
OPQIC and George Kaiser Family Foundation
Present:

LOW-DOSE ASPIRIN INITIATIVE: REDUCING PREECLAMPSIA AND IMPROVING BIRTH OUTCOMES IN OKLAHOMA

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OPQIC

OKLAHOMA PERINATAL QUALITY
IMPROVEMENT COLLABORATIVE



Disclosure:
Funding for this project is supported by Oklahoma's own George Kaiser Family Foundation

Thank You!

AGENDA

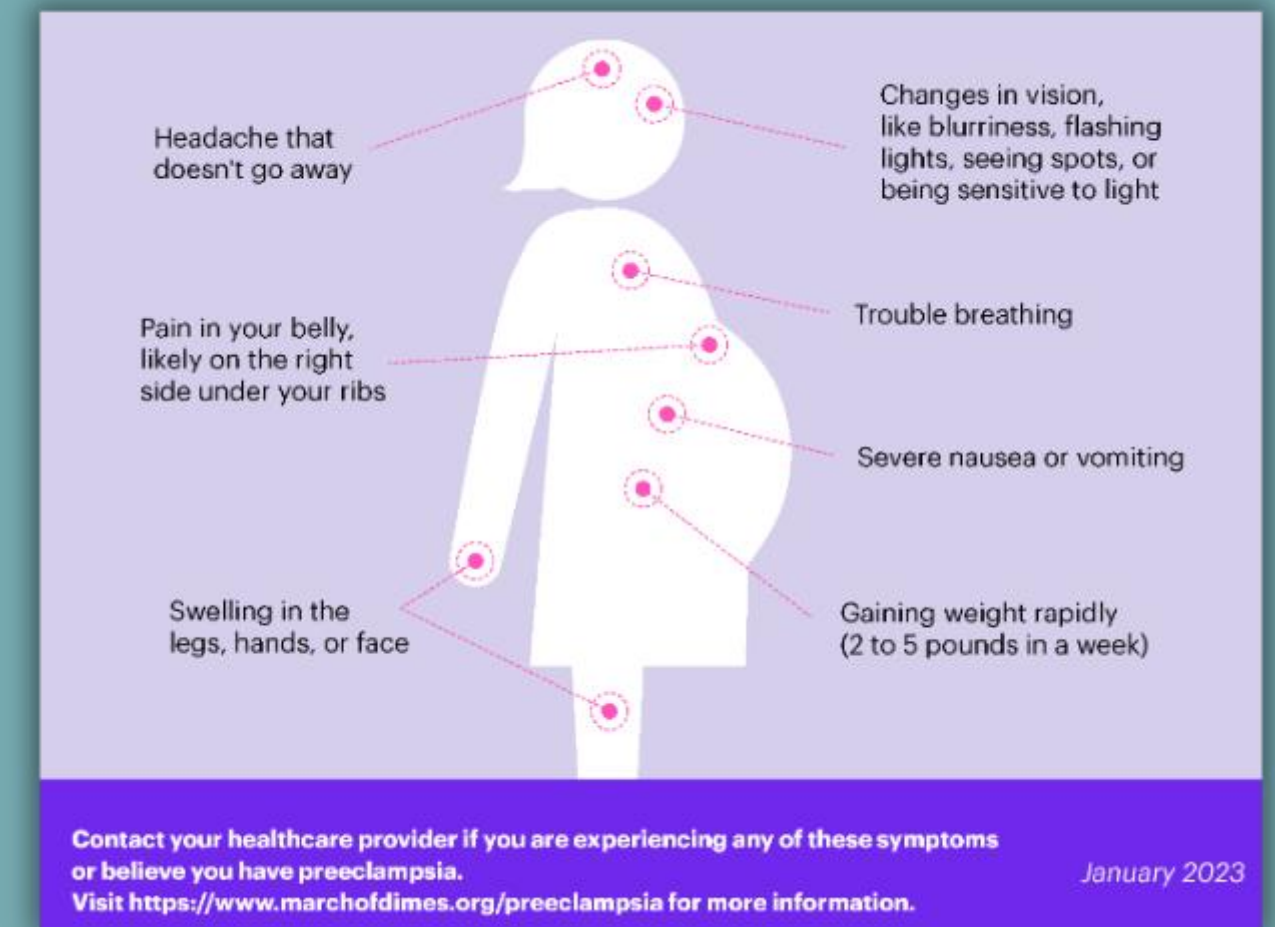
- I. Current state of Preeclampsia and Preterm Birth
- II. Defining Preeclampsia
- III. Low-Dose Aspirin and Preeclampsia Prevention
- IV. LDA Guidelines
- V. Project Goals
- VI. OPQIC QI Clinic Toolkit
- VII. Public Awareness Campaign
- VIII. Q&A

QUICK STATS

- Preeclampsia is a leading contributor to severe maternal morbidity and maternal death.
- 2022 Oklahoma birth certificate data
 - 48,314 live births, 8.8% with HDP (4,251.6), 0.5% with eclampsia (241.5) (OSDH)
 - From 7/1/22-6/30/23, there were 2,445 SoonerCare patients diagnosed with preeclampsia, and 108 cases of eclampsia.
- Preeclampsia is responsible for 6% of all medically indicated early preterm births, and 19% of preterm births.
 - Preterm birth rate in OK 11.9%
 - 45% higher in black women (2).
- 53% of OK counties are maternity care desert – distance to appointment, time off work to travel, emergent care access
- High risk for cardiovascular diseases later in life after preeclampsia.
- In Oklahoma, approximately ~1 woman dies every month and ~70 more have life-threatening complications related to childbirth.

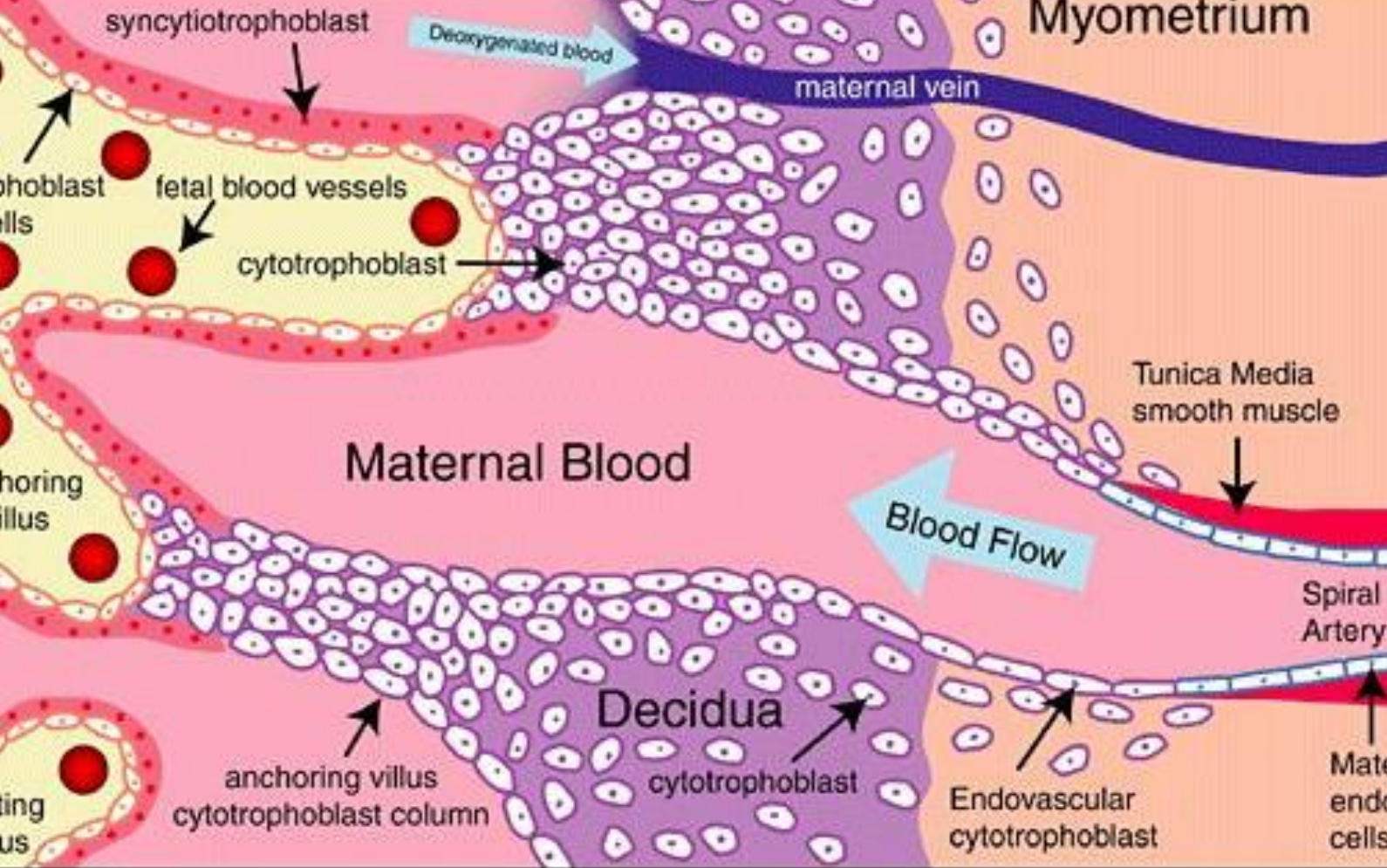
WHAT IS PREECLAMPSIA?

- Toxemia, gestational hypertension, superimposed preeclampsia (existing chronic hypertension), preeclampsia with severe features.
 - Sometimes accompanied by HELLP Syndrome
 - H - hemolysis
 - EL - Elevated liver enzymes
 - LP - Low platelet count
 - Most commonly characterized by BP $\geq 140/90$ or greater and proteinuria (impaired kidney).
 - Preeclampsia in the pregnant individual can lead to kidney, liver, or brain damage, blood clots, postpartum hemorrhage, eclampsia (seizures and/or coma), stroke, or death.
 - Pregnancy complications include preterm birth, placental abruption, FGR, low birthweight.
- **Preeclampsia can also occur in the postpartum period.**

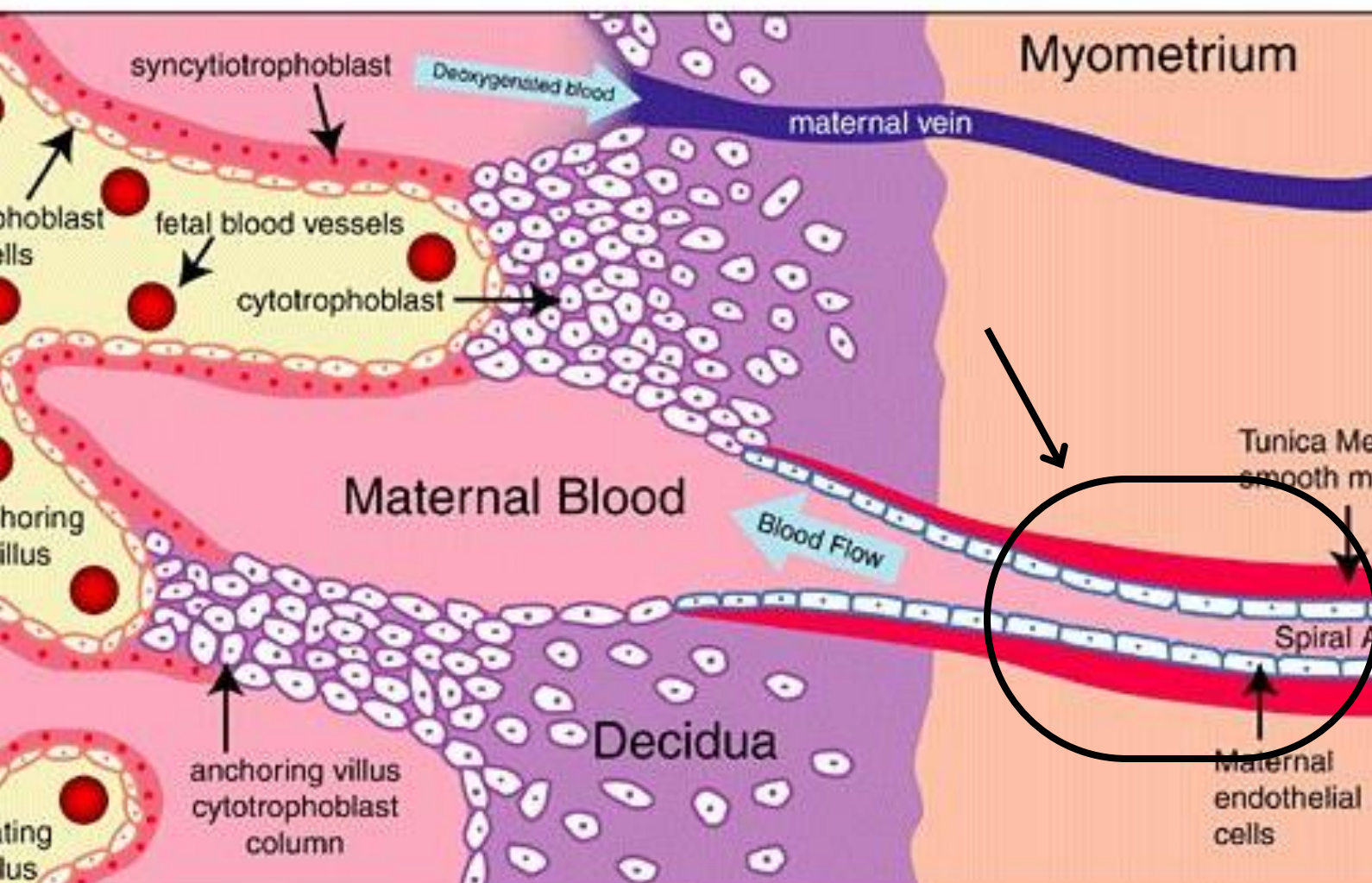


WHAT CAUSES PREECLAMPSIA?

- Preeclampsia is thought to be caused by a problem with the placenta.
- Poor placenta formation related to multiple causes, including:
 - Chronic uteroplacental ischemia (poor blood flow to baby)
 - Immune maladaptation (mother's immune system)
 - Genetic imprinting(3).
 - Exaggerated inflammatory response to trophoblast development (facilitates exchange of nutrients/waste to placenta) (9)
 - Poor remodeling of spiral arteries: Spiral arteries do not dilate as they would in a normal pregnancy, restricting blood flow.
- Focus on prevention or delaying the onset of preeclampsia.



Preeclampsia



LONG-TERM EFFECTS OF PREECLAMPSIA



- Prevalence of having chronic hypertension 14 years after pregnancy is >50%.
- 2x risk of death from cardiovascular disease.
- Women with preeclampsia <34 weeks have a 4-8x higher risk of death from CD (5).
- Increased risk of metabolic syndrome and chronic or end-stage renal disease (6).
- It's unclear if preeclampsia itself is a predictor of CD or if it's the causative agent.



LOW-DOSE ASPIRIN FOR THE PREVENTION OF PREECLAMPSIA

- NSAID and Antiplatelet drug
- Method of action to inhibit action by key enzymes:
 - COX-1 lines the inner surface of blood vessels and regulates 2 types of prostaglandins:
 - Prostacyclin - Vasodilator
 - Thromboxane - Vasoconstrictor
 - COX-2 production related to inflammatory signals from the body - clotting
- LDA inhibits COX-1 enzyme's ability to produce thromboxane but does not affect prostacyclin.
- A systematic review process revealed no maternal or fetal risks associated with LDA.



Low-dose aspirin significantly reduces rates of preeclampsia (15%), perinatal mortality (21%), preterm birth (20%), and FGR (18%). (4)

Final Recommendation Statement

**Aspirin Use to Prevent Preeclampsia and Related Morbidity and Mortality:
Preventive Medication**

September 28, 2021



SMFM SPECIAL STATEMENT | VOLUME 229, ISSUE 2, PB2-B9, AUGUST 2023

 [Download Full Issue](#)

Society for Maternal-Fetal Medicine Special Statement: Prophylactic low-dose aspirin for preeclampsia prevention—quality metric and opportunities for quality improvement

- Despite recommendations from ACOG, USPSTF and SMFM, LDA is used in <50% of high-risk and <25% of patients with >1 moderate risk factor (7).
- Patient surveys indicate only 58% of high-risk and 5% of moderate-risk patients recalled a provider recommendation to take aspirin.
- Low rates of use due to:
 - Low-rates of prescribers recommending LDA
 - Patients don't remember receiving a recommendation
 - Patients may be hesitant to take even though it's recommended



AIM

Reduce rates of preeclampsia and preterm birth in Oklahoma by increasing rates of low-dose aspirin usage during pregnancy.

PROJECT SCOPE

Ensure providers have access to the most current guidelines and are prescribing aspirin to eligible patients.

Education and informational materials that target nurses, pharmacists, doulas, and midwives.

Public awareness campaign regarding the benefits of aspirin targeting the general population.

Updated
GUIDELINES

UPDATED GUIDELINES: ACOG

- More patients could benefit from aspirin therapy.



Table 1. Clinical Risk Assessment for Preeclampsia^a

Risk level	Risk factors	Recommendation
High ^b	<ul style="list-style-type: none"> • History of preeclampsia, especially when accompanied by an adverse outcome • Multifetal gestation • Chronic hypertension • Pregestational type 1 or 2 diabetes • Kidney disease • Autoimmune disease (ie, systemic lupus erythematosus, antiphospholipid syndrome) • Combinations of multiple moderate-risk factors 	Recommend low-dose aspirin if the patient has ≥ 1 of these high-risk factors
Moderate ^c	<ul style="list-style-type: none"> • Nulliparity • Obesity (ie, body mass index >30) • Family history of preeclampsia (ie, mother or sister) • Black persons (due to social, rather than biological, factors)^d • Lower income^d • Age 35 years or older • Personal history factors (eg, low birth weight or small for gestational age, previous adverse pregnancy outcome, >10-year pregnancy interval) • In vitro conception 	<p>→ Recommend low-dose aspirin if the patient has ≥ 2 moderate-risk factors</p> <p>→ Consider low-dose aspirin if the patient has 1 of these moderate-risk factors</p>
Low	Prior uncomplicated term delivery and absence of risk factors	Do not recommend low-dose aspirin

^a Includes only risk factors that can be obtained from the patient medical history.

^b Includes single risk factors that are consistently associated with the greatest risk for preeclampsia. Preeclampsia incidence would likely be at least 8% in a population of pregnant individuals having 1 of these risk factors.

^c These factors are independently associated with moderate risk for preeclampsia, some more consistently than others. A combination of multiple moderate-risk factors may place a pregnant person at higher risk for preeclampsia.

^d These factors are associated with increased risk due to environmental, social, and historical inequities shaping health exposures, access to health care, and the unequal distribution of resources, not biological propensities.

** Likelihood can also be influenced by paternal factors.





ASPIRIN ADMINISTRATION

- **Therapy initiated at 12 weeks gestation, or between 12-16 weeks.**
 - New guidelines: 12-28 weeks gestation
 - Take 1 tablet every day at bedtime until birth.
- **Aspirin must be taken >90% of the time to be most effective (8).**
 - Medication reminder apps, alarms, calendar
 - Requires regular follow-up

Rx PRESCRIPTION

NAME Jane Doe AGE 2/22/1987
ADDRESS 123 Main Street DATE 9/23/23

Aspirin (81mg) EC

Tk 1 t po qhs
for the prevention of
preeclampsia. Discontinue
upon delivery.

#100

Dr. John Smith

NPI: 1023456789

LABEL
REFILL (0) 1 2 4 5 PRN

Health

ASPIRIN ADMINISTRATION

- Sending an electronic prescription is recommended.
 - Improves medication reconciliation
 - Provides specific directions for use on bottle.
 - OHCA will pay for 100 tablets of low-dose aspirin for a 100-day supply for the prevention of preeclampsia in pregnant persons. Refills allowed.
 - Covered by most commercial plans.
- Alternative options:
 - Instruct the patient to buy low-dose aspirin OTC at the drugstore
 - Barrier: timeliness of purchase, follow-up, cost
 - Provide aspirin onsite (request from pharm rep)
 - Barrier: drug sample laws, may have to purchase, quality tracking

OBGYN Practice **TOOLKIT**

Clinical Tools

COULD YOU BENEFIT FROM TAKING LOW-DOSE ASPIRIN DURING PREGNANCY?

Please read and check the boxes below to find out if you could benefit from low-dose aspirin:

- Have you had preeclampsia before (also known as toxemia)?
- Are pregnant with twins or triplets?
- Do you have high blood pressure (also known as hypertension)?
- Do you have diabetes type 1 or type 2?
- Do you have problems with your kidneys?
- Do you have an autoimmune disease like rheumatoid arthritis or lupus?
- Do you have a condition called antiphospholipid or anticardiolipin syndrome?
- Did your mom or sister have preeclampsia before (also known as toxemia)?
- Are you aged 35 or older?
- Did you weigh less than 5.5 pounds (2.5 kg) when you were born?
- Do you have black, African, or Afro-Caribbean ancestry?
- Is this going to be the first time you've had a baby?
- Is your youngest child 10 years old, or older?
- Have you had a baby that weighed less than 5.5 pounds (2.5 kg) when it was born?

If you checked one or more boxes, talk to your provider to see if low-dose aspirin could help you.

Why Aspirin?

Some pregnant people can develop a condition called preeclampsia. Preeclampsia is a sudden rise in blood pressure that happens after the 20th week of pregnancy. Preeclampsia can increase your risk of having your baby too early (before 37 weeks). It can also harm your health by damaging your kidneys and liver and can cause seizures or death. Low-dose, or baby aspirin, has shown it can decrease the chances you might develop preeclampsia and it lowers the risk of having your baby too early. It's thought aspirin works by improving blood flow in the placenta, so a pregnant individual can better control their blood pressure.

If you and your provider decide aspirin is right for you, you will take one low-dose aspirin as soon as you are 12 weeks pregnant, or you can start taking it any time between 12 to 28 weeks of pregnancy. It's best to take aspirin every day, before bed, until your baby is born. Your doctor can write you a prescription for low-dose aspirin or you can buy it over the counter at your local pharmacy.

For patient use:
Complete at first prenatal visit
with intake paperwork.

Preeclampsia Risk Assessment (Office Use)¹

High-Risk:

Does the patient have **one** of the following conditions?

- History of preeclampsia
- Multifetal gestation (twins, triplets)
- Chronic hypertension
- Pregestational type 1 or 2 diabetes
- Kidney Disease
- Autoimmune Disease (systemic lupus erythematosus, antiphospholipid syndrome)

If **yes**, the patient is high-risk and should begin low-dose aspirin (81mg) therapy at 12 weeks. Therapy can be initiated anytime between 12-28 weeks gestational age. Educate patient to take 1 tablet before bed until delivery.

Moderate-Risk:

Does the patient have **more than one** of the following:

- Nulliparity
- Obesity (BMI>30)
- Immediate family history of preeclampsia
- Black race
- Lower income
- Age 35 or older
- IVF pregnancy
- Personal history (low birth weight, small for gestational age, >=10 years since last pregnancy).

If **more than one** box is checked, patient should begin low-dose aspirin (81mg) therapy at 12 weeks, or anytime between 12-28 weeks gestational age. Educate patient to take 1 tablet before bed until delivery.

Low-Risk:

- Previous uncomplicated delivery

Low-dose aspirin therapy is not applicable.

**** OK Medicaid will pay for 100 tablets of low-dose aspirin for a 100-day supply for the prevention of preeclampsia.²**

¹ Recommendation: Aspirin Use to Prevent Preeclampsia and Related Morbidity and Mortality. Preventive Medication | United States Preventive Services Taskforce ([uspreventiveservices.org](https://preventiveservices.org))
² 0223 - ASA preeclampsia Pentasa brand 02062023 updated NDCs.pdf (oklahoma.gov)

For clinician use:
Scan as media to patient's profile.

Low-Dose Aspirin (81mg) in Pregnancy Decision Tree

Patient is here for first prenatal appointment or is between 12-28 weeks gestation.

Use screening criteria to identify high or moderate risk factors for preeclampsia.

Does patient have one high-risk factor or more than one moderate-risk factor?

Who is at risk?	Any one of the following high-risk factors:	More than one of the following moderate-risk factors:
	<ul style="list-style-type: none"> <input type="checkbox"/> History of preeclampsia <input type="checkbox"/> Multifetal gestation <input type="checkbox"/> Chronic hypertension <input type="checkbox"/> Pregestational diabetes (type 1 or 2) <input type="checkbox"/> Kidney disease <input type="checkbox"/> Autoimmune disease (systemic lupus erythematosus, antiphospholipid syndrome) <input type="checkbox"/> Any combination of 2 or more moderate risk factors. 	<ul style="list-style-type: none"> <input type="checkbox"/> Nulliparity <input type="checkbox"/> Obesity (BMI>30) <input type="checkbox"/> Family history of preeclampsia <input type="checkbox"/> Black race <input type="checkbox"/> Lower income <input type="checkbox"/> Age 35 or older <input type="checkbox"/> IVF <input type="checkbox"/> Personal history factors (low birth weight, small for gestational age, > 10-year pregnancy interval, previous adverse pregnancy outcome)

Source: ACOG Practice Advisory December 2021

Patient is less than 12 weeks gestation:

- Provide and review education materials with the patient.
- Instruct patient to begin taking low-dose aspirin nightly beginning at 12 weeks up to delivery.

Patient is between 12-28 weeks gestation:

- Provide and review education materials with patient.
- Instruct patient to begin a low-dose aspirin regimen today, taken nightly up to delivery.

Complete med-rec at each appointment. Identify barriers to adoption and address patient concerns. Reinforce adherence.

Low-dose aspirin (81mg) dispensing options:

- Provide patient a bottle of low-dose aspirin day of initial recommendation to ensure compliance.
- E-scribe a prescription and indicate diagnosis of pregnancy on problems list.
 - Medicaid patients can receive 100 tablets for a 100-day supply for the prevention of preeclampsia.

For provider use:
Clarify who is, and who is not eligible for prophylactic LDA use.

Patient Tools

HOW CAN ASPIRIN KEEP YOU AND YOUR BABY HEALTHY DURING PREGNANCY?

TALK TO YOUR PROVIDER TODAY TO SEE IF ASPIRIN IS RIGHT FOR YOU.

LEARN MORE:



www.preeclampsia.org/aspirin

OKLAHOMA MATERNAL HEALTH TASK FORCE | GEORGE KAISER FAMILY FOUNDATION | OPQIC

Posters for office displays.

WHY TAKE ASPIRIN DURING PREGNANCY?

What is Preeclampsia?
Preeclampsia (pre-eclamp-sia) is a high blood pressure disorder of pregnancy and postpartum that can affect multiple organ systems within your body. In severe cases, preeclampsia can lead to seizures and even stroke.

What are the symptoms of preeclampsia?

- High blood pressure (greater than 140/90)
- Increased swelling in hands and feet and/or rapid weight gain
- A severe headache that doesn't resolve with Tylenol
- Nausea or vomiting
- Abdominal and/or shoulder pain
- Changes in vision
- Shortness of breath or anxiety (feeling of doom)
- Changes in reflexes.
- Some people do not notice symptoms.

What is Eclampsia?
Eclampsia (e-clamp-sia) is when a person with preeclampsia develops seizures. Eclampsia is a serious medical emergency that can cause strokes or death. Eclampsia only occurs in 3% of people with preeclampsia.

Your provider told you that **low-dose aspirin** could help you during your pregnancy. You've never heard of someone taking **low-dose aspirin** while pregnant before. Let's find out why!

How Does Aspirin Help?
It is unclear what causes preeclampsia, but one theory is its caused by problem with the blood vessels that supply the placenta. As the baby grows, blood flow to the placenta increases. If the placenta does not have enough blood flow, the pregnant person's blood pressure will increase and, the baby's growth may be restricted.

How To Take Aspirin
It's best to start taking **low-dose aspirin** between 12 - 28 weeks of pregnancy. You will take **one low-dose aspirin (81mg)** once a day, before bed, up until the day you have your baby. Set an alarm or use a pill reminder app so you don't miss a dose.

Learn More



www.preeclampsia.org

OKLAHOMA MATERNAL HEALTH TASK FORCE | GEORGE KAISER FAMILY FOUNDATION | OPQIC




Provide to patients who are told to take aspirin.

Could You Benefit From Taking Aspirin During Pregnancy?

Please read and check the boxes below to find out if you could benefit from aspirin:

- Have you had preeclampsia before (also known as toxemia)?
- Are pregnant with twins or triplets?
- Do you have high blood pressure (also known as hypertension)?
- Do you have diabetes type 1 or type 2?
- Do you have problems with your kidneys?
- Do you have an autoimmune disease like rheumatoid arthritis or lupus?
- Do you have a condition called antiphospholipid or anticardiolipin syndrome?
- Did your mom or sister have preeclampsia before (also known as toxemia)?
- Are you very overweight (BMI 30 or above)?
- Are you aged 35 or older?
- Did you weigh less than 5.5 pounds (2.5 kg) when you were born?
- Do you have black, African or Afro-Caribbean ancestry?
- Is this going to be the first time you've had a baby?
- Is your youngest child 10 years old, or older?
- Have you had a baby that weighed less than 5.5 pounds (2.5 kg) when it was born?

Learn More:



www.preeclampsia.org/aspirin

OKLAHOMA MATERNAL HEALTH TASK FORCE | GEORGE KAISER FAMILY FOUNDATION | OPQIC

Flip over to learn about the benefits of aspirin during pregnancy.

For patient use: Waiting room brochures.

Could You Benefit From Taking Aspirin During Pregnancy?


WHY ASPIRIN?

- Aspirin works by improving blood flow in the placenta, so a pregnant individual can better control their blood pressure.
- Low-dose, or baby aspirin, has shown it can decrease the chances you might develop a condition called preeclampsia and it lowers the risk of having your baby too early.
- Preeclampsia is a sudden rise in blood pressure that happens after the 20th week of pregnancy.
- Preeclampsia can increase your risk of having your baby too early (before 37 weeks).
- Preeclampsia can harm your health by damaging your kidneys and liver and can cause seizures or death.

HOW TO TAKE ASPIRIN

- If you and your provider decide aspirin is right for you, you will begin taking one low-dose aspirin daily as soon as you are 12 weeks pregnant. Aspirin usage is most effective when started between 12-28 weeks of pregnancy.
- It's best to take one low-dose aspirin every day, before bed, until your baby is born.
- Your doctor can write you a prescription for low-dose aspirin or you can buy it over the counter at your local pharmacy.

Learn More:



www.preeclampsia.org/aspirin


OKLAHOMA MATERNAL HEALTH TASK FORCE | GEORGE KAISER FAMILY FOUNDATION | OPQIC

Track My Meds 2023 Calendar

Instructions for Use:

- Circle the day you started your medication.
- Make an "X" through each day you take your medication up until the day your baby is born.
- Take a photo of this calendar to show to your provider at each appointment.
- Do your best to not skip any days.

Listen to your body. If something doesn't feel right, call your provider or local birthing hospital.



OKLAHOMA MATERNAL HEALTH TASK FORCE | GEORGE KAISER FAMILY FOUNDATION | OPQIC

Adherence calendars.

LDA Clinic Workflow

Patient completes screening form during first prenatal appointment.

Nurse completes screening form with patient and/or asks score.

Provider discusses aspirin eligibility with patient. Explains what aspirin does.

Patient is provided aspirin education brochure.

Provider e-prescribes low-dose aspirin to patient's preferred pharmacy.

Patient attends following prenatal appointments.

Incorporate doulas - empower patients to ask questions, direct patients to resources.

Nurse completes medication rec, identifies barriers to adoption.

Provider asks about patient concerns regarding aspirin.

L&D asks about prenatal vitamins and aspirin use in pregnancy.

OKLAHOMA
MATERNAL
HEALTH 
TASK FORCE



Public Awareness
CAMPAIGN

OSDH Public Awareness Campaign



Aspirin Therapy Social M...
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OKC_OSDH_Aspirin_The...-
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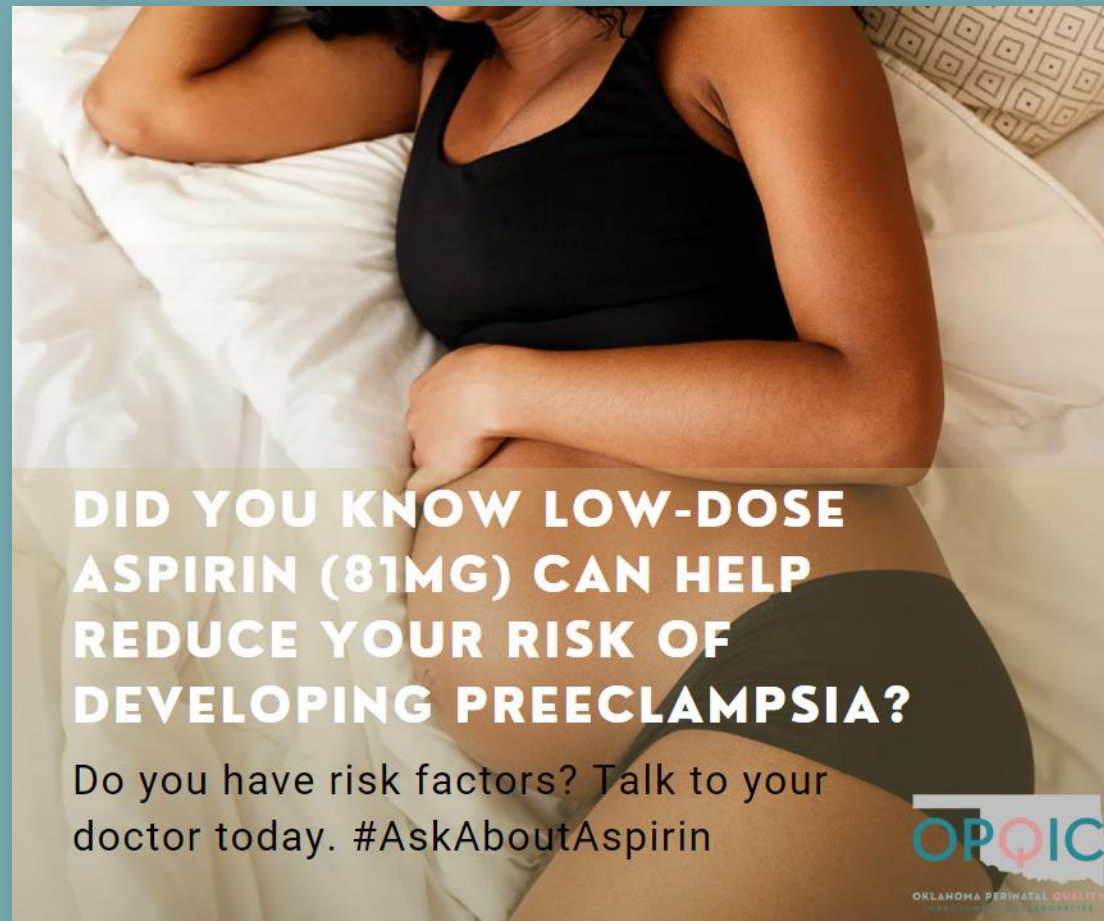
OSDH_Aspirin Therapy_...
(1).mp4



OSDH_Aspirin Therapy_...
23.mp4


#AskAboutAspirin
Social media, media
spots.

OPQIC Social Media Campaign



DID YOU KNOW LOW-DOSE ASPIRIN (81MG) CAN HELP REDUCE YOUR RISK OF DEVELOPING PREECLAMPSIA?

Do you have risk factors? Talk to your doctor today. #AskAboutAspirin



Oklahoma Perinatal Quality Improvement Collaborative
October 11 at 1:38 PM · Published by Melissa Warde ·

Learn more about how [#lowdoseaspirin](#) can reduce your risk of developing [#preeclampsia](#) during pregnancy: <https://preeclampsia.org/aspirin>

What is preeclampsia?

- A sudden increase in blood pressure after 20 weeks of pregnancy. High levels of protein in your urine may show your kidneys are not working right.
- Preeclampsia can lead to serious maternal or fetal health problems, including an increased risk of stroke, blood clots, seizures, or death.
- Low-dose aspirin (81mg) taken daily after 12 weeks of pregnancy until birth can reduce the risk of developing preeclampsia in pregnant individuals with high or moderate risk factors.

Talk to your doctor today to see if aspirin is right for you. #AskAboutAspirin

?Qué es la preeclampsia?

- Un aumento repentino en la presión arterial después de las 20 semanas de embarazo. Altos niveles de proteínas en la orina pueden indicar que tus riñones no están funcionando correctamente.
- La preeclampsia puede llevar a problemas graves de salud materna o fetal, incluyendo un mayor riesgo de accidente cerebrovascular, coágulos sanguíneos, convulsiones o incluso la muerte.
- La aspirina de baja dosis (81 mg) tomada diariamente después de las 12 semanas de embarazo hasta el parto puede reducir el riesgo de desarrollar preeclampsia en personas embarazadas con factores de alto o moderado riesgo.

Hable con su médico hoy para ver si la aspirina es adecuada para usted. #AskAboutAspirin

Oklahoma Perinatal Quality Improvement Collaborative [Learn more](#)

What is Preeclampsia?



A sudden increase in blood pressure after 20 weeks of pregnancy. Too much protein may be found in a routine urine test.

Preeclampsia Risk Factors:

- Had preeclampsia before
- Pregnant with twins or triplets
- Had high blood pressure or diabetes before pregnancy
- Age 35 or older
- Are black race
- Body Mass Index over 30 (obese)
- Additional risk factors may apply

Daily use of low-dose aspirin (81mg), started after 12 weeks of pregnancy, has shown it can reduce the risk of developing preeclampsia.

Talk to your provider today. #ASKABOUTASPIRIN



#AskAboutAspirin
Launched 10/10/23
Boosted reach 103,997



**Low-Dose Aspirin
Clinic & Patient
Education Tools**

Print More:



SUPPORTS LDA QI INITIATIVES



QUESTIONS?

Learn more:
www.opqic.org/lda



Sources

- 1) C. (2023, JUNE 19). HIGH BLOOD PRESSURE DURING PREGNANCY. CENTERS FOR DISEASE CONTROL AND PREVENTION. [HTTPS://WWW.CDC.GOV/BLOODPRESSURE/PREGNANCY.HTM](https://www.cdc.gov/bloodpressure/pregnancy.htm)
- 2) 2022 MARCH OF DIMES REPORT CARD FOR OKLAHOMA. (N.D.). MARCH OF DIMES | PERISTATS. [HTTPS://WWW.MARCHOFDIMES.ORG/PERISTATS/REPORTS/OKLAHOMA/REPORT-CARD](https://www.marchofdimes.org/peristats/reports/oklahoma/report-card)
- 3) AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS. (2018). LOW-DOSE ASPIRIN USE DURING PREGNANCY. ACOG COMMITTEE OPINION NO. 743. OBSTET GYNECOL, 132, E44-E52.
- 4) HENDERSON, J. T., VESCO, K. K., SENGER, C. A., THOMAS, R. G., & REDMOND, N. (2021, SEPTEMBER 28). USPSTF REPORT: ASPIRIN USE TO PREVENT PREECLAMPSIA AND RELATED MORBIDITY AND MORTALITY. ASPIRIN USE TO PREVENT PREECLAMPSIA AND RELATED MORBIDITY AND MORTALITY: UPDATED EVIDENCE REPORT AND SYSTEMATIC REVIEW FOR THE US PREVENTIVE SERVICES TASK FORCE | GUIDELINES | JAMA | JAMA NETWORK. [HTTPS://DOI.ORG/10.1001/JAMA.2021.8551](https://doi.org/10.1001/jama.2021.8551)
- 5) POWE, C. E., LEVINE, R. J., & KARUMANCHI, S. A. (2011). PREECLAMPSIA, A DISEASE OF THE MATERNAL ENDOTHELIUM: THE ROLE OF ANTIANGIOGENIC FACTORS AND IMPLICATIONS FOR LATER CARDIOVASCULAR DISEASE. CIRCULATION, 123(24), 2856-2869.
- 6) POON LC, SHENNAN A, HYETT JA, KAPUR A, HADAR E, DIVAKAR H, MCAULIFFE F, DA SILVA COSTA F, VON DADELSZEN P, MCINTYRE HD, KIHARA AB, DI RENZO GC, ROMERO R, D'ALTON M, BERGHELLA V, NICOLAIDES KH, HOD M. THE INTERNATIONAL FEDERATION OF GYNECOLOGY AND OBSTETRICS (FIGO) INITIATIVE ON PRE-ECLAMPSIA: A PRAGMATIC GUIDE FOR FIRST-TRIMESTER SCREENING AND PREVENTION. INT J GYNAECOL OBSTET. 2019 MAY;145 SUPPL 1(SUPPL 1):1-33. DOI: 10.1002/IJGO.12802. ERRATUM IN: INT J GYNAECOL OBSTET. 2019 SEP;146(3):390-391. PMID: 31111484; PMCID: PMC6944283.
- 7) COMBS, C. A., KUMAR, N. R., MORGAN, J. L., SAFETY, S. P., SOCIETY FOR MATERNAL-FETAL MEDICINE (SMFM), & QUALITY COMMITTEE. (2023). SOCIETY FOR MATERNAL-FETAL MEDICINE SPECIAL STATEMENT: PROPHYLACTIC LOW-DOSE ASPIRIN FOR PREECLAMPSIA PREVENTION—QUALITY METRIC AND OPPORTUNITIES FOR QUALITY IMPROVEMENT. AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY.