Pregnancy and Eye Health

How vision care and coverage may help safeguard the health of mothers and babies.
# Table of Contents

1. Introduction

2. Typical Changes

3. Risks Due to Pre-existing Conditions

4. Complications Associated with Pregnancy

5. Conclusion

6. Authors
Introduction

Pregnancy introduces a variety of physiological changes to the human body. Many of these changes are normal and reflect the body’s effort to protect and nurture the developing unborn child, but some may negatively affect the mother’s and baby’s health. Of the more than 3.7 million women who gave birth in 2018,¹ an estimated 1 in 6 experienced complications associated with their pregnancy.²

The eyes and visual system, due to their close relationship with other organs of the body, may be affected by these complications. Although many of the physiological changes associated with pregnancy may be benign and resolve after the child is born, some can be pathological and create risk to the mother’s health and vision. In cases where vision issues may indicate broader health challenges for the mother or baby, integration of care between the eye care provider, obstetrician and other health care professionals (e.g., endocrinologist, cardiologist) may be necessary to determine treatment of the pregnancy-related condition.

The changes during pregnancy that may affect the eyes can generally be divided into three categories: typical changes, risks due to pre-existing conditions and complications specific to pregnancy. Many changes are related to pregnancy-induced hormones, and these changes can trigger ocular symptoms ranging from mild discomfort to vision loss. It is important to the mother’s and, in some cases, the child’s health for the eyes to be examined during pregnancy, after delivery or when notable vision changes occur. Eye doctors should monitor conditions and refer patients with complications to specialists as indicated,³ ideally with support from vision plans to help encourage recommended care.
Typical Changes

During pregnancy, there are typical changes that may affect the anterior portion of the visual system. The mother-to-be may experience dry eyes, causing a burning, scratching sensation and the inability to wear contact lenses. Chloasma, an increase in pigment in the skin around the eyes, may create dark patches on the eye lids. As a result of fluid retention, a drooping eyelid or cataracts may develop or become worse. Shifts in the corneal curvature and thickness may affect the mother’s vision prescription, requiring an update to her glasses.⁴

Because some refractive error changes may resolve after pregnancy, some health professionals have long assumed that new glasses should not be prescribed until after the birth of the child. We now know that these changes can persist throughout breastfeeding. According to the Centers for Disease Control and Prevention (CDC), nearly 60% of infants are breastfed from birth through 6 months.⁵ Providing an updated prescription for temporary use during a year or more of pregnancy and breastfeeding may help new mothers experience clear, comfortable vision during that time.

Table 1: Physiological Ocular Changes During Pregnancy

<table>
<thead>
<tr>
<th>Condition</th>
<th>Ocular Signs</th>
<th>Ocular Symptoms</th>
<th>Occurrence</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry eye syndrome</td>
<td>Unstable tear film, keratitis</td>
<td>Eye irritation, foreign body sensation, burning, redness, contact lens intolerance</td>
<td>Resolves postpartum</td>
<td>Artificial tears as needed</td>
</tr>
<tr>
<td>Corneal changes</td>
<td>Increased corneal thickness and curvature, refractive changes, edema</td>
<td>Blurred vision, contact lens intolerance</td>
<td>2nd and 3rd trimester, resoloves postpartum</td>
<td>Reduce contact lens wearing time</td>
</tr>
<tr>
<td>Lens changes</td>
<td>Refractive changes, development or worsening of cataracts, accommodative changes</td>
<td>Blurred vision</td>
<td>May resolve postpartum</td>
<td>Provide temporary glasses</td>
</tr>
<tr>
<td>Chloasma</td>
<td>Increased pigmentation of the eyelids</td>
<td>Dark spots on the skin around the eyes</td>
<td>Resolves postpartum</td>
<td>Advise the use of make-up and monitor condition</td>
</tr>
<tr>
<td>Ptosis</td>
<td>Blepharoptosis</td>
<td>Drooping upper eyelid</td>
<td>Resolves postpartum</td>
<td>Fit with ptosis crutch or monitor</td>
</tr>
</tbody>
</table>
Risks Due to Pre-existing Conditions

Previously diagnosed conditions that involve the eyes may be affected by pregnancy. Pituitary tumors may increase in size and cause blurred or double vision and loss of peripheral field of sight. Toxoplasmosis, a parasitic infection, may reactivate during pregnancy and cause an infection in the unborn child.⁶ If this occurs, the mother may experience inflammation of the eye with blurred vision and floaters (spots in the field of vision). The condition requires pharmaceutical treatment and periodic monitoring by an eye doctor. Keratoconus, a disease that affects the shape of the cornea, has been known to progress significantly during pregnancy.

Pre-existing hypertension during pregnancy may increase the risk of complications. CDC data show that the rate of chronic hypertension during pregnancy increased nearly tenfold from 1993 to 2014.⁷ Uncontrolled blood pressure can be evident in the retinal blood vessels as hypertensive retinopathy and may be a reflection of involvement of other organs. Initially, the retinopathy often has no symptoms but, if left unchecked, may progress and cause blurred or distorted vision or even blindness.

In addition, pregnancy increases the risk of development and progression of diabetic retinopathy, which is why women with type 1 or type 2 diabetes are encouraged to have an eye examination if they are planning a pregnancy. The American Diabetes Association recommends that “dilated eye examinations should occur ideally before pregnancy or in the first trimester, and then patients should be monitored every trimester and for one-year postpartum.”⁸ Risk factors for the development or worsening of retinopathy are dependent on the length of time the mother has had diabetes, the severity of retinopathy at the time of conception, and how well blood sugar levels are managed.⁹

Tips to prepare for pregnancy when you have diabetes.¹⁰

Take the following steps to help prepare for a healthy pregnancy:

• Keep using contraception until you want to try for a baby
• Get to know the risks involved and how to reduce them
• Talk to your GP or nurse
• Keep your blood sugar at target levels
• Check what medication you’re taking, as some can harm the baby
• Get your eyes and kidneys checked
### Table 2: Physiological Ocular Changes During Pregnancy

<table>
<thead>
<tr>
<th>Condition</th>
<th>Ocular Signs</th>
<th>Ocular Symptoms</th>
<th>Occurrence</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>Diabetic retinopathy</td>
<td>Blurred or distorted vision</td>
<td>Worsening of retinopathy occurs in second and third trimester and extends postpartum</td>
<td>Mild or background: Alert primary care physician of inadequate glucose control; Mild to moderate: Refer to retina specialist for treatment</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Hypertensive retinopathy</td>
<td>Blurred or distorted vision</td>
<td>Must be monitored throughout pregnancy</td>
<td>Refer to primary care physician for more aggressive management of blood pressure</td>
</tr>
<tr>
<td>Toxoplasmosis</td>
<td>Posterior and anterior uveitis</td>
<td>Blurred vision, floaters</td>
<td>Resolves with treatment</td>
<td>Refer to retinal specialist for treatment</td>
</tr>
<tr>
<td>Pituitary tumor</td>
<td>Visual field defects</td>
<td>Blurred vision, double vision, headaches</td>
<td>Tumor may reduce in size postpartum</td>
<td>Refer to retinal specialist for treatment</td>
</tr>
<tr>
<td>Keratoconus</td>
<td>Refractive and corneal curvature changes</td>
<td>Blurred or distorted vision</td>
<td>Changes may persist postpartum</td>
<td>Refit contacts or adjust glasses as indicated</td>
</tr>
</tbody>
</table>

### Complications Associated with Pregnancy

Pre-eclampsia and eclampsia, each leading causes of maternal and infant mortality, occur when there is an increase in blood pressure and associated complications during the third trimester of pregnancy. Acute hypertensive retinopathy may develop as a result of pre-eclampsia. The vision problems that occur in one quarter of mothers with pre-eclampsia and half of those afflicted with eclampsia are a hallmark sign of the condition.¹¹ Symptoms include vision blurriness, seeing spots and light sensitivity. A retinal eye exam is important because the presence of retinopathy may indicate changes in the blood vessels of the placenta, which may affect the health of the unborn child.

Although some health conditions may arise outside of pregnancy, the hormonal changes associated with child bearing may cause them to occur more frequently. The most common of these is hyperemesis, or “morning sickness.” The increase in pressure during regurgitation (vomiting) can rupture blood vessels on the white of the eye. There is generally no pain associated with the broken vessels and they resolve on their own over time. Migraine headaches may increase during pregnancy and cause sensitivity to light, both during and between episodes of hyperemesis. In some rare cases, hyperemesis can cause Wernicke’s encephalopathy, a neurological condition that can cause blindness. Grave’s disease, as a result of hyperthyroidism, may occur during the first trimester and may result in a bulging appearance to the eyes, double vision and dry eyes.

Central serous chorioretinopathy, an ocular condition that involves the macula and central vision, is more common in men but it also has a strong association with pregnancy.¹² The condition can result in blurred or distorted vision that may persist after pregnancy and has been found to recur in subsequent pregnancies.¹³ Intracranial hypertension, also known as pseudotumor cerebri, is a condition associated with an increase in intracranial pressure and can result in swelling of the optic nerve. Symptoms include blurred or dimmed vision, peripheral sight loss and pain behind the eye.
Conclusion

Just as a comprehensive eye examination can identify and monitor systemic conditions, it can also add information about health during pregnancy. Visual complaints may be symptoms of pathology and should not be ignored. Dilated fundus examinations are recommended, and the use of drops to dilate the pupil for the purpose of examination is safe during pregnancy.¹⁴ Many of the changes that take place during pregnancy may resolve postpartum or with the cessation of breastfeeding, but the etiology of the symptoms must be determined to help support the health and well-being of the new mother and baby.

To help address the eye health needs of women during pregnancy and after delivery, UnitedHealthcare introduced a maternity vision benefit. Pregnant, postpartum and breastfeeding women enrolled in an eligible UnitedHealthcare vision plan have annual access to an additional vision exam, as well as an additional pair of glasses, if their prescription changes 0.5 diopter or more. This benefit enhancement covers the term of the pregnancy and extends after delivery during the **recommended breast feeding period of at least one year**, according to the American Academy of Pediatrics. Importantly, the maternity vision benefit is offered at no additional cost to members or employers.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Ocular Signs</th>
<th>Ocular Symptoms</th>
<th>Occurrence</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eclampsia and pre-eclampsia</td>
<td>Hypertensive retinopathy, optic neuropathy, serous retinal detachment</td>
<td>Blurred or distorted vision, color vision and peripheral sight loss</td>
<td>Third trimester, resolves after delivery</td>
<td>Refer to primary care physician for management</td>
</tr>
<tr>
<td>Intracranial hypertension (Pseudotumor cerebri)</td>
<td>Papilledema (swelling of the optic nerve)</td>
<td>Blurred or dimmed vision, peripheral sight loss, pain behind the eye</td>
<td>Resolves with treatment</td>
<td>Refer to emergency room</td>
</tr>
<tr>
<td>Central serous chorioretinopathy</td>
<td>Neurosensory retinal detachment in the macula</td>
<td>Blurred or distorted vision</td>
<td>Third trimester, resolves postpartum</td>
<td>Refer to retina specialist</td>
</tr>
<tr>
<td>Migraine headache</td>
<td>No ocular signs</td>
<td>Visual aura, light sensitivity</td>
<td>First and second trimesters</td>
<td>Refer to primary care physician</td>
</tr>
<tr>
<td>Hyperemesis (“morning sickness”)</td>
<td>Sub-conjunctival hemorrhage</td>
<td>Red area on the white of the eye</td>
<td>First trimester</td>
<td>Monitor by primary care physician</td>
</tr>
</tbody>
</table>

Contact your UnitedHealthcare representative for additional information.
Authors

Scott A. Edmonds, O.D., F.A.A.O., Vice President of UnitedHealthcare Vision
Linda Chous, O.D., Past Chief Eye Care Officer, UnitedHealthcare Vision

⁷ CDC, Data on Selected Pregnancy Complications in the United States (2020); https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-complications-data.htm.