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PROVIDER PERCEPTION AND OFFICE PRACTICES OF THE INITIAL PRENATAL VISIT PRE-CORONAVIRUS 2019 PANDEMIC

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Background Prenatal Care is a critical aspect of women's health and current literature shows adequate care significantly reduces risk of adverse outcomes. With scientific advancement, the initial prenatal visit is increasingly tasked with more objectives that leave providers with barriers to provide appropriate and adequate care. **Purpose** The aim of this survey study was to determine clinical practices of the initial prenatal visit – regarding history taking, counseling, lab work and screening prior to the onset of COVID-19 Pandemic. **Methods** A one-time anonymous provider survey was distributed electronically to all obstetrics providers in the Tampa Bay Region in Florida. Descriptive statistics and bivariate analyses were performed for data analysis. **Results** A total of 67 responses were completed, and 58 responses analyzed after vetting for greater than 75% completion. Providers reported the initial visit most commonly occurring in the 1st trimester, and 90.2% reported the initial visit was completed via in-office visits. One provider reported completing this visit via nursing phone call. 32.5% of providers allocated 30-minutes and 34.1% reported allocating 45-minutes for an office visit. 50% of providers felt there were able to appropriately counsel patients in visits that lasted up to 1 hour. All providers reported collecting a patient's history themselves for the majority of topics (90% or more). **Discussion** Providers reported the initial prenatal visit occurring most commonly in the 1st trimester as an in-office visit. Providers utilized routine blood work, and genetic screening per guidelines. Medical doctors reported the lowest rates of direct discussion and review of prenatal counseling topics when compared to mid-level practitioners. Given the onset and ongoing COVID-2019 pandemic since this survey study was completed, future studies should see how the implementation of telehealth medicine has impacted practices.

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Background | Prenatal care is a necessary and critical aspect of healthcare for women for prenatal education and early risk stratification and risk reduction in pregnancy. The American College of Obstetricians and Gynecologists (ACOG) recommends that pregnant women see their prenatal care provider at a minimum of every 4 weeks until 28 weeks' gestation, then every 2 weeks until 36 weeks' gestation and every week until delivery. The purpose is to record a complete review of the patient's medical history and to offer the recommended counseling during the initial prenatal visit.¹

It has been established that women who receive prenatal care have an increased likelihood for better maternal and infant outcomes.¹ The earlier in pregnancy a woman enters prenatal care, and the more visits attended, is inversely associated with maternal

and fetal outcomes, such as preterm delivery, low term birth weight and neonatal death.²⁻⁴

However, with scientific advancement, there are an increasing number of topics, laboratory genetic screening and testing to counsel and discuss with patients during the prenatal period that are recommended by American Academy of Pediatrics (AAP) and ACOG guidelines. Despite these guidelines, research shows there is an increase in adverse pregnancy related outcomes, including increased rates of low-birth-weight infants.⁵ These statistics lead one to ask why. Review of the literature shows there is currently limited data about the ability of providers to cover all topics recommended in these guidelines. Furthermore, there is currently limited data about current in-office clinical practices and protocols to manage the first prenatal visit with these guidelines in place.

With the Covid-19 pandemic OB practitioners are evaluating how they provide OB care, including adding telehealth visits. We wanted to understand how providers are prioritizing the information they need to gather, and the topics they need to review with their patients, especially at the initial prenatal visit (IPV). Our aim with this survey was to determine what was covered at the initial prenatal visit, including history taking, counseling, screening and laboratory testing.

Methods | A one-time anonymous provider survey was distributed electronically via Qualtrics survey software. A listserv of all obstetrics providers that deliver at Tampa General Hospital, as well as a provider listserv created from a publicly available list of medical providers (OBGYNs, NPs, and CNMs licensed in Florida) from the Florida Board of Medicine and Board of Nursing were utilized for distribution. In total 764 provider email addresses were gathered. 1 initial survey invitation was distributed and then 3 subsequent reminder emails were sent every 2 weeks. This project was reviewed and approved by the Institutional Review Board at the University of South Florida.

Provider demographics including, age, gender, number of years in clinical practice, ethnicity as well as provider type, and primary medical specialty were collected. Providers' opinions regarding their ability to appropriately counsel, as well as the need to have patients return for a second prenatal visit to complete counseling and discussion was asked. Providers were asked the frequency at which they refer patients to genetic counselors. Lastly, it was asked if providers had implemented a structured list of items to be covered in their office practice during the initial prenatal visit.

To understand current clinical practices, we asked who was held responsible for gathering the patient's pertinent history taking, and if this was reviewed by the provider (Nurse Practitioner, Certified Nurse Midwife, or Physician) versus another healthcare personnel (Medical Assistant, Registered nurse, other) or if pertinent history was not routinely discussed at the initial prenatal visit. Pertinent history taking included prior medical and surgical history, current medications, allergies, family, social, obstetric and gynecological history as well as recent travel exposure and familial ethnicity. Likewise, providers were asked

Mode of Initial Office Visit and Perception of Adequate Counseling. Providers predominantly reported seeing patients for their first prenatal visit during the 1st trimester. As patients had increasing gestational age, providers reported a smaller percentage of patients presenting for their 1st prenatal

visit. 90.2% reported the initial visit was completed via in office visits; however, a small minority (2.4%) reported completing this visit via nursing phone call. 100% of all patient history taking and prenatal topics were reported as discussed via nursing phone calls. One third of all providers allocated 30-minute office visit and another third reported allocating 45-minute

who discussed and reviewed the introduction to the office practice, and who provided counseling on exercise recommendations, dental care, nutrition and diet, fevers/illnesses and safe medications, environmental exposures, travel limitation, miscarriage precautions, prenatal vitamins, weight gain and recommended genetic screening during pregnancy.

To describe current testing trends, providers were asked to indicate whether they “always order”, “sometimes order based on risk factors” or “never or rarely ordered” the following at the initial visit: blood type and Rh factor, anemia screen, rubella titers, varicella titer, syphilis screen, gonorrhea and chlamydia screen, urine culture, HIV screen, hepatitis B surface antigen, and Pap Smear. To describe current genetic screening and testing trends, providers were asked whether they offered a dating ultrasound, first trimester screen bloodwork and nuchal translucency ultrasound, cell free DNA, Quad Screen or AFP and Expanded Carrier Panel Screening to “all patients,” “only if considered a “high risk pregnancy,” or not offered in their practice.

All descriptive statistics were calculated via Microsoft Excel 2020 and chi square analysis was performed via the Qualtrics Survey Software © 2020.

Results | A total of 67 responded out of a possible 764; this total was calculated after excluding invalid emails, and emails that bounced back per the Qualtrics Survey Software System. After further vetting responses for those with greater than or equal to 75% completion, a total of 58 responses were analyzed for clinical practices.

The majority of our providers identified as medical doctors (61%), identified as female (85.2%) and were on average 47 years old (+/- 12.7) and on average in clinical practice 18 years (+/- 13.3 yrs.). Most providers identified as Caucasian/white (68.3%), with 14.6% identifying as black/African American and just under 10% identifying as multiracial. Providers reported providing care to ethnically diverse patient populations from varying socioeconomic backgrounds. Approximately one quarter of providers (24.4%) have not implemented a structured list of items to be covered at this visit. (Table 1)

visit. 90.2% reported the initial visit was completed via in office visits; however, a small minority (2.4%) reported completing this visit via nursing phone call. 100% of all patient history taking and prenatal topics were reported as discussed via nursing phone calls. One third of all providers allocated 30-minute office visit and another third reported allocating 45-minute

office visit (32.5% and 34.1%, respectively) for an office visit, with only 20.0% reporting over an hour time slot for the initial prenatal visit.

At most 50% of providers reported feeling they appropriately counseled patients regardless of visit time length up to a 1 hour for 76-100% of visits, and only in visits reported as 1 hour or greater did 87.5% of all providers feel they appropriately counseled patients. Not even one third of medical doctors

(29.2%) felt they could appropriately counsel patients the majority of the time during their allotted time slots, but 50% of certified midwives felt they could complete the counseling in over 76-100% of visits. Yet, 90% of all providers reported only bringing patients back for a second visit to complete the initial prenatal visit up to 25% of the time.

Table 1. Provider demographics

Provider Demographics	Responses N (%)
Gender	
Female	46 (85.2)
Male	8 (14.8)
Age [mean (SD)]	47 (12.7)
Clinical Practice-Years [mean (SD)]	18 (13.3)
Type of Provider	
Medical Provider (MD/DO)	29(60.4)
Nurse Practitioner	4 (4)
Certified Nurse Midwife	4 (8.3)
Medical Assistant	0 (0)
Other (1 MFM, 2 Obstetric Hospitalists)	3 (6.3)
Race/Ethnicity*	
White/Caucasian	37 (74)
Native Hawaiian/Other Pacific Islander	0 (0)
Hispanic/Latin	4 (8.0)
Black/African American	7 (14.0)
Asian	2 (4)
American Indian/Alaska Native	0 (0)
Provider Practice Demographics	% Range
% Ethnicity of Patient Population	
White/Caucasian	0-100
Native Hawaiian/Other Pacific Islander	0-5
Hispanic/Latin	0-44
Black/African American	0-60
Asian	0-15
American Indian/Alaska Native	0-5
% Insurance Breakdown of Patient Population	
Private Insurance (including HMO, IPO, etc)	0-95
Medicaid/Medicare	0-100
Tricare	0-35
Uninsured or Self Pay	0-100

* Multi-response variable, percentage may add up to more than 100%

In office history taking and counseling practices. All providers reported collecting a patient's history themselves for the majority of topics as greater than 90%; however, allergies (70.7%), current medications (85.4%), recent travel exposure (39.0%), and familial ethnicity (70.7%) were reported less. When evaluated by provider type, although not statistically significant, medical doctors reported discussing counseling topics much less themselves, than certified nurse midwives and the nurse practitioner, with at most 70.8% of

medical doctors reported discussing nutrition and diet and all other topics reported as less. (Table 2)

All providers reported routinely ordering most blood tests during the initial prenatal visit; however, the least reported blood test was varicella with 30% ordering at all times, otherwise on a risk-based assessment and 70% ordered a pap smear at all times regardless of if up to date or not. When evaluating by provider types, we noted anemia screening, gonorrhea and chlamydia

($p = <0.001$), syphilis and HIV screening were much more likely to be ordered at in all cases compared to only with elevated risk assessment.

Table 2. In office reported discussions.

History/Discussion Topic	Identified Primary Provider		P-value
	Medical Doctor N (%)	Mid-Level Provider N (%)	
Prior Medical History	24 (96)	13 (100)	0.720
Prior Surgical History	24 (96)	13 (100)	0.720
Current Medications	19 (76)	13 (100)	0.105
Allergies	15 (60)	13 (100)	0.146
Family History (including bleeding disorders, developmental delay, and cancer history)	22 (88)	11 (84.6)	0.354
Social History (including current partner, sexual practices, alcohol and substance use)	21 (84)	13 (100)	0.606
Obstetric History	23 (92)	12 (92.3)	0.510
Gynecological History	23 (92)	13 (100)	0.879
Recent Travel Exposure	8 (32)	6 (54.6)	0.174
Family Ethnicity	15 (60)	11 (84.6)	0.422
Introduction to Obstetric Practice (Scheduling, numbers, etc)	17 (68)	13 (100)	0.041
Personal Provider Introduction	22 (88)	13 (100)	0.715
Exercise Recommendations	17 (68)	12 (100)	0.123
Dental Care	11 (44)	8 (100)	0.144
Nutrition and Diet	17 (70.8)	13 (100)	0.084
Fevers, Illness, and Safe Medications to Take During These Times	17 (68)	10 (83.3)	0.431
Environmental Exposures	16 (66.7)	11 (91.7)	0.659
Travel Limitations	14 (56)	9 (100)	0.242
Miscarriage Precautions	15 (60)	8 (100)	0.144
Prenatal Vitamins, Supplements	19 (76)	12 (92.3)	0.320
Recommended Genetic Screening	25 (100)	13 (100)	1.0
Weight Gain	21 (84)	12 (100)	0.525

All providers reported discussing genetic screening with patients themselves. At most, 63.4% of providers reported offering a First Trimester Screen with Nuchal Translucency ultrasound, while less offered a dating ultrasound (41.5%) to all patients. Similarly, 63.4% recommend Quad Screen or AFP to all patients. Cell free DNA or NIPT was the most ordered in circumstances of patients classified as having a “high risk” pregnancy (70.7%). Lastly, 15% of all providers report not offering expanded carrier panel screening.

Sixty percent of medical doctors ordered a dating ultrasound, while only 15.4% of mid-level practitioners order this routinely for all patients ($p = 0.021$). Medical doctors and mid-level practitioners both reported ordering a quad screen for all patients about two thirds of the time (64% and 69.2%, respectively). 84% of medical doctors reported cell free DNA test ordering when based on risk factors, and mid-level practitioners reported slightly less at 61.5%; however, mid-level practitioners (38.5%) reported ordering cell free DNA for all patients twice what medical doctors reported (16%; $p = <0.001$). (Table 3)

Table 3. Reported screening and testing performed during the initial prenatal visit.

	Identified Primary Provider that “Always Orders” / “Sometimes Based on Risk Factors”		P-value
	Medical Doctor N (%)	Mid-Level Provider N (%)	
Bloodwork Screening and Testing			
Blood Type and RH Factor	25 (100) / 0 (0)	13 (100) / 0 (0)	1.00
Anemia Screen	24 (96) / 1 (4)	12 (100) / 0 (0)	0.011
Rubella SG	23 (92) / 2 (8)	11 (100) / 0 (0)	0.554
Varicella	5 (20) / 11 (44)	7 (58.3) / 3 (25)	0.159
Syphilis Screen	25 (100) / 0 (0)	13 (100) / 0 (0)	1.00
Gonorrhea and Chlamydia Screen	25 (100) / 0 (0)	11 (84.6) / 2 (15.4)	<0.001
Urine Culture	24 (96) / 1 (4)	12 (92.3) / 1 (7.7)	0.8368
HIV Screen	25 (100) / 0 (0)	13 (100) / 0 (0)	<0.001
Hepatitis B Surface Antigen	25 (100) / 0 (0)	13 (100) / 0 (0)	1.00
PAP Smear	20 (80) / 5 (20)	8 (61.5) / 4 (30.8)	0.219
Genetic Screening and Testing			
Dating Ultrasound	15 (60) / 9 (36)	2 (15.4) / 10 (76.9)	0.021
First Trimester Bloodwork and NT Ultrasound	19 (76) / 5 (20)	6 (46.2) / 4 (30.8)	0.205
Cell Free DNA or NIPT Test	4 (16) / 21 (84)	5 (38.5) / 8 (61.5)	<0.001
Quad Screen or AFP	16 (64) / 9 (36)	9 (69.2) / 4 (30.8)	0.010
Expanded Carrier Panel Screening	13 (54.2) / 9 (37.5)	4 (30.8) / 7 (53.8)	0.058

Discussion | Providers reported the initial prenatal visit occurred during the first trimester during an in-person office visit. This is a promising result as prior data show there is a relationship between adequate early prenatal care and decreased risks of adverse maternal and neonatal outcomes.²⁻⁶

To address the considerable number of health-related topics and counseling topics to be addressed, providers utilized differing allotments of office visit time, with over two thirds taking more than 30 minutes. Prior work by Dyer, et. al (2018)⁷ found in audio recordings of initial prenatal visits providers often did not discuss and counsel patients on multiple topics, with the most reported being about the scope of the practice, followed by initial history and physical (83% occurrence) as well as routine blood work (97% occurrence). Compared to the current study, multiple similarities were observed as medical doctors tended to also focus on history, routine blood work, with less of a focus on direct educational counseling (like on diet, exercise recommendations, etc.). Medical doctors reported the lowest rates of direct discussion and review of prenatal counseling topics when compared to mid-level practitioners, as well as reported the felt least amount of appropriate counseling and only half of providers reported they felt they were able to appropriately address and counsel patients in the majority of their visits. This may be due to a plethora of reasons, including increasing complexity of patients seen, prioritization of competing topics for discussion with emphasis on medical and surgical history and the implementation of other modes of information distribution in office – like in office staff counseling

or handouts regarding recommendations for daily nutrition and lifestyle recommendations. It was seen the implementation of a nursing phone call in addition to the in-office visit allowed all patient history taking and prenatal topics to be addressed separate from the initial in office visit acting as a potential solution; however, given this was reported by 1 respondent we limited in our ability to conclude the impact this has on prenatal care and providers’ perceptions of their ability to appropriately counsel patients.

In regards to genetic screening, several trends were noted. Providers more often ordered a First Trimester Screen with Nuchal Translucency than a dating Ultrasound. Increasing patient requests for genetic screening, as a result of direct-to-consumer information expansion or due to efficient resource utilization due to the limited number of ultrasound visits and technicians available to perform these tasks in a time appropriate manner, may explain these trends. Furthermore, it was observed midlevel providers ordered more cell free DNA testing for all patients, compared to Medical doctors who more often reported testing based on risk factors. All in all, the majority of providers reported ordering genetic screening – in line with prior work that found 90% of healthcare workers offered genetic screening at the prenatal visit.⁸

This study was limited in several ways. Given the low response rate, the conclusions drawn may not be applicable to the general population. Furthermore, this study provides only insight from the provider, and not the recipient (the patient). This may be creating a bias

as even though providers reported high levels of counseling, patients may feel their questions and concerns are not being fully addressed within these topics.

Implications for Public Health Practice | In conclusion, this survey aimed to describe clinical practices of the initial prenatal visit – regarding history taking, counseling, lab work and screening prior to the onset of COVID-19 Pandemic. To our knowledge, there are a lack of data regarding specific reported practices – the main objective of this study. We saw providers report the majority of initial visits during the 1st trimester, a time period deemed necessary to

minimize future risks during pregnancy, but at the same time noted limited rates of direct discussion on multiple important topics, compared to mid-level practitioners. The implementation of a nursing phone call presented itself as a potential and efficient way to gather complete histories. Given the onset and ongoing coronavirus pandemic since this survey study was completed, future studies should look to see how the implementation of telehealth medicine has impacted providers' practices regarding the initial prenatal visit. Additionally, telecommunication methods should be studied as routine for all initial prenatal visits should be studied as it may be an effective and efficient alternative method.

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