

## Postanesthesia Care Practice Considerations

## Introduction

Certified registered nurse anesthetists (CRNAs) contribute to the postanesthesia care of the patient during handoff of care, postanesthesia care that may include analgesia, management of postoperative nausea and vomiting (PONV), airway management and resuscitation, discharge from the postanesthesia care unit (PACU), development of policies, and continuous quality improvement for staff education and improved processes. The CRNA role varies across practice settings and facilities in accordance with facility bylaws and policy, as well as individual competencies.<sup>1,2</sup>

The American Association of Nurse Anesthesiology (AANA) provides these practice considerations to support the delivery of safe, consistent care of the patient in the postanesthesia period. These practice considerations do not apply to the recovery care of the obstetric patient who received epidural analgesia for labor and vaginal delivery. The PACU is a uniquely staffed and equipped area for monitored and protocolized care necessary for safe patient transition to the postanesthesia and/or postprocedural period. Staffing requirements and the role of the registered nurse in providing direct patient care in the PACU are set forth in the practice recommendations promulgated by the American Society of PeriAnesthesia Nurses (ASPAN) presented later in this document.

## **Postanesthesia Care**

The postanesthesia period provides a monitored transition from the intraoperative or procedure period to assess and manage the patient's hemodynamic, analgesic and general preparedness for rapid and optimal recovery.<sup>3</sup> The PACU or separate postanesthesia recovery area, such as the surgical intensive care unit, provides resources appropriate for patients who receive sedation, regional anesthesia, or general anesthesia.<sup>4</sup>

Prior to anesthesia or during the intraoperative period, the decision to admit the patient to the PACU or intensive care area is discussed by the proceduralist and anesthesia professional. Some procedures and anesthesia techniques allow transition from the operating or procedure room to directly return to the patient room for Phase II recovery based on facility policy and criteria (discussed in more detail below).

## **Phases of Postanesthesia Care**

The postanesthesia period may be separated into three levels of care: Phase I, Phase II, and Extended Care.<sup>5</sup> Each phase of recovery may occur in one PACU or in multiple locations, which may include the patient's room (see Table 1). In a critical care area, anesthesia and procedural transitions are integrated into the routine care and monitoring of the patient.

## Phase I

During Phase I care, the focus is on the patient's recovery from anesthesia and the return to baseline vital signs. Consideration is given to the procedure, anesthesia care, patient comorbidities, and the patient's physical status to recognize, minimize and manage any issues or complications.<sup>3</sup> Phase I includes, but is not limited to, applying PACU scoring criteria on admission and each vital signs assessment, managing respiratory and hemodynamic changes,



1 of 15

Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division I 847-655-8870 | practice@aana.com



monitoring the effects of the procedure (e.g., bleeding, circulation), and providing necessary analgesia and antiemetics. While monitoring requirements are facility-specific, they are also based on the patient's condition. ASPAN recommends assessing and documenting vital signs at least every 15 minutes during the first hour and then every 30 minutes until discharge from Phase I PACU care.<sup>5</sup> The patient is then transitioned to Phase II, the inpatient setting, or the intensive care unit (ICU) for continued care.<sup>6</sup>

#### Phase II

Before a patient is transitioned to Phase II care, Phase I priorities should be met (see Table 1). Phase II care focuses on continued recovery and is based on facility policy and the needs of the patient.<sup>7</sup> Phase II care most often applies to the ambulatory or same day admission. The goal of this phase is to prepare the patient to be transferred home or to an extended care facility.<sup>3</sup> The frequency of evaluating vital signs is often facility-specific and begins on arrival and ends at discharge.<sup>5</sup> During this phase the patient is able to ambulate, take nutrition, and receive education and instructions necessary for self-management of care at home.<sup>3</sup>

#### Fast Tracking

Some anesthesia techniques and surgeries/procedures allow the patient to bypass Phase I care and go directly from the operating or procedure room to Phase II, a process known as "fast tracking." Fast tracking allows the anesthesia professional and procedure team to determine that the patient has adequately recovered and has met the criteria to be transitioned to Phase II care immediately in the postanesthesia period.<sup>5</sup> Criteria for determining whether a patient is able to be fast tracked is developed by the interdisciplinary team and documented in facility policy. Criteria for bypass of Phase I PACU may include, but are not limited to, the PACU scoring criteria, patient physical and mental status, vital signs, the type of surgery/procedure, and any complications.<sup>8</sup> Age alone is not used as a criterion to fast track a patient.<sup>8</sup> Adequate staffing resources on the receiving Phase II team is an important consideration in fast tracking. Communication from the procedure team to the Phase II team is essential for successful transition of care.

Level of Care	Priorities	Possible Complications	Discharge from Phase Considerations
Phase I	<ul> <li>Stable airway with adequate ventilation and oxygenation</li> <li>Hemodynamic stability</li> <li>Manage analgesia and PONV</li> <li>Oral intake</li> <li>Discontinue or adapt IV (enhanced recovery protocol)</li> </ul>	<ul> <li>Airway compromise</li> <li>Cardiovascular depression</li> <li>Pain</li> <li>Side effects: <ul> <li>Nausea</li> <li>Vomiting</li> </ul> </li> <li>Delirium</li> <li>Procedure- specific considerations</li> </ul>	<ul> <li>Adequate airway and ventilatory status</li> <li>Cardiac and hemodynamic stability</li> <li>Ability to move extremities on command</li> <li>Fully awake</li> <li>Adequate oxygen saturation on room air</li> </ul>
Phase II	<ul> <li>Mobility</li> <li>Oral intake</li> <li>Adequate analgesia</li> <li>Education for discharge</li> <li>Prescriptions</li> </ul>	<ul><li> Pain</li><li> Nausea</li><li> Vomiting</li></ul>	<ul> <li>Adequate pain relief and comfort</li> <li>Hemodynamic stability</li> <li>Nausea addressed</li> <li>Takes fluids</li> <li>Ambulates</li> </ul>

Table 1. Role of the Anesthesia Professional in Phase I and Phase II Levels of Care<sup>4,5</sup>



Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division I 847-655-8870 | practice@aana.com



	<ul> <li>Understands discharge instructions, medications and management of</li> </ul>
	any issues
	<ul> <li>Safe transportation from the facility</li> </ul>

#### Extended Care

Extended care, otherwise known as Phase III, occurs in the same physical location as care provided to Phase I and Phase II patients.<sup>5</sup> This phase is for patients who have met criteria to leave Phase I, but are not able to go to another location (e.g., there are no available inpatient beds).<sup>6</sup> These patients are assessed and managed as inpatients.<sup>6</sup>

## Anesthesia Professional Handoff to the PACU

## Transport to PACU or ICU

Patients who are transported from the operating room to the Phase I PACU or ICU are accompanied by the anesthesia professional who is familiar with the patient's health history, physiologic condition, and the surgery, procedure or diagnostic test performed.<sup>5</sup> Prior to transport, the anesthesia professional and procedure team assess the patient response to anesthesia and procedure-related considerations in order to communicate complete perioperative information to the team receiving the patient. The circulating nurse, or other appropriate staff, contacts the PACU, nursing unit or ICU to confirm readiness to accept the patient. Prior to transport, the need for patient ventilation, oxygenation, monitoring, medications, and additional equipment is considered. Additionally, preparation for patient management during transport and on arrival to the recovery area is considered.

## Transport to the PACU and Transfer of Care

During transport, the patient is continuously monitored and assessed, as appropriate.<sup>5</sup> Oxygen and ventilatory support are provided, as indicated. On arrival to the PACU, monitoring continues or is reapplied. Standard 11 of the <u>Standards for Nurse Anesthesia Practice</u> states that the CRNA "evaluate[s] the patient's status and determine[s] when it is appropriate to transfer the responsibility of care to another qualified healthcare provider."<sup>9</sup> The qualified healthcare provider assesses the patient's heart rate/rhythm, systemic blood pressure, airway patency, oxygen saturation, ventilatory rate/character, temperature, level of pain, and level of consciousness and/or sedation and documents these elements of the PACU admission.<sup>7</sup>

## Handoff Report

After the qualified healthcare provider completes an initial patient assessment and confirms the patient is stable, the anesthesia professional and qualified healthcare provider conduct a handoff report. A handoff report is the "interprofessional transfer of critical and essential patient information, professional responsibility, and accountability from one healthcare provider to another."<sup>10</sup> The anesthesia professional reviews the patient's allergies and relevant health and medication history, including medications taken or not taken that day.<sup>5</sup> The report also includes the surgery, procedure or diagnostic test performed, antibiotic(s) administered, anesthesia and analgesia, any complications or concerns, fluids administered and volume status, and specific concerns and/or recommendations for the postanesthesia plan of care (see Table 2 for additional information).<sup>3</sup>

AANA Practice Considerations, <u>Patient-Centered Perianesthesia Communication</u> highlight that the handoff should be a two-way interaction, preferably face-to-face, where both healthcare providers are actively engaged in the communication.<sup>11</sup> The environment surrounding the handoff should be free from distractions and interruptions and allow an open communication platform, including the opportunity to ask and answer questions.<sup>11</sup>



tion of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division | 847-655-8870 | practice@aana.com



Studies have shown that an unstructured PACU handoff process threatens patient safety, leads to decreased satisfaction among PACU nurses, and decreases the amount of information that is transferred.<sup>12</sup> Eighty percent of serious medical errors could be due to deficient handoff communication.<sup>13,14</sup> Known reasons for incomplete handoffs include: multitasking; lack of time, knowledge of the patient, and formal handover structure; and a chaotic environment.<sup>15</sup>

A standardized PACU handoff checklist focuses on the critical points to be addressed for a complete handoff and may decrease the duration of the verbal report.<sup>12</sup> Omissions of critical points dramatically decrease after introduction of a standardized handoff tool.<sup>13</sup> An interdisciplinary team develops the policy and process for handoff communication. Effective handoff mnemonics may be incorporated, including the SBAR (situation, background, assessment, recommendation), PATIENT (patient, airway, temperature, intravenous and intake/output, end-tidal carbon dioxide, narcotics, twitches) or other tool to standardize handoff communication.<sup>11,16-18</sup> See <u>Patient-Centered Perianesthesia Communication</u> for additional information on handoffs.



oc<mark>iation o</mark>f Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division I 847-655-8870 | practice@aana.com



# Table 2. Elements to Include in the Handoff<sup>5,7,15,19,20</sup>

	Detient name, and, gender / identified gender		
	Level of consciousness / orientation		
	Weight [for pediatric patients]		
	Allergies / reactions		
	Procedure(s) performed		
Patient	Airway status		
	Relevant patient medical and surgical/procedural history		
	Vital signs and assessment findings		
	Physical limitations		
	Intraoperative course (including unanticipated intraoperative events) and considerations for management of similar issues in the PACU/ICU		
	Positioning of patient (if other than supine)		
	Type and difficulty of airway management		
	Vascular access / lines / catheters		
Procedure	Status of dressings and surgical/procedural site		
	Fluids / losses (include drainage tubes)		
	Crystalloid colloid / blood products		
	Estimated blood loss		
	Urine output		
	Preoperative vital signs		
Lie elde Liliedem -	Pertinent health and medication history		
Health History	Physical status score		
	Extremity restrictions, preoperative level of activity		
	l ype of anesthesia delivered		
	Airway management concerns		
	Relevant lab values		
	Vital signs and monitoring trends (CV, respiratory, neuromuscular function)		
Anesthesia and	Patient-specific procedure and hemodynamic considerations		
Medications	Current medications / administration / dose / timing		
	Antiemetics     Time of least and next does of entihistic		
	Time of last and next dose of antibiotic		
	Other intraoperative medications (steroids, antibiotics, antihypertensives, etc.)		
	Analgesia management plan		
	Regional anestnetic (for postoperative pain)		
	Medications due during PACU		
PACU	PACU orders		
	Pain and comfort management plan		



n Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division I 847-655-8870 I practice@aana.com



## **Patient Safety Considerations**

## Multimodal Pain Management

Due to the opioid crisis, patients and healthcare providers are increasingly interested in providing analgesia that limits or eliminates the need for opioids. Pain management techniques are evolving from the use of single-modal analgesia to engaging the patient as a member of the care team in multimodal, opioid-sparing analgesia through enhanced recovery pathways.<sup>21</sup> This approach supports a more rapid recovery by engaging patients in early drinking, eating, and mobilizing after the procedure.<sup>3</sup> Patients are encouraged to resume their normal diet and activities of daily living on the day of surgery.<sup>21</sup>

Additional information regarding patient engagement in the perioperative analgesia plan of care can be found in the AANA <u>Enhanced Recovery after Surgery - Considerations for Pathway</u> <u>Development and Implementation</u>.

## Postoperative Nausea and Vomiting

Although PONV affects 20 to 30 percent of all patients, the incidence of PONV in high-risk patients is as high as 70 to 80 percent.<sup>3</sup> The Apfel Score is one tool to assess PONV risk factors.<sup>21</sup> The four risk factors of the Apfel Score are female gender, history of motion sickness or PONV, nonsmoker, and postoperative opioid administration.<sup>3</sup>

The following strategies may be considered to reduce the risk of PONV:21

- Regional anesthesia
- Propofol induction and maintenance of anesthesia
- Avoiding the use of nitrous oxide
- Minimizing opioid administration
- Adequate hydration

Like pain management, PONV management is optimized when several receptors are treated.<sup>4</sup> Pharmacologic management is based on the patient's PONV risk and the procedure. Prophylactic approaches are especially effective for high-risk patients.<sup>3</sup> For adults at moderate risk, it is recommended that one to two prophylaxis interventions are used.<sup>22</sup> Example classes include, but are not limited to, 5-hydroxytryptamine and neurokinin-1 receptor antagonists, butyrophenones, antihistamines, corticosteroids, and anticholinergics.<sup>22</sup> If unable to treat PONV prophylactically, therapeutic medications may include the scopalomine patch and/or ondansetron.<sup>4</sup>

## **Obstructive Sleep Apnea**

Evidence suggests that at least 25 million patients experience some form of obstructive sleep apnea (OSA).<sup>23</sup> Moreover, about 12 to 18 million patients are undiagnosed, which can be problematic for both the patient and the healthcare professionals caring for them.<sup>3</sup> Incorporating the standardized screening tools, such as the Berlin Questionnaire (BQ) and STOP-Bang (snoring, tired, observed, pressure, body mass index, age, neck size, gender) clinical scale, can identify risk of OSA preoperatively.<sup>5</sup> The STOP-Bang clinical scale is an easy-to-use and validated tool to identify undiagnosed patients who may be at risk of moderate to severe OSA.<sup>5</sup> Patients with a known diagnosis of OSA are 24 percent more likely to experience postoperative complications, including significant periods of apnea.<sup>24,25</sup> There may also be difficulty with ventilation, laryngoscopy and intubation.<sup>24,25</sup> The presence of other coexisting conditions can increase the risk of respiratory complications.<sup>26</sup> Patients who use a continuous positive airway



ciation of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division | 847-655-8870 | practice@aana.com



pressure (CPAP) device at home should bring the device to the facility and continue to use it postoperatively.<sup>27</sup> OSA patients that use their CPAP postoperatively are less likely to encounter postoperative complications.<sup>25,27-29</sup>

#### Patients Who Receive IV Opioids in the PACU

Attentive monitoring of patients who receive IV opioids in the PACU includes respiratory status, sedation levels, and assessments of pain.<sup>30</sup> The U.S. Centers for Medicare & Medicaid Services (CMS) *Conditions of Participation (CoPs) Survey Protocol, Regulations and Interpretive Guidelines for Hospitals*, Section 482.23(c)(4) Interpretive Guidelines, requires that hospitals have policies and procedures in place for postoperative patients receiving high-alert medications, such as IV opioids.<sup>30</sup> These policies and procedures must address "the process for patient risk assessment, including who conducts the assessments, and, based on results of the assessment, monitoring frequency and duration, what is to be monitored, and monitoring methods."<sup>30</sup> Monitoring for over-sedation and respiratory depression related to IV opioids must be included. Consult the CMS Interpretive Guidelines for additional information.<sup>30</sup>

#### End -Tidal CO<sub>2</sub> Monitoring

Multiple risk factors for respiratory compromise secondary to postoperative opioid-induced respiratory depression (OIRD) have been identified, including extremes of age, obesity, obstructive sleep apnea, neurologic disease, and cardiovascular disease, among others.<sup>31-33</sup> Postoperative pulmonary complications may also occur unrelated to opioid administration. Many organizations recommend continuous electronic monitoring of oxygenation and ventilation for early identification of respiratory depression.<sup>31,34</sup> Postoperative pulmonary complications may also occur unrelated to opioid administrations may also occur unrelated to opioid administration for early identification of respiratory depression.<sup>31,34</sup> Postoperative pulmonary complications may also occur unrelated to opioid administration.<sup>33,35</sup> Postoperative capnography should be considered for continuous monitoring of end-tidal CO<sub>2</sub> and earlier detection of catastrophic respiratory events.<sup>31,34</sup>

#### Postoperative Delirium

🕻 للاستشارات

Postoperative delirium is an adverse event that can occur in the postoperative period. Patients over the age of 65 are more likely to experience postoperative delirium, with general surgery incidences ranging from five to 15 percent.<sup>3,36</sup> This rate increases to as high as 62 percent after operative hip fractures.<sup>3,36</sup> Causes include, but are not limited to, withdrawal psychosis, toxic psychosis, circulatory and respiratory origin, and functional psychosis.<sup>3</sup> Delirium is associated with poor outcomes (e.g., functional decline, persistent cognitive decline, increased risk of dementia, risk of post-discharge institutionalization, and death), increased length of stay, and increased healthcare costs. Timely diagnosis is crucial to prevent patients from developing severe long-lasting complications.<sup>37</sup>

If preexisting cognitive impairment exists, the risk for postoperative delirium rises with anesthesia and surgery.<sup>37,38</sup> Preexisting cognitive impairment is not always obvious, therefore a preoperative screening for at-risk patients may minimize the impact of postoperative delirium, whether the diagnosis is suspected on clinical grounds (e.g., in the agitated patient) or not (as is common in hypoactive delirium).<sup>38</sup> If delirium is detected in the PACU, pharmacologic treatments for delirium include typical and atypical antipsychotics. The first-generation antipsychotics haloperidol and chlorpromazine, as well as the second-generation antipsychotics olanzapine and risperidone, all appear to be equally effective treatments for established delirium.<sup>37</sup>



n of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division I 847-655-8870 I practice@aana.com



## Residual Neuromuscular Blockade

Residual neuromuscular blockade, defined as a train-of-four (TOF) ratio <0.9 with quantitative neuromuscular monitoring, is a common occurrence in the PACU.<sup>39</sup> Despite the routine use of anticholinesterase reversal agents, between 20 to 40 percent of patients arrive in the PACU with objective evidence of residual neuromuscular blocking agents (NMBAs).<sup>40-45</sup> PACU nurses report that residual NMBAs are one of the most critical events they may face requiring emergency intervention.<sup>40,46</sup> The risk of respiratory compromise can be minimized during handoff of care to the PACU team when intraoperative neuromuscular blockade recovery is discussed.

Complications such as upper airway obstruction, pharyngeal dysfunction, aspiration, obstruction, and hypoventilation are associated with residual muscle paralysis.<sup>3,46</sup> Standard PACU recovery scoring systems (e.g., Aldrete) do not specifically evaluate patients for muscle weakness potentially related to residual neuromuscular blockade.<sup>39</sup> It is important to monitor for residual neuromuscular blockade using quantitative monitoring measures for objective TOF assessment, rather than traditional qualitative TOF that depends on provider assessment of response.<sup>3</sup> Clinical signs alone do not guarantee complete resolution of postoperative residual neuromuscular blockade and should not be used as the sole determinant of adequate recovery of neuromuscular function.<sup>47</sup>

## Malignant Hyperthermia

While rare, malignant hyperthermia (MH) can occur in the immediate postoperative period.<sup>48</sup> MH is an inherited skeletal muscle syndrome that presents as a hypermetabolic reaction triggered by exposure to volatile anesthetic gases or the depolarizing muscle relaxant, succinylcholine.<sup>48</sup> If no signs of MH are noted one hour postoperatively in a MH-susceptible patient after using an MH-safe anesthetic technique, it is unlikely the patient will develop MH.<sup>48</sup> For additional information, see the AANA Position Statement, <u>Malignant Hyperthermia Crisis</u> <u>Preparedness and Treatment</u>.

## Infection Control

Infection prevention and control best practices, including safe injection practices and hand hygiene, remain a critical component of patient safety in the PACU.<sup>49</sup> See the AANA <u>Infection</u> <u>Prevention and Control Guidelines for Anesthesia Care</u> for additional information.

## Family/Caregiver Involvement in Care

Family members are encouraged to visit patients in the PACU, in accordance with facility policy, after the patient has been fully assessed and the PACU staff determines the visit is appropriate.<sup>5</sup> A brief visit by family members while a patient is in the PACU has many benefits, including decreased anxiety and increased satisfaction among the patient and family/caregiver.<sup>5,50,51</sup>

## **Determining Readiness for PACU Discharge**

The PACU provides the opportunity for the patient to recover and prepare to be transferred to another unit from Phase I or discharged home from Phase II.<sup>3</sup> Before the patient can be transferred to home or another unit, the patient must be stabilized. The anesthesia professional works with the PACU staff to evaluate the patient and prepare the patient for discharge.<sup>52</sup>



n of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division I 847-655-8870 | practice@aana.com



In addition to adequate airway, oxygenation, and ventilation, PACU patient discharge criteria include, but are not limited to, the following:<sup>3</sup>

- Alert and oriented mental status
- Body temperature of at least 96.8°F
- Acceptable pain relief

The patient should not be transferred in an acute stage of respiratory or hemodynamic compromise or immediately following the administration of opioids or other medications which may alter the patient's physiologic state.<sup>5</sup>

Two commonly used PACU discharge criteria systems are the Modified Aldrete Score and the Postanesthesia Discharge Scoring System.<sup>7</sup> Each system has five categories with scores that range from zero to two.<sup>1</sup> For either assessment, a score greater than or equal to nine, or meeting the patient's preprocedure score, determines that the patient may be eligible for discharge.<sup>3,4,7</sup>

## The Modified Aldrete Scoring System

The Aldrete system is a PACU scoring system that may be used to determine readiness for PACU discharge.<sup>3</sup> Within each category, several parameters are assessed:<sup>3,4,7</sup>

- Respiration apnea, dyspnea or shallow breathing, ability to breathe deeply/cough
- Oxygen Saturation oxygen percentage with and without supplemental oxygen
- Consciousness unresponsive, arousable, fully awake
- Circulation ±50 mmHG, ±20-50 mm Hg, ±20 mm Hg of preoperative blood pressure
- Activity ability to move extremities

## The Postanesthesia Discharge Scoring System

The Postanesthesia Discharge Scoring System (PDSS) is used for determining home-readiness after ambulatory surgery.<sup>3</sup> Within each category, several parameters are assessed:<sup>3,7</sup>

- Vital signs >40 percent, 20 to 40 percent, or with 20 percent of preoperative vital signs
- Surgical bleeding severe, moderate, minimal
- Activity and mental status patient orientation and gait
- Intake and Output assessment of fluids and voiding
- Pain/Nausea/Vomiting severe, moderate, minimal

## CMS Regulations

## Hospitals

🖍 للاستشارات

CMS *CoPs Survey Protocol, Regulations and Interpretive Guidelines for Hospitals*, Section 482.52(b)(3), requires "[a] postanesthesia evaluation completed and documented by an individual qualified to administer anesthesia no later than 48 hours after surgery or a procedure requiring anesthesia services."<sup>30</sup> The postanesthesia evaluation for anesthesia recovery must be completed in accordance with state law and hospital policies and procedures that reflect current standards of anesthesia care. The CMS Interpretive Guidelines state that the 48-hour time frame begins once the patient has been transferred to the PACU or other recovery location and has "sufficiently recovered from the acute administration of the anesthesia."<sup>30</sup> CMS does not require a postanesthesia evaluation for patients receiving moderate sedation.<sup>30</sup>





The CMS Interpretive Guidelines require that elements of the postanesthesia evaluation, which must be documented in the healthcare record and "conform to current standards of anesthesia care," include:

- Respiratory function, including respiratory rate, airway patency, and oxygen saturation;
- Cardiovascular function, including pulse rate and blood pressure;
- Mental status;
- Temperature;
- Pain;
- Nausea and vomiting; and
- Postoperative hydration."<sup>30</sup>

Please consult applicable accreditation standards in addition to state law for relevant postanesthesia care requirements.

#### Ambulatory Surgery Centers

The CMS Conditions for Coverage (CfC) Guidance for Surveyors: Ambulatory Surgical Centers (ASC), Section 416.42(a), requires an evaluation of proper anesthesia recovery before the patient is discharged from the ASC.<sup>53</sup> This evaluation must be completed and documented by a physician or an anesthesia professional and must be in accordance with applicable state law, standards of practice, and ASC policy. CMS does not require a postanesthesia evaluation for patients receiving moderate sedation.<sup>53</sup> Unlike the Hospital Interpretive Guidelines, the ASC Interpretive Guidelines do not dictate elements of the postanesthesia evaluation, but state that ASCs would be well advised in developing their policies and procedures for postanesthesia care to consult recognized guidelines.<sup>53</sup>

Please consult applicable accreditation standards in addition to state law for relevant postanesthesia care requirements.

#### Post-Facility Transportation

Sedation and anesthesia have been shown to impair decision-making and ability to operate equipment for a period of time. Patients should have a responsible adult who is able to safely transport the patient home, or a facility needs to establish policies and procedures if an exception is made.<sup>5,52</sup> Age is one factor that determines a responsible adult; however, any individual who can provide post-procedure care at home and report any post-procedure or postanesthesia complications may be considered for inclusion in a facility's discharge policies and procedures.<sup>52,54</sup>

For the patient who does not have transportation home, it must be determined before the surgery/procedure whether:<sup>5,52</sup>

- Medical transportation can be arranged
- The patient will be admitted for observation, or
- The case will be cancelled and rescheduled.

For a pediatric patient, if a car seat is required preadmission, ASPAN recommends that two adults travel home with the patient with one driving and one sitting with the child.<sup>5</sup>

For more information, review the AANA Position Statement and Policy Considerations, *Discharge After Sedation or Anesthesia on the Day of the Procedure*.



10 of 15

I Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division | 847-655-8870 | practice@aana.com



## Patient/Family Education

When the patient and family/caregiver contribute to the development of the care plan, the patient has an improved ability for self-care and prevention of post-procedure complications.<sup>55</sup> The care team provides preoperative education and discharge education and instructions that are reviewed for understanding prior to discharge.<sup>52</sup> Language, cultural and religious beliefs, and health literacy may also impact a patient's understanding of the discharge process and instructions.<sup>56</sup>

Review the AANA Policy and Practice Considerations, <u>Informed Consent for Anesthesia Care</u>, for information and strategies to address communication, health literacy, and cultural competency. Review <u>Discharge After Sedation or Anesthesia on the Day of the Procedure</u> for more information on patient and family/caregiver discharge instructions.

## **PACU Staffing**

🕻 للاستشارات

The following recommendations for staffing of Phase I and II PACUs and Extended Care are provided from the ASPAN *Perianesthesia Nursing Standards, Practice Recommendations and Interpretive Statements*, which are consistent with the Association of periOperative Registered Nurses (AORN) *Position Statement on Perioperative Safe Staffing and On-Call Practices.* Please contact these organizations or the AANA to confirm that the listed recommendations are current.

**Phase I PACU:** "Two registered nurses, one of whom is an RN [Registered Nurse] competent in Phase I postanesthesia nursing, are in the same room/unit where the patient is receiving Phase I level of care."<sup>5,57</sup>

**Phase II PACU**: "Two competent personnel, one of whom is an RN competent in Phase II post anesthesia nursing in the same room/unit where the patient is receiving Phase II level of care. An RN must be in the Phase II PACU at all times while a patient is present."<sup>5,57</sup>

**Extended Care**: "Two competent personnel, one of whom is an RN possessing competence appropriate to the patient population, are in the same room/unit where the patient is receiving extended level of care."<sup>5</sup>

## **References for Policy Development**

Facilities engage an interdisciplinary team to develop policies and procedures related to care provided in the PACU setting. During policy and procedure development, consult applicable federal, state and local law and accreditation standards for inclusion. These sources may include, but are not limited to:

- CMS Conditions of Participation (CoP) Regulations and Interpretive Guidelines for Hospitals
- CMS Conditions for Coverage (CfC) Guidance for Surveyors: Ambulatory Surgical Centers (ASC)
- State and local laws, regulations and regulatory bodies (e.g., the Department of Health)
- Facility Accreditors (e.g., The Joint Commission, DNV GL Healthcare, Healthcare Facilities Accreditation Program, Accreditation Association for Ambulatory Health Care, American Association for Accreditation of Ambulatory Surgery Facilities)



Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division | 847-655-8870 | practice@aana.com



## Conclusion

The transition from anesthesia care to safe recovery begins with delivery of anesthesia care that limits postoperative side effects and complications. Clear and complete hand-off communication supports the PACU team in continuing the care and achieving the outcomes sought by the patient and family/caregiver. The CRNA has the opportunity to contribute to perioperative policy development and continuous quality improvement activities to improve processes and patient outcomes.

## References

- 1. Scope of nurse anesthesia practice. Park Ridge, IL: American Association of Nurse Anesthesiology; 2016.
- 2. Clinical privileges and other responsibilities of certified registered nurse anesthetists. Park Ridge, IL: American Association of Nurse Anesthesiology; 2019.
- 3. Odom-Forren J, Brady JM. Postanesthesia recovery. Nagelhout JJ, Sass, E, ed. *Nurse Anesthesia.* 6 ed. St. Louis, MO: Elsevier; 2018:1147-1166.
- 4. Nicholau D. The postanesthesia care unit. Miller RD, Eriksson LR, Fleisher LA, Weiner-Kronish JP, Young WL, eds. *Miller's Anesthesia.* 7 ed. Philadelphia, PA: Churchill Livingstone; 2010:2707-2728.
- 5. Perianesthesia Nursing Standards Pratice Recommendations and Interpretive Statements. Cherry Hill, NJ: American Society of PeriAnesthesia Nurses; 2017.
- American Society of PeriAnesthesia Nurses (ASPAN). Frequently asked questions. What are the differences between Phase I, Phase II, and Extended Care (Extended Observation/Phase III)? Web site. <u>http://www.aspan.org/Clinical-Practice/FAQs#11</u>. Published 2017. Accessed July 19, 2019.
- Fowler MA, Spiess BD. Postanesthesia recovery. Barash PG, Cullen BF, Stoelting RK, Cahalan MK, Stock MC, Ortega RA, eds. *Clinical Anesthesia*. 7 ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2013:1556-1579.
- 8. Waseem Z, Lindner J, Sgouropoulou S, et al. Independent risk factors for fast-track failure using a predefined fast-track protocol in preselected cardiac surgery patients. *J Cardiothorac Vasc Anesth.* 2015;29(6):1461-1465.
- 9. Standards for Nurse Anesthesia Practice. Park Ridge, IL: American Association of Nurse Anesthesiology; 2019.
- 10. Rose MW, Newman S, Brown C. Postoperative information transfers: An integrative review. *J Perianesth Nurs.* 2019;34(2):403-424 e403.
- 11. Patient-Centered Perianesthesia Communication. Park Ridge, IL: American Association of Nurse Anesthesiology; 2014.
- 12. Halladay ML, Thompson JA, Vacchiano CA. Enhancing the quality of the anesthesia to postanesthesia care unit patient transfer through use of an electronic medical record-based handoff tool. *J Perianesth Nurs.* 2018.
- 13. Halterman RS, Gaber M, Janjua MST, Hogan GT, Cartwright SMI. Use of a checklist for the postanesthesia care unit patient handoff. *J Perianesth Nurs.* 2019.
- 14. Milby A, Bohmer A, Gerbershagen MU, Joppich R, Wappler F. Quality of post-operative patient handover in the post-anaesthesia care unit: a prospective analysis. *Acta Anaesthesiol Scand.* 2014;58(2):192-197.
- 15. Piekarski F, Kaufmann J, Laschat M, Bohmer A, Engelhardt T, Wappler F. Quality of handover in a pediatric postanesthesia care unit. *Paediatr Anaesth.* 2015;25(7):746-752.
- 16. Riesenberg LA, Leitzsch J, Little BW. Systematic review of handoff mnemonics literature. *Am J Med Qual.* 2009;24(3):196-204.



12 of 15

ssociation of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division | 847-655-8870 | practice@aana.com



- Randmaa M, Martensson G, Leo Swenne C, Engstrom M. SBAR improves communication and safety climate and decreases incident reports due to communication errors in an anaesthetic clinic: A prospective intervention study. *BMJ Open*. 2014;4(1):e004268.
- 18. Wright SM. Examining transfer of care processes in nurse anesthesia practice: introducing the PATIENT protocol. *AANA J.* 2013;81(3):225-232.
- 19. Potestio C, Mottla J, Kelley E, DeGroot, K. Improving post anesthesia care unit (PACU) handoff by implementing a succinct checklist. *Anesth Patient Safety Found*. 2015;30(1).
- 20. Documenting anesthesia care. Park Ridge, IL: American Association of Nurse Anesthetists; 2016.
- 21. Enhanced recovery after surgery. Park Ridge, IL: American Association of Nurse Anesthetists; 2017.
- 22. Piljac J. Consensus guidelines for the prevention of postoperative nausea and vomiting. <u>https://www.empr.com/home/features/consensus-guidelines-for-the-prevention-of-postoperative-nausea-and-vomiting/2/</u>. Published 2018. Accessed July 19, 2019.
- 23. American Academy of Sleep Medicine. Rising prevalence of sleep apnea in U.S. threatens public safety. <u>https://aasm.org/rising-prevalence-of-sleep-apnea-in-u-s-threatens-public-health/</u>. Published 2014. Accessed July 19, 2019.
- 24. Brousseau CA, Dobson GR, Milne AD. A retrospective analysis of airway management in patients with obstructive sleep apnea and its effects on postanesthesia care unit length of stay. *Can J Respir Ther.* 2014;50(1):23-26.
- Diffee PD, Beach MM, Cuellar NG. Caring for the patient with obstructive sleep apnea: implications for health care providers in postanesthesia care. *J Perianesth Nurs*. 2012;27(5):329-340.
- 26. Setaro J, Reinsel R, Brun D. Preoperative screening for obstructive sleep apnea and outcomes in PACU. *J Perianesth Nurs.* 2019;34(1):66-73.
- 27. Chung F, Nagappa M, Singh M, Mokhlesi B. CPAP in the perioperative setting. *CHEST*. 2016;149(2):586-597.
- 28. Moos DD, Prasch M, Cantral DE, Huls B, Cuddeford JD. Are patients with obstructive sleep apnea syndrome appropriate candidates for the ambulatory surgical center? *AANA J*. 2005;73(3):197-205.
- 29. Borg L, Walters TL, Siegel LC, Dazols J, Mariano ER. Use of a home positive airway pressure device during intraoperative monitored anesthesia care for outpatient surgery. *J Anesth.* 2016;30(4):707-710.
- U.S. Centers for Medicare & Medicaid Services. State Operations Manual: Appendix A -Survey Protocol, Regulations and Interpretive Guidelines for Hospitals. Baltimore, MD: U.S. Centers for Medicare & Medicaid Services; 2011:486-488.
- 31. Geralemou S, Probst S, Gan TJ. The role of capnography to prevent postoperative respiratory adverse events. *Anesth Patient Safety Found.* 2016;31(2):42-43.
- 32. Arozullah AM, Daley J, Henderson WG, Khuri SF. Multifactorial risk index for predicting postoperative respiratory failure in men after major noncardiac surgery. *Annals of Surgery.* 2000;232(2):242-253.
- Weingarten TN, Herasevich V, McGlinch MC, et al. Predictors of delayed postoperative respiratory depression assessed from naloxone administration. *Anesth Analg.* 2015;121(2):422-429.
- 34. Spratt GK. Assessing patient risk of opioid-induced respiratory compromise. *RT.* 2019(March-April):22-25.
- 35. Dahan A, Aarts L, Smith TW. Incidence, reversal, and prevention of opioid-induced respiratory depression. *Anesthesiology*. 2010;112(1):226-238.



13 of 15

Association of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division I 847-655-8870 | practice@aana.com



- American Society of Anesthesiologists. What is the perioperative brain health initiative? <u>https://www.asahq.org/brainhealthinitiative/about</u>. Published 2019. Accessed July 19, 2019.
- 37. Whitlock EL, Vannucci A, Avidan MS. Postoperative delirium. *Minerva Anestesiol.* 2011;77(4):448-456.
- 38. The American Society of Anesthesiologists. The American Society of Anesthesiologists (ASA)/American Association of Retired Persons (AARP) perioperative brain health initiative summit: Innovations to promote brain health before, during and after surgery – attendee summary. <u>https://www.asahq.org/brainhealthinitiative/news/summit</u>. Accessed July 22, 2019.
- Murphy GS, Szokol JW, Avram MJ, et al. Postoperative residual neuromuscular blockade is associated with impaired clinical recovery. *Anesth Analg.* 2013;117(1):133-141.
- 40. Brull SJ, Kopman AF. Current status of neuromuscular reversal and monitoring: Challenges and opportunities. *Anesthesiology*. 2017;126(1):173-190.
- 41. Gätke MR, Viby-Mogensen J, Rosenstock CV, Jensen FS, Skovgaard LT. Postoperative muscle paralysis after rocuronium: less residual block when acceleromyography is used. *Acta Anaesthesiol Scand.* 2002;46(2):207-213.
- 42. Cammu G, De Witte J, De Veylder J, et al. Postoperative residual paralysis in outpatients versus inpatients. *Anesth Analg.* 2006;102(2):426-429.
- 43. Kim KS, Cheong MA, Lee HJ, Lee JM. Tactile assessment for the reversibility of rocuronium-induced neuromuscular blockade during propofol or sevoflurane anesthesia. *Anesth Analg.* 2004;99(4):1080-1085.
- 44. Fortier L, McKeen D, Turner K, et al. The RECITE study: A Canadian prospective, multicenter study of the incidence and severity of residual neuromuscular blockade. *Anesth Analg.* 2015;121(2):366-372.
- Aytac I, Postaci A, Aytac B, et al. Survey of postoperative residual curarization, acute respiratory events and approach of anesthesiologists. *Braz J Anesthesiol.* 2016;66(1):55-62.
- 46. Strauss PZ, Lewis MM. Identifying and treating postanesthesia emergencies. *OR Nurse.* 2015;9(6):24-30.
- Murphy G. Presentation of the APSF collaborative panel on neuromuscular blockade and patient safety at the 2017 ASA annual meeting. *Anesth Patient Safety Found*. 2018;32(3):68-69.
- 48. Malignant Hyperthermia Crisis Preparedness and Treatment. Park Ridge, IL: American Association of Nurse Anesthetists; 2018.
- 49. Petty WC. Closing the hand hygiene gap in the postanesthesia care unit: a body-worn alcohol-based dispenser. *J Perianesth Nurs.* 2013;28(2):87-93; quiz 94-87.
- 50. Carter AJ, Deselms J, Ruyle S, et al. Postanesthesia care unit visitation decreases family member anxiety. *J Perianesth Nurs.* 2012;27(1):3-9.
- 51. Fumagalli S, Boncinelli L, Lo Nostro A, et al. Reduced cardiocirculatory complications with unrestrictive visting policy in an intensive care unit results from a pilot, randomized trial. *Circulation.* 2006;113(7):946-952.
- 52. Discharge after sedation or anesthesia on the day of the procedure: Patient transportation with or without a responsible adult. Park Ridge, IL: American Association of Nurse Anesthetists; 2018.
- U.S. Centers for Medicare & Medicaid Services. State Operatons Manual: Appendix L -Guidance for Surveyors: Ambulatory Surgical Centers. Baltimore, MD: U.S. Centers for Medicare & Medicaid Services; 2009:51-52.



14 of 15

ssociation of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division | 847-655-8870 | practice@aana.com



- 54. American Society of PeriAnesthesia Nurses (ASPAN). Frequently asked questions. What is the definition of "responsible adult?" Web site. <u>http://www.aspan.org/Clinical-Practice/FAQs#8</u>. Published 2017. Accessed July 22, 2019.
- Marley RA, Sheets SA. Preoperative evaluation and preparation of the patient. Nagelhout JJ, Sass, E, ed. *Nurse Anesthesia.* 6 ed. St. Louis, MO: Elsevier; 2018:311-345.
- 56. Informed consent for anesthesia care. Park Ridge, IL: American Association of Nurse Anesthetists; 2016.
- 57. AORN Position Statement on Perioperative Safe Staffing and On-Call Practices. Denver, CO: Association of periOperative Registered Nurses; 2014.

Adopted by AANA Board of Directors August 2019

© Copyright 2019



15 of 15

of Nurse Anesthesiology | 222 South Prospect Ave | Park Ridge, Illinois 60068-4001 | AANA.com Professional Practice Division | 847-655-8870 | practice@aana.com