

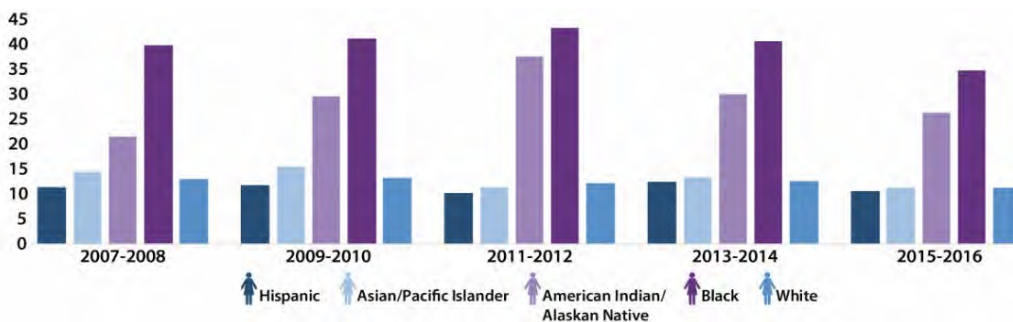


In Partnership with the United Health Foundation
4th Quarterly Report (October 1, 2021- December 31, 2021)

Project Summary

The pandemic resulting from the novel coronavirus forced healthcare providers to rethink and quickly reinvent the delivery of care to patients, particularly in rural settings. Fear of COVID-19 and the lack of definitive and timely information caused many patients to be no-shows at clinic appointments and, as a result, not receive the care they needed. This posed an especially critical challenge for the maternal fetal and newborn population in the 29-county area that East Carolina University (ECU) serves. ECU, the safety net provider for 1.4 million people in eastern North Carolina, is the only source for high-risk prenatal care in the region. COVID-19 exacerbated an already dire situation for the health of expectant and new mothers in our region. In our previous quarterly reports, we have summarized data related to healthcare disparities from the 37 North Carolina counties along or east of the I-95 corridor. We have also summarized data regarding workforce shortages, access to health care, poverty, and other socioeconomic factors in the region that limit access to transportation, adequate nutrition and basic necessities in the maternal population.

Nationally, more than 700 women a year die of complications related to pregnancy in the U.S., and two-thirds of these deaths are preventable.¹ As of 2016, the U.S. pregnancy-related mortality ratio was 16.9 per 100,000 live births.² However, there are significant racial disparities within this calculated statistic, as the following figure shows:



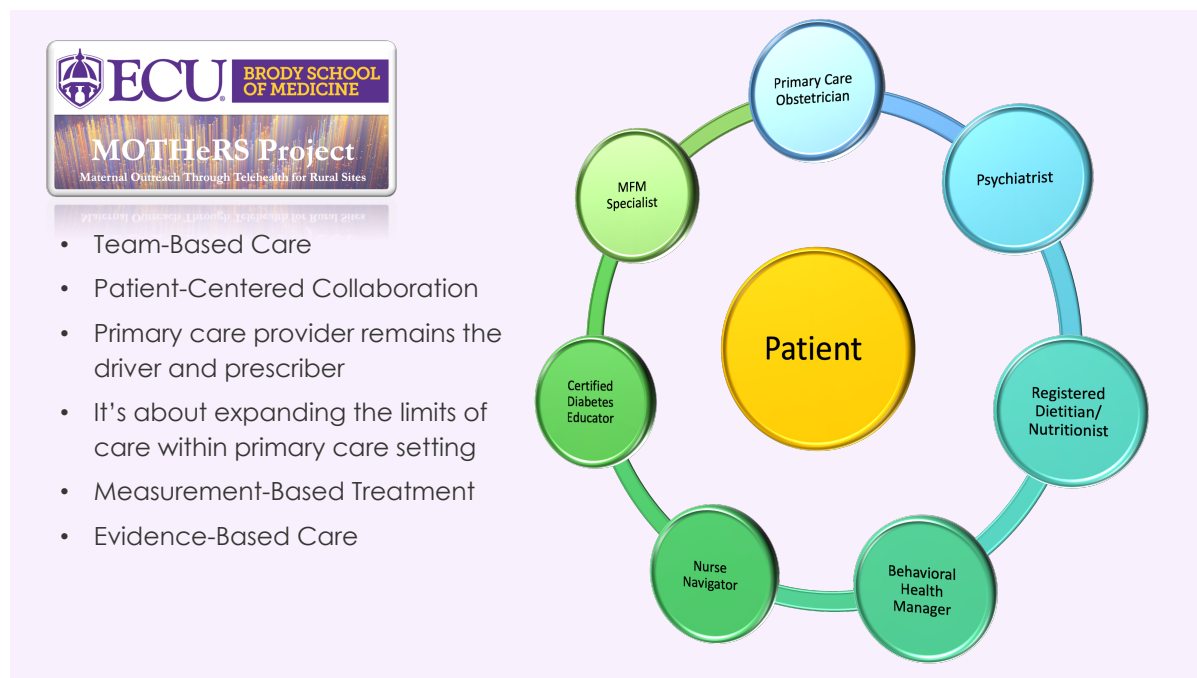
Trends in pregnancy-related mortality ratios among race from 2007-2016.³

This figure demonstrates that maternal mortality disproportionately affects black and American Indian/Alaska Native women in the U.S. Additionally, there are disparities between rural and urban populations. According to publicly available data from the U.S Centers for Disease Control and Prevention (CDC) and analyzed by *Scientific American*, rural areas had a pregnancy-related mortality ratio of 29.4 per 100,000 live births versus 18.2 in urban areas in 2015.⁴

MOTHeRS Project: Outreach through Telehealth

In July 2020, ECU proposed to expand NC-STeP—a statewide telepsychiatry program founded by ECU’s Dr. Sy Saeed— to bring multidisciplinary care to three community-based primary care obstetric clinics in Carteret, Duplin, and Chowan counties.⁵⁻⁷ The MOTHeRS (Maternal Outreach through Telehealth for Rural Sites) Project was funded through a generous investment from the United Health Foundation. Through this collaborative care model that encompasses patient, nurse navigator, diabetes educator, behavioral health manager, primary obstetrician, maternal fetal medicine (MFM) specialist, and psychiatrist, the MOTHeRS’ Project provides much-needed support and the insights of specialty physicians to these identified practices. The following components of the MOTHeRS Project address both the physical and mental well-being of these high-risk pregnant women.

Key Components of the MOTHeRS Project Collaborative Care Model



Telehealth consultations bring experts to these communities, saving patients and families the time and inconvenience of travel. Such telehealth services also provide a valuable way to offer

patients follow-up care after a procedure, eliminating the need for them to travel to the academic medical center in Greenville to see a specialist. High-risk pregnancies can also exacerbate depression and anxiety, and hospitalization can further increase the stress of a high-risk pregnancy. Women hospitalized for high-risk pregnancies may therefore be at increased risk of depression and the subsequent adverse neonatal outcomes.

The association of food insecurity and diet quality with mental health, and with poor outcomes in high-risk pregnancies, has been established. The MOTHeRS Project screens all patients at its clinical sites for food insecurity. The project has developed a medically-tailored emergency food bag for high-risk pregnant women identified as food insecure in the clinical setting. Those who screen positive are provided this medically-tailored food bag, nutrition education, and links to existing community resources. This approach promotes effective nutrition education and healthy behavior. This approach recently was presented at the annual meeting of the Society for Nutrition Education and Behavior. Additionally, our 2nd quarter report included an abstract that was published in the August issue of the Journal of Nutrition Education and Behavior. It was titled “MOTHeRS' Project: Acceptability of a Medically Tailored Food Bag Treating Food Insecurity of High-Risk Pregnant Patients.”

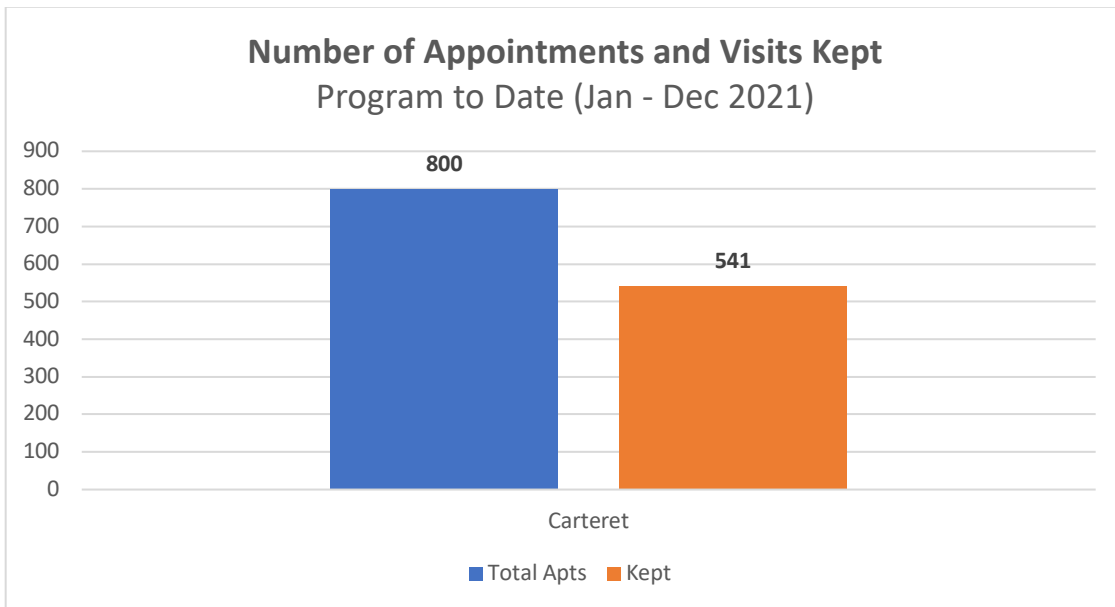
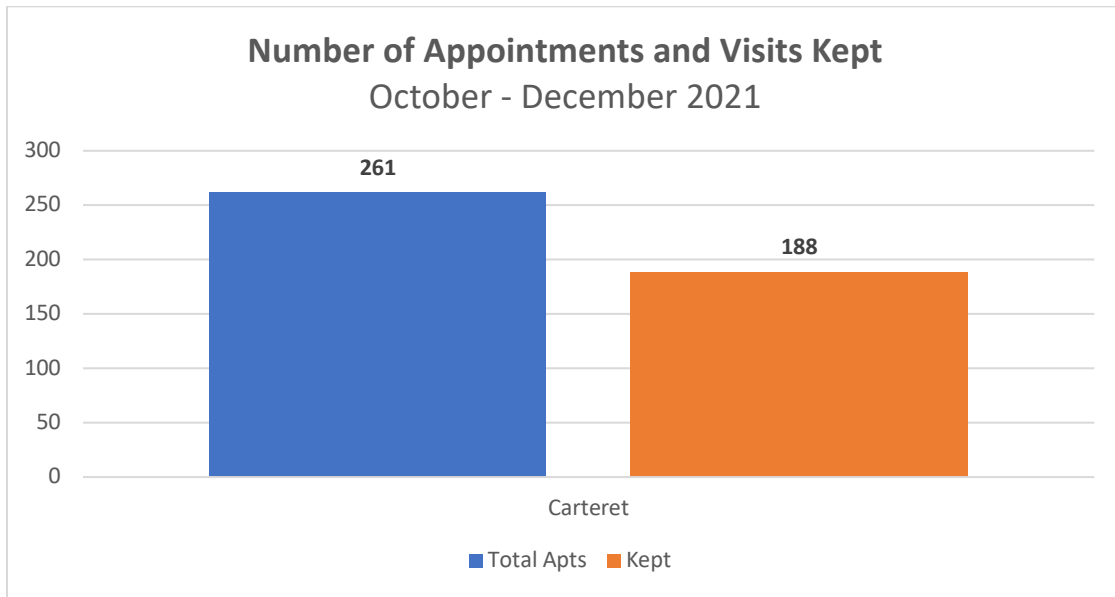
Through our formalized partnerships at the clinical sites, patients in the practices are cared for by both an MFM specialist and their local physician through a combination of telehealth and face-to-face visits. This model helps manage patients in clinics closer to their homes and minimizes travel to the remote specialty clinics for high-risk patients – such as those with diabetes, chronic hypertension, opioid/substance use and/or psychiatric needs. Aside from enhancing access to services, this model helps to reduce geographic health disparities, enhances patient convenience, and improves patient adherence to treatment. By bringing specialists to the primary care sites, this model also reduces professional isolation, enhances recruiting and retention of health professionals in underserved areas, and improves coordination of care across the health care system.

Fourth Quarter MOTHeRS Project Data

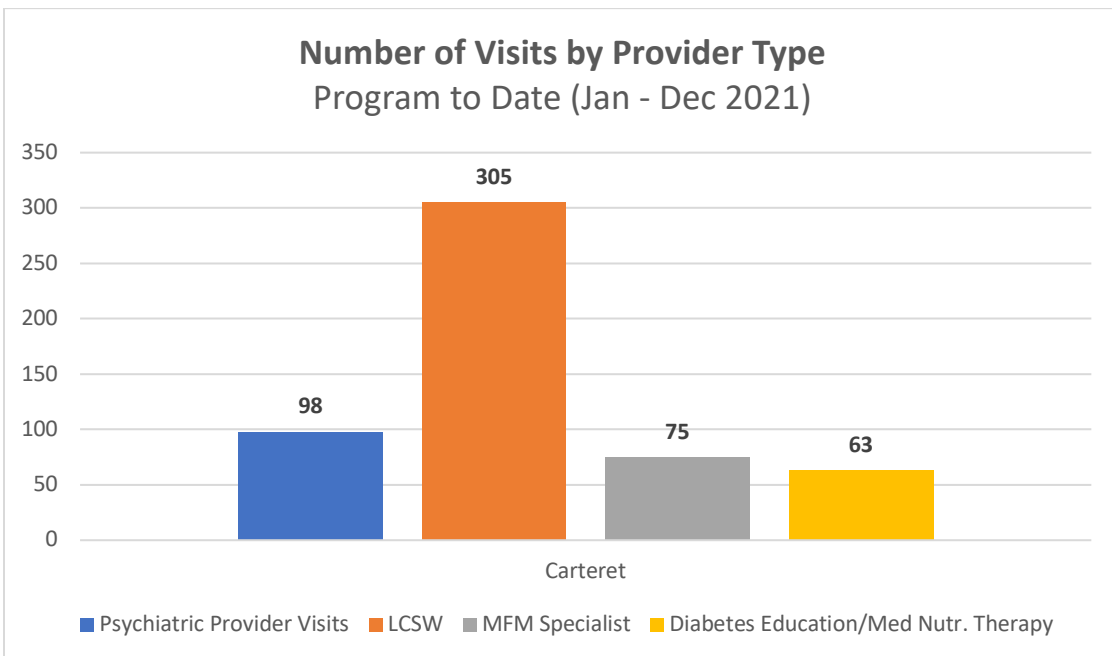
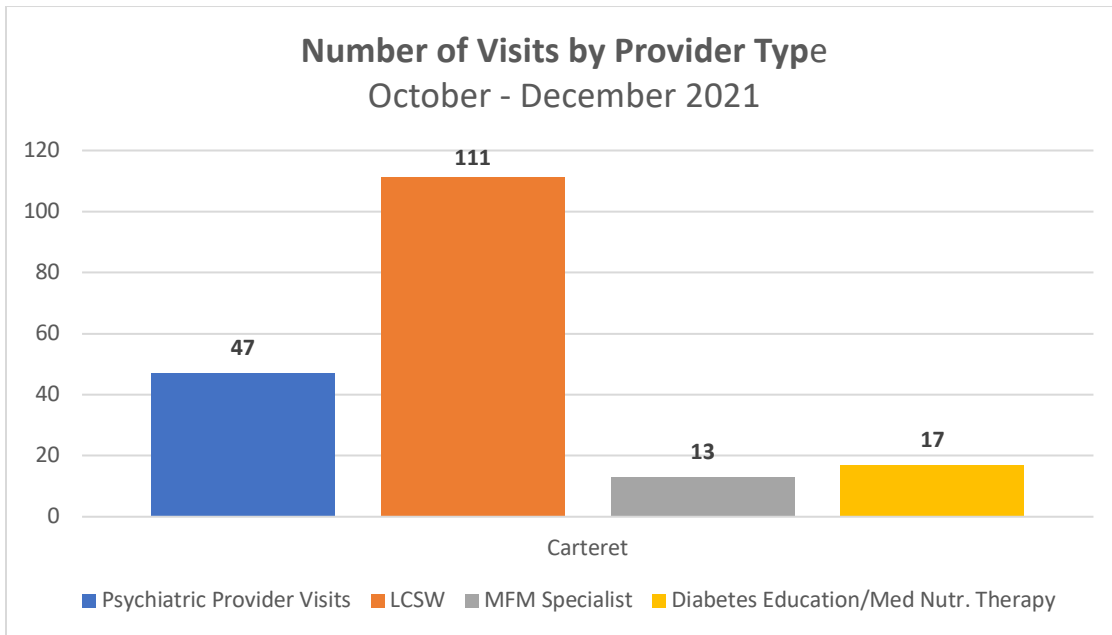
This fourth quarterly report covers the time period from October 1 to December 31, 2021. Our first clinical site, Carteret Ob-Gyn Associates, has been operational since mid-January 2021. Two additional sites in Chowan and Duplin counties went live in July 2021 and are now reporting data on screening for food insecurity. However, as of completion of the 4th quarter, the two new sites had not yet started to refer patients for MFM or mental health consults. These sites have all equipment for telehealth now in place, with providers and staff trained in use of the equipment and its integration with the Electronic Health Record (HER). Providers are credentialed and their schedules are already built into EHR. A new ultrasound machine for one of the sites has been purchased by Vidant Health and it is now integrated with PACS (picture archiving and communication system) to enable our MFM specialist to see images remotely. PACS is a medical imaging technology used primarily in healthcare organizations to securely store and digitally transmit electronic images and clinically-relevant reports.

We are pleased to report that as of the end of January 2022, these sites had started to refer patients for both mental health and MFM services, and these patient encounters will be reflected in our next quarterly report. The sites in both Chowan and Duplin counties have more racially diverse populations than in Carteret County.

The following charts provide data on the number of patients impacted by the program during the most recent quarter, as well as since program inception in January 2021.



The following charts provide data on the number of patients' visits by provider type seen by the program during the most recent quarter, as well as since program inception in January 2021.



The table below summarizes MOTHeRS Project results as they relate to impact on patient access, health disparities, and food security:

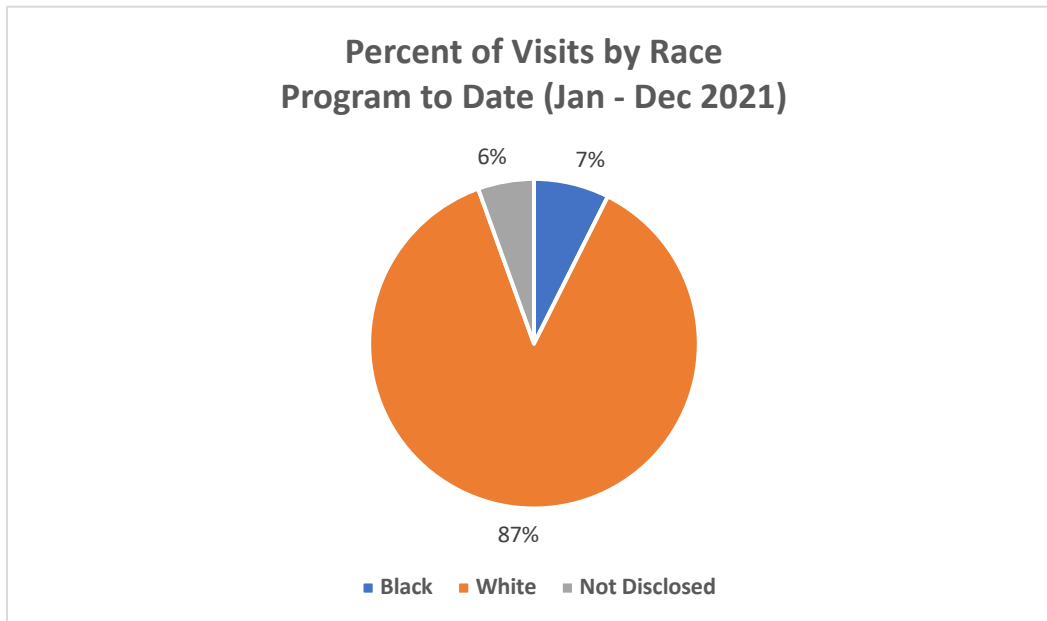
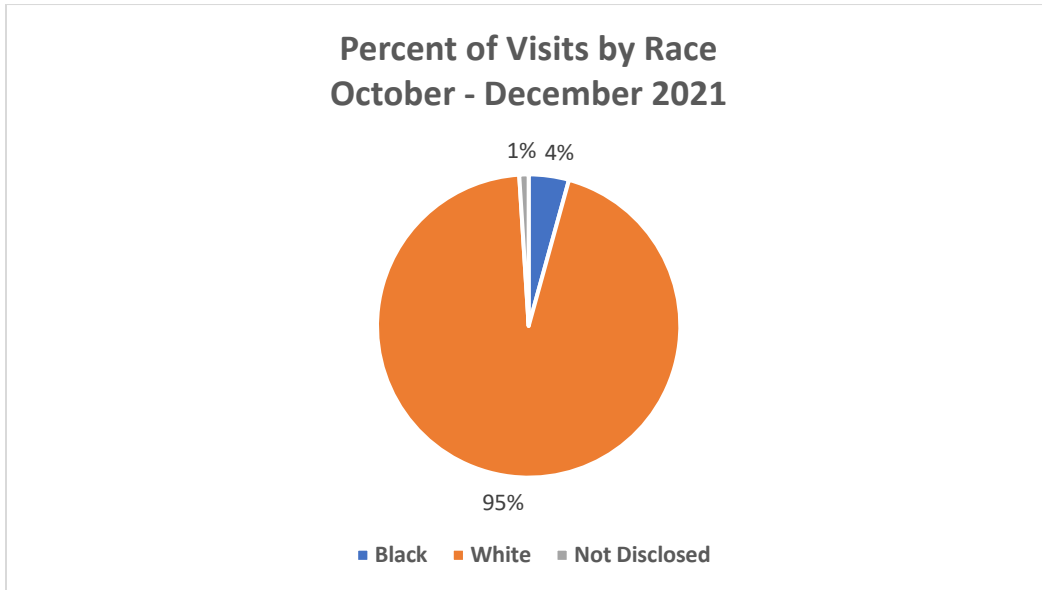
MOTHeRS Project RESULTS OCTOBER - DECEMBER 2021

		Oct- Dec 2021	Program Total Jan- Dec 2021
Impact on Patient Access			
Number of perinatal visits with MFM specialist		13	75
Number of missed appointments for high-risk patients (MFM visits not kept)		0	8
Impact on patient access (calculated as driving miles saved per MFM specialist appointment)		2,035.8 driving miles saved	11,745 driving miles saved
Number of patient visits with Certified Diabetes Educator or Registered Nutrition Therapist		17	63
Number of women served for mental health reasons	LCSW visits:	111	305
	Psychiatrist visits:	47	98
	Total Mental Health visits:	158	403
Impact on health disparities as measured by percent of patients served from underserved and diverse backgrounds	% of visits by Race:		
	White	95%	87%
	Black	4%	7%
	American Indian/Alaskan Native		
	Asian		
	Native Hawaiian and Other Pacific Islander		
	Some Other Race		
	Declined/Not Disclosed/Not Available	0.5%	6%
	% of visits by Ethnicity:		
	Hispanic	1.0%	2%
	Not Hispanic	98%	93%
	Unknown/Not Disclosed/Not Available	0.5%	5%
	% of visits by Insurance Type:		
	Medicaid	29%	38%
Medicare	0.0%	1%	
Commercial	52%	44%	
Tricare	15%	13%	
Self-Pay	1.1%	1%	
Other/ Unknown/ missing	2%	3%	
Food Security	Number of Food Bags Sent to Clinics*	115	530
	Number of Patients Screened for Food Insecurity	3,715	6,225
	Number of Food Bags Distributed**	124	268

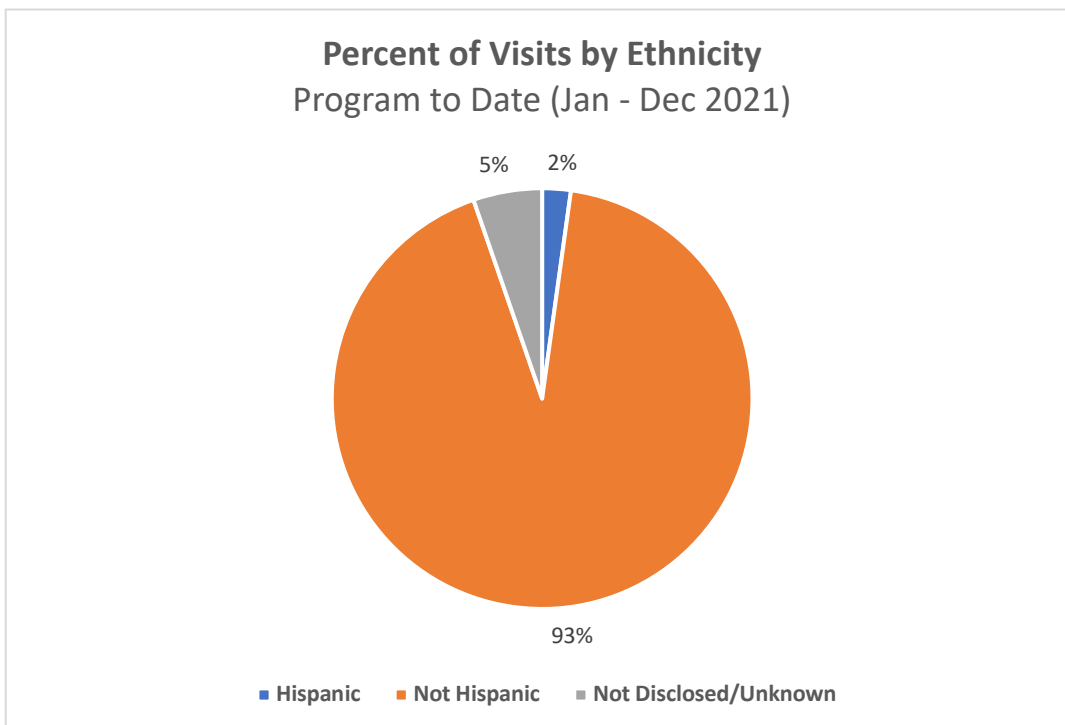
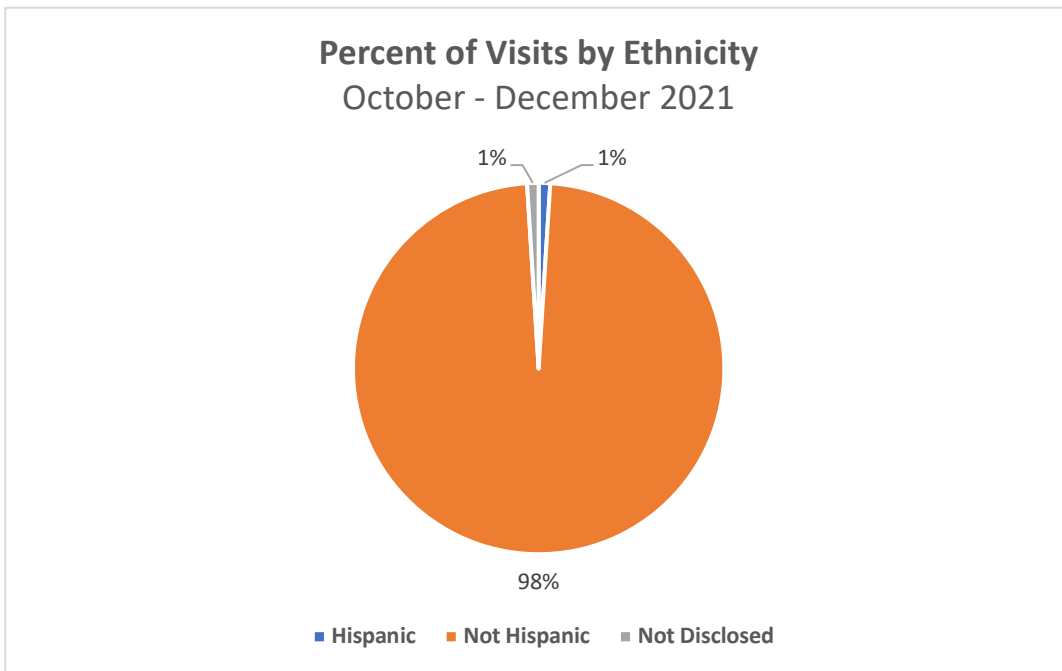
* The number of food bags sent to the clinics comes from the food pantry and is the number they sent during the quarter period.

** The number distributed during the quarter comes directly from the clinic.

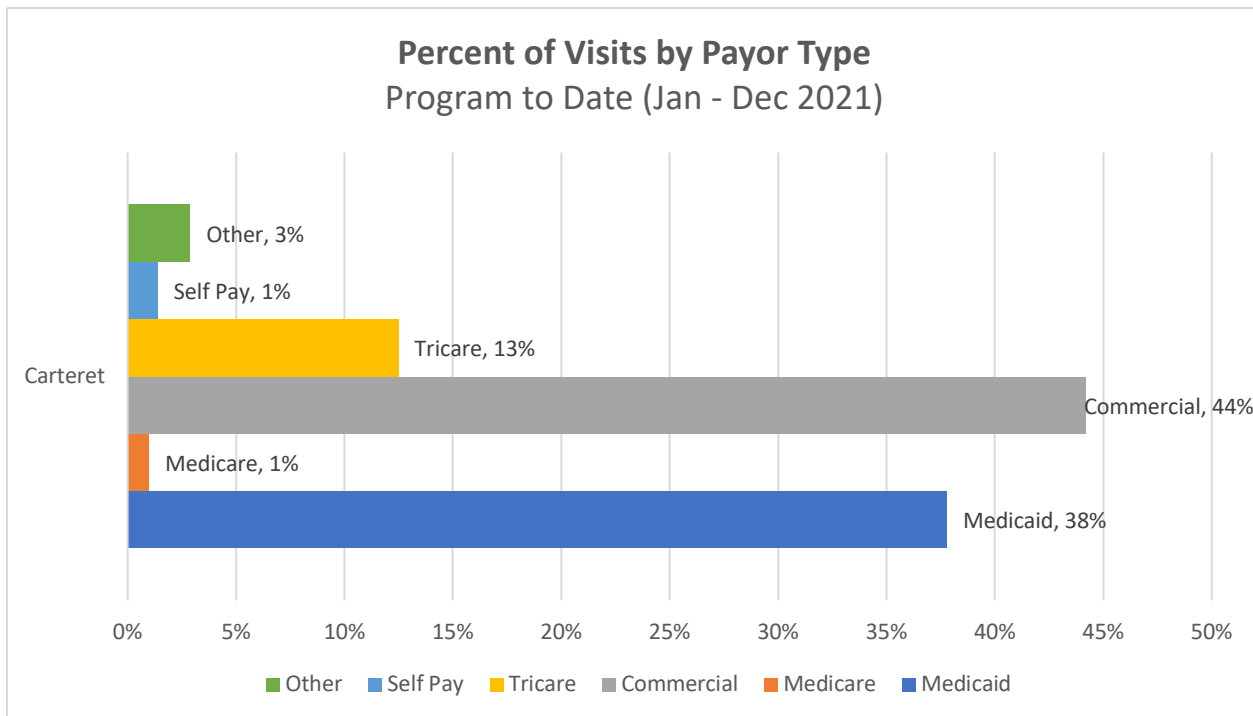
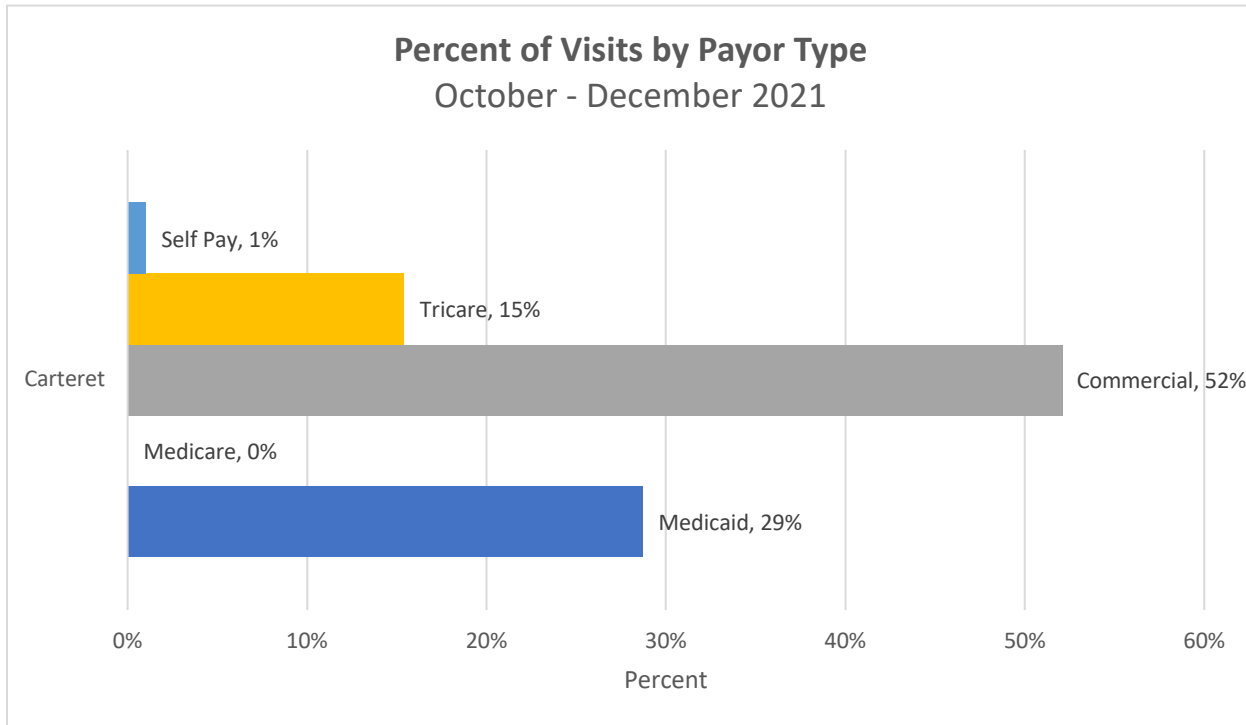
The following charts provide data on percentage of visits by race for patients seen by the program during the most recent quarter, as well as since program inception in January 2021.



The following charts provide data on percentage of visits by ethnicity for patients seen by the program during the most recent quarter, as well as since program inception in January 2021.



The following charts provide data on percent of visits by payor type for patients seen by the program during the most recent quarter, as well as since program inception in January 2021.



Conclusions:

The collaborative co-management model developed by the MOTHeRS Project creates a patient-centered team approach to care delivery and results in both improved patient experiences and a positive impact on maternal fetal health. The model also has the flexibility of providing telehealth services directly to patients' homes from their tablets, computers, or smart phones, if clinically indicated.

The US has the highest maternal mortality rate out of all developed countries in the world.⁸ Evidence points toward significantly high maternal deaths of black and other minority women, especially those in rural areas. There are significant challenges facing rural women in accessing comprehensive, affordable, quality health, maternal health, and mental health care. Given the scale and scope of the issue, we believe that programs like the MOTHeRS Project are very much needed and timely. The project emphasizes the importance of strengthening care coordination and health care delivery, investing in human service programs, and addressing various workforce issues. Although there are numerous programs that have been developed to improve maternal health outcomes, barriers such as persistent poverty, transportation challenges, lack of affordable quality health insurance, chronic health conditions, and workforce shortages have made it difficult to address a complex issue such as rural maternal health care. Through its ongoing work, the MOTHeRS Project expects not only to provide care to those who need it at its clinical sites, but also to generate new knowledge regarding how these barriers can be better addressed to ensure that every woman in rural America has a safe and healthy pregnancy, delivery, and post-natal outcome.

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REFERENCES

1. Pregnancy-Related Deaths. (2019, February 26). Retrieved from <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-relatedmortality.htm>.
2. Pregnancy Mortality Surveillance System. (2019, October 10). Retrieved from <https://www.cdc.gov/reproductivehealth/maternal-mortality/pregnancy-mortality-surveillance-system.htm>.
3. Infographic: Racial/Ethnic Disparities in Pregnancy-Related Deaths -United States, 2007–2016. (2019, September 4). Retrieved from <https://www.cdc.gov/reproductivehealth/maternal-mortality/disparities-pregnancy-relateddeaths/infographic.html>.
4. Maron, DF. Maternal Health Care Is Disappearing in Rural America. Scientific American. (2017). Retrieved from: <https://www.scientificamerican.com/article/maternal-health-care-is-disappearing-in-rural-america/>.
5. East Carolina University. North Carolina Statewide Telepsychiatry Program (NC-STeP). Available at <https://www.ecu.edu/cs-dhs/ncstep/>. Accessed June 22, 2021.
6. Statewide Telepsychiatry Program. Retrieved from: <https://www.ncdhhs.gov/divisions/office-rural-health/office-rural-health-programs/statewide-telepsychiatry-program>. Accessed June 22, 2021.
7. Summary Report on SFY 2020 North Carolina Statewide Telepsychiatry Program (NC-STeP) Funds General Statute 143B-139.4B. Report to the Joint Legislative Oversight Committee on Health and Human Services and Fiscal Research Division by the North Carolina Department of Health and Human Services, October 30, 2020. Retrieved from <https://files.nc.gov/ncdhhs/Telepsychiatry-Report--Annual-NC-STeP-Report--2020--Final-.pdf>.
8. Maternal mortality ratio (modeled estimate, per 100,000 live births) -Finland, Venezuela, RB. (n.d.). Retrieved from https://data.worldbank.org/indicator/SH.STA.MMRT?locations=FI-VE&year_high_desc=false