

## Clinical Policy: NICU Discharge Guidelines

Reference Number: CP.MP.81

Date of Last Revision: 06/21

[Revision Log](#)

See [Important Reminder](#) at the end of this policy for important regulatory and legal information.

### Description

Infants who require neonatal admission remain at increased risk for morbidity and mortality following discharge. These infants require comprehensive discharge planning to ensure a smooth transition from the neonatal intensive care unit (NICU) and reduce morbidity and mortality after discharge.

### Policy/Criteria

It is the policy of health plans affiliated with Centene Corporation<sup>®</sup> that infants are considered medically ready for discharge if the following physiologic competencies in **I-V** are met, or for a lower level of care if the authorization protocol in **VI** are met:

#### **I. Sufficient nutrition to support appropriate growth, both of the following:**

- A. Adequate pattern of weight gain, one of the following:
  - 1. Preterm infants or term infants > 1 week of age demonstrate a consistent pattern of weight gain (typically about 3 days) via the current nutritional route;
  - 2. ≤ 7% of birth weight lost in term infants < 1 week of age;
  - 3. ≤ 9% of birth weight lost in late preterm (34 0/7 - 36 6/7 weeks of age) infants < 1 week of age.
- B. The nutritional product, enteric or intravenous, is appropriate for the nutritional needs of the infant and one of the following:<sup>4,6-8</sup>
  - 1. The infant is on full oral nutrition;
  - 1. Home management of specialized nutrition needs, all of the following:
    - a. Caregiver and provider agree to home management;
    - b. Consultations (e.g. gastroenterology and nutrition) completed;
    - c. Appropriate feeding evaluation, family assessment and therapeutic interventions completed;
  - d. One of the following:
    - i. Gavage feeding for an infant who cannot feed well enough orally and for whom feeding is the last issue requiring continued hospitalization;
    - ii. Long-term gastrostomy tube feedings for infants with minimal or no ability to feed orally, or the expectation of such. *Note:* Gastrostomy tube placement may be prior to NICU discharge or after a short-term trial of nasogastric (NG)/oral feeds at home; gastrostomy tube placement generally requires a seven days post-operative stay for recovery and parent/caregiver education.
    - iii. Intravenous (IV) total parenteral nutrition (TPN) as a nutritional source:
      - a) Infant has an inadequate ability to absorb calories (short gut);
      - b) Fluid and electrolyte requirements have stabilized, as documented by the physician.<sup>4,10-11</sup>

#### **II. Ability to maintain normal body temperature in a home environment**

- A. Infant demonstrates the ability to maintain normal body temperature ( $>36.4^{\circ}\text{C}$  axillary) while clothed in an open bed/crib with normal ambient temperature ( $20$  to  $25^{\circ}\text{C}$ ) for 24 to 48 hours after removing thermal support (e.g. radiant warmer, isolette).

*Note:* Weaning from an isolette should be considered when an infant in a stable cardiopulmonary state reaches  $>1800$  grams and is able to be swaddled.<sup>17,18</sup>

**III. Mature respiratory control**, one of the following:

- A. Infant is stable on room air;<sup>4, 12-16</sup>
- B. Infant is stable but has ongoing respiratory needs requiring additional support, all of the following:
1. Caregiver and physician agree to home management;
  2. Appropriate consultations and home equipment arrangements made;
  3. Infant has one or more of the following conditions:
    - a. Chronic Lung Disease (CLD)/Bronchopulmonary dysplasia (BPD) and on low flow nasal cannula at any oxygen concentration with a flow rate of  $\leq 0.5$  LPM (liters per minute);
    - b. Tracheostomy and requires positive pressure ventilation:
      - i. Ventilator settings are stable and fraction of inspired  $\text{O}_2$  is  $\leq 40\%$  utilizing a home ventilator;  
*Note:* May need to demonstrate up to 7 days of stability on their home ventilator in the hospital prior to discharge.
      - ii. Home nursing support is arranged;
    - c. Ongoing medical conditions that increase risk for apnea, airway obstruction, or hypoxia and both of the following:
      - i. Assessment completed to determine which type of home monitoring system is appropriate (pulse oximetry monitor, cardiorespiratory monitor);
      - ii. Caregiver training in infant CPR.

*Note:* For guidelines for discharge of infants with apnea of prematurity, reference *CP.MP.82 NICU Apnea and Bradycardia*.

**IV. Bilirubin levels** are acceptable based on hours of life and risk factors (reference relevant nationally recognized clinical decision support criteria, and/or *CP.MP.150 Home Phototherapy*).

**V. Free of infection**, or caregiver and physician agree to home antibiotics, for example, prophylactic antibiotics for urinary reflux.

*Note:* Reference *CP.MP.85 Neonatal Sepsis Management Guidelines*.

**VI. Caregiver competency**, evidenced by one of the following:

- A. Physician/nurse attestation or documentation;
- B. Successful room-in with parents/caregiver for one to two days.

**Authorization Protocol**

A. As an infant stabilizes, a lower level of care is appropriate for addressing medical needs. If there are no significant medical issues necessitating continued stay in Level I, II, III or IV nursery, the transitional care nursery level should be approved for any of the following.

1. Completion of an approved duration of antibiotic treatment;
2. Weaning of O<sub>2</sub> for a BPD patient or periodic O<sub>2</sub> needed for a patient that is progressing toward discharge on room air, as supported by physician documentation;
3. Tube feeding < 50% of daily caloric requirement and progressing toward discharge on all oral feedings as supported by physician documentation;

*Note:* Short term home NG feedings should be considered particularly when the infant is term or near term gestation.

4. Apnea or bradycardia monitoring with a new significant episode in the last five to seven days and not planning to go home on a monitor
5. Apnea or bradycardia monitoring with last dose of caffeine five to seven days prior to discharge.

*Note:* Reference *CP.MP.82 NICU Apnea Bradycardia Guidelines* for treatment guidelines for infant apnea and bradycardia.

Reference *CP.MP.86 NAS Guidelines for drug withdrawal treatment* for concerns of drug withdrawal.

Reference *CP.MP.85 Neonatal Sepsis Management Guidelines* for treatment of infection.

B. Review for Level I or transitional care nursery days for social reasons such as the following. These days may be denied as not medically necessary if Benefit Plan Contract does not include coverage for social days as medically necessary:

1. Discharge teaching
2. Awaiting foster placement
3. Inappropriate maternal behavior/poor bonding
4. Parent/caregiver refusal to sign for medically indicated surgical procedures such as a tracheostomy or gastric tube
5. Unsafe home environment or maternal lengthened postpartum course, illness or disability must be sent to the medical director for review.

C. Care may not be denied for any of the following:

1. No safe plan of care at home:
  - a. No or inadequate professional home care, when necessary
  - b. Lack of necessary equipment for use at home (e.g. no home ventilator)
2. Lack of a parent/caregiver identified.

*Note:* Parent discharge teaching should be completed coincidentally with the achievement of medical stability and not after achieving medical stability. Rooming-in for one to two days after medical stability may be needed to ensure parental/caregiver competency, depending on the complexity of the infant's condition. For example, parents/caregivers of a baby needing home ventilation may need more than one night of rooming-in to ensure

competency. An infant may not be able to room-in until after being clinically well. For example, an infant must be monitored continuously for five to seven days for apnea of prematurity or demonstrate stability on a home ventilator for five to seven days before being able to room-in.

**NICU Discharge Recommended Practices**

- A. Verify all of the following before discharge:
  - 1. The home/foster care environment is deemed safe and accessible;
  - 2. The parent or caregiver demonstrates the ability to manage the care of the infant;
  - 3. Follow-up care planned and communicated between caregivers and providers;
  - 4. Medications reconciled;
  - 5. Transportation needs identified and addressed;
  - 6. In cases of foster care placement, case worker contact information should be identified. The case worker should be involved and kept updated regarding discharge plans.
- B. Screening Tests
  - 1. State-mandated metabolic screening testing should be completed;
  - 2. Screening for retinopathy of prematurity per AAP guidelines should be performed (or arranged as outpatient) with an ophthalmologist skilled in the evaluation of the retina of the preterm infant, with adequate follow-up for patients with active disease;
  - 3. Hearing screening should be completed prior to discharge with follow-up plans for infants requiring a full audiology assessment;
  - 4. An assessment of cardiorespiratory stability in a car seat is recommended prior to discharge for infants born at < 37 weeks gestation or with other risk factors for respiratory compromise (e.g. neuromuscular, orthopedic problems).
- C. Immunizations
  - 1. Infants should receive appropriate immunizations per CDC guidelines before discharge (or arranged as an outpatient) based on their postnatal age;
  - 2. Specialized immunizations, when indicated (e.g. respiratory syncytial virus immunoglobulin prophylaxis) should be administered prior to discharge;
  - 3. Every effort should be made to assure that parents and caretakers have been immunized against pertussis with the TDaP vaccine; and the flu with the influenza injection.
- D. All parent(s)/caregiver(s) should be encouraged to attend infant CPR class or a hospital developed parent/caregiver education program prior to discharge.
- E. Car seats
  - 1. All preterm infants less than 37 weeks should be tested for cardiorespiratory compromise prior to discharge. If the infant fails, the test should be repeated 12-24 hours later. If the infant fails twice, the test should be completed on a car bed and discharge with the infant on a car bed should be considered.
  - 2. Must meet current safety standards and not exceed the expiration date.
  - 3. Must be adjusted to the infant's size.
  - 4. Parents/caregivers educated on proper car seat fitting and use.
  - 5. Four pound (1815 gram) car seat for those infants weighing less than 5 pounds (2268 grams).

**Background:**

*Nutritional competency*

Weight itself should not be a criterion for discharge. Early hospital discharge is safe and feasible for very-low-birth-weight infants when behavioral and parental criteria, rather than achieved weight, serve as discharge indicators<sup>1-4</sup>. Term infants often have a 5-7% weight loss in the first week of life with an expectation that they will be back to birth weight by 10-14 days of age.

*Respiratory Control*

Preterm infants typically demonstrate mature respiratory control by 36-37 weeks post gestational age. Occasionally maturation of respiratory control can be delayed to up to 44 weeks.

Home oxygen therapy for infants with bronchopulmonary dysplasia has been used safely to achieve earlier hospital discharge.<sup>11, 13</sup> According to the Canadian pediatric society, some infants with prolonged oxygen dependency may be candidates for home oxygen therapy.<sup>21</sup> In making decisions about home oxygen, each family's needs should be considered individually, balancing the burden of prolonged hospitalization with the impact of caring for an infant on home oxygen.<sup>21</sup>

Cardiorespiratory monitoring is indicated when an infant has an ongoing medical condition that increases risk for apnea, airway obstruction, or hypoxemia.<sup>22</sup> Examples of conditions requiring home cardiorespiratory monitoring include, but are not limited to, the following:

- Pharmacological treatment of respiratory immaturity or continued apnea at term or near-term gestation (apnea of prematurity or apnea of infancy)
- Chronic lung disease (eg, bronchopulmonary dysplasia), especially those requiring supplemental oxygen, positive airway pressure, or mechanical ventilatory support
- Congenital myasthenic syndromes
- Tracheostomy or other airway abnormalities.

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Policy developed and reviewed by Neonatologist	04/13	06/13
References reviewed and updated.	09/17	09/17
References reviewed and updated.	08/18	08/18
Restructured policy. Removed criteria regarding education, home evaluation, equipment, etc. from home TPN section, as this would be contained in the "home safe and accessible" and "follow up care planned" criteria in the "recommendations" section. Removed "support and training" criteria in nutrition section as it is contained in general discharge guidelines. Moved examples of conditions requiring cardiorespiratory monitor to the background. Changed informational note that home nursing support will usually be needed for home ventilation to criteria requiring its arrangement. Moved informational/descriptive information to background. Added to home nutrition and home respiratory needs sections that caregiver and provider agree to home management and removed "may be considered" language. Moved home antibiotic infusion criteria from authorization	06/19	06/19

protocol to physiologic competency section. Moved recommendations to recommendations section. Added the following general discharge recommendations: follow-up care planned, medication reconciled, transportation needs identified and addressed.		
Revised II.A “from normal ambient temperature (23.9 to 25° C)” to “20 – 25 ° C.)” References reviewed and updated. Specialist review.	05/20	06/20
Added I.A.3 regarding weight lost in preterm infants less than a week old. Added a note regarding gastrostomy tube placement recovery/education to I.B.2.d.ii. Updated II.A with temperature range and in note changed 1600 grams to 1800 grams. Added “Chronic Lung Disease/” to “Bronchopulmonary dysplasia” for condition in III.B.3.a. Added note under III.B.3.b.i explaining stability on home ventilator in hospital prior to discharge. Removed V.A and B, updating the “free of infection” criteria statement. Added new section VI regarding caregiver competency. In section VII: clarified in A “should be approved for any of....”; added A.5 regarding caffeine for apnea; added B regarding parent/caregiver refusal to sign; added C.1 and 2 regarding nondenial of care; updated the note under describing rooming-in. In Discharge Recommended Practices: Added “immunoglobulin” to C.2 ;updated C.3 with influenza injection; added “hospital developed education program” under D; added E.1-4 regarding car seats. Replaced all instances of “members” with “members/enrollees.” References reviewed and updated to AMA format. Reviewed by neonatologist. Changed “review date” in the header to “date of last revision” and “date” in the revision log header to “revision date.”	06/21	06/21

## References

1. Davies DP, Haxby V, Herbert S, McNeish AS. When should pre-term babies be sent home from neonatal units? *Lancet*. 1979 Apr 28;1(8122):914-5. doi: 10.1016/s0140-6736(79)91386-2.
2. Broton D, Kumar S, Brown LP, Butts P, Finkler SA, Bakewell-Sachs S, Gibbons A, Delivoria-Papadopoulos M. A randomized clinical trial of early hospital discharge and home follow-up of very-low-birth-weight infants. *N Engl J Med*. 1986 Oct 9;315(15):934-9. doi: 10.1056/NEJM198610093151505.
3. Casiro OG, McKenzie ME, McFadyen L, et al. Earlier discharge with community-based intervention for low birth weight infants: a randomized trial. *Pediatrics*. 1993;92(1):128-134.
4. American Academy of Pediatrics Committee on Fetus and Newborn. Hospital discharge of the high-risk neonate. *Pediatrics*. 2008;122(5):1119-1126. doi:10.1542/peds.2008-2174
5. American Academy of Pediatrics Committee on Infectious Diseases; American Academy of Pediatrics Bronchiolitis Guidelines Committee. Updated guidance for palivizumab prophylaxis among infants and young children at increased risk of hospitalization for respiratory syncytial virus infection [published correction appears in *Pediatrics*. 2014 Dec;134(6):1221]. *Pediatrics*. 2014;134(2):415-420. doi:10.1542/peds.2014-1665.
6. Ortenstrand A, Waldenström U, Winbladh B. Early discharge of preterm infants needing limited special care, followed by domiciliary nursing care. *Acta Paediatr*. 1999;88(9):1024-1030. doi:10.1080/08035259950168568.



7. Ortenstrand A, Winbladh B, Nordström G, Waldenström U. Early discharge of preterm infants followed by domiciliary nursing care: parents' anxiety, assessment of infant health and breastfeeding. *Acta Paediatr.* 2001;90(10):1190-1195. doi:10.1080/080352501317061639.
8. Buchman AL. Complications of long-term home total parenteral nutrition: their identification, prevention and treatment. *Dig Dis Sci.* 2001;46(1):1-18. doi:10.1023/a:1005628121546.
9. Buchman AL, Scolapio J, Fryer J. AGA technical review on short bowel syndrome and intestinal transplantation. *Gastroenterology.* 2003;124(4):1111-1134. doi:10.1016/s0016-5085(03)70064-x.
10. Pinney MA, Cotton EK. Home management of bronchopulmonary dysplasia. *Pediatrics.* 1976;58(6):856-859.
11. Halliday HL, Dumpit FM, Brady JP. Effects of inspired oxygen on echocardiographic assessment of pulmonary vascular resistance and myocardial contractility in bronchopulmonary dysplasia. *Pediatrics.* 1980;65(3):536-540.
12. Groothuis JR, Rosenberg AA. Home oxygen promotes weight gain in infants with bronchopulmonary dysplasia. *Am J Dis Child.* 1987 Sep;141(9):992-5. doi: 10.1001/archpedi.1987.04460090069028. PMID: 3618573.
13. Sekar KC, Duke JC. Sleep apnea and hypoxemia in recently weaned premature infants with and without bronchopulmonary dysplasia. *Pediatr Pulmonol.* 1991;10(2):112-116. doi:10.1002/ppul.1950100213.
14. Garg M, Kurzner SI, Bautista DB, Keens TG. Clinically unsuspected hypoxia during sleep and feeding in infants with bronchopulmonary dysplasia. *Pediatrics.* 1988;81(5):635-642.
15. Moyer-Mileur LJ, Nielson DW, Pfeffer KD, Witte MK, Chapman DL. Eliminating sleep-associated hypoxemia improves growth in infants with bronchopulmonary dysplasia. *Pediatrics.* 1996;98(4 Pt 1):779-783.
16. Schneiderman R, Kirkby S, Turenne W, Greenspan J. Incubator weaning in preterm infants and associated practice variation. *J Perinatol.* 2009;29(8):570-574. doi:10.1038/jp.2009.54.
17. Zecca E, Corsello M, Priolo F, Tiberi E, Barone G, Romagnoli C. Early weaning from incubator and early discharge of preterm infants: randomized clinical trial. *Pediatrics.* 2010;126(3):e651-e656. doi:10.1542/peds.2009-3005.
18. Muchowski KE. Evaluation and treatment of neonatal hyperbilirubinemia. *Am Fam Physician.* 2014;89(11):873-878. From <<https://pubmed.ncbi.nlm.nih.gov/25077393/>>.
19. Smith VC and Stewart J. Discharge planning for high-risk newborns. UpToDate. UpToDate. Updated 6/24/2020. Accessed 5/17/2021.
20. Benitz WE; Committee on Fetus and Newborn, American Academy of Pediatrics. Hospital stay for healthy term newborn infants. *Pediatrics.* 2015;135(5):948-953. doi:10.1542/peds.2015-0699.
21. Jefferies AL; Canadian Paediatric Society, Fetus and Newborn Committee. Going home: Facilitating discharge of the preterm infant. *Paediatr Child Health.* 2014;19(1):31-42.
22. Corwin MJ. Use of home cardiorespiratory monitors in infants. UpToDate. Updated 2/16/21. Accessed 5/17/2021.
23. Chung J, Tran Lopez K, Amendolia B, et al. Stopping caffeine in premature neonates: how long does it take for the level of caffeine to fall below the therapeutic range? [published online ahead of print, 2020 Feb 20]. *J Matern Fetal Neonatal Med.* 2020;1-5. doi:10.1080/14767058.2020.1729117

**Important Reminder**

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. The Health Plan makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved. “Health Plan” means a health plan that has adopted this clinical policy and that is operated or administered, in whole or in part, by Centene Management Company, LLC, or any of such health plan’s affiliates, as applicable.

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## CLINICAL POLICY

### NICU Discharge Guidelines

expressed herein through the terms of their contracts. Where no such contract exists, providers, members/enrollees and their representatives agree to be bound by such terms and conditions by providing services to members/enrollees and/or submitting claims for payment for such services.

**Note: For Medicaid members/enrollees**, when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

**Note: For Medicare members/enrollees**, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at <http://www.cms.gov> for additional information.

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