Decrease recovery time with proper pain management

Standardized pain management can help bring patients quicker relief and discharge home from the outpatient surgical center.

Postoperative levels of care

Some of the most common outpatient surgeries are: knee arthroscopies, liposuction and facial procedures, cataract surgeries, tonsillectomies, gynecologic surgeries, and various types of biopsies. Because of the variety of procedures and types of surgeries, nurses who care for patients in the ambulatory surgery setting must be proficient and knowledgeable about a large number of patient types. To define and differentiate the nurse’s role in PACU from other practice areas in the OR, the American Society of PeriAnesthesia Nurses (ASPAN) has developed criteria and levels of care specific to the postop period.

Postop care is divided into postanesthesia Phase I or Phase II according to ASPAN designations. Nursing responsibilities during Phase I center on transitioning the patient from an anesthetized state to care in Phase I.
II or an inpatient setting. Assessment focuses on the respiratory and cardiovascular systems. Phase II focuses on preparing the patient and family for care in the home. Criteria for ambulatory surgical patients to be discharged from Phase II to home include:

- control of pain acceptable to the patient
- control of nausea/vomiting
- patient is ambulatory based on type of procedure and prior ability.

Many ambulatory care patients move directly from the OR to Phase II. This practice of “fast-tracking” refers to bypassing Phase I. Contributing factors to fast-tracking are:

- technologic advancements in surgery
- shorter-acting anesthetic agents
- improved pain management.

Appropriate patient selection for fast-tracking is defined by the institution, and should consider the patient’s history, the type and length of the procedure, the type of anesthesia, and anesthetics to be used.

Controlling pain and PONV is central to postop care. ASPAN has two guidelines specific to pain control and PONV. The ASPAN Pain and Comfort Guideline provides direction for adequate pain relief. It highlights pain assessment, pain medications, and expected outcomes. The guideline also has a holistic focus, advocating medications for pain relief and complementary methods such as heat, cold, repositioning, and relaxation. Unrelieved PONV has the potential for delaying discharge and can limit the use of opioids for pain relief. ASPAN has developed a guideline for treating PONV that identifies potential problem patients and offers direction for using antiemetics to control PONV.

**Medications and techniques**

**Medications**
The American Society of Anesthesiologists (ASA) defines appropriate approaches to pain relief that include medications, nerve blockade, and the use of antiemetics to control PONV.

There are three common opioid medications given intravenously (I.V.) that are used in postop care: morphine, hydromorphone (Dilaudid), and fentanyl (Sublimaze). These medications are used when oral medications aren’t yet possible and for severe pain of 7 to 10, on a 0 to 10 pain assessment scale (0 = no pain and 10 = worst pain possible). These medications are very effective in the management of severe pain, and when administered via the I.V. route have a quick onset of action, usually within 5 to 15 minutes. The drawback to using these medications via the I.V. route is the short duration of action. Morphine will last the longest, hydromorphone is mid-range, and fentanyl has the fastest onset and shortest duration.

Non-specific nonsteroidal anti-inflammatory drugs (NS-NSAIDs) such as ketorolac (Toradol) can also be used for pain relief, however a dose reduction is necessary for patients who are over 65 years of age, under 110 pounds, or patients who have renal impairment. Since all NS-NSAIDs affect platelet aggregation and impair clotting, these drugs aren’t recommended for use in patients undergoing procedures such as plastic surgery or grafting due to the potential for increased bleeding. Not all patients are good candidates for an NS-NSAID, such as those with a history of gastrointestinal (GI) bleeding or ulceration, renal impairment, coronary bypass surgery, stroke, or patients using aspirin.

Oral medications commonly used for postop pain control in the moderate pain range (pain level 4 to 6) are hydrocodone and acetaminophen (Vicodin/Lortab), oxycodone and acetaminophen (Percocet), and tramadol (Ultram).

**Regional techniques**
Regional techniques such as nerve blocks with local anesthetic or peripheral local anesthetic pumps such as ON-Q or Infusaid pumps are useful for many procedures, including orthopedic surgeries. Nerve blocks are given as a single dose and can be placed for intercostal, penile, ilioinguinal, plexus or femoral blockade. A femoral nerve block can be performed along the femoral nerve during the procedure and will be effective for 6 to 8 hours postprocedure. The value of the neural blockade is a reduction in opioid use and no additional potential for nausea and vomiting.

ON-Q or Infusaid pumps contain a plastic reservoir that automatically delivers local anesthetic at a rate set by the anesthesiologist or surgeon and can last up to 48 hours or longer depending on the flow rate. Insertion sites include:

- the subcutaneous tissue along surgical incisions
- along a nerve like a femoral block
- into intra-articular joint spaces such as the shoulder.

Patients can be discharged with the local anesthetic pump in place and the patient receives instructions for removal. Once the ball containing the local anesthetic collapses, the catheter can be removed. The
Pain management

**Use with caution**

One medication that is now only recommended for short procedures or postop rigors is meperidine (Demerol). Since meperidine has a neurotoxic metabolite called normeperidine that causes seizures, meperidine should be used with caution. Meperidine shouldn’t be used for pain management because it requires high doses to achieve pain relief, has a high incidence of nausea and vomiting, and has an increased potential for seizure.

An oral medication that has fallen out of favor for pain relief is acetaminophen and propoxyphene (Darvocet-N100). Each tablet has 650 milligrams of acetaminophen. This means that the maximum daily dose of acetaminophen (4000 mg/day) can be reached very quickly. Darvocet also has a cardiotoxic metabolite, norpropoxyphene, that can cause seizures and cardiac dysrhythmias. Using acetaminophen alone is a better option than using a combination medication with the potential for adverse events.

Benefits of using these regional anesthetic techniques include:

- opioid-sparing effect
- decreased adverse events such as nausea and vomiting
- decreased pain levels
- earlier mobilization
- higher patient satisfaction

**Controlling PONV**

Some surgeries are more likely to cause nausea and vomiting than others. Orthopedic, plastic, and ophthalmologic surgeries are more emetogenic than other procedures. Some predictors for increased incidence of nausea and vomiting with surgery include:

- female gender
- nonsmoker
- history of PONV
- use of postop opioids

There are many different medications that can control nausea and vomiting, but most are sedating. Adding the sedative effect of an antiemetic to opioid medications can produce increased sedation especially with opioid-naive patients.

To decrease or avoid postoperative nausea, encourage the patient to drink small amounts of clear fluids at first and advance to crackers or dry toast. Use positive reinforcement to help patients think about having a nausea-free recovery. Suitable antiemetic prophylactic therapy includes:

- 5-HT	extsubscript{3} receptor antagonists
- H	extsubscript{1} receptor blockers (antihistamines)
- antidopaminergics
- bland food in the postop period

If PONV is well controlled, the ambulatory care patient can continue to use pain medications to control pain and facilitate a timely discharge home.

**The value of standardized orders**

The ASPAN standards provide a basic framework for nurses practicing in all phases of postanesthesia care. Standardized pain management for all postop patients is critical.

ASPAH’s position statement on pain management recognizes and supports the collaboration of the anesthesia department and the perianesthesia nurses to address and adequately manage pain. This collaboration is imperative for the standardized order set to succeed. The anesthesia provider can offer feedback and guidance as the clinical practice team creates, implements, and evaluates the standardized order set. The order set is a guide and the patient’s age, medical history, and physiological parameters must always be considered prior to medication administration.

The first step in creating a standardized order set is to establish the assessment parameters that should be considered when choosing and administering pain medication. ASPAN has defined a standard for pain management that states a patient’s self-report of pain is the best measurement tool to use when assessing pain. The use of a reliable and valid pain scale should be a standard part of any pain assessment. The 0 to 10 Numeric Pain Intensity (NPI) rating scale is appropriate for patients able to self-report pain. For patients who are unable to self-report, using a behavioral scale can identify pain and estimate pain level. In addition to obtaining a numeric score from the patient, evaluate the location, quality, and duration of the pain. The anesthesiologist selects an appropriate opioid and the PACU nurse, using the numeric score, will administer the appropriate dose based on the patient’s pain score. Dosing intervals for opioids are ordered by the anesthesiologist and are based on:

- analgesic pharmacology
- delivery method
- expected level of postop pain
- age
• medical history

The order set also provides a total dose or maximum amount to be given and parameters to call anesthesia for pain not relieved by the original orders. (See PACU standard orders.)

The next assessment parameter is the rate, quality, and depth of respirations. The respiratory rate (RR) is evaluated every 15 minutes at a minimum and before any opioid dosing.

The sedation level of the patient is then assessed. To determine sedation level, use a simple scale such as a 1 to 4 rating: 1 is wide awake, 4 is somnolent and unable to be aroused. Sedation scores are also assessed a minimum of every 15 minutes and before any opioid dosing. Patients with scores greater than 2 have reached an endpoint to opioid administration. Careful and astute assessments and reassessments of respiratory rate and sedation level while administering opioids is the key to preventing oversedation while maximizing pain relief.

The administration of oral analgesics is based on the patient’s pain score, type of surgery, risk of PONV (active or anticipated), and previous use of the oral agent. Supplementing I.V. opioid administration with oral therapy can be beneficial in some patients. Additional pain relief measures are incorporated throughout the patient’s stay and include positioning, ice therapy, NSAID administration, music, and guided imagery therapy.

Pain reassessments are performed every 5 to 10 minutes and recorded a minimum of every 15 minutes. Titrating pain medication coincides with the patient’s pain score, respiratory rate, and sedation level. Criteria for discharge from the PACU/ambulatory care center to home include:

- a pain score less than 4
- a sedation score less than 3
- vital signs within 20% of baseline.

Patients with pain levels verbally reported as tolerable or to baseline (for chronic pain patients) are acceptable for discharge as well.

**Case study using a standard order**

P.Z. is a healthy 18-year-old male admitted to PACU after an open reconstruction of his right anterior cruciate ligament under general endotracheal anesthesia. Upon arrival, P.Z. is easily aroused (sedation score = 1), and physiologically stable with a patent airway. His RR is 24/minute and regular with normal chest expansion. Oxygen saturation is 100% on 2 L/minute nasal cannula. P.Z. is complaining of pain with a verbal report of 8 on a 0 to 10 pain assessment scale. The pain is constant and he describes it as throbbing. P.Z. is also complaining of nausea but hasn’t vomited. He received Dexamethasone 8 mg I.V. for PONV prophylaxis and a right femoral nerve block for pain management in the OR during surgery.

Using the standardized orders written by the anesthesiologist, the nurse selects hydromorphone and administers 0.5 mg I.V. based on her assessment of pain level, respiratory rate, and sedation level. In addition, ketorolac 30 mg is administered I.V. Ketaorolac works synergistically with the opioid and may lessen the amount of opioid needed to manage the pain and lessen the risk of PONV. Ondansetron 2 mg I.V. is administered for the nausea (according to ASPAN, rescuing with an agent from a different antiemetic class is more effective than repeat administration of the agent used for prophylaxis). P.Z.’s I.V. rate is also increased as adequate hydration is recommended for nausea management. Additional interventions for pain and comfort begin upon arrival to the PACU and include ice to the right knee, proper positioning of the right leg, and temperature management.

Reassessment 10 minutes later reveals a pain score of 6, sedation score of 2, and RR 18 min. P.Z. receives a second dose of hydromorphone 0.3 mg I.V. The nausea persists without vomiting and P.Z. receives metoclopramide 10 mg I.V.

Ten minutes after P.Z.’s second dose of hydromorphone, his pain level is 4, sedation score is 2, and RR is 16/min. The nausea has lessened but is still present. He now feels decreased sensation along the anterior portion of the right knee. No additional opioid is administered at this time. The peak effects of the hydromorphone haven’t been reached and the femoral nerve block is taking effect. Both factors will lessen P.Z.’s pain level.

Within 1 hour of arriving in the PACU, P.Z. is ready for discharge. His pain is less than 4 with a sedation score of 2 and RR 14/min. He’s tolerating ice chips and sips of ginger ale without vomiting. Once home and able to have a light meal, he will be ready to take his prescribed Percocet. Postoperative teaching includes avoidance of acetaminophen while taking the Percocet, continued icing and elevation of his knee, and supplementing the Percocet with NSAIDs if approved by the surgeon.

**Discharge needs**

The basic criteria for discharge after ambulatory care surgery include:

- stable vital signs
- no respiratory depression
# PACU standard orders

## ANESTHESIA ORDERS

### POST ANESTHESIA CARE UNIT

### STANDING ORDERS

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<th>PATIENT PLATE</th>
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Admit to PACU. Discharge from PACU when criteria met.

- **Fast Track**
- **Oxygen via:** NC _____ liters / min  FM / Face Tent _____ %  Non-rebreather mask _____ %
- **Ventilatory settings:** Tidal Volume _____  Mode _____  Rate _____  FiO2 _____  Peep _____
- **IV Fluid:** _____  _____ @ _____ cc/hr
- **Fingerstick** (call if > _____ or < _____ )  **IStat**  **PCXR**  **ABG’s**  **12 Lead EKG**

Patient parameters and medical condition / history must be considered prior to administration of any medications ordered.

### PACU standard orders

#### PATIENT SAFETY ALERT

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- **Morphine Sulfate** dose to be administered every _____ 5 minutes or every _____ 10 minutes PRN pain
  - 2 mg IV of Morphine Sulfate for mild pain (1 – 3 / 10)
  - 3 mg IV of Morphine Sulfate for moderate pain (4 – 6 / 10)
  - 4 mg IV of Morphine Sulfate for severe pain (7 – 10 / 10)
  - Notify anesthesiologist when total dose reaches _____ and pain remains > 4 / 10

- **Fentanyl** dose to be administered every _____ 5 minutes or every _____ 10 minutes PRN pain
  - 12.5 micrograms IV of Fentanyl for mild pain (1 – 3 / 10)
  - 25 micrograms IV of Fentanyl for moderate pain (4 – 6 / 10)
  - 50 micrograms IV of Fentanyl for severe pain (7 – 10 / 10)
  - Notify anesthesiologist when total dose reaches _____ and pain remains > 4 / 10

- **Hydromorphone** dose to be administered every _____ 5 minutes or every _____ 10 minutes PRN pain
  - 0.2 mg IV of Hydromorphone for mild pain (1 – 3 / 10)
  - 0.3 mg IV of Hydromorphone for moderate pain (4 – 6 / 10)
  - 0.5 mg IV of Hydromorphone for severe pain (7 – 10 / 10)
  - Notify anesthesiologist when total dose reaches _____ and pain remains > 4 / 10

- **Hydrocodone and Acetaminophen (5 mg / 500 mg) tab(s) po 1 x 1 in PACU PRN pain**
- **Oxycodone and Acetaminophen (5 mg / 325 mg) tab(s) po 1 x 1 in PACU PRN pain**
- **Hydromorphone _____ mg po 1 x 1 in PACU PRN pain**

### Nausea and Vomiting

- **Ondansetron** 2 mg IV; may repeat 1 x 1 in _____ minutes
- **Promethazine** _____ mg IV PRN x 1; may repeat 1 x 1 in _____ minutes
- **Metoclopramide** 10 mg IV; may repeat 1 x 1 in _____ minutes

### Additional PACU orders:

- **Ketorolac _____ mg IVP x 1 for pain**
- **Meperidine _____ mg IV every _____ min. in PACU PRN shivering**
- **Labetalol _____ mg IV every 5 minutes PRN systolic BP > _____ or diastolic BP > _____**
- **Hydralazine _____ mg IV every _____ minutes PRN systolic BP > _____ or diastolic BP > _____**

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<th>PHYSICIAN SIGNATURE</th>
<th>DATE</th>
<th>TIME</th>
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**SUBURBAN HOSPITAL**

Healthcare System

8600 Old Georgetown Road  •  Bethesda, Maryland 20814

(301) 994-1100

PHYSICIAN’S ORDERS - POST ANESTHESIA STANDING ORDERS

FORM 1-1650 (rev. 03/06)

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• patient must be oriented, able to void, able to care for self and be taking oral fluids
• minimal to no bleeding, nausea, or pain
• written instructions must be provided with a contact name and number for help during the home postop period
• patients must be escorted home by an adult.

Patients who are being discharged from an ambulatory care setting, or after day surgery, need directions about medication use, adverse effects, and who to contact for help if there is a postop complication such as continued high levels of pain.

Some general information about medication use include:
• what the medication is and when to take it
• potential side effects of the medication
• taking the medication with food
• who to call if pain medications aren’t working or cause continued adverse effects.

Discharge readiness depends on the individual patient. Each patient will respond to anesthesia and postop medications differently. Older patients have the potential for more untoward events after anesthesia while younger patients may tolerate the surgical experience with fewer side effects. Using multimodal treatment plans and tailoring the process to the individual patients will ensure the best opportunity for the success of the ambulatory surgical experience.

REFERENCES

At Suburban Hospital, Bethesda, Md., Karen S. Nevius is a pretesting, preop holding, and PACU educator and Yvonne D’Arcy is a pain management and palliative care nurse practitioner.

The authors have disclosed that they have no financial relationship related to this article.
Decrease recovery time with proper pain management

GENERAL PURPOSE: To provide the perioperative nurse with information about optimal management of pain and PONV.

LEARNING OBJECTIVES: After reading this article and taking this test you should be able to: 1. Identify recommended practices for perioperative care in the ambulatory surgery setting. 2. Describe characteristics and use of selected medications for surgical pain management 3. Discuss characteristics and use of selected medications for relief of PONV.

1. ASPAN developed criteria for postop care to
   a. differentiate the nurse’s role in PACU from other OR practice areas.
   b. clearly define the four phases of postop care required.
   c. identify nursing responsibilities specific to monitoring the patient in the OR in the ambulatory surgery setting.
   d. define the types of surgery appropriate for ambulatory surgery.

2. “Fast-tracking” refers to the practice of
   a. moving from patient arrival to the OR in less than 30 minutes.
   b. bypassing postanesthesia Phase I.
   c. bypassing postanesthesia Phase II.
   d. transitioning the patient from the OR directly to the 24-hour care unit.

3. Factors that contribute to fast-tracking include all except
   a. advances in surgical technology.
   b. shorter-acting anesthesia.
   c. better pain management.
   d. limited use of opioids.

4. Which drug isn’t a common I.V. opioid for postop pain?
   a. morphine
   b. hydrocode
   c. fentanyl
   d. hydrocode and acetaminophen

5. Which I.V. pain medication has the fastest onset of action and the shortest duration?
   a. morphine
   b. hydrocode
   c. fentanyl
   d. hydrocode and acetaminophen

6. The recommended dosage of ketorolac doesn’t need to be adjusted for patients who
   a. are over 65 years of age.
   b. are less than 110 pounds.
   c. have renal impairment.
   d. have liver impairment.

7. All of the following are reasons that meperidine (Demerol) should be used with caution except that
   a. it requires high doses to achieve pain relief.
   b. it has a high incidence of nausea and vomiting.
   c. it has an increased potential for biliary tract spasm.
   d. it has an increased potential for seizures.

8. The best candidate to take a NS-NSAIDs for postop pain is the one who
   a. has just undergone a breast biopsy.
   b. has just undergone plastic surgery.
   c. has had a stroke.
   d. takes aspirin for arthritis pain.

9. Which medication is commonly given orally for postop pain control in the moderate pain range (pain level 4 to 6)?
   a. morphine
   b. ketorolac
   c. fentanyl
   d. hydrocode and acetaminophen

10. A single-dose femoral nerve block given during a procedure can remain effective for
   a. 1 to 2 hours.
   b. 3 to 5 hours.
   c. 6 to 8 hours.
   d. 10 to 12 hours.

11. Which statement about using peripheral local anesthesia pumps is true?
   a. The flow rate is adjusted by the patient as needed.
   b. Pain relief can last up to 48 hours.
   c. A short visit to the surgeon is necessary to remove the catheter.
   d. They can effectively reduce pain but don’t reduce PONV.

12. Insertion sites for ON-Q or Infusaid pumps include all of the following except
   a. into the epidural space.
   b. into subcutaneous tissue along surgical incisions.
   c. along a nerve like a femoral block.
   d. into intra-articular joint spaces.

13. Which of the following is considered a predictor for PONV?
   a. male gender
   b. opioid-naive patient
   c. non-smoker
   d. no prior surgery

14. Which statement about PONV is true?
   a. Most antiemetics are sedating.
   b. Initially, clear liquids are more likely than crackers to cause vomiting.
   c. Giving postop opioids orally rather than I.V. eliminates risk of PONV.
   d. Ophthalmologic surgery has a low incidence of PONV.

15. ASPAN’s position on pain management supports
   a. avoiding standardized pain management order sets.
   b. standardized pain management collaboratively addressed by the anesthesia department and perianesthesia nurses.
   c. selection of the opioid and dosing intervals by the PACU nurse.
   d. administering opioids based solely on the numeric pain intensity scale.

16. Criteria for discharge to home includes
   a. patient’s pain score is less than 6.
   b. vital signs are within 30% of baseline.
   c. patient no longer needs opioid analgesia.
   d. patient acknowledges pain level as tolerable.

17. Which intervention would be least likely to decrease postop nausea?
   a. assure adequate hydration
   b. administer ketorolac with an opioid
   c. administer a postop antiemetic that is different from the prophylactic preop antiemetic
   d. repeat the dose of the antiemetic used for prophylaxis

ENROLLMENT FORM OR Nurse 2008, April, Decrease recovery time with proper pain management

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   Address ________________________________________________________________

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C. Course Evaluation*

   1. Did this CE activity’s learning objectives relate to its general purpose?  Yes  No
   2. Was the journal home study format an effective way to present the material?  Yes  No
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