after revising my patient management, I provided 51 general anesthetics. The median patient age was 56 years (range 15 – 84 years), surgical duration ranged from 90 minutes to 10 hours and the types of surgical procedures were unchanged from my initial data review. On average, the patients’ temperature on admission to the post-anesthesia care unit was 36° C (range 35.6 to 37.7). No patient suffered a perioperative myocardial infarction and all but 1 were extubated immediately after surgery.

Reading List

1. Sessler DI. Complications and treatment of mild hypothermia. *Anesthesiology* 2001;95:531-43.
2. Kurz A, Sessler DI, Lenhardt R. Perioperative normothermia to reduce the incidence of surgical-wound infection and shorten hospitalization. Study of wound infection and temperature group. *N Engl J Med* 1996;334:1209-15
3. Lenhardt R, Marker E, Goll V, Tschernich H Kurz A, Sessler DI, Narzi E, Lackner F. Mild intraoperative hypothermia prolongs postanesthetic recovery. *Anesthesiology* 1997;87:1318-23
4. Beilin B, Shavit Y, Razumovsky J, Wolloch Y, Zeidel A, Bessler H. Effects of mild hypothermia on cellular immune responses. *Anesthesiology* 1998;89:1133-40
5. Guest JD, Vanni S, Silbert L. Mild hypothermia, blood loss and complications in elective spinal surgery. *Spine J* 2004;4:130-7
6. Frank SM, Fleisher LA, Breslow MJ, Higgins MS, Olson KF, Kelly S, Beattie C. Perioperative maintenance of normothermia reduces the incidence of morbid cardiac events. A randomized clinical trial. *JAMA* 1997;277:1127-34
7. Rajagopalan S, Mascha E, Na J, Sessler DI. The effects of mild perioperative hypothermia on blood loss and transfusion requirement. *Anesthesiology* 2008;108:71-7
8. Andrzejowski J, Hoyle J, Easpen G, Turnbull D. Effect of prewarming on post-induction core temperature and the incidence of inadvertent perioperative hypothermia in patients undergoing general anesthesia. *Br J Anaesth* 2008;101:627-31

SAMPLE #4: EBOLA PREPAREDNESS

I was following the international health crisis related to Ebola virus disease and transmission, and noted that our anesthesia department had not discussed this topic and had not participated in any planning by our hospital for the possibility of caring for a patient with known or highly-suspected ebola infection. I considered this a significant opportunity for our emergency preparedness, and believed that addressing this could be applied more broadly to close system gaps in our readiness for potentially other biocontainment challenges to be met in the future while delivering care to a patient or patients in need. I met with our Department Chair and subsequently with our hospitals’ Chief Medical Officer, and received their endorsement to coordinate information gathering, interdisciplinary planning, and training for potential anesthetic or procedural care of such a patient in our facility.

I began by conducting a literature search and online review of resources, including a recently produced recommendation document by the ASA (<https://www.asahq.org/For-Members/Clinical-Information/Ebola-Information/Ebola-Guidelines-from-COH.aspx>) and another from the American College of Surgeons (<https://www.facs.org/ebola/surgical-protocol>). I also viewed a webinar on hospital preparedness produced by the US CDC (http://emergency.cdc.gov/coca/ppt/2014/10_14_14_preparing_for_ebola.pdf), and one by the

ASA (<http://education.asahq.org/ebola>). I met with our Director of Infectious Diseases, Chief of Critical Care Medicine, Chair of Surgery, and our hospital vice president for operations. Together we identified and agreed on a number of important patient care and facility plans including:

- 1) Screening processes for patients presenting to the facility
- 2) The best physical space for patients with highly suspected, or confirmed, Ebola virus infection
- 3) Proximate locations and processes for handling of patient care materials
- 4) Anticipated emergency care procedures, such as airway management, advanced intravenous access, or interventions at the bedside
- 5) Plans for establishing parameters for cardiopulmonary resuscitation, agreement on limits of such efforts, and other advanced directives
- 6) Plans to provide any likely necessary care at the isolated bedside, with plans for patient transport elsewhere only in extraordinary circumstances until the patient is confirmed virus-free
- 7) Identification of hospital personnel most likely to be involved in patient care, and creation and delivery of practical training in the proper donning and doffing of personal protective equipment (PPE)

During this review, I noted that our facility's PPE did not meet the optimum standards for treatment of Ebola infected patients – specifically, our available equipment did not provide adequate protection of the neck space between the top of the gown and the bottom of the mask. This was addressed with coordination between our infectious disease service and hospital purchasing. In addition, I personally created and oversaw the implementation of our donning and doffing training program for hospital personnel, which was offered and administered to employees deemed at high likelihood for care of an infected patient, and any other clinical personnel who requested this training. Finally, I worked with colleagues to create our own, on-line, employee education module to explain the transmission, risk factors, travel implications, and signs/symptoms of Ebola to assist with screening and identification enhancement. These new system measures are receiving ongoing assessment through knowledge confirmation modules at the completion of the training, and recurrent spot checks of trained personnel in the proper donning and doffing of PPE.

SAMPLE #5: POST-OPERATIVE ANALGESIA IN TOTAL KNEE ARTHROPLASTY

The Chair of Anesthesiology was contacted by the Hospital Chief Medical Officer, who noted that the facility's scores in the pain management domain of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys were below the 50th percentile for their comparison group, and were even lower on the unit to which total joint arthroplasty patients were admitted postoperatively. The Chair of Anesthesiology noted that these orthopedic cases were routinely done by a subset of six anesthesiologists in the department, and he asked them to review their practice for possible improvements that would optimize postoperative analgesia.

The six anesthesiologists met, and agreed to conduct a three month retrospective review of their anesthetics for total knee and hip arthroplasty. In analyzing their results, they noted substantial heterogeneity in the primary mode of anesthesia (epidural, subarachnoid block, general anesthesia) and in the techniques for analgesia (oral, parenteral, and regional). They conducted a literature search of recent publications investigating the analgesic outcomes of different regimens for total joint replacement. They also noted increasingly common descriptions of success with implementation of care pathways for similar patients, followed by recurrent refinement of the pathway based on actual experience. After reaching an internal consensus among them, they requested and held a meeting with their colleagues in orthopedic surgery. They reviewed their findings, defended their conclusions, and ultimately gained agreement from the surgeons to begin a uniform approach to primary anesthetic technique and postoperative analgesia.

They instituted their clinical pathway, characterized by multimodal pre- and post-operative oral analgesics, subarachnoid block as the primary anesthetic unless contraindicated, and placement of an indwelling femoral nerve sheath catheter with post-operative infusion of dilute local anesthetic (for the total knee procedures). They collected 3 months of data on their practice related to OR efficiency, postoperative nursing experience, and patient experience. The hospital reported that the HCAHPS pain domain raw scores increased from a pre-implementation baseline of 69 to a new average of 78, improving the hospital's overall score in this category to

greater than the 50th percentile because of the hospital's high volume of orthopedic cases. However, the hospital also noted an increased pharmacy expenditures from substantially greater administration of an intravenous non-narcotic analgesic. Also, two anesthesiologists were noted to have greater failure rates with their continuous femoral nerve blocks, and were referred to attend a refresher course.

The six anesthesiologists met again and refined their regimen to reduce pharmacy expense associated with the protocol. Since the total hip replacement patients did not have indwelling catheters postoperatively, they modified their subarachnoid block technique in this group to include an intrathecal opioid.

A new analysis performed in the following three months demonstrated preserved HCAHPS scores and surgeon satisfaction, reduced pharmaceutical expenses when compared to the prior three months, and a narrowed gap of femoral nerve blocks success in the group of six physicians.

REQUIRED CASE EVALUATION ATTESTATION FORM

When you completed a case evaluation, please print this attestation form and submit it with your documentation via email, fax, or mail. Please follow up with us to confirm our receipt of your documentation.

Email: moca@theABA.org

Fax: (866) 999-7503

Mail: The American Board of Anesthesiology

Attn: MOCA

4208 Six Forks Road, Suite 1500

Raleigh, NC 27609-5765

I hereby attest that the attached case evaluation is a true document which represents patient data from my clinical practice of anesthesiology or a recognized anesthesiology subspecialty, which I have compared to evidence-based guidelines for the purpose of developing, implementing, and evaluating my practice improvement plan.

Name: _____

ABA ID: _____

Signature: _____

Date: _____