MEDICAL POLICY – 7.01.50
Placental and Umbilical Cord Blood as a Source of Stem Cells

BCBSA Ref. Policy: 7.01.50
Effective Date: Aug. 1, 2019
Last Revised: July 25, 2019
Replaces: N/A

RELATED MEDICAL POLICIES:
None

Select a hyperlink below to be directed to that section.

POLICY CRITERIA | DOCUMENTATION REQUIREMENTS | CODING
RELATED INFORMATION | EVIDENCE REVIEW | REFERENCES | HISTORY

∞ Clicking this icon returns you to the hyperlinks menu above.

Introduction

Stem cells are cells in our body that have the ability to develop into many different kinds of cells. Stem cells have been used to treat many conditions including such things as diabetes, heart disease, arthritis, spinal cord injuries, and some types of cancer.

Stem cells are found in embryos, adults, and the umbilical cords of newborn babies. They are also found in the placenta (the “after birth”) of a pregnant woman. Stem cells that have been retrieved from the placenta or umbilical cord have been transplanted into patients in order to treat some specific diseases. This policy discusses when the transplantation of placental or umbilical cord stem cells might be considered to be medically necessary.

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.

Policy Coverage Criteria
Service | Medical Necessity
--- | ---
Transplantation of cord blood stem cells | Transplantation of cord blood stem cells from related or unrelated donors may be considered medically necessary in patients with an appropriate indication for allogeneic stem cell transplant.

Transplantation of cord blood stem cells from related or unrelated donors is considered investigational in all other situations.

Collection and storage of cord blood | Collection and storage of cord blood from a neonate may be considered medically necessary when an allogeneic transplant is imminent in an identified recipient with a diagnosis that is consistent with the possible need for allogeneic transplant.

Prophylactic collection and storage of cord blood | Prophylactic collection and storage of cord blood from a neonate may be considered not medically necessary when proposed for some unspecified future use as an autologous stem cell transplant in the original donor, or for some unspecified future use as an allogeneic stem cell transplant in a related or unrelated donor.

Documentation Requirements

The patient’s medical records submitted for review for all conditions should document that medical necessity criteria are met. The record should include the following:

- For the use of the of stem cells retrieved from the umbilical cord and placenta:
  - Documentation that the stem cells will be used in patients who qualify for a stem cell transplant using donor cells
- For collection and storage of cord blood:
  - Documentation that a transplant using donor cells is imminent for a person diagnosed with a disease that can be treated by using donor cells

Coding
# Benefit Application

Through the National Marrow Donor Program’s *Be the Match*, eligible families within the United States can collect and store their neonate’s cord blood unit free of charge. When the stored unit is transplanted, a fee is charged. A family is considered eligible if:

- The sibling of the neonate has been diagnosed with a disease treatable by a related cord blood transplant
- The neonate does not have the same disease as the affected biological sibling (determined after birth)
- The affected sibling and the neonate have the same biological parents

**OR**

- An affected biological parent is enrolled in a clinical or research trial that would accept a haploidentical, related, allogeneic cord blood unit as a treatment option

---

**Evidence Review**

---

**Related Information**

## Benefit Application

Through the National Marrow Donor Program’s *Be the Match*, eligible families within the United States can collect and store their neonate’s cord blood unit free of charge. When the stored unit is transplanted, a fee is charged. A family is considered eligible if:

- The sibling of the neonate has been diagnosed with a disease treatable by a related cord blood transplant
- The neonate does not have the same disease as the affected biological sibling (determined after birth)
- The affected sibling and the neonate have the same biological parents

**OR**

- An affected biological parent is enrolled in a clinical or research trial that would accept a haploidentical, related, allogeneic cord blood unit as a treatment option

---

**Evidence Review**

---

**Related Information**

- The sibling of the neonate has been diagnosed with a disease treatable by a related cord blood transplant
- The neonate does not have the same disease as the affected biological sibling (determined after birth)
- The affected sibling and the neonate have the same biological parents

**OR**

- An affected biological parent is enrolled in a clinical or research trial that would accept a haploidentical, related, allogeneic cord blood unit as a treatment option
Description

This policy addresses the collection, storage, and transplantation of placental and umbilical cord blood ("cord blood") as a source of stem cells for allogeneic and autologous stem cell transplantation. Potential indications for the use of cord blood are not addressed in this policy.

Background

**Bone Marrow Disorders**

A variety of malignant diseases and nonmalignant bone marrow disorders are treated with myeloablative therapy followed by infusion of allogeneic stem and progenitor cells collected from immunologically compatible donors, either from family members or an unrelated donor identified through a bone marrow donor bank. In some cases, a suitable donor is not found.

Blood harvested from the umbilical cord and placenta shortly after delivery of neonates contains stem and progenitor cells capable of restoring hematopoietic function after myeloablation. This cord blood has been used as an alternative source of allogeneic stem cells. Cord blood is readily available and is thought to be antigenically “naive,” thus potentially minimizing the incidence of graft-versus-host disease and permitting the broader use of unrelated cord blood transplants. Unrelated donors are typically typed at low resolution for human leukocyte antigen–A and –B and at high resolution only for human leukocyte antigen–DR; human leukocyte antigen matching at 4 of 6 loci is considered acceptable. Under this matching protocol, an acceptable donor can be identified for almost any patient.

Several cord blood banks have now been developed in the United States and Europe. In addition to obtaining cord blood for specific related or unrelated patients, some cord blood banks collect and store neonatal cord blood for some unspecified future use in the unlikely event that the child develops a condition that would require autologous transplantation. Also, some cord blood is collected and stored from a neonate for use by a sibling in whom an allogeneic transplant is anticipated due to a history of leukemia or other condition requiring allogeneic transplant.

Standards and accreditation for cord blood banks are important for assisting transplant programs in knowing whether individual banks have quality control measures in place to address issues such as monitoring cell loss, change in potency, and prevention of product mix-up. Two major organizations have created accreditation standards for cord blood banks in the US: the American Association of Blood Banks (AABB) and the International NetCord
Foundation/Foundation for the Accreditation of Cellular Therapy (NetCord/FACT). Both the AABB and the NetCord/FACT have developed and implemented a program of voluntary inspection and accreditation for cord blood banking. The AABB and the NetCord/FACT publish standards for cord blood banks that define the collection, testing, processing, storage, and release of cord blood products.²

Summary of Evidence

For individuals who have an appropriate indication for allogeneic stem cell transplant who receive cord blood as a source of stem cells, the evidence includes a number of observational studies, a meta-analysis of observational studies, and a randomized controlled trial (RCT) comparing outcomes after single- or double-cord blood units. Relevant outcomes are overall survival, disease-specific survival, resource utilization, and treatment-related mortality. The meta-analysis of observational studies found similar survival outcomes and lower graft-versus-host disease after cord blood transplantation than bone marrow transplantation. In the RCT, survival rates were similar after single- and double-unit cord blood transplantation. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have an unspecified potential future need for stem cell transplant who receive prophylactic collection and storage of cord blood, the evidence includes no published studies. Relevant outcomes are overall survival, disease-specific survival, resource utilization, and treatment-related mortality. No evidence was identified on the safety or effectiveness of autologous cord blood transplantation from prophylactically stored cord blood for the treatment of malignant neoplasms. The evidence is insufficient to determine the effects of the technology on health outcomes.

Ongoing and Unpublished Clinical Trials

Some currently unpublished trials that might influence this review are listed in Table 1.
Table 1. Summary of Key Trials

<table>
<thead>
<tr>
<th>NCT No.</th>
<th>Trial Name</th>
<th>Planned Enrollment</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCT01728545</td>
<td>The Collection and Storage of Umbilical Cord Blood for Transplantation</td>
<td>250,000</td>
<td>Apr 2099</td>
</tr>
<tr>
<td>NCT00012545</td>
<td>Collection and Storage of Umbilical Cord Stem Cells for Treatment of Sickle Cell Disease</td>
<td>99,999,999</td>
<td>none</td>
</tr>
</tbody>
</table>

NCT: national clinical trial

Practice Guidelines and Position Statements

**American Academy of Pediatrics**

A position statement on cord blood banking for potential future transplantation was published by the American Academy of Pediatrics in 2017. The Academy recommended cord blood banking for public use, with a more limited role for private cord blood banking for families with a known fatal illness that could be rescued by cord blood transplant.

**U.K. Consensus Recommendations on Umbilical Cord Blood Transplantation**

A consensus conference in the United Kingdom (2015) issued the following recommendation on umbilical cord blood transplantation:

We recommend that UCB [umbilical cord blood] ... be considered as an alternative source of HSC [hematopoietic stem cells] for transplantation for those patients without a suitably matched sibling or unrelated donor, defined as ‘standard’ or ‘clinical option’ transplants within the BSBMT [British Society of Blood and Marrow Transplantation] transplant indications tables.
American College of Obstetricians and Gynecologists

The American College of Obstetricians and Gynecologists (2015) published an opinion on umbilical cord blood banking. The statement discussed counseling patients about options for umbilical cord blood banking, as well as benefits and limitations of this practice. The relevant recommendations include the following:

- "Umbilical cord blood collection should not compromise obstetric or neonatal care or alter routine practice for the timing of umbilical cord clamping."
- "The current indications for cord blood transplant are limited to select genetic, hematologic, and malignant disorders."
- "The routine storage of umbilical cord blood as 'biologic insurance' against future disease is not recommended."

American Society for Blood and Marrow Transplantation

On behalf of the American Society for Blood and Marrow Transplantation, Ballen et al (2008) published recommendations related to the banking of umbilical cord blood:

- Public banking of cord blood is "encouraged."
- Storing cord blood for autologous (ie, personal) use is "not recommended."
- "Family member banking (collecting and storing cord blood for a family member) is recommended when there is a sibling with a disease that may be successfully treated with an allogeneic transplant. Family member banking on behalf of a parent with a disease that may be successfully treated with an allogeneic transplant is only recommended when there are shared HLA [human leukocyte-antigens] between the parents."

Medicare National Coverage

There is no national coverage determination.
Regulatory Status

According to the U.S. Food and Drug Administration, cord blood stored for potential use by a patient unrelated to the donor meets the definitions of “drug” and “biological products.” As such, products must be licensed under a biologics license application or an investigational new drug application before use. Facilities that prepare cord blood units only for autologous and/or first- or second-degree relatives are required to register and list their products, adhere to Good Tissue Practices issued by the Food and Drug Administration, and use applicable processes for donor suitability determination.³

References


---

**History**

<table>
<thead>
<tr>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/05/97</td>
<td>Add to Surgery Section - New Policy</td>
</tr>
<tr>
<td>04/09/02</td>
<td>Replace policy - Policy updated and revised based on 2001 TEC Assessment; cord blood as a source of stem cells no longer restricted to children, considered medically necessary in adults.</td>
</tr>
<tr>
<td>Date</td>
<td>Comments</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>09/12/03</td>
<td>Replace policy - Policy updated; statement added about storing cord blood stem cells for later possible use as autologous transplant.</td>
</tr>
<tr>
<td>06/09/06</td>
<td>Disclaimer and Scope update - No other changes.</td>
</tr>
<tr>
<td>12/11/07</td>
<td>Replace policy - Reviewed with literature search; no change to policy statement; references added. Reviewed and recommended by OAP on November 15, 2007.</td>
</tr>
<tr>
<td>05/13/08</td>
<td>Cross Reference Update - No other changes</td>
</tr>
<tr>
<td>12/08/09</td>
<td>Replace policy - Reviewed with literature search; no change to policy statement; Reviewed by OAP November 2009. Benefit Application language regarding storage added.</td>
</tr>
<tr>
<td>08/10/10</td>
<td>Replace policy - Policy updated with literature review and extensive revisions. References 1, 2 and 5-19 have been added. The intent of the policy statements has not changed.</td>
</tr>
<tr>
<td>11/10/11</td>
<td>Replace policy – Policy updated with literature review; policy statement unchanged. References 3 and 4 added. Related Policies updated.</td>
</tr>
<tr>
<td>01/25/12</td>
<td>Code 38232 added.</td>
</tr>
<tr>
<td>09/10/12</td>
<td>Update Related Policy – Remove 7.01.503 as it was deleted; Add 8.01.21 and 8.01.22. ICD-10 codes are now effective 10/01/2014.</td>
</tr>
<tr>
<td>10/01/12</td>
<td>Update Related Policies – Add 8.01.20, 8.01.29, 8.01.23, 8.01.27, 8.01.28, 8.01.30.</td>
</tr>
<tr>
<td>12/19/12</td>
<td>Replace policy. Policy updated with literature review; policy statements unchanged. References 5, 9-11 added. Add Related Policies 8.01.24, 8.01.31 and 8.01.35.</td>
</tr>
<tr>
<td>02/01/13</td>
<td>Update Related Policies. Change title of policy 8.01.21.</td>
</tr>
<tr>
<td>02/15/13</td>
<td>Update Related Policies, change title of policy 8.01.30.</td>
</tr>
<tr>
<td>09/30/13</td>
<td>Update Related Policies. Change title of policy 8.01.31.</td>
</tr>
<tr>
<td>12/04/13</td>
<td>Replace policy. Rationale updated based on a literature review through July 25, 2013. References 4, 5, 19, 20, 26, 29, 30 added; others renumbered or removed. Policy statements unchanged.</td>
</tr>
<tr>
<td>01/20/14</td>
<td>Update Related Policies. Change title to 8.01.21.</td>
</tr>
<tr>
<td>02/27/14</td>
<td>Update Related Policies. Change title to 8.01.30.</td>
</tr>
<tr>
<td>03/21/14</td>
<td>Update Related Policies. Add 8.01.15 and delete 8.01.514.</td>
</tr>
<tr>
<td>04/18/14</td>
<td>Update Related Policies. Delete 8.01.20 and add 8.01.529.</td>
</tr>
<tr>
<td>06/24/14</td>
<td>Update Related Policies. Delete 8.01.35, 8.01.42 and 8.01.54, then add 8.01.530, 8.01.531 and 8.01.532.</td>
</tr>
<tr>
<td>Date</td>
<td>Comments</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>11/20/14</td>
<td>Annual Review. Policy updated with literature review through July 21, 2014. Policy statements unchanged. References 4, 16-17, and 23 added. ICD-9 and ICD-10 procedure codes removed; these are not utilized in adjudication of the policy.</td>
</tr>
<tr>
<td>03/08/16</td>
<td>Annual Review. Policy updated with literature review through December 6, 2015; reference 27 added. Policy statements unchanged.</td>
</tr>
<tr>
<td>08/09/16</td>
<td>Update Related Policies. Remove 8.01.27 as it was archived.</td>
</tr>
<tr>
<td>03/14/17</td>
<td>Annual review. Policy updated with literature review through November 9, 2016; references 17 and 23 added. Removed Related Policies. Removed CPT codes 38232 and 38240. Policy statements unchanged.</td>
</tr>
<tr>
<td>10/27/17</td>
<td>Policy moved to new format; no change to policy statements.</td>
</tr>
</tbody>
</table>

**Disclaimer:** This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. The Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and local standards of practice. Since medical technology is constantly changing, the Company reserves the right to review and update policies as appropriate. Member contracts differ in their benefits. Always consult the member benefit booklet or contact a member service representative to determine coverage for a specific medical service or supply. CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). ©2019 Premera All Rights Reserved.

**Scope:** Medical policies are systematically developed guidelines that serve as a resource for Company staff when determining coverage for specific medical procedures, drugs or devices. Coverage for medical services is subject to the limits and conditions of the member benefit plan. Members and their providers should consult the member benefit booklet or contact a customer service representative to determine whether there are any benefit limitations applicable to this service or supply. This medical policy does not apply to Medicare Advantage.
Discrimination is Against the Law

Premera Blue Cross complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex. Premera does not exclude people or treat them differently because of race, color, national origin, age, disability or sex.

Premera:
- Provides free aids and services to people with disabilities to communicate effectively with us, such as:
  - Qualified sign language interpreters
  - Written information in other formats (large print, audio, accessible electronic formats, other formats)
- Provides free language services to people whose primary language is not English, such as:
  - Qualified interpreters
  - Information written in other languages

If you need these services, contact the Civil Rights Coordinator.

If you believe that Premera has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability, or sex, you can file a grievance with:

Civil Rights Coordinator - Complaints and Appeals
PO Box 91102, Seattle, WA 98111
Toll free 855-332-4535, Fax 425-918-5952. TTY 800-842-5357
Email AppealsDepartmentInquiries@Premera.com

You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, the Civil Rights Coordinator is available to help you.

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at https://ocrportal.hhs.gov/ocr/portal/lobby.jsf, or by mail or phone at:

U.S. Department of Health and Human Services
200 Independence Avenue SW, Room 509F, HHH Building
Washington, D.C. 20201, 1-800-368-1019, 800-537-7697 (TDD)


Getting Help in Other Languages

This Notice has Important Information. This notice may have important information about your application or coverage through Premera Blue Cross. There may be key dates in this notice. You may need to take action by certain deadlines to keep your health coverage or help with costs. You have the right to get this information and help in your language at no cost.

Call 800-722-1471 (TTY: 800-842-5357).

Arabic (Arabic): 
لا يمكن للإلغاء معلومات المطالبة. قد يكون هذا الإلغاء معلومات مهمة. الذي_transforms TEXT

(Arabic): يوحي هذا الإلغاء معلومات هامة. قد يكون هذا الإلغاء معلومات مهمة. الذي


Italiano (Italian):

Français (French):

Kreyòl ayisyen (Creole):

Deutsche (German):

Hmoob (Hmong):

Ilokano (Ilocano):
Daytoy a Pakdaar ket nagi laon nga Inapetag nga Impormasion. Daytoy a pakdaar mabalin nga adda ket nagi laon nga Inapetag nga impormasion maipanggep iti aplikasyon o woman coverage babaen ti Premera Blue Cross. Daytoy ket mabalin dagiti importante a pelta iti daytoy a pakdaar. Mabalin nga adda rumbeng nga aramideng nga adda sarkan dagiti partikular a naituding nga aldaw tapno mapagtalainedyo ti coverage ti salun-ayto woyong tungol kadagiti gastos. Adda karbenganyo a mangala iti daytoy nga impormasion ken tungol iti bukodyo a pagsasao nga awan ti bayadanyo. Tumawag ti numero nga 800-722-1471 (TTY: 800-842-5357).

Oromoo (Cushite):
Japanese (Japanese):
この通知には重要な情報を含まれています。この通知には、Premera Blue Crossの申請または補償範囲に関する重要な情報が含まれています場合があります。この通知に記載されている可能性がある重要な日付をご確認ください。健康保険や利用料サービスを維持するには、特定の期限内に行動を取りなす必要がある場合があります。ご自身の言語による情報とサービスが無料で提供されます。800-722-1471 (TTY: 800-842-5357)までお電話ください。

한국어 (Korean):
본 통지서에는 중요한 정보가 들어 있습니다. 즉 이 통지서는 귀하의 신청에 관하여 그리고 Premera Blue Cross를 통한 커버리지에 관한 정보를 포함하고 있을 수 있습니다. 귀하는 귀하의 건강 커버리지를 계속 유지하거나 비용을 절감하기 위해서 일정한 마감일까지 조치를 취해야 할 필요가 있을 수 있습니다. 귀하는 이러한 정보와 도움을 귀하의 언어에 비용 부담없이 얻을 수 있는 권리가 있습니다. 800-722-1471 (TTY: 800-842-5357)로 전화하시십시오.

اللغة العربية (Arabic):
هذا الطلب يحتوي على معلومات مهمة. إذا كنت تقدم بطلب من Premera Blue Cross، فإن المعلومات الواردة هنا قد تكون ذات صلة بأiec. للحصول على مساعدة بجودة، يرجى الاتصال بنا في (TTY: 800-842-5357).

Română (Romanian):

Русский (Russian):
Настоящее уведомление содержит важную информацию. Это уведомление может содержать важную информацию о вашем заявлении или страховом покрытии через Premera Blue Cross. В настоящем уведомлении могут быть ключевые данные. Вам, возможно, потребуется привести меры к определенным предельным срокам для сохранения страхового покрытия или помощи с расходами. Вы имеете право на бесплатное получение этой информации и помощь на вашем языке. Звоните по телефону 800-722-1471 (TTY: 800-842-5357).

Español (Spanish):
Este Aviso contiene información importante. Es posible que este aviso contenga información importante acerca de su solicitud o cobertura a través de Premera Blue Cross. Es posible que haya fechas claves en este aviso. Es posible que debe debo tomar alguna medida antes de determinadas fechas para mantener su cobertura médica o ayuda con los costos. Usted tiene derecho a recibir esta información y ayuda en su idioma sin costo alguno. Llame al 800-722-1471 (TTY: 800-842-5357).

Tagalog (Tagalog):

ไทย (Thai):
ประกาศนี้มีข้อมูลสำคัญ ประกาศนี้อาจมีข้อมูลสำคัญเกี่ยวกับการขอความช่วยเหลือระหว่างสิทธิ์ของคุณ Premera Blue Cross และสวัสดิการที่คุณมีได้ คุณควรยืนยันว่าคุณสามารถขอความช่วยเหลือได้ตามที่กำหนดในประกาศนี้ หรือติดต่อ Premera Blue Cross ที่ 800-722-1471 (TTY: 800-842-5357).

Polski (Polish):

Português (Portuguese):
Este aviso contém informações importantes. Este aviso poderá conter informações importantes a respeito de sua aplicação ou cobertura por meio do Premera Blue Cross. Poderão existir dados importantes neste aviso. Talvez seja necessário que você tome providências dentro de determinados prazos para manter sua cobertura de saúde ou ajuda de custos. Você tem o direito de obter esta informação e ajuda em seu idioma e sem custos. Ligue para 800-722-1471 (TTY: 800-842-5357).

Tiếng Việt (Vietnamese):

Український (Ukrainian):
Це повідомлення містить важливу інформацію. Це повідомлення може містити важливу інформацію про Ваше звернення щодо страхувального покриття через Premera Blue Cross. Зверніть увагу на ключові дати, які можуть бути вказані у цьому повідомленні. Існує імовірність того, що Вам треба буде здійснити певні кроки у конкретні кінцеві строки для того, щоб зберегти Ваше медичне страхування або отримати фінансову допомогу. У Вас є право на отримання цієї інформації та допомоги безкоштно на Вашій рідній мові. Дозвоніться за номером телефону 800-722-1471 (TTY: 800-842-5357).