

# Comparison of Common High-Risk Pregnancy Conditions between Health Start and non-Health Start Participants

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## INTRODUCTION

Adequate prenatal care has been associated with a lower incidence of neonatal morbidity/mortality,<sup>1,2</sup> and national standards recommend that pregnant women begin receiving consistent prenatal care early in their pregnancy.<sup>3</sup>

According to a 2010 needs assessment published by the Arizona Department of Health Services (ADHS), only 79.4% of Arizona women received prenatal care in their first trimester of pregnancy in 2008, and the statistic was even lower (71.4%) among pregnant women enrolled in the Arizona Health Care Cost Containment System (ACCHS) – Arizona’s Medicaid program.<sup>4</sup>

Past and current ADHS needs assessments have noted several variables associated with disparate rates of early prenatal care: ethnicity and geographic location. Women receiving lower rates of early prenatal care tend to be either Hispanic or American Indian, and they tend to reside in rural counties.<sup>4</sup> Lower rates of prenatal care in these communities may be attributable to sociocultural factors that prevent women from seeking medical care in an American healthcare facility. Those who live in rural location may also have limited access to prenatal care resources because of geographical restrictions. The *Health Start* program was created with these disparities in mind.

Health Start is a program run by the ADHS that utilizes community health workers, also known as promotoras, to educate at-risk pregnant women and new mothers throughout many of the underserved regions of Arizona.<sup>5</sup> By relying on members of the community to reach out to women enrolled in Health Start, the program is able to overcome many of the cultural barriers that limit the impact of other intervention strategies.

## PROJECT SIGNIFICANCE

The Health Start Curriculum - the tool used to educate community health workers on prenatal and infant care - is currently undergoing a revision. This project examines medical risk factors and birth outcomes unique to Health Start participants in order to provide information that will be considered when revising the curriculum.

## STUDY AIMS / HYPOTHESIS

To examine the medical risk factor and birth outcome profiles of Health Start participants and compare these profiles to women of a similar age, race/ethnicity and socioeconomic status who are not actively enrolled in Health Start.

It is hypothesized that Health Start participants face unique medical risk factors and experience better birth outcomes than their matched counterparts.

## METHODS

•Study was a retrospective review of Arizona birth certificate data from a sample of 834 women who gave birth in Arizona in 2009.

•Sample was divided into 3 groups: 278 participants were actively enrolled in Health Start, 278 were enrolled but no longer active, 278 were part of a control group matched by age, race/ethnicity, and delivery method-of-payment.

•Prevalence of selected medical risk factors and birth outcomes (pre-determined by database) were tabulated for each group.

•Relative risk for each medical risk factor and birth outcome parameter was calculated using chi-square analysis.

•Statistical significance was determined utilizing a *p*-value of 0.05.

## RESULTS

### Comparison of Active Health Start Participants with Matched Controls:

- Rates of medical risk factors were relatively low for both groups.
- There were no statistically significant differences in the incidence of medical risk factors.
- Several medical risk factors *trended* toward significance: lower relative risk of anemia and higher relative risk of tobacco use among Health Start participants. (RR = 0.44, *p*=0.161, and RR = 2.00, *p*=0.151, respectively).
- Relative risk of pre-term delivery was notably less for women enrolled in Health Start (RR = 0.57, *p*=0.059).

Figure 1: Comparison of Medical Risk Factors between Health Start Participants and Matched Controls.

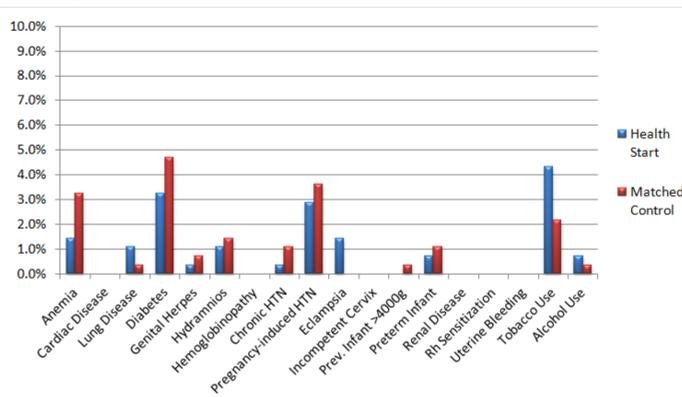
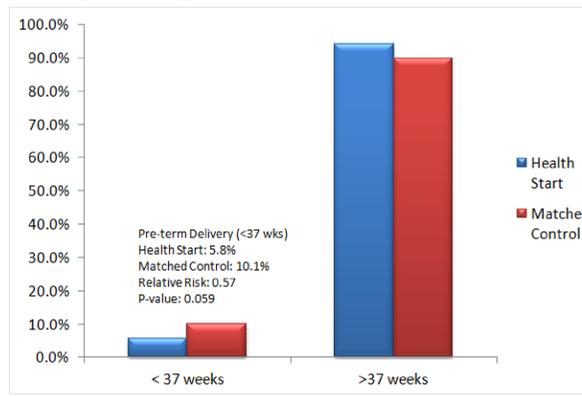


Figure 2: Rates of Preterm Delivery for Health Start Participants Compared with Matched Controls.



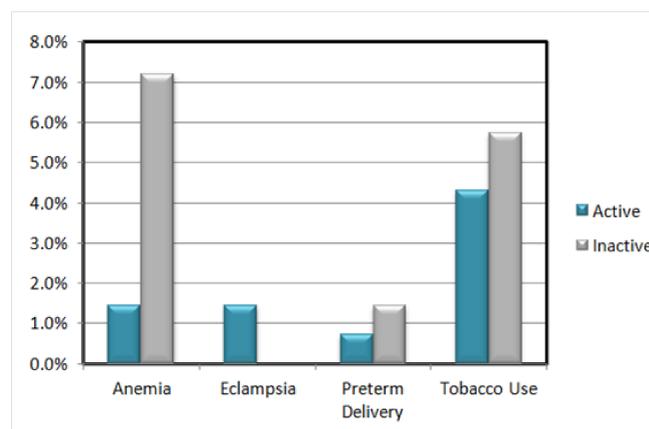
### Comparison of Active Health Start Participants with Inactive Enrollees:

- Half of women initially enrolled in Health Start who gave birth in Arizona in 2009 were inactive participants at the time of the study.
- Reasons for inactivity are listed in *Table 1*.
- Women who remained active in Health Start had significantly lower rates of anemia than those who enrolled in the program but were no longer active (1.4% vs. 7.2%, *p*-value = 0.001).
- Relative risks of tobacco use and preterm delivery were slightly lower for active Health Start participants (RR = 0.74, *p*-value 0.438, and RR = 0.50, *p*-value 0.412, respectively).

Table 1: Reason Given for Inactivity in Health Start Program by Inactive Enrollees.

Reason for Inactivity	Frequency	Percent
Administration closed	3	1.1%
Adoption	1	0.4%
Child removed from home	2	0.7%
Client declined program	38	13.7%
Completed family follow-up	9	3.2%
Death of child	2	0.7%
Lost to follow-up/moved	153	55.0%
Mother removed from home	1	0.4%
Not eligible	4	1.4%
Not pregnant; family planning	11	4.0%
Pregnancy loss	4	1.4%
Program closed	12	4.3%
Referred to specialized program	3	1.1%
Refused family follow-up	9	3.2%
Transferred out	1	0.4%
Withdrew from program	25	9.0%

Figure 3: Prevalence of Medical Risk Factors /Selected Birth Outcomes for Active Health Start Participants Compared with Inactive Participants.



## DISCUSSION

### Comparison of Active Health Start Participants with Matched Controls:

•Inability to identify any statistically significant differences in medical risk factors among Health Start group versus matched control population may be secondary to generally low incidence of medical risk factors and/or small sample size. A larger follow-up study is recommended.

•More research is indicated in order to elucidate reasons for increased tobacco usage among Health Start participants. Possible hypothesized causes include geographic variability in matched vs. control groups and increased self-reporting of tobacco use among Health Start participants.

•Lower rates of pre-term delivery among Health Start participants approached statistical significance. It is likely that a larger sample size would have revealed a statistically significant difference in rates of pre-term delivery. A larger follow-up study is recommended. Favorable pre-term delivery rates for Health Start participants suggest that the program is meeting specified goals and objectives.<sup>5</sup>

### Comparison of Active Health Start Participants with Inactive Enrollees:

•Of the original 556 Health Start participants randomly selected for the study, only 278 were actually still receiving regular visits from promotoras at the time of data collection. The remaining 278 women had closed/inactive files, which were unsuitable for comparison with the matched control group in the study.

•Reasons for participant inactivity are presented in *Table 1*. The most commonly reported for reason for inactivity was “lost to follow-up/moved,” reflecting the generally transient nature of the Health Start population. A follow-up study of this “lost to follow-up/moved” group would provide valuable information about risks faced by this vulnerable population of pregnant women.

•Active Health Start participants had a significantly lower prevalence of anemia than the inactive group. Anemia can lead to poor pregnancy and birth outcomes and increases maternal mortality,<sup>6,7</sup> thus lower rates of anemia among active Health Start participants reflects positively on the Health Start program. It is possible that Health Start participants who remained active in the program had better access to nutritional supplements like iron and thus had a lower prevalence of iron-deficiency anemia. In some communities, promotoras have been known to supply active Health Start participants with prenatal vitamins.<sup>8</sup>

## CONCLUSIONS

•None of the studied medical risk factors revealed a statistically significant difference in relative risk between Health Start group and matched control group.

•Outcomes differed between the groups; incidence of preterm delivery was notably less for active Health Start participants compared to matched control group.

•A larger follow-up study is recommended to better elucidate potential relationships between risk factors/birth outcomes and participation in the Health Start program.

•Prevalence of anemia was significantly less for active Health Start participants than for women who enrolled in Health Start but did not remain active in the program.

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