Ambulatory Surgery Exception Criteria

GRG: CG-AEC (ISC GRG)

MCG Health
General Recovery Care
30th Edition

This MCG care guideline has not yet been updated to reflect new guidance and requirements found in the 2024 Medicare Advantage and Part D Final Rule (CMS-4201-F). For Medicare Advantage beneficiaries, before referring to MCG care guidelines, users should first follow all guidance related to this topic located in CMS National Coverage Determinations (NCDs), Local Coverage Determinations (LCDs), and other statutes and regulations. Content used in MCG care guidelines may be used to supplement but does not replace, modify, or supersede existing Medicare regulations or applicable NCDs or LCDs.

Note: An appropriate Optimal Recovery Guideline (ORG) should be identified and used whenever possible. General Recovery Guideline tools are intended to aid only in situations in which no ORG appears applicable.

Ambulatory Surgery Exception Criteria

- Potentially ambulatory[A] procedure or surgery warrants inpatient care due to **1 or more** of the following(1)(2):
  - Inpatient care needed for clinically significant disease or condition identified preoperatively, as indicated by **1 or more** of the following:
    - Severe infection
    - Altered mental status
    - Dangerous arrhythmia
    - Hypotension
    - Hypoxemia
    - Other serious condition or finding that requires preoperative inpatient care (ie, cannot be treated in other setting)(3)
  - Complex surgical approach or situation anticipated, as indicated by **1 or more** of the following(4):
    - Prolonged airway monitoring required (eg, severe obstructive sleep apnea, open neck procedure)(5)
    - Other aspect or feature of procedure that indicates a likely need for prolonged postoperative care or monitoring
  - Procedure is not low risk[B] and high patient anesthetic risk identified preoperatively, as indicated by **1 or more** of the following[C](2)(7)(8):
    - American Society of Anesthesiologists class IV or greater American Society of Anesthesiologists (ASA) Physical Status Classification System (9)
    - Severe frailty[D](11)(12)
    - Severe valvular disease (eg, severe aortic stenosis)(13)

- Symptomatic coronary artery disease or heart failure(13)
- Symptomatic chronic lung disease (eg, COPD, chronic lung disease of prematurity)(14)
- Severe renal disease (eg, GFR less than 30 mL/min/1.73m^2 (0.5 mL/sec/1.73m^2) or on dialysis) eGFR - Adult Calculator eGFR - Pediatric Calculator requiring prolonged monitoring of electrolytes, fluid status, anesthetic recovery, or respiratory status
- Morbid obesity (eg, BMI greater than 40 BMI Calculator) with hemodynamic or respiratory problems (eg, severe obstructive sleep apnea, hypoventilation)(5)(9)(15)(16)(17)
- Complex chronic condition in children (eg, ventilator-dependent, neuromuscular, genetic, or immunologic disease)(3)(18)
- Other patient condition or finding that places patient at increased anesthetic risk such that prolonged postoperative inpatient monitoring or treatment is anticipated

Presence of drug-related risk identified preoperatively, as indicated by **1 or more** of the following(19)(20)(21):

- Procedure requires discontinuing medication (eg, antiarrhythmic medication, antiseizure or anticoagulant medication), which necessitates preoperative or prolonged postoperative inpatient monitoring or treatment.[E](13)(22)(23)
- Preoperative use of drugs that may interact with anesthetic (eg, cocaine, amphetamines, monoamine oxidase inhibitor) such that prolonged postoperative monitoring or treatment is needed

Inadequate outpatient care situation identified preoperatively, as indicated by **1 or more** of the following(24)(25)(26)(27):

- Patient lives remote from medical facility and procedure has urgent complication potential, and temporary nearby residence cannot be arranged.
- Patient will have postprocedure incapacitation (eg, self-management needs) and has inadequate assistance at home, and alternative level of care cannot be arranged.

Intraoperative or postoperative event, condition, or finding that warrants inpatient stay (ie, requires hospital-based care beyond ambulatory surgery time frame (eg, across a second midnight)), as indicated by **1 or more** of the following(28)(29)(30):

- Inadequate physiologic recovery (eg, cardiovascular or respiratory status not normal or near preoperative baseline)
- Hemodynamic instability
- Dangerous arrhythmia
- Respiratory abnormalities (eg, new Hypoxemia)
- Acute kidney injury requiring continued inpatient care, as indicated by **ALL** of the following(31)(32):
  - Acute kidney injury, as indicated by **1 or more** of the following:
    - 2-fold (or more) rise in serum creatinine from baseline
    - Reduction of more than 50% in estimated GFR from baseline eGFR - Adult Calculator eGFR - Pediatric Calculator
  - Worsening clinical status (eg, rising creatinine) despite postoperative care (eg, hydration)
- Clinically significant electrolyte abnormalities (eg, hyperkalemia, hyponatremia)(33)(34)(35)
- Altered mental status (eg, beyond usual anesthesia recovery time period)
- Temperature not as expected and not appropriate for next level of care
- Appropriate activity level for next level of care not achieved[F](36)
- Operative site complication (eg, excessive drainage or bleeding)(37)(38)
- Significant postoperative finding that continues to require hospital-based care (eg, continued need for parenteral medication for pain or vomiting)(39)
- Complications of procedure (eg, bowel injury, airway compromise, vascular injury, severe hemorrhage, need for ionotropic blood pressure support)(40)
- Conversion to open or more complex procedure that requires inpatient postoperative care (eg, open vs laparoscopic cholecystectomy, abdominal vs vaginal hysterectomy, dissection far beyond usual scope of procedure)
- Other intraoperative or postoperative event, condition, or finding that warrants inpatient stay

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Footnotes

[A] The terms "ambulatory" and "outpatient" are used interchangeably. The definition of an ambulatory procedure is not uniformly agreed upon. Contractual agreements (eg, between payers and providers) or regulatory language (eg, CMS' Two-Midnight Rule) often set the time frame of an ambulatory procedure. Of note, an ambulatory procedure may include an overnight stay in a hospital or facility. In other words, not all ambulatory procedures are "day cases" (patient discharged the day of surgery). Some patients, even those undergoing a procedure with an ambulatory goal length of stay (GLOS), require inpatient care depending on various patient and procedural factors. The proportion of patients who are usually treated on an ambulatory basis varies by procedure and patient group (eg, age, comorbidities). This guideline is designed to help identify those patients who, despite an ambulatory GLOS, require inpatient care. [A in Context Link 1]

[B] Low-risk procedures are usually considered those that are not intrathoracic, intraperitoneal, or vascular.(2) Some orthopedic procedures are low risk (eg, arthroscopy).(2) Examples of low-risk procedures include endoscopic gastrointestinal, laryngeal, sinus, intrauterine, ureteral, or bladder procedures; cataract surgery; most breast surgery (eg, biopsy, partial or simple complete mastectomy); hemorrhoidectomy; hernia repair; female incontinence surgery; tonsillectomy; nasal septal or polyp procedures; myringotomy; tympanoplasty; and parotid, thyroid, or parathyroid procedures.(2)(6) [B in Context Link 1, 2]

[C] The risk factors listed do not necessarily or automatically identify a patient in whom a potentially ambulatory procedure should instead be performed on an inpatient basis. Specific details, such as which procedure is being considered and the overall clinical status of the patient, are necessary to complete assessment of suitability for ambulatory surgery.(2)(6) [C in Context Link 1]

[D] Precise definitions of severe frailty vary. One published definition describes severe frailty as including 4 or more of the following 7 items: lack of independence in feeding, bathing, dressing, transferring, ambulation, toileting, or urinary incontinence.(10) [D in Context Link 1]

[E] Very few patients with atrial fibrillation or atrial flutter (same criteria for anticoagulation apply) require inpatient care or need to have their inpatient stay extended due to a need to achieve immediate therapeutic anticoagulation (ie, stay in the hospital to receive IV unfractionated heparin until warfarin-induced anticoagulation is sufficient). Most patients, including those with clear indications for long-term anticoagulation, do not need immediate anticoagulation, as the risk of an embolic event within the few days until their warfarin becomes therapeutic is very low (a small fraction of 1% per day).(22) Only patients deemed to be at particular risk for embolization (eg, mechanical valve, recent stroke or transient ischemic attack) are candidates for bridge therapy.(13)(22) In addition, the vast majority of patients are eligible to be anticoagulated through use of an oral direct thrombin inhibitor (eg, dabigatran), an oral coagulation factor Xa inhibitor (eg, rivaroxaban, apixaban, edoxaban), or low-molecular-weight heparin, all of which achieve full anticoagulation rapidly (eg, a few hours after the first dose).(22)(23) [E in Context Link 1]

[F] Patient may need supported ambulation, non-weight-bearing or partial-weight-bearing ambulation, or transfer and gait training with crutches or walker.(36) [F in Context Link 1]

Definitions

Altered mental status

- Altered mental status (ie, different from baseline), as indicated by **1 or more** of the following(1)(2)(3)(4):
  - Confusional state (eg, disorientation, difficulty following commands, deficit in attention)
  - Lethargy (eg, awake or arousable, but with drowsiness; reduced awareness of self and environment)
  - Obtundation (ie, arousable only with strong stimuli, lessened interest in environment, slowed responses to stimulation)
  - Stupor (ie, may be arousable but patient does not return to normal baseline level of awareness)
  - Coma (ie, not arousable)

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American Society of Anesthesiologists (ASA) Physical Status Classification System

- American Society of Anesthesiologists (ASA) Physical Status Classification System[A](2)(3)(4)
  - Class I: Normal healthy patient
  - Class II: Patient with mild systemic disease
  - Class III: Patient with severe systemic disease
  - Class IV: Patient with severe systemic disease that is constant threat to life
  - Class V: Moribund patient who is not expected to survive without the operation

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Footnotes

A. Note: There is no accepted standardization of terms used in this classification system.(1)

Dangerous arrhythmia

- Dangerous arrhythmia, as indicated by **1 or more** of the following(1)(2)(3)(4):
  - Heart rhythms that are inherently dangerous or unstable, as indicated by **1 or more** of the following(5)(6):
    - Resuscitated ventricular fibrillation or cardiac arrest
    - Ventricular escape rhythm
    - Sustained ventricular tachycardia (30 seconds or more of ventricular rhythm at greater than 100 beats per minute)
    - Nonsustained ventricular tachycardia and **1 or more** of the following:
      - Acute myocarditis
      - Myocardial ischemia

- Unstable cardiac conduction defects, as indicated by **1 or more** of the following(7):
  - Type II second-degree atrioventricular block
  - Third-degree atrioventricular block
  - New-onset left bundle branch block with suspected myocardial ischemia
- Heart rhythms of concern due to **1 or more** of the following(8):
  - Hypotension
  - Respiratory distress
  - Association with other significant symptoms (eg, syncope)(7)(9)(10)(11)

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Hemodynamic instability

- Hemodynamic instability, as indicated by **1 or more** of the following:
  - Vital sign abnormality not corrected by appropriate treatment, as indicated by **1 or more** of the following[A]:
    - Tachycardia that persists despite appropriate treatment (eg, treatment of underlying cause, despite observation care)[A]
    - Hypotension that persists despite appropriate treatment (eg, treatment of underlying cause, despite observation care)[A]
    - Orthostatic hypotension that persists despite appropriate treatment (eg, treatment of underlying cause, despite observation care)[A]
  - Severe hypotension in adult patient, as indicated by **1 or more** of the following:
    - Systolic blood pressure less than 80 mm Hg(1)[A]

- Shock index greater than 1.0 (shock index is the heart rate divided by systolic blood pressure)[A](2)(3)(4)
- Mean arterial pressure[B] less than 65 mm Hg MAP Calculator[A](1)(6)
- IV inotropic or vasopressor medication required to maintain adequate blood pressure or perfusion(3)(6)
- Hypoperfusion due to hypotension, as indicated by **ALL** of the following:
  - Hypotension
  - Evidence of hypoperfusion, as indicated by **1 or more** of the following:
    - Lactate of 2.0 mmol/L (18 mg/dL) or more secondary to hypotension (ie, hypoperfusion)[C](3)(6)(8)
    - Metabolic acidosis (arterial or venous[D] pH less than 7.35) not otherwise explained(3)(6)(8)
    - Significant end organ dysfunction due to hypotension (eg, Altered mental status, myocardial ischemia, 2-fold or higher acute increase in serum creatinine)(3)(6)

- Severe hypotension in pediatric patient, as indicated by **1 or more** of the following:
  - Systolic blood pressure less than 80 mm Hg in child 6 to 17 years of age[A](14)
  - Systolic blood pressure less than 75 mm Hg in child 6 months to 5 years of age[A](14)
  - Shock index greater than 0.9 in child 13 to 17 years of age (shock index is the heart rate divided by systolic blood pressure)[A](2)(15)
  - Shock index greater than 1.0 in child 7 to 12 years of age (shock index is the heart rate divided by systolic blood pressure)[A](2)(15)
  - Shock index greater than 1.2 in child 4 to 6 years of age (shock index is the heart rate divided by systolic blood pressure)[A](2)(15)
  - IV inotropic or vasopressor medication required to maintain adequate blood pressure or perfusion(5)(6)
  - Hypoperfusion due to hypotension, as indicated by **ALL** of the following:
    - Hypotension
    - Evidence of hypoperfusion, as indicated by **1 or more** of the following:
      - Lactate of 2.0 mmol/L (18 mg/dL) or more secondary to hypotension (ie, hypoperfusion)[C](6)(8)
      - Metabolic acidosis (arterial or venous pH less than 7.35) not otherwise explained[D](5)(6)(14)
      - Significant end organ dysfunction due to hypotension (eg, Altered mental status, myocardial ischemia, 2-fold or higher acute increase in serum creatinine)(5)(6)(14)

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Footnotes

A. Criteria based upon clinician-acquired numeric values (eg, vital signs, oxygen saturation) should be used if they are accurate reflections of the patient's condition. Transitory findings (eg, abnormal only upon initial emergency department intake or only one time out of multiple readings) that rapidly improve with no or minimal treatment usually do not reflect disease severity or risk for deterioration. This does not imply that an initial or one-time reading cannot ever be applicable. The goal is to separate erroneous or incidental findings from those that truly represent the patient's clinical picture.
B. The mean arterial pressure (MAP) takes into account both SBP and DBP readings.(3)(5)
C. There are numerous causes of an elevated lactate level. The most common are cardiogenic or hypovolemic shock, severe heart failure, severe trauma, or sepsis. However, there are also other etiologies to consider such as vigorous exercise, seizures, liver disease, or medication use (eg, metformin, beta2-agonists); therefore, interpretation of elevated lactate levels requires consideration of the clinical context (eg, well-appearing post exercise vs hypotensive). The severity and persistence of the elevation can sometimes be helpful in this differentiation. In most instances of lactic acidosis, blood pH is less than 7.35, with a serum bicarbonate level of 20 mEq/L (mmol/L) or lower. However, a coexisting respiratory or metabolic alkalosis can mask these findings.(7)(8)
D. Analyses have concluded that venous and arterial pH measurements are highly correlated, with small differences between them that are usually not clinically significant.(9)(10)(11)(12)(13) If a mixed acid-base disorder is suspected, an arterial blood gas is indicated.(10)

Hypotension

- Hypotension, as indicated by **1 or more** of the following:
  - Hypotension in adult patient, as indicated by **1 or more** of the following:
    - Systolic blood pressure less than 90 mm Hg[A][B](1)
    - Mean arterial pressure[C] less than 70 mm Hg[A][B] MAP Calculator(1)(2)
    - Decrease in baseline systolic blood pressure of 30 mm Hg or more, with significant signs or symptoms due to lower blood pressure (eg, near syncope, syncope, chest pain)[A][B](1)
  - Hypotension in pediatric patient, as indicated by **1 or more** of the following:
    - Systolic blood pressure less than 110 mm Hg in child 13 to 17 years of age[A][D](3)
    - Systolic blood pressure less than 100 mm Hg in child 6 to 12 years of age[A][D](3)
    - Systolic blood pressure less than 95 mm Hg in child 3 to 5 years of age[A][D](3)
    - Systolic blood pressure less than 90 mm Hg in child 1 or 2 years of age[A][D](3)
    - Systolic blood pressure less than 80 mm Hg in infant 6 to 11 months of age[A][D](3)
    - Systolic blood pressure less than 70 mm Hg in infant 3 to 5 months of age[A][D](3)

- Systolic blood pressure less than 65 mm Hg in infant 1 or 2 months of age[A][D](3)

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Footnotes

A. Criteria based upon clinician-acquired numeric values (eg, vital signs, oxygen saturation) should be used if they are accurate reflections of the patient's condition. Transitory findings (eg, abnormal only upon initial emergency department intake or only one time out of multiple readings) that rapidly improve with no or minimal treatment usually do not reflect disease severity or risk for deterioration. This does not imply that an initial or one-time reading cannot ever be applicable. The goal is to separate erroneous or incidental findings from those that truly represent the patient's clinical picture.

B. Interpretation of blood pressure requires clinical judgment and consideration of several patient-specific factors, such as the patient's baseline blood pressure, medications, and clinical impact. For example, an elderly patient with heart failure may be prescribed medication with the intentional goal of a reduced pressure. If the patient's baseline SBP is 92 mm Hg to 96 mm Hg, absent signs or symptoms of hypotension, an emergency department SBP of 86 mm Hg should not automatically be categorized as hypotensive. This would hold for mean arterial pressure (MAP) as well. The numeric values included in this definition are provided to allow for consistency in terms of a technical definition of the term hypotension. Whether a blood pressure below the technical threshold is clinically meaningful is a matter of persistence, context, and clinical judgment.

C. The mean arterial pressure (MAP) takes into account both SBP and DBP readings.

D. Interpretation of blood pressure requires clinical judgment and consideration of several patient-specific factors, such as the patient's baseline blood pressure, medications, and clinical impact. The numeric values included in this definition are provided to allow for consistency in terms of a technical definition of the term hypotension. Whether a blood pressure below the technical threshold is clinically meaningful is a matter of persistence, context, and clinical judgment.

Hypoxemia

- Hypoxemia, as indicated by **1 or more** of the following(1):
  - Patient without baseline need for supplemental oxygen with oxygen saturation (SpO_2) of less than 90% or arterial blood gas partial pressure of oxygen (PaO_2) of less than 60 mm Hg (8.0 kPa) on room air[A][B]
  - Patient without baseline need for supplemental oxygen who now requires supplemental oxygen to keep SpO_2 greater than 89% or PaO_2 greater than 59 mm Hg (7.9 kPa)[A]
  - Patient with baseline need for supplemental oxygen who now requires increased supplemental oxygen to maintain oxygenation at baseline or acceptable level

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Footnotes

A. Pulse oximetry (SpO_2) may underestimate arterial saturation (SaO_2), especially in people with dark skin pigmentation, thick skin, cold body temperature, or who are wearing colored nail polish, and thus may not accurately detect hypoxemia.(2) Where appropriate, pulse oximetry should be measured after warming fingers or removing nail polish. Pulse oximetry results should be assessed within the context of the patient's clinical presentation, and performance of an arterial blood gas considered for a more accurate assessment of oxygenation if indicated.(2) Specific target values may require adjustment when care is delivered at high altitude.(3)

B. Criteria based upon clinician-acquired numeric values (eg, vital signs, oxygen saturation) should be used if they are accurate reflections of the patient's condition. Transitory findings (eg, abnormal only upon initial emergency department intake or only one time out of multiple readings) that rapidly improve with no or minimal treatment usually do not reflect disease severity or risk for deterioration. This does not imply that an initial or one-time reading cannot ever be applicable. The goal is to separate erroneous or incidental findings from those that truly represent the patient's clinical picture.

Orthostatic hypotension

- Orthostatic hypotension,[A][B] as indicated by **1 or more** of the following(1)(2)(3):
  - Fall in SBP of 20 mm Hg or more 1 to 3 minutes after patient sits or stands from recumbent position
  - Fall in DBP of 10 mm Hg or more 1 to 3 minutes after patient sits or stands from recumbent position

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Footnotes

A. Concomitant measurements of the heart rate are important to measure to help diagnose subtypes of orthostatic hypotension (eg, the lack of a compensatory increase in heart rate is typical of autonomic failure and an exaggerated tachycardia may be reflective of volume depletion). However, the heart rate is not a component of the definition of orthostatic hypotension, which relies upon blood pressure alone.(1)(2)(3)

B. Criteria based upon clinician acquired numeric values (eg, vital signs, oxygen saturation) should be used if they are accurate reflections of the patient's condition. Transitory findings (eg, abnormal only upon initial emergency department intake or only one time out of multiple readings) that rapidly improve with no or minimal treatment usually do not reflect disease severity or risk for deterioration. This does not imply that an initial or one-time reading cannot ever be applicable. The goal is to separate erroneous or incidental findings from those that truly represent the patient's clinical picture.

Respiratory distress

- Respiratory distress, as indicated by **ALL** of the following(1)(2)(3)(4):
  - Patient with **1 or more** of the following:
    - Dyspnea (difficulty breathing)
    - Tachypnea

- Abnormal breathing pattern (eg, chest retractions)
- Other evidence of difficulty breathing

- Evidence of respiratory compromise, as indicated by **1 or more** of the following:
  - Hypoxemia
  - Altered mental status
  - Other evidence of respiratory compromise (eg, respiratory acidosis)

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Tachycardia

- Tachycardia,[A][B] as indicated by **1 or more** of the following:
  - Heart rate greater than 100 beats per minute in adult[A][B](1)
  - Heart rate greater than 85 beats per minute in child 13 to 17 years of age[A][C](2)
  - Heart rate greater than 95 beats per minute in child 6 to 12 years of age[A][C](2)
  - Heart rate greater than 110 beats per minute in child 1 to 5 years of age[A][C](2)
  - Heart rate greater than 120 beats per minute in infant 3 to 11 months of age[A][C](2)
  - Heart rate greater than 150 beats per minute in infant 1 or 2 months of age[A][C](2)

References

1. Schriger DL. Approach to the patient with abnormal vital signs. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:32-35.
2. Anderson CC, Kapoor S, Mark TE. Pediatric parameters and equipment. In: Anderson CC, Kapoor S, Mark TE, editors. The Harriet Lane Handbook: A Manual for Pediatric House Officers. 23rd ed. Elsevier; 2024:i-iii.

Footnotes

A. Criteria based upon clinician acquired numeric values (eg, vital signs, oxygen saturation) should be used if they are accurate reflections of the patient's condition. Transitory findings (eg, abnormal only upon initial emergency department intake or only one time out of multiple readings) that rapidly improve with no or minimal treatment usually do not reflect disease severity or risk for deterioration. This does not imply that an initial or one-time reading cannot ever be applicable. The goal is to separate erroneous or incidental findings from those that truly represent the patient's clinical picture.

B. Interpretation of heart rate requires clinical judgment and consideration of several patient-specific factors, such as the patient's baseline heart rate, medications, and clinical impact. For example, an elderly patient on a beta-blocker medication with a baseline resting heart rate of 60 beats per minute may be clinically tachycardic at a heart rate of 94 beats per minute. Likewise, a patient who is upset, in pain, or nervous in the emergency department with a heart rate of 106 beats per minute may meet the technical definition of tachycardia, but this tachycardia (absent associated findings such as chest pain or hypotension) may not be clinically important. The numeric values included in this definition are provided to allow for consistency in terms of a technical definition of the term tachycardia. Whether a heart rate above or below the technical threshold is clinically meaningful is a matter of persistence, context, and clinical judgment.

C. Interpretation of heart rate requires clinical judgment and consideration of several patient-specific factors, such as the patient's baseline heart rate, medications, and clinical impact. A patient who is upset, in pain, or nervous in the emergency department with an elevated heart rate may meet the technical definition of tachycardia, but this tachycardia (absent associated findings such as hypotension) may not be clinically important. The numeric values included in this definition are provided to allow for consistency in terms of a technical definition of the term tachycardia. Whether a heart rate above or below the technical threshold is clinically meaningful is a matter of persistence, context, and clinical judgment.

Tachypnea

- Tachypnea,[A][B] as indicated by **1 or more** of the following:
  - Respiratory rate greater than 20 breaths per minute in adult[A][B](1)
  - Respiratory rate greater than 18 breaths per minute in child 13 to 17 years of age[A][B](2)
  - Respiratory rate greater than 22 breaths per minute in child 6 to 12 years of age[A][B](2)
  - Respiratory rate greater than 25 breaths per minute in child 3 to 5 years of age[A][B](2)
  - Respiratory rate greater than 30 breaths per minute in child 1 or 2 years of age[A][B](2)
  - Respiratory rate greater than 40 breaths per minute in infant 6 to 11 months of age[A][B](2)
  - Respiratory rate greater than 45 breaths per minute in infant 3 to 5 months of age[A][B](2)
  - Respiratory rate greater than 55 breaths per minute in infant 1 or 2 months of age[A][B](2)

References

1. Schriger DL. Approach to the patient with abnormal vital signs. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:32-35.
2. Anderson CC, Kapoor S, Mark TE. Pediatric parameters and equipment. In: Anderson CC, Kapoor S, Mark TE, editors. The Harriet Lane Handbook: A Manual for Pediatric House Officers. 23rd ed. Elsevier; 2024:i-iii.

Footnotes

A. Criteria based upon clinician acquired numeric values (eg, vital signs, oxygen saturation) should be used if they are accurate reflections of the patient's condition. Transitory findings (eg, abnormal only upon initial emergency department intake or only one time out of multiple readings) that rapidly improve with no or minimal treatment usually do not reflect disease severity or risk for deterioration. This does not imply that an initial or one-time reading cannot ever be applicable. The goal is to separate erroneous or incidental findings from those that truly represent the patient's clinical picture.

B. Interpretation of respiratory rate requires clinical judgment and consideration of several patient-specific factors, such as the patient's baseline respiratory rate and whether the respiratory rate is indicative of significant underlying respiratory or other pathology. A mildly increased respiratory rate (eg, 20 to 22 breaths per minute in an adult), absent other indications of serious illness (eg, hypoxemia, metabolic acidosis, decreased tidal volume, pain), may be transitory and not clinically important. The numeric values included in this definition are provided to allow for consistency in terms of a technical definition of the term tachypnea. Whether a respiratory rate above the technical threshold is clinically meaningful is a matter of persistence, context, and clinical judgment. In addition, the measurement of the respiratory rate is subject to error. A medical textbook states that because there can be significant breath-to-breath variation in respiratory rate, the rate should be assessed for at least 30 seconds, preferably for a full minute.(1) This same textbook also states that new technologies designed to measure the respiratory rate have not proved to be clinically useful.(1)

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