

# Mixed-Methods Assessment of Factors Influencing Periconceptional Folic Acid Supplementation, Uptake, and Adherence.

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## Background

- Adverse perinatal exposures associate with risk for child and adolescent psychopathology.
- Periconceptional folic acid supplements (PFS) prevent neural tube defects and substantially reduce autism risk, and folic acid has been shown to improve cortical development through adolescence (1).
- While national guidelines recommend PFS for people capable of pregnancy, adherence to this recommendation is low, especially in underserved populations.
- Our objective was to identify factors affecting folic acid prescription and patient uptake and adherence and identify innovative solutions to improve PFS in people capable of pregnancy.

## Methods

### Eligibility:

- Age 18+ years and health care providers and community health staff for women and people capable of pregnancy.

### Recruitment:

- E-mail recruitment through staff and Unit Chiefs for permission to conduct focus groups during practice meetings.

### Quantitative assessment:

- Participants completed a brief REDCap-based survey prior to focus group initiation covering demographic information and folic acid knowledge.

### Focus Groups:

- Focus groups were up to 45 minutes and conducted by video conference and hybrid, in person format. Interviews were recorded and transcribed.
- Interviews covered participants' perception of indications for PFS, provider role in PFS counseling and prescription, and interventions to improve PFS delivery and patient adherence.

### Analytic Methods:

- Research staff utilized an inductive analytic approach to review themes, and finalized themes were constructed into a codebook.
- Two coordinators reviewed all transcripts and assigned relevant codes based on the established codebook.
- Disagreements were resolved through consensus with 5 study staff.
- Supplementary codes were incorporated or refined as the coders analyzed more transcripts.

### Sample Codebook:

#### Category

#### Codes Included

Who is responsible for folic acid counseling and prescription?

- Provider Job Description\*
- Responsibility For Folic Acid

What patient-level factors influence folic acid prescription, uptake, and adherence?

- Sociodemographic Factors\*
- Pregnancy Intention
- Patient Self-Efficacy
- Patient Health

How much do providers and patients know about folic acid usage, benefits, and guidelines?

- Provider Folic Acid Knowledge\*
- Patient Folic Acid Knowledge

How and when is folic acid talked about in care visits?

- Provision of Folic Acid
- Pregnancy Timing

\*Code includes child codes.

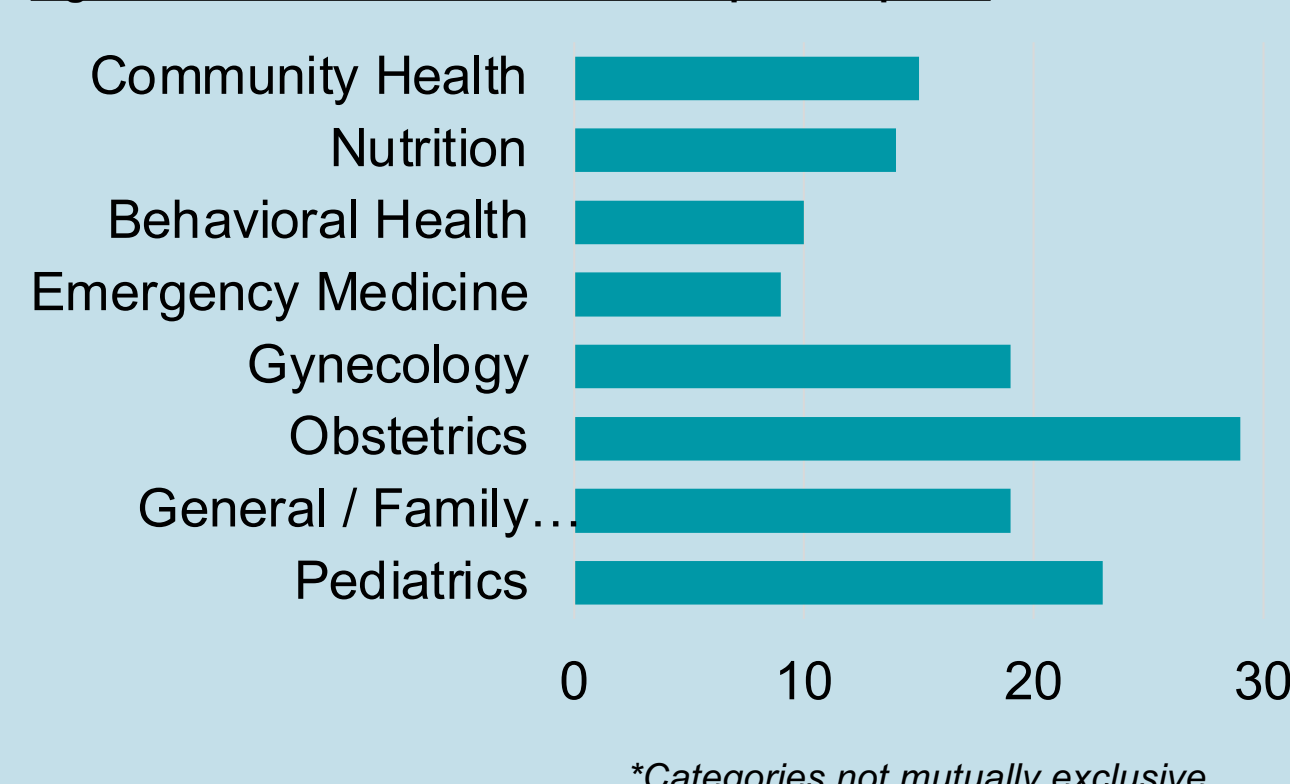
## Participant Characteristics

- Focus group participants ranged in age from 18-74, with most respondents (94.1%) between the ages of 25-64.
- 85.3% (n=58) of respondents self-identified as women, with the remaining 14.7% identifying as men.
- Participants came from a broad range of experience in clinical practice, ranging from 0-41 years.
- 79.4% of respondents (n=54) had either taken folic acid during their pregnancy or knew someone who had.
- Additional participant characteristics are shown in Table 1 and Figure 1.

Table 1. Selected Characteristics of the Study Population.

Years in Clinical Practice (N=53)		n (%)
Average years ± SD (years)		15.4 ± 11.2
Race / Ethnicity (N=68)*		
Black or African American	3 (4.5)	
Latino / Latinx / Hispanic	21 (30.9)	
Asian	8 (11.9)	
Multi-racial	7 (10.4)	
White / Caucasian	42 (62.7)	
Job Title (N=60)		
Physician	24 (40.0)	
Community Health Worker or Interpreter	12 (20.0)	
Nurse or Nurse Practitioner	4 (6.7)	
Midwife / Certified Nurse Midwife	14 (23.3)	
Social Worker	3 (5.0)	
Other	3 (5.0)	

Figure 1. Practice Areas of Focus Group Participants.

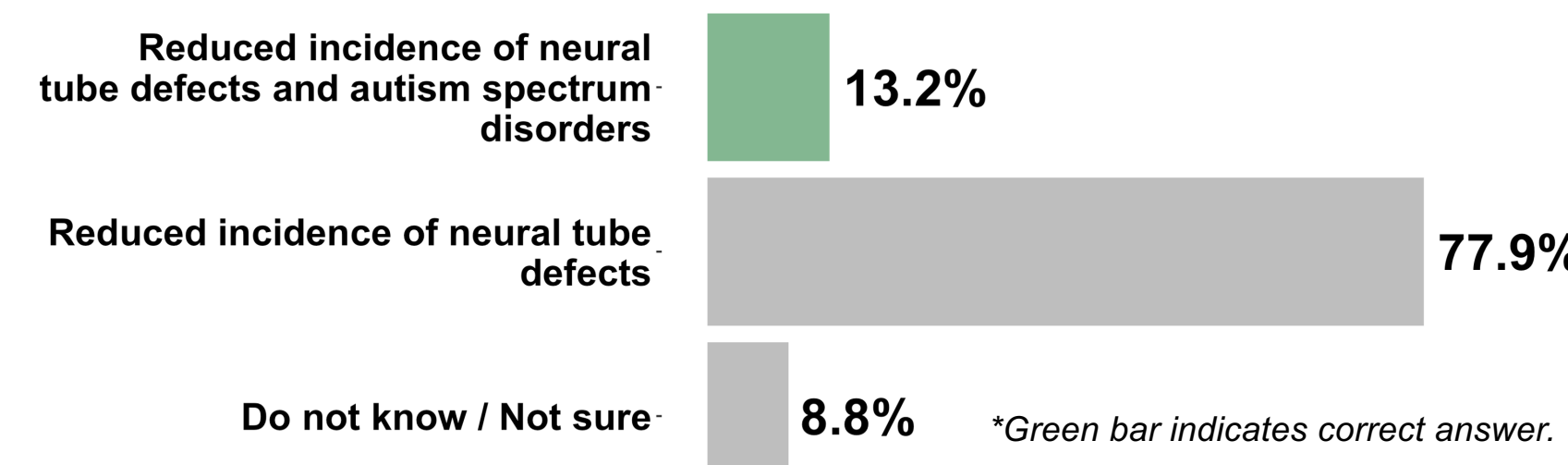


\*Categories not mutually exclusive.

## Results

### Focus Group Knowledge Survey

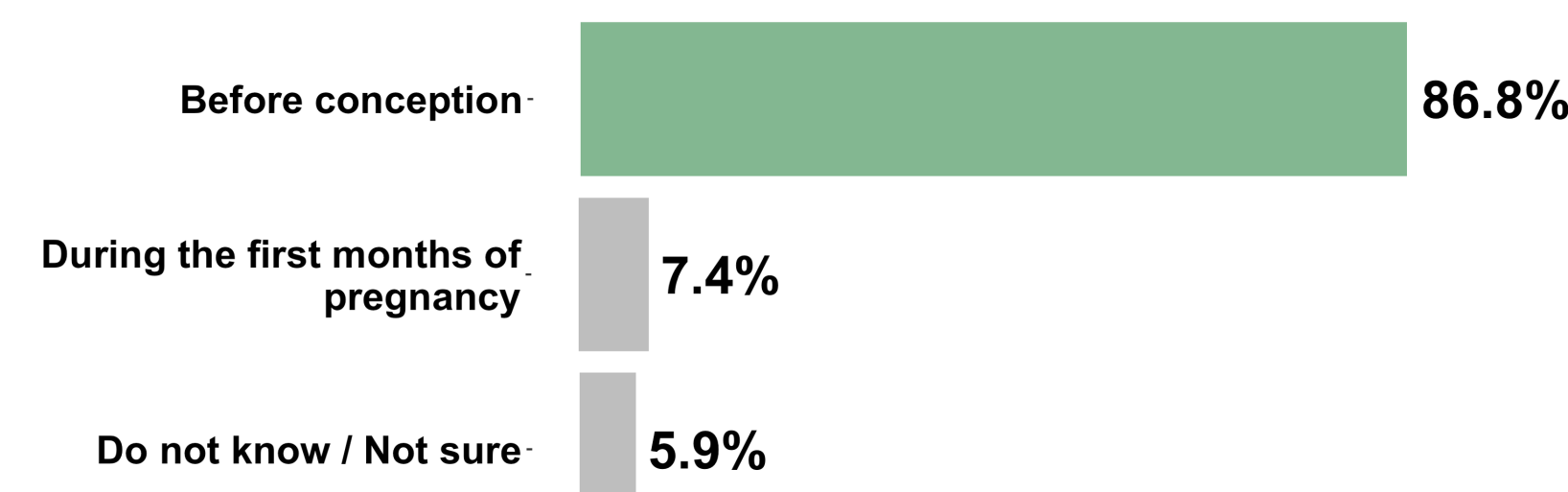
Taking folic acid supplements around the time of conception has been associated with:



\*Green bar indicates correct answer.

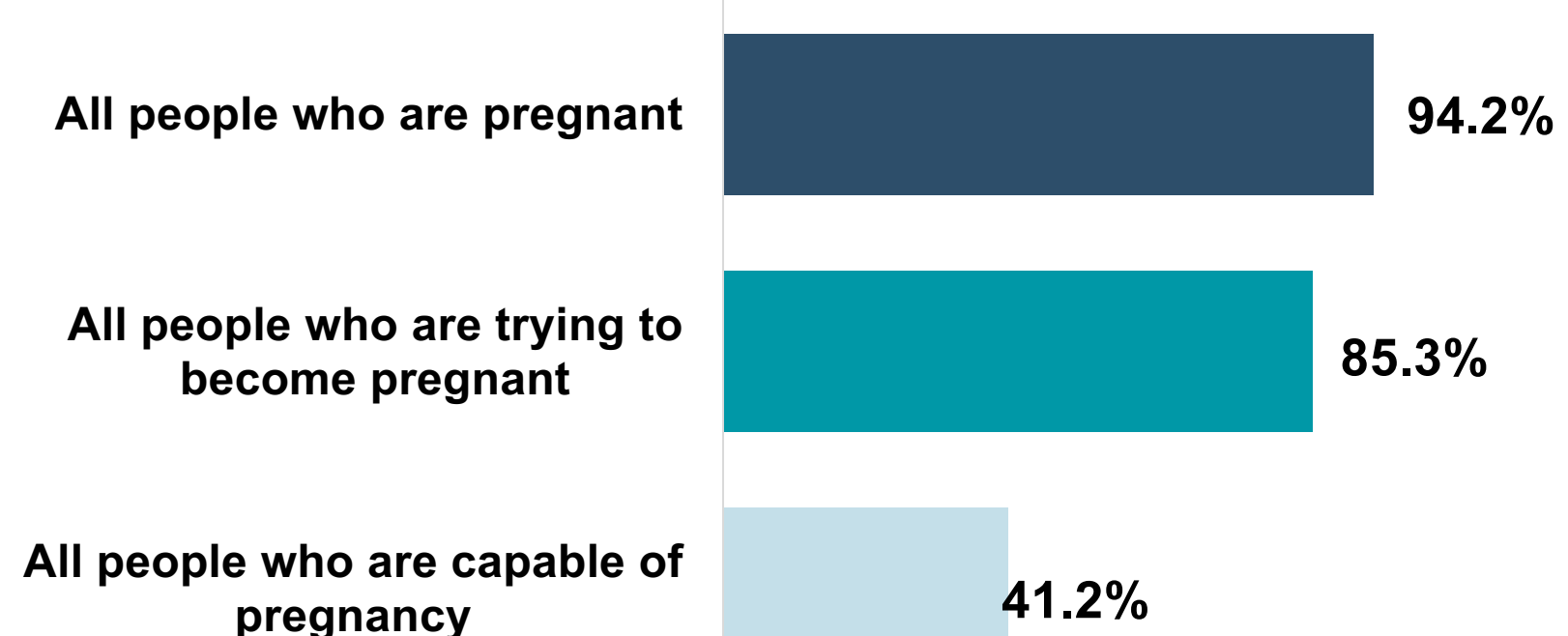
Only 13.2% of providers surveyed correctly identified the benefits of taking folic acid supplements around the time of conception.

When should someone start taking folic acid for it to be most effective in preventing birth defects?



The majority of providers surveyed (86.8%) correctly identified the best time to start taking folic acid as preconception.

According to current public health recommendations, who should take daily folic acid supplement pills (either by itself or as part of a prenatal vitamin)?



\*Categories not mutually exclusive.

94.2% of providers knew that all pregnant people should take PFS.

84.2% of providers knew that all people who are trying to get pregnant should be taking PFS.

Only 41.2% of providers knew that all people who are capable of pregnancy should be taking PFS.

## Common Motifs and Analysis of Quotes

### Motif 1: Perception of Responsibility for PFS Counseling.

"When you contacted us, my first thought was 'surely you don't want to talk to [our specialty]' ... I obviously know of supplementation, but it's not something that was really necessarily on my radar for our patients."

### Motif 2: Unplanned Pregnancy as a Barrier to PFS Uptake.

"But if [patients] are not thinking about having a baby, they are not going to go for these vitamins, even though they know it's important."

### Motif 3: Lack of Provider Knowledge as a Barrier to PFS Provision.

"If I were to learn...that [folic acid] is recommended [for] all women of childbearing years, even if they're not planning to get pregnant...then I think that I would change my anticipatory guidance towards that [so] then...I would be less of the barrier."

### Motif 4: Universal PFS Before Pregnancy as an Intervention.

"I usually prescribe a prenatal vitamin once they're pregnant. So, I think that this is maybe this should be more a preventative measure than a something that we pop in there with a positive pregnancy result."

### Motif 5: Reluctance to Preconceptional Folic Acid Based on Patient Age.

"I'm not sure how I would have...conversations with all older teenage women about being on a vitamin for the purpose of having a healthy pregnancy were they to get pregnant. I think it's actually kind of a hard conversation...There's room for a lot of assumptions of why you're telling that person that."

## Discussion

- Folic acid provision for birth-capable individuals is hindered by provider-level factors, spanning from knowledge of folic acid to the timing of provision.
- These factors may impede future populations from the physical and mental health benefits of PFS.
- By conducting this research in Chelsea and Revere, we can target interventions to increase PFS uptake and adherence in providers' practices that span adolescent health to postpartum period along with community health workers who are meeting patients where they are.

## References

(1) Eryilmaz et al. (2018). Association of Prenatal Exposure to Population-Wide Folic Acid Fortification With Altered Cerebral Cortex Maturation in Youths. JAMA Psychiatry. 75(9):918-928. doi: 10.1001/jamapsychiatry.2018.1381. PMID: 29971329; PMCID: PMC6142921.