Clinical Policy: Neonatal Sepsis Management

Reference Number: CP.MP.85
Date of Last Revision: 06/26

Revision Log

See Important Reminder at the end of this policy for important regulatory and legal information.

Description

Through the increased incidence of intrapartum antibiotics, early-onset neonatal sepsis is occurring less frequently. However, sepsis continues to be a prevalent cause of neonatal morbidity and mortality.[2,4]

Group B streptococcus (GBS) infection remains the leading cause of early-onset neonatal sepsis and a major cause of late-onset sepsis. The American Academy of Pediatrics defines GBS early-onset disease as a blood or cerebrospinal fluid culture-proven infection occurring within the first six days of life. GBS late-onset disease is defined as isolation of GBS from a normally sterile site from seven to 89 days of age.[7] More than half of GBS cases occur in infants of individuals with negative GBS cultures, emphasizing the need for vigilance of signs of sepsis in all newborns. To ensure timely treatment and to reduce morbidity and mortality, these infants require comprehensive assessment and treatment, as well as discharge planning.[2,4]

Policy/Criteria

I. It is the policy of Health Plans affiliated with Centene Corporation® that the management of neonatal sepsis is **medically necessary** at the indicated level of care for the following circumstances:

A. Episode Day 1
   1. Well-appearing infants who are on 48 hours of antibiotics pending blood culture results are appropriate for level I nursery or level II nursery ;
   2. Symptomatic infants are appropriate for level III nursery when meeting all of the following criteria:
      a. Signs of neonatal sepsis (e.g. hypotonia, lethargy, poor oral feeding, tachycardia, bradycardia, grunting, nasal flaring, cyanosis);
      b. Temp ≥ 100.4˚F or ≤ 96.8˚F (≥ 38.0˚C or ≤ 36.0˚C);
      c. On 48 hours of antibiotics pending blood culture results or treatment of positive blood cultures.

B. Episode Day 2 and Subsequent Days
   1. Infants with negative cultures who are determined to require antibiotics beyond 48 hours are appropriate for transitional care or level I nursery once antibiotics are the only intervention necessitating continued stay and if outpatient antibiotics are inappropriate or unmanageable;
   2. Symptomatic infants are appropriate for level III nursery when meeting all of the following criteria:
      a. Signs of neonatal sepsis (e.g. hypotonia, lethargy, poor oral feeding, tachycardia, bradycardia, grunting, nasal flaring, cyanosis);
      b. Temp ≥ 100.4˚F or ≤ 96.8˚F (≥ 38.0˚C or ≤ 36.0˚C);
      c. On 48 hours of antibiotics pending blood culture results or treatment of positive blood cultures.

3. Asymptomatic infants on 48 hours of antibiotics pending blood culture results for ≤ two days are appropriate for level II nursery;
4. Asymptomatic infants with a positive blood culture and no other indications are appropriate for transitional care.

Once the culture and sensitivity results are known and antibiotic therapy is established, a medically stable infant should be transitioned to a lower level of care for treatment completion if no other indications exist that require the current level of care.

It is difficult to administer intravenous (IV) antibiotics in the home with home health care due to the challenge of keeping very small catheters in place and patent. Transitional care nursery should be considered if antibiotics cannot safely be administered at home or at home with home health care.

II. Discharge criteria, with or without home antibiotics, meets all of the following as applicable:
- A. Member/enrollee is clinically stable;
- B. Home situation is assessed and deemed adequate;
- C. Parent or caretaker is agreeable with the plan of care;
- D. If going home with antibiotics, all of the following are met:
  1. Contractual agreement of care signed with a home infusion company experienced in neonatal IV therapy or short-term intramuscular therapy;
  2. Secure IV access is in place, if chosen;
  3. Contact information regarding the responsible physician (e.g., neonatologist, primary care pediatrician) and back-up health care facility (neonatal intensive care unit [NICU], community hospital) should be provided to the family and home care agency prior to discharge;
- E. Provider follow up scheduled within 48 hours of discharge.

Background

I. Identification and treatment of pregnant/birthing individual during pregnancy and labor[5,6,7]
- A. Pregnant individuals with Group B streptococcus (GBS) isolated in the urine any time during the current pregnancy or who had a previous infant with invasive GBS disease should receive intravenous (IV) intrapartum antibiotic prophylaxis. Third trimester screening for GBS colonization is not needed in this population.
- B. Pregnant individuals with symptomatic or asymptomatic GBS urinary tract infection (UTI) detected during pregnancy should be treated according to current standards of care for UTI during pregnancy and should receive intrapartum antibiotic prophylaxis to prevent early-onset GBS disease.
- C. All other pregnant individuals, including those with a scheduled cesarean delivery, should be screened at 36 0/7 through 37 6/7 weeks gestation for vaginal and rectal GBS colonization.
- D. At the time of labor or rupture of membranes (ROM), intrapartum antibiotic prophylaxis should be given to all birthing individuals whose vaginal-rectal cultures were positive for GBS colonization, including those undergoing cesarean delivery. If cesarean delivery is performed before onset of labor on a birthing individual with intact amniotic membranes, prophylaxis need not be given.

E. When screening results are not available at the time of labor and delivery, intrapartum antibiotics should be given to birthing individuals who present in labor with a substantial risk of preterm birth (defined as earlier than 37 0/7 weeks), who have preterm pre-labor rupture of membranes (PPROM), ROM ≥ 18 hours at term, or who present with intrapartum temperature ≥ 100.4° F (≥ 38.0°C). If none of the above risks are present but there is a history of GBS colonization in a previous pregnancy, it is reasonable to offer intrapartum antibiotic prophylaxis and/or discuss it as an option in a shared decision-making process with the provider.
F. If intraamniotic infection is suspected, broad-spectrum antibiotic therapy that provides coverage for polymicrobial infections as well as GBS should replace the antibiotic that provides coverage for GBS prophylaxis specifically.
G. Unless symptomatic GBS UTI is present or GBS bacteriuria exceeds 10^5 colony forming unit (CFU)/mL, antimicrobial agents should not be used before the intrapartum period to eradicate GBS genitorectal colonization, as this approach has not been shown to improve outcomes for the birthing individual or neonate.
H. Obstetric interventions, when necessary, should not be delayed solely to provide four hours of antibiotic administration before birth.

II. Identification and Treatment of the newborn[6,7]

A. Infants born at ≥ 35 weeks gestation should be managed according to risk, as determined by categorical risk assessment, clinical condition, or multivariate risk assessment. A copy of a risk assessment, the Neonatal Early-Onset Sepsis Calculator, is available at https://neonatalsepsiscalculator.kaiserpermanente.org/.
B. Preterm infants born at ≤34 weeks are at highest risk for early-onset sepsis (EOS) in the following circumstances: Infants born preterm because of cervical insufficiency, preterm labor, premature rupture of membranes, intraamniotic infection, and/or acute and otherwise unexplained onset of nonreassuring fetal status are at the highest risk of EOS and GBS early-onset disease (EOD). A blood culture and initiation of empirical antibiotic treatment is recommended for infants with any of these risk factors.
C. Preterm infants born at ≤34 weeks are at lower risk for EOS when meeting all of the following: (1) maternal and/or fetal indications for preterm birth (such as maternal preeclampsia or other noninfectious medical illness, placental insufficiency, or fetal growth restriction), (2) birth by cesarean delivery, and (3) absence of labor, no attempts to induce labor, and no rupture of membranes (ROM) before delivery.
D. For lower risk preterm infants, initial approaches include: (1) no laboratory evaluation and no empirical antibiotic therapy or (2) blood culture and clinical monitoring. For infants who do not improve after initial stabilization and/or those who have severe systemic instability, the administration of empirical antibiotics may be reasonable but is not mandatory.
E. Physicians should use their best judgment to determine when cerebrospinal fluid (CSF) analysis should be performed in the absence of bacteremia, as culture-confirmed meningitis in the absence of culture-confirmed bacteremia is approximately one to two cases per 100,000 live births. However, the rate of meningitis is higher in preterm infants, and a lumbar puncture for culture and analysis of CSF should be considered in clinically ill infants when there is a high suspicion for GBS EOD unless the procedure will compromise the neonate's clinical condition.

F. Therapy for a term infant at risk of EOS should include antimicrobial agents active against GBS (including IV ampicillin and gentamicin), as well as other organisms that might cause neonatal sepsis, such as *E. coli*.
G. Early-onset GBS infection is diagnosed by blood or CSF culture. Common laboratory tests such as the complete blood cell count and C-reactive protein do not perform well in predicting early-onset infection, particularly among well-appearing infants at lowest baseline risk of infection. Procalcitonin has also been suggested as a biomarker for determining the risk of early-onset sepsis. However, it is not definitive in ruling in or ruling out an infection in neonates.

III. General Considerations[6]

A. Stable infants at 35 weeks gestational age or older who are treated for sepsis should be discharged the same day the antibiotics are discontinued.
B. For ruling out sepsis due to perinatal risk factors, 36 to 48 hours of antibiotic administration is considered appropriate pending culture results and evaluation of lab data.
C. When blood cultures are sterile, antibiotic therapy should be discontinued by 36 to 48 hours of incubation unless there is clear evidence of site-specific infection.

Table 1. Nursery Level

Nursery Level	Revenue Code
Level I	Revenue code 171
Level II	Revenue code 172
Level III	Revenue code 173

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Policy developed; Neonatologist reviewed	08/13	08/13
Annual review. Description updated. Background updated: Minor rewording for clarity in II.C; added verbiage about procalcitonin in II.G; in III.B, changed 48 hours to 36 to 48 hours. References reviewed and updated. Reviewed by specialist.	07/22	07/22
Annual review completed. Description and background updated. Minor rewording with no clinical significance. References reviewed and updated.	02/23	02/23
Annual review. Reworded description with no clinical significance. Reworded criteria under I.A.2. "when meeting all of the following criteria" with no impact to criteria. Expanded criteria under I.A.2.a. and I.B.2.a. “Signs of neonatal sepsis (e.g.: hypotonia, lethargy, poor oral feeding, tachycardia, bradycardia, grunting, nasal flaring, cyanosis). Reworded criteria under II.D.1., II.D.3. and II.E. with no impact to criteria. References reviewed and updated. Reviewed by external specialist.	01/24	01/24
Annual Review. References reviewed and updated.	01/25	01/25
Annual review. Description and background updated with no clinical significance. Criteria updated with no impact to criteria. References reviewed and updated.	06/25	06/25

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Annual review. Updated Criteria I.A.1. to include level I nursery. Removed all instances of revenue codes throughout policy criteria. Background updated and added Table 1. regarding nursery level and corresponding revenue code. References reviewed and updated. Reviewed by internal specialists and reviewed by external specialist.	06/26	06/26

References

1. Baker CJ. Prevention of early-onset group B streptococcal disease in neonates. UpToDate. www.uptodate.com. Updated May 05, 2026. Accessed May 08, 2026.
2. Polin RA. Management of Neonates with Suspected or Proven Early-Onset Bacterial Sepsis. *Pediatrics*. 2012;129(5):1006 to 1015. doi:10.1542/peds.2012-0541
3. Polin RA, Watterberg K, Benitz W, Eichenwald, E. The conundrum of early-onset sepsis. *Pediatrics*. 2014;133(6):1122 to 1123. doi:10.1542/peds.2014-0360
4. Cantey JB, Pammi M. Neonatal bacterial sepsis: Clinical features and diagnosis in neonates born at ≥ 35 weeks gestation. UpToDate. www.uptodate.com. Updated March 02, 2026. Accessed May 13, 2026.
5. Puopolo KM, Benitz WE, Zaoutis TE; Committee on fetus and newborn; committee on infectious diseases. Management of neonates born at ≤34 6/7 weeks' gestation with suspected or proven early-onset bacterial sepsis. *Pediatrics*. 2018;142(6):e20182896. doi:10.1542/peds.2018-2896
6. Puopolo KM, Benitz WE, Zaoutis TE; Committee on fetus and newborn; committee on infectious diseases. Management of neonates born at ≥35 0/7 weeks' gestation with suspected or proven early-onset bacterial sepsis. *Pediatrics*. 2018;142(6):e20182894. doi:10.1542/peds.2018-2894
7. Puopolo KM, Lynfield R, Cummings JJ; American Academy of Pediatrics, Committee on Fetus and Newborn, Committee on Infectious Diseases. Management of Infants at Risk for Group B Streptococcal Disease. *Pediatrics.* 2019;144(2):e20191881. *Pediatrics*. 2019;144(4):e20192350. doi:10.1542/peds.2019-2350
8. Prevention of Group B Streptococcal Early-Onset Disease in Newborns: ACOG Committee Opinion, Number 797. *Obstet Gynecol*. 2020;135(2):e51 to e72. doi:10.1097/AOG.0000000000003668
9. Pammi M. Neonatal bacterial sepsis: Clinical features and diagnosis in neonates born at < 35 weeks of gestation. UpToDate. www.uptodate.com. Updated March 02, 2026. Accessed May 14, 2026.
10. Puopolo, KM. Approach to risk assessment and initial management of newborns with risk factors for early-onset sepsis. UpToDate. www.uptodate.com. Updated April 21, 2025. Accessed May 14, 2026.
11. Cantey JB, Prusakov P. A proposed framework for the clinical management of neonatal "culture-negative" sepsis. *J Pediatr.* 2022;244:203 to 211. doi:10.1016/j.jpeds.2022.01.006
12. Paul SP, Khattak H, Kini PK, Heaton PA, Goel N. NICE guideline review: neonatal infection: antibiotics for prevention and treatment (NG195) [published online ahead of print, 2021 Nov 12]. *Arch Dis Child Educ Pract Ed*. 2021;edpract-2021-322349. doi:10.1136/archdischild-2021-322349

13. Dhudasia MB, Flannery DD, Pfeifer MR, Puopolo KM. Updated Guidance: Prevention and management of perinatal Group B streptococcus infection. *Neoreviews*. 2021;22(3):e177 to e188. doi:10.1542/neo.22-3-e177
14. Pammi M. Neonatal bacterial sepsis: Treatment, prevention, and outcome in neonates born at < 35 weeks gestation. UpToDate. www.uptodate.com. Updated March 02, 2026. Accessed May 13, 2026.
15. Choi Y, Han HS, Chong GO, et al. Updates on Group B *Streptococcus* Infection in the Field of Obstetrics and Gynecology. *Microorganisms*. 2022;10(12):2398. Published 2022 Dec 2. doi:10.3390/microorganisms10122398
16. Ershad M, Mostafa A, Dela Cruz M, Vearrier D. Neonatal Sepsis. *Curr Emerg Hosp Med Rep*. 2019;7(3):83 to 90. doi:10.1007/s40138-019-00188-z
17. Singh M, Agarwal A, Pattnaik P, Alsaleem M. Neonatal Sepsis. *NIH.* https://www.ncbi.nlm.nih.gov/books/NBK531478/. Updated January 22, 2026. Accessed May 15, 2026.
18. Briggs-Steinberg C, Roth P. Early-Onset Sepsis in Newborns. *Pediatr Rev*. 2023;44(1):14 to 22. doi:10.1542/pir.2020-001164
19. Stoll BJ, Puopolo KM, Hansen NI, et al. Early-Onset Neonatal Sepsis 2015 to 2017, the Rise of Escherichia coli, and the Need for Novel Prevention Strategies [published correction appears in JAMA Pediatr. 2021 Feb 1;175(2):212]. *JAMA Pediatr*. 2020;174(7):e200593. doi:10.1001/jamapediatrics.2020.0593
20. Statement of Correction for Robert H. Pantell, Kenneth B. Roberts, William G. Adams, et al. Clinical Practice Guideline: Evaluation and Management of Well-Appearing Febrile Infants 8 to 60 Days Old. *Pediatrics*. 2021;148(2):e2021052228. *Pediatrics*. 2021;148(5):e2021054063. doi:10.1542/peds.2021-054063

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.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable Health Plan-level administrative policies and procedures.

This clinical policy is effective as of the date determined by the Health Plan. The date of posting may not be the effective date of this clinical policy. This clinical policy may be subject to applicable legal and regulatory requirements relating to provider notification. If there is a discrepancy between the effective date of this clinical policy and any applicable legal or regulatory requirement, the requirements of law and regulation shall govern. The Health Plan retains the right to change, amend or withdraw this clinical policy, and additional clinical policies may be developed and adopted as needed, at any time.

This clinical policy does not constitute medical advice, medical treatment or medical care. It is not intended to dictate to providers how to practice medicine. Providers are expected to exercise professional medical judgment in providing the most appropriate care, and are solely responsible for the medical advice and treatment of members/enrollees. This clinical policy is not intended to recommend treatment for members/enrollees. Members/enrollees should consult with their treating physician in connection with diagnosis and treatment decisions.

Providers referred to in this clinical policy are independent contractors who exercise independent judgment and over whom the Health Plan has no control or right of control. Providers are not agents or employees of the Health Plan.

This clinical policy is the property of the Health Plan. Unauthorized copying, use, and distribution of this clinical policy or any information contained herein are strictly prohibited. Providers, members/enrollees and their representatives are bound to the terms and conditions 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.

©2018 Centene Corporation. All rights reserved. All materials are exclusively owned by Centene Corporation and are protected by United States copyright law and international copyright law. No part of this publication may be reproduced, copied, modified, distributed, displayed, stored in a retrieval system, transmitted in any form or by any means, or otherwise published without the prior written permission of Centene Corporation. You may not alter or remove any trademark, copyright or other notice contained herein. Centene® and Centene Corporation® are registered trademarks exclusively owned by Centene Corporation.