hydroxyprogesterone caproate Injection (Makena®, generics)

Policy # 00302
Original Effective Date: 07/20/2011
Current Effective Date: 03/13/2023

Applies to all products administered or underwritten by Blue Cross and Blue Shield of Louisiana and its subsidiary, HMO Louisiana, Inc. (collectively referred to as the “Company”), unless otherwise provided in the applicable contract. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

When Services May Be Eligible for Coverage
Coverage for eligible medical treatments or procedures, drugs, devices or biological products may be provided only if:

• Benefits are available in the member’s contract/certificate, and
• Medical necessity criteria and guidelines are met.

Based on review of available data, the Company may consider the use of brand and generic hydroxyprogesterone caproate injection (Makena®) to reduce the risk of preterm birth in women to be eligible for coverage.**

Patient Selection Criteria
Coverage eligibility for the use of brand and generic hydroxyprogesterone caproate injection (Makena) to reduce the risk of preterm birth in women with a singleton pregnancy who have a history of singleton spontaneous preterm birth (SPTB) will be considered when all of the following patient selection criteria are met:

• Patient has a history of singleton spontaneous preterm birth defined as delivery at less than 37 weeks, 0 days gestation); AND
• Patient is currently pregnant with a singleton pregnancy and dosed as follows:
  o Begin administration between 16 weeks, 0 days and 20 weeks, 6 days of gestation; AND
  o Continue administration once weekly until 36 weeks, 6 days of gestation or delivery, whichever occurs first.

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When Services Are Considered Investigational
Coverage is not available for investigational medical treatments or procedures, drugs, devices or biological products.

Based on review of available data, the Company considers the use of brand and generic hydroxyprogesterone caproate injection (Makena) when patient selection criteria are not met to be investigational.*

Background/Overview
Makena, or hydroxyprogesterone caproate injection, is a progestin indicated to reduce the risk of preterm birth in women with a singleton pregnancy who have a history of singleton SPTB. It is not intended for use in women with multiple gestations or other risk factors for preterm birth. Makena has two dosage forms: an autoinjector (for subcutaneous use, 275 mg) and vials (for intramuscular administration, 250 mg). The vial form is available as a generic. Makena is administered once weekly by a healthcare provider beginning between 16 weeks, 0 days and 20 weeks, 6 days gestation. It is not intended to stop active preterm labor, and effects in active labor are unknown. Makena is a synthetic progestin. The mechanism by which hydroxyprogesterone caproate reduces the risk of recurrent preterm birth is not known.

FDA or Other Governmental Regulatory Approval
U.S. Food and Drug Administration (FDA)
On February 3, 2011, the FDA approved the drug Makena for the reduction of the risk of certain preterm births in women with a singleton pregnancy who have a history of singleton spontaneous preterm birth.

Rationale/Source
This medical policy was developed through consideration of peer-reviewed medical literature generally recognized by the relevant medical community, U.S. FDA approval status, nationally accepted standards of medical practice and accepted standards of medical practice in this community, technology evaluation centers, reference to federal regulations, other plan medical policies, and accredited national guidelines.
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The efficacy and safety of hydroxyprogesterone caproate injection were established in a randomized, double-blind, multicenter, vehicle-controlled, pivotal study in women between the ages of 16 and 43 years. Women were pregnant with a singleton pregnancy with a documented history of singleton SPTB, defined as delivery < 37 weeks gestation following spontaneous preterm labor or premature rupture of membranes (PROM). Major exclusion criteria included: pregnancy with multiple gestations, known fetal anomaly, progesterone or heparin treatment during the current pregnancy, current or planned cervical cerclage, hypertension requiring medication, or seizure disorder. Patients were randomized between 16 weeks, 0 days gestation and 20 weeks, 6 days gestation; ultrasound examination was used to confirm gestational age and the absence of congenital abnormality. The primary endpoint was the proportion of women in each treatment arm who delivered at < 37 weeks gestation.

The study took place in the United States and was conducted with an investigational formulation of hydroxyprogesterone caproate identical to Makena. Women were randomized to receive weekly intramuscular (IM) injections from a study nurse. Patients were assigned to treatment with hydroxyprogesterone caproate, 250 mg in 1 mL (n = 310), or vehicle (castor oil) (n = 153) in a 2:1 ratio. All women also received standard medical care appropriate for their level of risk of preterm delivery. The characteristics of the women qualifying for the study were similar between the two treatment groups: approximately 59% Black, 25.5% Caucasian, 13.9% Hispanic, and 0.6% Asian; mean age (approximately 26 years); mean body mass index (BMI) (26.9 kg/m²); and duration of gestation at the time of qualifying delivery (30.6 weeks and 31.3 weeks for the hydroxyprogesterone caproate and vehicle groups, respectively). However, the number of previous preterm deliveries was significantly higher in the vehicle group (1.4 ± 0.7 and 1.6 ± 0.9 deliveries for the hydroxyprogesterone caproate and vehicle groups, respectively; P = 0.007).

Noncompliance, defined as a gap of ≥ 10 days between any two injections, was assessed for all of the women in the study. Over 91% of the women were compliant with all of the injections with no difference between patients receiving hydroxyprogesterone caproate and vehicle. The study planned to enroll 500 women, but after 463 women had undergone randomization, the trial was discontinued early because statistical significance of the primary endpoint had been reached. There was a statistically significant reduction in the rate of delivery before 37 weeks gestation with patients treated with hydroxyprogesterone caproate compared to vehicle with the rates of delivery prior to Week 37 similar for Black and non-Black women. Among women of similar risk, the number needed to treat (NNT) was 5 to 6 women (95% confidence interval [CI]: 3.6, 11.1) to prevent one preterm
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delivery prior to 37 weeks gestation. Patients treated with hydroxyprogesterone caproate also had statistically significant reductions in the rates of delivery prior to 35 weeks and 32 weeks gestation. A small increase in the rate of miscarriage occurred in the hydroxyprogesterone caproate group compared to patients taking vehicle; however, this difference was not statistically significant. There was not a statistically significant difference in the rate of hospital visits for preterm labor, use of tocolytic therapy, administration of corticosteroids for fetal lung maturity, cesarean delivery, or chorioamnionitis between the hydroxyprogesterone caproate and vehicle treatment groups.

Refer to Table 1 for additional details of pregnancy outcomes.

Table 1. Pregnancy Outcomes from Study 1.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Hydroxyprogesterone Caproate Group (n = 306)</th>
<th>Vehicle Group (n = 153)</th>
<th>Relative Risk*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery before 37 weeks gestation</td>
<td>111 (36.3%)</td>
<td>84 (54.9%)</td>
<td>0.66 (0.54, 0.81)^</td>
</tr>
<tr>
<td>Spontaneous</td>
<td>90 (29.4%)</td>
<td>69 (45.1%)</td>
<td>0.65 (0.51, 0.83)</td>
</tr>
<tr>
<td>Indicated because of complications</td>
<td>21 (6.9%)</td>
<td>15 (9.8%)</td>
<td>0.70 (0.37, 1.32)</td>
</tr>
<tr>
<td>Delivery before 35 weeks gestation</td>
<td>63 (20.6%)</td>
<td>47 (30.7%)</td>
<td>0.67 (0.48, 0.93)#</td>
</tr>
<tr>
<td>Delivery before 32 weeks gestation</td>
<td>35 (11.4%)</td>
<td>30 (19.6%)</td>
<td>0.58 (0.37, 0.91)φ</td>
</tr>
<tr>
<td>Miscarriage at &lt; 20 weeks gestation</td>
<td>5 (1.6%)</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*With 95% confidence interval; ^P = 0.001; #P = 0.0165; φP = 0.0180; aPrimary outcome.

Study 1 was not adequately powered to assess infant morbidity and mortality. The incidence of certain outcomes, including infant birth weight < 1,500 grams, neonatal death, transient tachypnea, respiratory distress syndrome, bronchopulmonary dysplasia, ventilator support, grade 3 or 4 intraventricular hemorrhage, necrotizing enterocolitis, patent ductus arteriosus, retinopathy, and proven sepsis did not differ significantly between treatment groups. However, a significant improvement was noted in the birth weight < 2,500 grams, supplemental oxygen use, and any grade
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of intraventricular hemorrhage in patients treated with hydroxyprogesterone caproate. A small increase in the rate of stillbirth occurred in the hydroxyprogesterone caproate group compared to patients taking vehicle; however, this difference was not statistically significant. Refer to Table 2 for additional details of fetal and neonatal outcomes.

Table 2  Fetal and Neonatal Outcomes from Study 1

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Hydroxyprogesterone Caproate Group (n = 306)</th>
<th>Vehicle Group (n = 153)</th>
<th>Relative Risk*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stillbirth (antepartum or intrapartum)</td>
<td>6/306 (2%)</td>
<td>2/153 (1.3%)</td>
<td>1.50 (0.31, 7.34)</td>
</tr>
<tr>
<td>Birth weight &lt; 2,500 g</td>
<td>82/301 (27.2%)</td>
<td>62/151 (41.1%)</td>
<td>0.66 (0.51, 0.87)</td>
</tr>
<tr>
<td>Supplemental oxygen</td>
<td>45/303 (14.9%)</td>
<td>36/151 (23.8%)</td>
<td>0.62 (0.42, 0.92)</td>
</tr>
<tr>
<td>Intraventricular hemorrhage (any grade)</td>
<td>4/305 (1.3%)</td>
<td>8/153 (5.2%)</td>
<td>0.25 (0.8, 0.82)</td>
</tr>
</tbody>
</table>

*With 95% confidence interval; ^Data expressed as number/total number with data.

Figure 1 Proportion of Enrolled Patients Pregnant by Gestational Age (hydroxyprogesterone caproate [17 OHP] and Vehicle [Placebo])

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There have also been randomized, double-blind, vehicle-controlled controlled studies that showed no benefit of weekly 17P injections in women pregnant with multiple gestations.

The American College of Obstetricians and Gynecologists (ACOG) has published a Committee opinion (updated in 2008) on the use of progesterone to reduce preterm birth. The Committee notes that progesterone supplementation should be offered to women with a singleton pregnancy and a prior SPTB due to spontaneous preterm labor or PROM. The Committee does not recommend cervical length screening; however, progesterone supplementation may be considered in asymptomatic women with a short cervix (< 15 mm). Hydroxyprogesterone caproate and vaginal progesterone are mentioned as forms of progesterone that have shown evidence in certain populations to reduce preterm birth.

In a single-dose, open-label, randomized, parallel design bioavailability study in 120 healthy postmenopausal women, comparable systemic exposure of hydroxyprogesterone caproate was seen when hydroxyprogesterone caproate was administered subcutaneously with the auto-injector (1.1 mL) in the back of the upper arm and when hydroxyprogesterone caproate was dosed intramuscularly (1 mL) in the upper outer quadrant of the gluteus maximus.

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12. FDA label information Makena 2011.  

Policy History  
Original Effective Date: 07/20/2011  
Current Effective Date: 03/13/2023  
07/07/2011 Medical Policy Committee review  
06/28/2012 Medical Policy Committee review  
07/27/2012 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.  
06/27/2013 Medical Policy Committee review  
07/17/2013 Medical Policy Implementation Committee approval. Added “injection (Makena)” to the first sentence of the patient selection criteria and added “and dosed as follows” to the second bullet of the patient selection criteria. Coverage eligibility unchanged.  
07/10/2014 Medical Policy Committee review  
07/16/2014 Medical Policy Implementation Committee approval. No change to coverage.
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06/25/2015  Medical Policy Committee review
07/15/2015  Medical Policy Implementation Committee approval. No change to coverage.
06/30/2016  Medical Policy Committee review
07/20/2016  Medical Policy Implementation Committee approval. No change to coverage.
01/01/2017  Coding update: Removing ICD-9 Diagnosis Codes
07/06/2017  Medical Policy Committee review
07/19/2017  Medical Policy Implementation Committee approval. No change to coverage.
05/03/2018  Medical Policy Committee review
05/16/2018  Medical Policy Implementation Committee approval. Updated dosage form information to include the subcutaneous form.
02/07/2019  Medical Policy Committee review
02/20/2019  Medical Policy Implementation Committee approval. Updated to reflect the availability of generic Makena. Added “generics” to the title.
02/06/2020  Medical Policy Committee review
02/12/2020  Medical Policy Implementation Committee approval. Updated to reflect the availability of generic Makena. Added “generics” to the title.
02/04/2021  Medical Policy Committee review
02/10/2021  Medical Policy Implementation Committee approval. No change to coverage.
02/03/2022  Medical Policy Committee review
02/09/2022  Medical Policy Implementation Committee approval. No change to coverage.
02/02/2023  Medical Policy Committee review
02/08/2023  Medical Policy Implementation Committee approval. No change to coverage.

Next Scheduled Review Date:  02/2024

Coding
The five character codes included in the Blue Cross Blue Shield of Louisiana Medical Policy Coverage Guidelines are obtained from Current Procedural Terminology (CPT®), copyright 2022 by the American Medical Association (AMA). CPT is developed by the AMA as a listing of descriptive terms and five character identifying codes and modifiers for reporting medical services and procedures performed by physician.

The responsibility for the content of Blue Cross Blue Shield of Louisiana Medical Policy Coverage Guidelines is with Blue Cross and Blue Shield of Louisiana and no endorsement by the AMA is
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CPT is a registered trademark of the American Medical Association.
Codes used to identify services associated with this policy may include (but may not be limited to) the following:

<table>
<thead>
<tr>
<th>Code Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT</td>
<td>No codes</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J1726, J1729</td>
</tr>
<tr>
<td>ICD-10 Diagnosis</td>
<td>O09.211-O09.219, O47.00-O470.3, O47.1-O47.9, O60.10X0-O60.12X9, O60.13X0-O60.13X9, O60.14X0-O60.14X9, O60.20X0-O60.20X9, O60.22X0-O60.22X9, O60.23X0-O60.23X9, Z87.51</td>
</tr>
</tbody>
</table>

*Investigational – A medical treatment, procedure, drug, device, or biological product is Investigational if the effectiveness has not been clearly tested and it has not been incorporated into standard medical practice. Any determination we make that a medical treatment, procedure, drug, device, or biological product is Investigational will be based on a consideration of the following:

A. Whether the medical treatment, procedure, drug, device, or biological product can be lawfully marketed without approval of the U.S. Food and Drug Administration (FDA) and whether such approval has been granted at the time the medical treatment, procedure, drug, device, or biological product is sought to be furnished; or

B. Whether the medical treatment, procedure, drug, device, or biological product requires further studies or clinical trials to determine its maximum tolerated dose, toxicity, safety, effectiveness, or effectiveness as compared with the standard means of treatment or
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diagnosis, must improve health outcomes, according to the consensus of opinion among experts as shown by reliable evidence, including:
   1. Consultation with technology evaluation center(s);
   2. Credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community; or
   3. Reference to federal regulations.

**Medically Necessary (or “Medical Necessity”) - Health care services, treatment, procedures, equipment, drugs, devices, items or supplies that a Provider, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury, disease or its symptoms, and that are:
   A. In accordance with nationally accepted standards of medical practice;
   B. Clinically appropriate, in terms of type, frequency, extent, level of care, site and duration, and considered effective for the patient's illness, injury or disease; and
   C. Not primarily for the personal comfort or convenience of the patient, physician or other health care provider, and not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease.

For these purposes, “nationally accepted standards of medical practice” means standards that are based on credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community, Physician Specialty Society recommendations and the views of Physicians practicing in relevant clinical areas and any other relevant factors.

‡ Indicated trademarks are the registered trademarks of their respective owners.

NOTICE: If the Patient’s health insurance contract contains language that differs from the BCBSLA Medical Policy definition noted above, the definition in the health insurance contract will be relied upon for specific coverage determinations.

NOTICE: Medical Policies are scientific based opinions, provided solely for coverage and informational purposes. Medical Policies should not be construed to suggest that the Company recommends, advocates, requires, encourages, or discourages any particular treatment, procedure, or service, or any particular course of treatment, procedure, or service.