

Respiratory Failure GRG

GRG: PG-RF (ISC GRG)

MCG Health

General 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

Note: This guideline covers patients primarily requiring care for respiratory failure or long-term mechanical ventilation (longer than 72 hours) and weaning. If the predominant inpatient care is for a severe condition associated with respiratory failure or involves only short-term mechanical ventilation without the need for weaning, see a specific Optimal Recovery Guideline or other General Recovery Guideline as appropriate.

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(1)(2)(3)(4)(5)(6)(7)(8)(9):
 - New (acute) need for mechanical invasive or noninvasive (eg, BPAP, high-flow nasal cannula, volume-assured pressure support (VAPS), or volume control) ventilation(10)(11)(12)(13)(14)(15)(16)

- o Noncardiac pulmonary edema not resolving with emergency treatment(17)(18)
- ☐ Severe respiratory distress, as indicated by **1 or more** of the following:
 - Severe tachypnea, as indicated by **1 or more** of the following[A][B]:
 - Adult with respiratory rate greater than 26 breaths per minute(19)
 - Child older than 5 years with respiratory rate greater than 30 breaths per minute(20)
 - Child between 1 and 5 years of age with respiratory rate greater than 40 breaths per minute(20)
 - Child between 28 days and 1 year of age with respiratory rate greater than 50 breaths per minute[C](20)
 - Severe hypoxemia, as indicated by **1 or more** of the following[A](17)(18)(21):
 - PaO₂ less than 50 mm Hg (6.7 kPa) on greater than 50% inspired oxygen
 - PaO₂ to FiO₂ ratio less than 200 mm Hg
 - Oxygen saturation by pulse oximetry 97% or less and ratio of oxygen saturation to fraction of inspired oxygen (SpO₂ to FiO₂) of 315 or less[D](17)
 - Clinical signs of respiratory fatigue (eg, use of respiratory accessory muscles, paradoxical motion of the diaphragm,[E] intercostal retractions)(3)
 - Altered mental status due to respiratory disease
- ☐ Severe ventilation deficit, as indicated by **1 or more** of the following(3)(14):
 - Hypercarbia (PaCO₂ greater than 45 mm Hg (6.0 kPa))-induced respiratory acidosis (pH less than 7.35)
 - Documented partial pressure of carbon dioxide increase greater than 5 mm Hg (0.7 kPa) from disease baseline
 - Airflow measurements less than 25% of predicted
 - Forced vital capacity less than 20 mL/kg of ideal body weight, or 30% decrease in vital capacity over 24 hours(16)
- o Airway obstruction or inadequate protection[F](9)(24)(25)(26)(27)

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(28):
 - o 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.
 - o Patient has need for intubation and mechanical ventilation that is new (ie, did not present to hospital already on mechanical ventilation).
 - o Treatment plan for hospital admission includes procedure designated by CMS as inpatient only (ie, on Inpatient Only List).
 - o 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 include:
 - o Home care
 - Home mechanical ventilation(29)(30)
 - Home noninvasive ventilation (eg, BPAP)(31)(32)(33)(34)
 - Palliative care,[G] including continuous care(35)(36)(37)
 - o Recovery facility

- Palliative care, including respite care[(35)(36)(37)]

Hospitalization

General Recovery Course

Stage	Level of Care	Clinical Status	Interventions
1	• ICU or intermediate care as appropriate[H] • Social Determinants of Health Assessment • Discharge planning. See Discharge Planning Tool SR.	• Clinical Indications met[I]	• Inpatient interventions as needed
2	• ICU or ventilator-capable area • Social Determinants of Health Assessment	• Weaning assessment performed	• Inpatient interventions continue • Weaning trials, as indicated
3	• Activity level acceptable • Social Determinants of Health Assessment • Floor to discharge • Complete discharge planning	• Hemodynamic stability • Ventilation status appropriate • Airway status acceptable • Respiratory status acceptable • Stable chest findings • Neurologic status acceptable • Temperature status acceptable • No infection, or status acceptable • General Discharge Criteria met	• No chest tube, or status acceptable • Intake acceptable • No inpatient interventions needed

(3)(4)(5)(6)(7)(8)(17)(18)(38)

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(19)(39):
 - Tachycardia absent
 - Hypotension absent

- No evidence of inadequate perfusion (eg, no myocardial ischemia)
 - No other hemodynamic abnormalities (eg, no Orthostatic hypotension)
- Weaning assessment performed
- ☐ Ventilation status appropriate, as indicated by **1 or more** of the following(2)(5)(40)(41):
 - Respiratory status stable for 48 hours after discontinuation of mechanical ventilation
 - Weaning and other medical care at next level of care appropriate
 - Chronic mechanical ventilation planned^[J]
- ☐ Airway status acceptable, as indicated by **1 or more** of the following(27)(41)(42)(43):
 - Patient extubated, breathing adequately, and able to protect airway (eg, able to handle secretions)
 - Stable tracheostomy (eg, more than 48 hours old) in place
- ☐ Respiratory status acceptable, as indicated by **ALL** of the following(44)(45)(46)(47):
 - 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
- ☐ Stable chest findings over past 24 hours, as indicated by **ALL** of the following(25):
 - Pleural effusion absent or stable for treatment at next level of care(48)
 - No stridor or gross hemoptysis
 - Pneumothorax absent or stable for treatment at next level of care(49)(50)
 - Postoperative changes (if present) stable for next level of care
 - No evidence of new infection or other chest complications
- ☐ No chest tube, or status acceptable, as indicated by **1 or more** of the following(51)(52)(53)(54):
 - No chest tube
 - Chest catheter management established for next level of care
- ☐ Neurologic status acceptable, as indicated by neurologic function and mental status being **1 or more** of the following(55)(56):
 - Normal
 - Baseline
 - Appropriate for next level of care
- ☐ Temperature status acceptable, as indicated by **1 or more** of the following(57)(58)(59):
 - Temperature less than 100.5 degrees F (38.1 degrees C) (oral) and greater than 96.8 degrees F (36 degrees C) (rectal)
 - Temperature as expected for disease process and appropriate for management at next level of care
- ☐ No infection, or status acceptable, as indicated by **1 or more** of the following(58)(59)(60)(61)(62):
 - No infection present
 - Infection status acceptable for next level of care, as indicated by **ALL** of the following(63):
 - 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
- ☐ 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(64):
 - Oral hydration, medications, and diet
 - Enteral hydration, medications, and diet
 - Administration routes performable at next level of care
- ☐ No inpatient interventions needed; examples include:
 - Vital signs, neurologic signs, or vascular checks more often than feasible at next level of care
 - Supplemental oxygen or respiratory therapy (eg, nebulization) needs not appropriate for next level of care
 - IV vasoactive agents
 - Chest tube placement
 - Procedure or care needed not appropriate for next level of care
 - Urgent thoracentesis or bronchoscopy
 - Tracheal decannulation planned in next 24 hours
- ☐ 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.

Evidence Summary

Criteria

The evidence for the clinical indications found in this guideline includes 14 published peer reviewed articles, 2 specialty society or other evidence-based guidelines, and 11 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(28); 42 CFR 419.22(65); 42 CFR 422.101(66)

Internet-Only Manual (IOM) Citations: CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 1 - Inpatient Hospital Services Covered Under Part A(67); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 6 - Hospital Services Covered Under Part B(68); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 15 - Covered Medical and Other Health Services(69); CMS IOM Publication 100-08, Medicare Program Integrity Manual, Chapter 6, Section 6.5 - Medical Review of Inpatient Hospital Claims for Part A Payment(70)

Medicare Coverage Determinations: Medicare Coverage Database(71)

References

1. Lagina M, Valley TS. Diagnosis and management of acute respiratory failure. *Critical Care Clinics* 2024;40(2):235-253. DOI: 10.1016/j.ccc.2024.01.002. [Context Link 1] View abstract...
2. Seigel TA, Johnson NJ. Mechanical ventilation and noninvasive ventilatory support. In: Walls RM, editor. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. 10th ed. Elsevier; 2023:24-33.e2. [Context Link 1, 2]
3. Hill NS, Garpestad E, Schumaker GL. Acute ventilatory failure. In: Broaddus VC, et al., editors. *Murray & Nadel's Textbook of Respiratory Medicine*. 7th ed. Elsevier Saunders; 2022:1843-1859.e5. [Context Link 1, 2, 3, 4, 5]
4. Rotta AT, Martin CJK, Sarnaik AP. Acute care of respiratory distress and failure. In: Kliegman RM, et al., editors. *Nelson Textbook of Pediatrics*. 22nd ed. Elsevier; 2025:612-629. [Context Link 1, 2]
5. Goligher EC, Fan E. Mechanical ventilation. In: Broaddus VC, et al., editors. *Murray & Nadel's Textbook of Respiratory Medicine*. 7th ed. Elsevier Saunders; 2022:1903-1917.e4. [Context Link 1, 2, 3, 4]
6. Qadir N, et al. An Update on Management of Adult Patients with Acute Respiratory Distress Syndrome: An Official American Thoracic Society Clinical Practice Guideline. *American Journal of Respiratory and Critical Care Medicine* 2024;209(1):24-36. DOI: 10.1164/rccm.202311-2011ST. [Context Link 1, 2] View abstract...
7. Sweet DG, et al. European consensus guidelines on the management of respiratory distress syndrome: 2022 update. *Neonatology* 2023;120(1):3-23. DOI: 10.1159/000528914. [Context Link 1, 2] View abstract...
8. Egbuta C, Easley RB. Update on ventilation management in the pediatric intensive care unit. *Paediatric Anaesthesia* 2022;32(2):354-362. DOI: 10.1111/pan.14374. [Context Link 1, 2] View abstract...
9. Biagas KV, Wilhelm M, Fuhrman BP. Overview of breathing failure. In: Zimmerman JJ, et al., editors. *Fuhrman and Zimmerman's Pediatric Critical Care*. 6th ed. Elsevier; 2022:492-502.e2. [Context Link 1, 2]

10. Frat JP, et al. Noninvasive respiratory supports in ICU. *Intensive Care Medicine* 2025;51(8):1476-1489. DOI: 10.1007/s00134-025-08036-3. [Context Link 1] View abstract...
11. RENOVATE Investigators and the BRICNet Authors, et al. High-flow nasal oxygen vs noninvasive ventilation in patients with acute respiratory failure: the RENOVATE randomized clinical trial. *Journal of the American Medical Association* 2025;333(10):875-890. DOI: 10.1001/jama.2024.26244. [Context Link 1] View abstract...
12. Emeriaud G, et al. Noninvasive ventilation for pediatric acute respiratory distress syndrome: experience from the 2016/2017 Pediatric Acute Respiratory Distress Syndrome Incidence and Epidemiology Prospective Cohort Study. *Pediatric Critical Care Medicine* 2023;24(9):715-726. DOI: 10.1097/PCC.0000000000003281. [Context Link 1] View abstract...
13. Munshi L, Mancebo J, Brochard LJ. Noninvasive respiratory support for adults with acute respiratory failure. *New England Journal of Medicine* 2022;387(18):1688-1698. DOI: 10.1056/NEJMra2204556. [Context Link 1] View abstract...
14. Mokhlesi B, et al. Evaluation and management of obesity hypoventilation syndrome. an official American Thoracic Society Clinical practice guideline. *American Journal of Respiratory and Critical Care Medicine* 2019;200(3):e6-e24. DOI: 10.1164/rccm.201905-1071ST. (Reaffirmed 2025 Jul) [Context Link 1, 2] View abstract...
15. Bach JR, Turcios NL, Wang L. Respiratory complications of pediatric neuromuscular diseases. *Pediatric Clinics of North America* 2021;68(1):177-191. DOI: 10.1016/j.pcl.2020.09.006. [Context Link 1] View abstract...
16. Singh TD, Wijidicks EFM. Neuromuscular respiratory failure. *Neurologic Clinics* 2021;39(2):333-353. DOI: 10.1016/j.ncl.2021.01.010. [Context Link 1, 2] View abstract...
17. Wick KD, Ware LB, Matthay MA. Acute respiratory distress syndrome. *British Medical Journal* 2024;387:e076612. DOI: 10.1136/bmj-2023-076612. [Context Link 1, 2, 3, 4] View abstract...
18. Yang P, Sjoding MW. Acute respiratory distress syndrome: definition, diagnosis, and routine management. *Critical Care Clinics* 2024;40(2):309-327. DOI: 10.1016/j.ccc.2023.12.003. [Context Link 1, 2, 3] View abstract...
19. 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. [Context Link 1, 2, 3, 4]
20. Schmitt ER. Pediatric lung disease. In: Walls RM, editor. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. 10th ed. Elsevier; 2023:2099-2108.e2. [Context Link 1, 2, 3]
21. Matthay MA, et al. A new global definition of acute respiratory distress syndrome. *American Journal of Respiratory and Critical Care Medicine* 2024;209(1):37-47. DOI: 10.1164/rccm.202303-0558WS. [Context Link 1] View abstract...
22. 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. [Context Link 1, 2] View abstract...
23. Dezube R, Lechtzin N. Hypoxia. In: McKean SC, Ross JJ, Dressler DD, Scheurer DB, editors. *Principles and Practice of Hospital Medicine*. 2nd ed. New York, NY: McGraw-Hill Education; 2017:669-675. [Context Link 1]
24. Mahmood K, et al. Management of central airway obstruction: an American College of Chest Physicians Clinical practice guideline. *Chest* 2024;Online. DOI: 10.1016/j.chest.2024.06.3804. (Reaffirmed 2025 Jun) [Context Link 1, 2] View abstract...
25. Wald O, Izhar U, Sugarbaker DJ. Lung, chest wall, pleura and mediastinum. In: Townsend CM, Beauchamp RD, Evers BM, Mattox KL, editors. *Sabiston Textbook of Surgery*. 21st ed. Elsevier; 2022:1584-1640.e1. [Context Link 1, 2]
26. Rose E. Pediatric upper airway obstruction and infections. In: Walls RM, editor. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. 10th ed. Elsevier; 2023:2078-2089.e2. [Context Link 1]
27. Brown CA, Walls RM. Airway. In: Walls RM, editor. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. 10th ed. Elsevier; 2023:2-23.e2. [Context Link 1, 2]
28. Centers for Medicare and Medicaid Services. "Admissions." 42 CFR 412.3 Washington, DC 2025 Jul [accessed 2025 Jul 22] Accessed at: <https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-B/part-412>. [Context Link 1, 2]
29. Hodgson LE, Murphy PB. Update on clinical trials in home mechanical ventilation. *Journal of Thoracic Disease* 2016;8(2):255-267. DOI: 10.3978/j.issn.2072-1439.2016.01.53. [Context Link 1] View abstract...
30. Sterni LM, et al. An official American Thoracic Society clinical practice guideline: pediatric chronic home invasive ventilation. *American Journal of Respiratory and Critical Care Medicine* 2016;193(8):e16-e35. DOI: 10.1164/rccm.201602-0276ST. (Reaffirmed 2025 Jun) [Context Link 1] View abstract...

31. Wang Z, et al. Noninvasive Positive Pressure Ventilation in the Home. Technology Assessment [Internet] Agency for Healthcare Quality and Research. 2020 Feb Accessed at: <https://www.ahrq.gov/>. [accessed 2025 Sep 03] [Context Link 1] View abstract...
32. Raveling T, et al. Chronic non-invasive ventilation for chronic obstructive pulmonary disease. Cochrane Database of Systematic Reviews 2021, Issue 8. Art. No.: CD002878. DOI: 10.1002/14651858.CD002878.pub3. [Context Link 1] View abstract...
33. Khan A, et al. Respiratory management of patients with neuromuscular weakness: an American College of Chest Physicians clinical practice guideline and expert panel report. Chest 2023;164(2):394-413. DOI: 10.1016/j.chest.2023.03.011. (Reaffirmed 2025 Jun) [Context Link 1] View abstract...
34. Leotard A, et al. Home and outpatient versus in-hospital initiation of non-invasive ventilation in people with neuromuscular and restrictive thoracic disorders: a network meta-analysis. Thorax 2025;80(10):730-737. DOI: 10.1136/thorax-2024-222634. [Context Link 1] View abstract...
35. Pan CX, Palathra BC, Leo-To WF. Management of respiratory symptoms in those with serious illness. Medical Clinics of North America 2020;104(3):455-470. DOI: 10.1016/j.mcna.2019.12.004. [Context Link 1, 2, 3] View abstract...
36. Walling AM, et al. Palliative Care. NCCN Clinical Practice Guidelines in Oncology [Internet] National Comprehensive Cancer Network (NCCN). v.2.2025; 2025 Mar 31 Accessed at: <https://www.nccn.org/>. [accessed 2025 Apr 29] [Context Link 1, 2, 3]
37. Pisani L, Hill NS, Pacilli AMG, Polastri M, Nava S. Management of dyspnea in the terminally ill. Chest 2018;154(4):925-934. DOI: 10.1016/j.chest.2018.04.003. [Context Link 1, 2, 3] View abstract...
38. Grasselli G, et al. ESICM guidelines on acute respiratory distress syndrome: definition, phenotyping and respiratory support strategies. Intensive Care Medicine 2023;49(7):727-759. DOI: 10.1007/s00134-023-07050-7. (Reaffirmed 2025 Jul) [Context Link 1] View abstract...
39. Ramgopal S, Sepanski RJ, Martin-Gill C. Empirically derived age-based vital signs for children in the out-of-hospital setting. Annals of Emergency Medicine 2023;81(4):402-412. DOI: 10.1016/j.annemergmed.2022.09.019. [Context Link 1] View abstract...
40. Brochard L, Slutsky AS. Mechanical ventilation. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:652-658. [Context Link 1, 2]
41. Fisher B, Fisher E. Airway management and respiratory support. In: Gershel JC, Rauch DA, editors. Caring for the Hospitalized Child: A Handbook of Inpatient Pediatrics. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2023:755-760. [Context Link 1, 2, 3]
42. Apfelbaum JL, et al. 2022 American Society of Anesthesiologists practice guidelines for management of the difficult airway. Anesthesiology 2022;136(1):31-81. DOI: 10.1097/ALN.0000000000004002. [Context Link 1] View abstract...
43. Ouellette DR, et al. Liberation from mechanical ventilation in critically ill adults: an official American College of Chest Physicians/American Thoracic Society clinical practice guideline: inspiratory pressure augmentation during spontaneous breathing trials, protocols minimizing sedation, and noninvasive ventilation immediately after extubation. Chest 2017;151(1):166-80. DOI: 10.1016/j.chest.2016.10.036. [Context Link 1] View abstract...
44. Braithwaite SA, Wessel AL. Dyspnea. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:194-201.e2. [Context Link 1]
45. Naureckas ET, Solway J. Disturbances of respiratory function. 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; 2022:2133-2139. [Context Link 1]
46. Matthay MA, Ware LB. Acute respiratory failure. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:642-652. [Context Link 1]
47. Rakoczy K. Acute respiratory failure. In: Gershel JC, Rauch DA, editors. Caring for the Hospitalized Child: A Handbook of Inpatient Pediatrics. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2023:749-754. [Context Link 1]
48. Broaddus VC, Light RW. Pleural effusion. In: Broaddus VC, et al., editors. Murray & Nadel's Textbook of Respiratory Medicine. 7th ed. Elsevier Saunders; 2022:1498-1523.e13. [Context Link 1]
49. Haider SK, Vemana AP. Pneumothorax. In: Kliegman RM, et al., editors. Nelson Textbook of Pediatrics. 22nd ed. Elsevier; 2025:2703-2707. [Context Link 1]
50. Hallifax R, Rahman NM. Pneumothorax. In: Broaddus VC, et al., editors. Murray & Nadel's Textbook of Respiratory Medicine. 7th ed. Elsevier Saunders; 2022:1539-1550.e4. [Context Link 1]
51. Davidson KR, Shojaee S. Chest tubes and indwelling pleural catheters. In: Wahidi MM, Ost DE, editors. Practical Guide to Interventional Pulmonology. Elsevier; 2023:165-177. [Context Link 1]

52. Toth JW, Reed MF, Ventola LK. Chest tube drainage devices. *Seminars in Respiratory and Critical Care Medicine* 2019;40(3):386-393. DOI: 10.1055/s-0039-1694769. [Context Link 1] View abstract...
53. Lobdell KW, Engelman DT. Chest tube management: past, present, and future directions for developing evidence-based best practices. *Innovations (Phila)* 2023;18(1):41-48. DOI: 10.1177/15569845231153623. [Context Link 1] View abstract...
54. Roebker JA, Kord A, Chan K, Rao R, Ray CE, Ristagno R. Chest tube placement and management: a practical review. *Seminars in Interventional Radiology* 2023;40(2):231-239. DOI: 10.1055/s-0043-1768680. [Context Link 1] View abstract...
55. Lowenstein DH, Josephson SA, Hauser SL. Approach to the patient with neurologic disease. 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; 2022:3277-3282. [Context Link 1]
56. Kochanek PM, Bell MJ. Neurologic emergencies and stabilization. In: Kliegman RM, et al., editors. *Nelson Textbook of Pediatrics*. 22nd ed. Elsevier; 2025:581-588. [Context Link 1]
57. Nield LS, Kamat D. Fever. In: Kliegman RM, et al., editors. *Nelson Textbook of Pediatrics*. 22nd ed. Elsevier; 2025:1640-1642. [Context Link 1]
58. Melia MT. Approach to fever or suspected infection in the normal host. In: Goldman L, Cooney KA, editors. *Goldman-Cecil Medicine*. 27th ed. Elsevier; 2024:1845-1851. [Context Link 1, 2]
59. Sifri CD. Approach to fever and suspected infection in the immunocompromised host. In: Goldman L, Cooney KA, editors. *Goldman-Cecil Medicine*. 27th ed. Elsevier; 2024:1851-1862. [Context Link 1, 2]
60. 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. [Context Link 1]
61. 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. [Context Link 1]
62. Mick NW. Pediatric fever. In: Walls RM, editor. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. 10th ed. Elsevier; 2023:2067-2077.e2. [Context Link 1]
63. Singh M, Fernandez-Frackelton M. Bacteria. In: Walls RM, editor. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. 10th ed. Elsevier; 2023:1586-1609.e3. [Context Link 1]
64. 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. [Context Link 1]
65. Centers for Medicare and Medicaid Services. "Hospital services excluded from payment under the hospital outpatient prospective payment system." 42 CFR 419.22 Washington, DC 2023 Jul [accessed 2025 Jul 22] Accessed at: <https://www.ecfr.gov/>. [Context Link 1]
66. Centers for Medicare and Medicaid Services. "Requirements relating to basic benefits." 42 CFR 422.101 Washington, DC 2025 Jun 03 [accessed 2025 Jul 23] Accessed at: <https://www.ecfr.gov/>. [Context Link 1]
67. Centers for Medicare and Medicaid Services. Medicare Benefit Policy Manual. Chapter 1 - Inpatient Hospital Services Covered Under Part A Rev. 10892 [Internet] Centers for Medicare and Medicaid Services. 2021 Aug Accessed at: <https://www.cms.gov/manuals/>. [accessed 2025 Sep 09] [Context Link 1]
68. Centers for Medicare and Medicaid Services. Medicare Benefit Policy Manual. Chapter 6 - Hospital Services Covered Under Part B Rev. 12425 [Internet] Centers for Medicare and Medicaid Services. 2023 Dec Accessed at: <http://www.cms.gov/manuals/>. [accessed 2025 Sep 09] [Context Link 1]
69. Centers for Medicare and Medicaid Services. Medicare Benefit Policy Manual. Chapter 15 - Covered Medical and Other Health Services Rev. 13108 [Internet] Centers for Medicare and Medicaid Services. 2025 Apr 11 Accessed at: <https://www.cms.gov/manuals/>. [accessed 2025 Sep 09] [Context Link 1]
70. Centers for Medicare and Medicaid Services. Medicare Program Integrity Manual. Chapter 6, Section 6.5 - Medical Review of Inpatient Hospital Claims for Part A Payment Rev. 10365 [Internet] Centers for Medicare and Medicaid Services. 2020 Oct 02 Accessed at: <https://www.cms.gov/medicare/regulations-guidance/manuals/internet-only-manuals-ioms>. [accessed 2025 Sep 09] [Context Link 1]
71. Medicare Coverage Database. [Internet] Centers for Medicare and Medicaid Services. Accessed at: <https://www.cms.gov/medicare-coverage-database/search.aspx>? Updated 2025 [accessed 2025 Oct 23] [Context Link 1]

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. [A in Context Link 1, 2]

[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. 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.(19) This same textbook also states that new technologies designed to measure the respiratory rate have not proved to be clinically useful.(19) [B in Context Link 1]

[C] For neonates (age less than 28 days), see Neonatology GRG [GRG](#). [C in Context Link 1]

[D] 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.(22) 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.(22) Specific target values may require adjustment when care is delivered at high altitude.(23) [D in Context Link 1]

[E] Paradoxical diaphragm motion or abdominal paradox occurs when the diaphragm is severely fatigued or paralyzed and is pulled up into the chest cavity during inspiration, opposite its normal physiologic direction.(3) [E in Context Link 1]

[F] Intubation and ventilation are merely supportive care in upper airway problems. See other Optimal Recovery Guideline or General Recovery Guideline as appropriate regarding treatment of condition (eg, neurologic, head and neck disease, thoracic surgery or procedure).(24) [F in Context Link 1]

[G] Palliative care or formal hospice enrollment may be indicated for end-stage disease.(35)(36)(37) [G in Context Link 1, 2]

[H] See Intensive, Intermediate, and Telemetry Care Guidelines [ISC](#). [H in Context Link 1]

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

[J] In some patients (eg, high-level paralysis), weaning may take several months. In otherwise stable patients, weaning may continue at a lower level of care.(5)(40)(41) [J 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 status acceptable

- Airway status acceptable, as indicated by **1 or more** of the following(1)(2)(3)(4):
 - Patient extubated, breathing adequately, and able to protect airway (eg, able to handle secretions)
 - Stable tracheostomy (eg, more than 48 hours old) in place

References

1. Brown CA, Walls RM. Airway. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:2-23.e2.
2. Fisher B, Fisher E. Airway management and respiratory support. In: Gershel JC, Rauch DA, editors. Caring for the Hospitalized Child: A Handbook of Inpatient Pediatrics. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2023:755-760.
3. Apfelbaum JL, et al. 2022 American Society of Anesthesiologists practice guidelines for management of the difficult airway. Anesthesiology 2022;136(1):31-81. DOI: 10.1097/ALN.0000000000004002.
4. Ouellette DR, et al. Liberation from mechanical ventilation in critically ill adults: an official American College of Chest Physicians/American Thoracic Society clinical practice guideline: inspiratory pressure augmentation during spontaneous breathing trials, protocols minimizing sedation, and noninvasive ventilation immediately after extubation. Chest 2017;151(1):166-80. DOI: 10.1016/j.chest.2016.10.036.

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)

References

1. Maher PJ. Confusion. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:126-131.e1.
2. Lei C, Smith C. Depressed consciousness and coma. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:117-125.e1.
3. Abraham G, Maher PJ. Delirium and dementia. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:1269-1280.e2.
4. Holler-Managan YF. Neurologic evaluation. In: Kliegman RM, et al., editors. Nelson Textbook of Pediatrics. 22nd ed. Elsevier; 2025:3550-3560.

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 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)

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. Ramgopal S, Sepanski RJ, Martin-Gill C. Empirically derived age-based vital signs for children in the out-of-hospital setting. Annals of Emergency Medicine 2023;81(4):402-412. DOI: 10.1016/j.annemergmed.2022.09.019.

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

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. Puskarich MA, Jones AE. Shock. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:34-41.e1.
3. 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.

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

1. 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.

Neurologic status acceptable

- Neurologic status acceptable, as indicated by neurologic function and mental status being **1 or more** of the following(1)(2):
 - Normal
 - Baseline
 - Appropriate for next level of care

References

1. Lowenstein DH, Josephson SA, Hauser SL. Approach to the patient with neurologic disease. 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; 2022:3277-3282.
2. Kochanek PM, Bell MJ. Neurologic emergencies and stabilization. In: Kliegman RM, et al., editors. Nelson Textbook of Pediatrics. 22nd ed. Elsevier; 2025:581-588.

No chest tube, or status acceptable

- No chest tube, or status acceptable, as indicated by **1 or more** of the following(1)(2)(3)(4):
 - No chest tube
 - Chest catheter management established for next level of care

References

1. Davidson KR, Shojaei S. Chest tubes and indwelling pleural catheters. In: Wahidi MM, Ost DE, editors. Practical Guide to Interventional Pulmonology. Elsevier; 2023:165-177.
2. Toth JW, Reed MF, Ventola LK. Chest tube drainage devices. Seminars in Respiratory and Critical Care Medicine 2019;40(3):386-393. DOI: 10.1055/s-0039-1694769.
3. Lobdell KW, Engelman DT. Chest tube management: past, present, and future directions for developing evidence-based best practices. Innovations (Phila) 2023;18(1):41-48. DOI: 10.1177/15569845231153623.
4. Roebker JA, Kord A, Chan K, Rao R, Ray CE, Ristagno R. Chest tube placement and management: a practical review. Seminars in Interventional Radiology 2023;40(2):231-239. DOI: 10.1055/s-0043-1768680.

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

1. 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.
2. 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.
3. Mick NW. Pediatric fever. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:2067-2077.e2.
4. Melia MT. Approach to fever or suspected infection in the normal host. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:1845-1851.
5. Sifri CD. Approach to fever and suspected infection in the immunocompromised host. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:1851-1862.
6. Singh M, Fernandez-Frackelton M. Bacteria. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:1586-1609.e3.

No inpatient interventions needed

- No inpatient interventions needed; examples include:
 - Vital signs, neurologic signs, or vascular checks more often than feasible at next level of care
 - Supplemental oxygen or respiratory therapy (eg, nebulization) needs not appropriate for next level of care
 - IV vasoactive agents
 - Chest tube placement
 - Procedure or care needed not appropriate for next level of care
 - Urgent thoracentesis or bronchoscopy
 - Tracheal decannulation planned in next 24 hours

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.

3. Fang JC, O'Gara PT. History and physical examination: an evidence-based approach. In: Libby P, Bonow RO, Mann DL, Tomaselli GF, Bhatt DL, Solomon SD, editors. Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine. 12th ed. Elsevier; 2022:123-140.

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 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.
2. Naureckas ET, Solway J. Disturbances of respiratory function. 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; 2022:2133-2139.
3. Matthay MA, Ware LB. Acute respiratory failure. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:642-652.
4. Rakoczy K. Acute respiratory failure. In: Gershel JC, Rauch DA, editors. Caring for the Hospitalized Child: A Handbook of Inpatient Pediatrics. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2023:749-754.

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

1. Scanlon A, Reinisch C. Social determinants of health. In: Harding MM, Kwong J, Hagler D, Reinisch C, editors. Lewis's Medical-Surgical Nursing: Assessment and Management of Clinical Problems. 12th ed. St. Louis, MO: Mosby; 2023:18-20.
2. Billioux A, Verlander K, Anthony S, Alley D. Standardized Screening for Health-Related Social Needs in Clinical Settings: the Accountable Health Communities Screening Tool. [Internet] National Academy of Sciences. 2017 May Accessed at: <https://nam.edu/>. [accessed 2025 Sep 12]
3. Addressing social determinants of health. In: Perez R, editor. CMSA's Integrated Case Management. 2nd ed. Springer Publishing Company LLC; 2023:62-75.
4. Sandel M, et al. Unstable housing and caregiver and child health in renter families. Pediatrics 2018;14(2):e20172199. DOI: 10.1542/peds.2017-2199.
5. Children's HealthWatch Survey. Screening Instrument [Internet] Children's HealthWatch. 2024 Feb 13 Accessed at: <https://childrenshealthwatch.org/>. [accessed 2025 Mar 31]
6. PRAPARE®: Protocol for Responding to and Assessing Patient Assets, Risks, and Experiences Screening Tool. 2.0 [Internet] Association of Asian Pacific Community Health Organizations (AAPCHO) and National Association of Community Health Centers (NACHC). 2025 Accessed at: <https://prapare.org/the-prapare-screening-tool/>. [accessed 2025 Sep 08]
7. Cook JT, et al. A brief indicator of household energy security: associations with food security, child health, and child development in US infants and toddlers. Pediatrics 2008;122(4):e867-75. DOI: 10.1542/peds.2008-0286.

8. Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Medical Care* 2003;41(11):1284-92. DOI: 10.1097/01.MLR.0000093487.78664.3C.

Stable chest findings

- Stable chest findings over past 24 hours, as indicated by **ALL** of the following(1):
 - Pleural effusion absent or stable for treatment at next level of care(2)
 - No stridor or gross hemoptysis
 - Pneumothorax absent or stable for treatment at next level of care(3)(4)
 - Postoperative changes (if present) stable for next level of care
 - No evidence of new infection or other chest complications

References

- Wald O, Izhar U, Sugarbaker DJ. Lung, chest wall, pleura and mediastinum. In: Townsend CM, Beauchamp RD, Evers BM, Mattox KL, editors. *Sabiston Textbook of Surgery*. 21st ed. Elsevier; 2022:1584-1640.e1.
- Broaddus VC, Light RW. Pleural effusion. In: Broaddus VC, et al., editors. *Murray & Nadel's Textbook of Respiratory Medicine*. 7th ed. Elsevier Saunders; 2022:1498-1523.e13.
- Haider SK, Vemana AP. Pneumothorax. In: Kliegman RM, et al., editors. *Nelson Textbook of Pediatrics*. 22nd ed. Elsevier; 2025:2703-2707.
- Hallifax R, Rahman NM. Pneumothorax. In: Broaddus VC, et al., editors. *Murray & Nadel's Textbook of Respiratory Medicine*. 7th ed. Elsevier Saunders; 2022:1539-1550.e4.

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

- 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.
- 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. 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)

Temperature status acceptable

- Temperature status acceptable, as indicated by **1 or more** of the following(1)(2)(3):
 - Temperature less than 100.5 degrees F (38.1 degrees C) (oral) and greater than 96.8 degrees F (36 degrees C) (rectal)
 - Temperature as expected for disease process and appropriate for management at next level of care

References

1. Nield LS, Kamat D. Fever. In: Kliegman RM, et al., editors. Nelson Textbook of Pediatrics. 22nd ed. Elsevier; 2025:1640-1642.
2. Melia MT. Approach to fever or suspected infection in the normal host. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:1845-1851.
3. Sifri CD. Approach to fever and suspected infection in the immunocompromised host. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:1851-1862.

Ventilation status appropriate

- Ventilation status appropriate, as indicated by **1 or more** of the following(1)(2)(3)(4):
 - Respiratory status stable for 48 hours after discontinuation of mechanical ventilation
 - Weaning and other medical care at next level of care appropriate
 - Chronic mechanical ventilation planned[A]

References

1. Brochard L, Slutsky AS. Mechanical ventilation. In: Goldman L, Cooney KA, editors. Goldman-Cecil Medicine. 27th ed. Elsevier; 2024:652-658.
2. Seigel TA, Johnson NJ. Mechanical ventilation and noninvasive ventilatory support. In: Walls RM, editor. Rosen's Emergency Medicine: Concepts and Clinical Practice. 10th ed. Elsevier; 2023:24-33.e2.
3. Fisher B, Fisher E. Airway management and respiratory support. In: Gershel JC, Rauch DA, editors. Caring for the Hospitalized Child: A Handbook of Inpatient Pediatrics. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2023:755-760.
4. Goligher EC, Fan E. Mechanical ventilation. In: Broaddus VC, et al., editors. Murray & Nadel's Textbook of Respiratory Medicine. 7th ed. Elsevier Saunders; 2022:1903-1917.e4.

Footnotes

- A. In some patients (eg, high-level paralysis), weaning may take several months. In otherwise stable patients, weaning may continue at a lower level of care.(1)(3)(4)