

Utilizing the electronic medical record for preeclampsia screening and low-dose aspirin prescription for obstetric patients at UCSD Health

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Purpose

- Use electronic medical record (EMR) tools to increase appropriate preeclampsia risk screening during routine obstetric care visits using SMFM screening checklist.
- Increase evidence-based use of low-dose aspirin (LDASA) to reduce the risk of preeclampsia, particularly amongst patients with moderate risk factors for preeclampsia.

Background

- The Society for Maternal-Fetal Medicine (SMFM), California Maternal Quality Care Collaborative (CMQCC) and the United States Preventative Task Force (USPTF) recommend low-dose aspirin (LDASA) for preeclampsia risk reduction in at-risk pregnancies.
- Current evidence suggests that low dose aspirin (LDASA) prescribing practices for at-risk patients are inconsistent.
- SMFM developed a checklist for preeclampsia risk factor screening and LDASA prescribing.
- To our knowledge, there is no published literature of its use by prenatal care providers as it pertains to LDASA prescription patterns or medication adherence.
- We implemented: 1) Pre-eclampsia risk screen in the New OB EMR template and 2) built-in smart-phrase added to L&D Admission H&P template.

Methods

- System wide preeclampsia risk screen and LDASA eligibility smart-phrase launched on 9/6/2022 (Figure 1).
- Retrospective chart review of all new obstetric visits from 9/6/2022 - 11/29/2022 at one prenatal clinic was conducted.
- Retrospective chart review of all deliveries at UCSD Health from 9/6/2022 - 1/3/2023 was done to analyze our baseline LDASA compliance rates and diagnoses of hypertensive disorders in pregnancy.

Table 1: Patient demographics and preeclampsia risk screen results

Patients (n)	158
Mean Age (yr)	33.3
AMA (>35yo)	42
Mean gestational age at screen (weeks)	15.1
Mean gravida	2.5
Mean parity	2.1
Race/Ethnicity	
Unknown	1.2% (2/158)
Hispanic	45% (71/158)
Non-Hispanic White	28.4% (45/158)
Black	11.4% (18/158)
Asian	7.6% (12/158)
Other	6.3% (10/158)
Insurance Type	
Public	55.6% (88/158)
Private	44.3% (70/158)
Obstetric Visits	158
Prenatal Care Providers	
OB/MD	12% (19/158)
NP	41.1% (65/158)
CNM	7.6% (12/158)
MFM	39.3% (62/158)
Preeclampsia Risk Screen	
% performed and documented	37.8% (60/158)
By Provider Type	
OB/MD	0%
NP	70% (42/60)
CNM	17% (10/60)
MFM	13% (8/60)
LDASA Eligibility Criteria Met	
High-Risk Factors ¹	33% (20/60)
Patients prescribed LDASA	75% (15/20)
Moderate-Risk Factors ²	25% (15/60)
BMI>30	(9/15)
AMA	(8/15)
Black Race	(4/15)
Nulliparity	(3/15)
IVF pregnancy	(3/15)
Prior adverse pregnancy outcome	(2/15)
Interpregnancy interval >10 years	(1/15)
Patients prescribed LDASA	60% (9/15)
Eligible for LDASA	58% (35/60)
Prescribed LDASA	51% (18/35)
Not Prescribed LDASA	48.9% (17/35)
Declined	58.5% (10/17)
Already Prescribed	17.6% (3/17)
Will obtain over the counter	23.5% (4/17)
Not Documented	62% (98/158)
LDASA prescribed by alternative provider	36% (35/98)
MFM	88.6% (31/35)
Total LDASA prescribed or previously prescribed	37.3% (59/158)

- History of preeclampsia, diabetes, chronic hypertension, renal disease, autoimmune disease, and multiple gestations
- Nulliparity, interpregnancy interval greater than 10 years, obesity, family history of preeclampsia, black race, low socioeconomic status, age of 35 years or older, history of low birthweight or small-for-gestational age, previous adverse pregnancy outcome, and IVF pregnancy

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Table 2: Baseline rates of hypertensive disorders in UCSD patients with at least 2 or more moderate risk factors for pre-eclampsia

Total Deliveries	1522
Patients with at least 2 or more of following risk factors: Black Race, Nulliparous, AMA, BMI >30	11.1% (169/1522)
LDASA Smart-phrase Completed	89% (150/169)
LDASA Prescribed in Chart	42% (71/169)
Patient reports taking LDASA	42% (71/169)
Patients with diagnosis of Hypertensive Disorder in Pregnancy	29% (49/169)
LDASA Smart-phrase Completed	86% (42/49)
LDASA Prescribed in Chart	53% (26/49)
Patient reports taking LDASA	47% (23/49)
Patients without diagnosis of Hypertensive Disorder in Pregnancy	71% (120/169)
LDASA Smart-phrase Completed	90% (108/120)
LDASA Prescribed in Chart	38% (45/120)
Patient reports taking LDASA	40% (48/120)
Diagnosis	
Chronic Hypertension	27% (13/49)
Superimposed Preeclampsia with Severe Features	14% (7/49)
Gestational Hypertension	22% (11/49)
Preeclampsia without Severe Features	8% (4/49)
Preeclampsia with Severe Features	24% (12/49)
HELLP Syndrome	4% (2/49)

Figure 1: LDASA Eligibility Smart Phrase

Preeclampsia risk screen:

High-Risk Factors (Recommend prophylactic low dose aspirin (81 mg/day) initiated ideally between 12-16 weeks to be continued daily until delivery if any of these risk factors are present):

[Preeclampsia risk high:33326451]

- Preeclampsia in a previous pregnancy
- Multifetal gestation
- Chronic hypertension
- Pregestational diabetes (type 1 or type 2)
- Kidney disease
- Autoimmune disease (SLE, APLS, RA)
- N/A

Moderate-Risk Factors (Recommend prophylactic low dose aspirin (81 mg/day) initiated ideally between 12-16 weeks to be continued daily until delivery if more than 1 of these factors are present):

[Preeclampsia risk moderate:33326452]

- Nulliparity
- Interpregnancy interval more than 10 years
- Obesity (BMI > 30)
- Family history of preeclampsia (mother or sister)
- Black race (based on patient self-report)
- Low socioeconomic status
- AMA (age > 35)
- History of pregnancy affected by low birth weight or SGA
- Patient born with low birth weight or SGA
- Prior adverse pregnancy outcome
- In vitro fertilization
- N/A

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Results and Outcomes

- 38% percent of new obstetric visits had the preeclampsia risk screen documented.
- Among screened patients, 33% met eligibility criteria for LDASA based on high-risk factors alone, while 25% met criteria based on multiple moderate-risk factors alone.
- The most common moderate-risk factors were BMI >30, AMA, and Black race.
- Among patients meeting criteria based on moderate-risk factors alone, 60% were prescribed LDASA, compared to 75% among those meeting criteria based on high-risk factors alone.
- Out of all patients meeting LDASA criteria, 51% received LDASA.
- Around 89% of patients meeting LDASA criteria based on multiple moderate risk factors were screened for LDASA compliance using the smart-phrase. Over 40% of them had LDASA prescribed or reported taking it during pregnancy.
- Among patients with a diagnosis of a hypertensive disorder in pregnancy, 86% had the LDASA smart-phrase completed, 53% of those had LDASA prescribed, and 47% reported taking LDASA.

Recommendations

- Over one-third of new obstetric visits had a preeclampsia risk screen documented.
- Many of our patients were found to be at-risk by moderate factors alone, which demonstrates the importance of a thorough screening tool.
- Provider compliance with LDASA smart-phrase use at time of admission for delivery was close to 90% for patients with moderate risk factors.
- Nearly half of patients with a hypertensive disorder of pregnancy took LDASA during pregnancy or had LDASA prescribed in chart.
- We plan to perform additional provider education for improved rates of preeclampsia screening and LDASA smart-phrase use.
- Ultimately, we hope to improve our preeclampsia screening rates and prescription of LDASA to eligible patients, particularly in those with moderate risk factors.