

Introduction

- Preterm delivery occurs between the gestational age of 20 weeks 0/7 days and 36 weeks 6/7 days.¹
- One in 10 pregnancies in the USA ends in preterm delivery.²
- Approximately 70% of preterm deliveries occur in the late preterm period (34 weeks 0/7 days to 36 weeks 6/7 days).
- Complications of late preterm delivery include neonatal respiratory distress, pulmonary hypoplasia, and other potentially chronic or fatal fetal outcomes.³
- ALPS study demonstrated the benefits of steroid administration in the late preterm period.
- Late preterm steroid administration is supported by Society of Maternal-Fetal Medicine (SMFM) guidelines. This practice was adopted at St. Francis Hospital in 2016.⁴
- There is a rising trend of steroid administration greater than seven days before delivery with observed neonatal respiratory impairment.^{5,6}
- Observational data demonstrates that OB-GYNs practicing in our institution do not always prescribe antepartum betamethasone in accordance with SMFM Guidelines as established by ALPS study.
- This trend prompted development of a simple decision-making algorithm based upon SMFM guidelines to assist physicians in determining if patients meet the criteria for antepartum betamethasone administration.

Methods and Materials

- 20 clinical scenarios were developed encompassing late preterm patient scenarios and whether betamethasone should be administered.
- Four MFM Specialists reviewed the scenarios and agreed on the correct responses.
- All 20 OB-GYN Residents at our institution completed the pretest without the use of the ALPS Algorithm (ALPSA).
- Post-test was repeated with the use of ALPSA.
- Two surveys were completed, assessing ease & satisfaction with the use of the algorithm.
- Percentages were calculated. Pre- and post-tests were compared using a paired t-test. P value < 0.05 was considered significant.

Figure 1: ALPS Eligibility Criteria

Eligibility Checklist: Late Preterm Steroid Administration
THE PATIENT MUST MEET ALL OF THE FOLLOWING:
• Singleton Gestation (<u>OR</u> twin gestation reduced to singleton-before 14w0d)
• Gestational Age between 34w0d to 36w5d
• No prior steroids for fetal lung maturity earlier in this pregnancy
• No evidence of intraamniotic infection (i.e., chorioamnionitis)
• None of the following: ◦ No history of diabetes (pregestational or gestational) ◦ No maternal contraindication to betamethasone ◦ Not a candidate for stress dose steroid
• Cervical dilation is not $\geq$ 8 cm
• Not expected to deliver ◦ In less than 12 hours from the current assessment ◦ In more than 7 days from the current assessment ◦ After 37 weeks of gestation
THE PATIENT MUST MEET AT LEAST ONE OF THE FOLLOWING:
• Preterm labor with intact membranes and $\geq$ 3 cm dilation
• Preterm labor with intact membranes and $\geq$ 75% effacement
• Spontaneous rupture of membranes
• Expected preterm delivery for the alternative indication (fetal growth restriction, gestational hypertension/preeclampsia, oligohydramnios, etc.)

Table 1: Sample Clinical Scenarios

Late Preterm Patient Clinical Scenarios
26 y/o G1P0 Hispanic woman presents at 34 weeks 2 days with contractions every 4 minutes. Her past medical & obstetrical history is unremarkable. Her cervical exam is 2/30/-3. <i>Would you give this patient betamethasone?</i>
38 y/o G2P0 Caucasian woman at 35 weeks 6 days presents to the hospital with preterm contractions and vaginal bleeding at 8:30 AM. Her past medical history is unremarkable. On admission, HR 85 bpm, BP 125/80. She is well-appearing. The abdominal exam is tender to palpation. Her cervix appears closed. You notice 150 cc blood in her vaginal vault. NST is reactive without decelerations. She is painfully contracting every 2 minutes. <i>Would you give this patient betamethasone?</i>

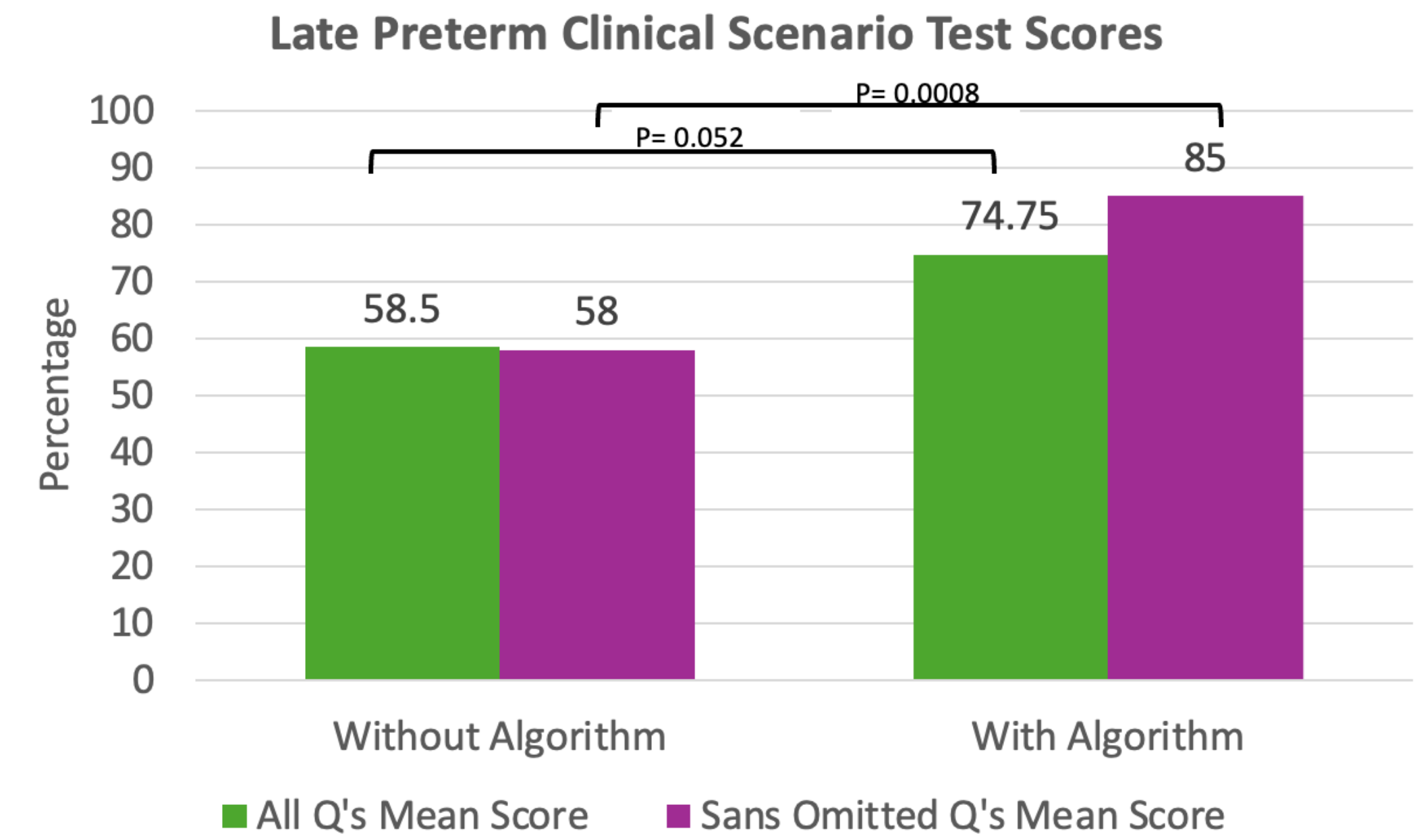
Results

- Greater than 50% of OB-GYN residents report regular use of decision-making algorithms.
- The ALPA significantly improved test survey scores for each resident.
- Scores further increased after excluding four questions that led to different outcomes pending clinical interpretation and judgment.
- No significant difference in resident years between clinical scenario test scores.

Table 2: Participant Ease & Satisfaction of Algorithm Use

	N (%)
1. I am satisfied with how easy it is to use the checklist	18 (90%)
2. The checklist is simple	17 (85%)
3. I quickly learned how to use the checklist	17 (85%)
4. I feel comfortable using the checklist	18 (90%)
5. The organization of the information in the checklist is clear	16 (80%)
6. The checklist helps me be more confident about my decisions to give (or not give) betamethasone	16 (80%)
7. I believe I made a better clinical decision to give (or not give) betamethasone after using the checklist	16 (80%)
8. The information provided by the checklist is effective in helping me decide to give (or not give) betamethasone	18 (80%)
9. The checklist helps me justify my clinical decision to give (or not give) betamethasone to others	17 (85%)
10. I believe I became more confident in my clinical decision to give (or not give) betamethasone because of the use of the checklist	17 (85%)
11. Overall, I am satisfied with the checklist	17 (89.5%)
12. I would recommend the use of the checklist to other clinicians	16 (84.2%)

Figure 2: Pre-and Post-Algorithm Survey Scores



Discussion

- Study demonstrated the ALPSA significantly improved questionnaire scores reflecting improved decision-making surrounding the administration of betamethasone in the late preterm period.
- Residents were satisfied with the use of the tool and felt that its use increased their confidence in clinical decision-making.
- Most residents would recommend the use of the checklist to other clinicians.
- ALPSA may help physicians make more appropriate decisions surrounding the timing of betamethasone administration.
- The study's strengths include the before-and-after design with the same residents and the use of realistic cases with correct answers agreed on by four MFM specialists.
- The study may have limited generalizability as the subjects were residents of one institution.
- There is potential to expand the study to residents in other residency programs as well as OB-GYN attending physicians.

Conclusion

- The ALPSA is an easy tool to use to aid in decision-making surrounding the administration of betamethasone in the late preterm period.
- The use of this algorithm may help clinicians avoid misuse of antepartum antenatal steroids.

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