A randomized trial to improve clinical estimation of fetal weight through self-evaluations via text messages

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Disclosure Statement
I have no financial disclosures to make.

Learning Objectives
1. To identify different methods for estimation of fetal weight in the antepartum period
2. To recognize factors that can influence clinical estimations of fetal weight
3. To present a simple intervention that can improve the accuracy of this important clinical skill in OB/GYN residents
Doctor, how big is my baby?

42-71%*

50-73%*

55-74%*


Factors influencing accuracy of fetal weight estimations

Background

Current research:
- Comparison of methods
- Factors influencing accuracy

Research gap:
- Ways to improve accuracy
- Estimation by palpation was chosen
Is there a way to improve this important clinical skill?

To evaluate if weekly self-evaluations through text messages improve the accuracy of clinical fetal weight estimation in OB/GYN interns

Study Design

- **Design:** Randomized trial (IRB UMKC ID: 17-147)
- **Participants:** UMKC OB/GYN 2017 intern class
- **Primary outcome:** Percentage of error within 10% of actual birth weight
- **Secondary outcome:** Influence of other non-clinical variables
- **Power Analysis:** 100 estimations performed by each group in order to find a 20% difference between the groups
- **Included:** Documented estimations performed in term patients between July and December

Study Design

- **2017 Intern Class**
- **Intervention:**
  - "Remember to keep track of your progress with cervical exams when checking patients in labor"
  - "Remember to keep track of your efficiency with ED rounding and the factors affecting it"
- **Control:**
  - "Remember to keep track of your progress with cervical exams when checking patients in labor"
  - "Remember to keep track of your efficiency with ED rounding and the factors affecting it"
Study Design

Intervention group ONLY:

- From 1 to 10, how would you rate your level of accuracy estimating fetal weight by palpation at this point in your training?
- How many grams were you off the most when you calculated EFW by palpation on admitted patients?
- Are your estimation of fetal weight by palpation skills improving?

Study Design

Minimizing observer effect:

- Participants were blinded to the primary outcome of the study
- Self-evaluation forms were filled out using a research code rather than participant names
- Both groups received 2 messages per week and at the same time

Results: Table 1. Baseline Characteristics

<table>
<thead>
<tr>
<th>Baseline Characteristics</th>
<th>Intervention Group N=100</th>
<th>Control Group N=100</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>27.28±6.39</td>
<td>26.32±5.81</td>
<td>0.221</td>
</tr>
<tr>
<td>Primiparous</td>
<td>29%</td>
<td>29%</td>
<td>0.5</td>
</tr>
<tr>
<td>BMI 30 to 34.5</td>
<td>32.3%</td>
<td>15.2%</td>
<td>0.234</td>
</tr>
<tr>
<td>BMI 35 to 39.9</td>
<td>15.2%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>BMI &gt;40</td>
<td>16.2%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gestational</td>
<td>14%</td>
<td>11%</td>
<td>0.756</td>
</tr>
<tr>
<td>Pre-gestational</td>
<td>2%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Growth ultrasound within 4 weeks of admission</td>
<td>41.0%</td>
<td>32.0%</td>
<td>0.166</td>
</tr>
</tbody>
</table>
Results: Table 2. Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intervention Group</th>
<th>Control Group</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimation within 10% of actual birth weight</td>
<td>63%</td>
<td>42%</td>
<td>0.003</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>&lt;10% Error N=105</th>
<th>10% Error or more N=95</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day team admission</td>
<td>43 (41%)</td>
<td>29 (30.5%)</td>
<td>0.125</td>
</tr>
<tr>
<td>Correlation between # of deliveries and % error</td>
<td>Spearman correlation: 0.27</td>
<td>0.706</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

- The accuracy of clinical estimations of fetal weight in OB/GYN interns can be improved with this simple, inexpensive and automated intervention
- Why the intervention was successful:
  - Consistent self-awareness
  - Immediate feedback
  - Use of a widely used medium

References

Questions?
Thank you for your time and attention