



Free Pregnancy Testing Increases Maternity Care Volume in Family Medicine Residencies

Julia Oat-Judge, MD; Shelley L. Galvin, MA; Daniel J. Frayne, MD

BACKGROUND AND OBJECTIVES: Increased prenatal volume in family medicine residencies is associated with a higher proportion of graduates including maternity care in their post-residency practices. However, family medicine residencies struggle just to meet the Residency Review Committee's minimum requirements for maternity care volume. Our objective was to evaluate the effectiveness of free pregnancy testing on increasing maternity care volume in our residency.

METHODS: In this before-after intervention study, free pregnancy testing was offered at the residency's Family Health Center (FHC) from May 2011 through November 2012 to established patients and non-patients. Participants with positive tests were provided information on maternity care and an opportunity to schedule an initial prenatal visit. The primary outcome was the percentage of self-referred patients who established prenatal care at FHC.

RESULTS: Over 19 months, 241 tests were performed on 224 women with a mean age of 26.2 ± 6.3 . Over half were minorities (130 [58%]). Most were under-insured or uninsured (193 [86.1%]). Ninety-nine women (41.1%) had positive tests; 74 of these 99 women (74.7%) established prenatal care at FHC, and 57 of these 74 women (77%) were new patients. The number of obstetric patients increased 13% from 405 to 456 patients. The percentage of self-referred patients increased from 31.9% to 40.8% ($P < .001$). The total cost of 241 pregnancy tests was \$256.24, and maternity care revenue for just one patient was \$1,553.

CONCLUSIONS: The program's return on investment is favorable. Offering free pregnancy testing is a simple and inexpensive way to increase maternity care volume in a family medicine residency.

(Fam Med 2015;47(6):470-3.)

residency is predictive of future practice. A survey of family medicine residency program directors indicated 50.1% of graduates from programs with 25 or more deliveries monthly were practicing obstetrics immediately post-residency as compared to 36.8% of graduates from programs with 10–24 deliveries monthly and 22.7% of graduates from programs with fewer than 10 deliveries monthly.⁵

Increasing maternity care volume in a family medicine residency program can be challenging, and the majority of residencies struggle to meet minimum standards of the Residency Review Committee (RRC). According to an RRC analysis, 51% of family medicine residencies received citations in maternity care, the highest for all curricular areas.⁶ A PubMed search on increasing prenatal care volume in family medicine residencies revealed a single report of a residency that increased volume by collaborating with a health department, birthing center, and private family physicians.⁷ A PubMed search on the impact of free pregnancy testing yielded a single study that concluded free pregnancy testing was a factor in increasing the

Family physicians continue to provide a small but important proportion of prenatal care in the United States, with 6.1% of overall prenatal visits and 12.9% of prenatal visits in non-metropolitan areas attributed to family physicians.¹ Rates of family physicians providing maternity care have steadily declined; the American

Board of Family Medicine indicated a decrease from 23.3% in 2000 to 9.7% in 2010.² The majority of family physicians who provide prenatal care perform 25 or fewer deliveries annually.³ Maternity care is more common among providers in the West and Midwest regions and in rural or poor communities.⁴ The volume of maternity care experience in

From the Division of Family Medicine (Drs Oat-Judge and Frayne); and Center for Research, Division of Healthcare Innovation (Dr Galvin), Mountain Area Health Education Center, Asheville, NC.

percentage of new prenatal patients registering in the first trimester.⁸ Our objective was to evaluate the effectiveness of free pregnancy testing on increasing maternity care volume in a family medicine residency.

Methods

Setting

The Mountain Area Health Education Center in Asheville, NC, administers a 3-year family medicine residency with nine residents per class serving Buncombe County (population 244,490)⁹ with full-scope primary care services. The only competing residency is MAHEC's OB-GYN residency. Approximately 3,800 deliveries occur annually at one community hospital; approximately 180 are attended by family medicine residents.

Intervention

Free pregnancy testing was offered to established patients and non-patients from May 2011 through November 2012. Women with positive tests received a 3-month supply of prenatal vitamins and information about folic acid, pregnancy options, and our maternity services. They were invited to schedule an initial

prenatal visit and meet with a financial counselor. Women with negative tests received a 1-year supply of standard multivitamins and information about folic acid, preconception planning, contraception, financial resources, and maternity services. To publicize the free pregnancy test program, English and Spanish-version fliers were posted in supermarkets, laundromats, shopping centers, bus stops, restaurants, emergency rooms, public assistance offices, schools, and our clinic. Advertisements were placed in English- and Spanish-language free newspapers. All expenses related to the intervention were paid for by a March of Dimes block grant. Third-party payers were not billed for pregnancy tests.

Design

This before-after intervention study was approved by the Mission Health Institutional Review Board. Women undergoing free pregnancy testing completed a brief consent form (English or Spanish) and provided demographics including date of birth, race, ethnicity, insurance, primary

care provider, and advertisement exposure.

The electronic medical record was queried for care established within 3 months of a positive pregnancy test (yes/no). Our prenatal registry provided the percentage of self-referred patients initiating prenatal care. Organizational productivity reports provided prenatal care and delivery rates 19 months prior (May 2009–November 2010) and during the intervention. Comparisons between women initiating versus not initiating care used *t* test (age) and chi square (race, ethnicity, insurance); before-after comparisons used chi square analysis in SPSSv21.1.

Primary Outcome Measure

The primary outcome measure was the percentage of self-referred patients who established prenatal care in our clinic before versus after the intervention.

Results

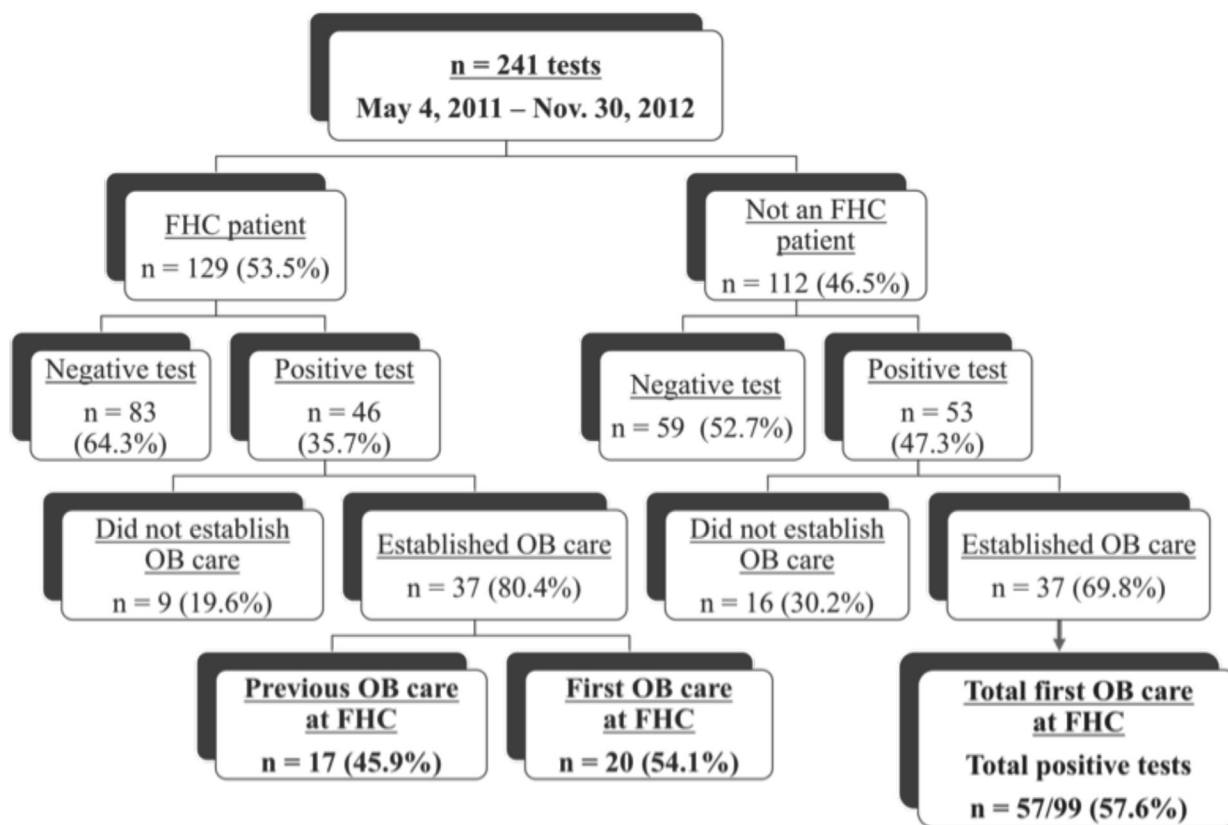
Over the 19-month intervention, 241 tests were performed on 224 women ranging in age from 16 to 46 years ($M=26.2\pm6.3$). Over half were minorities (130 [58%]). Most were underinsured or uninsured (193 [86.1%];

Table 1: Characteristics of Women Using the Free Pregnancy Testing*

	n (%)
Race	
Caucasian	131 (58.5)
African-American	38 (17)
Asian	4 (1.8)
Other	29 (12.9)
Unknown	22 (9.8)
Ethnicity	
Hispanic	59 (26.3)
Non-Hispanic	160 (71.7)
Unknown	5 (1.8)
Insurance	
None	102 (45.5)
Medicaid	76 (33.9)
Private	27 (12.1)
Other	15 (6.7)
Unknown	4 (1.8)

* n=224

Figure 1: Flow Diagram of Free Pregnancy Testing Outcomes



see Table 1]. Ninety-nine (41.1%) participants had positive tests; 74 of the 99 (74.7%) established prenatal care, 57 of the 74 (77%) for the first time (see Figure 1).

There were no significant differences in demographics between those who initiated care versus those who didn't ($P \geq .05$).

The overall number of FHC prenatal patients increased 13%, from 405 to 456 patients. The OB-GYN residency that did not offer free pregnancy testing reported a 5% increase in prenatal patients, from 2,517 to 2,643.

The percentage of self-referred patients who established prenatal care with FHC increased from 31.9% (129/405) to 40.8% (164/456, $P \leq .001$). FHC observed a 2.7% increase in deliveries. The OB-GYN residency and Mission Hospital reported declines—8.1% and 1.4%, respectively. The total cost of 241 pregnancy tests

was \$256.24. Potential revenue from one patient who qualifies for medical assistance and receives routine prenatal care and delivery with our practice is \$1,553.

Discussion

This study demonstrated a significant increase in the percentage of self-referred prenatal care patients after a free pregnancy testing program was initiated. Notably, this modest, increased proportion occurred as the overall prenatal care volume and deliveries increased while deliveries in the community at large decreased.

Thirty-seven new and 20 existing patients established prenatal care for the first time—all of whom were exposed to the free pregnancy test program.

Limitations include the lack of a control group and the inability to control for potential confounding

variables, such as a multi-component intervention and variability in access. Data from one site limits generalizability of results to residencies with different characteristics including location, size, and other providers serving economically stressed patients. Future studies might examine the effectiveness of enhanced interventions such as including same-day prenatal intake appointments or telephone care management. Free pregnancy testing is an easy, inexpensive intervention that can increase the volume of prenatal care in a family medicine residency. Research is needed on the impact on compliance with RRC maternity care requirements and the percentage of family medicine graduates practicing maternity care in the future.

ACKNOWLEDGMENTS: Financial Support: March of Dimes grant for \$3,000 toward the intervention.

This study was a poster presentation at the 2013 Society of Teachers of Family Medicine Annual Spring Conference, Baltimore, MD.

CORRESPONDING AUTHOR: Address correspondence to Ms Galvin, Center for Research, Division of Healthcare Innovation, Mountain Area Health Education Center, 119 Hendersonville Road, Asheville, NC 28803. 828-771-5501. Fax: 828-251-0024. shelley.galvin@mahec.net.

References

1. Cohen D, Coco A. Declining trend in the provision of prenatal care visits by family physicians. *Ann Fam Med* 2009;7:128-33.
2. Tong ST, Makaroff LA, Xierali IM, et al. Proportion of family physicians providing maternity care continues to decline. *J Am Board Fam Med* 2012;25:270-1.
3. Rayburn WF, Petterson SM, Phillips RL. Trends in family physicians performing deliveries, 2003-2010. *Birth* 2014;41(1):26-32.
4. Tong ST, Makaroff LA, Xierali IM, et al. Family physicians in the maternity care workforce: factors influencing declining trends. *Matern Child Health J* 2013;17:1576-81.
5. Ratcliffe SD, Newman SR, Stone MB. Obstetric care in family practice residencies: a 5-year follow-up survey. *J Am Board Fam Pract* 2002;15:20-4.
6. Pugno PA, Epperly TD. Residency Review Committee for Family Medicine: an analysis of program citations. *Fam Med* 2005;37(3):174-7.
7. Helton M, Skinner B, Denniston C. Maternal and child health curriculum for family practice residents: results of an intervention at the University of North Carolina. *Fam Med* 2003;35(3):174-80.
8. Daily EF, Nicholas N. A free pregnancy testing service. *Fam Plann Perspect* 1973;5:1-6.
9. <https://quickfacts.census.gov/qfd/states/37/37-21/html>. Accessed January 30, 2014.