

Head and Neck Disease GRG

GRG: MG-HND (ISC GRG)

MCG HealthGeneral Recovery
Care

30th Edition

Medical Admission Case

Management GRG  GRG

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

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Care Planning - Inpatient Admission and Alternatives

Clinical Indications for Admission to Inpatient Care

- Hospital admission is needed for appropriate care of the patient because of **1 or more** of the following:
 - ☐ Acute glaucoma and **1 or more** of the following(1)(2):
 - Elevated intraocular pressure not responsive to treatment (intervention or monitoring needed beyond observation care)
 - Pain or vomiting that is severe and persists despite observation care
 - Severe eye inflammation (eg, uveitis, keratitis, retinal arteritis) that requires treatment beyond observation care(1)(3)(4)(5)
 - Severe eye infection that requires treatment beyond observation care (eg, endophthalmitis, keratitis complicated by ulcers or scleritis)(3)(4)(6)(7)
 - Ocular injury or trauma requiring treatment beyond observation care (eg, chemical injury, burn, globe rupture, corneal trauma)(1)(4)
 - Ocular or visual findings (eg, diplopia, reduced visual acuity, abnormal ocular examination) with suspected etiology that requires evaluation or treatment beyond observation care (eg, CNS infection, vascular abnormality, Wernicke encephalopathy)(4)(5)(8)(9)
 - Neuromyelitis optica spectrum disorder(10)(11)(12)
 - Optic neuritis requiring treatment beyond observation care (eg, multiday course of parenteral corticosteroids)(4)(9)(11)
 - Central retinal arterial occlusion that requires evaluation or treatment beyond observation care(4)(13)(14)
 - ☐ Epistaxis and **1 or more** of the following(15)(16)(17):
 - Hemodynamic instability
 - Continued epistaxis despite observation care (eg, despite packing, tamponade, cautery, topical agents)(18)
 - Inpatient monitoring needed (beyond observation care) due to high risk of severe recurrent bleeding (eg, irreversible overanticoagulation, bleeding diathesis)
 - Posterior bleeding source(18)
 - Evidence of airway compromise(18)
 - Acute bacterial labyrinthitis(19)
 - Labyrinthitis with significant symptoms that persist despite observation care(19)(20)
 - Severe necrotizing external otitis that requires treatment beyond observation care(18)(21)

- ☐ Otitis media and **1 or more** of the following(22)(23):
 - Hemodynamic instability
 - Mastoiditis(18)(24)(25)
 - Suspected CNS infection (empiric treatment planned)
 - Bacteremia
 - Surgical drainage needed that cannot be performed in observation care(18)(26)
- Epiglottitis or supraglottitis(27)(28)(29)(30)
- ☐ Acute pharyngitis, tonsillitis, or peritonsillar abscess and **1 or more** of the following(31)(32):
 - Hemodynamic instability
 - Airway obstruction or impending obstruction (eg, stridor, hypoxia, Hypoxemia)(30)(33)(34)(35)
 - Extension of infection into deep tissues of the neck or superior mediastinum (eg, mediastinitis, retropharyngeal or parapharyngeal abscess)(28)(35)
 - Peritonsillar abscess and **1 or more** of the following:
 - Presence of severe symptoms (eg, trismus, odynophagia, inability to manage secretions, Severe pain requiring acute inpatient management)(28)(36)(37)
 - Pediatric patient[A]
 - Extension or lack of adequate improvement despite receiving parenteral antibiotics and/or drainage in observation care(33)
 - Surgical drainage that cannot be performed in observation care[B]
 - Inability to maintain oral hydration despite observation care (eg, intravenous antibiotics, incision and drainage)(37)
 - Thrombophlebitis of internal jugular vein (Lemierre syndrome)(33)(35)(39)
- ☐ Sialadenitis or parotitis and **1 or more** of the following(40):
 - Hemodynamic instability (41)
 - Complications (eg, extension of infection into deep spaces of the neck, Lemierre syndrome, respiratory obstruction)
 - Surgical drainage needed that cannot be performed in observation care (eg, for associated abscess)(41)(42)
 - Inability to maintain oral hydration (eg, IV fluid support needed) that persists despite observation care
 - Trismus present(41)(43)
- ☐ Stridor, laryngospasm, or tracheal obstruction and **1 or more** of the following(27)(44)(45):
 - Hypercarbia (PCO₂ greater than 40 mm Hg (5.3 kPa))-induced respiratory acidosis (pH less than 7.35)
 - Infection causing symptomatic upper airway obstruction (eg, peritonsillar or retropharyngeal abscess, child with acute bacterial epiglottitis)(29)
 - Acute dyspnea, respiratory difficulties, or Hypoxemia that persists despite observation care
- Airway blockage or inability to swallow(27)(30)(46)(47)
- ☐ Severe sinusitis and **1 or more** of the following(28)(48)(49):
 - Hemodynamic instability (28)
 - CNS infection or orbital involvement (eg, brain abscess, meningitis, orbital cellulitis)(28)(49)
 - Bacteremia (28)
 - Inpatient treatment necessary (eg, continued IV antibiotics indicated beyond observation care)(49)
 - Surgical drainage needed that cannot be performed in observation care
- Odontogenic infection with cellulitis of the sublingual, submandibular, or submaxillary spaces[C](27)(30)(50)
- Bacterial tracheitis(27)(29)
- ☐ Infection of the upper respiratory tract and **1 or more** of the following(27)(28):
 - Hemodynamic instability (27)(28)
 - Abscess or swelling causing airway obstruction or partial obstruction(27)(28)
 - Abscess or swelling causing significant swallowing difficulty (eg, difficulty handling secretions)(27)(28)
 - Bacteremia
 - IV antibiotics indicated that cannot be administered at lower level of care (eg, skilled nursing facility, home care)(28)
 - Surgical drainage needed that cannot be performed in observation care(28)
 - CNS infection
 - Other acute management need that cannot be performed in observation care
- ☐ Herpes zoster of head or neck and **1 or more** of the following(1)(51)(52)(53):
 - Ocular disease (eg, cornea) requiring treatment beyond the scope of outpatient care (eg, requiring IV antiviral medication or surgical intervention)[D](55)(56)
 - Meningoencephalopathic disease
 - Facial bacterial superinfection requiring hospital-based treatment beyond observation care
 - Inability to swallow and maintain oral hydration that persists beyond observation care
 - Severe pain requiring acute inpatient management
- ☐ Facial or cranial fracture and **1 or more** of the following(57)(58)(59)(60)(61)(62):
 - Comminuted fractures
 - Fracture with risk for or development of compartment syndrome

- Fracture requiring monitoring or treatment beyond scope of observation care (eg, orbital fracture with impingement of orbital contents, facial fracture with respiratory compromise, fracture with leaking CSF)(1)
 - Severe trauma requiring inpatient medical treatment(1)(63)(64)(65)
 - **Head or Neck Disease** condition, symptom, or finding for which observation care has failed or is not considered appropriate.
- See General Criteria: Observation Care [ISC](#), General Admission Criteria [GRG](#), or Pediatric General Admission Criteria [GRG](#) guideline as appropriate.

Supplemental Medicare Criteria

Note: These criteria are to be considered for Medicare patients if none of the standard Clinical Indications for Admission to Inpatient Care apply.

- Patient with Medicare coverage requires inpatient admission, as indicated by **1 or more** of the following(66):
 - Admitting clinician expects patient to require hospital care for less than 2 midnights but, based on complex medical factors documented in medical record, judges that inpatient care is necessary (case-by-case exception). The medical record must contain sufficient documentation to make clear the rationale for the exception.
 - Patient has need for intubation and mechanical ventilation that is new (ie, did not present to hospital already on mechanical ventilation).
 - Treatment plan for hospital admission includes procedure designated by CMS as inpatient only (ie, on Inpatient Only List).
 - Patient has already received medically necessary hospital care that meets 2-midnight benchmark (excluding activities such as triage/intake, delays in provision of care, or time added due to patient or family convenience). The medical record must contain sufficient documentation to make clear the medical necessity for hospital care across 2 or more midnights.

Alternatives to Admission

- Alternatives may include(1)(15)(18)(19)(22)(28)(29)
 - Outpatient care in emergency department, observation care (see General Criteria: Observation Care [ISC](#) guideline as appropriate), rapid treatment site, urgent care center, or medical office
 - Emergency department treatment and outpatient follow-up (eg, epistaxis, eye injury, mild trauma)(63)(64)(65)
 - Medical treatment of acute glaucoma(2)
 - Antibiotics (eg, for sinusitis, otitis, eye infections)(3)(6)(45)(49)
 - Antiviral agents
 - Steroids for inflammatory disease(27)(29)
 - Sedation and antiemetics for labyrinthitis(19)
 - Extracorporeal shock wave lithotripsy for sialolithiasis(67)
 - Home care
 - IV antibiotics and steroids
 - Assistance for patient with acute vision impairment
 - Coordination of follow-up and rapid outpatient evaluation(29)
 - Recovery facility
 - Direct admission for patient requiring frequent or complex monitoring or care; examples include:
 - Tracheostomy monitoring and care(68)
 - IV antibiotics with frequent monitoring

Hospitalization

General Recovery Course

Stage	Level of Care	Clinical Status	Interventions
1	• ICU or intermediate care[E] • Social Determinants of Health Assessment • Discharge planning. See Discharge Planning Tool SR.	• Clinical Indications met[F]	• Inpatient interventions as needed
2	• Floor • Social Determinants of Health Assessment	• No ICU or intermediate care needs	• Inpatient interventions continue • Transition to oral routes

3

- **Activity level acceptable**
- Social Determinants of Health Assessment
- Floor to discharge
- Complete discharge planning
- **Hemodynamic stability**
- **Visual abnormalities absent, stable, or improving**
- **Ocular status acceptable**
- **Orbital infection or inflammation absent or controlled**
- **Airway and swallowing status acceptable**
- **Respiratory status acceptable**
- **Pain and nausea absent or adequately managed**
- **No infection, or status acceptable**
- **General Discharge Criteria met**
- **No surgical procedures needed**
- **Intake acceptable**
- **No inpatient interventions needed**

(3)(7)(15)(24)(29)(69)

Recovery Milestones are indicated in **bold**.

Benchmark Length of Stay (BLOS): Access diagnosis and procedure code-specific BLOS via Search functions.

Discharge Criteria

- Continued inpatient stay is needed until **1 or more** of the following are present:
 - Acceptable patient status for next level of care is achieved.
 - **ALL** of the following are present:
 - ☐ Hemodynamic stability, as indicated by **1 or more** of the following:
 - Hemodynamic abnormalities at baseline or acceptable for next level of care
 - Patient hemodynamically stable, as indicated by **ALL** of the following(70)(71):
 - Tachycardia absent
 - Hypotension absent
 - No evidence of inadequate perfusion (eg, no myocardial ischemia)
 - No other hemodynamic abnormalities (eg, no Orthostatic hypotension)
 - Visual abnormalities absent, stable, or improving
 - ☐ Ocular status acceptable, as indicated by **1 or more** of the following:
 - No ocular problems
 - Ocular status acceptable for next level of care, as indicated by **ALL** of the following(1)(4):
 - Ocular abnormalities (eg, hemorrhage, orbital fracture) acceptable for management at next level of care
 - Intraocular pressure less than 21 mm Hg or acceptable for management at next level of care(72)
 - Orbital infection or inflammation absent or controlled
 - ☐ Airway and swallowing status acceptable, as indicated by **ALL** of the following:
 - Aspiration absent or manageable at next level of care(73)(74)
 - No stridor, or at anticipated baseline
 - Tracheostomy absent or functioning adequately for next level of care(68)
 - Posterior nasal packs absent(17)
 - ☐ Respiratory status acceptable, as indicated by **ALL** of the following(75)(76)(77)(78):
 - Patient breathing comfortably (or near baseline) and able to protect airway (eg, able to handle secretions)
 - Tachypnea absent
 - Oxygen saturation greater than 90%, near baseline, or measurement not indicated for condition
 - Supplemental oxygen or respiratory treatments not needed or are performable at next level of care
 - Airflow measurements greater than 60% of predicted, at stable baseline, or measurement not indicated for condition
 - Partial pressure of carbon dioxide and pH normal, at stable baseline, or measurement not indicated for condition
 - ☐ Pain and nausea absent or adequately managed, as indicated by **1 or more** of the following(79)(80)(81)(82)(83):
 - No pain or nausea
 - Minimal discomfort on oral medications
 - Pain and nausea managed on regimen performable at next level of care
 - ☐ No infection, or status acceptable, as indicated by **1 or more** of the following(84)(85)(86)(87)(88):
 - No infection present
 - Infection status acceptable for next level of care, as indicated by **ALL** of the following(89):
 - WBC count normal, stable, or declining with treatment
 - Adequate treatment performable at next level of care
 - Organism and sensitivities identified, or adequate clinical response to empiric therapy

- Repeat cultures negative or not needed
- No surgical procedures needed
- ☐ Activity level acceptable, as indicated by **1 or more** of the following:
 - Patient ambulatory and can perform ADL as appropriate for age and development
 - Activity at baseline
 - Activity level acceptable for next level of care
- ☐ Intake acceptable, as indicated by **1 or more** of the following(90):
 - Oral hydration, medications, and diet
 - Enteral hydration, medications, and diet
 - Administration routes performable at next level of care
- ☐ No inpatient interventions needed; examples include:
 - Urgent laryngoscopy
 - Monitoring for stridor or other airway difficulties
 - Monitoring for uncontrolled increased intraocular pressure
- ☐ General Discharge Criteria [GRG met](#) or Pediatric General Discharge Criteria [GRG met](#) (if either is relevant or necessary for patient's condition)

Case Management

See Medical Admission Case Management GRG [GRG](#) for further information.

Discharge Destination

- Post-hospital levels of admission may include:
 - Home.
 - Home healthcare. See Medical Admission Home Care GRG [HC](#) or Geriatric Admission Home Care GRG [HC](#) for further information.
 - Recovery facility care. See Medical Admission Recovery Facility Care GRG [RFC](#) or Geriatric Admission Recovery Facility Care GRG [RFC](#) for further information.
 - Inpatient rehabilitation facility. See Inpatient Rehabilitation Facility (IRF) Admission Recovery Facility Care GRG [RFC](#) for further information.
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Evidence Summary

Criteria

The evidence for the clinical indications found in this guideline includes 30 published peer reviewed articles, 3 specialty society or other evidence-based guidelines, and 31 book sections.

Rationale

Use of this MCG care guideline helps the clinician identify patient-specific complex clinical factors that make it reasonable to expect a necessity for hospital care across 2 or more midnights. The evidence-based clinical criteria assist the clinician in the decision to appropriately admit a patient to inpatient care. For Medicare enrollees, MCG care guidelines also support the clinician in the decision to appropriately admit a patient to inpatient care when there is not an expectation of 2 or more midnights of hospital care (eg, CMS' Two-Midnight Rule exceptions).

Use of these evidence-based clinical criteria to support decision making around the need for inpatient treatment is of clinical benefit to the patient and is crucial for quality patient care. Use of evidence-based clinical criteria ensures patients receive the most appropriate care for their specific condition, reduces unnecessary risks, promotes recovery, and provides a standard that can reduce disparities in care. Evidence-based clinical criteria not only help align treatment decisions with best practice, but they can also help reduce unwarranted variation in care by fostering consistency and equality in healthcare provision across regions and facilities. Appropriate use of the evidence-based clinical criteria in conjunction with the Supplemental Medicare Criteria ensures Medicare patients receive full access to Medicare benefits (eg, inpatient care), without risk of delay or decreased access, based on variables such as clinical severity of illness, length of provision of medically necessary hospital-level care, or satisfaction of specified Medicare criteria as directed by CMS. Use of these criteria will help ensure that the patient receives necessary care in the appropriate setting.

Related CMS Coverage Guidance

This guideline supplements but does not replace, modify, or supersede existing Medicare regulations or applicable National Coverage Determinations (NCDs) or Local Coverage Determinations (LCDs).

Code of Federal Regulations (CFR): 42 CFR 412.3(66); 42 CFR 419.22(91); 42 CFR 422.101(92)

Internet-Only Manual (IOM) Citations: CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 1 - Inpatient Hospital Services Covered Under Part A(93); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 6 - Hospital Services Covered Under Part B(94); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 15 - Covered Medical and Other Health Services(95); CMS IOM Publication 100-08, Medicare Program Integrity Manual, Chapter 6, Section 6.5 - Medical Review of Inpatient Hospital Claims for Part A Payment(96)

Medicare Coverage Determinations: Medicare Coverage Database(97)

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Footnotes

[A] While younger children are typically admitted, adolescents and young adults may be managed as outpatients if they can tolerate drainage and demonstrate ability to take medications and tolerate liquids afterward.(36)(38) Younger children may require additional sedation or anesthesia to undergo adequate surgical drainage.(34) [A in Context Link 1]

[B] Surgical management of peritonsillar abscess occurs via needle aspiration, incision and drainage, or tonsillectomy.(36)(38) In young children, drainage of a peritonsillar abscess via needle aspiration may be limited by patient cooperation, and patients may need to undergo surgical drainage under general anesthesia.(34) Analysis of a large national surgical database of pediatric patients with peritonsillar abscess who underwent surgery vs incision and drainage did not show a statistically significant difference in length of stay (1.9 vs 1.7 days, respectively).(34) [B in Context Link 1]

[C] This condition is also known as Ludwig angina, which refers to rapidly spreading cellulitis of the sublingual, submandibular, and submaxillary spaces.(27) An emergency medicine textbook recommends that patients with Ludwig angina be admitted to an intensive care unit.(28) [C in Context Link 1]

[D] Most episodes of herpes zoster ophthalmicus and subsequent complications can be treated on an outpatient basis with close follow-up with an ophthalmologist.(1)(51)(52)(53) Immunocompromised patients or patients with life-threatening ocular disease should receive intravenous antivirals.(54) [D in Context Link 1]

[E] See Intensive, Intermediate, and Telemetry Care Guidelines  ISC. [E in Context Link 1]

[F] See Clinical Indications for Admission to Inpatient Care in this guideline. [F in Context Link 1]

Definitions

Activity level acceptable

- Activity level acceptable, as indicated by **1 or more** of the following:
 - Patient ambulatory and can perform ADL as appropriate for age and development
 - Activity at baseline
 - Activity level acceptable for next level of care

Airway and swallowing status acceptable

- Airway and swallowing status acceptable, as indicated by **ALL** of the following:
 - Aspiration absent or manageable at next level of care(1)(2)
 - No stridor, or at anticipated baseline
 - Tracheostomy absent or functioning adequately for next level of care(3)
 - Posterior nasal packs absent(4)

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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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Bacteremia

- Bacteremia refers to blood culture isolation of a bacterial species that is likely to be pathologic and not a contaminant.(1)(2)

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General Discharge Criteria met

- General Discharge Criteria met or Pediatric General Discharge Criteria met (if either is relevant or necessary for patient's condition)

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)

Hemodynamic stability

- Hemodynamic stability, as indicated by **1 or more** of the following:
 - Hemodynamic abnormalities at baseline or acceptable for next level of care
 - Patient hemodynamically stable, as indicated by **ALL** of the following(1)(2):
 - Tachycardia absent
 - Hypotension absent
 - No evidence of inadequate perfusion (eg, no myocardial ischemia)
 - No other hemodynamic abnormalities (eg, no Orthostatic hypotension)

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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.

Hypotension absent

- Hypotension absent,^[A] as indicated by **1 or more** of the following:
 - Hypotension absent in adult patient, as indicated by **1 or more** of the following:
 - Systolic blood pressure greater than or equal to 90 mm Hg^{[A](1)}
 - Mean arterial pressure^[B] greater than or equal to 70 mm Hg  MAP Calculator^{[A](1)(2)}
 - Blood pressure at patient's baseline (eg, healthy adult with low systolic blood pressure), at intentional therapeutic goal (eg, patient with heart failure), or acceptable for next level of care (eg, blood pressure stable and no significant signs or symptoms due to low blood pressure)
 - Hypotension absent in pediatric patient, as indicated by **1 or more** of the following:
 - Systolic blood pressure greater than or equal to 110 mm Hg in child 13 to 17 years of age^{[A](3)}
 - Systolic blood pressure greater than or equal to 100 mm Hg in child 6 to 12 years of age^{[A](3)}
 - Systolic blood pressure greater than or equal to 95 mm Hg in child 3 to 5 years of age^{[A](3)}
 - Systolic blood pressure greater than or equal to 90 mm Hg in child 1 or 2 years of age^{[A](3)}
 - Systolic blood pressure greater than or equal to 80 mm Hg in infant 6 to 11 months of age^{[A](3)}
 - Systolic blood pressure greater than or equal to 70 mm Hg in infant 3 to 5 months of age^{[A](3)}
 - Systolic blood pressure greater than or equal to 65 mm Hg in infant 1 or 2 months of age^{[A](3)}
 - Blood pressure at patient's baseline (eg, healthy child with low systolic blood pressure), at intentional therapeutic goal, or acceptable for next level of care (eg, blood pressure stable and no significant signs or symptoms due to low blood pressure)

References

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

Hypoxemia

- Hypoxemia, as indicated by **1 or more** of the following(1):
 - Patient without baseline need for supplemental oxygen with oxygen saturation (SpO₂) of less than 90% or arterial blood gas partial pressure of oxygen (PaO₂) 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 SpO₂ greater than 89% or PaO₂ 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

References

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- Jamali H, et al. Racial disparity in oxygen saturation measurements by pulse oximetry: evidence and implications. Annals of the American Thoracic Society 2022;19(12):1951-1964. DOI: 10.1513/AnnalsATS.202203-270CME.
- Rojas-Camayo J, et al. Reference values for oxygen saturation from sea level to the highest human habitation in the Andes in acclimatised persons. Thorax 2018;73(8):776-778. DOI: 10.1136/thoraxjnl-2017-210598.

Footnotes

- Pulse oximetry (SpO₂) may underestimate arterial saturation (SaO₂), 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)
- 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.

Intake acceptable

- Intake acceptable, as indicated by **1 or more** of the following(1):
 - Oral hydration, medications, and diet
 - Enteral hydration, medications, and diet
 - Administration routes performable at next level of care

References

- Hoffer LJ, Bistran BR, Driscoll DF. Enteral and parenteral nutrition. In: Loscalzo J, Fauci A, Kasper D, Hauser S, Longo D, Jameson JL, editors. Harrison's Principles of Internal Medicine. 21st ed. McGraw Hill Education; 2022:2539-2546.

No infection, or status acceptable

- No infection, or status acceptable, as indicated by **1 or more** of the following(1)(2)(3)(4)(5):
 - No infection present
 - Infection status acceptable for next level of care, as indicated by **ALL** of the following(6):
 - WBC count normal, stable, or declining with treatment
 - Adequate treatment performable at next level of care
 - Organism and sensitivities identified, or adequate clinical response to empiric therapy
 - Repeat cultures negative or not needed

References

- Hooper DC, Shenoy ES, Elshaboury RH. Treatment and prophylaxis of bacterial infections. In: Loscalzo J, Fauci A, Kasper D, Hauser S, Longo D, Jameson JL, editors. Harrison's Principles of Internal Medicine. 21st ed. McGraw Hill Education; 2022:1148-1163.
- Blum FC, Biros MH. Fever in the adult patient. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:90-95.e1.
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No inpatient interventions needed

- No inpatient interventions needed; examples include:
 - Urgent laryngoscopy
 - Monitoring for stridor or other airway difficulties
 - Monitoring for uncontrolled increased intraocular pressure

Ocular status acceptable

- Ocular status acceptable, as indicated by **1 or more** of the following:
 - No ocular problems
 - Ocular status acceptable for next level of care, as indicated by **ALL** of the following(1)(2):
 - Ocular abnormalities (eg, hemorrhage, orbital fracture) acceptable for management at next level of care
 - Intraocular pressure less than 21 mm Hg or acceptable for management at next level of care(3)

References

1. Guluma K, Lee JE. Ophthalmology. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:750-780.e4.
2. Shah SM, Khanna CL. Ophthalmic emergencies for the clinician. Mayo Clinic Proceedings 2020;95(5):1050-1058. DOI: 10.1016/j.mayocp.2020.03.018.
3. Michels TC, Ivan O. Glaucoma: diagnosis and management. American Family Physician 2023;107(3):253-262.

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

References

1. Shibao C, Lipsitz LA, Biaggioni I, American Society of Hypertension Writing Group. Evaluation and treatment of orthostatic hypotension. Journal of the American Society of Hypertension 2013 Jul-Aug;7(4):317-324. DOI: 10.1016/j.jash.2013.04.006.
2. Dalal AS, Van Hare GF. Syncope. In: Kliegman RM, et al., editors. Nelson Textbook of Pediatrics. 22nd ed. Elsevier; 2025:592-599.
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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.

Pain and nausea absent or adequately managed

- Pain and nausea absent or adequately managed, as indicated by **1 or more** of the following(1)(2)(3)(4)(5):
 - No pain or nausea
 - Minimal discomfort on oral medications
 - Pain and nausea managed on regimen performable at next level of care

References

1. Swarm RA, et al. Adult Cancer Pain. NCCN Clinical Practice Guidelines in Oncology [Internet] National Comprehensive Cancer Network (NCCN). v. 2.2025; 2025 May 21 Accessed at: <https://www.nccn.org/>. [accessed 2025 Jun 04]
2. Cohen SP. Pain. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:133-141.e1.
3. Peterson SJB, Weisman SJ. Pediatric pain management. In: Kliegman RM, et al., editors. Nelson Textbook of Pediatrics. 22nd ed. Elsevier; 2025:677-700.
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5. Fourth consensus guidelines for the management of postoperative nausea and vomiting: erratum. Anesthesia and Analgesia 2020;131(5):e241. DOI: 10.1213/ANE.0000000000005245.

Respiratory status acceptable

- Respiratory status acceptable, as indicated by **ALL** of the following(1)(2)(3)(4):
 - Patient breathing comfortably (or near baseline) and able to protect airway (eg, able to handle secretions)
 - Tachypnea absent
 - Oxygen saturation greater than 90%, near baseline, or measurement not indicated for condition
 - Supplemental oxygen or respiratory treatments not needed or are performable at next level of care
 - Airflow measurements greater than 60% of predicted, at stable baseline, or measurement not indicated for condition
 - Partial pressure of carbon dioxide and pH normal, at stable baseline, or measurement not indicated for condition

References

1. Braithwaite SA, Wessel AL. Dyspnea. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:194-201.e2.
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Severe pain requiring acute inpatient management

- Severe pain requiring inpatient management, as indicated by **1 or more** of the following(1)(2)(3)(4):
 - Inpatient parenteral analgesic agent treatment required,^[A] as indicated by **ALL** of the following:
 - Pain insufficiently responsive to nonpharmacologic and oral pharmacologic analgesia (eg, NSAID, oral opioid)
 - Need for parenteral treatment persists despite observation care (eg, adjustments in dosage, frequency, medication, route).
 - Pain control regimen for next level of care not established, as indicated by **ALL** of the following:
 - Regimen used to achieve sufficient pain control is not readily performable at next level of care.
 - Unable to convert patient to regimen performable at next level of care despite observation care (eg, adjustments in dosage, frequency, medication, route)
 - Suspected new or deteriorating disease process as etiology (eg, new site of metastatic disease) requiring inpatient evaluation and treatment (eg, urgent radiation therapy)(7)
 - Palliative procedure planned that necessitates inpatient care for assessment and monitoring needs (eg, celiac block, stent to relieve obstruction)

References

1. Dowell D, Ragan KR, Jones CM, Baldwin GT, Chou R. CDC Clinical Practice Guideline for Prescribing Opioids for Pain - United States, 2022. MMWR - Recommendations and Reports 2022;71(3):1-95. DOI: 10.15585/mmwr.rr7103a1.
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3. Peterson SJB, Weisman SJ. Pediatric pain management. In: Kliegman RM, et al., editors. Nelson Textbook of Pediatrics. 22nd ed. Elsevier; 2025:677-700.
4. Swarm RA, et al. Adult Cancer Pain. NCCN Clinical Practice Guidelines in Oncology [Internet] National Comprehensive Cancer Network (NCCN). v. 2.2025; 2025 May 21 Accessed at: <https://www.nccn.org/>. [accessed 2025 Jun 04]
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7. Tringale KR, et al. Urgent and emergent radiotherapy for hematologic malignancies of the central nervous system: a review of the literature and practical approach. *Frontiers in Oncology* 2025;15:1511261. DOI: 10.3389/fonc.2025.1511261.

Footnotes

- A. Many validated instruments are available to quantify pain.(4)(5) A visual analog or numerical rating scale graded from 0 to 10 is often used; moderate pain correlates with a score of 4 to 6 and severe pain is 7 to 10.(4) Different scales may be more appropriate for different disease processes or patient populations.(5)(6)

Social Determinants of Health Assessment

- Risk of poor health outcomes may be increased by the presence of **1 or more** of the following social determinants of health(1)(2)(3):
 - Housing insecurity, as indicated by **1 or more** of the following:
 - Individual or caregiver's current living situation is **1 or more** of the following(4):
 - Does not have own housing (eg, staying in a hotel, shelter, or with others)
 - Has own housing (eg, house, apartment), but at risk of losing it in the future (ie, behind on rent or mortgage)
 - Has own housing (eg, house, apartment), but has lived in 3 or more places in past year
 - Current housing has **1 or more** of the following:
 - Electrical appliances (eg, stove, refrigerator) not working or unavailable
 - Insufficient heating or cooling
 - Insufficient ventilation
 - Lead paint or pipes
 - Mold
 - Pests (eg, bugs) or rodents
 - Smoke detectors not working or unavailable
 - Food insecurity, as indicated by **1 or more** of the following(5):
 - In the past year, individual or caregiver ran out of food and did not have money to buy more food.
 - In the past year, individual or caregiver worried that they would run out of food before they received money to buy more food.
 - Insufficient transportation, as indicated by **1 or more** of the following(6):
 - In the past year, individual or caregiver missed medical appointments or could not get medications due to lack of transportation.
 - In the past year, individual or caregiver missed nonmedical activities, work, or could not get things needed for daily living due to lack of transportation.
 - Insufficient utilities, as indicated by **1 or more** of the following(7):
 - Utilities (eg, electricity, water, gas, or oil) are currently shut off or unavailable.
 - In the past year, electric, water, gas, or oil company threatened to shut off services.
 - Personal safety risk, as indicated by **2 or more** of the following(5):
 - Individual is sometimes or frequently physically hurt by another person (including family member).
 - Individual is sometimes or frequently insulted or talked down to by another person (including family member).
 - Individual is sometimes or frequently threatened with physical harm by another person (including family member).
 - Individual is sometimes or frequently screamed or cursed at by another person (including family member).
 - Insufficient dependent care, as indicated by **1 or more** of the following:
 - In the past year, individual or caregiver was unable to work due to lack of dependent care.
 - In the past year, individual or caregiver was unable to work more (additional) hours due to lack of dependent care.
 - In the past year, individual or caregiver missed medical appointments or could not get medications due to lack of dependent care.
 - In the past year, individual or caregiver missed nonmedical activities (eg, school, church, social activity) due to lack of dependent care.
 - Depression risk, as indicated by **ALL** of the following(8):
 - In the past 2 weeks, individual had little interest or pleasure in normal activities on at least several days.
 - In the past 2 weeks, individual felt down, depressed, or hopeless on at least several days.

References

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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. Schrager 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.

Tachycardia absent

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

References

1. Schrager 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.

Tachypnea absent

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

References

1. Schrager 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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