

# Amniotic Fluid Index or Deepest Vertical Pocket?

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# Amniotic Fluid Index or Deepest Vertical Pocket?

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## Abstract:

**INTRODUCTION:** A 2009 Cochrane review found that amniotic fluid index (AFI) use increases the rates of oligohydramnios and labor induction without improvement of perinatal outcomes. We thus sought to determine the use of either AFI or DVP among Society of Maternal Fetal Medicine (SMFM) members.

**METHODS:** Registered SMFM members were contacted via mail 9/2012 and 2/2013 and asked to participate in a web-based survey addressing the use of AFI and DVP.

**RESULTS:** 212 members participated (9.9%). DVP was considered the most accurate method of evaluating amniotic fluid in the second trimester regardless of years since fellowship ( $\leq 10$  years 61.8% vs.  $> 10$  years 68.9%,  $p=0.18$ ) or practice type (academic 35.5% vs. non-academic 47.1%,  $p=0.36$ ). AFI was considered the most accurate method of evaluating fluid in the third trimester regardless of years since fellowship ( $\leq 10$  years 60.3% vs.  $> 10$  years 53.9%,  $p=0.59$ ) or practice type (academic 62.7% vs. non-academic 73.9%,  $p=0.50$ ). Most respondents thought antepartum interventions were more common when fluid is documented as low by AFI (graphs). 111 respondents (52.3%) replied oligohydramnios is overdiagnosed when using AFI vs. DVP. Of 72 using AFI, 50% replied they were unsure the Cochrane review merited a practice change, 41.7% replied that it is hard to change from using AFI, and 30.6% thought more data favoring DVP is needed.

**CONCLUSIONS:** Variations in evaluating amniotic fluid persist, suggesting the need for consensus in the diagnosis and management of low amniotic fluid in singleton gestations.

## Objectives:

A 2009 Cochrane report suggested that the single DVP measurement in the assessment of amniotic fluid volume seems a better choice than AFI since data suggest AFI increases the rate of diagnosis of oligohydramnios and the rate of induction of labor without improvement of perinatal outcomes.<sup>1</sup>

The Cochrane review reviewed 5 randomized controlled trials involving women with a singleton pregnancy, whether at low or high risk, undergoing amniotic fluid measurement via ultrasound as part of antenatal testing that compared AFI and the single DPV measurement.

Given the results of this review, we sought to determine the current use of either AFI or DVP among Society of Maternal Fetal Medicine (SMFM) registered members.

## Methods:

2198 registered SMFM members were identified and contacted via mail twice, in September 2012 and February 2013, and asked to participate in a web-based survey addressing the use of AFI and DVP in their practices. Baseline demographic and practice data was obtained. Comparisons were made with chi-square analysis or Fisher's exact test for categorical variables. For statistical analysis, we used Stata 9.0 SE software (Stata, College Station, Texas, USA). Institutional Review Board approval was obtained for the study.

## Results:

- 212 members participated for a 9.9% response rate
  - 128 members responded after the first mailing
  - 84 additional responses were obtained after the second mailing

### Demographics of Survey Respondents (% ,n)

#### 1 Years since completion of fellowship in Maternal Fetal Medicine

- $> 10$  years: 60.7% (128)
- $< 5$  years: 23.7% (50)
- 6-10 years: 10.0% (21)

#### 2 Type of practice

- Private practice with inpatient and outpatient consultations: 11% (23)
- Private practice with inpatient/outpatient consultations and obstetric care: 12.4% (26)
- Community hospital, with academic affiliation: 10.0% (21)
- Community hospital, without academic affiliation: 6.7% (14)

#### 3 Number of deliveries performed at your institution per year

- $> 3000$  deliveries: 54.1% (113)
- 1000-3000 deliveries: 38.8% (81)
- $< 1000$  deliveries: 3.3% (7)
- n/a: 3.8% (8)

#### 4 Average number of ultrasounds performed in your institution per year

- $> 7500$  ultrasounds: 53.1% (111)
- 5000-7500 ultrasounds: 27.8% (58)
- $> 1000$ , less than 5000 ultrasounds: 17.2% (36)

#### 5 AIUM certified practice – 75.5% (157)

#### 6 Average number of physicians in the practice - 32

## Survey Results

- **DVP** was considered the most accurate method of evaluating amniotic fluid in the second trimester regardless of years since fellowship ( $\leq 10$  years 61.8% vs.  $> 10$  years 68.9%,  $p=0.18$ ) or practice type (academic 35.5% vs. non-academic 47.1%,  $p=0.36$ ).
- **AFI** was considered the most accurate method of evaluating fluid in the third trimester regardless of years since fellowship ( $\leq 10$  years 60.3% vs.  $> 10$  years 53.9%,  $p=0.59$ ) or practice type (academic 62.7% vs. non-academic 73.9%,  $p=0.50$ ).
- Most respondents thought antepartum interventions were more common when fluid is documented as low by **AFI** (bar graphs).
- When asked which intrapartum interventions were more common when fluid was documented as low, most respondents said none (51%,  $n=101$ ) followed by cesarean delivery (32.8%,  $n=65$ ).
- Of those who use **AFI**, most singleton pregnancies with low fluid between 34-36 weeks gestation were managed simultaneously with antenatal testing (90.4%,  $n=151$ ), fetal growth evaluation (76.0%,  $n=127$ ) and repeat AFI in 1-2 days (71.9%,  $n=120$ ).
- Of those who use **AFI**, most singleton pregnancies with low fluid  $> 37$  weeks are evaluated for delivery (88.0%,  $n=147$ ).
- Of those who use **DPV**, most singleton pregnancies with low fluid between 34-36 weeks gestation were managed simultaneously with antenatal testing (60.9%,  $n=112$ ), fetal growth evaluation (48.9%,  $n=90$ ) and repeat AFI in 1-2 days (46.2%,  $n=85$ ).
- Of those who use **DPV**, most singleton pregnancies with low fluid  $> 37$  weeks are evaluated for delivery (54.1%,  $n=99$ ).
- 111 respondents (52.3% out of 198 respondents) replied oligohydramnios is overdiagnosed when using AFI vs. DVP.
- 68.8% of 199 respondents ( $n=137$ ) were aware of the 2009 Cochrane report suggesting that the single DVP measurement in the assessment of amniotic fluid volume seems a better choice than AFI.
- Of those who were aware of the report, 61 out of 137 (44.5%) have preferred using DVP over AFI in their practice; 75 have continued to use AFI.
- Barriers in making a change from AFI to DPV use were as follows ( $n=72$ )
  - 50% replied they were unsure the Cochrane review merited a practice change
  - 41.7% replied that it is hard to change from using AFI
  - 30.6% thought more data favoring DVP is needed

## Conclusion:

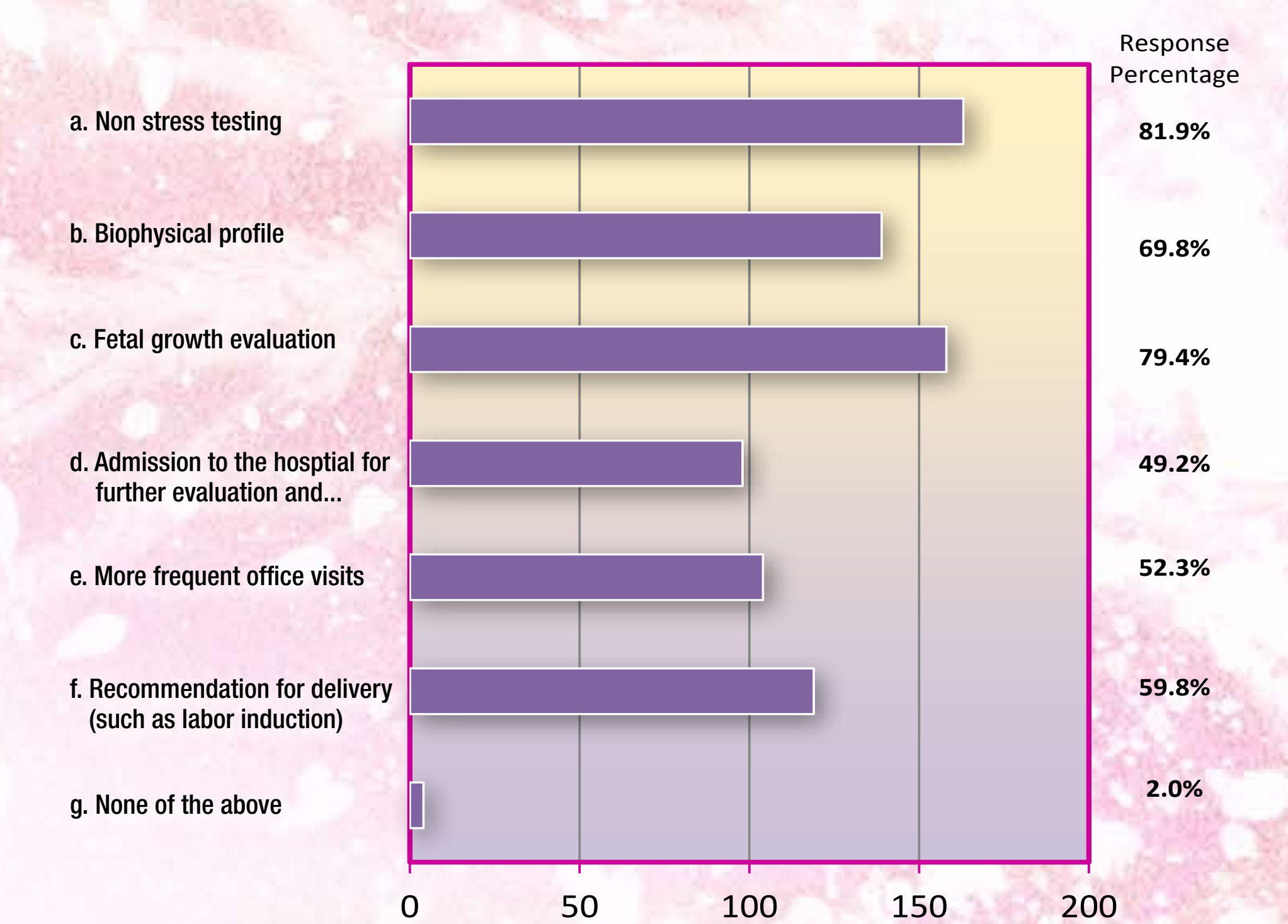
Variations in evaluating amniotic fluid persist among surveyed members of the Society of Maternal Fetal Medicine despite the Cochrane review findings. Our data suggest the need for consensus in the diagnosis and management of amniotic fluid in singleton gestations given the concern for management and decision-making which may vary depending on the method used to measure amniotic fluid in singleton gestations.

## Reference:

1. Nabhan AF, Abdelmoula YA. Amniotic fluid index versus single deepest vertical pocket as a screening test for preventing adverse pregnancy outcome. Cochrane Database of Systematic Reviews 2008, Issue 3. Art No: CD006593.

In a singleton gestation, which antepartum interventions do you think more commonly take place when fluid is documented as low?

(may choose more than one if applicable)



If you selected any of the interventions a-e in the previous question, do you think those interventions occur more commonly when the fluid is documented as low by which method?

