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Original Study

Providing Prenatal Care in a Student Run Free Clinic

From Problem Recognition to One Year of Clinical Operations

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Abstract

Background: Prenatal care is a cornerstone of maternal and child health. This paper describes the creation of a free prenatal clinic for uninsured families following recognition of a significant disparity in birth outcomes in Alachua County, Florida including: the development of essential community resource collaborations, clinical operations in a dual aim patient care-medical education site, preliminary outcomes after one year of clinical operation, identified challenges, and next steps for our growing program.
Methods: A retrospective chart review of all sixteen patients enrolled with the student run free prenatal clinic in its first year of clinical operation. Analysis included assessment of the prenatal care course using descriptive statistics. Specific dimensions assessed include timing of transition of care to a traditional obstetrics clinic, clinical findings and diagnoses identified at the prenatal clinic, and birth outcomes during the study period and report findings as descriptive statistics.
Results: The clinic has demonstrated the ability to identify and treat numerous pathologies which may impact maternal-fetal morbidity and mortality. The clinic has seen very high rates of patient retention and has demonstrated successful transition of patients to higher levels of care when indicated. Finally, the clinical model provides an uncommon opportunity for medical and physician assistant students to care for patients throughout the first 32 weeks of pregnancy and receive additional training in point-of-care ultrasound, diagnostics, and medical decision making.
Conclusion: While the small sample size limits the ability to assess the effectiveness of the prenatal clinic intervention, there are numerous promising features based on preliminary results.

Background and literature review

Prenatal care is a cornerstone of maternal and child health. A brief review of the literature reveals that prenatal care has been shown to reduce the rate of low birthweight, perinatal maternal and child mortality, premature birth, and other adverse birth outcomes.[1,2] Prenatal care is posited to improve outcomes via early identification and treatment of pathologies known to impact maternal-fetal morbidity and mortality. Birthing outcomes have also been shown to have a lifelong impact on health and wellbeing.[3,4] Thus, access to comprehensive, timely, culturally appropriate prenatal care promotes health equity. However, many families in the United States are excluded from this essential care. This is especially true for Black and Hispanic

families who may experience disproportionate geographic isolation, lack of nearby healthcare infrastructure investment, medical racism, increased rates of poverty, social and political marginalization, and greater legal vulnerability.[5,6] Developing policy, clinical, and community interventions that directly respond to these challenges is a key facet of working towards greater health justice.

The following paper describes recognition of a significant disparity in birth outcomes in Alachua County, Florida, the subsequent creation of a free prenatal clinic for uninsured families, and outcomes after one year of clinical operation.

Identification of a problem

In 2020, a research study using data from the Robert Wood Johnson Foundation County Health[7] showed vast disparities in prenatal care access and rates of low birthweight in Alachua County, Florida. This information was presented to the leadership board of the Equal Access Clinic Network (EACN), a network of student-run free clinics in Alachua County, Florida. EACN leadership presented findings showing significant disparities in low birthweight rates to the Immigrant Health Taskforce (IHT), a local interprofessional health advocacy group. It was here, in meetings between EACN and IHT that the idea to develop a prenatal clinic focused on care for the uninsured turned into action.

Florida is one of twelve states that has not expanded its Medicaid eligibility under the Affordable Care Act. This has significantly restricted the number of persons able to access health insurance in the state. To be eligible a person must be a resident of the state of Florida, have approved citizenship or immigration status and qualify as low income, about 18,000 dollars for a single individual or 37,000 dollars for a family of four, as well as meet certain health requirements.[8] Pregnancy is a qualifying condition under which persons can access Medicaid provided all other eligibility requirements are met. However, these policies exclude persons with family incomes higher than income limits and persons with insufficient documentation, leaving them unable to access prenatal care.

Description of EACN

EACN is a student-run free clinic affiliated with the University of Florida College of Medicine (UFCOM). The first clinic started in 1992 and has grown to include four primary care clinics, ten medical specialty clinics, psychology, occupational therapy, physical therapy, and social work. Each clinic is staffed by clinical student volunteers with support from UFCOM physicians. EACN aims to "provide comprehensive quality healthcare for all," [9] with a particular focus on uninsured and underinsured persons. The EACN Prenatal Clinic is a partnership between EACN, the UFCOM Department of Obstetrics and Gynecology (OB/GYN), and numerous community organizations. At the time of writing, the EACN Prenatal Clinic has been in operation for 14 months.

Partnership development and acquisition of resources

Comprehensive prenatal care is highly resource intensive requiring extensive medical, nutritional, psychological, and social support. Our planning committee recognized the need for specialized medical services including sonographic imaging, genetic testing, and laboratory testing. Early talks between the IHT and EACN leadership identified unique barriers to care the local Medicaid ineligible population faces. These include the need for translation services, inadequate transportation, lack of personal identification, and legal vulnerability. Each of these barriers could only be adequately addressed through the development of community and industry collaborations.

The Rural Women's Health Project (RWHP), a local health justice non-profit focused on immigrants and women living with HIV, was an early supporter of the clinic. RWHP agreed to provide a Social Service Coordinator at each clinic night and to connect eligible families to the clinic's services through their community health worker program. The Social Service Coordinator assists patients in applying for Medicaid if eligible, provides community resource information, and coordinates translation services for Spanish and Indigenous languages. Furthermore, the Social Service Coordinator, herself a member of the local

immigrant community, with significant ties to a network of grassroots immigrant services programs provides recommendations as to the cultural suitability of the clinical operations and acts as a liaison between the clinic and community members.

The UF Mobile Outreach Clinic (UF-MOC) is a free, comprehensive primary care clinic that offers flexible, low-barrier medical services on a retrofitted Blue Bird bus. The bus contains essential resources including two exam rooms suitable for pelvic exams and a portable ultrasound. Furthermore, the UF-MOC has a full-time clinic schedule staffed by nurse practitioners and volunteer physicians. Use of the UF-MOC bus for the EACN Prenatal Clinic, as well as warm hand-offs of patients between both clinics, allows patients access to coordinated care between clinic nights outside of the emergency department (ED).

The UFCOM Department of OB/GYN acts as the primary clinical partner. They provide volunteer physicians at each clinic night, and accept all patients for labor and delivery, prenatal care after 32 weeks, and management of high-risk pregnancy.

EACN clinics operate in the evening after most public transportation has stopped running. EACN's non-emergency medical transport program allows clinics to book rideshare at no cost to patients and has been instrumental in ensuring transportation is not a barrier to care.

Prenatal screening includes a wide array of tests from periodic blood tests to complex genetic screening. EACN covers the costs of all routine laboratory tests via grant funding and agreements with local laboratory corporations. Natera, a biotech company, agreed to donate prenatal genetic screening services to patients at EACN Prenatal Clinic.

Upon securing initial support from the above community organizations, members of EACN leadership applied for the Alachua County Community Agency Partnership Program grant. This grant, awarded to EACN Prenatal Clinic in 2021, will provide funding for operational costs through 2024.

Description of clinic and transition of care

Throughout the first year of operation the clinic occurred once a month, in the evening, at a local church. Patients are referred directly to the clinic from local clinics, social service organizations, or by self-referral. The clinic schedules a maximum of eight patients per night and has a waiting list. Patients are prioritized for clinic enrollment based on gestational age and clinical risk factors. The clinic is staffed by third- and fourth-year medical students who have completed their OB/GYN clerkship, volunteer OB/GYN physicians, and a Social Service Coordinator from RWHP. Patients receive regular ultrasounds and recommended laboratory testing free of charge.

Families receive a high-level of care coordination. At each visit families meet with clinical volunteers and the Social Service Coordinator to review the care plan and receive additional resources. The care plan may include follow up visits with EACN Prenatal Clinic, appropriate timing of application for Medicaid, discussion of transition of care due to recognition of high-risk pregnancy, preparation for transition of care, and connection to postnatal resources. Families are provided resources that may prevent unnecessary ED visits including access to a dedicated phone line staffed continuously by clinical volunteers and options for daytime visits at the UF-MOC, a long-term community partner of EACN.

The main goal of prenatal care is early recognition and management of high-risk pregnancy. Determination of high-risk pregnancy is based on guidelines established by the American College of Obstetricians and Gynecologists.[10] Patients with high-risk pregnancy are transitioned to care at a high-risk obstetrics clinic immediately. All other patients undergo transition of care to a traditional obstetrics clinic at around 32 weeks gestation. All families receive assistance in applying for available patient financial assistance programs at the time of transition of care.

Methods

EACN Prenatal clinic has been open for one year. In that time the clinic has provided direct care to sixteen families, and educational opportunities for twenty-eight medical and physician assistant students. Data was collected by retrospective chart review approved by UF IRB-01 (IRB202201799). All analyses were performed

Table 1. Patient population and transition of care after twelve months of clinical operation

Characteristic	n
Total number of patients referred to EACN Prenatal Clinic	29
Individual patients seen at clinic	16
Patients eligible for Medicaid*	1
Patients transitioned to care ≥32 weeks gestation	6
Patients transitioned to care <32 weeks gestation	4
Patients lost to follow up	1
Patients currently enrolled a EACN Prenatal Clinic†	6
Range of gestational age at first prenatal visit, weeks	7-35
Maternal age range, years (median)	19-38

**Patient never enrolled in clinic. Not included in total count. †One patient was in the process of transitioning care at the time of writing and is thus included here twice.*
EACN: Equal Access Clinic Network

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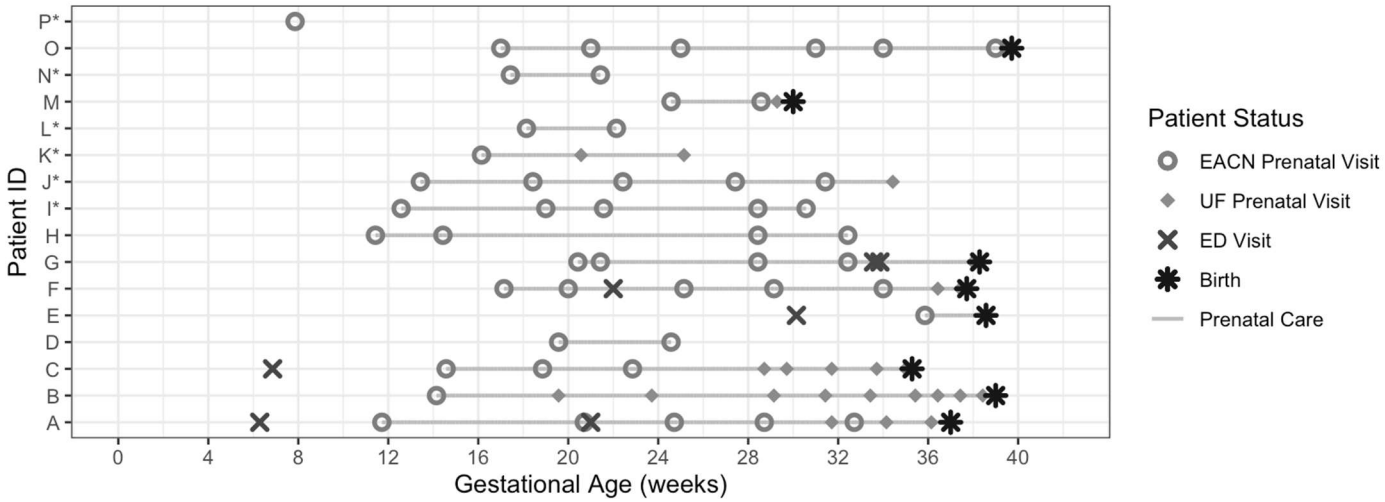
Figure 1. Prenatal care course for patients enrolled with EACN Prenatal Clinic



**denotes patients currently enrolled with EACN Prenatal Clinic.*
EACN: Equal Access Clinic Network; ED: emergency department; UF: University of Florida.

using R Statistical Software (v4.1.2; R Core Team, Vienna, Austria). Graphs were created using the R package *ggplot2*.[11]

Results

Twenty-nine patients have been referred to the EACN Prenatal Clinic and at the time of writing 16 have met criteria for enrollment and have been seen in the clinic (Table 1). The reasons for not enrolling a patient are varied. For example, one patient was pregnant with twins and was immediately referred to a high-risk obstetrics clinic, another qualified for Medicaid. Finally, numerous patients have lived outside of the grant-mandated geographic service area and have been unable to enroll with the clinic. Of the 16 patients enrolled in the clinic during the study period, six were transitioned to a traditional obstetrics clinic at or beyond 32 weeks gestation, while four were transitioned to a traditional or high-risk obstetrics clinic before 32 weeks gestation. One patient was lost to follow-up and five patients remained enrolled with the EACN Prenatal Clinic at the conclusion of the study.

Patients were first seen at the EACN Prenatal Clinic at a wide range of gestational age ranging from 7 weeks to 35 weeks. Maternal ages ranged

Table 2. Patient pregnancy outcomes after twelve months of clinical operation

Variable	n
Total number of births	8
Term births (after 37 weeks)	6
Premature births (before 37 weeks)	2
Low birthweight (<2500 grams)	2
Babies admitted to neonatal intensive care unit	2
Median infant length of hospital stay, days	2.875
Median maternal length of hospital stay	2.875

Table 3. Clinical findings and pregnancy complications diagnosed at EACN Prenatal Clinic

Finding	n (%)
Anemia	2 (12.50)
Abnormal 1-hour glucose tolerance test	1 (6.25)
Bacterial vaginosis	1 (6.25)
Breast mass	1 (6.25)
Elevated blood pressure	1 (6.25)
Major depressive disorder	2 (12.50)
Scabies	1 (6.25)
Urinary tract infection	5 (31.25)
Vaginal candidiasis	1 (6.25)
Abnormal ultrasound findings	
Fetal breech presentation	1 (6.25)
Fetal macrosomia	2 (12.50)
Inconsistent gestational dating	2 (12.50)
Low lying placenta	4 (25.00)

EACN: Equal Access Clinic Network.

from 19 years to 38 years with a median maternal age of 26.8 years. All patients experienced significant vulnerability due to language barriers, limited social support and/or lack of access to other social services. Legal vulnerability is a significant concern for many patients, and for this reason, the clinic does not collect information relating to national origin, citizenship status or other legally tenuous identity characteristics.

Figure 1 shows the prenatal care course and timing of transition of care for all sixteen patients enrolled with the EACN Prenatal Clinic. Patients I, J, K, L, and P were all actively enrolled with the clinic at the end of the study. Patient D was seen twice at the EACN Prenatal Clinic and then lost to follow up. Patients A, B, C, E, F, G, M and O have all given birth at the time of writing. Birth outcomes for these eight births can be found in Table 2.

Table 3 lists the pathologies diagnosed and their frequency of diagnosis at the EACN Prenatal Clinic during the study period. Abnormal ultrasound findings were the most common pathologies (9/24, 37.5%) diagnosed at the clinic. Low lying placenta was the most common abnormal ultrasound finding, seen in 25% (4/16) of the pregnancies cared for at the clinic. Infectious pathologies were also quite common (8/24, 33%). Of these, urinary tract infections were the most diagnosed (5/24, 20.8%). Additional pathologies identified include anemia, abnormal 1-hour glucose tolerance test, breast masses, elevated blood pressure, and major depressive disorder.

Discussion

The clinic has been in continuous operation for twelve months. A study sample size of sixteen patients, with just eight births during the study period limits the ability to assess the overall effectiveness of the intervention in improving maternal-child outcomes. Furthermore, a retrospective design limits data collection to those factors contained within the medical record. Thus, this study is unable to fully evaluate social, legal, spiritual, and community factors which are known to impact pregnancy. Due to the use of primarily word-of-mouth advertising, it is likely that there is a significant population of persons who qualify but do not yet know about the clinic's services and that previously contacted communities are overrepresented in the study sample. However, despite these limitations, the care model has shown to be useful in numerous ways. First, the clinic has demonstrated an ability to identify and treat numerous prenatal pathologies known to impact pregnancy outcomes. These include

infectious agents such as urinary tract infections and bacterial vaginosis, systemic concerns such as anemia and elevated blood pressure, and abnormal ultrasound findings such as fetal breech presentation which may impact birthing plans. Prenatal care is posited to improve outcomes via early identification and treatment of pathologies known to impact maternal-fetal morbidity and mortality.[6] The EACN Prenatal Clinic care model allows for early identification and treatment of numerous prenatal pathologies with options for transitions to higher levels of care when indicated.

The rates of patient follow up and successful transition to full-time obstetrics clinics are high. Just one patient was lost to follow-up during the study period. While it is impossible to say for certain which aspects of the care model promote high patient retention, the combination of culturally competent care coordination, ongoing open communication opportunities with the medical team, and transportation assistance via clinic sponsored non-emergency medical transport appear to be effective for patients in this sample. Finally, in the first year of clinical operation, the clinic has provided medical education opportunities to 28 medical and physician assistant students. Many students return month after month, providing care to the same patient from enrollment through transition of care. This opportunity to provide continuity of care throughout a pregnancy is rare for students as educational requirements necessitate shifting between medical services on a weekly or monthly basis. Furthermore, students are able to receive additional practice and training with point-of-care ultrasound, examination skills, and medical decision making through their participation with the clinic.

The clinic continues to experience challenges common to high-resource interventions. The clinic is constrained in the number of patients they can care for at each clinic night due to limitations in space, physical resources, and time. Thus, the waiting list is ever growing, with needs far outpacing the volunteers' ability to provide care. Furthermore, numerous criteria such as length of visit at the clinic is particularly long due to the dual aims as a patient care and medical education site along with extensive need for translation services. Although there are some free resources in place, emergency and afterhours care continues to be cost prohibitive for patients, leading many to be reluctant to pursue necessary care. Finally, the long-term existence of the clinic, and thus reliable care for patients remains tenuous. The clinic has secured funding for three years of operation, but future financial support is not guaranteed. Community partnerships are essential in the clinic's ability to provide care. Any change in these programs and their own tenuous status could greatly impact the ability for the EACN Prenatal Clinic to continue providing healthcare in the community.

The clinic recently secured after-hours access to a local outpatient clinic in order to provide care in a setting with higher technological capacity and greater levels of privacy thus meeting one major logistical goal. Other short-term goals include moving medical records to the EMR used by local hospitals in order to facilitate transition of care and incorporate breastfeeding and early life education into each clinic visit. Long-term goals include: create a perinatal medical home incorporating longitudinal prenatal care, postpartum maternal follow-up, breastfeeding and parenting support groups, and infant care; develop a sustainable funding mechanism that supports clinic operational costs and the continued involvement of community partners; and continued evaluation of programs, their effectiveness, and opportunities for further engagement.

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Disclosures

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